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Law Department

May 21, 2019

Honorable Kathleen Burgess
Secretary
State of New York Public Service Commission
Three Empire State Plaza
Albany, NY 12223-1350

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

Dear Secretary Burgess:

Pursuant to a request from the Staff of the Department of Public Service, Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc. (“Con Edison”), KeySpan Gas East Corporation d/b/a National Grid, The Brooklyn Union Gas Company d/b/a National Grid NY, Niagara Mohawk Power Corporation d/b/a National Grid, National Fuel Gas Distribution Corporation, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation submit this *Updated NY Utilities Report Regarding Energy Efficiency Budgets and Targets, Collaboration, Heat Pump Technology and Low- and Moderate-Income Customers and Requests for Approval*.

The updates reflect: (1) a consistent approach for displaying energy efficiency targets and budgets; (2) certain reconciliations for Con Edison and Orange and Rockland; (3) a discussion of heat pump targets and budgets for Central Hudson, NYSEG, and RG&E in their company-specific chapters; and (4) an expanded description by all of the Joint Utilities other than Con Edison of their approach to “kickers”. A number of additional edits have been made to improve the quality of the Updated Report. The current Updated Report reflecting these edits as well as errata changes since May 10, 2019 is provided as part of this correspondence. To aid stakeholders in understanding the changes that have been made to the Updated Report, we are also providing: (1) a summary of the major differences between the Updated Report and the initial report; (2) a redline version of the Updated Report compared to the April 5 filing with the Con Edison revisions; (3) the April 5, 2019 Errata Report which has been updated to reflect Con Edison’s revised company-specific chapter which was posted on April 16, 2019.

If there are any questions, please contact me.

Sincerely,

/s/ Mary Krayeske

Mary Krayeske

Attachments

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

In the Matter of a Comprehensive
Energy Efficiency Initiative

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Case 18-M-0084

**NY UTILITIES UPDATED REPORT REGARDING ENERGY EFFICIENCY BUDGETS
AND TARGETS, COLLABORATION, HEAT PUMP TECHNOLOGY, AND LOW- AND
MODERATE-INCOME CUSTOMERS AND REQUESTS FOR APPROVAL**

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**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

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

NY UTILITIES UPDATED REPORT REGARDING ENERGY EFFICIENCY BUDGETS AND TARGETS, COLLABORATION, HEAT PUMP TECHNOLOGY, AND LOW- AND MODERATE-INCOME CUSTOMERS AND REQUESTS FOR APPROVAL

The New York State Public Service Commission (the “Commission”) in the *Order Adopting Accelerated Energy Efficiency Targets*¹ (the “Energy Efficiency Order” or the “Order”) directed the NY Utilities² to work collaboratively with the New York State Energy Research and Development Authority (“NYSERDA”) to file energy efficiency targets and budgets for 2021-2025 that meet 2025 New York State objectives. The Energy Efficiency Order also addressed the accelerated introduction of heat pump technologies by electric utilities and the continued provision and enhancement of programs for low and moderate income (“LMI”) customers. The NY Utilities hereby file this *Updated NY Utilities Report Regarding Energy Efficiency Budgets and Targets, Collaboration, Heat Pump Technology, and Low- and Moderate-Income Customers* (“Updated Report”) in response to the Energy Efficiency Order and request Commission approval of the energy efficiency budgets as set forth below and, in the utility-specific chapters included herein.

I. Summary of NY Utilities’ Requests

In this Updated Report, the NY Utilities seek authority to spend specified amounts over 2021 to 2025 on electric and gas energy efficiency programs and request that the Commission provide the Utilities the flexibility to periodically adjust budgets as necessary. The NY Electric Utilities request authority to spend \$335 million on an accelerated heat pump installation program. The NY Electric Utilities also request that certain changes be made to the Clean

¹ Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, Order Adopting Accelerated Energy Efficiency Targets (“Energy Efficiency Order”) (issued December 13, 2018).
² The NY Utilities (or “Utilities”) are comprised of Central Hudson Gas & Electric Corporation (“Central Hudson”), Consolidated Edison Company of New York, Inc. (“Con Edison”), KeySpan Gas East Corporation d/b/a National Grid (“KEDLI”), The Brooklyn Union Gas Company d/b/a National Grid NY (“KEDNY”), Niagara Mohawk Power Corporation d/b/a National Grid (“Niagara Mohawk”)(collectively “National Grid”), National Fuel Gas Distribution Corporation (“NFGDC” or “NFG”), New York State Electric & Gas Corporation (“NYSEG”), Orange and Rockland Utilities, Inc. (“Orange & Rockland”), and Rochester Gas and Electric Corporation (“RG&E”).The NY Utilities with electric operations are referred to as the “NY Electric Utilities.”

Energy Guidance Document CE-04.³ Finally, to the extent that the total budget (net of unspent energy efficiency funds) established by the Commission exceeds the rate impact cap established in the Energy Efficiency Order, the NY Utilities request that the cap be adjusted upwards.

The NY Utilities request Commission authorization of the 2021 to 2025 incremental energy efficiency budgets and targets presented in Table 1.

Table 1: Incremental Budgets and Targets by Company (2021-2025)

IOU	Budget (Millions)		Targets	
	Electric	Gas	Electric MWH	Gas MMBTu
CenHud	\$ 18.00	\$ 1.10	68,700	35,040
ConEd	\$ 649.50	\$ 128.10	2,159,284	2,773,335
KEDLI		\$ 27.50		976,200
KEDNY		\$ 73.90		2,255,688
NFG		\$ 2.60		49,950
NiMo	\$ 132.60	\$ -	656,200	-
NYSEG	\$ 121.80	\$ 10.30	563,540	449,560
O&R	\$ 36.60	\$ 11.10	256,447	297,363
RG&E	\$ 53.80	\$ 4.70	260,000	229,399
Total	\$ 1,012.30	\$ 259.30	3,964,171	7,066,535

Three utilities, Central Hudson, Con Edison, and Orange & Rockland performed company-specific analyses to develop budgets and targets. Details of these analyses are provided in utility-specific chapters later in this Updated Report. The remaining utilities adopted the presumptive targets and budgets that were presented in Appendix A of the Energy Efficiency Order. The targets and budgets adopted by each of the Joint Utilities is presented in a consistent format in Appendix A.

The NY Electric Utilities request Commission authorization of those 2021 to 2025 utility budgets and targets provided in Table 2 to accelerate the installation of heat pumps in the State. As background, while the Commission established an initial heat pump budget target of \$250 million, NYSERDA updated the heat pump savings methodology presented in its January 2019 “New Efficiency: New York Analysis of Residential Heat Pump Potential and Economics” report (the “Heat Pump Potential Study”)⁴ and presented the updates to the NY Electric Utilities on March 18, 2019. NYSERDA explained that these updates were made to achieve better alignment with the heat pump savings methodology used in the New York State Technical Resource Manual (“TRM”) by modifying assumptions related to the resources that heat pumps

³ Cases 14-M-0004 *et al.*, *Proceeding on Motion of the Commission to Consider a Clean Energy Fund*, CEAC I&C Working Group Letter to Commission Secretary Burgess from Peggie Neville, DPS Staff, Regarding Layered Incentive Guidance, (filed October 3, 2016).

⁴ <https://www.nyserd.org/-/media/Files/Publications/PPSER/NYSERDA/18-44-HeatPump.pdf>

are replacing and reflecting more accurate heat pump load factors. The updates combined with the heat pump analyses described in the company-specific chapters resulted in the overall budget estimate increasing from \$250 million to \$335 million. Table 2 compares the results of the updated Heat Pump Potential Study to the NY Electric Utilities’ proposed heat pump budgets and targets.

Table 2: Comparison of Electric Utility Heat Pump Budgets and Targets to Those Developed in the NYSERDA Heat Pump Potential Study Update (for years 2020-2025)

	GBtu Target		Budget (\$millions)	
	Heat Pump Potential Study	Utility Proposed	Heat Pump Potential Study	Utility Proposed
CenHud	416	253	\$ 30.2	\$ 30.2
ConEd	804	804	\$ 83.2	\$ 189.6
NiMo	1,559	1,010	\$ 90.3	\$ 57.6
NYSEG	1,907	427	\$ 110.1	\$ 40.0
O&R	160	160	\$ 11.6	\$ 11.6
RG&E	153	56	\$ 9.2	\$ 5.5
Total	5,000	2,710	\$ 334.6	\$ 334.5

The figures in Table 2 for Con Edison reflect a \$115 million increase over the projected budget from the updated Heat Pump Potential Study.⁵ Con Edison increased the budget because it determined that it would not be able to achieve its GBtu target without a budget increase above the amount reflected in the updated Heat Pump Potential Study. A detailed discussion explaining the reasons for Con Edison’s budget increase request appears later in this Updated Report. The remaining NY Electric Utilities have all reduced their heat pump targets. The basis for these reductions is explained in each company-specific chapter.

The NY Electric Utilities note that while the proposed GBtu target for heat pumps is below the goal established by the Commission, the proposed target is primarily based on potential estimates for residential customers. The NY Electric Utilities will work with NYSERDA to determine the extent to which heat pump applications for commercial customers can increase the current GBtu proposal.

Finally, the NY Utilities have two additional administrative requests. First, the NY Utilities request that the Department of Public Service Staff (“Staff”) revise the Clean Energy Guidance Document CE-04⁶ to reflect the fact that a regularly updated inventory of energy efficiency programs will be maintained on the Clean Energy Dashboard (“Dashboard”) and to remove references in that document to the Clean Energy Advisory Council (“CEAC”)

⁵ Con Edison proposes to use \$115 million of unspent energy efficiency moneys to partially fund its budget.

⁶ *Supra* note 3.).

Working Groups that have been disbanded.⁷ Second, the NY Utilities request that the Commission extend the quarterly scorecard report filings from the current 45 days-post quarter-end to a 60-days post quarter-end in order to provide the Utilities sufficient time to compile the data and reformat it into the NYSERDA-provided Clean Energy Dashboard Report format.

II. Introduction

The NY Utilities support New York’s efforts to advance the cost-effective development of energy efficiency resources. This Updated Report augments the February 2019 utility-specific Energy Efficiency Transition Implementation Plan/System Energy Efficiency Plan (“ETIP/SEEP”) filings for 2019-2020 by establishing energy efficiency targets and budgets for 2021 through 2025. These targets and budgets facilitate the achievement of New York’s 2025 goals of an incremental reduction of 31 trillion British Thermal Units (“TBtu”) of energy use by utility customers and the statewide energy efficiency target of 185 TBtu of end-use energy savings. This Report also addresses the Energy Efficiency Order’s requirement that heat pumps deliver five TBtu of the overall 31 TBtu target and that more resources be devoted to enhancing services to low- and moderate- income (“LMI”) customers.

This Updated Report should be viewed as a preliminary step in an iterative process establishing the way the NY Utilities seek to achieve energy efficiency goals over the longer term. The principles and concepts outlined herein are, in many instances high level and require additional work, refinement, and testing, with additional focus on the following two key areas for the 2021 through 2025 period.

The first area is continued collaboration between NYSERDA and the Utilities. The Utilities and NYSERDA developed this Report together, although the proposals contained herein represent the positions of the NY Utilities. The next steps involve the development of implementation plans and actual implementation activities which will require continued communication, collaboration, and coordination between the Utilities and NYSERDA. Representative examples of future collaboration opportunities include, but are not limited to, the establishment of a statewide electric utility heat pump program, the development of more uniform contractor eligibility requirements, and the implementation of a statewide LMI platform.

The second area involves recognition that the targets, budgets, electric utility heat pump projections, and LMI program concepts in this Updated Report are based on current “best estimates” of the trajectory of energy efficiency programs and that to meet the goals set forth in the Energy Efficiency Order, the Utilities must maintain flexibility to adjust programs as warranted. Energy efficiency implementation plans will provide transparency of such updates and adjustments.

⁷ See Case 15-M-0252, *In the Matter of Utility Energy Efficiency Programs*, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 (issued March 15, 2018)(“2018 Energy Efficiency Order”), p. 36, where the Commission disbanded the CEAC Steering Committee and its Clean Energy Implementation & Coordination Working Group which previously had the responsibility to maintain an inventory of energy efficiency program information.

III. Organization of Updated Report

This Updated Report is organized into the following chapters and appendices.

Chapter One addresses the NY Utilities' proposed incremental Energy Efficiency targets and budgets. In this Chapter, the Utilities adopt (with certain modifications specific to Con Edison,⁸ Orange & Rockland, and Central Hudson) the presumptive targets and budgets that were included in the Energy Efficiency Order.

Chapter Two addresses collaborative activities between NYSERDA and the Utilities. This Chapter recognizes the collaboration principles developed by the CEAC and guidance provided by Staff. This Chapter also describes the collaborative efforts that have produced this Updated Report and identifies areas for future collaborative efforts.

Chapter Three addresses accelerated heat pump programs and describes how NYSERDA and the NY Electric Utilities plan to make progress towards a unified statewide effort. This chapter also explains why the current budget for heat pump acceleration is likely to increase. This updated budget forecast requires that the Commission update its overall budget cap to reflect current expectations of total cost. Alternatively, if the Commission prefers to minimize incremental bill impacts, it could retain the initial \$250 million heat pump budget while adjusting the TBtu target accordingly.

Chapter Four addresses programs for LMI customers and assesses the strengths of NYSERDA and the Utilities and presents a high-level plan to better utilize the skills of relevant entities to deliver enhanced energy efficiency products and services to LMI customers. A considerable aspect of this work involves collaboration between NYSERDA and the Utilities to position the expanded LMI programs to complement other programs administered by the NY Utilities, such as the bill payment assistance programs and REV demonstration projects.

A section regarding energy efficiency-related Earnings Adjustment Mechanisms ("EAMs") follows Chapter Four. This section notes that EAMs should be developed in pending and future rate cases and states that flexibility is necessary given the diverse needs of the utility service territories.

Lastly, utility-specific chapters are included at the end of this Updated Report which address various matters related to each utility's targets, budgets, cost recovery, and funding sources.

IV. Chapter One: Energy Efficiency Targets and Budgets

The Energy Efficiency Order required the Utilities, in consultation with NYSERDA, to submit a filing proposing energy efficiency targets and budgets for 2021-2025.⁹ The

⁸ Con Edison's filing is more expansive than other filings as Con Edison includes additional energy efficiency rate case items. Con Edison's filing will be considered within the context of its pending rate case. *See* Cases 19-E-0065 and 19-G-0066, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric and Gas Service*, (filed January 31, 2019).

⁹ Energy Efficiency Order, pp. 29-30.

Commission developed presumptive targets and budgets in the Energy Efficiency Order, that produce incremental savings of 31 TBtu and a reduction in adjusted annual utility electricity sales of three percent by 2025, on a statewide basis.¹⁰ The presumptive electric targets assume that each utility will achieve a two percent reduction in electric sales by 2025, which, when combined with NYSERDA energy efficiency efforts, achieves the three percent of MWh sales by 2025.

The presumptive targets and budgets in the Energy Efficiency Order are a reasonable starting point in the continued development and execution of energy efficiency programs that make meaningful contributions to support the achievement of the State’s 2025 energy efficiency targets. While the NY Utilities’ proposed targets are generally aligned with the data presented in the Energy Efficiency Order,¹¹ the NY Utilities are concerned about whether the energy savings targets are achievable at the initially identified funding levels, due to: (1) the anticipated need for the Utilities to pursue deeper energy efficiency savings; (2) changing budget estimates as baselines change and cheaper measures begin to saturate; and (3) the fact that the budgets and targets presented in the Energy Efficiency Order are forecasts. For example, NYSERDA updated the current estimated cost of implementing the Commission’s requirement that heat pumps displace five TBtu of other energy resources to reflect more realistic assumptions. Additional changes to some of the budget estimates may be needed as more experience is gained. The NY Utilities, therefore, request that the Commission provide the flexibility to periodically modify energy efficiency budgets proactively, as needed.

The remainder of this chapter summarizes the proposed incremental targets and budgets, over levels assumed under ETIP/SEEP and inclusive of the integration of Non-Pipeline Solutions portfolio¹² for Con Edison, for each utility from 2021 through 2025. The budgets and targets presented in Tables 3 through 6 start with the incremental targets outlined in the Energy Efficiency Order, reflect company-specific modifications where necessary and as outlined in each company’s chapter, and do not include assumptions for “not-yet-approved” targets from future rate cases. These figures also do not reflect the budget for electric utility heat pumps which is developed in Chapter Three of this Updated Report. Table 3 below provides the NY Utilities’ proposed incremental electric gross MWh targets for 2021 through 2025. Utility-specific assumptions are outlined in utility-specific chapters later in this Updated Report.

¹⁰ Presumptive electric targets are based on the 2015 New York Independent System Operator (“NYISO”) Gold Book (which is also the basis forecast for the State’s Clean Energy Standard) and the 2015 Energy Information Administration (“EIA”) Annual Energy Outlook, which was used to forecast onsite electricity generation and consumption. The gas forecast used 2016 sales and was held static through 2025. Both forecasts are adjusted to reflect jurisdictional utility load as well as prior years’ projected efficiency achievements under anticipated programs, so that the forecast for 2025 reflects utility sales after adjusting for energy efficiency.

¹¹ Con Edison and Orange & Rockland have adjusted their budgets and targets which are described in more detail in their respective chapters. The remaining utilities have adopted the presumptive targets and budgets and provide additional information in utility specific chapters later in this Updated Report.

¹² Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving with Modification the Non-Pipeline Solutions Portfolio (issued February 7, 2019)(“NPS Order”).

Table 3: Proposed Incremental Electric Targets by IOU (Gross MWh)¹³

IOU	2021	2022	2023	2024	2025	2021-2025
CenHud	6,000	10,000	14,000	17,000	21,700	68,700
ConEd	266,262	337,755	431,227	525,339	598,701	2,159,284
NiMo	41,000	75,000	130,000	182,000	228,200	656,200
NYSEG	39,000	64,000	106,000	154,000	200,540	563,540
O&R	50,162	50,530	51,120	51,931	52,702	256,447
RG&E	22,000	32,000	48,000	68,000	90,000	260,000
Total	389,262	538,755	757,227	985,339	1,188,591	3,964,171

Table 4 below provides the NY Utilities' proposed incremental electric budgets corresponding to the proposed incremental electric targets for 2021 through 2025.

Table 4: Proposed Incremental Electric Budgets by IOU

IOU	2021	2022	2023	2024	2025
CenHud	\$1,647,000	\$2,693,000	\$3,685,000	\$4,408,000	\$5,562,000
ConEd	\$79,374,793	\$101,050,659	\$129,728,218	\$158,515,897	\$180,848,751
NiMo	\$8,284,634	\$15,154,819	\$26,268,353	\$36,775,694	\$46,111,063
NYSEG	\$8,428,564	\$13,831,489	\$22,908,404	\$33,282,021	\$43,340,150
O&R	\$4,235,394	\$7,488,185	\$7,828,216	\$8,295,757	\$8,739,921
RG&E	\$4,555,827	\$6,626,657	\$9,939,986	\$14,081,647	\$18,637,473
Total	106,526,212	146,844,809	200,358,177	255,359,016	303,239,358

Table 5 below provides the NY Utilities' proposed incremental gas gross million British thermal unit ("MMBtu") targets for 2021 through 2025.

¹³ While the electric targets shown in Table 3 are expressed in Gross MWh, the NY Utilities recognize that the Commission has outlined corresponding MMBtu-equivalent presumptive targets in the Energy Efficiency Order.

Table 5: Proposed Incremental Gas Targets by IOU (Gross MMBtu)¹⁴

IOU	2021	2022	2023	2024	2025	2021-2025
CenHud	1,000	3,000	6,000	10,000	15,040	35,040
ConEd	492,000	556,000	556,000	556,000	613,335	2,773,335
KEDLI	102,000	135,000	177,000	240,000	322,200	976,200
KEDNY	228,000	292,000	422,000	584,000	729,688	2,255,688
NFG	2,000	5,000	8,000	14,000	20,950	49,950
NiMo	-	-	-	-	-	-
NYSEG	47,000	60,000	82,000	113,000	147,560	449,560
O&R	17,493	44,000	61,000	79,000	95,870	297,363
RG&E	17,000	28,000	43,000	61,000	80,399	229,399
Total	906,493	1,123,000	1,355,000	1,657,000	2,025,042	7,066,535

Table 6 below provides the NY Utilities' proposed incremental gas budgets corresponding to the proposed incremental gas targets for 2021 through 2025.

Table 6: Proposed Incremental Gas Budgets by IOU

IOU	2021	2022	2023	2024	2025
CenHud	\$33,000	\$98,000	\$195,000	\$322,000	\$482,000
ConEd	\$22,254,848	\$25,676,184	\$25,663,057	\$25,961,952	\$28,495,257
KEDLI	\$2,872,048	\$3,801,240	\$4,983,849	\$6,757,761	\$9,072,294
KEDNY	\$7,465,446	\$9,561,010	\$13,817,623	\$19,122,019	\$23,892,308
NFG	\$104,172	\$260,431	\$416,690	\$729,207	\$1,091,206
NiMo	-	-	-	-	-
NYSEG	\$1,072,870	\$1,369,621	\$1,871,816	\$2,579,453	\$3,368,355
O&R	\$387,666	\$1,681,201	\$2,330,756	\$3,018,520	\$3,663,107
RG&E	\$347,283	\$571,995	\$878,421	\$1,246,132	\$1,642,423
Total	\$34,537,333	\$43,019,682	\$50,157,212	\$59,737,044	\$71,706,950

Staff has requested that Con Edison and Orange & Rockland provide reconciliations of their targets and budgets. For Con Edison's electric target, the Company rounded the MWh associated with ETIP electric from 199,008 MWh to 200,000 MWh per year which created a 992 MWh variance. The Company will retain the numbers included in the Energy Efficiency Report as its proposal. For Con Edison's gas target, the Company is using the summation of ETIP and Smart Solutions Enhanced Gas¹⁵ MMBtu for the baseline. The Non-Pipeline Solutions ("NPS")

¹⁴ Niagara Mohawk's gas targets are currently at a level that does not necessitate an incremental increase.

¹⁵ Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving in Part, with Modification, and Denying in Part Smart Solutions Program (issued July 12, 2018) ("Enhanced Gas EE")

Order¹⁶ called for NPS to be integrated into the New Efficiency: New York framework, savings associated with NPS were not considered part of the baseline.

For Orange & Rockland, the tables reflected in Chapter One reconcile to the tables found in the December Order which do not reflect the impact of the Company's subsequent rate settlement agreement. The tables in the O&R chapter do reflect the impact of that settlement. For example, the December Order reflects an ETIP funding level of \$6,302,163 and 21,447 Gross MWH, while the Company's chapter reflects a budget of \$9,900,000 and 70,503 Gross MWH target for its maximum EAM goal as agreed to in the settlement. For gas, the December Order reflects an ETIP budget of \$536,948 and 16,323 Gross MMBtu, while the Company's chapter reflects a budget of \$703,000 and 31,764 Gross MMBtu as agreed to in the settlement.

¹⁶ NPS Order, *supra* note 12.

V. Chapter Two: Collaboration

The Energy Efficiency Order identified the need for the NY Utilities to coordinate their efforts with NYSERDA as an important practice for as part of the development program strategies where it makes sense for the NY Utilities, NYSERDA, and customers. The Energy Efficiency Order noted that the NY Utilities and NYSERDA should continue to align mutual efforts with State goals, provide services to the market with “comprehensive offerings including outreach and marketing,” better coordinate utility energy efficiency efforts with market development work related to the Clean Energy Fund (“CEF”) where practical, develop structures that enhance the ability of market actors to drive uptake, reduce costs and develop innovative solutions, and assure that sufficient public-facing program information is available to stakeholders.¹⁷ The Order noted that this Updated Report should describe the collaboration structure between the NY Utilities and NYSERDA, with delineated roles, and proposed conditions under which savings resulting from collaborative efforts that encompass NYSERDA programs may be counted toward utility EAMs where applicable.

The NY Utilities and NYSERDA have collaborated extensively to produce this Updated Report, are committed to work together collaboratively in the future and are in the process of determining how best to work together in a manner that leverages their respective capabilities. The collaboration principles developed in 2016 and 2017, as part of the CEAC and the subsequent Staff guidance,¹⁸ form a foundation for future work with NYSERDA. This vision for collaboration with NYSERDA involves building upon ongoing activities (e.g., activities in support of this Updated Report) and structuring activities that will continue to focus on customers. The collaboration structure going forward is intended to support the Utilities’ and NYSERDA’s planning to address identified market needs. To accomplish this, the NY Utilities and NYSERDA will share with each other current and prospective energy efficiency strategies by sector and will engage regularly to scout strategic opportunities for potential collaboration.

One example of collaboration has been the joint efforts of the Utilities and NYSERDA to develop the Chapters Three and Four of this Updated Report. While the proposals contained in chapters Three and Four represent the positions of the NY Utilities, NYSERDA helped identify key issues, develop the overall approach to address such issues, helped develop supporting figures, and in some cases, provide drafts of chapter segments. The NY Utilities appreciate this support.

Another example of collaboration between NYSERDA and the Utilities is the online Clean Energy Dashboard (the “Dashboard”) being developed by NYSERDA with Staff and the

¹⁷ Energy Efficiency Order, pp. 31-32.

¹⁸ Matter 16-01005, *In the Matter of the CEAC's Clean Energy Implementation & Coordination Working Group*, New York Program Administrator Coordination Report (“CEAC I&C Working Group”)(filed January 31, 2017) and Multiple Incentives Recommendations Report (filed September 13, 2016).

Utilities. The Dashboard tracks results from all customer-funded clean energy activities.¹⁹ The Dashboard will provide transparency to stakeholders while minimizing the administrative burdens and costs associated with reporting going forward.

At launch, the energy efficiency program inventory maintained on the Dashboard will include a brief description of each energy efficiency program in each utility’s ETIP/SEEP and rate case energy efficiency portfolio (where applicable) as well as in NYSERDA’s Clean Energy Fund market development and innovation portfolios. In subsequent quarterly updates, the Dashboard will further expand to include additional non-ETIP/SEEP utility energy efficiency activities²⁰ as well as NYSERDA’s NY Green Bank portfolio. The NY Utilities and NYSERDA will also consider opportunities to augment the program inventory information made available on the Dashboard, such as providing greater insight into collaborative activities and complementary incentives. Consequently, the NY Utilities propose that Staff revise the Clean Energy Guidance Document CE-04²¹ to reflect that a regularly updated inventory of energy efficiency programs will be maintained on the Dashboard and to remove references to CEAC Working Groups which have since been disbanded.²²

The NY Utilities will continue to explore potential areas of future collaboration with NYSERDA. As part of this effort, the NY Utilities will provide NYSERDA access to certain data based on currently effective Commission Orders and policy.²³ The NY Utilities are also actively working with NYSERDA on the Utility Energy Registry.²⁴

Over the next few years, it is expected that there will be multiple meaningful collaborations between specific utilities and NYSERDA to address targeted market opportunities and advance potential programmatic enhancements to provide value to customers and/or stakeholders. Examples include determining contractor eligibility requirements, addressing sector-specific or solution-specific barriers and/or market gaps, and leveraging NYSERDA’s statewide awareness and outreach capabilities with utilities offering more focused, targeted marketing to their customers.

¹⁹ See Case 14-M-0094, *Proceeding on Motion of the Commission to Consider a Clean Energy Fund*, Order Authorizing the Clean Energy Fund Framework (issued January 21, 2016), pp. 36-37, where the Commission required NYSERDA to develop and implement this online dashboard.

²⁰ Case 15-M-0252, *In the Matter of Utility Energy Efficiency Programs*, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 (“Energy Efficiency Proceeding”), Revised CE-02: ETIP/SEEP Guidance Document, (issued December 20, 2018).

²¹ *Supra*, note 3.

²² See 2018 Energy Efficiency Order, *supra* note 7. The disbanded CEAC Steering Committee and its Clean Energy Implementation & Coordination Working Group previously had the responsibility to maintain an inventory of energy efficiency program information.

²³ E.g., the Commission recently articulated the circumstances by which NYSERDA is permitted to request customer-specific data from the NY Utilities without customer consent in its Order Regarding New York State Energy Research and Development Authority Data Access and Legacy Reporting (“NYSERDA Data Order”)(issued January 17, 2019) in Cases 14-M-0094, et al.

²⁴ Cases 17-M-0315 et al., *In the Matter of the Utility Energy Registry*.

Further, the development of more uniform contractor eligibility requirements across the State may reduce administrative costs by eliminating the need for energy efficiency solution providers to meet different contracting requirements. For example, the NY Utilities may be able to better standardize contractor insurance and licensing requirements based on the types of programs and initiatives being offered. The NY Utilities will explore this and other related coordination efforts with NYSERDA.

NYSERDA and the NY Utilities are also exploring ways to better align NYSERDA's statewide awareness and outreach capabilities with more targeted marketing by the Utilities to their customers. Furthermore, the Utilities and NYSERDA will strive to make it easier for customers and market partners to learn about available energy efficiency incentives, whether those incentives are offered by the NY Utilities or by NYSERDA. Implementation steps to advance this objective may vary across utility territories and will include the development, publication, and maintenance of public-facing resources with program information.

Various potential collaboration models are under consideration and will be explored. Examples of collaboration models are outlined in Appendix A. The models are intended to:

- Identify and pursue situations where combined efforts drive meaningful incremental benefits over individual efforts;
- Determine optimal paths to increase energy savings and related benefits from the various programs (*e.g.*, ETIP/SEEP efforts, new utility programs, and CEF initiatives); and
- Determine how dual reported savings (*i.e.*, by both a utility and NYSERDA) should be netted out at the state level.

Where a defined collaborative effort is developed between a specific utility and NYSERDA, the utility and NYSERDA will describe the initiative in their respective public-facing filings (*i.e.*, in ETIP/SEEP updates and in the relevant CEF Investment Plan chapters). As outlined in the Energy Efficiency Order, an individual utility and NYSERDA may jointly contribute to the design and implementation of a pilot or program for which both the individual utility and NYSERDA will report the resulting energy savings. The NY Utilities propose that such collaborative pilots and defined collaborative efforts not be subject to a predetermined cap on the energy savings that may be counted toward utility achievements, provided that the ETIP/SEEP or the CEF Investment Plan filings contain clear descriptions of the objective and scope, implementation period, rationale for how joint investments will increase impact, and how the resulting energy savings will be quantified and reported.

VI. Chapter Three: Accelerated Heat Pump Deployment

Introduction

This chapter addresses the following aspects of a proposed statewide heat pump policy framework for the period 2020-2025:

1. Utility funding and budgets
2. Utility commitment
3. Target by electric utility
4. Incentive structure
5. Eligibility
6. Leveraging building envelope improvements
7. Deployment projection
8. Cost reductions
9. Low- and moderate- income customers
10. Inverse cost shift
11. Quality assurance and quality control
12. Program roles, delivery and review
13. Timing and transitional arrangements
14. Complementary interventions: Non-Wires Alternatives (“NWA”) and Non-Pipes Alternatives (“NPA”)
15. Complementary interventions: electric rate design
16. Complementary interventions: market development through Clean Energy Fund
17. Energy savings accounting, target accounting and utility compensation
18. Implementation plan topics

1. Utility Funding and Budgets

During the Collaborative Process, NYSERDA updated the savings methodology presented in its January 2019 “Analysis of Residential Heat Pump Potential and Economics” report.²⁵ The updates were made to achieve better alignment with the heat pump savings methodology used in the TRM by modifying assumptions related to the resources that heat pumps are replacing and reflecting more accurate heat pump load factors. The updates resulted into an overall budget estimate increase from \$250 million to \$335 million.

For Con Edison, the updates included the use of a new and unique downstate discount rate, which resulted in a significant reduction in assumed incentive levels. The new incentive levels, however, are insufficient for Con Edison’s customers to achieve economic indifference

²⁵ *Supra*, note 4.

between heat pumps and alternative heating technologies such as oil-based heating. As a result, Con Edison determined that a budget of \$190 million will be required to achieve the 0.8 TBtu target for its service territory. This amount is \$115 million above the \$83 million NYSERDA allocation to Con Edison from the updated Heat Pump Potential Study. Con Edison developed the budget based on the NYSERDA methodology but applied a customer discount rate at the same level that NYSERDA applied to the upstate electric utility territories and assumed a more modest pace of reductions in real installed costs. Con Edison will use \$115 million of unspent energy efficiency moneys to help fund its budget.

National Grid estimates that Niagara Mohawk will spend approximately \$58 million on a residential and small-scale heat pump program by 2025 rather than the \$90 million that NYSERDA estimated as part of the revised budget computation, which included large-scale market assumptions. As explained in more detail in the National Grid chapter, the company does not believe its TBtu target in the updated Heat Pump Potential Study is achievable.

Central Hudson, NYSEG, and RG&E have now provided their heat pump analyses and estimates in their company-specific chapters in this Updated Report.

NYSERDA proposes to fund LMI-related heat pump demonstration projects and pilots through the CEF. The NY Electric Utilities support NYSERDA's proposal. This approach will leverage the CEF to test and demonstrate strategies that can increase adoption of heat pumps for LMI customers, while addressing institutional barriers and advancing solutions that can work in typical low-income building types.

While the NY Electric Utilities believe that the proposed budget will encourage higher levels of adoption across the state, the heat pump TBtu target and budget estimates are premised on uncertain assumptions related to regional variations of market growth, required level of financial support, and general customer receptivity and adoption rates over the next six years. Because of the inherent uncertainty of forecasts, the NY Electric Utilities believe that program budget flexibility is critical to achieving significant TBtu savings through heat pumps.

It is also important to recognize that while the adoption rate projections from the Heat Pump Potential Study focus on the residential market, NYSERDA's program data shows that there is interest in heat pumps by the commercial sector where larger buildings have produced about 35 percent of the overall savings in NYSERDA's heat pump program. This data suggests that heat pump efforts can focus on both residential and commercial heat pump applications. The commercial/large building market will be explored in further detail during the development of the implementation plan and could become an important component of the statewide framework. This may be a means of moving the NY Utilities proposed GBtu target of 2710 more toward the goal established by the Commission.

2. Utility Commitment

The NY Electric Utilities will strive to achieve the Energy Efficiency Order's heat pump goals by creating and operating incentive programs designed to transform the heat pump market over the next six years. To support the NY Electric Utilities' efforts, NYSERDA has committed

to continuing many of its market enablement activities related to heat pumps. The commitment by the NY Electric Utilities to work to achieve the goal during the 2020-2025 period represents a significant increase in State support for heat pump investments, including more than a 250 percent increase in the annual monetary support for heat pumps by electric customers as compared to the 2019 funding for incentive levels in place in 2019. The 2710 GBtu cumulative savings goal proposed by the NY Utilities also requires a significant increase in market adoption rates from current levels and as explained in the utility-specific chapters later in this Updated Report may not be achievable.

The remainder of this chapter describes the NY Electric Utilities' proposals regarding key principles provided by the Commission in the Energy Efficiency Order for a policy framework to develop the heat pump market in New York:

- **Drive market scale to produce cost reductions:** the program will enable cost effective heat pump adoption and increase uptake levels with the additional goal of striving to reduce costs which, if demonstrated to be feasible, could reduce the need for incentives over time. The approach to incentive level reductions over time is set out in Section 6.
- **A clear and stable market signal:** the proposal offers the heat pump market a six-year commitment to supporting this technology, at a substantially higher total budget amount than was previously provided, which is expected to enable the long-term investments by market participants to deliver economies of scale and technological innovation that could produce a sustainable market and potentially cost reductions. Key elements of a clear and stable program structure are an initial period of incentive stability, followed by adjustments to incentives if warranted, based on actual results. Recognizing that to operate within budget limits, incentives need to decrease over time, the NY Electric Utilities will consider approaches as appropriate such as the declining block mechanism discussed in Section 8.
- **Simple and workable from the consumer standpoint:** the proposed incentive structure should balance program simplicity with the importance of reflecting differences between regional installation costs, operating costs, and market segments. The proposal is transparent from a customer's perspective because it contains a small number of different incentive payment levels with utilities in the same region adopting similar incentive levels in order to increase overall program consistency and simplicity. The proposed incentive structure is discussed in more detail in Section 3.
- **Uniformity and Flexibility:** the NY Electric Utilities will strive to pursue a largely uniform program framework, including the development of a common program manual during the implementation stage. The NY Electric Utilities will pursue incentive structures that reflect the appropriate level of uniformity while also maintaining flexibility at the program delivery level to reflect differences among utility service territories. In the past few years, the NY Electric Utilities have operated their energy efficiency portfolios with greater flexibility for program design, delivery, and implementation. This flexibility has been an integral component of success. Flexibility should be a key consideration for the statewide heat pump program to provide a balanced approach to meeting the ambitious targets outlined in this filing.

- **Smooth transition from current programs to avoid disruption:** both existing NYSERDA and NY Electric Utility heat pump incentive programs will be transitioned into the new framework, where the NY Electric Utilities conduct resource procurement for heat pumps and NYSERDA performs market enablement functions, as discussed in Section 12.

In addition, the proposal incorporates two other themes:

- Seek solutions that allow LMI customers to receive benefits from heat pump solutions.
- Encourage customer actions that synchronize building envelope improvements and heat pump installations to the extent possible under the overall budget and unit cost limits, which will enhance customer savings and mitigate the possibility of a potential electric winter peak. However, care will be taken not to discourage customers from participating in heat pump programs.

3. Initial Heat Pump Targets by Electric Utility

The initial statewide heat pump savings target for the period 2020-2025 in this Updated Report is less than the five TBtu target set out in the Order. The proposed initial allocation of the GBtu target based on NYSERDA’s updated Heat Pump Potential Study for NY Electric Utilities and the analyses presented each company-specific chapter is shown in Table 7.

Table 7: NYSERDA Estimated Heat Pump GBtu Targets by Electric Utility

Utility	Heat Pump Potential Study	Utility Proposed
Central Hudson	416	253
ConEd	804	804
NYSEG	1,907	427
NiMo	1,559	1,010
O&R	160	160
RGE	153	56
Total	5,000	2,710

Authorized targets should be applied to the NY Electric Utilities as cumulative targets to be met by 2025. Annual deployment projections, however, can be developed by each utility to assess progress against the target on an ongoing basis and identify the need for program changes. An indicative projected deployment trajectory is provided in Section 6. The NY Electric Utilities will use, as necessary, the appropriate level of flexibility to achieve program targets within the constraint of their individual funding levels. Consideration should also be given, during the program review process, to the development of a mechanism that allows the NY Electric Utilities to shift savings targets among their respective service territories.

4. Incentive Structure

In order to achieve the heat pump targets, the Energy Efficiency Order recognizes that a program incentivizing adoption of heat pumps is needed.²⁶ Effective incentives also require complementary non-incentive initiatives. As such, the proposed budget for the statewide incentive program (see Section 8) includes funding for electric utility implementation activities, including marketing/outreach and QA/QC activities. In addition, Section 15 describes ongoing and planned NYSERDA market enablement actions, such as workforce training and supply chain development.

In accordance with the principles discussed in Section 1 above, this proposal describes the following high-level characteristics of the incentive programs:

- Flexibility is a key consideration. The NY Electric Utilities will consider incentive options such as those put forth in the Energy Efficiency Order. However, the nascence of this market, as well as lack of precedent or local data, increases the risk that rigid incentive mechanisms conceived in an early phase of program framework development will result in incentives being too high or too low. The NY Electric Utilities will propose specific program delivery rules (including incentive levels) in heat pump implementation plan submissions later in 2019.
- Incentive levels are proposed to be provided in most cases as one-time rebate payments per thermal ton of installed capacity for all residential and small-scale (up to ten tons) non-residential installations.²⁷
- Incentive design for larger installations will likely include some level of one-time rebate, but the incentive levels and other program delivery specifics for the application of the incentive to large-scale installations will be developed as part of each NY Electric Utility's implementation plan. The NY Electric Utilities agree that larger installations will likely be needed to reach statewide targets and be included in the incentive offerings. The NY Electric Utilities request flexibility to propose territory specific large commercial programs in the implementation plan, future programs reviews outlined in section 12, ETIP/SEEP filings or rate cases.
- Incentive differentiation for the NY Electric Utilities by geography primarily reflecting three regions across the State, based on quantification of subsidy needs.
- Limited differentiation of incentive levels (per ton) across the various types of heat pumps, reflecting differences in the amounts of incentive needed between heat pump types to make them competitive with the lifetime capital expenditure and operating costs

²⁶ Energy Efficiency Order, pp. 60-61.

²⁷ Central Hudson and Orange & Rockland are required, under existing rate plans, to make certain incentive payments over time.

of a fuel oil-based heating system. The specifics of technology incentive level differentiation will be considered further during the implementation.

- The opportunity to leverage the combination of heat pumps and building envelope efficiency may be addressed through the incentive program and/or related approaches outside the incentive as described in Sections 5 and 7.
- Options for delivery as downstream, midstream, or upstream incentives (direct to customers, direct to contractors or through distributors) or some combination of incentive delivery points will be explored at the implementation stage.
- The NY Electric Utilities will consider a mechanism to reduce incentives over time, if warranted by market circumstances and customer adoption rates, in a predictable manner that provides a level of market certainty, such as by exploring a block structure as described in Section 8.
- Any changes to incentive structure or incentive levels would be considered through a program review process as set out in Section 12.

While the budget and funding projections set forth in Section 8 reflect the current estimates of the NY Electric Utilities and NYSERDA, such estimates may need to be updated during the development of implementation plans.

5. Eligibility

The following high-level approach is proposed regarding incentive eligibility. Eligibility criteria will be developed and applied consistently on a statewide basis, building upon current NYSERDA program guidelines (see Section 12 on development of a common program manual).

- The incentive would be available across the range of heat pump types, including ground source and air source, space heating and cooling, hot water heating, process heating, and across all building heat and cooling distribution systems including ducts, hydronic, and variable refrigerant flow technologies.
- The adoption of air source cold climate heat pumps will be encouraged where appropriate, based on the parameters of the application.
- While the program will primarily pursue systems that include heating (either space heating combined with cooling or hot water heating), the program may continue to provide some funding to cooling-only heat pumps, employing the same savings methodology as used for all other types of heat pumps. Similarly, the program is expected to primarily pursue whole-building systems (heat pumps that deliver all or most of a buildings space heating/cooling needs, hot water needs, or both), but may provide some level of funding to heat pumps that serve only part of the relevant thermal load.
- The heat pump program will be designed primarily to offset consumption of the most carbon intensive delivered fuels. Other applications, such as sites that currently heat with natural gas, may not be cost beneficial for customers. The range of displaced fuels and

baseline conditions will be evaluated for eligibility in more detail during the implementation phase and may be revised over time as technologies improve.

- Eligibility would include heat pumps for new construction properties as well as retrofits in existing buildings.
- The heat pump initiative will strive to reach all types of customers and buildings, including small-scale and large-scale residential, and commercial buildings.
- Participation will be contingent on current or (in the case of new construction) future customer contribution to electric rate elements that provide cost recovery for utility heat pump incentive programs. Customers who do not fund the heat pump incentive through their electric delivery rates may not ‘opt-in’ to the program.
- Further eligibility requirements to be developed in the implementation plan may include requirements related to parameters such as heat pump coefficient of performance, qualifying equipment and installer/ contractor lists, and other quality assurance requirements.

6. Leveraging Building Shell Improvements

Encouraging customers to improve the energy efficiency of their homes through building shell measures such as air sealing and insulation offers several advantages. Building shell measures reducing overall heating and cooling demand of the building would, allow the customer to potentially install a smaller heat pump system. The efficiency and effectiveness of the heat pump itself would reduce the heating and cooling needs of the building, reducing system peak demand. It would also lower the heat pump customer’s electric bill. Building shell improvements may also facilitate customers being able to benefit from innovative electric rate designs, for example by reducing peak heat pump electric demand for customers participating in demand-based electric rates.

Barriers to the tight coupling of heat pump incentives to building shell improvements should be considered. These barriers include: (1) higher upfront capital costs when building shell improvements are required; (2) extended customer disruption due to a retrofit of a heat pump and building shell improvements; and (3) that requiring building shell improvements for heat pumps when they are not required for other clean energy investments (*e.g.*, distributed solar) may result in customers preferring those other clean energy options.

Approaches to synchronizing building shell improvements with heat pump installations will be explored in the implementation phase.

NYSERDA is exploring simple packages of measures and strategies to make a building “heat pump ready” – focusing on air sealing and insulation. This may potentially be delivered in concert with NY Electric Utility heat pump incentives.

7. Deployment Projection

Based on the updated Heat Pump Potential Study (including the heat pump methodology updates described in Section 1 and analyses presented in each utility-specific chapter, a program

adoption projection is provided in Tables 8 and 9. These figures are for illustrative purposes only and as noted in Section 2, targets are proposed as cumulative 2025 targets. The primary uptake indicator is expressed as projected energy savings by year and electric utility. An estimate of the resulting number residential and small-scale (up to ten tons) non-residential installations is provided as well. This assumes, consistent with adoption data under NYSERDA’s current heat pump rebate programs, that approximately one third of the savings would be delivered through large commercial or large multifamily installations, and accordingly the figures reflect two thirds of the total target.

Table 8: Projected Total Onsite Net Energy Savings by Year (GBtu/y)

Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	18	26	33	40	56	80	253
ConEd	24	66	94	143	205	273	804
NYSEG	30	50	67	80	90	110	427
NiMo	55	117	167	201	224	246	1,010
O&R	14	19	26	29	34	38	160
RGE	4	7	8	10	12	15	56
Total	145	285	395	503	621	762	2,710

Table 9: Projected Small-Scale & Residential Installations by Year

Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	700	1,340	1,933	2,100	2,711	3,150	11,934
ConEd	500	1,400	2,000	3,030	4,347	5,796	17,073
NYSEG	866	1,566	2,421	3,133	3,756	4,566	16,308
NiMo	975	2,100	3,000	3,600	4,000	4,400	18,075
O&R	209	279	370	418	488	557	2,321
RGE	160	234	296	351	405	487	1,933
Total	3,410	6,919	10,020	12,632	15,707	18,956	67,644

8. Cost Reductions

The NY Electric Utilities recognize the need for costs to decline over time. Block incentive structures represent one way to address this intent.

During the implementation phase, the NY Electric Utilities will evaluate the potential for a declining block strategy to deliver predictable incentive levels, while also considering other approaches that may deliver the desired outcomes. Minimum incentives, for example, may also satisfy the market’s need for stability while creating flexibility to redistribute a portion of the incentive budget amongst technology types as true adoption rates are assessed over time. Further specifics on the block structure, if appropriate are to be developed in the implementation plan.

9. Low- and Moderate-Income Customers

The NY Electric Utilities recommend a phased approach for the deployment of heat pumps in the LMI market segment, while the NY Electric Utilities work with NYSERDA to

develop solutions that address the barriers and dynamics unique to LMI customers and affordable housing. The NY Electric Utilities and NYSERDA support advancing heat pumps as an option for LMI customers, however, it is imperative that energy affordability should remain the top priority in this market segment. Coupled with specific program design considerations, incremental incentive funding may be needed to advance heat pump adoption in the LMI market segments.

When considering the application of heat pumps for LMI customers, it is necessary to understand implications for overall energy affordability, including how a shift in load profile and primary heating fuel affects the customer's energy bills and the level of support through utility bill discounts or the Home Energy Assistance Program ("HEAP"). Given the financial constraints of many LMI customers, it is important to develop an approach so that energy efficiency to improve the envelope of the home can be paired with heat pump installations. In affordable housing or rental applications, addressing the split incentive, models for financing, and system design issues for larger multifamily building present additional challenges to the effective deployment of heat pumps. To address these challenges, the NY Electric Utilities propose to work with NYSERDA to develop pilot initiatives to explore solutions to address the unique characteristics of the LMI market segment. The NY Electric Utilities and NYSERDA expect that pilot activities will commence in 2019, the results of which will inform the broader LMI heat pump strategy.

The Order requires 20 percent of the overall New Efficiency: New York budget on efforts targeted to LMI customers. In lieu of a dedicated heat pump budget for LMI customers in the Order, NYSERDA will develop and file an investment plan within the CEF to fund LMI heat pump initiatives starting with near term demonstrations to inform the long-term heat pump strategy. The NY Electric Utilities support the incremental funding of LMI heat pump activities through the CEF and look forward to working closely with NYSERDA to develop solutions to enable electrification in the LMI market segment in a manner that does not negatively impact affordability.

10. Inverse Cost Shift

The Energy Efficiency Order stated that the benefit of heat pumps to non-participating customers converting from oil or propane which result in large volumetric increases in electric sales should be captured to help incentivize heat pump installations.²⁸ The actual additional revenue produced through heat pump deployment, if realized and measurable, will depend on the electric rate design in place for heat pump customers, the design of the heat pumps installed, and the ways in which customers utilize heat pumps under their specific electric rate designs. To the extent that residential and small-commercial heat pump customers choose utility rates which recover costs through volumetric charges, there will likely be increases in sales due to heat pump deployment. However, to the extent that demand-based rates are available to customers, heat pump customers may not contribute as much revenue to their individual rate classes as they would have under volumetric rates and as a result the amount of incremental revenues produced

²⁸ Energy Efficiency Order, pp. 61-62.

by heat pumps under demand-based rate designs is likely to be less than under volumetric rates. Other factors that will affect the amount of customer contribution under demand-based rates include the amount of use of supplemental electric resistance heating by the heat pump and the time periods when customers choose to use their heat pumps.

Unlike net energy metering where there is a shift of costs to non-participants, customer adoption of heat pumps may have the opposite effect, if the customer's other underlying usage is typical for the service class. Because the incremental revenues produced by heat pumps through fuel switching if realized would, under the traditional ratemaking model, offset other costs that electric utility customers would normally have to pay in rates, there is the potential for an inverse cost shift. Normally, an unexpected increase in revenues would be returned to customers via the electric utilities' Revenue Decoupling Mechanism ("RDM") in the year after the revenues were realized and would eventually be reflected in the revenue requirement computation in an electric utility rate case. Consequently, a mechanism that takes incremental revenues from specific customers adopting heat pump technology and tracks that revenue as a source of funds to help offset the cost of a heat pump incentive program can at best work in limited circumstances and generally over the short term. The Energy Efficiency Order states that these revenues should be used to establish bill credits for customers with qualifying heat pumps and notes that Central Hudson and Orange & Rockland have already adopted this type of crediting approach for its geothermal program.²⁹

Further, such an approach when viable does not capture the timing difference between when an incentive is paid and when the heat pump begins to generate electric revenues. One approach that moderates rate impacts and better aligns the useful life of the heat pump with the timing of the benefits of the heat pump would be not to change the mechanics of the RDM but rather to allow the NY Electric Utilities to treat heat pump initiative expenditures as a regulatory asset that is included in base delivery rates and collected over the years that the heat pump is expected to be in use. Such collection over time may be offset by the inverse revenue impact from heat pumps flowing to customers over that same time period, although it will be challenging to specifically track these collections. A second approach would be to treat the incentive as an expense in the revenue requirement for the year it will be incurred with revenue impact from heat pumps flowing to customers in subsequent years. These matters as well as any related regulatory accounting treatments are best addressed in future electric utility rate cases.

A related question concerns whether the incentive is paid out annually or on a one-time basis. The NY Electric Utilities believe that the approach most likely to induce customers to adopt heat pumps would involve a one-time payment to help defray initial customer out-of-pocket costs.³⁰ Such an incentive would likely be based on savings the electric utility can claim over the useful life of the heat pump. Thus, the revenues realized in any year, assuming they can even be measured, from the heat production may not fully offset the size of the incentive. In such cases, it may be necessary to defer the incentive payment and amortize it over a reasonable

²⁹ *Id.*, p. 62.

³⁰ As noted above, Central Hudson and Orange & Rockland are currently required to pay certain heat pump incentive rate impact credits over time per their individual rate plans.

period to better match the incentive with the revenues it produces. Again, while details are best addressed in future electric utility rate cases, an interim approach will be needed.

It is important to note that initial funding for heat pump incentives could be provided from unused electric utility System Benefits Charge and ETIP/SEEP funds. Details regarding the availability of funds by company and their expected use is provided in the NY Electric Utility-specific chapters.

11. Quality Assurance and Quality Control

Program delivery is proposed to pursue a largely uniform structure, with the NY Electric Utilities proposing to apply a common program manual including quality assurance (“QA”) and quality control (“QC”) principles and protocols. Standardized QA/QC for emerging technologies aims to achieve both high quality and functioning installations as well as an expanded pool of competent and experienced designers and installers, while minimizing difference among utility-specific rules which supports the ability of heat pump installers/developers to operate across service territories. The QA/QC details will be developed based on NYSERDA’s heat pump programs during the implementation stage. The following high-level approach is proposed regarding QA/QC principles and protocol.

Installed systems, system components, and installations must comply with manufacturers’ installation requirements, applicable laws, regulations, codes, licensing, and permit requirements.

The QA/QC system would consist of several components, including review of applicant professional qualifications and credentials, establishment of program standards and a comprehensive inspection.³¹ The purpose of the inspections is to evaluate the accuracy of the site analysis, design paperwork, and the installed heat pump system to determine, and to verify that the heat pump system was installed according to all program requirements.

Specific details of the QA/QC approach will be further defined in the implementation plan.

12. Program Roles, Delivery and Review

Program delivery is proposed to be carried out by each electric utility in its territory, in a generally uniform manner. While specific details will be provided in the implementation plans, this approach is proposed to be implemented by the NY Electric Utilities is as follows:

- NY Electric Utilities will each develop or expand heat pump-specific web pages as part of their customer energy efficiency education and will cooperate with each other and NYSERDA to leverage marketing and consumer awareness campaigns;

³¹ The inspections could include verification of contracted scope of work, accuracy of site analysis, comparison of installation to submitted design drawings, and the delivered quality of the heat pump installation. Inspections would primarily focus on the quality of the installation but may also include selected health and safety and performance items, and specific compliance items per applicable code.

- NY Electric Utilities will provide appropriate customer support during the customer application process;
- NY Electric Utilities (in consultation with NYSERDA) will develop and use a common program manual. The process to develop the manual will be similar to the process used in the development of the TRM. The program manual will follow the proposals set out in this chapter and consider NYSERDA's existing program manual;
- QA/QC will be carried out by the NY Electric Utilities in accordance with the QA/QC protocol as per the program manual described above – see Section 11; and
- Application processing, approval, incentive funding and incentive payment will be carried out by each electric utility.

The NY Electric Utilities will explore the development of a new statewide collaborative approach model for the development of the heat pump program framework and program delivery. The new statewide model will offer several advantages, including potential economies of scale, consistency of messaging, and reduced customer confusion. This new model will offer an opportunity for the NY Electric Utilities to adopt an incremental approach to increasing collaboration allowing for deliberative experimentation and expansion of efforts that prove to be beneficial to customers. Such a collaborative approach will enable the NY Electric Utilities to begin to: (1) establish a governance process for collaboration allowing for uniformity when appropriate and regional difference where necessary; (2) test statewide marketing approaches for ASHP & GSHP programs; and (3) leverage NYSERDA efforts on contractor eligibility and other market enablement efforts as well as NY Electric Utility efforts in reaching their customers via different parts of the supply chain with incentives that drive cost-effective adoption of heat pumps.

The governance approach for this new collaborative model is to develop a Joint Management Committee to assist in creating a common program design, appropriate incentives levels based on regional differences, and marketing that will assist with achieving significant market penetration of these technologies. The Committee, comprised of members from each NY Electric Utility, will coordinate its efforts with NYSERDA to develop technical training for workforce development, will leverage NYSERDA's contractor qualification and approval process as well as other NYSERDA market enablement efforts. Each year the Committee will prioritize needed program changes to program design, marketing, and incentive levels by means of the process for program changes outlined below. However, each electric utility will be responsible for achieving its individual goals, complying with individual regulatory obligations, and managing services to their customers. Success is derived when the NY Electric Utilities collaborate and implement solutions that benefit customers and stakeholders. The Committee members will meet regularly to discuss program process, results of marketing initiatives, delivery model changes, and to share best practices. Within the new collaborative approach model, the NY Electric Utilities will continue to make strides in energy efficiency and build a clean energy future for everyone in the state.

It is proposed that throughout the six-year program period that the NY Electric Utilities will request feedback and input from NYSERDA and Staff on planned program changes. The first planned program review is expected to occur in 2021 and it will consider incentive levels as well as other program adjustments as appropriate.

Specific aspects of program delivery flexibility that would not impact customers directly, such as budget flexibility, as referred to in Section 8, could be applied by each NY Electric Utility and would not be subject to the program review process. Such aspects will be identified during the implementation phase.

To complement the statewide incentive program (including flanking electric utility action under the incentive program in respect of marketing and outreach), NYSERDA has developed and is further developing a range of non-incentive initiatives – see Section 16.

13. Timing and Transitional Arrangements

It is important that market disruptions are avoided during the transition to a statewide heat pump program. While the goal is for each NY Electric Utility to have a heat pump incentive program in effect as of January 1, 2020, there may be reasons why some utilities need additional time to complete the transition. Specific details regarding the timing of the transition will be developed in the heat pump implementation plans. If an electric utility is not ready to commence a heat pump program by January 1, 2020, such electric utility and NYSERDA may have to explore the viability of continuing the NYSERDA statewide program with updated incentives in that utility's service territory to ensure a seamless transition to the electric utility administered statewide framework. Electric utilities with heat pump programs that are unable to complete the transition by January 1, 2020, are expected to continue their programs and adjust the incentive accordingly to align with the statewide framework. Individual transition schedules will consider electric utility-specific factors such as pre-existing funding levels. Regardless of the specific transition plan, the NY Electric Utilities and NYSERDA intend to make incentives available in all regions at either current NYSERDA levels or the level proposed in the statewide framework by January 1, 2020.

The following approach is proposed regarding the transition of heat pump incentive programs for all NY Electric Utilities.

- All electric utilities are expected to have heat pump incentive programs available in 2020, with all current NYSERDA or NY Electric Utility heat pump incentive programs transitioning into the statewide framework.
- New heat pump programs will generally not be developed outside of the statewide framework, except when such regional variations are warranted.
- The statewide program will be adjusted as necessary to conform to current and future electric utility rate reform initiatives. The interaction between such initiatives and the statewide framework is discussed in Section 15 below.

The transition to the statewide framework of current NYSERDA and NY Electric Utility heat pump programs will, in most cases involve closing the availability of the existing incentive as of December 31, 2019. The programs that will transition are:

- The current NYSERDA GSHP and ASHP rebate programs are scheduled to close as of December 31, 2019;
- Central Hudson's Environmentally Beneficial Electrification / Carbon Reduction Programs;
- Orange & Rockland's Environmentally Beneficial Electrification / Carbon Reduction Programs;
- NY Electric Utility ASHP/ mini-split programs;
- Niagara Mohawk's Electric Heat Initiative of the Environmentally Beneficial Electrification metric;
- Central Hudson's Rate Impact Credit program for GSHP is proposed to remain in place as a complementary/ additional program as currently designed and for its currently intended duration; and
- Orange & Rockland's Rate Impact Credit program for GSHP is proposed to remain in place as a complementary/ additional program as currently designed and for its currently intended duration.

The NY Electric Utilities will work with NYSERDA to coordinate these various activities in an efficient manner and anticipate that the new statewide program would be made public by the end of 2019.

14. Complementary Interventions: NWA and NPS

The statewide framework incentive outlined in this Updated Report reflects benefits from heat pumps in terms of targeting energy efficiency opportunities as part of New York's overall carbon, clean energy and energy efficiency targets. It does not pursue more specific locational value, such as the value of avoided investments or potential other locational value streams. Where such value exists, accessing it could bring additional benefits to customers, and this Updated Report therefore proposes that any initiatives that pursue such value should be complementary to the statewide framework.

As noted above, heat pump installation in areas where the distribution system is constrained has the potential to provide benefits that help with the constraint. To the extent that areas of constraint are identified as candidates for NWA or NPA, heat pump technologies can be an option to help relieve the constraint, they should be considered as one potential element in a portfolio of resources designed to relieve a system need and receive any appropriate compensation under that framework.

15. Complementary Interventions: Electric Rate Design

The Energy Efficiency Order notes “[a]s a general matter, technology-specific rate designs are not preferred where they are not necessary. In this instance, bill credits or incentives will suffice in the near term.”³² The NY Electric Utilities agree that rate designs should not be developed for specific technologies but note that demand-based rates have been evaluated in the Value of Distributed Energy Resources (“VDER”) Rate Design Working Group and the Department of Public Service Staff’s Whitepaper on Standby and Buyback Service Rate Design and Residential Voluntary Demand Rates noted that standby rates, which are demand based, “are among the most theoretically pure rate designs available for aligning individual customers’ contribution to system costs with the rates such customers pay and thereby sending accurate price signals to those customers.”³³

Given this, all customers including those with heat pumps should have the option of selecting demand-based rates. The potential benefits of demand-based rates for heat pump customers are significant. Electric utility system investments are driven much more by customer demands than by total volume of kWh sales. Demand-based rates better align customer pricing with cost causation and promote efficient (high load factor) use of the electric delivery system. To the extent that heat pumps operate at a high load factor and are controlled in a manner that limits or reduces demand in peak hours, customers will likely see lower bills than they otherwise would have under volumetric rates. Moreover, demand-based rates reward customers for investments and behaviors that reduce burdens on the electric system and thereby lower costs for all customers compared to what would otherwise occur under volumetric rate designs. Both outcomes serve the public interest and are also consistent with REV principles.

In summary, initiatives to provide residential customers with alternative opt-in demand-based rates are underway or under consideration in a number of forums and at a number of NY Electric Utilities. As explained in more detail above, it is expected that these could better serve heat pump customers in a technology neutral way and not result in significantly greater revenues from heat pump load than would otherwise occur. However, because it is unknown how many customers will switch from current standard rates at least in the near term, this reduced revenue impact is difficult to predict. The implication of these findings is that, because customers who opt for demand-based rates will monetize at least part of the inverse cost shift through lower overall charges, the level of the incentive provided to such customers could be less than that for customers on volumetric rates. Demand-based rates could prove to be an economically efficient way to encourage adoption of heat pumps.

This proposal does not envision limiting the ongoing development of alternative rate structures. As a result, customers should in many cases have access to both the statewide framework incentive and opt-in rates.

³² Energy Efficiency Order, p. 65.

³³ Case 15-E-0751, *In the Matter of the Value of Distributed Energy Resources*, Department of Public Service Staff Whitepaper on Standby and Buyback Service Rate Design and Residential Voluntary Demand Rates (filed December 12, 2018), p. 6.

16. Complementary Interventions: Market Development and Innovation through the Clean Energy Fund

Throughout the period of the statewide framework, NYSERDA will coordinate any market development activities under the CEF with the NY Electric Utilities to work in coordination with electric utility heat pump incentives. These complimentary market development strategies include:

Clean Heating and Cooling Communities

In August 2018, NYSERDA announced the Clean Heating and Cooling (“CH&C”) Community Campaign initiative. The initiative is based on the State’s highly successful Solarize campaigns, which bring together groups of residents and businesses to install solar. The initiative aims to reduce the high upfront purchase costs and increase CH&C technology deployment. The initiative is designed to educate and increase the awareness and knowledge of clean heating and cooling technologies among New York customers.

NYSERDA funded eight organizations to run CH&C campaigns throughout the State, bringing together groups of potential customers to obtain discounts for air and ground source heat pumps, and, in one case, biomass heating through aggregated purchases and a simplified procurement process. The second round of the initiative was released in August 2018, and NYSERDA selected seven additional organizations. Organizations can apply and receive additional funds to incorporate plans for workforce development training and low-to-moderate income household engagement in the campaigns.

NYSERDA will continue to support community campaigns to drive interest and investment in heat pumps in support of the State’s goal.

Workforce Development

In 2018, NYSERDA began developing a comprehensive Workforce Development strategy document specific to the State’s CH&C industry. There is a widening talent gap for the heating, ventilation, and air conditioning (“HVAC”) industry throughout the country due to both the anticipated growth in the industry and HVAC workers choosing to retire. The expected shortfall of HVAC workers impedes the development of the CH&C industry. In order to help grow and develop the market for CH&C technologies, NYSERDA’s CH&C Workforce Development strategy will be informed by engagements with various stakeholders in the HVAC industry, including distributors, manufacturers, installers, educators, trade and labor groups, higher education administrators, and electric utilities.

In 2018, NYSERDA released three Clean Energy Workforce development solicitations that represent a combined investment of over \$27 Million in pipeline development, on-the-job training, and internships. The heat pump supply chain is among those eligible to receive funding. NYSERDA will continue to work with the heat pump supply chain to cultivate ideas and promote the availability of this funding.

To support achievement of the five TBtu State goal, NYSERDA will target its heat pump workforce development efforts in high growth regions and regions with labor shortages.

Co-operative Advertising and Training

In late 2017, NYSERDA issued a solicitation for Co-operative Advertising and Training for CH&C partners. Cost-sharing for 50 percent, up to \$50,000 per company, per year, is available to installers and distributors for advertising or training with respect to program eligible heat pump and biomass systems. Manufacturers are also eligible for 50 percent cost-sharing up to \$50,000 per manufacturer, per year, for training. As of December 31, 2018, NYSERDA received 144 applications for advertising with requested co-funding of \$1.1 million and 14 applications for training with requested co-funding of over \$200,000.

NYSERDA will continue to support co-operative advertising and training with supply chain partners, to build support and raise awareness of heat pump options.

Marketing and Awareness

From September through December 2018, NYSERDA piloted a co-branded marketing and awareness campaign with Central Hudson. Highlighted results include: almost 5,000 landing page visits, over 500 landing page actions, and an increase over baseline measurements of relevant key word searches of between 130 and 440 percent. NYSERDA is planning to work with the NY Electric Utilities to implement similar co-branded campaigns on a cost-shared basis throughout 2019 and beyond building on the lessons learned from the Central Hudson pilot.

Tools and Calculators

In January 2019, NYSERDA formally launched a customer targeting tool developed and offered by Faraday, Inc. to NYSERDA's first cohort in the Communities Campaign and an initial set of 30 installers. Over the next two years, the tool will be made available to approximately 200 participating installers and continuously improved. Eventually, it is expected that the tool will be made available by Faraday to market participants via a monthly paid subscription. The goal is to increase installer heat pump sales and reduce their cost of acquiring customers by helping them target high probability customers. NYSERDA also plans to work with regional stakeholders to develop customer value propositions for heat pumps that would provide customers with simple, objective information about the benefits of installing heat pumps.

Technical Assistance and Financing

NYSERDA provides energy audits for residential customers and detailed engineering studies for commercial customers and multifamily building owners. These audits will include options for electrification and provide customers and property owners with decision-quality information that can lead to investment in heat pumps.

In addition, through Green Jobs Green NY ("GJGNY"), NYSERDA can provide financing for heat pumps. These financing programs will be available along with electric utility incentives.

Research and Innovation

NYSERDA has supported several Advanced Buildings Challenges, focusing on cold-climate heat pumps. Future work may explore opportunities to drive improvements in refrigerants, thermal distribution systems, geothermal drilling, and manufacturing cost reduction.

In addition, through efforts like Retrofit NY and Buildings of Excellence Competition, NYSERDA will continue to try to develop strategies for buildings to achieve net zero carbon emissions, including standardized solutions for retrofit/new construction packages that include several options for all fuel types.

17. Energy Savings Accounting, Target Accounting and Compensation

It is proposed that net onsite all-fuels energy savings, as contributing to the heat pump target discussed earlier are accounted on a deemed basis for residential installations as detailed further below. In the development of this Updated Report, the deemed annual and lifetime savings, expressed as MMBtu of net onsite energy savings per thermal ton of installed heat pump capacity, were quantified based on NYSERDA's analysis in this chapter.

The NY Electric Utilities are applying this approach to all residential whole-house heat pump installations (both single family and multifamily) as well as small non-residential installations (up to ten tons of thermal capacity). Whole-house installations refer to those that serve all or most of the space heating and cooling load of the site in question. A similar "deeming" approach is to be applied to heat pumps that serve only part of the site (*e.g.*, systems that serve cooling but not space heating, systems that serve hot water but not space heating or cooling). The deemed savings amounts for these categories should be developed during the implementation stage.

The resulting quantification of deemed savings, as effective at the start of the program, is expected to be reviewed and revised further as necessary after the start of the program, through a consultative process between the NY Electric Utilities and NYSERDA. It is expected that the quantification approach will rely on the TRM once the heat pump measure documentation has been reviewed and updated. The NY Electric Utilities note that if, as a result of subsequent changes to the savings methodology applied to heat pumps, a higher number of installations is required to achieve the five TBtu target, either adjustments to heat pump incentive budgets will need to be made to achieve the higher number of installations, or a lower total heat pump savings target will need to be authorized.

It is proposed that for large-scale (greater than 10 tons) non-residential installations, net onsite energy savings are quantified using custom audit information for each individual site, with the process to be developed in more detail during implementation. At the start of the program, such savings estimates would still be deemed. It is expected that a switch to metering of savings is considered as part of a future review of the program.

It is also proposed that all heat pump installations that receive support under the statewide incentive framework count towards the respective electric utility heat pump targets.

18. Implementation Plan

The planning and implementation phase of the statewide heat pump program will include program level details for the NY Electric Utilities, such as:

- Eligibility specifics – applicants, contractors, sites, equipment
- Incentive structure and level specifics

- Detail on approach to heat pumps for LMI including a discussion of pilots to develop scalable LMI heat pump programs
- Detail on approach to combining heat pump and building shell installs
- Evaluation of block structure
- Program Manual
- Application intake & incentive payment process
- Project management, data collection, customer support
- Milestones for project completion
- Reporting requirements & process
- Deemed savings accounting
- QA requirements & process
- Transition and wind down of current programs, interaction with locational value programs
- Statewide program review
- Establish the Joint Management Committee

VII. Chapter Four: LMI Portfolio

1. Statewide LMI Portfolio Concept

As directed in the Order, the NY Utilities have collaborated with NYSERDA and will continue to do so in the refinement of a statewide LMI Portfolio. The statewide LMI Portfolio will allow Utility and NYSERDA investments to be positioned in a more complementary manner, further expanding the reach of energy efficiency programs, advancing the State’s energy affordability goals, and increasing the impact of customer funding dedicated to LMI customers. As outlined in the Order, NYSERDA will maintain its central role in administering LMI programs, and the NY Utilities will collaborate with NYSERDA in a more integrated way to expand the reach of LMI services.

The statewide portfolio approach provides the opportunity to further focus the customer-funded programs targeting the LMI sector, allowing the NY Utilities and NYSERDA to address energy affordability in a more holistic manner. This approach will also improve the experience of customers seeking to access energy efficiency services, reduce administrative costs, and provide more consistency for participating service providers. In developing and executing the LMI Portfolio with NYSERDA, the NY Utilities will advance the following principles:

- Advancing energy affordability for LMI customers;
- Exploring and implementing efficiencies to potentially reduce administrative costs and optimize resources;
- Developing simplified processes for LMI customers (*e.g.*, the application process), and consistent messaging;
- Executing a statewide approach that is as consistent as possible, while also allowing the NY Utilities to tailor offerings to accommodate local service territory needs;
- Increasing the number of households served;
- Continue to target underserved customers and communities; and
- Prioritizing affordable multifamily buildings for LMI Portfolio participation, where it makes sense across the State’s varying types of housing stock.

To achieve administrative efficiencies and expand the reach of LMI programs, the NY Utilities will work with NYSERDA to leverage each entity’s relative strengths. Table 10 lists some of the strengths of each program administrator, which can be leveraged to support the development and implementation of a comprehensive LMI Portfolio.

Table 10: NYSERDA and NY Utilities Strengths

Administrator	Strengths
NYSERDA	<ol style="list-style-type: none"> 1. Statewide reach and ability to achieve economies of scale. 2. Management of statewide network of service providers to realize lower costs and consistency in standards and work quality. 3. Ability to coordinate efficiently with other State agencies,

	<p>programs, community advocates, and trade associations on policy and program alignment to improve effectiveness of customer funds (e.g., the Weatherization Assistance Program (“WAP”), HEAP, housing, health, aging).</p> <ol style="list-style-type: none"> 4. Development and testing of potential energy efficiency solutions. 5. Market development with respect to soft cost reductions, workforce development and training, and other market supporting activities. 6. Development of financing solutions and incorporation of philanthropic and other third-party capital. 7. Identifying income-eligible customers for LMI Portfolio participation and for referral to the Utilities.
<p>NY Utilities</p>	<ol style="list-style-type: none"> 1. Access to customers and customer data, including energy consumption that the Utilities can use to target services. 2. Familiarity with characteristics of customer base. 3. Ability to pair energy efficiency with the statewide low-income bill discount and other payment assistance programs that are authorized in the <i>Order to Address Energy Affordability for Low Income Utility Customers</i> in Case 14-M-0565 (“Low Income Order”).³⁴ 4. Ability to tailor offerings to the unique characteristics of their service territory. 5. Customer recognition of the utility facilitates local marketing effectiveness and results in higher customer participation levels. 6. Ability to leverage existing program implementation contractors and trade ally networks. 7. Leveraging robust utility outreach and education channels (including customer service call centers).

In addition, the emphasis of the LMI Portfolio will position utility-funded LMI initiatives as complements to NYSERDA’s CEF and other utility-funded initiatives. This emphasis will increase the impact of customer funds while enhancing energy affordability and access to energy efficiency solutions. The design of the LMI Portfolio will also consider complementary and innovative programs and interventions beyond energy efficiency. The LMI Portfolio will also consider the programs and offerings funded by other State agencies, the U.S. Department of Housing and Urban Development (“HUD”), and other sources, to account for a full range of approaches to address energy affordability access and solutions for the LMI market segment. At this time, the NY Utilities and NYSERDA envision that portfolio design will consider programs

³⁴ 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 Modifications and Directing Utility Filings (issued May 19, 2016)(“Low Income Order”).

that provide incentives targeted at the residential, multifamily, and new construction sub-segments such as:

- Bill payment assistance for low-income customers through the Low-Income Order's statewide utility bill discount program;
- Outreach, education, and awareness campaigns to increase energy literacy and access to programs;
- Market development initiatives that develop and test new solutions for enhanced access to improvements across the LMI market segment, with opportunities for integrating energy efficiency, including heat pumps, and renewable energy;
- Coordination and alignment across the customer-funded LMI Portfolio and with programs and resources administered by other State agencies and local administrators; and
- Continuous optimization of the LMI Portfolio by tracking results such as units served, implementation costs, and energy savings.

2. LMI Platform

The Energy Efficiency Order called for the development of a single, statewide platform to facilitate effective administration of the LMI Portfolio. In collaboration with NYSERDA, the NY Utilities have identified two primary elements of the LMI platform: a customer-facing hub and an administrative component. The LMI platform may potentially be modelled on the current NYSERDA referral system being used by local approved contractors. These components are intended to improve customer experience, potentially reduce administrative costs, and potentially offer increased operational efficiencies, while simultaneously offering an appropriate level of commonality across the LMI Portfolio.

2.1 Customer-Facing Hub

As currently envisioned, NYSERDA will host the customer-facing hub that will serve as the primary information source of and/or entry point to the programs, services, and energy education. This hub and its availability will be highlighted on utility and NYSERDA webpages and in marketing materials. The customer-facing hub will be developed to engage both residential end-use customers and multifamily affordable building owners, developers, and occupants as appropriate. The NY Utilities envision that this could potentially feature a statewide branding approach in conjunction with localized marketing implemented by the NY Utilities in their respective service territories. For customers, the hub will provide consistent information on all relevant LMI programs and services, including energy efficiency, renewable energy, bill payment assistance, and energy education materials. For affordable building owners and occupants, similar information will also be provided, although the messaging presented would be relevant to their segment. In addition, the customer-facing hub will also reflect a coordinated outreach and education strategy between NYSERDA and the NY Utilities, which will include work with intermediaries, including human service agencies, and affordable housing agencies. The customer-facing hub will be jointly developed by the Utilities and NYSERDA, with specific details included in future implementation plans.

2.2 Administrative Infrastructure

Through the administrative infrastructure component, the NY Utilities and NYSERDA will administer the LMI Portfolio considering potential efficiencies and cost savings. The administrative infrastructure component will include several systems to facilitate cross referral of customers in accordance with currently effective Commission policy (including customer consent) and may potentially include additional functionality for customer targeting, reporting, and evaluation purposes. As noted in Chapter Two, data sharing will be in alignment with Commission orders and policies on the sharing of customer information.

For the 1-4 family homes portion of the infrastructure, NYSERDA will leverage and build upon the existing systems used to manage the EmPower NY and Assisted Home Performance with ENERGY STAR® programs. This will include a single database that will handle referral of customers by utilities to NYSERDA, customer applications, project workflow, and will include functionality for data sharing between NYSERDA and the utilities to track progress on specific projects and report energy savings results. As part of this infrastructure, NYSERDA will manage the network of contractors working in this space across the State. For other initiatives, a blend of utility-owned and maintained, and NYSERDA-owned and maintained infrastructure will be in place. The decision to bifurcate the information technology and administrative infrastructure between 1-4 family and other initiatives reflects that several utilities have already developed information technology and administrative infrastructures to support existing initiatives. These utility offerings generally provide services beyond 1-4 family homes and, in some cases, the systems are integrated into other systems for customer relationship management and billing.

NYSERDA will have responsibility for conducting income eligibility verification at the individual customer level and for informing utilities of income eligible customers who are eligible to participate in the LMI Portfolio. The NY Utilities will work with NYSERDA to explore a process for identifying eligible affordable multi-family buildings using proxies for affordable housing designations as established by housing agencies such as NYS Homes and Community Renewal, NYC Housing Preservation and Development, and HUD. Options for alternate income eligibility determinations will also be explored, such as using census tracts to determine eligibility for programs.

3. Roles and Responsibilities of Utilities and NYSERDA

Under the statewide LMI Portfolio, the NY Utilities expect to work with NYSERDA in a collaborative manner. The NY Utilities expect that the roles and responsibilities for each program administrator will generally align with the descriptions in Table 11:

Table 11: Potential Program Administrator Roles and Responsibilities

Utilities	NYSERDA
<ul style="list-style-type: none"> • Supporting outreach strategy for program facilitation • Marketing and outreach efforts specific to the utility territory • Providing utility bill discounts, Deferred Payment Agreements, etc. • Connecting customer to other relevant utility rebates/programs/offerings • Administration of utility-specific programming where applicable (<i>e.g.</i> community initiatives and multi-family offerings) 	<ul style="list-style-type: none"> • Administration of statewide implementation and integrated database • Marketing and outreach efforts to support statewide program awareness • Performing income-eligibility verifications and program referrals • Management of the network of service providers for statewide programs • Coordination with state agencies, non-utility programs, and trade associations • Funding collaborative pilots designed with utilities under the CEF

3.1 Alignment with other LMI Initiatives

To optimize customer funding for the LMI market segment and expand the reach of programs, the LMI Portfolio will need to align with and leverage existing energy efficiency programs and other LMI related programs administered at the State and local levels. This will require the NY Utilities and NYSERDA to establish complementary administrative roles. By coupling energy efficiency programs with bill payment assistance programs, the NY Utilities may further reduce the energy bill for LMI households.

The NY Utilities will work collaboratively with NYSERDA to harmonize the expanded LMI programs with CEF-related investments. This may take a variety of forms, including: (1) establishing complementary program design and implementation; (2) developing and using supporting initiatives such as workforce development or financing solutions; (3) funding statewide programming that is not currently offered by the NY Utilities; and (4) leveraging the CEF to test novel solutions and alternative approaches to program deployment broad-scale roll out. The NY Utilities plan to work with NYSERDA during the program design and implementation phase of the statewide LMI Portfolio to explore potential opportunities that integrate electric energy efficiency with renewable energy offerings.

As outlined in the CEF LMI Chapter, NYSERDA administers several initiatives targeting affordability and access to clean energy solutions in the LMI market segment. NYSERDA invests approximately \$70 million annually on “standard offer” programs that address energy efficiency in existing single and multifamily buildings, greater efficiency in affordable new construction, and access to solar through rooftop and community solar initiatives. As part of the LMI portfolio implementation design activities, the NY Utilities will work with NYSERDA to further align the expanded LMI programs with the existing CEF programs. In addition,

NYSERDA funds market development initiatives intended to test innovative solutions and develop models for reducing soft costs and scaling access to energy efficiency.³⁵ The NY Utilities look forward to further understanding “lessons learned” from NYSERDA’s market development work funded through the CEF and may be able to use this information to inform future customer offerings.

The NY Utilities and NYSERDA will strive to increase collaboration with other programs such as WAP, HEAP, and other social service/affordable housing programs. Through this work, the NY Utilities and NYSERDA may reduce administrative burdens and will streamline participation, leverage touchpoints with customers, increase awareness and education, and identify funding streams outside of energy efficiency sources.

4. Expanded LMI Programs

Under the LMI Portfolio, the NY Utilities will fund and work with NYSERDA to implement initiatives to increase access to energy efficiency solutions to improve energy affordability for LMI customers. In particular, depending on the characteristics of each utility’s service territory, the NY Utilities will focus on energy efficiency in 1-4 family homes and affordable multifamily buildings, and on increasing customer adoption through community-based demonstration approaches. The Utilities will also work closely with NYSERDA to pilot new initiatives and approaches for implementing LMI programs which may result in reduced administrative complexity or cost, and lead to improved outcomes for LMI customers.

The NY Utilities will strive for consistency, as appropriate, by utility service territory, in program design across the State. Such consistency should serve to reduce customer confusion and limit complications for existing and new market actors (*i.e.*, contractors and social service providers). However, the programs will consider the regional differences in demographics, housing characteristics, and community needs by utility territory in order to enhance program effectiveness. As such, the NY Utilities anticipate that designs of individual programs may vary to a certain degree. The NY Utilities expect that the mix of LMI programs funded will generally fall within the following categories:

- **Comprehensive energy efficiency and direct install for 1-4 family homes**
Under the statewide LMI Portfolio construct, the NY Utilities expect that NYSERDA will continue to administer the 1-4 family homes programs³⁶ on a statewide basis, with the Utilities contributing incremental funding to increase the reach of programs in their service territory. In this role, NYSERDA will be responsible for managing

³⁵ These initiatives include clean energy solutions such as Retrofit NY, which seeks to develop scalable design solutions to enable the retrofit of existing buildings to net-zero performance, and the healthy homes pilots, which are targeted at developing models for incorporating health and energy treatments in a single intervention.

³⁶ The EmPower NY program provides no-cost energy efficiency upgrades for low-income households (households with annual income at or below 60 percent of the State Median Income (“SMI”)). The program is available to homeowners and renters in single family properties, and renters in multifamily buildings. The Assisted Home Performance with ENERGY STAR® program provides incentives for energy efficiency upgrades to moderate-income households (households with annual income up to 80 percent of the Area Median Income or SMI, whichever is greater).

customer intake and referrals, administrative infrastructure, and the statewide network of service providers.

In addition, the Utilities will work with NYSERDA to explore and consider the development of a direct-install component for these programs with the goal of increasing the adoption of energy efficiency for underserved LMI customers. Renters, homes with structural or safety issues that may prevent a full energy efficiency work scope, and LMI customers that may not otherwise choose to “go forward” with energy efficiency upgrades are good candidates for this type of direct install approach.

The NY Utilities expect that the approach to the 1-4 family homes market segment may drive cost savings from a single statewide administrative platform, managed by NYSERDA. In addition, this approach leverages the strength of each of the program administrators. NYSERDA operates at a statewide level and may realize LMI Portfolio economies of scale while the Utilities will be able to identify and refer customers with high energy burdens to receive relief through energy efficiency.

- **Increasing adoption of energy efficiency in affordable multifamily buildings**

As outlined in the Energy Efficiency Order, a significant opportunity for energy efficiency exists in the affordable multi-family segment, where applicable for each utility. Like the 1-4 family homes market segment, the NY Utilities expect that a complementary approach will help to address affordable multi-family buildings in a more comprehensive way.

The NY Utilities and NYSERDA will continue to work to reduce market confusion among building owners and contractors. The NY Utilities propose that affordable multifamily incentive programs be administered by Con Edison, National Grid, and NYSEG/RG&E in their respective service territories. NYSERDA will provide “default” affordable multifamily program offerings in the remaining utility service territories, so that a consistent offering is available statewide. The shared approach to multifamily incentive programs between the NY Utilities and NYSERDA reflects that existing utility multifamily programs have an established place in the market and a change in administration may disrupt the market and unintentionally cause backsliding. The NY Utilities have already invested in the information technology infrastructure to deploy those programs, and the potential for multi-family opportunities will vary by service territory.

The affordable multi-family market segment is an area in which complementary efforts by NYSERDA under the CEF can address market barriers to increased adoption of energy efficiency. By addressing soft costs such as support for predevelopment and underwriting, and the development of models that can increase the adoption of energy efficiency at the time of refinancing, NYSERDA can address

components of the affordable multi-family equation that are difficult to tackle on a service territory-specific basis. In addition to incentive programs funded jointly by the Utilities and NYSERDA, and market development initiatives available through the CEF, the Utilities expect to work with NYSERDA to explore opportunities to drive deeper savings for LMI customers and in affordable multifamily building product offerings. Additional program design and planning on “driving deeper” is necessary, and details will be included in future implementation plans.

- **Community-based approaches**

The NY Utilities are engaging community-based and mid-stream approaches in alternative ways by partnering with community-based organizations,³⁷ testing neighborhood based-delivery models such as a “community blitz,”³⁸ and targeting retailers that are prominent in lower-income communities with point of sale or midstream programs.

While the focus of these models has been predominantly lighting and lower-cost measures, they may be an effective way to engage the LMI community and reach customers that may not otherwise participate in traditional programs. Incremental energy efficiency can be achieved through modest initiatives such as lighting giveaways. In addition, models like the “community blitz,” which have been implemented by Duke Energy and PPL Electric, tie community outreach and education with the direct install of energy efficiency measures and direct referrals to other comprehensive programs. Currently, several utilities are interested in “community blitz” pilots with NYSERDA to test the potential for improved engagement, program participation, and administrative cost savings associated with geo-targeting neighborhoods.

The NY Utilities expect to continue to develop and implement community-based initiatives where it makes sense, coordinating with NYSERDA, where practical.

- **Developing electric utility heat pump solutions for LMI customers**

As referenced in the Chapter Three of this Updated Report, the NY Electric Utilities will work with NYSERDA to develop an approach to deploy heat pump technologies in the LMI market segment when heat pumps help reduce energy burdens of LMI customers. The potential deployment of heat pumps in the LMI market is characterized by challenges, including access to capital, split incentives, and the potential impact of load profile shifts on energy affordability. Recognizing these

³⁷ Central Hudson has partnered with United Way and Con Edison has partnered with local food banks to distribute LED lighting in the community.

³⁸ Con Edison, National Grid, and Orange & Rockland are supporting NYSERDA in its test of community blitz models in their service territories in 2019. National Fuel continues to partner with faith-based organizations and local block clubs as part of its outreach and education initiatives.

issues, the NY Electric Utilities and NYSERDA plan to identify opportunities and solutions to deploy cost effective heat pump technologies through demonstrations and pilots. This may inform the long-term approach for incentivizing heat pumps. As outlined in the Chapter Three of this Updated Report, NYSERDA will leverage the CEF to support the development and testing of such strategies.

The NY Utilities expect that the varied approach to addressing the LMI market segment and alignment with NYSERDA can expand the reach of programs. Program design details will be filed in future implementation plans. As discussed previously, the statewide LMI Portfolio will evolve to address developments and opportunities in the LMI landscape (including changes in technologies, new solutions, and additional models for reaching LMI customers).

5. Benefit-Cost-Analysis (“BCA”) for LMI Portfolio

As part of the statewide LMI Portfolio, the NY Utilities will work with NYSERDA to develop a methodology for conducting a statewide LMI portfolio-level BCA, containing LMI investments and associated energy savings of both the NY Utilities and NYSERDA. As outlined in the Energy Efficiency Order, the BCA for the LMI Portfolio will be determined independent of other utility program BCAs and will not count toward each utility’s aggregate portfolio BCA. In addition, the Energy Efficiency Order states that the BCA need not demonstrate net benefits due to the importance of serving this underserved community and the relatively high customer incentive levels (compared to other types of programs/sectors). The NY Utilities expect to develop details on the statewide BCA as part of future implementation plan filings.

6. Program Planning and Stakeholder Engagement

To guide the collaborative process necessary to implement a statewide portfolio effectively, an LMI Program Council will be established. This Council, composed of representatives from the NY Utilities and NYSERDA, will consider the planning and calibration of the portfolio over time. The NY Utilities envision the LMI Program Council will meet at regular intervals to review progress, modify programming where necessary, and plan for future years. The NY Utilities will work with NYSERDA on an approach for stakeholder engagement to obtain input and identify new opportunities. It is expected that regular stakeholder engagement will continue through venues such as the Low-Income Forum on Energy. The NY Utilities will also collaborate with NYSERDA, so that NYSERDA’s coordination with other State agencies³⁹ through the low-income energy task force, includes information on utility-funded LMI initiatives. Additional details on the LMI Program Council and future stakeholder engagement will be included in future implementation plans.

³⁹ NYS Homes and Community Renewal administers the Weatherization Assistance Program (“WAP”) and finances the development of affordable housing. NYS Office of Temporary and Disability Assistance administers the Home Energy Assistance Program (“HEAP”).

7. LMI Targets and Budgets

The Energy Efficiency Order adopted the New Efficiency: New York Whitepaper proposal to dedicate at least 20 percent of incremental energy efficiency funding to LMI programs. The Energy Efficiency Order also provides flexibility in that the percentage of LMI spending need not be identical across all the NY Utilities. The Utilities request that the Commission approve that the NY Utilities will not have annual budget levels due to the expectation that programs will take time to ramp up (*i.e.*, the number of contractors and their associated staffing levels may need to increase) and funding needs may vary by Utility service territory.

The NY Utilities also expect the need for flexibility with respect to the proportional distribution of budgets and targets by fuel type. Some of the NY Utilities may need to shift budgets and targets from electric to gas or vice versa. However, the magnitude of the shift will not be known until more information is available to size the LMI Portfolio opportunities. Based on the analysis of existing programs and opportunities, the Utilities will allocate budgets to programs and necessary administrative, marketing, and other implementation costs. Additional details on budgets will be included in future implementation plans.

8. Elements of Program and Implementation Design and Projected Timeline

The NY Utilities will work with NYSERDA following the filing of this Updated Report, on overall LMI Portfolio development including program and implementation design. This work will include program sizing, planning for opportunities for alignment with the CEF, portfolio branding and marketing approaches, and development of a statewide portfolio BCA methodology. Additional information on these topics will be included in future implementation plans.

Even though the development of the LMI Portfolio is currently “in progress,” there will be LMI programming available on January 1, 2020 as existing LMI programs administered by the Utilities and NYSERDA will continue. The NY Utilities expect that the new LMI Portfolio will be “rolled out” in a phased manner during 2020.

VIII. Earnings Adjustment Mechanisms

The Energy Efficiency Order states that the Commission may address some EAM-related matters in a 2019 order. The NY Utilities suggest that because all utilities are on different rate case cycles, the Commission's most efficient course of action would be to provide each Utility flexibility to propose EAMs, consistent with the principles already established in the Energy Efficiency Order.⁴⁰ This is also consistent with previous Commission determinations in Case 15-M-0252.

⁴⁰ Con Edison's Chapter in this Updated Report includes a discussion of proposed EAMs as part of its pending rate cases.

IX. Central Hudson Chapter

The purpose of this chapter is to address items that are of specific concern to Central Hudson (the “Company”).

I. Accelerated Energy Efficiency Budgets and Targets

The Company plans to adopt the presumptive electric and natural gas energy efficiency targets as proposed within the Energy Efficiency Order. However, Central Hudson proposes to increase the electric and natural gas budgets to accommodate the higher cost necessary to achieve those energy savings. The proposed increase would align Central Hudson’s available budget to that of the other utilities in the state.

Electric Energy Efficiency

Central Hudson’s proposed electric energy efficiency budget and targets for 2019-2025 are detailed below. The Company proposes to adopt the presumptive incremental targets as shown in Table 1.

Table 1: Central Hudson Proposed Electric Energy Efficiency Targets (2021-2025)

Energy Efficiency - Electric Targets (Gross MWh)						
Year	2021	2022	2023	2024	2025	Total
Base EE Target ⁴¹	53,262	53,262	53,262	53,262	53,262	266,310
Incremental NENY Target	6,000	10,000	14,000	17,000	21,700	68,700
Total	59,262	63,262	67,262	70,262	74,962	335,010

The presumptive electric budgets within the Energy Efficiency Order are not sufficient to meet these targets. As shown in Table 2, Central Hudson has the lowest presumptive \$/kWh budget, with the average Joint Utility budget being 66 percent higher than Central Hudson’s \$/kWh.

⁴¹ Figures shown reflect incremental budgets determined in most recent rate case and minimum-level EAM targets.

Table 2: Central Hudson & Joint Utilities Accelerated Electric Targets Comparison, 2021-2025

Utility	Total Budget, 2021-2025 (\$000)	Total Target, 2021-2025 (MWh)	\$/kWh, 2021-2025	\$/kWh Difference from Central Hudson (%)
Central Hudson	\$10,859	68,700	\$0.16	0%
Con Edison	\$707,375	2,337,700	\$0.30	91%
Niagara Mohawk	\$132,595	656,200	\$0.20	28%
NYSEG	\$121,791	563,540	\$0.22	37%
O&R	\$32,186	151,450	\$0.21	34%
RG&E	\$53,846	260,000	\$0.21	31%
Total Electric Portfolios	\$1,058,647	4,037,590	\$0.26	66%

The presumptive budgets within the Energy Efficiency Order were derived from historical run rates. However, Central Hudson’s recent performance was heavily dependent on residential lighting and behavioral programs, which were adopted by Central Hudson earlier than the other NY Utilities. Central Hudson’s early adoption limits the potential to utilize these same measures in the future, forcing the need for comprehensive and costly energy savings strategies.

Moreover, these programs have already been optimized to the appropriate scale in Central Hudson’s service territory⁴² and cannot be proportionately scaled up as targets increase. As such, it is useful to segment out lighting and behavioral programs which are not reflective of the portfolio’s scalability. Without these programs, Central Hudson’s historical cost is approximately \$0.24/kWh. For the purposes of setting incremental budgets, this figure is more indicative of the portion of Central Hudson’s portfolio which must be scaled up to meet accelerated targets.

For the reasons described above, Central Hudson proposes incremental budgets that match the statewide average \$/kWh of \$0.26. This equates to a total incremental budget of \$18.0M over the currently approved ETIP funding levels, as shown in Table 3.

Table 3: Electric Energy Efficiency Budget (2021-2025)

Energy Efficiency - Electric Budget (\$000)						
Year	2021	2022	2023	2024	2025	Total
Base EE Budget	\$9,773	\$9,773	\$9,773	\$9,773	\$9,773	\$48,865
Incremental NENY Budget	\$948	\$1,581	\$2,213	\$2,687	\$3,430	\$10,859

⁴² Both measurement & verification practices, and effective useful life impacts dictate the appropriate scale of the programs.

Additional Requested	\$699	\$1,112	\$1,472	\$1,721	\$2,132	\$7,136
Total	\$11,420	\$12,466	\$13,458	\$14,181	\$15,335	\$66,860

Natural Gas Energy Efficiency

Central Hudson’s proposed natural gas energy efficiency budget and targets for 2019-2025 are detailed below. The Company proposes to adopt the presumptive incremental targets as shown in Table 4.

Table 4: Central Hudson Proposed Natural Gas Energy Efficiency Targets (2019-2025)

Energy Efficiency - Gas Targets (Gross MMBtu)						
Year	2021	2022	2023	2024	2025	Total
Base EE Target ⁴³	58,016	58,016	58,016	58,016	58,016	290,080
Incremental NENY Target	1,000	3,000	6,000	10,000	15,040	35,040
Total	59,016	61,016	64,016	68,016	73,056	325,120

The presumptive natural gas budgets within the Energy Efficiency Order are not sufficient to meet these targets. As shown in Table 5, Central Hudson has the lowest presumptive \$/MMBtu budget, with the average Utility budget being 105 percent higher than Central Hudson’s \$/MMBtu.

Table 5: Central Hudson & Joint Utilities Accelerated Gas Targets Comparison, 2021-2025

Utility	Total Budget, 2021-2025 (\$000)	Total Target, 2021-2025 (MMBtu)	\$/MMBtu, 2021-2025	\$/MMBtu % Difference from Central Hudson
Central Hudson	\$555	35,040	\$15.83	0%
Con Edison	\$70,194	1,913,155	\$36.69	132%
KEDLI	\$27,487	976,200	\$28.16	78%
KEDNY	\$73,858	2,255,688	\$32.74	107%
NFG	\$2,602	49,950	\$52.09	229%
NYSEG	\$10,262	449,560	\$22.83	44%
O&R	\$11,802	308,870	\$38.21	141%
RG&E	\$4,686	229,399	\$20.43	29%

⁴³ Figures shown reflect incremental budgets determined in most recent rate case and minimum-level EAM targets.

Total Gas Portfolios	\$201,446	6,217,862	\$32.40	105%
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The presumptive budgets within the Energy Efficiency Order were derived from historical run rates. However, Central Hudson’s recent performance was heavily dependent upon its behavioral program. Central Hudson’s early adoption limits the potential to utilize these same measures in the future, forcing the need for comprehensive and costly energy savings strategies. This program has already been optimized to the appropriate scale in its service territory⁴⁴ and cannot be proportionately scaled up as targets increase. As such, it is useful to segment out the behavioral program, which is not reflective of the portfolio’s scalability. Without behavioral, Central Hudson’s historical cost is approximately \$27/MMBtu. For the purposes of setting incremental budgets, this figure is more indicative of the portion of Central Hudson’s portfolio which must be scaled up to meet accelerated targets.

Furthermore, Central Hudson’s natural gas conversion program has historically been a catalyst for adoption of efficient natural gas heating equipment. Within the current Rate Plan Order,⁴⁵ this program has been significantly reduced, considerably limiting the potential compared to prior years. Additionally, the catalog of natural gas measures that pass an economic screen are limited, simply because there are fewer gas end uses than with electric.

For the reasons described above, Central Hudson proposes incremental budgets that match the statewide average \$/MMBtu of \$32.40. This equates to a total incremental budget of \$1.1M over the currently approved ETIP funding levels, as shown in Table 6.

Table 6. Gas Energy Efficiency Budget (2019-2025)

Energy Efficiency - Gas Budget (\$000)						
	2021	2022	2023	2024	2025	Total
Base EE Budget	\$1,182	\$1,182	\$1,182	\$1,182	\$1,182	\$5,910
Incremental NENY Budget	\$16	\$47	\$95	\$158	\$238	\$554
Additional Requested	\$17	\$51	\$100	\$164	\$244	\$576
Total	\$1,215	\$1,280	\$1,377	\$1,504	\$1,664	\$7,040

**II. Incremental Heat Pump Program
Budgets and Targets**

⁴⁴ Both measurement & verification practices, and effective useful life impacts dictate the appropriate scale of the program.
⁴⁵ Cases 17-E-0459 and 17-G-0460, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Central Hudson Gas & Electric Corporation for Electric and Gas Service, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan* (issued June 14, 2018)(“Central Hudson’s Rate Case Order”).

Central Hudson proposes to adopt the cumulative budget of \$30.2M from NYSERDA’s revised heat pump potential study. Central Hudson found the presumptive program target, however, to be unachievable. Central Hudson, with support from their EM&V team, conducted an analysis to develop an achievable GBtu savings target. The Company proposes to adopt the resulting cumulative heat pump program target of 253 GBtu. The determination of this target is described throughout this chapter.

Table 7 shows the high-level planning assumptions used to develop the proposed targets. Assuming the total program budget of \$30.2M includes a 20% program administration cost, the average incentive would be approximately \$1,169 per-thermal ton.

Table 7. 2020-2025 Heat Pump Program Assumptions⁴⁶

System Type	Tons per Installation	Total Tons	Number of Systems	Estimated Gbtu Savings
ASHP	3	3,230	1,077	36
Mini-split	1.5	15,074	10,050	167
GSHP	4	3,230	808	50
Total		21,535	11,934	253

Analysis of Savings

Central Hudson used actual Poughkeepsie weather data from their service territory to determine the peak design condition (rate of a home’s heat loss at the coldest temperatures) per ton of heat pump capacity. We assumed ASHP’s and GSHP’s will provide 100% of the homes heat and found an equivalent full load hour (EFLH) heating estimate of 1,302 for these system types. This is significantly higher than the NY TRM estimate for Poughkeepsie (862 heating EFLH). We assumed heat pump installations will occur in existing homes with oil heat.

Central Hudson predicts that mini-splits will be the main contributor to program savings. Considering the absence of a savings approach for mini-splits in the NY TRM, Central Hudson leveraged other data sources to develop a realistic estimate of mini-split heating savings. Central Hudson used data from a recent metering study⁴⁷ in Vermont. We estimated mini-split consumption using the metered load profile, adjusted with weather data from Poughkeepsie. We chose the Vermont study for these reasons:

- 1) The average efficiency of systems metered (23.7 SEER, 11.9 HSPF) was nearly equivalent to the efficiency assumptions in NYSERDA’s analysis (23.3 SEER, 11.3 HSPF).

⁴⁶ Technology specific figures are used for planning purposes only. The Company does not propose technology specific targets.

⁴⁷ https://publicservice.vermont.gov/sites/dps/files/documents/Energy_Efficiency/Reports/Evaluation%20of%20Cold%20Climate%20Heat%20Pumps%20in%20Vermont.pdf

- 2) Average cooling capacity of mini-splits (17,695 BTU/h, 1.47 tons), was similar to the system size assumed in NYSERDA and Central Hudson's modeled estimates (1.5 tons).
- 3) None of the metering participants used natural gas heat. Most had oil or electric resistance heat and had strong economic motivation to maximize mini-split use. Using data from other studies (e.g. Ductless Mini-split Heat Pump Evaluation⁴⁸ for Massachusetts) produces a lower per-ton savings estimate because those participants did not maximize the use of their mini-split systems.
- 4) Data showed participants maximized the use of their mini-split systems. Even during the coldest times of the year (temperatures below -10°F) more than 80% of used their mini-split for heat.
- 5) Meter data provides real-world estimates.

By definition, equivalent full load hours (EFLH) represent the total capacity (heating and cooling) that an HVAC system provides to a home or space during a typical season as a function of the system's nameplate (full load) capacity. Central Hudson's analysis found a 1.5-ton mini-split would offset **17.9 MMBtus per year**. This represents the annual heat load of the space served by the mini-split and can be used for comparison to other modeled estimates. Approximately 77% of the heat in a season is provided by the mini-split and that an additional 5.4 MMBtus would be provided by an alternate heat source (23 MMBtus total for a space with a 1.5-ton mini-split). While it is technically possible for a mini-split to provide 100% of the heat, it is not common practice to size mini-splits to serve 100% of the load. Central Hudson believes the meter data we used to estimate savings for their service territory represent an achievable estimate of savings if the program successfully targets high-use spaces.

Central Hudson's analysis found for space using 23 MMBtus of heat would use 5.9 MMBtus of cooling. This equates to 332 EFLH cooling and is lower than the TRM value for Poughkeepsie (470 EFLH cooling).

Program Adoption Up-Take versus Incentive Levels

The potential up-take for the heat pump program is closely related the incentive level offered, however, Central Hudson believes that the relationship between up-take and incentive level is nonlinear. This nonlinear relationship is reflected in Table 1 above. As incentives increase, a higher proportion of the population will participate. Central Hudson used data available from a New England pricing trial and quantified this relationship using a regression analysis.

The figure below shows the results of a heat pump water heater pricing trial conducted in New England. Incentive levels were purposefully varied from around 30% of the incremental

⁴⁸<http://ma-eeac.org/wordpress/wp-content/uploads/Ductless-Mini-Split-Heat-Pump-Impact-Evaluation.pdf>

measure cost⁴⁹ to over 100%. As expected, program adoption of heat pump water heaters increased with incentive levels. The empirical data enabled by experimentation in incentive levels allowed for development of a mathematical model of the relationship between incentive levels and customer adoption. Central Hudson used this relationship to estimate the program participation rate of increase due to increasing incentives. We chose this pricing trial relationship for these reasons:

- 1) Market saturation of HPWHs and mini-splits is similar and relatively low. Utility programs are intended to drive measure adoption.
- 2) Equipment cost of a 1.5-ton mini-split is similar to the cost of a HPWH (full retrofit cost of a mini-split is likely 2-3 times higher due to installed cost). Proposed incentives could pay for a large portion of the minisplit cost, a percentage that is represented well by the data in **Figure 1**.
- 3) Both HPWHs and mini-splits have high savings potential and similar payback periods.

Figure 1. Heat Pump Water Heater Pricing Trial Results

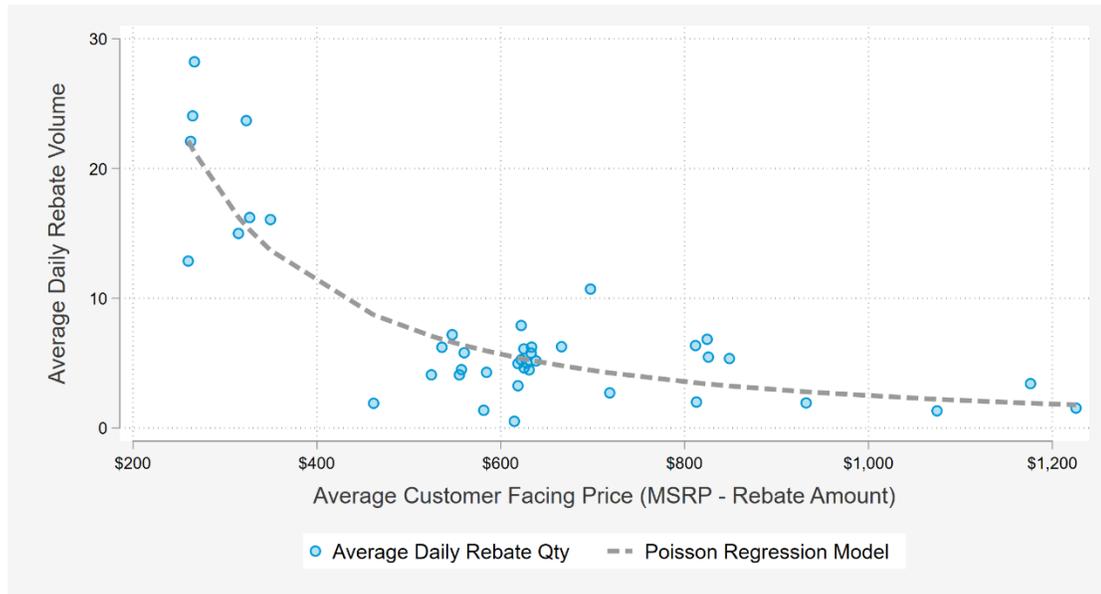
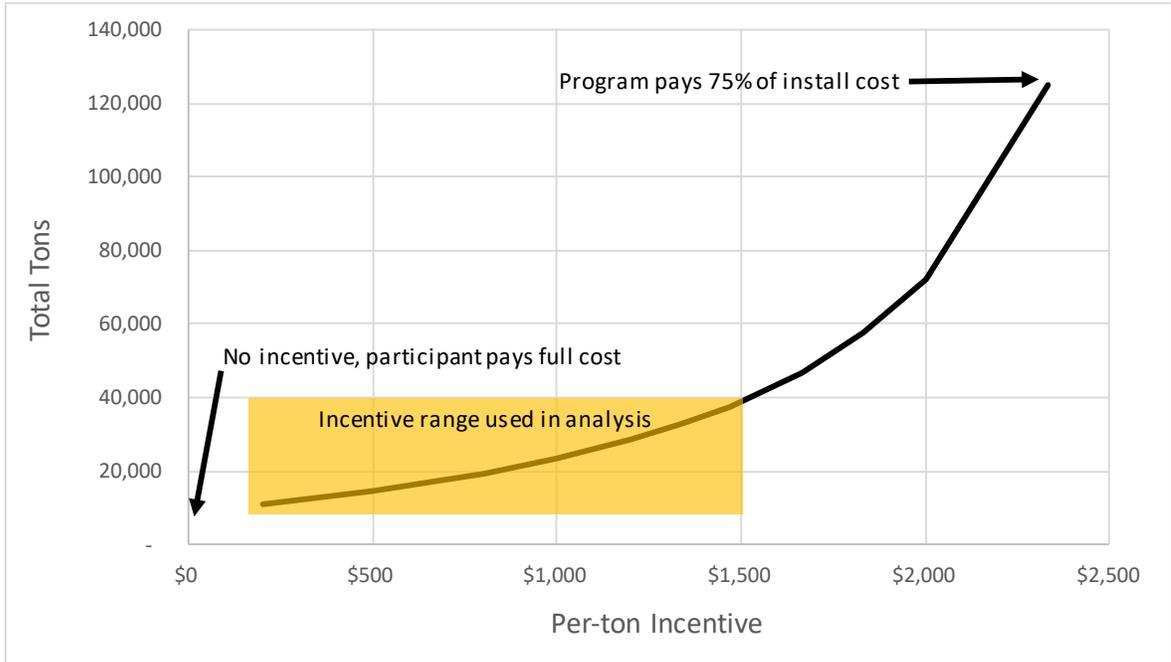


Figure 2 shows the regression data from Figure 1, adapted for mini-split heat pump incentives. Central Hudson used the data in the shaded region to estimate the change in program participation as incentives increase.

⁴⁹ Incremental measure cost in this case being the difference between the cost of a high efficiency heat pump water heater and a new code-minimum electric resistance water heater.

Figure 2. Visualization of Pricing Trial Data Adapted for Mini-split Program Participation



Central Hudson’s approach assumes adoption rate varies by the proportion of the programs’ contribution to full installation cost. Central Hudson accepted and used NYSERDA’s original assumption (a budget of \$24.6M would drive 18,915 tons of heat pump installations) as the starting point in our analysis, projecting the number of tons that would be installed if the budget and incentives increased, and the customer-facing cost decreased. Table 8 shows modeled participation levels (on a per-ton basis) and the % share that Central Hudson used in their analysis of program savings. The % share used in analysis is Central Hudson’s estimate of expected program participation.

Table 8: Modeled Participation of Expected Tons Installed

System Type	% Share	% Share Used in Analysis
ASHP	33%	15%
Mini-split	49%	70%
GSHP	18%	15%

Though the ASHP and mini-split % share differ significantly from the % share used in analysis of program savings, this has no material impact on overall program savings because ASHPs and mini-splits generate nearly the same savings per ton of installed capacity. Ultimately, Central Hudson chose a mix of 15% ASHP, 70% mini-split, 15% GSHP based on their collaboration with the EM&V team and others with industry experience.

Alternative Scenarios

Central Hudson estimated program participation and savings for two alternative scenarios. Based on the same methodology used to arrive at the figures in Table 1, Central Hudson would be able to achieve 222 GBtu with NYSERDA's original program budget of \$24.6M. Additionally, Central Hudson would require a budget of \$68.9M to achieve NYSERDA's revised presumptive target of 416 GBtu.

III. Incremental Cost Recovery

Per the Central Hudson's Rate Plan Order, electric and gas energy efficiency program costs are now recovered in base rates beginning on July 1, 2018. Additionally, the Rate Plan Order anticipated that Energy Efficiency Program costs and targets are subject to change pursuant to Commission action in Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative* ("Energy Efficiency Proceeding") and granted the Company authorization to defer and recover any such changes approved by the Commission.

For the period of January 1, 2016 through June 30, 2018, Central Hudson had a cumulative underspend of approximately \$5.1M and \$0.3M within its electric and natural gas portfolios respectively. The Company proposes to utilize these regulatory liabilities to fund the incremental energy efficiency and heat pump⁵⁰ program budgets before creating a regulatory asset. The Company proposes that any incremental staffing associated with increases to the heat pump or energy efficiency programs should be funded through this cost recovery mechanism. The Company's expectation is that any regulatory assets and future costs incurred would be fully addressed within a future rate proceeding.

IV. Sustainability of Current Funding Mechanisms

Central Hudson is very supportive of utilizing clean electric heating technologies as a carbon reduction strategy. The Company launched its first heat pump conversion program in 2018 and has achieved early success.

According to the Energy Efficiency Order, utility-specific mechanisms within electric rates or surcharges would be used to fund their heat pump programs. Central Hudson's current proposed heat pump program budget of \$30.2M over the period of 2020-2025 is forecasted to enable the Company to achieve approximately 9,000 installations, according to the updated Heat Pump Potential Study. Although the bill impact of this initiative may appear manageable in the short term, the Company is concerned about the long-term sustainability of funding this and other beneficial electrification initiatives primarily through electric bills.

⁵⁰ The electric energy efficiency portfolio and the heat pump program would specifically be funded through the electric portfolio underspend. The gas energy efficiency portfolio and heat pump program would be funded through the gas portfolio underspend.

There are over 175,000 electric customers within the Central Hudson service territory which utilize fuel oil or propane as their primary heating fuel. If the statewide heat pump framework were scaled to bring efficient heat pump systems to this number of customers at current funding levels, the program would cost Central Hudson's customers approximately \$557M, which equates to 52 percent of the average electric rate base within Central Hudson's Rate Plan Order⁵¹. This funding strategy is not sustainable, since it may create a barrier to fuel switching as electric prices increase, results in an unfair cost burden on non-participating electric customers. The Company requests that alternative funding sources are explored and considered for the purposes of scaling beneficial electrification initiatives.

V. Low- and Moderate-Income Considerations

Central Hudson agrees with the NY Utilities that flexibility will be necessary with respect to the proportional budgets and targets by fuel type. In addition, budget levels should not be imposed on an annual basis as programs will take time to ramp up. In addition, Central Hudson is in alignment with the heat pump proposal within the LMI section of the Joint Utility filing and the Company will collaborate with NYSERDA to identify and deploy heat pump technology through demonstration and pilot projects.

The housing stock within Central Hudson's service territory is predominantly single-family units, including the homes of low- and moderate-income customers. Any LMI strategy which places prescriptive requirements with respect to multifamily uptake rates would significantly disadvantage Central Hudson because there is very limited potential for this segment. The Company requests that no specific LMI uptake requirements be imposed with respect to multifamily.

VI. Kickers

The Energy Efficiency Order directed each of the New York Utilities to address how the concept of kickers might be applied in their respective service territories. Central Hudson does not believe the use of kickers would be beneficial within its service territory at this time. The electric peak demand on transmission & distribution systems has flattened or declined in recent years, resulting in substantial excess capacity. Studies completed in 2016 and 2018 indicated system-wide load reduction values of \$14.55/kW-year and \$0.13/kW-year, respectively. Areas of localized load growth are currently being addressed through NWA initiatives which cover approximately 16% of the service territory, by load. Within these NWA's, the Company has already leveraged synergies with its Energy Efficiency efforts. Similar in concept to kickers, locational value is being used to boost incentives to customers located within NWA zones. These incentives are tailored to specific locational needs and funded by both Energy Efficiency programs and NWA budgets. The Company expects to re-evaluate the use of kickers if future constraints are identified.

⁵¹ Central Hudson's Rate Case Order, Appendix A, Schedule 1 – Average electric rate base is \$1,080,276,000.

X. Con Edison Chapter

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Executive Summary

Con Edison (the “Company”) supports New York’s ambitious environmental and clean energy goals and is committed to helping meet the Energy Efficiency Order’s energy savings goals. As proposed in the Company’s pending rate case,⁵² the Company intends to meet the Energy Efficiency Order’s presumptive goals through expanding existing programs and adding new programs and delivery channels, innovating to deliver additional savings cost-effectively, and using data analytics to increase program and marketing effectiveness. Further, the Company will diversify its portfolio and seek opportunities for deeper energy efficiency savings, to the extent that such diversification can be undertaken under the Energy Efficiency Order’s existing budget and unit cost limits. The Company also intends to expand resource acquisition programs for its portfolios to include cost-effective and scalable programs upstream of customers and establish a new initiative (the “kicker” incentive discussed below) to incentivize a broad array of space cooling related technologies that provide system value. Finally, the Company will integrate the

⁵² Cases 19-E-0065 and 19-G-0066, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric and Gas Service* filed January 31, 2019 (“Rate Case”). See related testimony and exhibits of the Customer Energy Solutions Panel (“CES testimony”).

Non-pipeline Solutions (“NPS”)⁵³ portfolio into its overall portfolio, including integrating peak day gas demand reduction as a priority.

Con Edison’s proposal is designed around five core principles intended to meet the Energy Efficiency Order’s goals:

- (i) advance the State’s clean energy policy objectives through an overall reduction in emissions across commodities, and make progress towards a more fuel-neutral approach;
- (ii) manage the portfolio of electric energy efficiency, gas energy efficiency, and heat pump programs as a single combined portfolio, which requires allowing appropriate flexibility of budgets within the overall budget as proposed in the Company’s rate case testimony and in this filing;
- (iii) allow for changes to program designs, electric, gas or heat pump budgets, and other program or portfolio attributes as necessary to innovate and continuously improve with the objective of driving results;
- (iv) deliver meaningful lifetime benefits cost-effectively and with moderate changes to customer bills; and
- (v) establish earnings adjustment mechanisms (“EAMs”), discussed later, aligned with the key State policy objectives facilitated through utility action.

This filing provides Con Edison’s plans, including budgets and targets, which, as described below, replaces the indicative energy efficiency (“EE”) budgets and targets included in the Company’s January 31, 2019 CES testimony and the Company’s February 19, 2019 ETIP/SEEP filing⁵⁴ as it relates to 2020, and includes heat pump programs and LMI programs through 2025 in compliance with the Energy Efficiency Order, the Storage Order,⁵⁵ and the NPS Order. As explained below, this Con Edison Chapter includes the following proposals, including those related to 2020-2022 that the Company plans to incorporate as part of its pending rate proceedings:

- Energy Efficiency plan for budgets and targets, including heat pumps and LMI initiatives;
- integration of the NPS portfolio, with additional focus on peak day gas demand reductions within the efficiency and heat pump portfolios;
- kicker incentive to facilitate adoption of efficient space cooling technologies that have system value;

⁵³ Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving with Modification the Non-Pipeline Solutions Portfolio (issued February 7, 2019) (“NPS Order”).

⁵⁴ Case 15-M-0252, *Con Edison Energy Efficiency Transition Implementation/System Energy Efficiency Plan* (filed February 19, 2019) (“ETIP/SEEP”).

⁵⁵ Case 18-E-0130, *In the Matter of Energy Storage Deployment Program*, Order Establishing Energy Storage Goal and Deployment Policy (issued December 13, 2018) (“Storage Order”).

- treatment of unspent funds from previous EE proceedings;
- cost recovery for the EE portfolio, including heat pump and LMI initiatives;
- additional expenditures related to systems and labor necessary to implement the Company’s plans for the potential rate plan period;⁵⁶
- inclusion of Non-Wires Solutions’ costs for the RY1-RY3 period;
- revised EAMs with indicative results of a benefit cost analysis (“BCA”) where available and appropriate; and
- illustrative portfolio and program descriptions with indicative results of a BCA.

Since the Company’s electric and gas rate filings address energy efficiency plans for a three-year period (2020-2022) that overlaps with the five-year period that is the target of this April 1, 2019 filing (2021-2025) and the two years 2019-2020 addressed in the Energy Efficiency Order (and ETIP⁵⁷ and Enhanced Gas EE⁵⁸ Orders), the Company is providing this filing both in response to the Energy Efficiency Order and as a proposal in the Company’s rate cases. The Company’s rate case CES testimony noted that there was inadequate time to complete review and evaluation of the Energy Efficiency Order and Storage Order prior to finalizing revenue requirements and that an update of the Company’s energy efficiency and EAM proposals by the preliminary update stage of the rate proceedings may be needed. The Company completed its review and addresses those items herein. The Company advised parties to the rate proceedings at the March 13, 2019 Technical Conference of the Company’s intention to incorporate this filing into its rate case filing.⁵⁹

Background and Con Edison Rate Case Filing

The Company’s rate case filing CES testimony included a plan for energy efficiency investments and EAMs, which the Company noted was under review based on the Energy Efficiency Order and Storage Order. The Energy Efficiency Order established (i) incremental budgets and targets for electric EE, including heat pumps, and gas EE for 2019-2020; and (ii) presumptive budgets and targets for the same programs for 2021-2025, which covers RY2-RY3. The Energy Efficiency Order also recommended utilities propose a new EAM focused on a “share of savings” approach that considers lifetime energy efficiency benefits. The Storage Order sets storage targets and required utilities to propose a new EAM focused on system efficiency, and, in particular, on improvements in load factor that provide system or local peak reductions.

⁵⁶ In the rate filings, the Rate Year is 2020 (“RY1”) and the two illustrative years are 2021 and 2022 (“RY2” and “RY3,” respectively).

⁵⁷ Case 15-M-0252, *In the Matter of Utility Energy Efficiency Programs*, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 (issued March 15, 2018) (“ETIP Order”).

⁵⁸ Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving in Part, with Modification, and Denying in Part Smart Solutions Program (issued July 12, 2018) (“Enhanced Gas EE Order”).

⁵⁹ The Company expects that the Con Edison Chapter will be addressed in its pending rate case and that this will be made clear in any State Administrative Procedure Act notice issued for this filing.

Subsequently, the Commission’s NPS Order authorized the Company to pursue a portfolio of NPS and required the integration of the NPS portfolio into the broader energy efficiency activities authorized in the Energy Efficiency Order based on the constraints established in the Energy Efficiency Order.

Budgets and Targets

Con Edison’s proposed budgets and targets comply with the Energy Efficiency Order’s overall goals, in British Thermal Units (“Btus”) for energy savings. The Company plans to meet these goals through electric (including heat pump initiatives) and gas efficiency. The NPS Order provides for increased gas energy efficiency, including the adoption of efficient technologies that allow “fuel switching,” *i.e.*, switching to other energy sources in lieu of gas and an additional focus on peak day gas demand reductions. Consequently, NPS integration results in a plan that shifts a portion of the budget that would be allocated to electric energy efficiency efforts to gas energy efficiency efforts. As a result, although the Company is planning to exceed the overall Btu energy savings goals established by the Commission, the Company’s plans have lower electric energy efficiency targets, and higher gas energy efficiency, and higher overall energy efficiency savings than those set forth in the Energy Efficiency Order. A summary of the Company’s plans is provided in the tables below.

Further, the Company proposes to fund the electric (including heat pump programs and a kicker incentive) and gas EE portfolios, including efforts targeted to LMI customers, through a combination of (i) cost recovery mechanisms established in the Company’s rate proceeding for 2020 through 2022 (and in this proceeding for the remaining years) and (ii) the use of existing unspent funds, discussed in the cost recovery section.

Table 1 and Table 2⁶⁰ below reflect Con Edison’s proposed annual, incremental targets and annual budgets, inclusive of the portion for which the Company is seeking cost recovery as discussed later, for electric non-LMI EE, heat pumps, and gas non-LMI EE, and LMI electric EE and LMI gas EE.⁶¹ Budgets and targets are shown in further detail in Exhibit A. As discussed later in the Unified Portfolio and Expanded Eligibility section, the Company intends to manage its portfolio to the total budgets and targets in Tables 1 and 2.

⁶⁰ The Energy Efficiency Order budgets set forth above do not include funding for kicker incentives, which will be supplemental to the budgets shown.

⁶¹ In developing this filing, the Company made key assumptions, including: (i) all budgets and targets provided in this filing for portfolios and EAMs are based on gross savings, which is the currently applicable metric used in the reporting of energy efficiency savings in the State; and (ii) all budgets and targets provided in this filing were premised on and developed using currently applicable baseline rules and using a savings calculation methodology proposed by NYSERDA for heat pumps. Changes or updates to these assumptions would require corresponding changes reflected in the targets and/or budgets.

Table 1 – EE Non-LMI Target and Budget Schedule

	2020	2021	2022	2023	2024	2025	Total (RY1- RY3)
Non-LMI MMbtu	1,987,890	2,324,532	2,630,626	2,963,161	3,310,237	3,654,771	6,943, 048
Non-LMI Budget	\$159,683,619	\$197,565,671	\$224,307,920	\$258,677,836	\$296,578,977	\$332,565,083	\$581,557,210

Table 2 – EE LMI Target and Budget Schedule

	2020	2021	2022	2023	2024	2025	Total (RY1- RY3)
LMI MMbtu	70,559	127,743	157,842	192,726	228,797	260,145	356,144
LMI Budget	\$11,922,224	\$20,325,928	\$25,345,369	\$31,078,255	\$36,895,570	\$41,868,802	\$57,593,521

Portfolio Development Considerations

The Company’s illustrative portfolio (which assumes that we will expend the amount we are requesting at the current target level) builds upon our experience in delivering EE.⁶² Three key portfolio development considerations were:

- Focus on cost-effective and scalable programs upstream of the customer, such as through retailers, contractors, or distributors, as a key component of the portfolio’s development. Such interventions can both directly drive EE adoption as well as transform markets by positively biasing behavior in favor of EE across the supply chain.
- Diversify beyond lighting, the predominant electric EE driver today to the extent such diversification can be undertaken under the budget and unit cost limits. Such diversification will require Con Edison to work with customers to achieve greater and deeper levels of savings from more complex measures, such as heating, ventilation, and air conditioning (“HVAC”) and building envelope improvements that have longer customer payback periods and implementation lead times.
- Expand the gas portfolio to develop additional focus towards, and experience with, fuel-neutral approaches and beneficial electrification technologies to (i) continue the development of the EE market for gas EE and heat pump projects and (ii) provide more and relevant choices to customers such as those seeking heating electrification.

⁶² Although the Company developed an illustrative portfolio based on the best information available, the Company notes that the scale of expansion of gas EE and heat pump initiatives are unprecedented and are expected to present considerable operational challenges in execution. In particular, gas EE measures are generally more complex, requiring longer lead times, municipal permits, and greater capital investment. Similarly, lack of customer awareness and challenges with customer economics may present a barrier to customer adoption of heat pumps.

Portfolio Changes and Evolution

The Company's illustrative portfolio has evolved to reflect priorities as reflected in the Energy Efficiency Order and NPS Order. Changes to the portfolio include more gas EE than prior portfolios with additional focus on peak day gas demand reductions, so the Company expects that there will be changes over time, with program design and implementation flexibility necessary to facilitate achievement of desired outcomes. Changes to the structure and composition of the portfolio includes: (i) development of a kicker incentive focused on space cooling and related technologies, (ii) integration on NPS into the overall EE portfolio, and (iii) expansion of heat pumps as a greater initiative within the overall EE portfolio.

Kicker Incentive

The Energy Efficiency Order called for NY Utilities to introduce a "kicker" incentive, primarily focused on space cooling and related technologies that provide additional customer incentives to adopt such technologies, based on the greater system value these technologies can provide. Consequently, Con Edison proposes an electric kicker incentive to provide customers with incentives to increase adoption of space cooling and related measures that provide system value. For example, the Company is considering a kicker incentive to drive adoption of efficient cooling technologies, such as more efficient room air conditioners that provide greater system value such as through load relief during peak summer hours. The Company is still developing the kicker incentive.

Con Edison proposes a three-year spending of up to \$48 million over 2020-2022 for the kicker incentive to determine its effectiveness in encouraging customers to adopt efficient space cooling efficiency technologies. As appropriate, the Company will incorporate any learnings from the kicker incentive in future portfolio development. Given that the structure of the incentive has not been fully developed from both a design and an operational implementation perspective, the Company emphasizes the importance of flexibility so the kicker incentive can serve as a test for such an approach.

NPS Integration into EE Portfolio

In alignment with the NPS Order, the Company is integrating its NPS portfolio into the broader EE portfolio. This effort requires a careful and thoughtful balancing of electric and gas portfolios, which considers: (a) customers' needs throughout our service territory, and (b) challenges in delivering unprecedented levels of gas energy efficiency, and heat pump savings, that require consideration of peak day gas demand reductions. As part of integrating NPS, the Company intends to track progress and establish methodologies to estimate gas peak reductions.

As NPS is integrated into its portfolio, the Company will work to achieve the Btu savings anticipated in the Energy Efficiency Order, however, with an increased percentage of the portfolio savings coming from gas efficiency measures.

Heat Pumps

Pursuant to the Energy Efficiency Order and NPS Order, Con Edison is filing heat pump targets and budgets in the NY Utilities' Heat Pump Chapter, which are referenced in this Con Edison Chapter. The heat pump targets include the proposed Con Edison allocation from the Energy Efficiency Order (0.8 trillion Btu or TBtu attributable to Con Edison's electric service territory out of 5 TBtu expected from heat pumps statewide based on NYSERDA's analysis) and integrates the heat pump portion of the NPS portfolio. The proposed heat pump targets and budgets will replace the beneficial electrification program proposed in the CES testimony.

The heat pump targets presented in this filing are based on the estimated number of heat pumps necessary to meet Con Edison's 2025 TBtu goal inclusive of heat pumps in the NPS portfolio. The number of heat pumps needed to meet the Company's 2025 heat pump goal was estimated by using the savings calculation methodologies that underpinned the heat pump goals in the Energy Efficiency Order that NYSERDA developed and recently updated. Due to updates to the savings methodology used in NYSERDA's heat pump potential study issued in January,⁶³ the per unit savings achieved by heat pumps in the NYSERDA's updated methodology is lower than estimated in the January NYSERDA Heat Pump Potential Study. This requires the NY Electric Utilities, including Con Edison, to install significantly higher numbers of heat pumps to achieve the Energy Efficiency Order's 5 TBtu. The Company has incorporated the savings calculation methodology without verifying the underlying models or developing a methodology of its own.

As discussed in the heat pump chapter, the Company made additional adjustments impacting the total expenditures the Company requires to achieve the 0.8 TBtu goal. Consequently, Company expects that total expenditures will significantly exceed NYSERDA's original estimate of the NY Electric Utilities' allocation of \$75 million of the heat pump budget to Con Edison. The Company expects that it will require expenditures of \$189.6 million and is thus proposing a \$189.6 million budget for the heat pump program, in order to attempt to deliver 0.8 Tbtu of energy savings through 2025. The Company believes this budget will support incentive levels that will develop a market for heat pumps in its service territory, and would thereby increase customer adoption rates, including in the portion of Westchester County subject to the Company's temporary gas moratorium.

Enabling Tools for Implementation

In order to store, track, and record EE savings achieved, and better target and assist customers to engage in EE efforts, the Company plans to enhance its existing systems. While the CES testimony discussed some enhancements, the efforts the Company expects to pursue based on the Energy Efficiency Order and NPS Order requires additional enhancements to two systems.

⁶³ New York State Energy Research and Development Authority, *New Efficiency: New York Analysis of Residential Heat Pump Potential and Economics Final Report*, Report Number 18-44 (issued in January 2019) ("NYSERDA Heat Pump Potential Study").

These enhancements will further develop data and analytics platforms to improve implementation and delivery effectiveness:

- Demand Management Tracking System (“DMTS”) serves as the EE system of record, which tracks, stores, records, and verifies energy and demand savings of the various programs within the combined EE portfolio. Information contained within DMTS also enables the Company to better understand and manage the performance of programs in meeting the overall portfolio goals.
- Demand Management Analytics Platform (“DMAP”) serves as a platform for internal and external data sources related to, for example, participating and non-participating customers; building types and vintage; the type of energy related equipment in different buildings; and customer segmentation by energy usage and sector, which will allow for development and application of analytics to such datasets. The Company will apply any actionable insights from such analytics to help improve effectiveness of implementing EE programs, such as by targeting customers, building types, or neighborhoods for specific EE technologies with a greater likelihood of adoption of EE.

The expected additional costs for these systems above the levels included in the CES testimony are discussed in the cost recovery section below.

Unified Portfolio Approach and Expanded Eligibility

As explained in the CES testimony, the Company proposes to manage its electric and gas EE programs as a single combined portfolio for the benefit of electric and gas customers. For purposes of setting rates, the costs are allocated between electric and gas based on the costs of the electric and gas programs in the portfolio. The Company seeks flexibility to move actual expenditures between the electric and gas programs as needed to meet Energy Efficiency Order targets.

Thus, while the Company’s program includes separate, annual electric and gas energy savings targets, the Company proposes to manage the portfolio of electric and gas EE programs as a single combined budget; if a three-year rate plan is established, the costs would be reconciled at the end of the applicable rate plan period. Managing the Company’s EE portfolio on a combined basis will benefit customers, for example, by providing flexibility:

- within the budget, which allows for the portfolio to respond to market conditions and customer needs, creating opportunities for focus to be shifted across programs to more cost-effective efforts that are driving results, and
- within the electric and gas programs, including heat pump programs, allowing a fuel-neutral approach to programs.

Currently, only firm gas customers are eligible to participate in energy efficiency programs. Beginning in 2020, Con Edison would consider eligibility to interruptible gas customers allowing such customers to participate in the Company’s EE initiatives.

Cost Recovery

This section discusses expenditures for the EE portfolio (Electric EE, including heat pumps, gas EE, and EE targeted to LMI customers), the kicker incentive, non-wire solutions (“NWS”), Energy Efficiency and Demand Management (“EEDM”) O&M, and additional expenditures related to systems and labor. The section further discusses the sources of funds for those expenditures, cost allocation based on customer eligibility, and cost recovery mechanisms.

EE Portfolio Expenditures Considering Integration of NPS into the EE Portfolio

Summary:

- **Source of funds:** Base delivery rates supplemented by use of unspent Energy Efficiency Portfolio Standard (“EEPS”) and ETIP funds
- **Cost allocation:** For electric, all electric customers excluding New York Power Authority (“NYPA”) supplied customers, and for gas, all gas customers⁶⁴
- **Cost recovery:** Excepting the portion provided by unspent funds, as a regulatory asset with a 10-year amortization period under the Regulatory Asset Framework discussed in the CES testimony

Table 3 below shows the estimated EE expenditures which the Company proposes to recover under the regulatory asset framework discussed in the CES testimony and further below. The expenditures represent the portion of the expenditures requiring cost recovery, net of the use of the unspent funds the Company is proposing use to fund the remaining portion of the total expenditures shown in Table Table 4 below.

Table 3 – Schedule for Cost Recovery

Funds Recovered through 10 Year Regulatory Assets	2020	2021	2022
Electric	\$78,367,711	\$171,674,914	\$195,974,537
Gas	\$24,530,241	\$36,788,314	\$40,209,650
Total	\$102,897,952	\$208,463,228	\$236,184,187

⁶⁴ The Company is considering developing a proposal that would include interruptible gas customers. If such a proposal is developed, the Company will provide it to parties to this proceeding and the gas rate proceeding.

The electric and gas revenue requirements included in the Company's April 10, 2019 preliminary update will reflect the recovery of these expenditures in base rates as regulatory assets amortized over a 10-year period.⁶⁵

Shift of Funds from Electric to Gas EE

To comply with the NPS Order and Energy Efficiency Order in delivering the overall Btu savings mandated by the Energy Efficiency Order, Con Edison shifted expenditures from the electric portfolio to the gas portion of the portfolio. This shift basically reflects the NPS Order's separately authorized expenditures of \$222.6 million, inclusive of gas energy efficiency and heat pumps.

Use of Unspent Funds for Customer Benefit

Con Edison is proposing to utilize unspent EEPS, ETIP and DMP⁶⁶ Funds in the following manner:

- Use of \$59.6 million of unspent electric EEPS funds to be used towards the 2020 electric EE expenditures as required by the Energy Efficiency Order.
- Use of \$115 million of unspent electric EEPS funds and unspent electric ETIP funds towards heat pumps in the 2020-2025 period, with roughly \$26 million of expenditures anticipated in the 2020-2022 period. The Company is proposing to use unspent funds to provide incentives to customers to adopt heating electrification technologies. With this shift, the Company expects to provide these incentives without the need for incremental funds over NYSERDA's estimated allocation to Con Edison of \$75 million of the Energy Efficiency Order's \$250 million heat pump indicative budget to meet the Company's proposed \$189.6 million budget for heat pumps.
- Use of up to \$48 million, during 2020-2022, of unspent and uncommitted DMP funds towards the kicker incentive.
- Use of \$5.7 million of unspent gas EEPS/ETIP to be used towards the 2020 gas EE expenditures as required by the NPS Order.

⁶⁵ Although the Company proposed a 20-year recovery period for solutions in the NPS portfolio to recognize the longer useful lives of gas EE, the Company is now proposing to amortize and recover new costs over a 10-year period. A common amortization period will result in uniformity in treatment for the EE portfolio comprised of all electric EE (including heat pumps) and gas EE expenditures. Such uniformity is appropriate because the Company intends to implement all EE and heat pump programs as a single portfolio across electric and gas commodities, and the Company's objective to moderate customer bills, over a period when benefits are still being provided would be achieved.

⁶⁶ Case 12-E-0503, *Proceeding on Motion of the Commission to Review Generation Retirement Contingency Plans*, Order Accepting IPEC Reliability Contingency Plans, Establishing Costs Allocation and Recovery, and Denying Requests for Rehearing (issued November 4, 2013). The Company notes that the Demand Management Program ("DMP") is nearly completed and there are no pending proposals for additional programs through the DMP.

Table 4 – Schedule for Use of Unspent Funds

	Use	2020	2021	2022	2023	2024	2025
DMP 1.0	Kicker Incentive	\$16,066,667	\$16,066,667	\$16,066,667	\$0	\$0	\$0
EEPS Electric	Electric EE	\$59,611,120	\$0	\$0	\$0	\$0	\$0
EEPS Electric	Heat Pump	\$1,562,371	\$4,374,639	\$6,249,484	\$9,467,312	\$13,583,534	\$18,110,502
ETIP Electric	Heat Pump	\$1,804,904	\$5,053,732	\$7,219,618	\$10,936,963	\$15,692,164	\$20,921,872
Electric Total	Various	\$79,045,062	\$25,495,038	\$29,535,768	\$20,404,274	\$29,275,698	\$39,032,373
EEPS Gas	Gas EE	\$2,717,060	\$0	\$0	\$0	\$0	\$0
ETIP Gas	Gas EE	\$3,012,436	\$0	\$0	\$0	\$0	\$0
Gas Total	Gas EE	\$5,729,496	\$0	\$0	\$0	\$0	\$0

Regulatory Asset Framework

The Company's CES testimony noted that the Company would continue the ratemaking framework established in the Company's current electric rate plan, which provides for the recovery of EE costs over ten years. For the reasons explained in the CES testimony, this treatment should be extended to heat pumps and gas EE and NPS costs, which have been integrated into the broader EE portfolio, with the proposed three-year reconciliation across the commodities during RY1-RY3. Amortization of new investments has the important benefit of moderating bill impacts by allowing costs to be smoothed over a 10-year period, allocating those costs to the customers benefitting as customers change over time, and aligning costs with realized benefits over that period.

This framework was implemented in the current rate plan⁶⁷ and has assisted the Company in delivering on its EE targets and providing benefits to its customers. Further, the Energy Efficiency Order notes that "amortization of EE program costs may be permitted where the overall context of the rate plan establishes a benefit to doing so, such as moderation of overall customer bill impacts."⁶⁸ The Company's testimony remains applicable and for the sake of brevity, will not be repeated here.

Cost Allocation and EAM Cost Recovery

The Company proposes to continue using the current allocation methodologies for EE costs, whereby electric customers, excluding NYPA-supplied customers, are allocated electric EE portfolio costs, and firm gas customers are allocated the costs of the gas portion of the EE

⁶⁷ Case 16-E-0060 and Case 16-G-0061, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service and Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. Gas Service*, Order Approving Electric and Gas Rate Plans (issued January 25, 2017).

⁶⁸ Energy Efficiency Order, p. 10.

portfolio. These allocation methodologies were used to develop the Company’s revenue requirements in the rate filing and reflect the fact that, currently, only firm gas customers are eligible to participate in EE programs.

In addition, the Company proposes that earned cross-commodity EAMs be collected through a combination of the Monthly Adjustment Clause (“MAC”) for electric customers and the Monthly Revenue Adjustment (“MRA”) for gas customers in proportion to the respective electric and gas rate base amounts, and that the earned electric-only EAMs be collected from electric customers through the MAC.⁶⁹ The Company proposes that NYPA contribute the class allocation for electric rate base portion of any achieved EAMs with exception of Annual MMBtu, Share The Savings and MWh:MW Ratio EAMs. Any NYPA contributions would be collected from the NYPA OTH Statement. As indicated in the CES testimony and consistent with the current rate period, the Company proposes that all EAM collections occur in equal increments over a 12-month period following the Company’s submission of an annual EAM achievements report and absent Commission action to the contrary within a 45-day review period.

Kicker Incentives

Summary:

- **Source of funds:** Unspent Demand Management Program (“DMP”) funds
- **Cost allocation:** All electric customers who paid into the DMP
- **Cost recovery:** Redirecting DMP funds towards the kicker incentive with no change to the previously established collection schedule

Con Edison also proposes using unspent and uncommitted funds available to the Company from the DMP because the DMP and the kicker incentives have similar goals. The Company’s proposed kicker incentive will incent adoption of demand side space cooling and related EE technologies that provide system peak coincident peak reductions. Given that DMP and the proposed kicker incentive are both focused on system peak and value, the Company is proposing to use unspent and uncommitted⁷⁰ DMP funds towards the establishment and development of a kicker incentive for 2020-2022.

⁶⁹ The Company proposes to collect these EAMs through the MAC and MRA because this would allow the Company to dedicate program funding towards achieving energy savings for customer benefit and allow increased flexibility with respect to the use of funds. Using the MAC and MRA also continues the existing precedent of the collecting EAMs through MAC.

⁷⁰ As DMP funds currently committed become uncommitted, those dollars would then become eligible for use through the kicker incentive.

NWS Program Expenditures

Summary:

- **Source of funds:** Base delivery rates
- **Cost allocation:** All electric customers, including NYPA supplied customers
- **Cost recovery:** As a regulatory asset with a 10-year amortization period

As set forth in the electric rate filing, the Company will pursue the Water and Plymouth Street NWS projects as one project because the load relief needs at both stations are required to eliminate common work at the supply station, Farragut. As such, the portfolio will be pursued as one 32 MW portfolio. The Company is pursuing these NWS projects in accordance with the terms of its current rate plan.⁷¹

Table 5 below shows expenditures for the Company’s NWS programs that will be reflected in the revenue requirements the Company will provide as part of the April 10, 2019 preliminary update.

Table 5 – NWS Expenditures

	2019	2020	2021	2022	2023	2024	2025
Water St / Plymouth St	\$10,450,000	\$25,950,000	\$31,590,000	\$2,570,000	\$2,560,000	\$2,550,000	\$2,540,000
Columbus Circle	\$0	\$0	\$260,000	\$0	\$0	\$0	\$0

EEDM O&M Expenditures

Summary:

- **Source of funds:** Base delivery rates
- **Cost allocation:** All electric and gas customers
- **Cost recovery:** As O&M expenditures

Table 6 below shows the Company’s updated expenditures for EEDM O&M costs. This replaces the expenditures provided in the Company’s testimony in the rate proceedings.

Table 6 – EEDM O&M Expenditures

	2020	2021	2022
Electric	\$14,013,000	\$15,383,000	\$16,157,000
Gas	\$300,000	\$300,000	\$300,000

⁷¹ The Company intends to file benefit cost analyses related to the NWS projects that will include costs and benefits, including the costs of the traditional project(s) that the NWS will seek to defer or eliminate.

Total	\$14,313,000	\$15,683,000	\$16,457,000
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In order for the Company to achieve its proposed EE portfolio from 2020-2022, an increase in labor resources across a number of functions will be critical. In total, we forecast that we will need to add thirty-nine (39) incremental full-time employees, as described in the CES testimony;⁷²

- 19 incremental Full Time Equivalents (“FTE”) to be added in 2020 or earlier,
- 13 incremental FTEs to be added in 2021, and
- 7 incremental FTEs to be added in 2022.

The Company is increasing its rate case request by three FTEs to account for the expanded gas EE and heat pump efforts required under the NPS Order. The Company’s initial Filing discussing the NPS portfolio requested six FTEs, three of whom have already been hired to support the development of the NPS portfolio.

These three requested employees will assist in implementing the NPS portfolio’s new projects and programs and develop the implementation strategies as the number of active projects and programs increase and as the Company executes contracts with winning bidders. Throughout the implementation process, these three additional FTEs will help manage the portfolio while continuously re-evaluating projects and programs to optimize implementation and efforts to meet energy and peak day demand reduction goals. The three incremental FTEs requested will be crucial to implementing projects, project management towards annual and longer-term goals, and portfolio strategy as the Company executes and optimizes the portfolio.

Additional Expenditures Related to Systems and Labor

Summary:

- **Source of funds:** Base delivery rates
- **Cost allocation:** All electric and gas customers
- **Cost recovery:** Systems as 10-year capital asset and labor as O&M expenditures

Table 7 and Table 8 below show expenditures for the DMAP, DMTS, and Web Service Interface portions of the Company’s proposed Distributed System Platform (“DSP”) Capital and O&M costs.

Table 7 – DSP Capital

	2020	2021	2022
DMTS	\$3,333,000	\$3,333,000	\$3,333,000
DMAP	\$1,667,000	\$1,667,000	\$1,667,000
Total	\$5,000,000	\$5,000,000	\$5,000,000

⁷² Rate Case, CES Testimony, Exhibit __ (CES-1).

Table 8 – DSP O&M

	2020	2021	2022
DMTS	\$2,020,000	\$2,380,000	\$2,630,000
DMAP	\$160,000	\$303,000	\$327,000
Web Service Interface	\$225,000	\$225,000	\$225,000
Total O&M	\$2,405,000	\$2,908,000	\$3,182,000

The DSP projects in Table 7 and Table 8 propose increased capital for DMTS and DMAP and increased O&M for DMTS as a result of the additional requirements set forth through the Energy Efficiency Order and NPS Order. Expansions to the scope for these systems include the incorporation of new NPS projects and heat pump projects and programs in DMTS; for DMAP this includes the expansion of use cases, such as, inclusion of better targeting of customers to deliver higher volumes of gas measures within smaller geographic areas and better targeting of customers for conversion to heating electrification using technologies such as heat pumps.

BCA and Benefits Stream

Table 9 includes benefits and costs for the Company’s electric and gas portfolios, developed pursuant to the Company’s current BCA handbook. The BCA is for the non-LMI portion of Con Edison’s portfolio, as that is utility specific. The LMI portfolio BCA will be completed at the State level as discussed in the LMI chapter of this filing.

Table 9 – 2020-2022 Portfolio BCA Results

Benefits and Costs (\$ millions)	2020	2021	2022	Total
Electric Benefits (\$millions)	\$264	\$349	\$410	\$1,023
Electric Costs (\$millions)	\$139	\$174	\$198	\$512
Electric Societal Cost Test	1.89	2.00	2.07	2.00
Gas Benefits (\$millions)	\$63	\$64	\$71	\$198
Gas Costs (\$millions)	\$33	\$37	\$41	\$111
Gas Societal Cost Test	1.91	1.71	1.75	1.78
Total Benefits (\$millions)	\$326	\$413	\$481	\$1,221
Total Costs (\$millions)	\$172	\$211	\$239	\$623
Total Societal Cost Test	1.90	1.95	2.01	1.96

Earnings Adjustment Mechanisms

Con Edison’s proposed EAMs build on Con Edison’s progress under its 2017-2019 EAMs structure and on the experience gained from stakeholder engagement through recent collaborative efforts. As such, the proposed EAMs are expected to provide Con Edison with an incentive to drive achievement consistent with State policy objectives that will also benefit our

customers and stakeholders. In this filing, Con Edison updated its EAM proposal in its CES testimony to better align with State goals and the Energy Efficiency Order and Storage Order.

The Company has identified five areas as appropriate for EAMs because they advance State policy goals:

- Continued delivery of cost-effective EE based on the State’s existing construct of budgeting for and measuring annual energy savings, with integration of electric and gas EE;
- Development and testing of a shared savings approach based on EE cost efficiencies related to delivering lifetime benefits;
- Alignment of the EE portfolio with system peak demand reduction;
- Integration of distributed energy resources (“DERs”); and
- Reduction of greenhouse gas (“GHG”) emissions.

The Company has designed this proposal to best align utility actions with various policy objectives by:

- Supporting advancement of policy objectives, such as (i) growing EE and DERs, including beneficial electrification technologies, such as heat pumps and advanced technologies like storage, (ii) improving cost efficiencies to achieve lifetime Btu savings, (iii) improving system peak coincidence of the EE portfolio to incent higher peak reductions, (iv) improving distribution system efficiencies through load factor improvements, and (v) reducing GHG emissions, through a fuel neutral, cross-commodity approach; and
- Providing meaningful EAMs to drive measurable outcomes by appropriately accounting for the Company’s ability to both facilitate positive outcomes as well as directly influence these outcomes through the Company’s portfolio of programs.

With the above objectives in mind, the Company is proposing three cross-commodity EAMs, *i.e.*, inclusive of both electric and gas commodity efforts, along with three electric-only EAMs:

- Cross-commodity EAMs (Electric and Gas)
 - Annual MMBtu
 - Share the Savings EAM based on \$/lifetime MMBtu
 - GHG Emissions Reductions
- Electric Only EAMs
 - MWh:MW Ratio
 - DER Utilization
 - System Efficiency

For each of the six EAMs below, the Company defines the metric and its purpose, sets forth the basis for the development of the targets, and describes its proposed measurement method.

Cross-commodity EAMs

Annual MMBtu EAM:

Definition: The annual MMBtu EAM (“EE EAM”) is a cross-commodity approach that measures the sum of reported gross electric and gas savings, including savings from conversions from delivered fuels such as fuel oil and heat pumps, but excluding EE achieved through LMI allocated funds, achieved in the first year after conversion of MWh and Dth to MMBtu units.

Purpose: This EE EAM represents continuity of the current EAM established for the Company’s current rate plan that drove achievement of annual electric EE savings. The Company’s proposed EAM includes gas EE and electric EE savings to continue driving Company achievements on a more fuel-neutral basis to support State policy goals such as those in the Energy Efficiency Order and the Clean Energy Standard.⁷³

Target Development: The Company proposes to use the first year annual MMBtu targets developed in this proceeding as the mid-point target for the purposes of this EAM. The Company proposes to use 75% of the mid-point as the minimum achievement level and 125% of the mid-point as the maximum achievement level for this EAM.

Measurement: The first year annual EE EAM measures the energy savings achieved through increased efficiency of electricity and gas use by our customers. Con Edison proposes the EE EAM to be based on the total incremental, annual MMBtu reductions achieved through Con Edison’s non-LMI electric, including heat pumps, and non-LMI gas EE programs.

Share the Savings EAM:

Definition: The Share the Savings EAM (“STS EAM”) measures improvements in cross-commodity cost efficiencies of the overall EE portfolio, excluding EE achieved through funds dedicated to LMI customers, on a lifetime-MMBtu basis and allocates a portion of the cost savings achieved to the Company as an EAM. The cost-efficiency improvements are measured relative to the expected cost-efficiency of the portfolio based on an established lifetime cost baseline.

Purpose: The STS EAM encourages the Company to deliver electric and gas program savings at improved cost-efficiencies with a longer-life measure mix.

Target Development: The Company has developed a lifetime cost-efficiency baseline from where improvements will be measured for the purposes of this EAM. The Company proposes the baseline be based on (i) the annual budgets and targets for the Company’s portfolio for each of the rate years, and (ii) the actual useful life for the Company’s EE portfolio in 2018.

Measurement: The Company will measure the STS EAM by calculating energy efficiency cost savings from the Company’s overall EE portfolio on a dollars per lifetime-MMBtu basis, which

⁷³ Case 15-E-0302, *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, Order Adopting a Clean Energy Standard (issued August 1, 2016).

will be measured against the baseline discussed above. The total savings amount will be calculated by computing improvements in cost efficiency (on a unit btu basis) over the baseline and multiplying by the lifetime-MMBtu savings achieved. The EAM will be set at a 50% share of the total savings.

GHG Emissions Reduction:

Definition: The GHG Emissions Reduction EAM (“GHG EAM”) measures the amount of incremental GHG emission (carbon dioxide equivalent “CO₂e”) reductions resulting from increasing adoption of technologies or other mechanisms that reduce, replace, or avoid the use of grid-supplied electricity, or technologies that reduce the use of natural gas. The Company is basing this EAM on Con Edison’s existing GHG Emissions Reduction EAM with continued adoption of a fuel-neutral approach that includes gas and delivered fuels, like fuel oil.

Purpose: The GHG EAM is intended to drive utility action to reduce, or otherwise facilitate reductions of, GHG emissions, in line with clean energy and environmental policy goals. The GHG EAM continues the consensus metric developed in consultation with stakeholders through a collaborative process.

Target Development: The Company has developed a baseline for this EAM, which follows the methodology developed through the Company’s 2018 EAM collaborative, *i.e.*, by using a combination of (i) for technologies required to enter the standardized interconnection requirement (“SIR”) process the MW of customer projects in the SIR inventory adjusted for historical cancellation rates, delay rates, and other historical trends by technology; (ii) for technologies not required to enter the SIR process (*e.g.*, EVs, heat pumps, DR, electric buses, and ice energy storage), the Company’s forecasted expected DER adoption levels that would be reasonably expected to be reached while considering the Company’s anticipated initiatives. The Company proposes the minimum EAM level be set at the baseline, the midpoint be set 10 percent above the baseline, and the maximum be set 20 percent above the baseline.

Measurement: Con Edison will measure contributions to the GHG EAM by tracking installations and calculating incremental, annual metric tons CO₂e emissions reduced from the following measures: battery storage, electric buses, electric DR, ice energy storage, medium and light-duty battery and plug-in hybrid EVs, solar PV, the cooling efficiencies from air- and ground-source heat pumps, distributed wind energy, and voluntary renewable energy certificates (“VRECs”) as well as metric tons of CO₂e emissions reduced from air-source and ground-source heat pump heating loads, and heat pump water heaters that replace natural gas. Installations will be tracked through various means, as outlined in the Company’s 2018 Outcome-Based EAM Collaborative Report.⁷⁴ To standardize measurement across technologies, all measurements will be in avoided

⁷⁴ Case 16-E-0060, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service*, 2018 Outcome-Based EAM Collaborative Report (filed October 17, 2018).

metric tons CO₂e using the general formulae described in the CES testimony, Exhibit __ (CES-8).⁷⁵

Metric tons CO₂e are treated as positive values with the sum of avoided kg CO₂e emissions, converted after initial calculation to metric tons CO₂e emissions, determining achievement. The avoided emissions measurements use electricity emissions factors of Grid kg CO₂e per MWh and/or Peak kg CO₂e per MWh, and other technology-specific factors, to determine avoided metric tons CO₂e. For the purposes of the GHG EAM, the Grid kg CO₂e value is the New York City electricity emissions factor from the most recently published New York City GHG Inventory.⁷⁶ The Peak kg CO₂e per MWh value is sourced from the Environmental Protection Agency (“EPA”) Emissions & Generation Resource Integrated Database (“eGRID”) for the Northeast Power Coordinating Council (“NPCC”) NYC/Westchester sub region.⁷⁷

Electric-only EAMs

Electric EE MWh:MW Ratio:

Definition: The EE MWh:MW Ratio EAM (“Peak Ratio EAM”) will measure the amount of energy efficiency savings achieved for each megawatt of peak reduction.

Purpose: The Peak Ratio EAM is intended to maintain an additional focus on peak reductions through the electric EE portfolio to deliver additional system benefits, complementing other EAMs that drive annual savings and cost-efficient lifetime energy savings.

Target Development: The Company has developed a MWh:MW ratio baseline from where improvements will be measured for this EAM. The Company proposes the baseline be based on the average of achieved 2017 and 2018 MWh:MW ratios. The Company proposes the minimum EAM level be set 100 points below the baseline, the midpoint be set 200 points below the baseline and the maximum be set 300 points below the baseline.

Measurement: The Peak Ratio EAM will be measured by calculating the MWh:MW ratio from electric EE efforts. The EAM amount will be based on improvements in achieved MWh:MW ratio beyond a baseline level derived from the average of achieved 2017-2018 MWh:MW ratios.

Electric DER Utilization:

Definition: The DER Utilization EAM (“DER EAM”) measures the amount of incremental annual MWh Con Edison’s customers do not need to rely on the grid for, through generating locally or through reductions by participation in Con Edison’s Demand Response (“DR”) programs, and MWh from certain beneficial electrification technologies. This EAM is identical to the DER Utilization EAM in the current rate plan.

⁷⁵ For the purposes of the GHG and DER EAMs, the Company will use detailed calculations as developed through the 2018 Outcome-Based EAM Collaborative.

⁷⁶ <https://nyc-ghg-inventory.cusp.nyu.edu/>

⁷⁷ <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid>

Purpose: The DER EAM supports additional DER integration into the Company’s energy system and DER market animation, resulting in reduced reliance on grid-supplied electricity.

Target Development: The Company has developed a baseline for this EAM that follows the methodology developed in the Company’s EAM collaborative efforts, *i.e.*, by using a combination of (i) for technologies requiring to enter the SIR process, the MW of customer projects in the SIR inventory adjusted for historical cancellation rates, delay rates, and historical trends by technology; (ii) for technologies not required to enter the SIR process (*e.g.*, EVs including electric buses, heat pumps, DR, and thermal energy storage including ice energy storage), the Company forecasted expected DER adoption levels that would be reasonably expected to be reached while considering the Company’s anticipated initiatives. The Company proposes the minimum EAM level be set at the baseline, the midpoint to be set 10 percent above the baseline, and the maximum to be set 20 percent above the baseline.

Measurement: For the DER EAM, Con Edison will track installations, and calculate annualized MWh using standardized formulae, from air- and ground-source heat pumps, battery storage, battery and plugin hybrid light-duty EVs, Combined Heat and Power (“CHP”), electric DR, fuel cells, electric buses, ice energy storage, solar PV, and distributed wind energy. This tracking methodology is based on Con Edison’s existing tracking methods being used for the purposes of the existing DER EAM as shown in its 2018 Outcome-Based EAM Collaborative Report. For example, end-of-year incremental installed capacity from solar PV, CHP, fuel cells, and batteries will be tracked through the SIR process and following Con Edison’s submittal of a final interconnection letter to the customer noting that all interconnection work has been completed. The Company will measure DERs in terms of their rated capacity and related capacity factors, except for DR for which the number of DR events and actual performance will be used. All measurements will be in annualized MWh using the general formulae described in the CES testimony, Exhibit __ (CES-8). For each DER type, the Company will determine annualized MWh produced, consumed, discharged, or reduced from incremental resources. MWh are treated as positive values with the sum of produced, consumed, and reduced (in the case of DR and heat pump efficiency) energy determining achievement against a target; that is, one MWh produced is equivalent to one MWh consumed (or one MWh reduced in the case of DR and heat pump efficiency) for the purpose of the DER EAM.

System Efficiency:

Definition: The System Efficiency EAM (“SE EAM”) will target improvements in system efficiency on specific portions of distribution system. This EAM would capture reductions in peak load and improvements in load factor at a substation level.

Purpose: For the SE EAM, a targeted geographic approach within the distribution system will enable the Company to effectively measure and subsequently improve the system efficiency of key portions of the distribution system, through reduced peak and increased load factor, where it is beneficial, in alignment with the Storage Order. By focusing on specific substation areas, the Company can focus efforts on both increasing system utilization and reducing peak distribution

loads, such as through encouraging smart charging of energy storage and other applications of beneficial electrification.

Target Development: The Company proposes to develop baselines and targets in 2020-2021 for use as an EAM in 2022 by first measuring substation performance in identified key substation areas. The Company proposes that once baselines are determined, the Company will propose minimum, midpoint, and maximum target levels.

Measurement: For this EAM, the Company proposes using three constrained substation areas, Brownsville, Plymouth Street, and Water Street, to measure current levels of system efficiency. The Company anticipates that these substations will have higher penetration of customer-side DER that provide opportunities to improve system efficiency at the substation level that may result in both environmental and reliability benefits. This new EAM is designed to measure improvements in operating performance and system utilization over the entire year in constrained areas of the distribution system, distinct from the focus on achieving peak reduction on peak summer days during peak hours for deferral or displacement of traditional infrastructure investments, which is addressed in NWS initiatives. The Company proposes to measure peak load and load factor in the identified three areas over a three-year period beginning in 2020 using a phase-in approach. Years 2020 and 2021 will establish a baseline and will be reported as a scorecard metric. The two baseline years will be used to establish the EAM metric targets for 2022.

Target and Basis Points:

The below tables summarize the Company’s proposed EAM targets and basis points allocation.

Table 10 shows the Company’s proposed targets for its Cross-Commodity EAMs.

Table 10 – Cross Commodity EAM Targets

		2020	2021	2022
Annual MMBtu EAM	Min	1,490,917	1,743,399	1,972,969
	Mid	1,987,890	2,324,532	2,630,626
	Max	2,484,862	2,905,665	3,288,282
Greenhouse Gas Emissions Reductions EAM ⁷⁸	Min	44,868	TBD	TBD
	Mid	49,355	TBD	TBD
	Max	53,842	TBD	TBD
Share the Savings EAM	N/A	See description of STS EAM above		

Table 11 shows the Company’s proposed targets for its Electric-Only EAMs.

⁷⁸ The targets shown are tentative with the best information at the time of this filing. The Company expects to more precisely propose targets at a later date as the interconnection queue progresses in 2019.

Table 11 – Electric-Only EAM Targets

		2020	2021	2022
MWh:MW Ratio EAM	Min	5,710	5,710	5,710
	Mid	5,610	5,610	5,610
	Max	5,510	5,510	5,510
System Efficiency EAM	Min	N/A	N/A	TBD
	Mid	N/A	N/A	TBD
	Max	N/A	N/A	TBD
DER Utilization EAM ⁷⁹	Min	166,598	TBD	TBD
	Mid	183,258	TBD	TBD
	Max	199,918	TBD	TBD

Table 12 shows the Company’s proposed basis point allocation for its Cross-Commodity EAMs. The Company notes that the basis points for the cross-commodity EAMs will be over the combined electric and gas rate bases and will be allocated to electric and gas customers in proportion to their respective rate base sizes.

Table 12 – Cross Commodity EAM Basis Points

		2020	2021	2022
Annual MMBtu EAM	Min	7	7	7
	Mid	21	21	21
	Max	35	35	35
Greenhouse Gas Emissions Reductions EAM	Min	5	5	5
	Mid	15	15	15
	Max	25	25	25
Totals	Min	12	12	12
	Mid	36	36	36
	Max	60	60	60
Share the Savings EAM	N/A	50% of total cost savings below baseline		

Table 13 shows the Company’s proposed basic point allocation for its Electric-Only EAMs.

Table 13 – Electric-Only EAM Basis Points

		2020	2021	2022
MWh:MW Ratio EAM	Min	2	2	2
	Mid	6	6	6
	Max	10	10	10
System Efficiency EAM	Min	N/A	N/A	1
	Mid	N/A	N/A	3
	Max	N/A	N/A	5

⁷⁹ The targets shown are tentative with the best information at the time of this filing. The Company expects to more precisely propose targets at a later date as the interconnection queue progresses in 2019.

DER Utilization EAM	Min	3	3	3
	Mid	9	9	9
	Max	15	15	15
Totals	Min	5	5	6
	Mid	15	15	18
	Max	25	25	30

EAM Benefits The utility costs associated with the EAMs are \$582 million over RY1-RY3, comprising of the utility cost of the EE portfolio. The benefits related to EAMs are in Table 14.

Table 14 – EAM Benefits

Benefits and Costs (\$ millions)	2020	2021	2022	Total
Annual MMBtu and MWh:MW Ratio Benefits	\$261	\$341	\$398	\$1,000
Annual MMBtu and MWh:MW Ratio Costs	\$134	\$159	\$176	\$468
GHG Emission Reduction Benefits	\$146	N/A	N/A	\$146
GHG Emission Reduction Costs	\$11	N/A	N/A	\$11
DER Utilization Reduction Benefits	\$196	N/A	N/A	\$196
DER Utilization Reduction Costs	\$11	N/A	N/A	\$11

Planned Illustrative Portfolio and Program Descriptions

As discussed in the CES testimony, the Company’s portfolio is forward-looking but reflects and builds upon its prior experience running cost-effective EE programs.

At the broad level, the EE portfolio is expected to offer electric (including heat pumps) and gas offerings across customer segments. We reach our customers through a focus on four primary customer segments designed to meet each customer group’s needs:

- Commercial and Industrial (“C&I”)
- Small business
- Multifamily and
- Residential.

The Company plans to evolve the portfolio from current levels by:

- Optimizing delivery for current offerings in order to generate more energy savings and demand reductions from current offerings, for example, by further streamlining

- the customer experience from the application stage to the point of full implementation of the EE measure using transparent information and simplifying and standardizing processes; and
- Employing new strategies to reach deeper savings, expanding beyond lighting offers to the extent such expansion can be made under the budget and unit costs, exploring upstream interventions in the supply chain to fundamentally transform markets towards greater EE, and engaging harder to reach customers, such as residential customers.

In developing an illustrative higher-level portfolio, the Company envisions reaching all customer segments. To achieve the portfolio targets included in this filing, including a trajectory for electric savings achievement to 1.3 percent of electric sales by 2022, the Company projects significant growth in the C&I, small business, and multifamily sectors for electric efficiency and C&I, residential, and multifamily sectors for gas efficiency over 2020-2022. The integration of NPS within the portfolio projects gas savings achievement to 0.48 percent of gas sales by 2022. This growth will occur alongside the launch of a heat pump program and increased focus on LMI customers.

The Company intends for the portfolio to evolve iteratively as it adjusts to the market response. Efficiency offerings and delivery channels are not static, nor are they uniform within a segment. Accordingly, the Company intends to manage and revise offerings and delivery channels applying continuous improvement and innovation as key priorities.

In addition to the delivery channels described above, the Company will employ a host of strategies and operational improvements to better serve customers in a more innovative and market-oriented manner that is transparent and transformational for our customers, partners and other stakeholders in the EE marketplace. This includes providing customers with options and opportunities to reduce their energy use based on their unique needs and continuing or expanding programs targeted to upstream portions of the supply chain that align interests in promoting more widespread installations of energy efficient equipment at our customer locations. Examples for residential customers include accessing rebates and incentives through market partners, managing energy and demand through smart thermostats and Wi-Fi-enabled air conditioners, and benefiting at the retail level from market-based partnerships between Con Edison and mid- and up-stream retailers and distributors.

The Con Edison Online Marketplace may transition in late 2019 from a REV Demonstration Project to full integration within the EE portfolio. If this transition occurs, the Marketplace and how the Company employs it to support energy savings is expected to evolve to meet customers' needs through engagement channels of their preference.

Other examples of programs that explore innovative delivery models and promote transformative offerings include (i) Instant Lighting, an upstream program that provides instant incentives to customers on eligible ENERGY STAR®-certified and Design Lights Consortium-listed lamps at the distributor point of sale; (ii) Strategic Energy Partnerships, through which the Company is

focused on identifying and engaging customers that are heavy-energy users (working to secure longer-term partnerships with customers in segment verticals such as hospitals, schools, and the banking sector are some of the areas where Con Edison may see significant potential for savings); (iii) Retail Lighting that provides instant rebates to customers at their point of purchase in big-box retailers, as well as other retailers, such as drug stores and dollar stores, providing accessibility to customers, including LMI; (iv) Residential Upstream HVAC that focuses on incenting distributors or other entities in the supply chain upstream of the customer; and (v) ENERGY STAR™ Retail Products Platform that leverages the purchasing power of multiple nation-wide utilities to work with retailers nationally to incent them to stock and sell efficient appliances.

Beyond these innovative offerings, the Company is developing programs to promote heat pumps and to encourage LMI engagement and participation in EE efforts. These programs are discussed in further detail below. Additionally, in alignment with the NPS Order, the Company is designing and implementing plans to meet growing gas demand in constrained areas through its set of NPS, which will be integrated into existing programs.

Con Edison will strive to engage customers and provide them with greater control over their energy choices. Under the broad commercial and residential segment umbrella portfolios, the Company's programs will be tailored to each customer segment's particular needs. The offerings described below are evolving strategies that respond to market changes so as to serve a broad and diverse set of customers.

Commercial Customer Programs (or Commercial and Industrial "C&I")

Con Edison plans to offer a robust suite of products and services to commercial electric and gas customers of various sizes and business types. Recognizing the distinct nature of commercial customers, the Company intends to continue to offer market-based offerings through which customers may address their particular business objectives and constraints. These include large C&I prescriptive incentives, *i.e.*, pre-set and fixed incentives on a per unit basis, C&I custom incentives, the Commercial Direct Install ("CDI") program providing incentives to smaller businesses, Instant Lighting focused on incenting lighting upstream in the supply chain, and Strategic Energy Partnerships targeting incentives to our larger energy consumers to adopt electric and gas EE beyond efficient lighting. Further, the Company intends to launch new offerings focused on midstream and upstream delivery channels to incentivize EE measures in this sector.

Customer segment verticals, *i.e.*, a group of customers engaged in the same industry or type of activity, such as hospitals, schools, and the banking sector, are some areas where Con Edison may see significant potential for savings. Working to secure longer term partnerships with some of the larger energy consumers in the service territory can potentially produce considerable savings. The Strategic Energy Partnership is intended to engage such customers to incorporate EE into their medium- and longer-term capital planning and budgeting cycles.

The Instant Lighting Incentive Program (“ILIP”) is an upstream lighting program currently open to commercial, small business, and multifamily customers. The Company intends to continue ILIP so customers can receive instant incentives on eligible ENERGY STAR®-certified and Design Lights Consortium-listed lamps at the distributor point of sale.

To align with NPS objectives, the commercial customer focused program is launching a new targeted incentives opportunity for commercial building owners and property managers in Westchester County. These incentives will cover prescriptive measures, such as steam trap repair, and custom measures, such as demand-controlled ventilation, and are expected to be approximately 50 percent higher than the previously available offer.

The Company expects to continue the CDI program, offering small to mid-size commercial customers, with average peak demand of up to 300 kW, low cost EE equipment upgrades for their businesses. In addition to LED lighting and refrigeration measures, the program includes gas measures, HVAC measures, controls, and cooking equipment to provide a more comprehensive set of energy solutions to this group of customers.

Residential Programs

Con Edison will continue to approach the residential segment through a portfolio approach by developing a variety of electric and gas offerings aimed to service customers’ distinct needs. The Company intends to further test and implement upstream interventions building on lessons learned from the residential electric and gas HVAC portfolio that has transitioned to an upstream model where incentive funds flow through the distributor to customers. An upstream program model engages the distributor and contractor and aligns their interest with more efficient equipment. The Company expects the approach to be impactful because distributors and contractors often make HVAC recommendations to residential customers.

Con Edison’s retail lighting program, offering discounted LEDs through select retailers, was expanded beyond big –box stores to include second tier retailers, such as drug stores and dollar stores where customers shop, and also distributed LEDs to low income customers through partnering with food banks in Con Edison’s territory. The Company will continue to grow this program to reach more customers to increase adoption of more efficient products.

Further, to pursue NPS needs, the Residential Program is offering new opportunities for single-family home customers in Westchester County to either (1) upgrade their existing heating system to an air-source heat pump or a geothermal heat pump, or (2) to weatherize their home envelope and ductwork with improved insulation.

Additionally, Con Edison intends to continue the successful Smart Kids program that delivers kits containing EE measures such as LEDs to fifth-graders across the service territory and pairs the issuance of the kits with an in-classroom EE lesson plan. The program is expected to result in lasting market transformation as new generations of New Yorkers become aware of EE and learn about ways they can contribute towards sustainability.

The Multifamily Program promotes EE for existing multifamily electric and gas customers. This program is targeted for owners and property managers of residential buildings with five or more units. Customers in qualifying affordable buildings are also eligible for enhanced incentives. The Multifamily Program will develop strategies to further enhance adoption of EE. The Company also intends to further facilitate retrofits of multi-family buildings through building on partnerships with programs such as the City's Retrofit Accelerator.

Customers will have the ability to apply for EE incentives for both common area and in-unit measures, and custom rebates. For those buildings that need assistance in developing a plan for EE, the program offers on site assessments to identify areas of meaningful opportunity.

As with the Company's Commercial and Residential Programs, the Multifamily Program is designing offerings, to meet NPS goals such as a new targeted incentives opportunity for residential building owners and property managers in Westchester County. These incentives will cover prescriptive air sealing and boiler controls measures and custom measures such as boiler stack economizers.

The program is also pursuing approximately five site specific project agreements with mostly low-income multifamily building customers in Westchester County. These customized project opportunities offer each customer the ability to undergo comprehensive heating system upgrades within their buildings. Measures will address electrification with heat pumps, balancing of uneven heating temperatures within the apartment spaces, and eliminating steam heat losses due broken steam traps, uninsulated piping, and poor boiler operating conditions.

Test and Learn ("T&L")

The Company's ongoing T&L strategy is a systematic method of identifying, designing, and implementing new technologies, programs, initiatives, and campaigns. The Company uses the T&L strategy to identify new measures, uses, and delivery mechanisms for existing offerings, and to identify and test new programs and initiatives before full scale implementation is undertaken. As a T&L initiative reaches maturity, the Company will evaluate its long-term viability and potential for success, after which the initiative will either be scaled up, retired or retooled, as appropriate.

Current T&L initiatives needing continued testing include the Energy Star Retail Products Platform, based on intervening just upstream of the customer, a new customer welcome program focused on new customers coming into the Company territory, residential and multifamily behavioral programs, based on development of home energy reports detailing consumption information, Building Energy Performance Commercial behavioral programs focused on using behavioral approaches in the Commercial sector, and third party residential financing.

Heat Pumps

The Heat Pump chapter includes a proposal from the NY Electric Utilities, in collaboration with NYSERDA, that will: (i) drive market scale to reduce costs, (ii) provide a clear and stable market

signal, (iii) be simple and workable for consumers, and (iv) provide a smooth transition from current programs. The NY Electric Utilities will operate heat pump resource acquisition programs (including incentives, eligibility, marketing, QA/QC, EM&V) while NYSERDA will perform market enablement functions (developing a statewide messaging toolkit, workforce training, community outreach). The NY Electric Utilities will meet periodically to assess heat pump program performance and continue to engage with NYSERDA on NYSERDA's market enablement activities and focus on statewide heat pump program consistency. Specific incentive level ranges and delivery channels, including strategies to reach residential, multifamily and commercial customer segments, are pending finalized implementation plans. Each electric utility will also be responsible for addressing several key issues that will impact a future heat pump program, such as rate design, geographic adders for non-wires and non-pipe alternatives, and specific offerings for the LMI customer segment. The Company currently offers incentives for heat pump technology, *e.g.*, the Residential HVAC program provides incentives to both the distributor and contractor for air-source heat pump installations. The Company expects to transition existing offerings to the new heat pump framework discussed in the heat pump chapter of the filing.

LMI Programs

The LMI chapter establishes a collaborative framework with NYSERDA that seeks to allow the Company to reach a larger number of LMI customers within its territory. The Company strives to coordinate the Company's low-income discount program with EE to more holistically advance energy affordability through bill reductions achieved through lower energy use for LMI customers. Through the implementation of simplified processes, the Company will operate resource acquisition programs to drive increased adoption rates of EE programs in LMI multi-family and residential homes.

Exhibit A
Budgets and Targets Schedules

Table 1 – Electric EE Budget Schedule

	2020	2021	2022	2023	2024	2025
ETIP Budget	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022
Energy Efficiency Order Budget	\$49,614,344	\$79,374,793	\$101,050,659	\$129,728,218	\$158,515,897	\$180,848,751
Total Electric EE Budget	\$135,792,366	\$165,552,815	\$187,228,681	\$215,906,240	\$244,693,919	\$267,026,773
Total Non-LMI Budget	\$123,870,142	\$147,457,663	\$164,231,498	\$187,462,355	\$210,924,371	\$228,857,501
Total LMI Budget	\$11,922,224	\$18,095,152	\$22,997,183	\$28,443,885	\$33,769,548	\$38,169,272

Table 2 – Electric EE Savings Schedule

	2020	2021	2022	2023	2024	2025
Total MMBtu	1,258,678	1,590,885	1,834,822	2,153,746	2,474,858	2,725,168
Non-LMI MMBtu	1,188,119	1,483,793	1,698,718	1,985,408	2,275,001	2,499,272
LMI MMBtu	70,559	107,092	136,103	168,339	199,857	225,896
Total MWh	368,898	466,262	537,755	631,227	725,339	798,701
Non-LMI MWh	348,218	434,875	497,866	581,890	666,765	732,495
LMI MWh	20,680	31,387	39,890	49,337	58,575	66,206

Table 3 – Electric EE Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Total \$/MMBtu	\$108	\$104	\$102	\$100	\$99	\$98
Non-LMI \$/MMBtu	\$104	\$99	\$97	\$94	\$93	\$92
LMI \$/MMBtu	\$169	\$169	\$169	\$169	\$169	\$169
Total \$/kWh	\$0.37	\$0.36	\$0.35	\$0.34	\$0.34	\$0.33
Non-LMI \$/kWh	\$0.36	\$0.34	\$0.33	\$0.32	\$0.32	\$0.31
LMI \$/kWh	\$0.58	\$0.58	\$0.58	\$0.58	\$0.58	\$0.58

Table 4 – Heat Pump Budget Schedule

	2020	2021	2022	2023	2024	2025
Use of EEPS / ETIP Unspent Funds	\$3,367,275	\$9,428,371	\$13,469,101	\$20,404,274	\$29,275,698	\$39,032,373
Energy Efficiency Order	\$2,186,464	\$6,122,099	\$8,745,856	\$13,249,054	\$19,009,512	\$25,346,016
Total Budget	\$5,553,739	\$15,550,470	\$22,214,958	\$33,653,328	\$48,285,210	\$64,378,389

Table 5 – Heat Pump Savings Schedule

	2020	2021	2022	2023	2024	2025
Total MMBtu	23,546	65,929	94,184	142,679	204,713	272,950

Table 6 – Heat Pump Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Total \$ / MMBtu	\$236	\$236	\$236	\$236	\$236	\$236

Table 7 – Gas EE Budget Schedule

	2020	2021	2022	2023	2024	2025
Unspent EEPS Budget	\$2,717,060	\$0	\$0	\$0	\$0	\$0
Unspent ETIP Budget	\$3,012,436	\$0	\$0	\$0	\$0	\$0
ETIP Budget	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466
NENY Budget	\$9,996,775	\$22,254,848	\$25,676,184	\$25,663,057	\$25,961,952	\$28,495,257
Total Gas EE Budget	\$30,259,737	\$36,788,314	\$40,209,650	\$40,196,523	\$40,495,418	\$43,028,723
Total Non-LMI Budget	\$30,259,737	\$34,557,538	\$37,861,464	\$37,562,152	\$37,369,396	\$39,329,194
Total LMI Budget	\$0	\$2,230,776	\$2,348,185	\$2,634,370	\$3,126,022	\$3,699,529

Table 8 – Gas EE Savings Schedule

	2020	2021	2022	2023	2024	2025
Total MMBtu	776,224	795,462	859,462	859,462	859,462	916,798
Non-LMI MMBtu	776,224	774,811	837,724	835,074	830,523	882,549
LMI MMBtu	-	20,652	21,738	24,388	28,939	34,249

Table 9 – Gas EE Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Total \$ / MMBtu	\$39	\$46	\$47	\$47	\$47	\$47
Non-LMI \$ / MMBtu	\$39	\$45	\$45	\$45	\$45	\$45
LMI \$ / MMBtu	N/A	\$108	\$108	\$108	\$108	\$108

Table 10 – All Programs Budget Schedule

	2020	2021	2022	2023	2024	2025
Electric Non-LMI Budget	\$123,870,142	\$147,457,663	\$164,231,498	\$187,462,355	\$210,924,371	\$228,857,501
Heat Pump Budget	\$5,553,739	\$15,550,470	\$22,214,958	\$33,653,328	\$48,285,210	\$64,378,389
Non-LMI Electric + Heat Pump Budget	\$129,423,882	\$163,008,133	\$186,446,455	\$221,115,683	\$259,209,581	\$293,235,889
Gas Non-LMI Budget	\$30,259,737	\$34,557,538	\$37,861,464	\$37,562,152	\$37,369,396	\$39,329,194
Total Non-LMI Budget	\$159,683,619	\$197,565,671	\$224,307,920	\$258,677,836	\$296,578,977	\$332,565,083
Electric LMI Budget	\$11,922,224	\$18,095,152	\$22,997,183	\$28,443,885	\$33,769,548	\$38,169,272
Gas LMI Budget	\$0	\$2,230,776	\$2,348,185	\$2,634,370	\$3,126,022	\$3,699,529
Total LMI Budget	\$11,922,224	\$20,325,928	\$25,345,369	\$31,078,255	\$36,895,570	\$41,868,802

Table 11 – All Programs Savings Schedule

	2020	2021	2022	2023	2024	2025
Electric Non-LMI MMBtu	1,188,119	1,483,793	1,698,718	1,985,408	2,275,001	2,499,272
Heat Pump MMBtu	23,546	65,929	94,184	142,679	204,713	272,950
Non-LMI Electric + Heat Pump MMBtu	1,211,665	1,549,721	1,792,902	2,128,086	2,479,714	2,772,222
Gas Non-LMI MMBtu	776,224	774,811	837,724	835,074	830,523	882,549
Total Non-LMI MMBtu	1,987,890	2,324,532	2,630,626	2,963,161	3,310,237	3,654,771
Electric LMI MMBtu	70,559	107,092	136,103	168,339	199,857	225,896
Gas LMI MMBtu	-	20,652	21,738	24,388	28,939	34,249
Total LMI MMBtu	70,559	127,743	157,842	192,726	228,797	260,145

Table 12 – All Programs Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Electric Non-LMI \$/MMBtu	\$104	\$99	\$97	\$94	\$93	\$92
Heat Pump \$/MMBtu	\$236	\$236	\$236	\$236	\$236	\$236
Non-LMI Electric + Heat Pump \$/MMBtu	\$107	\$105	\$104	\$104	\$105	\$106
Gas Non-LMI \$/MMBtu	\$39	\$45	\$45	\$45	\$45	\$45
Total Non-LMI \$/MMBtu	\$80	\$85	\$85	\$87	\$90	\$91
Electric LMI \$/MMBtu	\$169	\$169	\$169	\$169	\$169	\$169
Gas LMI \$/MMBtu	N/A	\$108	\$108	\$108	\$108	\$108
Total LMI \$/MMBtu	\$169	\$159	\$161	\$161	\$161	\$161

Table 13 – Total Budget Schedule

	2020	2021	2022	2023	2024	2025
Electric Budget	\$135,792,366	\$165,552,815	\$187,228,681	\$215,906,240	\$244,693,919	\$267,026,773
Gas EE Budget	\$30,259,737	\$36,788,314	\$40,209,650	\$40,196,523	\$40,495,418	\$43,028,723
Total EE Budget	\$166,052,104	\$202,341,129	\$227,438,331	\$256,102,763	\$285,189,336	\$310,055,496
Heat Pump Budget	\$5,553,739	\$15,550,470	\$22,214,958	\$33,653,328	\$48,285,210	\$64,378,389
Total Budget	\$171,605,843	\$217,891,599	\$249,653,288	\$289,756,091	\$333,474,546	\$374,433,884

Table 14 – Total Savings Schedule

	2020	2021	2022	2023	2024	2025
Electric MMBtu	1,258,678	1,590,885	1,834,822	2,153,746	2,474,858	2,725,168
Gas MMBtu	776,224	795,462	859,462	859,462	859,462	916,798
Total EE MMBtu	2,034,903	2,386,347	2,694,284	3,013,208	3,334,320	3,641,966
Heat Pump MMBtu	23,546	65,929	94,184	142,679	204,713	272,950
Total MMBtu	2,058,449	2,452,275	2,788,468	3,155,887	3,539,033	3,914,916

Table 15 – Total Unit Cost Request

	2020	2021	2022	2023	2024	2025
Electric \$/MMBtu	\$108	\$104	\$102	\$100	\$99	\$98
Gas \$/MMBtu	\$39	\$46	\$47	\$47	\$47	\$47
Total EE \$/MMBtu	\$82	\$85	\$84	\$85	\$86	\$85
Heat Pump \$/MMBtu	\$236	\$236	\$236	\$236	\$236	\$236
Total \$/MMBtu	\$83	\$89	\$90	\$92	\$94	\$96

NFGDC Chapter

Information Supplement

National Fuel Gas Distribution Corporation (“Distribution” or “NFGDC”) hereby submits this supplement to the NY Utilities Report, at Department of Public Service Staff’s (“Staff”) request, to respectfully: (1) request New York State Public Service Commission (“Commission”) approval of Distribution’s cost recovery proposal outlined herein, (2) request Commission approval of “base” and “incremental” NFGDC budgetary funding components for the 2021 – 2025 program years, and (3) affirm NFGDC’s energy efficiency budgets for the 2019 through 2025 program years, as set forth in a central transparent location outlined in the table below.

Distribution’s “base” budgetary funding for the 2019 and 2020 program years has already been approved by the Commission, in its 2018 Energy Efficiency Order.⁸⁰ In compliance with ordering clause 19 of the 2018 Energy Efficiency Order, Distribution filed tariff amendments in Case 15-M-0252 on April 2, 2018, identifying the Energy Efficiency Tracker Surcharge Rate as the method of cost recovery for NFGDC’s 2019 and 2020 program years. These tariff amendments became effective January 1, 2019. The Commission’s Order Adopting Accelerated Energy Efficiency Targets (“Energy Efficiency Order”), issued and effective December 13, 2018 in Case 18-M-0084, did not recommend 2019 or 2020 budgetary funding changes for NFGDC.⁸¹ It is important to note that additional information on Distribution’s 2019 and 2020 energy efficiency portfolio is included in NFGDC’s Updated Energy Efficiency Transition Implementation Plan (“ETIP”) and System Energy Efficiency Plan (“SEEP”), filed in Cases 18-M-0084, 15-M-0252 and 07-G-0141, on February 19, 2019.

With regard to the 2021 – 2025 program years, NFGDC’s energy efficiency budgets would be comprised of two elements: (1) continued “base” funding, with Distribution recommending no increases or decreases to the “base” component; and (2) “incremental” funding, as outlined in the Commission’s Energy Efficiency Order.⁸² Budgetary funding for the 2021 – 2025 program years (*i.e.*, both the “base” and “incremental” components) has not yet been approved by the Commission. As such, Distribution proposes and hereby requests Commission approval of, the following cost recovery proposal:

- 1) Continue funding the unchanged “base” component via the Energy Efficiency Tracker Surcharge Rate, for the 2021 – 2025 period.
- 2) Apply all remaining unspent funding from the 2012 – 2015 program years (inclusive of interest accumulated and to the extent not otherwise ordered by the Commission),⁸³ \$242,097.68 of unspent evaluation, measurement and verification

⁸⁰ 2018 Energy Efficiency Order, p. 51.

⁸¹ Energy Efficiency Order, Appendix A, p. 4.

⁸² Energy Efficiency Order, Appendix C, p. 4.

⁸³ It should be noted that Distribution filed a Verified Petition with the Commission on August 27, 2018, in Case 18-G-0553, which sought to repurpose unspent funding from the 2012 – 2015 program years, among other

(“EM&V”) funding from the 2016 program year, \$212,046.56 of unspent Residential Rebate Program funding from the 2017 program year, \$199,420.30 of unspent EM&V funding from the 2017 program year, and all interest accumulated on balances associated with NYSERDA’s Clean Energy Fund to the Energy Efficiency Order “incremental” funding requirement. At a minimum, this recommended approach would “cover” approximately 32 percent of the “incremental” funding requirement and may even result in “entirely covering” the “incremental” funding requirement while simultaneously refunding any remaining unspent funds to customers.⁸⁴

- 3) To the extent there are any shortfalls in meeting the “incremental” funding requirement, then and only then, collect the remaining balance via an adjusted Energy Efficiency Tracker Surcharge Rate, for the 2021 – 2025 period.
- 4) Continue to calculate and apply interest to 2021 – 2025 program year principal balances at the Other Customer Provided Capital Interest Rate (*i.e.*, the rate currently being applied to NFGDC energy efficiency principal balances).
- 5) Update and re-file tariff amendments for the Energy Efficiency Tracker Surcharge Rate and the Clean Energy Fund Surcharge Rate, prior to January 1, 2021, to reflect a future Commission determination in this proceeding.

In the table set forth below (which summarizes all NFGDC energy efficiency budgets for 2019 – 2025 program years in a central location), Distribution is hereby affirming the 2019 – 2020 program years and requesting Commission approval of the following energy efficiency budgets for the 2021 - 2025 program years. It should be noted that Table 1, below, includes the “presumptive” 2021 – 2025 budgets specified in the Commission’s Energy Efficiency Order.

things. To the extent the Commission were to approve Distribution’s petition, this unspent funding would be used for a new safety pilot program and enhanced energy efficiency initiatives. To the extent the Commission were to approve a portion of Distribution’s petition, or deny the petition, then some or all of the unspent funding from the 2012 – 2015 program years would remain available for the use proposed herein.

⁸⁴ *Id.*

Table 1: Budgets (As Specified in the Energy Efficiency Order)

Program Year	"Base" Funding Approved by the Commission	"Base" Funding Not Yet Approved by the Commission	"Incremental" NENY Order Funding Not Yet Approved by the Commission	Total
2019	\$10,040,000	\$0	\$0	\$10,040,000
2020	\$10,040,000	\$0	\$0	\$10,040,000
2021	\$0	\$10,040,000	\$104,172	\$10,144,172
2022	\$0	\$10,040,000	\$260,431	\$10,300,431
2023	\$0	\$10,040,000	\$416,690	\$10,456,690
2024	\$0	\$10,040,000	\$729,207	\$10,769,207
2025	\$0	\$10,040,000	\$1,091,206	\$11,131,206
2019 - 2025	\$20,080,000	\$50,200,000	\$2,601,706	\$72,881,706

Distribution envisions that the mix of programs in its 2021 – 2025 energy efficiency portfolios will be determined, and publicly disclosed, in future ETIP/SEEP filings to the Commission. However, at this time, NFGDC commits to ensuring that a *minimum* of 20 percent of all “incremental” funding will be dedicated for low and moderate income (“LMI”) customers, in compliance with the Energy Efficiency Order.

This chapter does not include any additional discussion of energy savings targets, since the NY Utilities’ Targets and Budgets chapter already noted that Distribution is adopting the Commission’s “presumptive targets” as further described therein. While the Company understands the ratemaking need for annual budgets, the Company respectfully requests that the Commission provide flexibility, as respects energy savings targets from energy efficiency programs. Specifically, the Company is requesting that the energy savings targets be treated as “cumulative” rather than “annual,” similar to how the energy savings targets were established during the 2012 to 2015 program years (*i.e.*, the Energy Efficiency Portfolio Standard 2 or “EEPS 2”).

Distribution appreciates this opportunity to provide this supplement to the NY Utilities Updated Report and request for budgetary and cost recovery approval. NFGDC respectfully requests that the Commission approve all aspects of its thoughtful cost recovery proposal set forth above, including both the “base” and “incremental” NFGDC budgetary funding components for the 2021 – 2025 program years.

Kickers Proposal

The Commission’s Energy Efficiency Order stated:

The potential for system value kickers to increase the effectiveness of programs is such that utilities, where peak reduction is a substantial portion of a

program's benefit, must present a program that includes the use of kickers. If a utility determines that a program structure without kickers would be more effective, the utility may also present an alternative and demonstrate why the alternative is preferable. When the Commission considers the proposed utility programs in 2019, all cost reduction assumptions will be analyzed, and lost opportunities represented by the absence of kickers and other cost reduction possibilities will be taken into account.⁸⁵

It should be noted that the Commission's Energy Efficiency Order, at footnote 64, clarified that the aforementioned requirement will apply to space cooling programs at a minimum.

NFG notes that the concept of kickers (as presented in the Energy Efficiency Order), seems to primarily apply to the electric industry, with an applicability and particular focus on space cooling programs and non-wires alternative demonstration projects. However, as a natural gas-only utility, the Company believes that the concept of kickers has some merit and is worthy of a demonstration within its energy efficiency portfolio.

Specifically, Distribution is proposing the following kicker construct:

- The Company's kicker would be part of its Residential Rebate Program, launching as a pilot demonstration in January 2021.
- The overall goal of the kicker would be to drive deeper energy savings, by incenting customers to install multiple energy efficiency measures simultaneously, rather than a single measure.
- This approach would potentially reduce peak usage and help the Company achieve additional savings towards Commission-ordered targets, generating incremental contributions towards New York State Energy Plan goals.
- When customers install three or more energy efficiency measures on a single application form, they would be eligible for a one-time kicker incentive of \$100.
- A survey instrument would be included with the incentive payment to the customer, to understand if the kicker incentive motivated the customer to pursue a larger project scope.
- Based on the survey results, or potential insights observed as part of future Residential Rebate Program evaluation, measurement and verification ("EM&V") studies, the Company would continue, modify, or discontinue the kicker incentive.
- A description of the kicker construct, as well as the Company's intention to continue, modify or discontinue the kicker incentive, would be included in future Energy Efficiency Transition Implementation Plan and System Energy Efficiency Plan ("ETIP/SEEP") filings submitted to the Commission.

⁸⁵ Energy Efficiency Order, p. 49.

- Costs associated with the provision of kicker incentives would be segregated on the books and records of Distribution for tracking purposes. These costs would accumulate throughout the year and would be included in the annual rate filing supporting the residential Energy Efficiency Tracker. Accumulated costs would be recovered via the residential Energy Efficiency Tracker, using the mechanism's currently effective mechanics, as an incremental collection above Commission-ordered budgets for the Company's energy efficiency portfolio.

NFG appreciates the opportunity to provide this proposal on kickers, including necessary cost recovery details to support the pilot demonstrative initiative, further informing the April 1, 2019 NY Utilities Report filed with the Commission in Case 18-M-0084. The Company respectfully requests that the Commission approve all aspects of the kicker construct outlined in detail above.

Other Considerations

On April 24, 2019, the Commission issued an Order Addressing Use of Funds in Cases 18-G-0553, 16-G-0257 and 13-G-0136, specific to the Company. Specifically, the April 24, 2019 Order stated the following, at pages 13 and 14:

“Moreover, the Commission is currently considering an enhanced Statewide Energy Efficiency Initiative, through which it will set budgets and targets for the State’s large investor owned utilities for the 2019-2025 period, and the Company recently filed its energy efficiency proposal on April 2, 2019 (April 2 Proposal). In its April 2 Proposal, National Fuel notes “to the extent the Commission were to approve a portion of Distribution’s [August 27, 2018] petition, or deny the petition, then some or all of the unspent funding from the 2012-2015 program years would remain available for the use proposed herein.” The Commission will determine the disposition of unspent CIP funds when it addresses all of the Company’s energy efficiency programs, including its LIURP and the Furnace Repair and Replacement Program, within the Statewide Energy Efficiency Proceeding.”

In light of the April 24, 2019 Order, the Company respectfully requests that the Commission determine the disposition of its unspent CIP funds in this Statewide Energy Efficiency Proceeding, when it addresses all of the Company's energy efficiency programs. The Company's Information Supplement (described in detail above in the NFGDC Chapter) outlines Distribution's current proposal in this regard, which the Company respectfully requests the Commission approve.

Solely as a productive alternative to the current proposal, Distribution further notes that it would also support the Commission “renewing” and “approving” the Company's request included in its August 27, 2018 Petition filed in Case 18-G-0553 (i.e., Paragraphs 35 through 38, on pages 15 through 17 of the Petition), with the following updates:

- As respects Paragraph 37, it should be noted that Distribution has finalized the contract with NYSERDA to have the agency perform furnace replacements for

the Company, just like they do with respect to weatherization work. This was finalized in September 2018.

- As respects Paragraph 37, the Company’s request was to repurpose \$1.95 million, as a one-time funding infusion for its Low-Income Usage Reduction Program (“LIURP”), for both the weatherization and furnace replacement elements. Distribution would support this same level of repurposed funding during the 2021-2025 time period, with the remainder following the Company’s current proposal contained in its Information Supplement, to the extent directed by the Commission. Distribution would also support increasing this one-time funding infusion further than \$1.95 million, to the extent practicable with flexibility to utilize funding over multiple years, if supported by the Commission.

The Company believes that while its current LIURP is very helpful in assisting its low-income customers in reducing their natural gas consumption, further expansion of LIURP would be desirable and in ratepayer and public interest. If the Commission elects to approve the alternative proposed herein, it would provide funding for environmental and energy efficiency benefits, which are consistent with the State Energy Plan and New York’s policies for greenhouse gas reduction, while preserving the importance of natural gas as an environmentally beneficial and highly cost effective fuel for our low income customers.

XI. National Grid Chapter

1. National Grid Funding Sources

Table 1 presents budgets and funding sources for the energy efficiency portfolios of KEDLI, KEDNY, and Niagara Mohawk (collectively “National Grid” or the “Company”). Additional target and budget information is provided for all the NY Utilities in Appendix A.

Table 1: Budgets and Funding Sources for the Energy Efficiency Portfolios of KEDLI, KEDNY, and Niagara Mohawk

UNY - Electric (MWH)	2019		2020		2021	2022	2023	2024	2025
ETIP EE Min	\$	63,897,893	\$	63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893
Incremental EE	\$	-	\$	-	\$ 8,284,634	\$ 15,154,819	\$ 26,268,353	\$ 36,775,694	\$ 46,111,063
Heat Pump			\$	4,295,000	\$ 9,250,000	\$ 12,068,000	\$ 12,050,000	\$ 10,762,000	\$ 9,211,000
Total	\$	63,897,893	\$	68,192,893	\$ 81,432,527	\$ 91,120,712	\$ 102,216,246	\$ 111,435,587	\$ 119,219,956
Funding Source		NA		Uncommitted/Unspent EEPS/Rates	Rates	Rates	Rates	Rates	Rates
UNY - Gas (DTH)	2019		2020		2021	2022	2023	2024	2025
ETIP EE Min	\$	14,014,262	\$	14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262
Incremental EE	\$	-	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$	14,014,262	\$	14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262
Funding Source		NA		NA	NA	NA	NA	NA	NA
KEDLI - Gas (DTH)	2019		2020		2021	2022	2023	2024	2025
ETIP EE Min	\$	7,164,182	\$	7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182
Incremental EE	\$	1,215,829	\$	2,127,701	\$ 2,872,048	\$ 3,801,240	\$ 4,983,849	\$ 6,757,761	\$ 9,072,294
Total	\$	8,380,011	\$	9,291,883	\$ 10,036,230	\$ 10,965,422	\$ 12,148,031	\$ 13,921,943	\$ 16,236,476
Funding Source		Uncommitted/Unspent EEPS		Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates
KEDNY - Gas (DTH)	2019		2020		2021	2022	2023	2024	2025
ETIP EE Min	\$	12,771,114	\$	12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114
Incremental EE	\$	2,933,009	\$	5,132,766	\$ 7,465,446	\$ 9,561,010	\$ 13,817,623	\$ 19,122,019	\$ 23,892,308
Total	\$	15,704,123	\$	17,903,880	\$ 20,236,560	\$ 22,332,124	\$ 26,588,737	\$ 31,893,133	\$ 36,663,422
Funding Source		Uncommitted/Unspent EEPS		Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates

2. Kickers

The Energy Efficiency Order requires National Grid and other utilities to consider the addition of an energy efficiency kicker (“EE kicker”) incentive to provide additional system value and benefit to both the grid and to customers. As specified in the Energy Efficiency Order, these kickers are to apply to space cooling initiatives, in particular, and potentially to other technologies that could provide additional benefits to the peak and the overall electric system.

In support of the Energy Efficiency Order, National Grid proposes the use of kickers in space cooling to provide additional value to both identified constrained areas and to the entire system with the use of a tiered-incentive business model. The Company will work through the adoption of these incentives through 2019 and will add other technologies and measures, including peak-coincident measures and location-based incentives in 2020 and beyond. Several internal teams will need to be consulted to implement these EE kickers, and an implementation plan will be developed over the next year. The Company will keep the Commission apprised of progress with the development of EE kickers.

3. Niagara Mohawk Heat Pump Target

National Grid supports the overall goal of 40 percent statewide reduction of greenhouse gas (“GHG”) emissions from 1990 levels by 2030 and the role of heat pump technology in achieving necessary emissions reductions. In collaboration with the NY Electric Utilities and NYSERDA, National Grid generally agrees with the statewide budgets and targets outlined in the “Accelerated Heat Pump Deployment” chapter.

The initial statewide \$250 Million budget and five TBtu proposal was based on the April 26, 2018 New Efficiency: New York white paper, jointly developed by Staff and NYSERDA. After further analysis and comment, NYSERDA recently revised their methodology and analysis therein regarding heat pumps to reflect load factor and efficiency factor changes. NYSERDA’s revised methodology places downward pressure on savings and upward pressure on incentive budgets. Approximately 4,800 installations or a 20 percent increase will be needed above the original aggressive estimates for Niagara Mohawk’s service territory to achieve the statewide five TBtu target. The scale of this adjustment frontloads an additional year or more of program performance to the six-year time frame. Further, it is challenging to commit to savings targets when the savings methodology is still to be finalized in the New York Technical Resources Manual (“TRM”). The feasibility of proposed savings targets is further exacerbated by limited program history and an in-progress potential study not anticipated to be finalized until later this year. The installation projections and corresponding GBtu estimates identified below for Niagara Mohawk, while still ambitious, reflect a primarily residential market as outlined in the Energy Efficiency Order, a gradual program ramp period, and are reflective of the Electric Heat Initiative performance in 201886 and NYSERDA’s air source heat pump (“ASHP”) and ground source heat pump (“GSHP”) performance rates from 2017-present.⁸⁷ Niagara Mohawk’s proposal is further substantiated by NYSERDA’s capacity estimates for all residential and small-scale (up to ten tons) non-residential installations as noted in Table 7 presented earlier in this Updated Report and also included in Table 2 below.

Table 2: National Grid, Estimated Heat Pump Installations (2020-2025)

	2020	2021	2022	2023	2024	2025	Total
Niagara Mohawk Proposal	975	2,100	3,000	3,600	4,000	4,400	18,075
NYSERDA Original Methodology	1,971	2,634	3,615	4,156	4,848	5,549	22,773

⁸⁶ The Environmentally Beneficial Electrification EAM metric consists of the Electric Heat and Electric Vehicle Initiatives outlined in Case 17-E-0238, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation d/b/a National Grid for Electric Service*, Order Adopting Joint Proposal and Electric and Gas Rate Plans (issued March 15, 2018), Attachment 1, Appendix 7, with 247 installations between 4/1/18 to 12/31/2018 for the Electric Heat Initiative.

⁸⁷ Consisting of 483 installations of ASHP and GSHP between 5/2017 to 3/21/2019.

NYSERDA Revised Methodology	2,507	3,344	4,181	5,015	5,850	6,684	27,581
NYSERDA Residential & Small-Scale Projections	1,671	2,229	2,991	3,344	3,900	4,556	18,591

Table 3: National Grid, Estimated GBtu Savings (2020-2025)

	2020	2021	2022	2023	2024	2025	Total
Niagara Mohawk Proposal	55	117	168	201	224	246	1,010
NYSERDA Original Methodology	138	185	244	282	329	377	1,555
NYSERDA Revised Methodology	140	187	250	281	327	374	1,559

The additional savings necessary to meet the statewide goal could possibly be met within the Niagara Mohawk service territory through NYSERDA’s LMI heat pump pilots, potential non-wires alternatives (“NWA”)/non-pipeline solutions (“NPS”) initiatives, large commercial applications, or geothermal offerings in the KEDNY/KEDLI service territories. National Grid is hesitant to include the potential savings from possible initiatives outlined above in presumptive targets without an understanding of savings potential, adoption rates, or budgetary needs. National Grid requests that the Commission address possible savings targets and budgets associated with these activities in future orders. All the NY Electric Utilities will work with NYSERDA to further assess this potential when preparing implementation plans later this year.

a. Niagara Mohawk Heat Pump Budget

In addition to the feasibility of Niagara Mohawk’s allocation of the statewide target, National Grid is also cognizant of the pressures this program will have on customers. Proposed budgets include a reduction in incentives in the out years based on NYSERDA’s forecasted market transformation and cost reductions. Proposed budgets are the minimum budget necessary to meet the corresponding GBtu targets and may require an increase if market transformation and cost reductions are not at pace with the assumptions used in modeling. The Niagara Mohawk proposed budget also does not reflect additional funding that may be needed to advance heat pump adoption in the large commercial (greater than 10 tons) market segments.

At the time of the filing of this Updated Report, National Grid has not fully analyzed the bill impacts a program of this scale will have on customers. The illustrative budget presented in Table 4 is derived from the run rates presented in NYSERDA’s analysis and adjusted to Niagara Mohawk’s suggestive GBtu target.

Table 4: Niagara Mohawk Heat Pump Budget (\$1,000’s)

	2020	2021	2022	2023	2024	2025	Total
Niagara Mohawk Proposal	4,295	9,250	12,068	12,050	10,762	9,211	57,636
NYSERDA Original Methodology	7,941	10,611	12,551	12,941	11,968	10,133	66,145
NYSERDA Revised Methodology	11,033	14,719	17,992	16,828	15,739	14,009	90,320

b. Niagara Mohawk Heat Pump Transition Plan

The implementation of the Electric Heat Initiative began in 2018, as part of Niagara Mohawk’s Environmentally Beneficial Electrification EAM metric. The metric consists of the Electric Heat and Electric Vehicle Initiatives. The initiatives run through December 31, 2020, per the Joint Proposal as adopted by the Commission in approving the rate plan as agreed upon in Cases 17-E-0238 & 17-G-0239. The 2020 proposal above is in line with the maximum target for the Environmentally Beneficial Electrification EAM metric. National Grid proposes that the Electric Heat Initiative (“EHI”) adopt the statewide framework where possible to smooth the transition to the statewide Heat Pump Program (“HPP”).

National Grid proposes the additional funding allotted for HPP in 2020 be used to close the gap between existing EHI incentive levels and statewide incentive levels identified for HPP. Potential funding sources are under review and anticipated to be identified in the implementation plan to be developed later this year. While in practice the two programs will be offered during the transition year of 2020, from a customer and provider standpoint a shared application and implementation vendor will provide a uniform experience. If the implementation plan and subsequent program manual conflict with the EHI program, funding will be allocated from the HPP. Both carbon and Btu savings would be shared where funding is provided by both programs. If an installation is not eligible for the EHI, but meets eligibility requirements for the statewide HPP, the savings will be tied to the funding source. Logistically managing two programs during the transition is likely to create an increased administrative burden, however, maintaining the Beneficial Electrification EAM metric leads to stability for the Electric Vehicle Initiative, maintains the Company’s earnings potential, and provides a clear and stable market signal consistent with the efforts of the other NY Electric Utilities as of on January 1, 2020.

XII. NYSEG and RG&E Chapter

As described in Chapter One of this Report, the Companies’ proposed targets and budgets of NYSEG and RG&E (the “Companies”) are aligned with the data presented in the Commission’s Energy Efficiency Order. The Companies’ reiterate the concerns addressed by the NY Utilities in Chapter One of the Updated Report regarding whether the presumptive

targets are achievable utilizing the budgets authorized in the Energy Efficiency Order. Specifically, the Companies are concerned that funding levels relative to the targets may be inadequate as traditionally lower cost per unit of savings opportunities such as light emitting diode (“LED”) lighting dissipate and unit costs associated with deeper savings approaches remain flat or increase. Other factors such as higher costs to achieve deeper program market penetration and project comprehensiveness to levels previously not pursued will increase costs. As a result, achieving the incremental targets within the incremental authorized funding levels may not be possible, depending on actual costs of future technologies and other factors. The Companies will address forecasted costs of planned program specific technologies in future ETIP/SEEP filings.

NYSEG and RG&E Funding Source for Incremental Budgets

Tables 5 - 8 below provides, as requested by Staff, the Companies’ anticipated funding sources for the incremental budgets. The Companies ETIP/SEEP filing on February 19, 2019 outlined the use of some unspent ETIP funds from prior years. The Companies anticipate using remaining unspent ETIP funds starting in 2021 until such funds are depleted, which is expected to occur within the first year. Additionally, the Companies plan to file new rate cases for all businesses in 2019 and will be proposing to transition the current surcharge cost recovery mechanism for energy efficiency costs to recovery in base rates starting in 2020, consistent with guidance received from the Commission. The incremental budgets shown in Tables 1 - 4 do not include assumptions or allocations for separate heat pump funding or “not-yet-approved” targets for future rate cases or ETIP/SEEP proposals.

Table 5: NYSEG Electric Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$8,428,564	Unspent Funds/Base Rates
2022	\$13,831,489	Base Rates
2023	\$22,908,404	Base Rates
2024	\$33,282,021	Base Rates
2025	\$43,340,150	Base Rates
Total	\$121,790,627	

Table 6: RG&E Electric Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$4,555,827	Unspent Funds/Base Rates
2022	\$6,626,657	Base Rates
2023	\$9,939,986	Base Rates
2024	\$14,081,647	Base Rates
2025	\$18,637,473	Base Rates

Total	\$53,841,590	
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Table 7: NYSEG Gas Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$1,072,870	Unspent Funds/Base Rates
2022	\$1,369,621	Base Rates
2023	\$1,871,816	Base Rates
2024	\$2,579,453	Base Rates
2025	\$3,368,355	Base Rates
Total	\$10,262,115	

Table 8: RG&E Gas Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$347,283	Unspent Funds/Base Rates
2022	\$571,995	Base Rates
2023	\$878,421	Base Rates
2024	\$1,246,132	Base Rates
2025	\$1,642,423	Base Rates
Total	\$4,686,254	

Accelerated Heat Pump Deployment

As discussed in the NY Utilities April 1, 2019 Report filed with the Commission, the Companies support the overall, statewide clean energy goals including implementation of heat pump technology with emphasis that additional work is needed to determine the appropriate level of heat pump targets for each service territory. To develop potential heat pump specific targets and budgets for this supplemental filing, the Companies reviewed both the conversion rate of heat pump deployments experienced by utilities in comparable service territories and the estimated savings per heat pump technology developed by NYSERDA in its potential study.

The results of the Companies' analysis were used to develop two versions of market potential heat pump savings and budget forecasts. The first forecast is based on adoption rates of a heat pump program administered by NYSERDA with escalation rates obtained from a "NEEP Air Source and Heat Pump Market Transformation Strategies Report"⁸⁸. Potential targets and

⁸⁸ https://neep.org/sites/default/files/NEEP_ASHP_2016MTStrategy_Report_FINAL.pdf

budgets for NYSEG/RG&E based on the NYSERDA administered program are significantly lower than those presented in the NYSERDA analysis. Specifically, NYSEG potential savings are 5% of the NYSERDA analysis and budget levels are 8% while RG&E potential savings are 18% of the NYSERDA analysis and budget levels are 29%. As an alternative, the Companies developed a second forecast of potential targets and budgets based on a heat pump program administered by Efficiency Maine. This alternative resulted in NYSEG potential savings at 22% of the NYSERDA analysis with budgets at 36% and RG&E potential savings at 37% of the NYSERDA analysis with budgets at 60%. The Companies also considered using experience from a heat pump program administered by their affiliate utility in Connecticut (United Illuminating Company) to develop targets and budgets. However, the actual adoption rates for that program were even lower than the NYSERDA program so the Companies determined not to use them in the potential forecast development. The approaches to developing both forecasts based on (1) the NYSERDA program and (2) the Efficiency Maine program are described below in detail.

The Companies further recognize that Staff and NYSERDA are working together to propose updated savings calculations for the New York Technical Resource Manual (“TRM”) consistent with the approach NYSERDA used in the updated potential study. Since this information is not available at this time to review or to incorporate in this filing, NYSEG and RG&E developed their own analysis as described below and acknowledge future updates may be warranted. The result of the Companies’ analysis has been incorporated into the estimated heat pump target and budget forecast outlined in this filing.

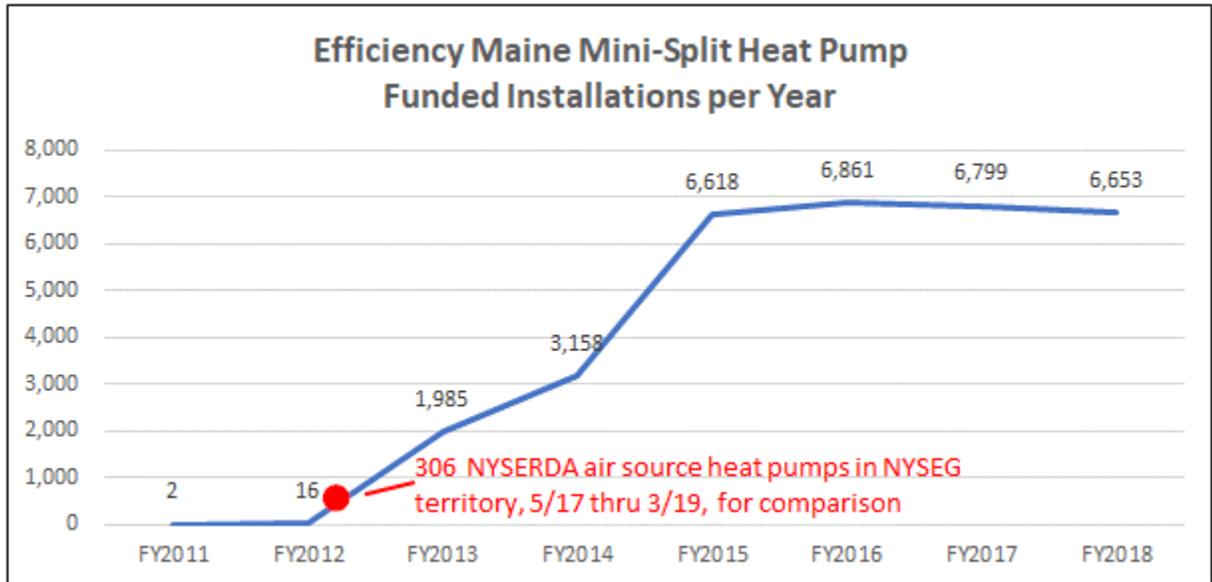
Proposed Heat Pump Budgets and Targets

During its research NYSEG and RG&E found minimal published historical program participation rate data. However, the Companies did find one strong point of reference: Efficiency Maine.

The state of Maine is reasonably comparable to NYSEG’s service territory. Both have significant urban and suburban populations, but also vast rural areas where, in Maine’s case, over half of the population lives. Maine has about 25% fewer households than NYSEG serves with electricity, although climate ranges are similar.

The Efficiency Maine program is focused on deployment of air-source mini-split heat pumps and was originally launched as a pilot in 2011, began running full scale in 2013 and has been in operation as such since 2013. Through 2017 this program ran as a conventional downstream program and in 2018 Efficiency Maine added “instant” rebates, although it appears not to be a full-scale vendor-driven “midstream” program. Efficiency Maine’s program does include and requires vendor engagement with an approval process. Figure 1 shows Efficiency Maine’s heat pump installation trend based on annual report data.

Figure 1: Efficiency Maine Heat Pump Program History



The most recent six-year total is 32,074 installations. The annual reports do not provide details of the program such as the counterfactual baseline (e.g. a window heat pump, electric resistance, oil, etc.) or details about implementation, besides discussion of aggressive vendor engagement and training.

In order to develop forecasted targets for NYSEG, Efficiency Maine’s air source mini split heat pump adoption curve was adjusted upward to account for NYSEG’s larger number of residences and the planned offering of ducted systems. Similarly, it was adjusted downward in anticipation of a slower ramp-up period, as well as to reflect Maine’s significantly larger percentage of wood and delivered fuel homes (more than 75%). RG&E targets were also forecasted using Maine’s data, but with the expectation that the service territory is further advanced on the adoption curve and will ramp up more rapidly than NYSEG. The net effect is more adoption per capita for RG&E. With these changes, the NYSEG and RG&E projected participation rates are shown in Figures 2 and 3 below.

Figure 2: NYSEG Projected Participation Based on Efficiency Maine and Adjustments

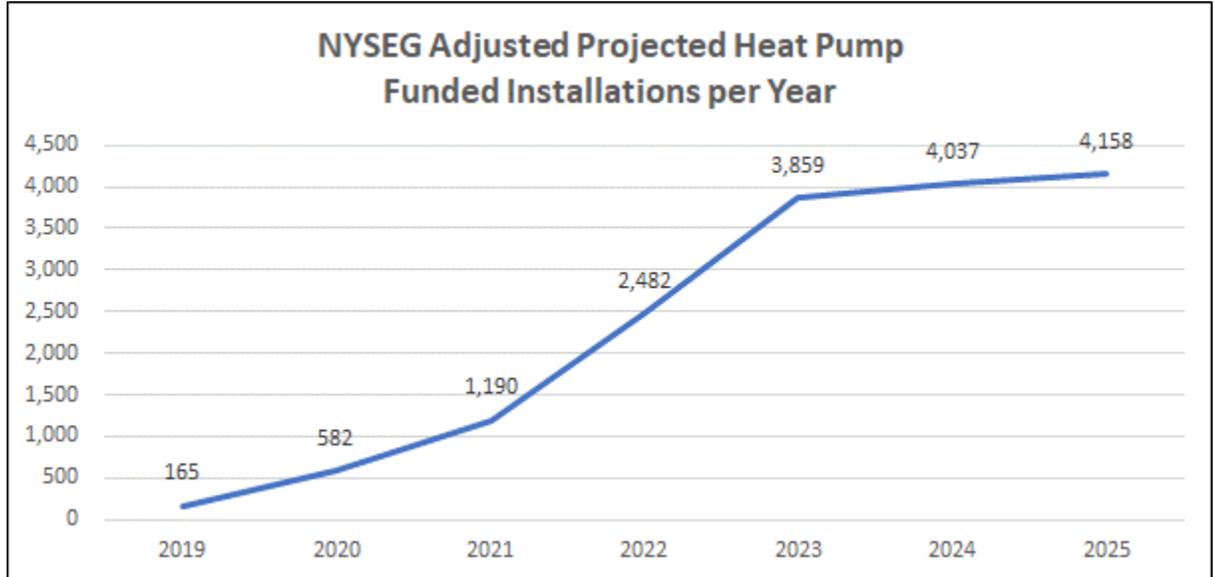
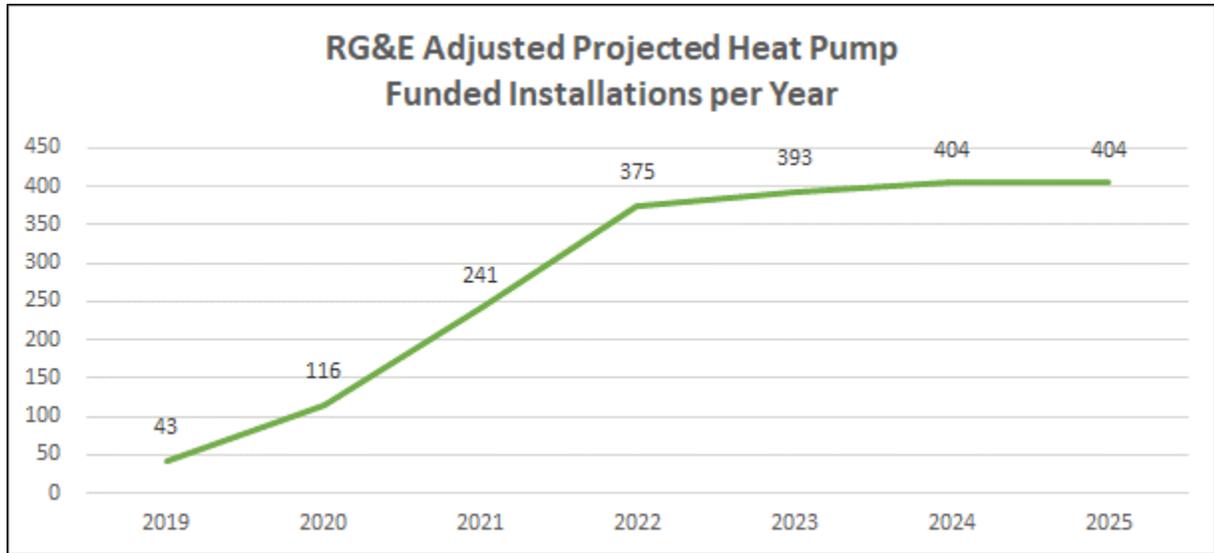


Figure 3: RG&E Projected Participation Based on Efficiency Maine, NYSEG and Adjustments



Based on correlating market adoption achieved in Efficiency Maine’s program, the total NYSEG and RG&E six-year projections from 2020 through 2025 are 16,308 and 1,933 heat

pump installations, respectively. Projected installations per year were spread to technology type based on the NYSERDA program historic performance data. The declining incentive structure for the various heat pump technologies, as outlined in NYSERDA’s March 19, 2019 analysis, was also maintained as an incentive structure. This methodology results in the budgets and targets per Company presented below in Table 9.

Table 9: NYSEG and RG&E Proposed Heat Pump Budgets, Targets & Installations – based on Efficiency Maine Experience

Budget (\$000)	2020	2021	2022	2023	2024	2025	Total
NYSEG	\$ 1,922	\$ 3,930	\$ 7,915	\$ 10,378	\$ 8,839	\$ 7,034	\$ 40,018
RG&E	\$ 419	\$ 870	\$ 1,315	\$ 1,163	\$ 974	\$ 754	\$ 5,496
Target (Gbtu)							
NYSEG	15	31	65	101	106	109	427
RG&E	3	7	11	11	12	12	56
Number of installations							
NYSEG	582	1190	2482	3859	4037	4158	16,308
RG&E	116	241	375	393	404	404	1,933

To calculate the Gbtu potential target, the number of heat pump installations for each year was multiplied by the estimated annual net Gbtu savings per technology type and shown in Table 10 below. The savings estimates for each technology were developed based on the New York TRM. Full load hour (“FLH”) values for central systems were used based on the TRM but lower FLH’s were used for mini splits. The lower FLH’s for mini splits is based on other studies that measured operation from metered data and found that mini splits were often used in a supplemental, rather than primary manner. Both the TRM and modified mini-split FLH appear to be lower than those in NYSERDA’s potential study. The projected number of installations per technology type was derived using the heat pump implementation data provided by NYSERDA Table 11 as a starting baseline.

Table 10: Annual Net Gbtu Savings

Updated TRM Annual Net Gbtu/Year Savings per Installation			
Baseline	ASHP	Mini-Split	GSHP
NYSEG Gbtu	0.031	0.013	0.045
RG&E Gbtu	0.032	0.013	0.047

Table 11: NYSERDA Heat Pump Program (May 2017 to March 2019) – Applications Received per Service Territory

Electric Utility	Number of Applications	
	GSHP	ASHP (Ducted and Mini-Split)
New York State Electric & Gas	208	306
Rochester Gas and Electric	68	78

For purposes of establishing specific goals, the Companies propose to adopt the potential targets and budgets using actual experience of the heat pump program administered in Maine as the baseline and shown in Table 58. The Companies underscore that this is an optimistic approach to support statewide goals and caution that actual results will be based on a number of factors including development and deployment of a statewide framework currently underway. Additionally, the targets and funding levels will need to be closely monitored and reassessed with adjustments based on actual program performance and customer adoption. Required funding levels to support heat pump targets based on the Maine program will have potentially significant bill impacts, especially for NYSEG residential customers. This potential impact to customers makes it increasingly important to continually reassess whether approved budgets are reasonable and appropriate.

Despite the demographic and climate similarities between the NYSEG and Maine service territories, the Companies believe the targets and budgets in Table 58 are a stretch forecast, particularly in light of the experience of the Companies’ affiliate, United Illuminating in Connecticut, as well as compared to the recent NYSERDA program experience. Unlike the other NY Utilities, NYSEG and RG&E do not have experience offering heat pump technology in its programs. Furthermore, the long-term plan to reduce incentive levels significantly after allowing for market transformation is an important consideration and reason for caution with respect to

later year targets and forecasts. NYSERDA’s moderate success as compared to Maine despite recent increasing of incentive levels is also a reason for conservatism.

As a result of the considerations and concerns expressed about the optimistic targets produced from the Efficiency Maine methodology described above, the Companies have prepared a second forecast using a market adoption rate more consistent with the experience of its affiliate, United Illuminating, in Connecticut. The Companies applied an annual escalation rate of two percent per year to the historic number of heat pump applications in the NYSERDA program to arrive at a yearly number of heat pump installations for the period of 2020 through 2025. The escalation rate was obtained from the “NEEP Air Source and Heat Pump Market Transformation Strategies Report” issued in January 2017. Two percent is the average annual penetration rate of the ASHP’s as a primary heating source in the Northeast and Mid-Atlantic under a market transformation strategy.

For this second forecast, the Companies also used the heat pump implementation data provided by NYSERDA shown above, as a starting baseline. The same annual Gbtu and incentive levels used in the Efficiency Maine based forecast were applied. Resulting potential targets and budgets are outlined in Table 12. As previously discussed, the results are substantially lower than potential targets presented in the NYSERDA analysis.

Table 12: Heat Pump Budgets, Targets & Installations – Forecast based on NEEP Report

Budget (\$000)	2020	2021	2022	2023	2024	2025	Total
NYSEG	\$ 1,730	\$ 1,763	\$ 1,734	\$ 1,488	\$ 1,233	\$ 974	\$ 8,921
RG&E	\$ 536	\$ 545	\$ 537	\$ 460	\$ 381	\$ 299	\$ 2,759
Target (Gbtu)							
NYSEG	14	14	14	14	15	15	86
RG&E	4	4	4	5	5	5	27
Number of installations							
NYSEG	524	534	544	554	564	576	3,296
RG&E	149	152	155	158	161	164	939

As demonstrated from the comparison of the two methodologies as well as the NYSERDA program historic results, the actual outcome of implementing an accelerated heat pump strategy in the NYSEG and RG&E service territories as well as throughout the state, may have vastly different results compared to the forecast projected in the NYSERDA potential study. To demonstrate commitment to the statewide clean energy initiatives, the Companies propose the optimistic Efficiency Maine based forecast reflected in Table 58 for its targets and budgets with the caveats outlined above. Should the actual results align more with the alternative

forecast based on the NEEP report during the initial years of the program, the Companies anticipate mid-term adjustments to the budgets and targets will be appropriate.

Kickers:

As outlined in the main chapter of this Updated Report, Staff requested the electric utilities to address the applicability of kickers to their energy efficiency activities. NYSEG and RG&E do not currently offer customer incentives for space cooling equipment and do not believe a kicker incentive in their service territories is justified based on anticipated system value relative to the additional peak reduction to be obtained with kickers. Therefore, the Companies do not plan to include kicker incentives as part of their energy efficiency activities.

XIII. Orange & Rockland Chapter Executive Summary

Orange and Rockland (“O&R” or the “Company”) supports New York’s ambitious environmental and clean energy goals and is committed to exceeding the presumptive overall electric and gas energy efficiency targets. The Company will continue to innovate and improve program delivery and implementation to increase participation and adoption of energy efficient equipment and technology to meet the budget constraints and targets presumed in the Energy Efficiency Order and as defined in the 2019 Rate Order.⁸⁹ The 2019 Rate Order that adopted the Joint Proposal in the Company’s recently concluded electric and gas rate cases, modified the Company’s targets and budgets included in the Energy Efficiency Order. These modified targets and budgets are included as inputs to the Earnings Adjustment Mechanisms (“EAMs”) adopted in the 2019 Rate Order. These EAMs, both programmatic and outcome-based, are in effect for 2019 through 2021. A summary of the adopted budgets and targets for these programs is set forth in Table 1 below. The Company expects to file its next electric and gas rate cases in 2021 and file updated programs for 2022-2025 as part of those rate case filings.

Budgets and Targets

Electric

The electric budgets contained in the 2019 Rate Order are lower and the targets are higher than the budgets and targets found in the Energy Efficiency Order for 2019-2021. The 2019 Rate Order, however, did not provide for funding for LMI programs in 2021 or anticipate that NYSERDA would terminate its electric heat pump rebate program as of December 31, 2019. As discussed below, the Company will develop additional programs and fund both efforts with unspent electric and gas ETIP funds collected from 2016-2018. The estimated unspent electric and gas ETIP collections as of February 2019 are \$6.9 million and \$0.5 million, respectively. The energy efficiency targets set forth in the Energy Efficiency Order for 2022 through 2025 are lower than those contained in the 2019 Rate Order for 2021. Therefore, the Company expects to propose targets and budgets for 2022 through 2025 consistent with those contained in the 2019 Rate Order, requiring a corresponding increase in budgets for 2022 through 2025. The Company expects to address these target and budget issues in its next electric and gas rate filings.

The Company will leverage its experience in delivering energy efficiency programs where possible to achieve additional cost-effective energy savings. However, the cost of energy efficiency will increase from historic levels as the Company pursues fewer low-cost lighting opportunities, which have dominated the savings in its existing electric portfolio. As customers migrate from low-cost lighting measures to refrigeration, heating, and cooling end uses, the

⁸⁹ Case 18-E-0067, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Electric Service*, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans (issued March 14, 2019)(“2019 Rate Order”).

higher upfront cost of these measures will increase the \$/MWh adoption costs, thereby increasing overall spending to achieve consistent MWh targets. The tables below reflect the budgets and targets by initiative for 2021-2025.

TABLE 2: Proposed Electric Budgets						
	2021	2022	2023	2024	2025	Total
ETIP	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$49,500,000
Incremental EE	\$0	\$3,040,273	\$3,040,273	\$3,040,273	\$3,040,273	\$12,161,091
LMI	\$637,557	\$850,075	\$1,190,106	\$1,657,647	\$2,101,811	\$6,437,196
Heat Pump	\$1,841,000	\$2,256,000	\$2,109,000	\$2,049,000	\$1,986,000	\$10,241,000
Total	\$12,378,557	\$16,046,348	\$16,239,379	\$16,646,920	\$17,028,084	\$78,339,287

TABLE 2-1: Proposed Electric Gross Targets & (\$/MWH)						
	2021	2022	2023	2024	2025	Total
ETIP (MWH)	70,503	70,503	70,503	70,503	70,503	352,515
ETIP (\$/MWH)	\$140	\$184	\$184	\$184	\$184	\$175
LMI (MWH)	1,106	1,474	2,064	2,875	3,646	11,165
LMI (\$/MWH)	\$576	\$577	\$577	\$577	\$576	\$577
Total (MWH)	71,609	71,977	72,567	73,378	74,149	363,680
Total (\$/MWH)	\$147	\$192	\$195	\$199	\$203	\$187

Gas

The gas budgets in the 2019 Rate Order for 2019-2020 are lower and the targets are higher than the budgets and targets found in the Energy Efficiency Order. While the 2021 budget and targets will remain at the levels found in the 2019 Rate Order, the Company currently plans to adopt the budgets and targets for 2022-2025 set forth in the Energy Efficiency Order. As with the electric portfolio, the Company proposes to fund 2021 LMI expenditures with remaining gas ETIP funds.⁹⁰ The Company will leverage its experience in delivering energy efficiency programs where possible to achieve cost effective energy savings. The tables below reflect the budgets and targets by initiative for 2021-2025.

TABLE 3: Proposed Gas Budgets						
	2021	2022	2023	2024	2025	Total
ETIP	\$703,000	\$703,000	\$703,000	\$703,000	\$703,000	\$3,515,000
Incremental EE	\$0	\$1,178,908	\$1,698,552	\$2,248,763	\$2,764,433	\$7,890,656
LMI	\$221,613	\$336,240	\$466,151	\$603,704	\$732,621	\$2,360,329
Total	\$924,613	\$2,218,148	\$2,867,703	\$3,555,467	\$4,200,054	\$13,765,985

TABLE 3-1: Proposed Gas Gross Targets & (\$/MMBTU)						
	2021	2022	2023	2024	2025	Total
ETIP (MMBTU)	31,764	57,210	73,008	89,734	105,411	357,128
ETIP (\$/MMBTU)	\$22	\$33	\$33	\$33	\$33	\$32
LMI (MMBTU)	2,052	3,113	4,315	5,589	6,782	21,851
LMI (\$/MMBTU)	\$108	\$108	\$108	\$108	\$108	\$108
Total (MMBTU)	33,816	60,323	77,323	95,323	112,193	378,979
Total (\$/MMBTU)	\$27	\$37	\$37	\$37	\$37	\$36

⁹⁰ After using the funds set forth in Table 2 and Table 3, there will be \$3.0 million and \$279,000 in electric and gas ETIP funds respectively remaining.

The table below summarizes O&R’s expected expenditures for 2021-2025 and the source of the funding for such expenditures.

TABLE 4: O&R Budgets by Initiative and Funding Source							
O&R Electric Portfolio	2021	2022	2023	2024	2025	Total	Funding Source
ETIP	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$49,500,000	Base Rates
Incremental EE	\$0	\$3,040,273	\$3,040,273	\$3,040,273	\$3,040,273	\$12,161,091	Base Rates
LMI	\$637,557	\$850,075	\$1,190,106	\$1,657,647	\$2,101,811	\$6,437,196	Remaining ETIP/Base Rates
Heat Pump	\$1,841,000	\$2,256,000	\$2,109,000	\$2,049,000	\$1,986,000	\$10,241,000	Remaining ETIP/Base Rates
Total	\$12,378,557	\$16,046,348	\$16,239,379	\$16,646,920	\$17,028,084	\$78,339,287	
O&R Gas Portfolio							
O&R Gas Portfolio	2021	2022	2023	2024	2025	Total	Funding Source
ETIP	\$703,000	\$703,000	\$703,000	\$703,000	\$703,000	\$3,515,000	Base Rates
Incremental EE	\$0	\$1,178,908	\$1,698,552	\$2,248,763	\$2,764,433	\$7,890,656	Base Rates
LMI	\$221,613	\$336,240	\$466,151	\$603,704	\$732,621	\$2,360,329	Remaining ETIP/Base Rates
Total	\$924,613	\$2,218,148	\$2,867,703	\$3,555,467	\$4,200,054	\$13,765,985	

Low and Moderate Income (“LMI”) Customers

As directed in the Energy Efficiency Order and discussed in the LMI Chapter, of this Updated Reports, the NY Utilities have collaborated with NYSERDA to develop a statewide LMI Portfolio. A statewide LMI Portfolio will allow investments to be positioned in a more complementary manner, expanding the reach of energy efficiency programs, advancing the State’s energy affordability goals, and increasing the impact of customer funding dedicated to LMI customers. The Company supports the expansion of LMI Portfolio to address the needs of LMI customers. Providing customers solely with bill credits to meet their six percent energy cost is not a sustainable paradigm, as it only provides short-term relief without the consideration of a longer-term, more economic and sustainable solution. By reducing LMI customers’ energy bills with a long-lasting energy efficient solution, a more sustainable model emerges that will lower customer bills and ultimately lower the bill credits needed to meet the six percent energy cost. As set forth in the table below, the Company will coordinate with NYSERDA in 2021 to deliver a complementary electric and gas energy efficiency solution, enhance the EmPower New York Program offering, and explore the concepts introduced in the O&R Low Income Implementation Plan.⁹¹ In addition, the Company plans to coordinate with NYSERDA to maximize electric and gas energy savings. Because the 2019 Rate Order does not provide funding for LMI expenditures, the Company proposes to use remaining ETIP collections to fund the 2021 LMI expenditures identified in Table 5 below.

TABLE 5: Electric and Gas LMI Budgets						
	2021	2022	2023	2024	2025	Total
Electric	\$637,557	\$850,075	\$1,190,106	\$1,657,647	\$2,101,811	\$6,437,196
Gas	\$221,613	\$336,240	\$466,151	\$603,704	\$732,621	\$2,360,329
Total	\$859,170	\$1,186,315	\$1,656,257	\$2,261,351	\$2,834,432	\$8,797,525

Heat Pump Program

⁹¹ Case 14-M-0565, *Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Customers* O&R Plan (filed September 2016).

The Company will strive to achieve the Commission’s ambitious heat pump goal for O&R’s service territory (*i.e.*, 160 GBTu) by offering incentive programs designed to transform the heat pump market and reduce carbon emissions. As noted above, the funding levels for heat pumps contained in the 2019 Rate Order did not anticipate NYSERDA’s termination of its heat pump rebate program effective December 31, 2019. Accordingly, to make up this shortfall and meet the targets set forth in the 2019 Rate Order, the Company projects that it will use unspent ETIP funds in the amount of \$1.3 million in 2020 and \$1.8 million in 2021. The Company may address any changes to its heat pump budgets and targets for periods beyond 2021 in its next electric rate filing.

The Company notes, however, that the potential savings identified in the NYSERDA report, “Analysis of Residential Heat Pump Potential and Economics,” published in January 2019, needs further analysis and verification. These include the potential for regional market growth and the incentive levels necessary to drive heat pump adoption and aligning savings estimates with the Technical Resource Manual to meet the statewide 5.0 TBTu goal. In the short term, the Company has adopted the NYSERDA analysis to determine the incentive budgets without verifying the underlying methodology. However, adjustments may be needed as more details and assumptions are verified in the current market.

Moreover, the historical adoption level for heat pumps has been low. O&R’s goal requires a significant increase in adoption levels that may or may not be achievable. As more experience is gained, NYSERDA’s goal for the O&R service territory may need to be modified and, incentives may need to be increased to meet the overall 160 GBTu goal by 2025. As discussed in the NY Utilities section of this Updated Report, the Commission can support these efforts by permitting O&R the flexibility to make mid-course adjustments based on actual experience.

Cost Recovery

While the 2019 Rate Order provides for recovery of energy efficiency costs through base rates as expenses, the Company expects that it will request to recover costs under the regulatory asset framework in its next rate case. By providing for the recovery of energy efficiency costs over a ten-year period, customer bill impacts are moderated, customers who take service over the ten-year period contribute fairly in recognition that customers do change over that time horizon, and importantly, costs are aligned with the realized lifetime benefits of the electric and gas portfolios.

Potential Study

The Company is conducting a Distributed Energy Resources (“DER”) Potential Study and expects that the results will inform the budgets and targets for O&R’s service territory including the potential for heat pump adoption rates. After reviewing the results, the Company may update this filing to reflect the potential that exists for both electric and gas energy efficiency programs and the funding required to achieve that potential.

Kickers

The Energy Efficiency Order called for the utilities to introduce a kicker incentive, primarily focused on space cooling and related technologies that provide additional incentives to adopt such technologies, based on the increased system value that these technologies can provide. O&R proposes an electric kicker to provide customers with incentives to increase adoption of space cooling equipment or other technologies in areas of system constraint. These incentives would be provided to technologies that would reduce peak demand in order to defer infrastructure investment. O&R believes that increased incentives are justifiable in these constrained areas as a result of the increased avoided transmission and/or distribution benefits that are realized from the deferral of the investment. In addition, utilizing time differentiated avoided costs in benefit cost analysis provides the value of technologies that are coincident with higher cost peak periods. For example, a load shape that impacts summer usage, (i.e. a space cooling technology load shape), would produce higher avoided cost benefits to justify the implementation of a kicker. The Company will determine the eligible technologies and the value of the kicker on a case by case basis in these constrained areas.

XIV. Conclusion

The Commission's Energy Efficiency Order goals will advance the State's Clean Energy objectives. The NY Utilities appreciate the opportunity to provide a proposal on the Order. The Utilities request that the Commission approve the energy efficiency budgets and targets as well as cost recovery included herein as well as the other items noted for Commission approval in section 1 and throughout the updated document as well as in the separate utility chapters. The Utilities look forward to working with NYSERDA, Staff and the Commission to meet the 2025 objectives.

Dated: May 10, 2019

Respectfully submitted,

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Appendix A: New York Utilities' Targets and Budgets

Central Hudson

<u>EE Electric Funding Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Budget ¹	\$ 9,773,000	\$ 9,773,000	\$ 9,773,000	\$ 9,773,000	\$ 9,773,000	\$ 48,865,000
Incremental NENY Budget	\$ 1,647,000	\$ 2,693,000	\$ 3,685,000	\$ 4,408,000	\$ 5,562,000	\$ 17,995,000
Total	\$ 11,420,000	\$ 12,466,000	\$ 13,458,000	\$ 14,181,000	\$ 15,335,000	\$ 66,860,000
<hr/>						
<u>EE Targeted Electric Savings Summary (MWh)</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Target (Gross MWh) ²	53,262	53,262	53,262	53,262	53,262	266,310
Incremental NENY Target (Gross MWh)	6,000	10,000	14,000	17,000	21,700	68,700
Total (Gross MWh)	59,262	63,262	67,262	70,262	74,962	335,010
<hr/>						
<u>EE Gas Funding Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Budget ²	\$ 1,182,000	\$ 1,182,000	\$ 1,182,000	\$ 1,182,000	\$ 1,182,000	\$ 5,910,000
Incremental NENY Budget	\$ 33,000	\$ 98,000	\$ 195,000	\$ 322,000	\$ 482,000	\$ 1,130,000
Total	\$ 1,215,000	\$ 1,280,000	\$ 1,377,000	\$ 1,504,000	\$ 1,664,000	\$ 7,040,000
<hr/>						
<u>EE Targeted Gas Savings Summary (MMBtu)</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Target (Gross MMBtu) ²	58,016	58,016	58,016	58,016	58,016	290,080
Incremental NENY Target (Gross MMBtu)	1,000	3,000	6,000	10,000	15,040	35,040
Total (Gross MMBtu)	59,016	61,016	64,016	68,016	73,056	325,120
<hr/>						
1. Figures shown reflect incremental budgets determined in most recent rate case and minimum -level EAM targets.						
2. Figures shown reflect incremental budgets determined in most recent rate case and minimum -level EAM targets.						

Con Edison

Gas						
EE Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget	\$20,262,962	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466	\$78,396,826
Incremental NENY Budget	\$9,996,775	\$22,254,848	\$25,676,184	\$25,663,057	\$25,961,952	\$109,552,815
Total	\$30,259,737	\$36,788,314	\$40,209,650	\$40,196,523	\$40,495,418	\$187,949,641
EE Targeted Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu)	606,924	303,462	303,462	303,462	303,462	1,820,773
Incremental NENY Target (Gross MMBtu)	169,300	492,000	556,000	556,000	556,000	2,329,300
Total (Gross MMBtu)	776,224	795,462	859,462	859,462	859,462	4,150,073
Electric						
EE Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$430,890,110
Incremental NENY Budget	\$49,614,344	\$79,374,793	\$101,050,659	\$129,728,218	\$158,515,897	\$518,283,911
Total	\$135,792,366	\$165,552,815	\$187,228,681	\$215,906,240	\$244,693,919	\$949,174,021
EE Targeted Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu)	682,400	682,400	682,400	682,400	682,400	3,412,000
Incremental NENY Target (Gross MMBtu)	576,278	908,485	1,152,422	1,471,346	1,792,458	5,900,989
Total (Gross MMBtu)	1,258,678	1,590,885	1,834,822	2,153,746	2,474,858	9,312,989
Total						
EE Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget	\$106,440,984	\$100,711,488	\$100,711,488	\$100,711,488	\$100,711,488	\$509,286,936
Incremental NENY Budget	\$59,611,120	\$101,629,641	\$126,726,843	\$155,391,275	\$184,477,848	\$627,836,726
Total	\$166,052,104	\$202,341,129	\$227,438,331	\$256,102,763	\$285,189,336	\$1,137,123,662
EE Targeted Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu)	1,289,324	985,862	985,862	985,862	985,862	5,232,773
Incremental NENY Target (Gross MMBtu)	745,578	1,400,485	1,708,422	2,027,346	2,348,458	8,230,289
Total (Gross MMBtu)	2,034,903	2,386,347	2,694,284	3,013,208	3,334,320	13,463,062

National Fuel Gas

<u>Budget Summary</u> ⁽¹⁾	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base Energy Efficiency Budget	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 70,280,000
Incremental NENY Budget	\$ -	\$ -	\$ 104,172	\$ 260,431	\$ 416,690	\$ 729,207	\$ 1,091,206	\$ 2,601,706
Total Budget	\$ 10,040,000	\$ 10,040,000	\$ 10,144,172	\$ 10,300,431	\$ 10,456,690	\$ 10,769,207	\$ 11,131,206	\$ 72,881,706
<u>Savings Target Summary</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base Energy Efficiency Savings Target (Gross MMBtu) ⁽²⁾	349,684	349,684	349,684	349,684	349,684	349,684	349,684	2,447,788
Incremental NENY Savings Target (Gross MMBtu) ⁽³⁾	-	-	2,000	5,000	8,000	14,000	20,950	49,950
Total Savings Target (Gross MMBtu)	349,684	349,684	351,684	354,684	357,684	363,684	370,634	2,497,738
<u>Notes:</u>								
(1) National Fuel Gas Distribution Corporation's Budget Summary is the same information included on page 87 of the NY Utilities' April 1, 2019 filing in Case 18-M-0084 (i.e., the NFGDC Chapter).								
(2) National Fuel Gas Distribution Corporation's Base Energy Efficiency Savings Target is based on the Company's Updated Energy Efficiency Transition Implementation Plan and System Energy Efficiency Plan for the 2019-2020 Program Years, filed on February 19, 2019 in Case 18-M-0084.								
(3) National Fuel Gas Distribution Corporation's Incremental NENY Savings Target is based on the New York State Public Service Commission's Order Adopting Accelerated Energy Efficiency Targets, issued and effective December 13, 2018, in Case 18-M-0084.								

National Grid

Budgets

NMPC - Electric		2019	2020	2021	2022	2023	2024	2025
Base EE Budget	\$	63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893
Incremental NENY	\$	-	\$ -	\$ 8,284,634	\$ 15,154,819	\$ 26,268,353	\$ 36,775,694	\$ 46,111,063
Total	\$	63,897,893	\$ 63,897,893	\$ 72,182,527	\$ 79,052,712	\$ 90,166,246	\$ 100,673,587	\$ 110,008,956
* Funding Source				Rates	Rates	Rates	Rates	Rates
NMPC - Gas		2019	2020	2021	2022	2023	2024	2025
Base EE Budget	\$	14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262
Incremental NENY	\$	-	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$	14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262
KEDLI - Gas		2019	2020	2021	2022	2023	2024	2025
Base EE Budget	\$	7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182
Incremental NENY	\$	1,215,829	\$ 2,127,701	\$ 2,872,048	\$ 3,801,240	\$ 4,983,849	\$ 6,757,761	\$ 9,072,294
Total	\$	8,380,011	\$ 9,291,883	\$ 10,036,230	\$ 10,965,422	\$ 12,148,031	\$ 13,921,943	\$ 16,236,476
* Funding Source		Uncommitted/Unspent EEPS	Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates
KEDNY - Gas		2019	2020	2021	2022	2023	2024	2025
Base EE Budget	\$	12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114
Incremental NENY	\$	2,933,009	\$ 5,132,766	\$ 7,465,446	\$ 9,561,010	\$ 13,817,623	\$ 19,122,019	\$ 23,892,308
Total	\$	15,704,123	\$ 17,903,880	\$ 20,236,560	\$ 22,332,124	\$ 26,588,737	\$ 31,893,133	\$ 36,663,422
* Funding Source		Uncommitted/Unspent EEPS	Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates

Targets

NMPC- Electric (MWh)		2019	2020	2021	2022	2023	2024	2025
Base EE Target		319,383	319,383	319,383	319,383	319,383	319,383	319,383
Incremental NENY		-	-	41,000	75,000	130,000	182,000	228,200
Total MWh		319,383	319,383	360,383	394,383	449,383	501,383	547,583
NMPC - Gas (MMBtu)		2019	2020	2021	2022	2023	2024	2025
Base EE Target		870,798	870,798	870,798	870,798	870,798	870,798	870,798
Incremental NENY		-	-	-	-	-	-	-
Total MMBtu		870,798	870,798	870,798	870,798	870,798	870,798	870,798
KEDLI - Gas (MMBtu)		2019	2020	2021	2022	2023	2024	2025
Base EE Target		166,821	166,821	166,821	166,821	166,821	166,821	166,821
Incremental NENY		43,180	75,565	102,000	135,000	177,000	240,000	322,200
Total MMBtu		210,001	242,386	268,821	301,821	343,821	406,821	489,021
KEDNY - Gas (MMBtu)		2019	2020	2021	2022	2023	2024	2025
Base EE Target		282,740	282,740	282,740	282,740	282,740	282,740	282,740
Incremental NENY		89,576	156,758	228,000	292,000	422,000	584,000	729,000
Total MMBtu		372,316	439,498	510,740	574,740	704,740	866,740	1,011,740

NYSEG and RG&E

NYSEG EE Electric Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ¹	\$ 17,035,451	\$ 17,035,451	\$ 17,035,451	\$ 17,035,451	\$ 17,035,451	\$ 85,177,255
Incremental NENY Budget	\$ 8,428,564	\$ 13,831,489	\$ 22,908,404	\$ 33,282,021	\$ 43,340,150	\$ 121,790,627
Total	\$ 25,464,015	\$ 30,866,940	\$ 39,943,855	\$ 50,317,472	\$ 60,375,601	\$ 206,967,882
NYSEG EE Targeted Electric Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MWh) ¹	59,508	59,508	59,508	59,508	59,508	297,540
Incremental NENY Target (Gross MWh)	39,000	64,000	106,000	154,000	200,540	563,540
Total (Gross MWh)	98,508	123,508	165,508	213,508	260,048	861,080
RG&E EE Electric Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ¹	\$ 10,482,078	\$ 10,482,078	\$ 10,482,078	\$ 10,482,078	\$ 10,482,078	\$ 52,410,390
Incremental NENY Budget	\$ 4,555,827	\$ 6,626,657	\$ 9,939,986	\$ 14,081,647	\$ 18,637,473	\$ 53,841,590
Total	\$ 15,037,905	\$ 17,108,735	\$ 20,422,064	\$ 24,563,725	\$ 29,119,551	\$ 106,251,980
RG&E EE Targeted Electric Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MWh) ¹	35,307	35,307	35,307	35,307	35,307	176,535
Incremental NENY Target (Gross MWh)	22,000	32,000	48,000	68,000	90,000	260,000
Total (Gross MWh)	57,307	67,307	83,307	103,307	125,307	436,535
NYSEG EE Gas Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ¹	\$ 2,038,215	\$ 2,038,215	\$ 2,038,215	\$ 2,038,215	\$ 2,038,215	\$ 10,191,075
Incremental NENY Budget	\$ 1,072,870	\$ 1,369,621	\$ 1,871,816	\$ 2,579,453	\$ 3,368,355	\$ 10,262,114
Total	\$ 3,111,085	\$ 3,407,836	\$ 3,910,031	\$ 4,617,668	\$ 5,406,570	\$ 20,453,189
NYSEG EE Targeted Gas Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu) ¹	94,486	94,486	94,486	94,486	94,486	472,430
Incremental NENY Target (Gross MMBtu)	47,000	60,000	82,000	113,000	147,560	449,560
Total (Gross MMBtu)	141,486	154,486	176,486	207,486	242,046	921,990
RG&E EE Gas Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ¹	\$ 2,720,749	\$ 2,720,749	\$ 2,720,749	\$ 2,720,749	\$ 2,720,749	\$ 13,603,745
Incremental NENY Budget	\$ 347,283	\$ 571,995	\$ 878,421	\$ 1,246,132	\$ 1,642,423	\$ 4,686,254
Total	\$ 3,068,032	\$ 3,292,744	\$ 3,599,170	\$ 3,966,881	\$ 4,363,172	\$ 18,289,999
RG&E EE Targeted Gas Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu) ¹	141,246	141,246	141,246	141,246	141,246	706,230
Incremental NENY Target (Gross MMBtu)	17,000	28,000	43,000	61,000	80,399	229,399
Total (Gross MMBtu)	158,246	169,246	184,246	202,246	221,645	935,629
1. Figures shown reflect a continuation of current PSC-authorized ETIP budgets & targets.						
2. Figures shown reflect incremental budgets determined in most recent rate case and minimum-level EAM targets.						

Orange and Rockland

<u>EE Electric Funding Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Budget ²	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$49,500,000
Incremental NENY Budget	\$637,557	\$3,890,348	\$4,230,379	\$4,697,920	\$5,142,084	\$18,598,287
Total	\$10,537,557	\$13,790,348	\$14,130,379	\$14,597,920	\$15,042,084	\$68,098,287
<u>EE Targeted Electric Savings Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Target (Gross MWh) ²	70,503	70,503	70,503	70,503	70,503	352,515
Incremental NENY Target (Gross MWh)	1,106	1,474	2,064	2,875	3,646	11,165
Total (Gross MWh)	71,609	71,977	72,567	73,378	74,149	363,680
<u>EE Gas Funding Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Budget ²	\$703,000	\$703,000	\$703,000	\$703,000	\$703,000	\$3,515,000
Incremental NENY Budget	\$221,613	\$1,515,148	\$2,164,703	\$2,852,467	\$3,497,054	\$10,250,985
Total	\$924,613	\$2,218,148	\$2,867,703	\$3,555,467	\$4,200,054	\$13,765,985
<u>EE Targeted Electric Savings Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Target (Gross MMBtu) ²	31,764	31,764	31,764	31,764	31,764	158,820
Incremental NENY Target (Gross MMBtu)	2,052	28,559	45,559	63,559	80,429	220,159
Total (Gross MMBtu)	33,816	60,323	77,323	95,323	112,193	378,979
1. Figures shown reflect a continuation of current PSC-authorized ETIP budgets & targets.						
2. Figures shown reflect incremental budgets determined in most recent rate case and maximum -level EAM targets.						

Appendix B: Illustrative Utility-NYSERDA Collaboration Models

ID #	Collaboration Model	Description and Example(s)	Design and Delivery Considerations
1	Co-market/co-brand	Utility and NYSERDA partner to leverage brand and related strengths to advance solution(s) Ex) Central Hudson-NYSERDA marketing for clean heating and cooling solutions	Can leverage individual organization strengths such as utility relationship and brand with local customer or distributor complemented with the need for state-level outreach and general awareness.
2.1	Cross market available solutions and programs	Utility and NYSERDA customer engagement channels become more coordinated (i.e., utility outreach/sales resources and websites) by presenting the programs and services made available by both organizations to core customer sectors. Ex) National Grid and NYSERDA are working to integrate outreach to industrial customers and will be co-hosting a commercial Energy Solutions Summit later in 2019.	Across market sectors and utility territories, enable customers to easily learn about energy efficiency incentives available to that customer, whether the incentive is offered by the utility or by NYSERDA.
2.2	Direct referrals to available program(s)	Utilities and NYSERDA would routinely refer a customer to available programs at the other organization, according to what best meets the customer's needs. Ex) Utility referral of customers to the NYSERDA EmPower New York Program.	Consider allowing each utility to report toward its savings goals a percentage of the energy savings that are achieved from the utility referral of customers to specific NYSERDA programs, thereby providing credit for driving increased market uptake.
3.1	Complimentary incentives for the same project, but for different services	Utility and NYSERDA work with the same customer and fund different aspects of a project. Ex) Agriculture: NYSERDA funds project technical assistance and National Grid provides rebates, working together with the same customer. Commercial Buildings: NYSERDA supports Real Time Energy Management ("RTEM") and Con Edison provides lighting rebates at the same facility.	As described in the CE-04 Multiple Incentive Guidance, in designing and delivering complimentary incentives and market development support, the utility(s) and NYSERDA will: (1) further develop and state a clear rationale for how the approach will achieve greater or higher value results; (2) will ensure that coordination has occurred with regard to marketing and delivery channels; and (3) will maintain a clear objective and well-defined impact.
3.2	Complimentary incentives and/or market development support for the same technology or same measure class, that address different points in the supply chain	Utility and NYSERDA layer coordinated incentives and/or complementary market development support at the manufacturer, distributor, contractor, and/or customer level. Ex) Heat Pumps: electric utilities provide customer support through rebates and related offerings, and NYSERDA to provide support to installers and distributors for cooperative advertising and training.	
3.3	Complimentary	Utility and NYSERDA co-fund the same	

ID #	Collaboration Model	Description and Example(s)	Design and Delivery Considerations
	incentives for the same project, but for different value streams	project which has multiple value streams (system, environmental, locational, temporal). Ex) Combined Heat and Power projects in Non-Wires Solution areas: Con Edison incentivizes peak reduction achievement and NYSERDA provides incentives for CO ₂ and resiliency.	
3.4	Complimentary incentives for the same project to enable deep energy savings, that address different services, different value streams, different performance objectives, or potentially different measures	Utility and NYSERDA co-fund deep energy savings projects with complimentary incentives for different services or value streams. Ex) New strategies to influence developments or re-developments to achieve high energy performance at the community- or campus-level may couple NYSERDA incentives for technical assistance with utility project incentives.	
4	Co-design/co-implement a pilot	Utility(s) and NYSERDA work together to jointly design, launch, and test an innovative strategy. Ex) Pay for Performance Pilots between Con Edison National Grid and NYSERDA	Utilities and NYSERDA leverage strengths and each commit meaningful resources in the collaboration. Can also include co-branding.
5	Pool resources to extend the impact of an initiative which is administered by a single lead entity	Utilities and NYSERDA work together on large initiatives to achieve greater savings than could be achieved individually Ex) NYSERDA and utilities could explore collaboration in a large-scale C&I Climate Challenge	See 3.1 – 3.4
6.1	Coordinated implementation of a statewide portfolio	Statewide portfolio allows utility and NYSERDA LMI investments to be positioned in a more complementary manner, with coordinated customer outreach and certain shared administrative infrastructure. Ex) Statewide LMI Portfolio	
6.2	Coordinated implementation of a statewide framework	Statewide framework for heat pumps includes a common program design, program manual, and eligibility criteria to be applied consistently on a statewide basis. Ex) Statewide electric utility heat pump framework	
7	NYSERDA de-risks a strategy and utility implements some version of it in the future	NYSERDA supports an early-stage technology or initiative by testing it in the market. If successful, consider handing off to utility(s) to scale. Ex) NYSERDA RTEEM program may be adopted/adapted within utility offering.	Market readiness (customer demand, solution provider network) and potential impacts must be closely considered prior to hand-off.

Summary of the major differences between the Updated Report and the initial report

Attachment A: Summary of Modifications to April 2019 Energy Efficiency Report

This Attachment highlights the important changes reflected in the May 10th filing versus the April filing. These changes, primarily related to heat pump targets and budgets, are summarized here.¹

Location Clean Version	Location Redline Version	Summary of Change
P. 5.	P. 5.	The heat pump budget figure was updated from \$289 million to \$335 million to reflect budget estimates from all of the Joint Utilities.
P. 7.	P. 8.	Table 2 was updated to reflect new target estimates by Central Hudson, NYSEG, and RG&E and new budget estimates by NYSEG and RG&E.
P. 7.	P. 9.	Language describing the Table 2 results was modified to reference the reader to each utilities' company-specific chapter for additional detail regarding how the heat pump budgets and targets were computed. This language also notes that the Joint Utilities will work with NYSERDA to explore ways of increasing the proposed MWh heat pump target through greater deployments in the commercial sector.
P. 8.	P. 9.	The Joint Utilities added the request that the Commission extend the date for filing quarterly scorecard reports by 15 days.
Pp. 12-13.	Pp. 15-16.	Two paragraphs were added to explain certain minor differences between figures presented by Con Edison and Orange and Rockland in the Energy Efficiency Report versus the targets established in the Commission's Energy Efficiency Order.
P. 18.	P. 21.	Language modified to state that the basis for new heat pump targets and budgets for Central Hudson, NYSEG, and RG&E is provided in their company-specific chapters.
P. 18.	P. 21.	Language added to state that a greater focus on commercial heat pump applications could close some of the gap between the proposed heat pump target of 2,710 Gbtu and the 5,000 Gbtu objective established in the Energy Efficiency Order.
P. 20.	P. 23-24.	Table 7 updated to reflect current Joint Utility heat pump targets.
P. 24.	Pp. 28-29.	Illustrative examples in Tables 8 and 9 updated to reflect current Joint Utility heat pump targets.
P. 47.	P. 52.	Table 1 in the Central Hudson Chapter updated to reflect Central Hudson's base ETIP target rather than its "stretch" target for 2021 to 2025.
Pp. 48-49.	Pp. 52-53.	Table 3 in the Central Hudson Chapter updated to reflect Central Hudson's base ETIP budget for 2021 to 2025.
P. 49.	P. 53.	Table 4 in the Central Hudson Chapter updated to reflect Central Hudson's base gas energy efficiency targets for 2021 to 2025.
P. 50.	P. 54.	Table 6 in the Central Hudson Chapter updated to reflect Central Hudson's base gas energy efficiency budget for 2021 to 2025.
Pp. 51-55.	Pp. 55-61.	A new heat pump section replaces Central Hudson's old section.
P. 56.	P. 62.	A paragraph regarding the applicability of kickers for Central Hudson is inserted.
P. 69.	P. 76.	2024 and 2025 figures in Table 5 of the Con Edison Chapter have been corrected.
Pp. 91-93.	Pp. 99-101.	NFGDC inserted a section addressing kickers.

¹ The May 10th filing also contains minor edits to improve the clarity and readability of the Report but had no effect on the matters addressed in the Report. These changes are not summarized in this Attachment.

Summary of the major differences between the Updated Report and the initial report

Pp. 93-94.	Pp. 101-102.	NFGDC inserted a section requesting that the Commission address the disposition of NFGDC's unspent CIP funds as part of its decision later this year.
P. 95.	P. 103.	National Grid insert language addressing kickers.
Pp. 100-107.	Pp. 109-118.	NYSEG and RG&E replace the old heat pump section with a new section.
P. 107.	P. 118.	NYSEG and RG&E add kickers language.
Pp. 112.	P. 123.	Orange and Rockland adds kickers language.
Pp. 115-120.	Pp. 127-132.	NY Utility energy efficiency targets and budgets are provided in a common format.

May 21, 2019 Redline NY Utilities Updated Report



Mary Krayeske
Associate Counsel
Law Department

May 21, 2019

Honorable Kathleen Burgess
Secretary
State of New York Public Service Commission
Three Empire State Plaza
Albany, NY 12223-1350

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

Dear Secretary Burgess:

Pursuant to a request from the Staff of the Department of Public Service, Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc. (“Con Edison”), KeySpan Gas East Corporation d/b/a National Grid, The Brooklyn Union Gas Company d/b/a National Grid NY, Niagara Mohawk Power Corporation d/b/a National Grid, National Fuel Gas Distribution Corporation, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation submit this *Updated NY Utilities Report Regarding Energy Efficiency Budgets and Targets, Collaboration, Heat Pump Technology and Low- and Moderate-Income Customers and Requests for Approval*.

The updates reflect: (1) a consistent approach for displaying energy efficiency targets and budgets; (2) certain reconciliations for Con Edison and Orange and Rockland; (3) a discussion of heat pump targets and budgets for Central Hudson, NYSEG, and RG&E in their company-specific chapters; and (4) an expanded description by all of the Joint Utilities other than Con Edison of their approach to “kickers”. A number of additional edits have been made to improve the quality of the Updated Report. The current Updated Report reflecting these edits as well as minor changes since May 10, 2019 is provided as part of this correspondence. To aid stakeholders in understanding the changes that have been made to the Updated Report, we are also providing: (1) the April 5, 2019 Errata Report which has been updated to reflect Con Edison’s revised company-specific chapter that was posted on April 16, 2019; (2) a redline version of the Updated Report compared to the April 5 filing with the Con Edison revisions; (3)

May 21, 2019 Redline NY Utilities Updated Report

a summary of the major differences between the Updated Report and the initial report; and (4) a list of errata changes to the May 10, 2019 filing.

If there are any questions, please contact me.

Sincerely,

/s/ Mary Krayeske

Mary Krayeske

Attachments

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STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

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

NY UTILITIES UPDATED REPORT REGARDING ENERGY EFFICIENCY BUDGETS AND TARGETS, COLLABORATION, HEAT PUMP TECHNOLOGY, AND LOW- AND MODERATE-INCOME CUSTOMERS AND REQUESTS FOR APPROVAL

The New York State Public Service Commission (the “Commission”) in the *Order Adopting Accelerated Energy Efficiency Targets*¹ (the “Energy Efficiency Order” or the “Order”) directed the NY Utilities² to work collaboratively with the New York State Energy Research and Development Authority (“NYSERDA”) to file energy efficiency targets and budgets for 2021-2025 that meet 2025 New York State objectives. The Energy Efficiency Order also addressed the accelerated introduction of heat pump technologies by electric utilities and the continued provision and enhancement of programs for low and moderate income (“LMI”) customers. The NY Utilities hereby file this [Updated NY Utilities Report Regarding Energy Efficiency Budgets and Targets, Collaboration, Heat Pump Technology, and Low- and Moderate-Income Customers \(“Updated Report”\)](#) in response to the Energy Efficiency Order and request Commission approval of the energy efficiency budgets as set forth below and, in the utility-specific chapters included herein.

I. Summary of NY Utilities’ Requests

In this Updated Report, the NY Utilities seek authority to spend specified amounts over 2021 to 2025 on electric and gas energy efficiency programs and request that the Commission provide the Utilities the flexibility to periodically adjust budgets as necessary. The NY Electric Utilities request authority to spend \$289335 million on an accelerated heat pump installation program. The NY Electric Utilities also request that certain changes be made to the Clean

¹ Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, Order Adopting Accelerated Energy Efficiency Targets (“Energy Efficiency Order”) (issued December 13, 2018).

² The NY Utilities (or “Utilities”) are comprised of Central Hudson Gas & Electric Corporation (“Central Hudson”), Consolidated Edison Company of New York, Inc. (“Con Edison”), KeySpan Gas East Corporation d/b/a National Grid (“KEDLP”), The Brooklyn Union Gas Company d/b/a National Grid NY (“KEDNY”), Niagara Mohawk Power Corporation d/b/a National Grid (“Niagara Mohawk”)(collectively “National Grid”), National Fuel Gas Distribution Corporation (“NFGDC” or “NFG”), New York State Electric & Gas Corporation (“NYSEG”), Orange and Rockland Utilities, Inc. (“Orange & Rockland”), and Rochester Gas and Electric Corporation (“RG&E”)(collectively, “NY Utilities” or “Utilities”). The NY Utilities with electric operations are referred to as the “NY Electric Utilities.”

Energy Guidance Document CE-04.³ Finally, to the extent that the total budget (net of unspent energy efficiency funds) established by the Commission exceeds the rate impact cap established in the Energy Efficiency Order, the NY Utilities request that the cap be adjusted upwards.

The NY Utilities request Commission authorization of the 2021 to 2025 incremental energy efficiency budgets and targets presented in Table 1.

Table 1: Incremental Budgets and Targets by Company (2021-2025)

IOU	Millions		Targets	
	Electric	Gas	Electric MWH	Gas MMBTu
CenHud	\$ 18.0	\$ 1.1	68,700	35,040
ConEd	\$ 649.5	\$ 128.1	2,159,284	2,773,335
KEDLI		\$ 27.5		976,200
KEDNY		\$ 73.9		2,255,688
NFG		\$ 2.6		49,950
NiMo	\$ 132.6	\$ -	656,200	-
NYSEG	\$ 121.8	\$ 10.3	563,540	449,560
O&R	\$ 36.6	\$ 11.1	256,447	297,363
RG&E	\$ 53.8	\$ 4.7	260,000	229,399
Total	\$ 1,012.3	\$ 259.3	3,964,171	7,066,535

IOU	Budget (Millions)		Targets	
	Electric	Gas	Electric MWH	Gas MMBTu
CenHud	\$ 18.00	\$ 1.10	68,700	35,040
ConEd	\$ 649.50	\$ 128.10	2,159,284	2,773,335
KEDLI		\$ 27.50		976,200
KEDNY		\$ 73.90		2,255,688
NFG		\$ 2.60		49,950
NiMo	\$ 132.60	\$ -	656,200	-
NYSEG	\$ 121.80	\$ 10.30	563,540	449,560
O&R	\$ 36.60	\$ 11.10	256,447	297,363
RG&E	\$ 53.80	\$ 4.70	260,000	229,399
Total	\$ 1,012.30	\$ 259.30	3,964,171	7,066,535

Three utilities, Central Hudson, Con Edison, and Orange & Rockland performed company-specific analyses to develop budgets and targets. Details of these analyses are provided in utility-specific chapters later in this [Updated Report](#). The remaining utilities adopted the presumptive targets and budgets that were presented in Appendix A of the Energy Efficiency

³ [Cases 14-M-0004 et al., Proceeding on Motion of the Commission to Consider a Clean Energy Fund](#), CEAC I&C Working Group, [Letter to Commission Secretary Burgess from Peggine Neville-Letter](#), DPS Staff, Regarding Layered Incentive Guidance, ([issued filed](#) October 3, 2016).

Order. [The targets and budgets adopted by each of the Joint Utilities is presented in a consistent format in Appendix A.](#)

The NY Electric Utilities request Commission authorization of those ~~2020~~[2021](#) to 2025 utility budgets and targets provided in Table 2 to accelerate the installation of heat pumps in the State. As background, while the Commission established an initial heat pump budget target of \$250 million, NYSERDA updated the heat pump savings methodology presented in its January 2019 “[New Efficiency: New York Analysis of Residential Heat Pump Potential and Economics](#)” report (the “Heat Pump Potential Study”)⁴ and presented ~~the updates~~ [to the updates](#) to the NY Electric Utilities ~~two weeks ago. These~~ [on March 18, 2019. NYSERDA explained that these](#) updates were made to achieve better alignment with the heat pump savings methodology used in the New York State Technical Resource Manual (“TRM”) by modifying assumptions related to the resources that heat pumps are replacing and reflecting more accurate heat pump load factors. The updates [combined with the heat pump analyses described in the company-specific chapters](#) resulted in the overall budget estimate increasing from \$250 million to ~~\$334~~[335](#) million. Table 2 compares the results of the updated Heat Pump Potential Study to the NY Electric Utilities’ proposed heat pump budgets and targets.

⁴ <https://www.nysesda.ny.gov/-/media/Files/Publications/PPSER/NYSERDA/18-44-HeatPump.pdf>

Table 2: Comparison of Electric Utility Heat Pump Budgets and Targets to Those Developed in the NYSERDA Heat Pump Potential Study Update (for years 2020-2025)

	GBtu Target		Budget (\$millions)	
	Heat Pump Potential Study	Utility Proposed	Heat Pump Potential Study	Utility Proposed
CenHud	416	TBD	\$ 30.2	\$ 30.2
ConEd	804	804	\$ 83.2	\$ 189.6
NYSEG	1,907	TBD	\$ 110.1	TBD
NiMO	1,559	1,010	\$ 90.3	\$ 57.6
O&R	160	160	\$ 11.6	\$ 11.6
RG&E	153	TBD	\$ 9.2	TBD
Total	4,999	1,974	\$ 334.6	\$ 289.0

	GBtu Target		Budget (\$millions)	
	Heat Pump Potential Study	Utility Proposed	Heat Pump Potential Study	Utility Proposed
CenHud	416	416	\$ 30.2	\$ 30.2
ConEd	804	804	\$ 83.2	\$ 189.6
NYSEG	1,907	TBD	\$ 110.1	TBD
NiMO	1,559	1,010	\$ 90.3	\$ 57.6
O&R	160	160	\$ 11.6	\$ 11.6
RG&E	153	TBD	\$ 9.2	TBD
Total	4,999	2,390	\$ 334.6	\$ 289.0

	GBtu Target		Budget (\$millions)	
	Heat Pump Potential Study	Utility Proposed	Heat Pump Potential Study	Utility Proposed
CenHud	416	253	\$ 30.2	\$ 30.2
ConEd	804	804	\$ 83.2	\$ 189.6
NiMo	1,559	1,010	\$ 90.3	\$ 57.6
NYSEG	1,907	427	\$ 110.1	\$ 40.0
O&R	160	160	\$ 11.6	\$ 11.6
RG&E	153	56	\$ 9.2	\$ 5.5
Total	5,000	2,710	\$ 334.6	\$ 334.5

The figures in ~~this table~~ [Table 2](#) for Con Edison reflect a ~~\$106~~[\\$115](#) million increase over the projected budget from the updated Heat Pump Potential Study.⁵ Con Edison increased the budget because it determined that it would not be able to achieve its ~~TBtu~~[GBtu](#) target without a budget increase above the amount reflected in the updated Heat Pump Potential Study. A detailed discussion explaining the reasons for Con Edison's budget increase request appears later in this ~~Report~~[Updated Report](#). ~~The remaining NY Electric Utilities have all reduced their heat pump targets. The basis for these reductions is explained in each company-specific chapter.~~

~~These figures also show that National Grid has reduced its budget and TBtu target based on its own analysis of heat pump potential for Niagara Mohawk. This is discussed in more detail later in National Grid's utility-specific chapter.~~

~~NYSEG and RG&E are still assessing the heat pump potential and respective budgets for their territories and are not able to commit to a target or budget at this time. Central Hudson proposes to adopt the company-specific cumulative budget developed within the updated Heat Pump Potential Study of \$30.2M. The Company is still assessing the heat pump potential for its service territory and is not able to commit to a specific target at this time.~~

~~Finally, from an~~[The NY Electric Utilities note that while the proposed GBtu target for heat pumps is below the goal established by the Commission, the proposed target is primarily based on potential estimates for residential customers. The NY Electric Utilities will work with NYSERDA to determine the extent to which heat pump applications for commercial customers can increase the current GBtu proposal.](#)

~~Finally, the NY Utilities have two additional~~ [administrative perspective requests. First, the NY Utilities request that that the Department of Public Service Staff \("Staff"\) revise the Clean Energy Guidance Document CE-04⁶ to reflect the fact that a regularly updated inventory of energy efficiency programs will be maintained on the Clean Energy Dashboard \("Dashboard"\) and to remove references in that document to the Clean Energy Advisory Council \("CEAC"\) Working Groups that have been disbanded.⁷ Second, the NY Utilities request that the Commission extend the quarterly scorecard report filings from the current 45 days-post quarter-end to a 60-days post quarter-end in order to provide the Utilities sufficient time to compile the data and reformat it into the NYSERDA-provided Clean Energy Dashboard Report format.](#)

II. Introduction

⁵ Con Edison proposes to use \$115 million of unspent energy efficiency moneys to partially fund its budget.

⁶ ~~CEAC I&C Working Group, Neville Letter Regarding Layered Incentive Guidance, (issued October 3, 2016), [Supra note 3.](#)~~

⁷ ~~The Commission, in its March 15, 2018, [See Case 15-M-0252, In the Matter of Utility Energy Efficiency Programs](#), Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 ("issued March 15, 2018") ("2018 Energy Efficiency Order") in [Case 15-M-0252](#), p. 36, where the Commission disbanded the CEAC Steering Committee and its Clean Energy Implementation & Coordination Working Group which previously had the responsibility to maintain an inventory of energy efficiency program information.~~

The NY Utilities support New York’s efforts to advance the cost-effective development of energy efficiency resources. This [Updated](#) Report augments the February 2019 utility-specific Energy Efficiency Transition Implementation Plan/System Energy Efficiency Plan (“ETIP/SEEP”) filings for 2019-2020 by establishing energy efficiency targets and budgets for 2021 through 2025. These targets and budgets facilitate the achievement of New York’s 2025 goals of an incremental reduction of 31 trillion British Thermal Units (“TBtu”) of energy use [by utility customers](#) and the statewide energy efficiency target of 185 TBtu of end-use energy savings. This Report also addresses the Energy Efficiency Order’s requirement that heat pumps deliver five TBtu of the overall 31 TBtu target and that more resources be devoted to enhancing services to [LMI low- and moderate- income \(“LMI”\)](#) customers.

This [Updated](#) Report should be viewed as a preliminary step in an iterative process establishing the way the NY Utilities seek to achieve energy efficiency goals over the longer term. The principles and concepts outlined herein are, in many instances high level and require additional work, refinement, and testing, with additional focus on the following two key areas for the 2021 through 2025 period.

The first area is continued collaboration between NYSERDA and the Utilities. The Utilities and NYSERDA developed this Report together, although the proposals contained herein represent the positions of the NY Utilities. The next steps involve the development of implementation plans and actual implementation activities which will require continued communication, collaboration, and coordination between the Utilities and NYSERDA. Representative examples of future collaboration opportunities include, but are not limited to, the establishment of a statewide electric utility heat pump program, the development of more uniform contractor eligibility requirements, and the implementation of a statewide LMI platform.

The second area involves recognition that the targets, budgets, electric utility heat pump projections, and LMI program concepts in this [Updated](#) Report are based on current “best estimates” of the trajectory of energy efficiency programs and that to meet the goals set forth in the Energy Efficiency Order, the Utilities must maintain flexibility to adjust programs as warranted. Energy efficiency implementation plans will provide transparency of such updates and adjustments.

III. Organization of [Updated](#) Report

This [Updated](#) Report is organized into the following chapters and appendices.

Chapter One addresses the NY Utilities’ proposed incremental Energy Efficiency targets and budgets. In this Chapter, the Utilities adopt (with certain modifications specific to Con Edison,⁸ Orange & Rockland, and Central Hudson) the presumptive targets and budgets that were included in the Energy Efficiency Order.

⁸ Con Edison’s filing is more expansive than other filings as Con Edison includes additional energy efficiency rate case items. Con Edison’s filing will be considered within the context of its pending rate case. [See](#) Cases 19-E-0065 and 19-G-0066, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and*

Chapter Two addresses collaborative activities between NYSERDA and the Utilities. This Chapter recognizes the collaboration principles developed by the CEAC and guidance provided by ~~the Department of Public Service Staff (“Staff”)~~. This Chapter also describes the collaborative efforts that have produced this [Updated](#) Report and identifies areas for future collaborative efforts.

Chapter Three addresses accelerated heat pump programs and describes how NYSERDA and the NY Electric Utilities plan to make progress towards a unified statewide effort. This chapter also explains why the current budget for heat pump acceleration is likely to increase. This updated budget forecast requires that the Commission update its overall budget cap to reflect current expectations of total cost. Alternatively, if the Commission prefers to minimize incremental ~~about~~ bill impacts, it could retain the initial \$250 million heat pump budget while adjusting the TBtu target accordingly.

Chapter Four addresses programs for LMI customers and assesses the strengths of NYSERDA and the Utilities and presents a high-level plan to better utilize the skills of relevant entities to deliver enhanced energy efficiency products and services to LMI customers. -A considerable aspect of this work involves collaboration between NYSERDA and the Utilities to position the expanded LMI programs to complement other programs administered by the NY Utilities, such as the bill payment assistance programs and REV demonstration projects.

A section regarding energy efficiency-related Earnings Adjustment Mechanisms (“EAMs”) follows Chapter Four. This section notes that EAMs should be developed in pending and future rate cases and states that flexibility is necessary given the diverse needs of the utility service territories.

Lastly, utility-specific chapters are included at the end of this [Updated](#) Report which address various matters related to each utility’s targets, budgets, cost recovery, and funding sources.

IV. Chapter One: Energy Efficiency Targets and Budgets

The Energy Efficiency Order required the Utilities, in consultation with NYSERDA, to submit a filing proposing energy efficiency targets and budgets for 2021-2025.⁹ The Commission developed presumptive targets and budgets -in the Energy Efficiency Order, that produce incremental savings of 31 TBtu and a reduction in adjusted annual utility electricity sales of three percent by 2025, on a statewide basis.¹⁰ The presumptive electric targets assume that each utility will achieve a two percent reduction in electric sales by 2025, which, when combined with NYSERDA energy efficiency efforts, achieves the three percent of MWh sales by 2025.

The presumptive targets and budgets in the Energy Efficiency Order are a reasonable starting point in the continued development and execution of energy efficiency programs that make meaningful contributions to support the achievement of the State's 2025 energy efficiency targets. While the NY Utilities' proposed targets are generally aligned with the data presented in the Energy Efficiency Order,¹¹ the NY Utilities are concerned about whether the energy savings targets are achievable at the initially identified funding levels, due to: (1) the anticipated need for the Utilities to pursue deeper energy efficiency savings; (2) changing budget estimates as baselines change and cheaper measures begin to saturate; and (3) the fact that the budgets and targets presented in the Energy Efficiency Order are forecasts. For example, NYSERDA updated the current estimated cost of implementing the Commission's requirement that heat pumps displace five TBtu of other energy resources to reflect more realistic assumptions. Additional changes to some of the budget estimates may be needed as more experience is gained. The NY Utilities, therefore, request that the Commission provide the flexibility to periodically modify energy efficiency budgets proactively, as needed.

The remainder of this chapter summarizes the proposed incremental targets and budgets, over levels assumed under ETIP/SEEP and inclusive of the integration of Non-Pipeline Solutions portfolio¹² -for Con Edison, for each utility from 2021 through 2025. The budgets and targets presented in Tables 3 through 6 start with the incremental targets outlined in the Energy

⁹ Energy Efficiency Order, pp. 29-30.

¹⁰ Presumptive electric targets are based on the 2015 New York Independent System Operator ("NYISO") Gold Book (which is also the basis forecast for the State's Clean Energy Standard) and the 2015 Energy Information Administration ("EIA") Annual Energy Outlook, which was used to forecast onsite electricity generation and consumption. The gas forecast used 2016 sales and was held static through 2025. Both forecasts are adjusted to reflect jurisdictional utility load as well as prior years' projected efficiency achievements under anticipated programs, so that the forecast for 2025 reflects utility sales after adjusting for energy efficiency.

¹¹ Con Edison and Orange & Rockland have ~~made adjustments to~~adjusted their budgets and targets which are described in more detail in their respective chapters. The remaining utilities have adopted the presumptive targets and budgets and provide additional information in utility specific chapters later in this [Updated](#) Report.

¹² Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving with Modification the Non-Pipeline Solutions Portfolio ([issued February 7, 2019](#)) ("NPS Order").

Efficiency Order, reflect company-specific modifications where necessary and as outlined in each company’s chapter, and do not include assumptions for “not-yet-approved” targets from future rate cases. These figures also do not reflect the budget for electric utility heat pumps which is developed in [the chapter](#) Chapter Three of this [Updated](#) Report. Table 43 below provides the NY Utilities’ proposed incremental electric gross MWh targets for 2021 through 2025. Utility-specific assumptions are outlined in utility-specific chapters later in this [Updated](#) Report.

Table 3: Proposed Incremental Electric Targets by IOU (Gross MWh)¹³

IOU	2021	2022	2023	2024	2025	2021-2025
CenHud	6,000	10,000	14,000	17,000	21,700	68,700
ConEd	266,262	337,755	431,227	525,339	598,701	2,159,284
NiMo	41,000	75,000	130,000	182,000	228,200	656,200
NYSEG	39,000	64,000	106,000	154,000	200,540	563,540
O&R	50,162	50,530	51,120	51,931	52,702	256,447
RG&E	22,000	32,000	48,000	68,000	90,000	260,000
Total	389,262	538,755	757,227	985,339	1,188,591	3,964,171

Table 4 below provides the NY Utilities’ proposed incremental electric budgets corresponding to the proposed incremental electric targets for 2021 through 2025.

Table 4: Proposed Incremental Electric Budgets by IOU

IOU	2021	2022	2023	2024	2025
CenHud	\$1,647,000	\$2,693,000	\$3,685,000	\$4,408,000	\$5,562,000
ConEd	\$79,374,793	\$101,050,659	\$129,728,218	\$158,515,897	\$180,848,751
NiMo	\$8,284,634	\$15,154,819	\$26,268,353	\$36,775,694	\$46,111,063
NYSEG	\$8,428,564	\$13,831,489	\$22,908,404	\$33,282,021	\$43,340,150
O&R	\$4,235,394	\$7,488,185	\$7,828,216	\$8,295,757	\$8,739,921
RG&E	\$4,555,827	\$6,626,657	\$9,939,986	\$14,081,647	\$18,637,473
Total	106,526,212	146,844,809	200,358,177	255,359,016	303,239,358

Table 5 below provides the NY Utilities’ proposed incremental gas gross million British thermal unit (“MMBtu”) targets for 2021 through 2025.

¹³ While the electric targets shown in Table 43 are expressed in Gross MWh, the NY Utilities recognize that the Commission has outlined corresponding MMBtu-equivalent presumptive targets in the Energy Efficiency Order.

Table 5: Proposed Incremental Gas Targets by IOU (Gross MMBtu)¹⁴

IOU	2021	2022	2023	2024	2025	2021-2025
CenHud	1,000	3,000	6,000	10,000	15,040	35,040
ConEd	492,000	556,000	556,000	556,000	613,335	2,773,335
KEDLI	102,000	135,000	177,000	240,000	322,200	976,200
KEDNY	228,000	292,000	422,000	584,000	729,688	2,255,688
NFG	2,000	5,000	8,000	14,000	20,950	49,950
NiMo	-	-	-	-	-	-
NYSEG	47,000	60,000	82,000	113,000	147,560	449,560
O&R	17,493	44,000	61,000	79,000	95,870	297,363
RG&E	17,000	28,000	43,000	61,000	80,399	229,399
Total	906,493	1,123,000	1,355,000	1,657,000	2,025,042	7,066,535

IOU	2021	2022	2023	2024	2025	2021-2025
CenHud	1,000	3,000	6,000	10,000	15,040	35,040
ConEd	492,000	556,000	556,000	556,000	613,335	2,773,335
KEDLI	102,000	135,000	177,000	240,000	322,200	976,200
KEDNY	228,000	292,000	422,000	584,000	729,688	2,255,688
NFG	2,000	5,000	8,000	14,000	20,950	49,950
NiMo	-	-	-	-	-	-
NYSEG	47,000	60,000	82,000	113,000	147,560	449,560
O&R	17,493	44,000	61,000	79,000	95,870	297,363
RG&E	17,000	28,000	43,000	61,000	80,399	229,399
Total	906,493	1,123,000	1,355,000	1,657,000	2,025,042	7,066,535

Table 6 below provides the NY Utilities' proposed incremental gas budgets corresponding to the proposed incremental gas targets for 2021 through 2025.

¹⁴ Niagara Mohawk's gas targets are currently at a level that does not necessitate an incremental increase.

Table 6: Proposed Incremental Gas Budgets by IOU

IOU	2021	2022	2023	2024	2025
CenHud	\$33,000	\$98,000	\$195,000	\$322,000	\$482,000
ConEd	\$22,254,848	\$25,676,184	\$25,663,057	\$25,961,952	\$28,495,257
KEDLI	\$2,872,048	\$3,801,240	\$4,983,849	\$6,757,761	\$9,072,294
KEDNY	\$7,465,446	\$9,561,010	\$13,817,623	\$19,122,019	\$23,892,308
NFG	\$104,172	\$260,431	\$416,690	\$729,207	\$1,091,206
NiMo	\$-	\$-	\$-	\$-	\$-
NYSEG	\$1,072,870	\$1,369,621	\$1,871,816	\$2,579,453	\$3,368,355
O&R	\$387,666	\$1,681,201	\$2,330,756	\$3,018,520	\$3,663,107
RG&E	\$347,283	\$571,995	\$878,421	\$1,246,132	\$1,642,423
Total	\$34,537,333	\$43,019,682	\$50,157,212	\$59,737,044	\$71,706,950

IOU	2021	2022	2023	2024	2025
CenHud	\$33,000	\$98,000	\$195,000	\$322,000	\$482,000
ConEd	\$22,254,848	\$25,676,184	\$25,663,057	\$25,961,952	\$28,495,257
KEDLI	\$2,872,048	\$3,801,240	\$4,983,849	\$6,757,761	\$9,072,294
KEDNY	\$7,465,446	\$9,561,010	\$13,817,623	\$19,122,019	\$23,892,308
NFG	\$104,172	\$260,431	\$416,690	\$729,207	\$1,091,206
NiMo	-	-	-	-	-
NYSEG	\$1,072,870	\$1,369,621	\$1,871,816	\$2,579,453	\$3,368,355
O&R	\$387,666	\$1,681,201	\$2,330,756	\$3,018,520	\$3,663,107
RG&E	\$347,283	\$571,995	\$878,421	\$1,246,132	\$1,642,423
Total	\$34,537,333	\$43,019,682	\$50,157,212	\$59,737,044	\$71,706,950

Staff has requested that Con Edison and Orange & Rockland provide reconciliations of their targets and budgets. For Con Edison’s electric target, the Company rounded the MWh associated with ETIP electric from 199,008 MWh to 200,000 MWh per year which created a 992 MWh variance. The Company will retain the numbers included in the Energy Efficiency Report as its proposal. For Con Edison’s gas target, the Company is using the summation of ETIP and Smart Solutions Enhanced Gas¹⁵ MMBtu for the baseline. The Non-Pipeline Solutions (“NPS”) Order¹⁶ called for NPS to be integrated into the New Efficiency: New York framework, savings associated with NPS were not considered part of the baseline.

For Orange & Rockland, the tables reflected in Chapter One reconcile to the tables found in the December Order which do not reflect the impact of the Company’s subsequent rate settlement agreement. The tables in the O&R chapter do reflect the impact of that

¹⁵ Case 17-G-0606, Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program, Order Approving in Part, with Modification, and Denying in Part Smart Solutions Program (issued July 12, 2018) (“Enhanced Gas EE”)

¹⁶ NPS Order, supra note 12.

settlement. For example, the December Order reflects an ETIP funding level of \$6,302,163 and 21,447 Gross MWH, while the Company's chapter reflects a budget of \$9,900,000 and 70,503 Gross MWH target for its maximum EAM goal as agreed to in the settlement. For gas, the December Order reflects an ETIP budget of \$536,948 and 16,323 Gross MMBtu, while the Company's chapter reflects a budget of \$703,000 and 31,764 Gross MMBtu as agreed to in the settlement.

V. Chapter Two: Collaboration

The Energy Efficiency Order identified the need for the NY Utilities to coordinate their efforts with NYSERDA as an important practice for as part of the development program strategies where it makes sense for the NY Utilities, NYSERDA, and customers. The [Energy Efficiency](#) Order noted that the NY Utilities and NYSERDA should continue to align mutual efforts with State goals, provide services to the market with “comprehensive offerings including outreach and marketing,” better coordinate utility energy efficiency efforts with market development work related to the Clean Energy Fund (“CEF”) where practical, develop structures that enhance the ability of market actors to drive uptake, reduce costs and develop innovative solutions, and assure that sufficient public-facing program information is available to stakeholders.¹⁷ The Order noted that this [Updated](#) Report should describe the collaboration structure between the NY Utilities and NYSERDA, with delineated roles, and proposed conditions under which savings resulting from collaborative efforts that encompass NYSERDA programs may be counted toward utility EAMs where applicable.

The NY Utilities and NYSERDA have collaborated extensively to produce this [Updated](#) Report, are committed to work together collaboratively in the future and are in the process of determining how best to work together in a manner that leverages their respective capabilities. The collaboration principles developed in 2016 and 2017, as part of the CEAC and the subsequent Staff guidance,¹⁸ form a foundation for future work with NYSERDA. This vision for collaboration with NYSERDA involves building upon ongoing activities (e.g., activities in support of this [Updated](#) Report) and structuring activities that will continue to focus on customers. The collaboration structure going forward is intended to support the Utilities’ and NYSERDA’s planning to address identified market needs. To accomplish this, the NY Utilities and NYSERDA will share with each other current and prospective energy efficiency strategies by sector and will engage regularly to scout strategic opportunities for potential collaboration.

One example of collaboration has been the joint efforts of the Utilities and NYSERDA to develop the Chapters Three and Four of this [Updated](#) Report. While the proposals contained in chapters Three and Four represent the positions of the NY Utilities, NYSERDA helped identify key issues, develop the overall approach to address such issues, helped develop supporting figures, and in some cases, provide drafts of chapter segments. The NY Utilities appreciate this support.

Another example of collaboration between NYSERDA and the Utilities is the online Clean Energy Dashboard (the “Dashboard”) being developed by NYSERDA with Staff and the

¹⁷ Energy Efficiency Order, pp. 31-32.

¹⁸ Matter 16-01005, *In the Matter of the CEAC's Clean Energy Implementation & Coordination Working Group*, New York Program Administrator Coordination Report (“CEAC I&C Working Group”) (filed January 31, 2017) and Multiple Incentives Recommendations Report (filed September 13, 2016).

Utilities. The Dashboard tracks results from all customer-funded clean energy activities.¹⁹ The Dashboard will provide transparency to stakeholders while minimizing the administrative burdens and costs associated with reporting going forward.

At launch (~~currently anticipated in April 2019~~),² the energy efficiency program inventory maintained on the Dashboard will include a brief description of each energy efficiency program in each utility's ETIP/SEEP and rate case energy efficiency portfolio (where applicable) as well as in NYSERDA's Clean Energy Fund market development and innovation portfolios. In subsequent quarterly updates, the Dashboard will further expand to include additional non-ETIP/SEEP utility energy efficiency activities²⁰ as well as NYSERDA's NY Green Bank portfolio. The NY Utilities and NYSERDA will also consider opportunities to augment the program inventory information made available on the Dashboard, such as providing greater insight into collaborative activities and complementary incentives. Consequently, the NY Utilities propose that Staff revise the Clean Energy Guidance Document CE-04²¹ to reflect that a regularly updated inventory of energy efficiency programs will be maintained on the Dashboard and to remove references to CEAC Working Groups which have since been disbanded.²²

The NY Utilities will continue to explore potential areas of future collaboration with NYSERDA. As part of this effort, the NY Utilities will provide NYSERDA access to certain data based on currently effective Commission Orders and policy.²³ The NY Utilities are also actively working with NYSERDA on the Utility Energy Registry.²⁴

Over the next few years, it is expected that there will be multiple meaningful collaborations between specific utilities and NYSERDA to address targeted market opportunities and advance potential programmatic enhancements to provide value to customers and/or stakeholders. Examples include determining contractor eligibility requirements, addressing sector-specific or solution-specific barriers and/or market gaps, and leveraging NYSERDA's

¹⁹ ~~The See Case 14-M-0094, *Proceeding on Motion of the Commission, in its January 21, 2016 to Consider a Clean Energy Fund*, Order Authorizing the Clean Energy Fund Framework in Case 14-M-0094, (issued January 21, 2016), pp. 36-37, where the Commission required NYSERDA to develop and implement this online dashboard.~~

²⁰ Case 15-M-0252, *In the Matter of Utility Energy Efficiency Programs*, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 ("Energy Efficiency Proceeding"), Revised CE-02: ETIP/SEEP Guidance Document, (issued December 20, 2018).

²¹ ~~*Supra*, note 3.~~

²² ~~The Commission, in its March 15, 2018 Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 in Case 15-M-0252, Order, *supra* note 7. The disbanded the CEAC Steering Committee and its Clean Energy Implementation & Coordination Working Group which previously had the responsibility to maintain an inventory of energy efficiency program information.~~

²³ ~~For example, E.g., the Commission recently articulated the circumstances by which NYSERDA is permitted to request customer-specific data from the NY Utilities without customer consent in its Order Regarding New York State Energy Research and Development Authority Data Access and Legacy Reporting ("NYSERDA Data Order"), (issued January 17, 2019) in Cases 14-M-0094, et al.~~

²⁴ Cases 17-M-0315 et al., *In the Matter of the Utility Energy Registry*.

statewide awareness and outreach capabilities with utilities offering more focused, targeted marketing to their customers.

Further, the development of more uniform contractor eligibility requirements across the State may reduce administrative costs by eliminating the need for energy efficiency solution providers to meet different contracting requirements. For example, the NY Utilities may be able to better standardize contractor insurance and licensing requirements, based on the types of programs and initiatives being offered. The NY Utilities will explore this and other related coordination efforts with NYSERDA.

NYSERDA and the NY Utilities are also exploring ways to better align NYSERDA's statewide awareness and outreach capabilities with more targeted marketing by the Utilities to their customers. Furthermore, the Utilities and NYSERDA will strive to make it easier for customers and market partners to learn about available energy efficiency incentives, whether those incentives are offered by the NY Utilities or by NYSERDA. Implementation steps to advance this objective may vary across utility territories and will include the development, publication, and maintenance of public-facing resources with program information.

Various potential collaboration models are under consideration and will be explored. Examples of collaboration models are outlined in Appendix A. The models are intended to:

- Identify and pursue situations where combined efforts drive meaningful incremental benefits over individual efforts;
- Determine optimal paths to increase energy savings and related benefits from the various programs (*e.g.*, ETIP/SEEP efforts, new utility programs, and CEF initiatives); and
- Determine how dual reported savings (*i.e.*, by both a utility and NYSERDA) should be netted out at the state level.

Where a defined collaborative effort is developed between a specific utility and NYSERDA, the utility and NYSERDA will describe the initiative in their respective public-facing filings (*i.e.*, in ETIP/SEEP updates and in the relevant CEF Investment Plan chapters). As outlined in the ~~2018 ETIP~~[Energy Efficiency Order](#),²⁵ an individual utility and NYSERDA may jointly contribute to the design and implementation of a pilot or program for which both the individual utility and NYSERDA will report the resulting energy savings. The NY Utilities propose that such collaborative pilots and defined collaborative efforts not be subject to a predetermined cap on the energy savings that may be counted toward utility achievements, provided that the ETIP/SEEP or the CEF Investment Plan filings contain clear descriptions of the objective and scope, implementation period, rationale for how joint investments will increase impact, and how the resulting energy savings will be quantified and reported.

²⁵ ~~Energy Efficiency Order.~~

VI. Chapter Three: Accelerated Heat Pump Deployment

Introduction

This chapter addresses the following aspects of a proposed statewide heat pump policy framework for the period 2020-2025:

1. Utility funding and budgets
2. Utility commitment
3. Target by electric utility
4. Incentive structure
5. Eligibility
6. Leveraging building envelope improvements
7. Deployment projection
8. Cost ~~Reductions~~reductions
9. Low- and moderate- income customers
10. Inverse cost shift
11. Quality assurance and quality control
12. Program roles, delivery and review
13. Timing and transitional arrangements
14. Complementary interventions: ~~NWA and NPAs~~Non-Wires Alternatives (“NWA”) and Non-Pipes Alternatives (“NPA”)
15. Complementary interventions: electric rate design
16. Complementary interventions: market development through Clean Energy Fund
17. Energy savings accounting, target accounting and utility compensation
18. Implementation plan topics

1. Utility Funding and Budgets

During the Collaborative Process, NYSERDA updated the savings methodology presented in its January 2019 “Analysis of Residential Heat Pump Potential and Economics” report.²⁶ The updates were made to achieve better alignment with the heat pump savings methodology used in the TRM by modifying assumptions related to the resources that heat pumps are replacing and reflecting more accurate heat pump load factors. The updates resulted into an overall budget estimate increase from \$250 million to ~~\$334~~\$335 million.

For Con Edison, the updates included the use of a new and unique downstate discount rate, which resulted in a significant reduction in assumed incentive levels. The new incentive

²⁶ <https://www.nyscrda.ny.gov/-/media/Files/Publications/PPSER/NYSERDA/18-44-HeatPump.pdf>
Supra, note 4.

levels, however, are insufficient for Con Edison's customers to achieve economic indifference between heat pumps and alternative heating technologies such as oil-based heating. As a result, Con Edison determined that a budget of \$190 million will be required to achieve the 0.8 TBtu target for its service territory. This amount is \$115 million above the ~~\$7583~~ million NYSERDA allocation to Con Edison from the updated Heat Pump Potential Study. Con Edison developed the budget based on the NYSERDA methodology but applied a customer discount rate at the same level that NYSERDA applied to the upstate electric utility territories and assumed a more modest pace of reductions in real installed costs. Con Edison will use \$115 million of unspent energy efficiency moneys to help fund its budget.

National Grid estimates that Niagara Mohawk will spend approximately \$58 million on a residential and small-scale heat pump program by 2025 rather than the \$90 million that NYSERDA estimated as part of the revised budget computation, which included large-scale market assumptions. As explained in more detail in the National Grid chapter, the company does not believe its TBtu target in the updated Heat Pump Potential Study is achievable.

~~Central Hudson, NYSEG, and RG&E are currently still assessing the~~ Central Hudson, NYSEG, and RG&E have now provided their heat pump potential analyses and estimates in their service territories and are not able to commit to a target and budget estimate at company-specific chapters in this time. More information is provided in the NYSEG and RG&E chapter later in this Updated Report.

NYSERDA proposes to fund LMI-related heat pump demonstration projects and pilots through the CEF. The NY Electric Utilities support NYSERDA's proposal. This approach will leverage the CEF to test and demonstrate strategies that can increase adoption of heat pumps for LMI customers, while addressing institutional barriers and advancing solutions that can work in typical low-income building types.

While the NY Electric Utilities believe that the proposed budget will encourage higher levels of adoption across the state, the heat pump TBtu target and budget estimates are premised on uncertain assumptions related to regional variations of market growth, required level of financial support, and general customer receptivity and adoption rates over the next six years. Because of the inherent uncertainty of forecasts, the NY Electric Utilities believe that program budget flexibility is critical to achieving significant TBtu savings through heat pumps.

It is also important to recognize that while the adoption rate projections from the Heat Pump Potential Study focus on the residential market, NYSERDA's program data shows that there is interest in heat pumps by the commercial sector where larger buildings have produced about 35 percent of the overall savings in NYSERDA's heat pump program. This data suggests that heat pump efforts can focus on both residential and commercial heat pump applications. The commercial/large building market will be explored in further detail during the development of the implementation plan and could become an important component of the statewide framework. This may be a means of moving the NY Utilities proposed GBtu target of 2710 more toward the goal established by the Commission.

2. Utility Commitment

The NY Electric Utilities will strive to achieve the Energy Efficiency Order's heat pump goals by creating and operating incentive programs designed to transform the heat pump market over the next six years. To support the NY Electric Utilities' efforts, NYSERDA has committed to continuing many of its market enablement activities related to heat pumps. The commitment by the NY Electric Utilities to work to achieve the goal during the 2020-2025 period represents a significant increase in State support for heat pump investments, including more than a 250 percent increase in the annual monetary support for heat pumps by electric customers as compared to the 2019 funding for incentive levels in place in 2019. The [five TBtu/2710 GBtu](#) cumulative savings goal [proposed by the NY Utilities](#) also requires a significant increase in market adoption rates from current levels and as explained in the utility-specific chapters later in this [Updated](#) Report may not be achievable.

The remainder of this chapter describes the NY Electric Utilities' proposals regarding key principles provided by the Commission in the Energy Efficiency Order for a policy framework to develop the heat pump market in New York:

- **Drive market scale to produce cost reductions:** the program will enable cost effective heat pump adoption and increase uptake levels with the additional goal of striving to reduce costs which, if demonstrated to be feasible, could reduce the need for incentives over time. [The approach to incentive level reductions over time is set out in Section 6.](#)
- **A clear and stable market signal:** the proposal offers the heat pump market a six-year commitment to supporting this technology, at a substantially higher total budget amount than was previously provided, which is expected to enable the long-term investments by market participants to deliver economies of scale and technological innovation that could produce a sustainable market and potentially cost reductions. Key elements of a clear and stable program structure are an initial period of incentive stability, followed by adjustments to incentives if warranted, based on actual results. [Recognizing that to operate within budget limits, incentives need to decrease over time, the NY Electric Utilities will consider approaches as appropriate such as the declining block mechanism in the NY Sun program, as is](#) discussed in Section 8.
- **Simple and workable from the consumer standpoint:** the proposed incentive structure should balance program simplicity with the importance of reflecting differences between regional installation costs, operating costs, and market segments. [The proposal is transparent from a customer's perspective because it contains a small number of different incentive payment levels with utilities in the same region adopting similar incentive levels in order to increase overall program consistency and simplicity. The proposed incentive structure is discussed in more detail in Section 3.](#)
- **Uniformity and Flexibility:** the NY Electric Utilities will strive to pursue a largely uniform program framework, including the development of a common program manual during the implementation stage. The NY Electric Utilities will pursue incentive structures that reflect the appropriate level of uniformity while also maintaining flexibility at the program delivery level to reflect differences among utility service territories. [In the past few years, the NY Electric Utilities have operated their energy](#)

efficiency portfolios with greater flexibility for program design, delivery, and implementation. This flexibility has been an integral component of success. Flexibility should be a key consideration for the statewide heat pump program to provide a balanced approach to meeting the ambitious targets outlined in this filing.

- **Smooth transition from current programs to avoid disruption:** both existing NYSERDA and NY Electric Utility heat pump incentive programs will be transitioned into the new framework, where the NY Electric Utilities conduct resource procurement for heat pumps and NYSERDA performs market enablement functions, as discussed in Section 12.

In addition, the proposal incorporates two other themes:

- Seek solutions that allow LMI customers to receive benefits from heat pump solutions.
- Encourage customer actions that synchronize building envelope improvements and heat pump installations to the extent possible under the overall budget and unit cost limits, which will enhance customer savings and mitigate the possibility of a potential electric winter peak. However, care will be taken not to discourage customers from participating in heat pump programs.

3. Initial Heat Pump Targets by Electric Utility

The initial statewide heat pump savings target for the period 2020-2025 in this [proposal Updated Report](#) is ~~consistent with~~ less than the five TBtu target set out in the Order. The proposed initial allocation of ~~this~~ the GBtu target based on NYSERDA’s updated Heat Pump Potential Study for NY Electric ~~Utility~~ Utilities and the analyses presented each company-specific chapter is shown in Table 7.

Table 7: NYSERDA Estimated Heat Pump GBtu Targets by Electric Utility

Utility	Heat Pump Potential Study	Utility Proposed
Central Hudson	416	416
ConEd	804	804
NYSEG	1,907	TBD
NiMo	1,559	1,010
O&R	160	160
RGE	153	TBD
Total	<u>5,000</u>	<u>2,390</u>

Utility	Heat Pump Potential Study	Utility Proposed
Central Hudson	416	253
ConEd	804	804
NYSEG	1,907	427
NiMo	1,559	1,010
O&R	160	160
RGE	153	56
Total	5,000	2,710

Authorized targets should be applied to the NY Electric Utilities as cumulative targets to be met by 2025. Annual deployment projections, however, can be developed by each utility to assess progress against the target on an ongoing basis and identify the need for program changes. An indicative projected deployment trajectory is provided in Section 6. The NY Electric Utilities will use, as necessary, the appropriate level of flexibility to achieve program targets within the constraint of their individual funding levels. Consideration should also be given, during the program review process, to the development of a mechanism that allows the NY Electric Utilities to shift savings targets among their respective service territories.

4. Incentive Structure

In order to achieve the heat pump targets, the Energy Efficiency Order recognizes that a program incentivizing adoption of heat pumps is needed.²⁷ Effective incentives also require complementary non-incentive initiatives. As such, the proposed budget for the statewide incentive program (see Section 8) includes funding for electric utility implementation activities, including marketing/outreach and QA/QC activities. In addition, Section 15 describes ongoing and planned NYSERDA market enablement actions, such as workforce training and supply chain development.

In accordance with the principles discussed in Section 1 above, this proposal describes the following high-level characteristics of the incentive programs:

- Flexibility is a key consideration. The NY Electric Utilities will consider incentive options such as those put forth in the Energy Efficiency Order. However, the nascence of this market, as well as lack of precedent or local data, increases the risk that rigid incentive mechanisms conceived in an early phase of program framework development will result in incentives being too high or too low. The NY Electric Utilities will propose specific program delivery rules (including incentive levels) in heat pump implementation plan submissions later in 2019.

²⁷ Energy Efficiency Order, pp. 60-61.

- Incentive levels are proposed to be provided in most cases as one-time rebate payments per thermal ton of installed capacity for all residential and small-scale (up to ten tons) non-residential installations.²⁸
- Incentive design for larger installations will likely include some level of one-time rebate, but the incentive levels and other program delivery specifics for the application of the incentive to large-scale installations will be developed as part of each NY Electric Utility's implementation plan. The NY Electric Utilities agree that larger installations will likely be needed to reach statewide targets and be included in the incentive offerings. The NY Electric Utilities request flexibility to propose territory specific large commercial programs in the implementation plan, future programs reviews outlined in section [X12](#), ETIP/SEEP filings or rate cases.
- Incentive differentiation for the NY Electric Utilities by geography primarily reflecting three regions across the State, based on quantification of subsidy needs.
- Limited differentiation of incentive levels (per ton) across the various types of heat pumps, reflecting differences in the amounts of incentive needed between heat pump types to make them competitive with the lifetime capital expenditure and operating costs of a fuel oil-based heating system. The specifics of technology incentive level differentiation will be considered further during the implementation.
- The opportunity to leverage the combination of heat pumps and building envelope efficiency may be addressed through the incentive program and/or related approaches outside the incentive as described in Sections 5 and 7.
- Options for delivery as downstream, midstream, or upstream incentives (direct to customers, direct to contractors or through distributors) or some combination of incentive delivery points will be explored at the implementation stage.
- [The](#) NY Electric Utilities will consider a mechanism to reduce incentives over time, if warranted by market circumstances and customer adoption rates, in a predictable manner that provides a level of market certainty, such as by exploring a block structure as described in Section 8.
- Any changes to incentive structure or incentive levels would be considered through a program review process as set out in Section 12.

While the budget and funding projections set forth in Section 8 reflect the current estimates of the NY Electric Utilities and NYSERDA, such estimates may need to be updated during the development of implementation plans.

²⁸ Central Hudson and Orange & Rockland are required, under existing rate plans, to make certain incentive payments over time.

5. Eligibility

The following high-level approach is proposed regarding incentive eligibility. Eligibility criteria will be developed and applied consistently on a statewide basis, building upon current NYSERDA program guidelines (see ~~also~~ Section 12 on development of a common program manual).

- The incentive would be available across the range of heat pump types, including ground source and air source, space heating and cooling, hot water heating, process heating, and across all building heat and cooling distribution systems including ducts, hydronic, and variable refrigerant flow technologies.
- The adoption of air source cold climate heat pumps will be encouraged where appropriate, based on the parameters of the application.
- While the program will primarily pursue systems that include heating (either space heating combined with cooling or hot water heating), the program may continue to provide some funding to cooling-only heat pumps, employing the same savings methodology as used for all other types of heat pumps. Similarly, the program is expected to primarily pursue whole-building systems (heat pumps that deliver all or most of a buildings space heating/cooling needs, hot water needs, or both), but may provide some level of funding to heat pumps that serve only part of the relevant thermal load.
- The heat pump program will be designed primarily to offset consumption of the most carbon intensive delivered fuels. Other applications, such as sites that currently heat with natural gas, may not be cost beneficial for customers. The range of displaced fuels and baseline conditions will be evaluated for eligibility in more detail during the implementation phase and may be revised over time as technologies improve.
- Eligibility would include heat pumps for new construction properties as well as retrofits in existing buildings.
- The heat pump initiative will strive to reach all types of customers and buildings, including small-scale and large-scale residential, and commercial buildings.
- Participation will be contingent on current or (in the case of new construction) future customer contribution to electric rate elements that provide cost recovery for utility heat pump incentive programs. Customers who do not fund the heat pump incentive through their electric delivery rates may not ‘opt-in’ to the program.
- Further eligibility requirements to be developed in the implementation plan may include requirements related to parameters such as heat pump coefficient of performance, qualifying equipment and installer/ contractor lists, and other quality assurance requirements.

6. Leveraging Building Shell Improvements

Encouraging customers to improve the energy efficiency of their homes through building shell measures such as air sealing and insulation offers several advantages. Building shell

measures reducing overall heating and cooling demand of the building would, allow the customer to potentially install a smaller heat pump system. The efficiency and effectiveness of the heat pump itself would reduce the heating and cooling needs of the building, reducing system peak demand. It would also lower the heat pump customer's electric bill. Building shell improvements may also facilitate customers being able to benefit from innovative electric rate designs, for example by reducing peak heat pump electric demand for customers participating in demand-based electric rates.

Barriers to the tight coupling of heat pump incentives to building shell improvements should be considered. These barriers include: (1) higher upfront capital costs when building shell improvements are required; (2) extended customer disruption due to a retrofit of a heat pump and building shell improvements; and (3) that requiring building shell improvements for heat pumps when they are not required for other clean energy investments (*e.g.*, distributed solar) may result in customers preferring those other clean energy options.

Approaches to synchronizing building shell improvements with heat pump installations will be explored in the implementation phase.

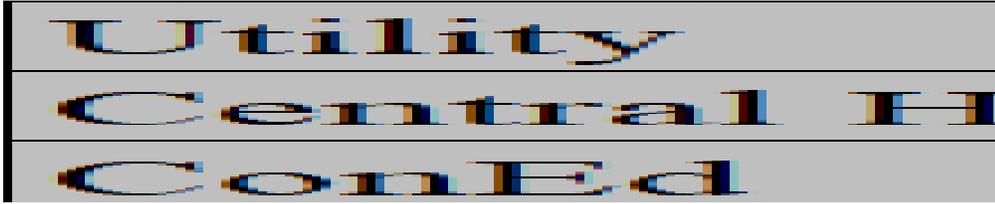
NYSERDA is exploring simple packages of measures and strategies to make a building "heat pump ready" – focusing on air sealing and insulation. This may potentially be delivered in concert with NY Electric Utility heat pump incentives.

7. Deployment Projection

Based on the updated Heat Pump Potential Study (including the heat pump methodology updates described in Section 1), [and analyses presented in each utility-specific chapter](#), a program adoption projection is provided in Tables 8 and 9. These figures are for illustrative purposes only and as noted in Section 2, targets are proposed as cumulative 2025 targets. The primary uptake indicator is expressed as projected energy savings by year and electric utility. An estimate of the resulting number residential and small-scale (up to ten tons) non-residential installations is provided as well. This assumes, consistent with adoption data under NYSERDA's current heat pump rebate programs, that approximately one third of the savings would be delivered through large commercial or large multifamily installations, and accordingly [reflects the figures reflect](#) two thirds of the total target.

Table 8: Projected Total Onsite Net Energy Savings by Year (GBtu/y)

Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	TBD	TBD	TBD	TBD	TBD	TBD	TBD
ConEd	24	66	94	143	205	273	804
NYSEG	TBD	TBD	TBD	TBD	TBD	TBD	TBD
NiMo	55	117	167	201	224	246	1,010
O&R	14	19	26	29	34	38	160
RGE	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total	402	606	811	909	1,060	1,212	1,974



Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	18	26	33	40	56	80	253
ConEd	24	66	94	143	205	273	804
NYSEG	30	50	67	80	90	110	427
NiMo	55	117	167	201	224	246	1,010
O&R	14	19	26	29	34	38	160
RGE	4	7	8	10	12	15	56
Total	145	285	395	503	621	762	2,710

Table 9: Projected Small-Scale & Residential Installations by Year

Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	TBD	TBD	TBD	TBD	TBD	TBD	TBD
ConEd	500	1,400	2,000	3,030	4,347	5,796	17,073
NYSEG	TBD	TBD	TBD	TBD	TBD	TBD	TBD
NiMo	975	2,100	3,000	3,600	4,000	4,400	18,075
O&R	209	279	370	418	488	557	2,321
RGE	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total	5,061	7,627	10,196	11,441	13,341	15,246	37,469

Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	543	724	959	1,086	1,266	1,447	6,024
ConEd	500	1,400	2,000	3,030	4,347	5,796	17,073
NYSEG	TBD	TBD	TBD	TBD	TBD	TBD	TBD
NiMo	975	2,100	3,000	3,600	4,000	4,400	18,075
O&R	209	279	370	418	488	557	2,321
RGE	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total	5,061	7,627	10,196	11,441	13,341	15,246	43,493

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Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	700	1,340	1,933	2,100	2,711	3,150	11,934
ConEd	500	1,400	2,000	3,030	4,347	5,796	17,073
NYSEG	866	1,566	2,421	3,133	3,756	4,566	16,308
NiMo	975	2,100	3,000	3,600	4,000	4,400	18,075
O&R	209	279	370	418	488	557	2,321
RGE	160	234	296	351	405	487	1,933
Total	3,410	6,919	10,020	12,632	15,707	18,956	67,644

8. Cost Reductions

The NY Electric Utilities recognize the need for costs to decline over time. Block incentive structures represent one way to address this intent.

During the implementation phase, the NY Electric Utilities will evaluate the potential for a declining block strategy to deliver predictable incentive levels, while also considering other approaches that may deliver the desired outcomes. Minimum incentives, for example, may also satisfy the market’s need for stability while creating flexibility to redistribute a portion of the incentive budget amongst technology types as true adoption rates are assessed over time. Further specifics on the block structure, if appropriate are to be developed in the implementation plan.

9. Low- and Moderate-Income Customers

The NY Electric Utilities recommend a phased approach for the deployment of heat pumps in the LMI market segment, while the NY Electric Utilities work with NYSERDA to develop solutions that address the barriers and dynamics unique to LMI customers and affordable housing. The NY Electric Utilities and NYSERDA support advancing heat pumps as an option for LMI customers, however, it is imperative that energy affordability should remain the top priority in this market segment. Coupled with specific program design considerations, incremental incentive funding may be needed to advance heat pump adoption in the LMI market segments.

When considering the application of heat pumps for LMI customers, it is necessary to understand implications for overall energy affordability, including how a shift in load profile and primary heating fuel affects the customer’s energy bills and the level of support through utility bill discounts or the Home Energy Assistance Program (“HEAP”). Given the financial constraints of many LMI customers, it is important to develop an approach so that energy efficiency to improve the envelope of the home can be paired with heat pump installations. In affordable housing or rental applications, addressing the split incentive, models for financing, and system design issues for larger multifamily building present additional challenges to the effective deployment of heat pumps. To address these challenges, the NY Electric Utilities propose to work with NYSERDA to develop pilot initiatives to explore solutions to address the unique characteristics of the LMI market segment. The NY Electric Utilities and NYSERDA expect that pilot activities will commence in 2019, the results of which will inform the broader LMI heat pump strategy.

The Order requires 20 percent of the overall New Efficiency; New York budget on efforts targeted to LMI customers. In lieu of a dedicated heat pump budget for LMI customers in the Order, NYSERDA will develop and file an investment plan within the CEF to fund LMI heat pump initiatives starting with near term demonstrations to inform the long-term heat pump strategy. The NY Electric Utilities support the incremental funding of LMI heat pump activities through the CEF and look forward to working closely with NYSERDA to develop solutions to enable electrification in the LMI market segment in a manner that does not negatively impact affordability.

10. Inverse Cost Shift

The Energy Efficiency Order stated that the benefit of heat pumps to non-participating customers converting from oil or propane which result in large volumetric increases in electric sales should be captured to help incentivize heat pump installations.²⁹ The actual additional revenue produced through heat pump deployment, if realized and measurable, will depend on the electric rate design in place for heat pump customers, the design of the heat pumps installed, and the ways in which customers utilize heat pumps under their specific electric rate designs. To the extent that residential and small-commercial heat pump customers choose utility rates which recover costs through volumetric charges, there will likely be increases in sales due to heat pump deployment. However, to the extent that demand-based rates are available to customers, heat pump customers may not contribute as much revenue to their individual rate classes as they would have under volumetric rates and as a result the amount of incremental revenues produced by heat pumps under demand-based rate designs is likely to be less than under volumetric rates. Other factors that will affect the amount of customer contribution under demand-based rates include the amount of use of supplemental electric resistance heating by the heat pump and the time periods when customers choose to use their heat pumps.

Unlike net-energy-metering where there is a shift of costs to non-participants, customer adoption of heat pumps may have the opposite effect, if the customer's other underlying usage is typical for the service class. Because the incremental revenues produced by heat pumps through fuel switching if realized would, under the traditional ratemaking model, offset other costs that electric utility customers would normally have to pay in rates, there is the potential for an inverse cost shift. Normally, an unexpected increase in revenues would be returned to customers via the electric utilities' Revenue Decoupling Mechanism ("RDM") in the year after the revenues were realized and would eventually be reflected in the revenue requirement computation in an electric utility rate case. Consequently, a mechanism that takes incremental revenues from specific customers adopting heat pump technology and tracks that revenue as a source of funds to help offset the cost of a heat pump incentive program can at best work in limited circumstances and generally over the short term. The Energy Efficiency Order states that these revenues should be used to establish bill credits for customers with qualifying heat pumps and notes that Central

²⁹ Energy Efficiency Order, pp. 61-62.

Hudson and Orange & Rockland have already adopted this type of crediting approach for its geothermal program.³⁰

Further, such an approach when viable does not capture the timing difference between when an incentive is paid and when the heat pump begins to generate electric revenues. One approach that moderates rate impacts and better aligns the useful life of the heat pump with the timing of the benefits of the heat pump would be not to change the mechanics of the RDM but rather to allow the NY Electric Utilities to treat heat pump initiative expenditures as a regulatory asset that is included in base delivery rates and collected over the years that the heat pump is expected to be in use. Such collection over time may be offset by the inverse revenue impact from heat pumps flowing to customers over that same time period, although it will be challenging to specifically track these collections. A second approach would be to treat the incentive as an expense in the revenue requirement for the year it will be incurred with revenue impact from heat pumps flowing to customers in subsequent years. These matters as well as any related regulatory accounting treatments are best addressed in future electric utility rate cases.

A related question concerns whether the incentive is paid out annually or on a one-time basis. The NY Electric Utilities believe that the approach most likely to induce customers to adopt heat pumps would involve a one-time payment to help defray initial customer out-of-pocket costs.³¹ Such an incentive would likely be based on savings the electric utility can claim over the useful life of the heat pump. Thus, the revenues realized in any year, assuming they can even be measured, from the heat production may not fully offset the size of the incentive. In such cases, it may be necessary to defer the incentive payment and amortize it over a reasonable period to better match the incentive with the revenues it produces. Again, while details are best addressed in future electric utility rate cases, an interim approach will be needed.

It is important to note that initial funding for heat pump incentives could be provided from unused electric utility [SBC System Benefits Charge](#) and ETIP/SEEP funds. Details regarding the availability of funds by company and their expected use is provided in the NY Electric Utility-specific chapters.

11. Quality Assurance and Quality Control

Program delivery is proposed to pursue a largely uniform structure, with the NY Electric Utilities proposing to apply a common program manual including quality assurance (“QA”) and quality control (“QC”) principles and protocols. Standardized QA/QC for emerging technologies aims to achieve both high quality and functioning installations as well as an expanded pool of competent and experienced designers and installers, while minimizing difference among utility-specific rules which supports the ability of heat pump installers/developers to operate across service territories. The QA/QC details will be developed based on NYSERDA’s heat pump programs during the implementation stage. The following high-level approach is proposed regarding QA/QC principles and protocol.

³⁰ *Id.*, p. 62.

³¹ As noted above, Central Hudson and Orange & Rockland are currently required to pay certain heat pump incentive rate impact credits over time per their individual rate plans.

Installed systems, system components, and installations must comply with manufacturers' installation requirements, applicable laws, regulations, codes, licensing, and permit requirements.

The QA/QC system would consist of several components, including review of applicant professional qualifications and credentials, establishment of program standards and a comprehensive inspection.³² The purpose of the inspections is to evaluate the accuracy of the site analysis, design paperwork, and the installed heat pump system to determine, and to verify that the heat pump system was installed according to all program requirements.

Specific details of the QA/QC approach will be further defined in the implementation plan.

12. Program Roles, Delivery and Review

Program delivery is proposed to be carried out by each electric utility in its territory, in a generally uniform manner. While specific details will be provided in the implementation plans, this approach is proposed to be implemented by the NY Electric Utilities is as follows:

- NY Electric Utilities will each develop or expand heat pump-specific web pages as part of their customer energy efficiency education and will cooperate with each other and NYSERDA to leverage marketing and consumer awareness campaigns;
- NY Electric Utilities will provide appropriate customer support during the customer application process;
- NY Electric Utilities (in consultation with NYSERDA) will develop and use a common program manual. The process to develop the manual will be similar to the process used in the development of the TRM. The program manual will follow the proposals set out in this chapter and consider NYSERDA's existing ~~GSHP~~ program manual;
- QA/QC will be carried out by the NY Electric Utilities in accordance with the QA/QC protocol as per the program manual described above – see Section 11; and
- Application processing, approval, incentive funding and incentive payment will be carried out by each electric utility.

The NY Electric Utilities will explore the development of a new statewide collaborative approach model for the development of the heat pump program framework and program delivery. The new statewide model will offer several advantages, including potential economies of scale, consistency of messaging, and reduced customer confusion. This new model will offer an opportunity for the NY Electric Utilities to adopt an incremental approach to increasing collaboration allowing for deliberative experimentation and expansion of efforts that prove to be

³² The inspections could include verification of contracted scope of work, accuracy of site analysis, comparison of installation to submitted design drawings, and the delivered quality of the heat pump installation. Inspections would primarily focus on the quality of the installation but may also include selected health and safety and performance items, and specific compliance items per applicable code.

beneficial to customers. Such a collaborative approach will enable the NY Electric Utilities to begin to: (1) establish a governance process for collaboration allowing for uniformity when appropriate and regional difference where necessary; (2) test statewide marketing approaches for ASHP & GSHP programs; and (3) leverage NYSERDA efforts on contractor eligibility and other market enablement efforts as well as NY Electric Utility efforts in reaching their customers via different parts of the supply chain with incentives that drive cost-effective adoption of heat pumps.

The governance approach for this new collaborative model is to develop a Joint Management Committee to assist in creating a common program design, appropriate incentives levels based on regional differences, and marketing that will assist with achieving significant market penetration of these technologies. The Committee, comprised of members from each NY Electric Utility, will coordinate its efforts with NYSERDA to develop technical training for workforce development, will leverage NYSERDA's contractor qualification and approval process as well as other NYSERDA market enablement efforts. Each year the Committee will prioritize needed program changes to program design, marketing, and incentive levels by means of the process for program changes outlined below. However, each electric utility will be responsible for achieving its individual goals, complying with individual regulatory obligations, and managing services to their customers. Success is derived when the NY Electric Utilities collaborate and implement solutions that benefit customers and stakeholders. The Committee members will meet regularly to discuss program process, results of marketing initiatives, delivery model changes, and to share best practices. Within the new collaborative approach model, the NY Electric Utilities will continue to make strides in energy efficiency and build a clean energy future for everyone in the state.

It is proposed that throughout the six-year program period that the NY Electric Utilities will request feedback and input from NYSERDA and Staff on planned program changes. The first planned program review is expected to occur in 2021 and it will consider incentive levels as well as other program adjustments as appropriate.

Specific aspects of program delivery flexibility that would not impact customers directly, such as budget flexibility, as referred to in Section 8, could be applied by each NY Electric Utility and would not be subject to the program review process. Such aspects will be identified during the implementation phase.

To complement the statewide incentive program (including flanking electric utility action under the incentive program in respect of marketing and outreach), NYSERDA has developed and is further developing a range of non-incentive initiatives – see Section 16.

13. Timing and Transitional Arrangements

It is important that market disruptions are avoided during the transition to a statewide heat pump program. While the goal is for each NY Electric Utility to have a heat pump incentive program in effect as of January 1, 2020, there may be reasons why some utilities need additional time to complete the transition. Specific details regarding the timing of the transition will be developed in the heat pump implementation plans. If an electric utility is not ready to

commence a heat pump program by January 1, 2020, such electric utility and NYSERDA may have to explore the viability of continuing the NYSERDA statewide program with updated incentives in that utility's service territory to ensure a seamless transition to the electric utility administered statewide framework. Electric utilities with heat pump programs that are unable to complete the transition by January 1, 2020, are expected to continue their programs and adjust the incentive accordingly to align with the statewide framework. Individual transition schedules will consider electric utility-specific factors such as pre-existing funding levels. Regardless of the specific transition plan, the NY Electric Utilities and NYSERDA intend to make incentives available in all regions at either current NYSERDA levels or the level proposed in the statewide framework by January 1, 2020.

The following approach is proposed regarding the transition of heat pump incentive programs for all NY Electric Utilities.

- All electric utilities are expected to have heat pump incentive programs available in 2020, with all current NYSERDA or NY Electric Utility heat pump incentive programs transitioning into the statewide framework.
- New heat pump programs will generally not be developed outside of the statewide framework, except when such regional variations are warranted.
- The statewide program will be adjusted as necessary to conform to current and future electric utility rate reform initiatives. The interaction between such initiatives and the statewide framework is discussed in Section 15 below.

The transition to the statewide framework of current NYSERDA and NY Electric Utility heat pump programs will, in most cases involve closing the availability of the existing incentive as of December 31, 2019. The programs that will transition are:

- The current NYSERDA GSHP and ASHP rebate programs are scheduled to close as of December 31, 2019;
- Central Hudson's Environmentally Beneficial Electrification / Carbon Reduction Programs;
- Orange & Rockland's Environmentally Beneficial Electrification / Carbon Reduction Programs;
- NY Electric Utility ASHP/ [mini-split](#) programs;
- Niagara Mohawk's Electric Heat Initiative of the Environmentally Beneficial Electrification metric;
- Central Hudson's Rate Impact Credit program for GSHP is proposed to remain in place as a complementary/ additional program as currently designed and for its currently intended duration; and

- Orange & Rockland’s Rate Impact Credit program for GSHP is proposed to remain in place as a complementary/ additional program as currently designed and for its currently intended duration.

The NY Electric Utilities will work with NYSERDA to coordinate these various activities in an efficient manner and anticipate that the new statewide program would be made public by the end of 2019.

14. Complementary Interventions: NWA₅ and NPS

The statewide framework incentive outlined in this [Updated](#) Report reflects benefits from heat pumps in terms of targeting energy efficiency opportunities as part of New York’s overall carbon, clean energy and energy efficiency targets. It does not pursue more specific locational value, such as the value of avoided investments or potential other locational value streams. Where such value exists, accessing it could bring additional benefits to customers, and this ~~proposal~~ [Updated Report](#) therefore proposes that any initiatives that pursue such value should be complementary to the statewide framework.

As noted above, heat pump installation in areas where the distribution system is constrained has the potential to provide benefits that help with the constraint. To the extent that areas of constraint are identified as candidates for ~~non-wires or non-pipes alternatives and~~ [NWA or NPA](#), heat pump technologies can be an option to help relieve the constraint, they should be considered as one potential element in a portfolio of resources designed to relieve a system need and receive any appropriate compensation under that framework.

15. Complementary Interventions: Electric Rate Design

The Energy Efficiency Order notes ~~“As”~~ [\[a\]](#)s a general matter, technology-specific rate designs are not preferred where they are not necessary. In this instance, bill credits or incentives will suffice in the near term.”³³ The NY Electric Utilities agree that rate designs should not be developed for specific technologies but note that demand-based rates have been evaluated in the Value of Distributed Energy Resources (“VDER”) Rate Design Working Group and the Department of Public Service Staff’s Whitepaper on Standby and Buyback Service Rate Design and Residential Voluntary Demand Rates noted that standby rates, which are demand based, “are among the most theoretically pure rate designs available for aligning individual customers’ contribution to system costs with the rates such customers pay and thereby sending accurate price signals to those customers.”³⁴

Given this, all customers including those with heat pumps should have the option of selecting demand-based rates. The potential benefits of demand-based rates for heat pump customers are significant. Electric utility system investments are driven much more by customer

³³ Energy Efficiency Order, p. 65.

³⁴ Case 15-E-0751, *In the Matter of the Value of Distributed Energy Resources*, [Department of Public Service Staff Whitepaper on Standby and Buyback Service Rate Design and Residential Voluntary Demand Rates \(issued filed December 12, 2018\)](#), p. 6.

demands than by total volume of kWh sales. Demand-based rates better align customer pricing with cost causation and promote efficient (high load factor) use of the electric delivery system. To the extent that heat pumps operate at a high load factor and are controlled in a manner that limits or reduces demand in peak hours, customers will likely see lower bills than they otherwise would have under volumetric rates. Moreover, demand-based rates reward customers for investments and behaviors that reduce burdens on the electric system and thereby lower costs for all customers compared to what would otherwise occur under volumetric rate designs. Both outcomes serve the public interest and are also consistent with REV principles.

In summary, initiatives to provide residential customers with alternative opt-in demand-based rates are underway or under consideration in a number of forums and at a number of NY Electric Utilities. As explained in more detail above, it is expected that these could better serve heat pump customers in a technology neutral way and not result in significantly greater revenues from heat pump load than would otherwise occur. However, because it is unknown how many customers will switch from current standard rates at least in the near term, this reduced revenue impact is difficult to predict. The implication of these findings is that, because customers who opt for demand-based rates will monetize at least part of the inverse cost shift through lower overall charges, the level of the incentive provided to such customers could be less than that for customers on volumetric rates. Demand-based rates could prove to be an economically efficient way to encourage adoption of heat pumps.

This proposal does not envision limiting the ongoing development of alternative rate structures. As a result, customers should in many cases have access to both the statewide framework incentive and opt-in rates.

16. Complementary Interventions: Market Development and Innovation through the Clean Energy Fund

Throughout the period of the statewide framework, NYSERDA will coordinate any market development activities under the [Clean Energy Fund](#) CEF with the NY Electric Utilities to work in coordination with electric utility heat pump incentives. These complimentary market development strategies include:

Clean Heating and Cooling Communities

In August 2018, NYSERDA announced the Clean Heating and Cooling (“CH&C”) Community Campaign initiative. The initiative is based on the State’s highly successful Solarize campaigns, which bring together groups of residents and businesses to install solar. The initiative aims to reduce the high upfront purchase costs and increase CH&C technology deployment. The initiative is designed to educate and increase the awareness and knowledge of clean heating and cooling technologies among New York customers.

NYSERDA funded eight organizations to run CH&C campaigns throughout the State, bringing together groups of potential customers to obtain discounts for air and ground source heat pumps, and, in one case, biomass heating through aggregated purchases and a simplified procurement process. The second round of the initiative was released in August 2018, and NYSERDA selected seven additional organizations. Organizations can apply and receive

additional funds to incorporate plans for workforce development training and low-to-moderate income household engagement in the campaigns.

NYSERDA will continue to support community campaigns to drive interest and investment in heat pumps in support of the State's goal.

Workforce Development

In 2018, NYSERDA began developing a comprehensive Workforce Development strategy document specific to the State's ~~Clean Heating and Cooling~~CH&C industry. There is a widening talent gap for the heating, ventilation, and air conditioning ("HVAC") industry throughout the country due to both the anticipated growth in the industry and HVAC workers choosing to retire. The expected shortfall of HVAC workers impedes the development of the CH&C industry. In order to help grow and develop the market for CH&C technologies, NYSERDA's CH&C Workforce Development strategy will be informed by engagements with various stakeholders in the HVAC industry, including distributors, manufacturers, installers, educators, trade and labor groups, higher education administrators, and electric utilities.

In 2018, NYSERDA released three Clean Energy Workforce development solicitations that represent a combined investment of over \$27 Million in pipeline development, on-the-job training, and internships. The heat pump supply chain is among those eligible to receive funding. NYSERDA will continue to work with the heat pump supply chain to cultivate ideas and promote the availability of this funding.

To support achievement of the five TBtu State goal, NYSERDA will target its heat pump workforce development efforts in high growth regions and regions with labor shortages.

Co-operative Advertising and Training

In late 2017, NYSERDA issued a solicitation for Co-operative Advertising and Training for ~~Clean Heating and Cooling~~CH&C partners. Cost-sharing for 50 percent, up to \$50,000 per company, per year, is available to installers and distributors for advertising or training with respect to program eligible heat pump and biomass systems. Manufacturers are also eligible for 50 percent cost-sharing up to \$50,000 per manufacturer, per year, for training. As of December 31, 2018, NYSERDA received 144 applications for advertising with requested co-funding requesting of \$1.1 million and 14 applications for training with requested co-funding requesting of over \$200,000.

NYSERDA will continue to support ~~co-operative~~ advertising and training with supply chain partners, to build support and raise awareness of heat pump options.

Marketing and Awareness

From September through December 2018, NYSERDA piloted a co-branded marketing and awareness campaign with Central Hudson. Highlighted results include: almost 5,000 landing page visits, over 500 landing page actions, and an increase over baseline measurements of relevant key word searches of between 130 and 440 percent. NYSERDA is planning to work with the NY Electric Utilities to implement similar co-branded campaigns on a cost-shared basis throughout 2019 and beyond building on the lessons learned from the Central Hudson pilot.

Tools and Calculators

In January 2019, NYSERDA formally launched a customer targeting tool developed and offered by Faraday, Inc. to NYSERDA's first cohort in the Communities Campaign and an initial set of 30 installers. Over the next two years, the tool will be made available to approximately 200 participating installers and continuously improved. Eventually, it is expected that the tool will be made available by Faraday to market participants via a monthly paid subscription. The goal is to increase installer heat pump sales and reduce their cost of acquiring customers by helping them target high probability customers. NYSERDA also plans to work with regional stakeholders to develop customer value propositions for heat pumps that would provide customers with simple, objective information about the benefits of installing heat pumps.

Technical Assistance and Financing

NYSERDA provides energy audits for residential customers and detailed engineering studies for commercial customers and multifamily building owners. These audits will include options for electrification and provide customers and property owners with decision-quality information that can lead to investment in heat pumps.

In addition, through Green Jobs Green NY, (“GJGNY”), NYSERDA can provide financing for heat pumps. These financing programs will be available along with electric utility incentives.

Research and Innovation

NYSERDA has supported several Advanced Buildings Challenges, focusing on cold-climate heat pumps. Future work may explore opportunities to drive improvements in refrigerants, thermal distribution systems, geothermal drilling, and manufacturing cost reduction. In addition, through efforts like “Retrofit [New York](#)”^{NY} and Buildings of Excellence [Competition](#), NYSERDA will continue to try to develop strategies for buildings to achieve net zero carbon emissions, including standardized solutions for retrofit/new construction packages that include several options for all fuel types.

17. Energy Savings Accounting, Target Accounting and Compensation

It is proposed that net onsite all-fuels energy savings, as contributing to the heat pump target discussed earlier are accounted on a deemed basis for residential installations; as detailed further below. In the development of this [Final Updated Report](#), the deemed annual and lifetime savings, expressed as MMBtu of net onsite energy savings per thermal ton of installed heat pump capacity, were quantified based on NYSERDA's analysis in this chapter.

The NY Electric Utilities are applying this approach to all residential whole-house heat pump installations (both single family and multifamily) as well as small non-residential installations (up to ten tons of thermal capacity). Whole-house installations refer to those that serve all or most of the space heating and cooling load of the site in question. A similar “deeming” approach is to be applied to heat pumps that serve only part of the site (*e.g.*, systems that serve cooling but not space heating, systems that serve hot water but not space heating or

cooling). The deemed savings amounts for these categories should be developed during the implementation stage.

The resulting quantification of deemed savings, as effective at the start of the program, is expected to be reviewed and revised further as necessary after the start of the program, through a consultative process between the NY Electric Utilities and NYSERDA. It is expected that the quantification approach will rely on the TRM once the heat pump measure documentation has been reviewed and updated. The NY Electric Utilities note that if, as a result of subsequent changes to the savings methodology applied to heat pumps, a higher number of installations is required to achieve the five TBtu target, either adjustments to heat pump incentive budgets will need to be made to achieve the higher number of installations, or a lower total heat pump savings target will need to be authorized.

It is proposed that for large-scale (greater than 10 tons) non-residential installations, net onsite energy savings are quantified using custom audit information for each individual site, with the process to be developed in more detail during implementation. At the start of the program, such savings estimates would still be deemed. It is expected that a switch to metering of savings is considered as part of a future review of the program.

It is also proposed that all heat pump installations that receive support under the statewide incentive framework count towards the respective electric utility heat pump targets.

18. Implementation Plan

The planning and implementation phase of the statewide heat pump program will include program level details for the NY Electric Utilities, such as:

- Eligibility specifics – applicants, contractors, sites, equipment
- Incentive structure and level specifics
- Detail on approach to heat pumps for LMI including a discussion of pilots to develop scalable LMI heat pump programs
- Detail on approach to combining heat pump and building shell installs
- Evaluation of block structure
- Program Manual
- Application intake & incentive payment process
- Project management, data collection, customer support
- Milestones for project completion
- Reporting requirements & process
- Deemed savings accounting
- QA requirements & process
- Transition and wind down of current programs, interaction with locational value programs
- Statewide program review
- Establish the Joint Management Committee

VII. Chapter Four: LMI Portfolio

1. Statewide LMI Portfolio Concept

As directed in the Order, the NY Utilities have collaborated with NYSERDA and will continue to do so in the refinement of a statewide LMI Portfolio. The statewide LMI Portfolio will allow Utility and NYSERDA investments to be positioned in a more complementary manner, further expanding the reach of energy efficiency programs, advancing the State’s energy affordability goals, and increasing the impact of customer funding dedicated to LMI customers. As outlined in the Order, NYSERDA will maintain its central role in administering LMI programs, and the NY Utilities will collaborate with NYSERDA in a more integrated way to expand the reach of LMI services.

The statewide portfolio approach provides the opportunity to further focus the customer-funded programs targeting the LMI sector, allowing the NY Utilities and NYSERDA to address energy affordability in a more holistic manner. This approach will also improve the experience of customers seeking to access energy efficiency services, reduce administrative costs, and provide more consistency for participating service providers. In developing and executing the LMI Portfolio with NYSERDA, the NY Utilities will advance the following principles:

- Advancing energy affordability for LMI customers;
- Exploring and implementing efficiencies to potentially reduce administrative costs and optimize resources;
- Developing simplified processes for LMI customers (*e.g.*, the application process), and consistent messaging;
- Executing a statewide approach that is as consistent as possible, while also allowing the NY Utilities to tailor offerings to accommodate local service territory needs;
- Increasing the number of households served;
- Continue to target underserved customers and communities; and
- Prioritizing affordable multifamily buildings for LMI Portfolio participation, where it makes sense across the State’s varying types of housing stock.

To achieve administrative efficiencies and expand the reach of LMI programs, the NY Utilities will work with NYSERDA to leverage each entity’s relative strengths. Table 10 lists some of the strengths of each program administrator, which can be leveraged to support the development and implementation of a comprehensive LMI ~~portfolio~~[Portfolio](#).

Table 10: NYSERDA and NY ~~Utility~~[Utilities](#) Strengths

Administrator	Strengths
NYSERDA	<ol style="list-style-type: none"> 1. Statewide reach and ability to achieve economies of scale. 2. Management of statewide network of service providers to realize lower costs and consistency in standards and work quality. 3. Ability to coordinate efficiently with other State agencies,

	<p>programs, community advocates, and trade associations on policy and program alignment to improve effectiveness of customer funds (e.g., the Weatherization Assistance Program (“WAP”), HEAP, housing, health, aging).</p> <ol style="list-style-type: none"> 4. Development and testing of potential energy efficiency solutions. 5. Market development with respect to soft cost reductions, workforce development and training, and other market supporting activities. 6. Development of financing solutions and incorporation of philanthropic and other third-party capital. 7. Identifying income-eligible customers for LMI Portfolio participation and for referral to the Utilities.
<p>NY Utilities</p>	<ol style="list-style-type: none"> 1. Access to customers and customer data, including energy consumption that the Utilities can use to target services. 2. Familiarity with characteristics of customer base. 3. Ability to pair energy efficiency with the statewide low-income bill discount and other payment assistance programs that are authorized in the <i>Order to Address Energy Affordability for Low Income Utility Customers</i> in (Case 14-M-0565) (“Low Income Order”).³⁵ 4. Ability to tailor offerings to the unique characteristics of their service territory. 5. Customer recognition of the utility facilitates local marketing effectiveness and results in higher customer participation levels. 6. Ability to leverage existing program implementation contractors and trade ally networks. 7. Leveraging robust utility outreach and education channels (including customer service call centers).

In addition, the emphasis of the LMI Portfolio will position utility-funded LMI initiatives as complements to NYSERDA’s CEF and other utility-funded initiatives. This emphasis will increase the impact of customer funds while enhancing energy affordability and access to energy efficiency solutions. The design of the LMI Portfolio will also consider complementary and innovative programs and interventions beyond energy efficiency. The LMI Portfolio will also consider the programs and offerings funded by other State agencies, the U.S. Department of Housing and Urban Development (“HUD”), and other sources, to account for a full range of approaches to address energy affordability access and solutions for the LMI market segment. At this time, the NY Utilities and NYSERDA envision that portfolio design will consider programs

³⁵ [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 Modifications and Directing Utility Filings \(issued May 19, 2016\)\(“Low Income Order”\).](#)

that provide incentives targeted at the residential, multifamily, and new construction sub-segments such as:

- Bill payment assistance for low-income customers through the Low-Income Order's statewide utility bill discount program ([Case 14 M 0565³⁶](#));
- Outreach, education, and awareness campaigns to increase energy literacy and access to programs;
- Market development initiatives that develop and test new solutions for enhanced access to improvements across the LMI market segment, with opportunities for integrating energy efficiency, including heat pumps, and renewable energy;
- Coordination and alignment across the customer-funded LMI Portfolio and with programs and resources administered by other State agencies and local administrators; and
- Continuous optimization of the LMI Portfolio by tracking results such as units served, implementation costs, and energy savings.

2. **LMI Platform**

The Energy Efficiency Order called for the development of a single, statewide platform to facilitate effective administration of the LMI Portfolio. In collaboration with NYSERDA, the NY Utilities have identified two primary elements of the LMI platform: a customer-facing hub and an administrative component. The LMI platform may potentially be modelled on the current NYSERDA referral system being used by local approved contractors. These components are intended to improve customer experience, potentially reduce administrative costs, and potentially offer increased operational efficiencies, while simultaneously offering an appropriate level of commonality across the LMI Portfolio.

2.1 Customer-Facing Hub

As currently envisioned, NYSERDA will host the customer-facing hub that will serve as the primary information source of and/or entry point to the programs, services, and energy education. This hub and its availability will be highlighted on utility and NYSERDA webpages and in marketing materials. The customer-facing hub will be developed to engage both residential end-use customers and multifamily affordable building owners, developers, and occupants as appropriate. The NY Utilities envision that this could potentially feature a statewide branding approach in conjunction with localized marketing implemented by the NY Utilities in their respective service territories. For customers, the hub will provide consistent information on all relevant LMI programs and services, including energy efficiency, renewable energy, bill payment assistance, and energy education materials. For affordable building owners and occupants, similar information will also be provided, although the messaging presented would be relevant to their segment. In addition, the customer-facing hub will also reflect a

³⁶ [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 Modifications and Directing Utility Filings \(issued May 19, 2016\).](#)

coordinated outreach and education strategy between NYSERDA and the NY Utilities, which will include work with intermediaries, including human service agencies, and affordable housing agencies. The customer-facing hub will be jointly developed by the Utilities and NYSERDA, with specific details included in future implementation plans.

2.2 Administrative Infrastructure

Through the administrative infrastructure component, the NY Utilities and NYSERDA will administer the LMI Portfolio considering potential efficiencies and cost savings. The administrative infrastructure component will include several systems to facilitate cross referral of customers in accordance with currently effective Commission policy (including customer consent) and may potentially include additional functionality for customer targeting, reporting, and evaluation purposes. As noted in Chapter Two, data sharing will be in alignment with Commission [Orders/orders](#) and policies on the sharing of customer information.

For the 1-4 family homes portion of the infrastructure, NYSERDA will leverage and build upon the existing systems used to manage the EmPower NY and Assisted Home Performance with ENERGY STAR® programs. This will include a single database that will handle referral of customers by utilities to NYSERDA, customer applications, project workflow, and will include functionality for data sharing between NYSERDA and the utilities to track progress on specific projects and report energy savings results. As part of this infrastructure, NYSERDA will manage the network of contractors working in this space across the State. For other initiatives, a blend of utility-owned and maintained, and NYSERDA-owned and maintained infrastructure will be in place. The decision to bifurcate the information technology and administrative infrastructure between 1-4 family and other initiatives reflects that several utilities have already developed information technology and administrative infrastructures to support existing initiatives. These utility offerings generally provide services beyond 1-4 family homes and, in some cases, the systems are integrated into other systems for customer relationship management and billing.

NYSERDA will have responsibility for conducting income eligibility verification at the individual customer level and for informing utilities of income eligible customers who are eligible to participate in the LMI Portfolio. The NY Utilities will work with NYSERDA to explore a process for identifying eligible affordable multi-family buildings using proxies for affordable housing designations as established by housing agencies such as NYS Homes and Community Renewal, NYC Housing Preservation and Development, and HUD. Options for alternate income eligibility determinations will also be explored, such as using census tracts to determine eligibility for programs.

3. Roles and Responsibilities of Utilities and NYSERDA

Under the statewide LMI ~~portfolio~~[Portfolio](#), the NY Utilities expect to work with NYSERDA in a collaborative manner. The NY Utilities expect that the roles and responsibilities for each program administrator will generally align with the descriptions in Table 11:

Table 11: Potential Program Administrator Roles and Responsibilities

Utilities	NYSERDA
<ul style="list-style-type: none"> • Supporting outreach strategy for program facilitation • Marketing and outreach efforts specific to the utility territory • Providing utility bill discounts, Deferred Payment Agreements, etc. • Connecting customer to other relevant utility rebates/programs/offerings • Administration of utility-specific programming where applicable (<i>e.g.</i> community initiatives and multi-family offerings) 	<ul style="list-style-type: none"> • Administration of statewide implementation and integrated database • Marketing and outreach efforts to support statewide program awareness • Performing income-eligibility verifications and program referrals • Management of the network of service providers for statewide programs • Coordination with state agencies, non-utility programs, and trade associations • Funding collaborative pilots designed with utilities under the CEF

3.1 Alignment with other LMI Initiatives

To optimize customer funding for the LMI market segment and expand the reach of programs, [the](#) LMI Portfolio will need to align with and leverage existing energy efficiency programs and ~~with~~ other LMI related programs administered at the State and local levels. This will require the NY Utilities and NYSERDA to establish complementary administrative roles. By coupling energy efficiency programs with bill payment assistance programs, the NY Utilities may further reduce the energy bill for LMI households.

The NY Utilities will work collaboratively with NYSERDA to harmonize the expanded LMI programs with CEF-related investments. This may take a variety of forms, including: (1) establishing complementary program design and implementation; (2) developing and using supporting initiatives such as workforce development or financing solutions; (3) funding statewide programming that is not currently offered by the NY Utilities; and (4) leveraging the CEF to test novel solutions and alternative approaches to program deployment broad-scale roll out. The NY Utilities plan to work with NYSERDA during the program design and implementation phase of the statewide LMI Portfolio to explore potential opportunities that integrate electric energy efficiency with renewable energy offerings.

As outlined in the CEF LMI Chapter, NYSERDA administers several initiatives targeting affordability and access to clean energy solutions in the LMI market segment. NYSERDA invests approximately \$70 million annually on “standard offer” programs that address energy efficiency in existing single and multifamily buildings, greater efficiency in affordable new construction, and access to solar through rooftop and community solar initiatives. As part of the LMI portfolio implementation design activities, the NY Utilities will work with NYSERDA to further align the expanded LMI programs with the existing CEF programs. In addition,

NYSERDA funds market development initiatives intended to test innovative solutions and develop models for reducing soft costs and scaling access to energy efficiency.³⁷ The NY Utilities look forward to further understanding “lessons learned” from NYSERDA’s market development work funded through the CEF and may be able to use this information to inform future customer offerings.

The NY Utilities and NYSERDA will strive to increase collaboration with other programs such as WAP, HEAP, and other social service/affordable housing programs. Through this work, the NY Utilities and NYSERDA may reduce administrative burdens and will streamline participation, leverage touchpoints with customers, increase awareness and education, and identify funding streams outside of energy efficiency sources.

4. Expanded LMI Programs

Under the LMI Portfolio, the NY Utilities will fund and work with NYSERDA to implement initiatives to increase access to energy efficiency solutions to improve energy affordability for LMI customers. In particular, depending on the characteristics of each utility’s service territory, the NY Utilities will focus on energy efficiency in 1-4 family homes and affordable multifamily buildings, and on increasing customer adoption through community-based demonstration approaches. The Utilities will also work closely with NYSERDA to pilot new initiatives and approaches for implementing LMI programs which may result in reduced administrative complexity or cost, and lead to improved outcomes for LMI customers.

The NY Utilities will strive for consistency, as appropriate, by utility service territory, in program design across the State. Such consistency should serve to reduce customer confusion and limit complications for existing and new market actors (*i.e.*, contractors and social service providers). However, the programs will consider the regional differences in demographics, housing characteristics, and community needs by utility territory in order to enhance program effectiveness. As such, the NY Utilities anticipate that designs of individual programs may vary to a certain degree. The NY Utilities expect that the mix of LMI programs funded will generally fall within the following categories:

- **Comprehensive energy efficiency and direct install for 1-4 family homes**

Under the statewide LMI Portfolio construct, the NY Utilities expect that NYSERDA will continue to administer the 1-4 family homes programs³⁸ on a statewide basis, with the Utilities contributing incremental funding to increase the reach of programs in their service territory. In this role, NYSERDA will be responsible for managing

³⁷ These initiatives include clean energy solutions such as Retrofit NY, which seeks to develop scalable design solutions to enable the retrofit of existing buildings to net-zero performance, and the healthy homes pilots, which are targeted at developing models for incorporating health and energy treatments in a single intervention.

³⁸ The EmPower NY program provides no-cost energy efficiency upgrades for low-income households (households with annual income at or below 60 percent of the State Median Income (“SMI”). The program is available to ~~home owners~~ homeowners and renters in single family properties, and renters in multifamily buildings. The Assisted Home Performance with ENERGY STAR® program provides incentives for energy efficiency upgrades to moderate-income households (households with annual income up to 80 percent of the Area Median Income or SMI, whichever is greater).

customer intake and referrals, administrative infrastructure, and the statewide network of service providers.

In addition, the Utilities will work with NYSERDA to explore and consider the development of a direct-install component for these programs with the goal of increasing the adoption of energy efficiency for underserved LMI customers. Renters, homes with structural or safety issues that may prevent a full energy efficiency work scope, and LMI customers that may not otherwise choose to “go forward” with energy efficiency upgrades are good candidates for this type of direct install approach.

The NY Utilities expect that the approach to the 1-4 family homes market segment may drive cost savings from a single statewide administrative platform, managed by NYSERDA. In addition, this approach leverages the strength of each of the program administrators. NYSERDA ~~operate~~[operates](#) at a statewide level and may realize LMI Portfolio economies of scale while the Utilities will be able to identify and refer customers with high energy burdens to receive relief through energy efficiency.

- **Increasing adoption of energy efficiency in affordable multifamily buildings**

As outlined in the [Energy Efficiency](#) Order, a significant opportunity for energy efficiency exists in the affordable multi-family segment, where applicable for each utility. Like the 1-4 family homes market segment, the NY Utilities expect that a complementary approach will help to address affordable multi-family buildings in a more comprehensive way.

The NY Utilities and NYSERDA will continue to work to reduce market confusion among building owners and contractors. -The NY Utilities propose that affordable multifamily incentive programs be administered by Con Edison, National Grid, and NYSEG/RG&E in their respective service territories. -NYSERDA will provide “default” affordable multifamily program offerings in the remaining utility service territories, so that a consistent offering is available statewide. -The shared approach to multifamily incentive programs between the NY Utilities and NYSERDA reflects that existing utility multifamily programs have an established place in the market and a change in administration may disrupt the market and unintentionally cause backsliding. The NY Utilities have already invested in the information technology infrastructure to deploy those programs, and the potential for multi-family opportunities will vary by service territory.

The affordable multi-family market segment is an area in which complementary efforts by NYSERDA under the CEF can address market barriers to increased adoption of energy efficiency. By addressing soft costs such as support for predevelopment and underwriting, and the development of models that can increase the adoption of energy efficiency at the time of refinancing, NYSERDA can address

components of the affordable multi-family equation that are difficult to tackle on a service territory-specific basis. In addition to incentive programs funded jointly by the Utilities and NYSERDA, and market development initiatives available through the CEF, the Utilities expect to work with NYSERDA to explore opportunities to drive deeper savings for LMI customers and in affordable multifamily [buildings-building product offerings](#). Additional program design and planning on “driving deeper” is necessary, and details will be included in future implementation plans.

- **Community-based approaches**

The NY Utilities are engaging community-based and mid-stream approaches in alternative ways by partnering with community-based organizations,³⁹ testing neighborhood based-delivery models such as a “community blitz,”⁴⁰ and targeting retailers that are prominent in lower-income communities with point of sale or midstream programs.

While the focus of these models has been predominantly lighting and lower-cost measures, they may be an effective way to engage the LMI community and reach customers that may not otherwise participate in traditional programs. Incremental energy efficiency can be achieved through modest initiatives such as lighting giveaways. In addition, models like the “community blitz,” which have been implemented by Duke Energy and PPL Electric, tie community outreach and education with the direct install of energy efficiency measures and direct referrals to other comprehensive programs. Currently, several utilities are interested in “community blitz” pilots with NYSERDA to test the potential for improved engagement, program participation, and administrative cost savings associated with geo-targeting neighborhoods.

The NY Utilities expect to continue to develop and implement community-based initiatives where it makes sense, coordinating with NYSERDA, where practical.

- **Developing electric utility heat pump solutions for LMI customers**

As referenced in the Chapter Three of this [Updated](#) Report, the NY Electric Utilities will work with NYSERDA to develop an approach to deploy heat pump technologies in the LMI market segment when heat pumps help reduce energy burdens of LMI customers. The potential deployment of heat pumps in the LMI market is characterized by challenges, including access to capital, split incentives, and the

³⁹ Central Hudson has partnered with United Way and Con Edison has partnered with local food banks to distribute [LEDs/LED lighting](#) in the community.

⁴⁰ Con Edison, National Grid, and Orange & Rockland are supporting NYSERDA in its test of community blitz models in their [service](#) territories in 2019. National Fuel continues to partner with faith-based organizations and local block clubs as part of its outreach and education initiatives.

potential impact of load profile shifts on energy affordability. Recognizing these issues, the NY Electric Utilities and NYSERDA plan to identify opportunities and solutions to deploy cost effective heat pump technologies through demonstrations and pilots. This may inform the long-term approach for incentivizing heat pumps. As outlined in the Chapter Three of this [Updated](#) Report, NYSERDA will leverage the CEF to support the development and testing of such strategies.

The NY Utilities expect that the varied approach to addressing the LMI market segment and alignment with NYSERDA can expand the reach of programs. Program design details will be filed in future implementation plans. As discussed previously, the statewide LMI Portfolio will evolve to address developments and opportunities in the LMI landscape (including changes in technologies, new solutions, and additional models for reaching LMI customers).

5. Benefit-Cost-Analysis (“BCA”) for LMI Portfolio

As part of the statewide LMI Portfolio, the NY Utilities will work with NYSERDA to develop a methodology for conducting a statewide LMI portfolio-level BCA, containing LMI investments and associated energy savings of both the NY Utilities and NYSERDA. As outlined in the [Energy Efficiency](#) Order, the BCA for the LMI Portfolio will be determined independent of other utility program BCAs and will not count toward each utility’s aggregate portfolio BCA. In addition, the [Energy Efficiency](#) Order states that the BCA need not demonstrate net benefits due to the importance of serving this underserved community and the relatively high customer incentive levels (compared to other types of programs/sectors). The NY Utilities expect to develop details on the statewide BCA as part of future implementation plan filings.

6. Program Planning and Stakeholder Engagement

To guide the collaborative process necessary to implement a statewide portfolio effectively, an LMI Program Council will be established. This Council, composed of representatives from the NY Utilities and NYSERDA, will consider the planning and calibration of the portfolio over time. The NY Utilities envision the LMI Program Council will meet at regular intervals to review progress, modify programming where necessary, and plan for future years. The NY Utilities will work with NYSERDA on an approach for stakeholder engagement to obtain input and identify new opportunities. It is expected that regular stakeholder engagement will continue through venues such as the Low-Income Forum on Energy. The NY Utilities will also collaborate with NYSERDA, so that NYSERDA’s coordination with other State agencies⁴¹ through the low-income energy task force, includes information on utility-funded LMI initiatives. Additional details on the LMI Program Council and future stakeholder engagement will be included in future implementation plans.

⁴¹ NYS Homes and Community Renewal administers the Weatherization Assistance Program ([“WAP”](#)) and finances the development of affordable housing. NYS Office of Temporary and Disability Assistance administers the Home Energy Assistance Program ([“HEAP”](#)).

7. LMI Targets and Budgets

The [Energy Efficiency](#) Order adopted the New Efficiency: New York Whitepaper proposal to dedicate at least 20 percent of incremental energy efficiency funding to LMI programs. The [Energy Efficiency](#) Order also provides flexibility in that the percentage of LMI spending need not be identical across all the NY Utilities. The Utilities request that the Commission approve that ~~they~~[the NY Utilities](#) will not have annual budget levels due to the expectation that programs will take time to ramp up (*i.e.*, the number of contractors and their associated staffing levels may need to increase) and funding needs may vary by Utility service territory.

The NY Utilities also expect the need for flexibility with respect to the proportional distribution of budgets and targets by fuel type. -Some of the NY Utilities may need to shift budgets and targets from electric to gas or vice versa. However, the magnitude of the shift will not be known until more information is available to size the LMI Portfolio opportunities. Based on the analysis of existing programs and opportunities, the Utilities will allocate budgets to programs and necessary administrative, marketing, and other implementation costs. -Additional details on budgets will be included in future implementation plans.

8. Elements of Program and Implementation Design and Projected Timeline

The NY Utilities will work with NYSERDA following the filing of this [Updated](#) Report, on overall LMI Portfolio development including program and implementation design. This work will include program sizing, planning for opportunities for alignment with the CEF, portfolio branding and marketing approaches, and development of a statewide portfolio BCA methodology. Additional information on these topics will be included in future implementation plans.

Even though the development of the LMI Portfolio is currently “in progress,” there will be LMI programming available on January 1, 2020 as existing LMI programs administered by the Utilities and NYSERDA will continue. The NY Utilities expect that the new LMI Portfolio will be “rolled out” in a phased manner during 2020.

VIII. Earnings Adjustment Mechanisms

The Energy Efficiency Order states that the Commission may address some EAM-related matters in a 2019 [Order](#). The NY Utilities suggest that because all utilities are on different rate case cycles, the Commission's most efficient course of action would be to provide each Utility flexibility to propose EAMs, consistent with the principles already established in the Energy Efficiency Order.⁴² This is also consistent with previous Commission determinations in Case 15-M-0252.

⁴² Con Edison's Chapter [in this Updated Report](#) includes a discussion of proposed EAMs as part of its pending rate cases.

IX. Central Hudson Chapter

The purpose of this chapter is to address items that are of specific concern to Central Hudson (the “Company”).

I. Accelerated Energy Efficiency Budgets and Targets

The Company plans to adopt the presumptive electric and natural gas energy efficiency targets as proposed within the Energy Efficiency Order. However, Central Hudson proposes to increase the electric and natural gas budgets to accommodate the higher cost necessary to achieve those energy savings. The proposed increase would align Central Hudson’s available budget to that of the other utilities in the state.

Electric Energy Efficiency

Central Hudson’s proposed electric energy efficiency budget and targets for 2019-2025 are detailed below. The Company proposes to adopt the presumptive incremental targets as shown in Table 1.

Table 1: Central Hudson Proposed Electric Energy Efficiency Targets (2019-2025)

Energy Efficiency - Electric Targets (Gross MWh)						
Year	2021	2022	2023	2024	2025	Total
Current ETIP Level Base EE Target ⁴³	79,102	79,102	79,102	79,102	79,102	79,102
Incremental NENY Target	53,262	53,262	53,262	53,262	53,262	266,310
Incremental NENY Target	6,000	10,000	14,000	17,000	21,700	68,700
Total	79,102	79,102	85,102	89,102	93,102	96,102
	59,262	63,262	67,262	70,262	74,962	335,010

The presumptive electric budgets within the Energy Efficiency Order are not sufficient to meet these targets. As shown in Table 2, Central Hudson has the lowest presumptive \$/kWh budget, with the average Joint Utility budget being 66 percent higher than Central Hudson’s \$/kWh.

⁴³ Figures shown reflect incremental budgets determined in most recent rate case and minimum-level EAM targets.

Table 2: Central Hudson & Joint Utilities Accelerated Electric Targets Comparison, 2021-2025

Utility	Total Budget, 2021-2025 (\$000)	Total Target, 2021-2025 (MWh)	\$/kWh, 2021-2025	\$/kWh Difference from Central Hudson (%)
Central Hudson	\$10,859	68,700	\$0.16	0%
Con Edison	\$707,375	2,337,700	\$0.30	91%
Niagara Mohawk	\$132,595	656,200	\$0.20	28%
NYSEG	\$121,791	563,540	\$0.22	37%
O&R	\$32,186	151,450	\$0.21	34%
RG&E	\$53,846	260,000	\$0.21	31%
Total Electric Portfolios	\$1,058,647	4,037,590	\$0.26	66%

The presumptive budgets within the Energy Efficiency Order were derived from historical run rates. However, Central Hudson’s recent performance was heavily dependent on residential lighting and behavioral programs, which were adopted by Central Hudson earlier than the other NY Utilities. Central Hudson’s early adoption limits the potential to utilize these same measures in the future, forcing the need for comprehensive and costly energy savings strategies.

Moreover, these programs have already been optimized to the appropriate scale in Central Hudson’s service territory⁴⁴ and cannot be proportionately scaled up as targets increase. As such, it is useful to segment out lighting and behavioral programs which are not reflective of the portfolio’s scalability. Without these programs, Central Hudson’s historical cost is approximately \$0.24/kWh. For the purposes of setting incremental budgets, this figure is more indicative of the portion of Central Hudson’s portfolio which must be scaled up to meet accelerated targets.

For the reasons described above, Central Hudson proposes incremental budgets that match the statewide average \$/kWh of \$0.26. This equates to a total incremental budget of \$18.0M over the currently approved ETIP funding levels, as shown in Table 3.

Table 3: Electric Energy Efficiency Budget (2019-2025)

Energy Efficiency - Electric Budget (\$000)										
Year		2019	2020	2021	2022	2023	2024	2025	Total	Deleted Cells
Current ETIP	LevelBase EE Budget			\$9,773	\$9,773	\$9,773	\$9,773	\$9,773	\$9,773	Deleted Cells
Presumptive	Incremental	-	-	\$948	\$1,581	\$2,213	\$2,687	\$3,430	\$9,773	Deleted Cells
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⁴⁴ Both measurement & verification practices, and effective useful life impacts dictate the appropriate scale of the programs.

Additional				\$699	\$1,112	\$1,472	\$1,721	\$2,132	
Total	\$9,773	\$9,773	\$11,420	\$12,466	\$13,458	\$14,181	\$15,335	\$86,400	

Natural Gas Energy Efficiency

Central Hudson’s proposed natural gas energy efficiency budget and targets for 2019-2025 are detailed below. The Company proposes to adopt the presumptive incremental targets as shown in Table 4.

Table 4: Central Hudson Proposed Natural Gas Energy Efficiency Targets (2019-2025)

Energy Efficiency - Gas Targets (Gross MMBtu)								
Year	2019	2020	2021	2022	2023	2024	2025	
Current ETIP Level Base EE Target ⁴⁵			58,016	58,016	58,016	58,016	58,016	58,016
Incremental NENY Target			1,000	3,000	6,000	10,000	15,040	
Total	58,016	58,016	59,016	61,016	64,016	68,016	73,056	44

The presumptive natural gas budgets within the Energy Efficiency Order are not sufficient to meet these targets. As shown in Table 5, Central Hudson has the lowest presumptive \$/MMBtu budget, with the average Joint Utility budget being 105 percent higher than Central Hudson’s \$/MMBtu.

Table 5. Central Hudson & Joint Utilities Accelerated Gas Targets Comparison, 2021-2025

Utility	Total Budget, 2021-2025 (\$000)	Total Target, 2021-2025 (MMBtu)	\$/MMBtu, 2021-2025	\$/MMBtu % Difference from Central Hudson
Central Hudson	\$555	35,040	\$15.83	0%
Con Edison	\$70,194	1,913,155	\$36.69	132%
KEDLI	\$27,487	976,200	\$28.16	78%
KEDNY	\$73,858	2,255,688	\$32.74	107%
NFG	\$2,602	49,950	\$52.09	229%
NYSEG	\$10,262	449,560	\$22.83	44%
O&R	\$11,802	308,870	\$38.21	141%
RG&E	\$4,686	229,399	\$20.43	29%

⁴⁵ Figures shown reflect incremental budgets determined in most recent rate case and minimum-level EAM targets.

I-II. Incremental Heat Pump Program Budgets and Targets

-Central Hudson proposes to adopt the ~~company specific~~ cumulative budget developed within the updated Heat Pump Potential Study of \$30.2M. ~~Incremental staffing requirements are proposed to be included within this funding request. The Company requires additional time to identify an appropriate and achievable target and is not able to commit to a specific target within this filing. from NYSERDA's revised heat pump potential study. Central Hudson plans to collaborate~~ found the presumptive program target, however, to be unachievable. Central Hudson, with ~~DPS Staff in developing~~ support from their EM&V team, conducted an analysis to develop an achievable GBtu savings target. The Company proposes to adopt the resulting cumulative heat pump program target ~~and~~ of 253 GBtu. The determination of this target is described throughout this chapter.

Table 18. ~~shows the high-level planning assumptions used to develop the proposed targets. Assuming the total program budget of \$30.2M includes a 20% program administration cost, the average incentive would propose any associated adjustments to its EAM's within future SEEP filings be approximately \$1,169 per-thermal ton.~~

Table 18. Heat Pump Budget & Target (2020-2025) Heat Pump Program Assumptions⁴⁸

Heat Pump Program Budgets & Targets					
Year	System Type	Tons per Installation	Total Tons	Number of Systems	Estimated Gbtu Savings
	Heat Pump Budget (\$000) ASHP	\$30,212 ₃	3,230	1,077	36
	Heat Pump Target (GBtu) Mini-split	TBD _{1,5}	15,074	10,050	167
	GSHP	4	3,230	808	50
	Total		21,535	11,934	253

Importance of Heat Pump Program Flexibility

Utilities were directed within the Energy Efficiency Order to strive for uniform incentive mechanisms across the state and explore the incorporation of block structures which could result in rigidity of incentive levels and other aspects of program implementation. The importance of

⁴⁸ Technology specific figures are used for planning purposes only. The Company does not propose technology specific targets.

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retaining flexibility is discussed within the heat pump section of this Joint Utility filing. Central Hudson provides this additional context for consideration:

The heat pump economic analyses prepared by NYSERDA are a useful resource as utilities begin to plan and implement programs to achieve aggressive heat pump goals. Any program design must be based on assumptions about customer behavior and adoption and a prospective economic analysis is a natural starting point. We found the economic analysis conducted by NYSERDA to be particularly comprehensive and well-reasoned. At the same time, economic analysis alone is insufficient grounds for setting uniform incentive levels. It must be supplemented with actual empirical data on how customers respond to incentives.

To optimize incentive levels and program design, it is necessary to test different incentives, measure real-world adoption rates, and assess how customer uptake varies as a function of different incentives. Experimentation in incentive levels is a critical requirement for innovation and optimization. If incentive levels are set in a uniform way, it is not possible to empirically understand the relationship between incentives and customer adoption and, therefore, it is difficult to adjust and optimize the program design. Requiring uniform incentive levels too early may stunt innovation and lead to slower market acceleration than allowing for experimentation in incentive levels.

We believe flexibility in setting incentives is more valuable than uniformity for new initiatives and technologies. Flexibility allows utilities to test the market response, learn how adoption rates vary as a function of incentives, and optimize program activities based on real-time evaluation.

Central Hudson is also concerned that the uniform incentive levels per thermal ton among different technologies and application types may prove too restrictive and limit utility flexibility to test heat pump adoption patterns, achieve goals, and guard against over-subscription. Assigning benefits on a per-thermal-ton basis is a good start for developing incentives, but other factors should be considered when setting incentive schedules:

- **Efficiency**—utilities should have the flexibility to offer larger incentives for an 18 SEER/10 HSPF unit than a 16 SEER/9 HSPF unit. A ground source heat pump is more efficient and has a higher incremental cost than an air source heat pump. Incentive levels should be flexible enough to acknowledge this and encourage customers to install the most efficient option.
- **Incremental Cost**—it would be useful for utilities to be able to monitor heat pump costs (equipment and labor) and have flexibility to adjust incentive levels for different technologies based on market conditions
- **Counterfactual Heating Type**—there are sound economic reasons for setting different incentive levels and eligibility requirements based on the type of heating system being replaced (electric resistance, gas furnace, fuel oil, propane etc.) as well as the presence of central air conditioning. The benefit-cost parameters, including emissions reductions and customer payback, varies significantly depending on the displaced heating fuel.

System Sizing— Per thermal ton incentives may motivate market actors to oversize
Analysis of Savings

Central Hudson used actual Poughkeepsie weather data from their service territory to determine the peak design condition (rate of a home's heat loss at the coldest temperatures) per ton of heat pump capacity. We assumed ASHP's and GSHP's will provide 100% of the homes heat and found an equivalent full load hour (EFLH) heating estimate of 1,302 for these system types. This is significantly higher than the NY TRM estimate for Poughkeepsie (862 heating EFLH). We assumed heat pump installations will occur in existing homes with oil heat.

Central Hudson predicts that mini-splits will be the main contributor to program savings. Considering the absence of a savings approach for mini-splits in the NY TRM, Central Hudson leveraged other data sources to develop a realistic estimate of mini-split heating savings. Central Hudson used data from a recent metering study⁴⁹ in Vermont. We estimated mini-split consumption using the metered load profile, adjusted with weather data from Poughkeepsie. We chose the Vermont study for these reasons:

- 1) The average efficiency of systems in certain circumstances metered (23.7 SEER, 11.9 HSPF) was nearly equivalent to the efficiency assumptions in NYSERDA's analysis (23.3 SEER, 11.3 HSPF).
- 2) Average cooling capacity of mini-splits (17,695 BTU/h, 1.47 tons), was similar to the system size assumed in NYSERDA and Central Hudson's modeled estimates (1.5 tons).
- 3) None of the metering participants used natural gas heat. Most had oil or electric resistance heat and had strong economic motivation to maximize mini-split use. Using data from other studies (e.g. Ductless Mini-split Heat Pump Evaluation⁵⁰ for Massachusetts) produces a lower per-ton savings estimate because those participants did not maximize the use of their mini-split systems.
- 4) Data showed participants maximized the use of their mini-split systems. Even during the coldest times of the incentive year (temperatures below -10°F) more than 80% of used their mini-split for heat.

~~In conclusion, flexibility and experimentation in setting incentive levels is critical to successful program design, particularly when technologies and/or programs are new. While uniformity may have some theoretical benefits, we believe it is too early to require uniform incentive structures for the heat pump program and that doing so may detract from successful program implementation.~~

II. Incremental Cost Recovery

⁴⁹https://publicservice.vermont.gov/sites/dps/files/documents/Energy_Efficiency/Reports/Evaluation%20of%20Cold%20Climate%20Heat%20Pumps%20in%20Vermont.pdf

⁵⁰<http://ma-ecac.org/wordpress/wp-content/uploads/Ductless-Mini-Split-Heat-Pump-Impact-Evaluation.pdf>

5) Meter data provides real-world estimates.

By definition, equivalent full load hours (EFLH) represent the total capacity (heating and cooling) that an HVAC system provides to a home or space during a typical season as a function of the system's nameplate (full load) capacity. Central Hudson's analysis found a 1.5-ton mini-split would offset **17.9 MMBtus per year**. This represents the annual heat load of the space served by the mini-split and can be used for comparison to other modeled estimates. Approximately 77% of the heat in a season is provided by the mini-split and that an additional 5.4 MMBtus would be provided by an alternate heat source (23 MMBtus total for a space with a 1.5-ton mini-split). While it is technically possible for a mini-split to provide 100% of the heat, it is not common practice to size mini-splits to serve 100% of the load. Central Hudson believes the meter data we used to estimate savings for their service territory represent an achievable estimate of savings if the program successfully targets high-use spaces.

Central Hudson's analysis found for space using 23 MMBtus of heat would use 5.9 MMBtus of cooling. This equates to 332 EFLH cooling and is lower than the TRM value for Poughkeepsie (470 EFLH cooling).

Program Adoption Up-Take versus Incentive Levels

The potential up-take for the heat pump program is closely related the incentive level offered, however, Central Hudson believes that the relationship between up-take and incentive level is nonlinear. This nonlinear relationship is reflected in Table 1 above. As incentives increase, a higher proportion of the population will participate. Central Hudson used data available from a New England pricing trial and quantified this relationship using a regression analysis.

The figure below shows the results of a heat pump water heater pricing trial conducted in New England. Incentive levels were purposefully varied from around 30% of the incremental measure cost⁵¹ to over 100%. As expected, program adoption of heat pump water heaters increased with incentive levels. The empirical data enabled by experimentation in incentive levels allowed for development of a mathematical model of the relationship between incentive levels and customer adoption. Central Hudson used this relationship to estimate the program participation rate of increase due to increasing incentives. We chose this pricing trial relationship for these reasons:

- 1) Market saturation of HPWHs and mini-splits is similar and relatively low. Utility programs are intended to drive measure adoption.
- 2) Equipment cost of a 1.5-ton mini-split is similar to the cost of a HPWH (full retrofit cost of a mini-split is likely 2-3 timer higher due to installed cost). Proposed incentives could

⁵¹ Incremental measure cost in this case being the difference between the cost of a high efficiency heat pump water heater and a new code-minimum electric resistance water heater.

pay for a large portion of the minisplit cost, a percentage that is represented well by the data in **Figure 1**.

3) Both HPWHs and mini-splits have high savings potential and similar payback periods.

Figure 1. Heat Pump Water Heater Pricing Trial Results

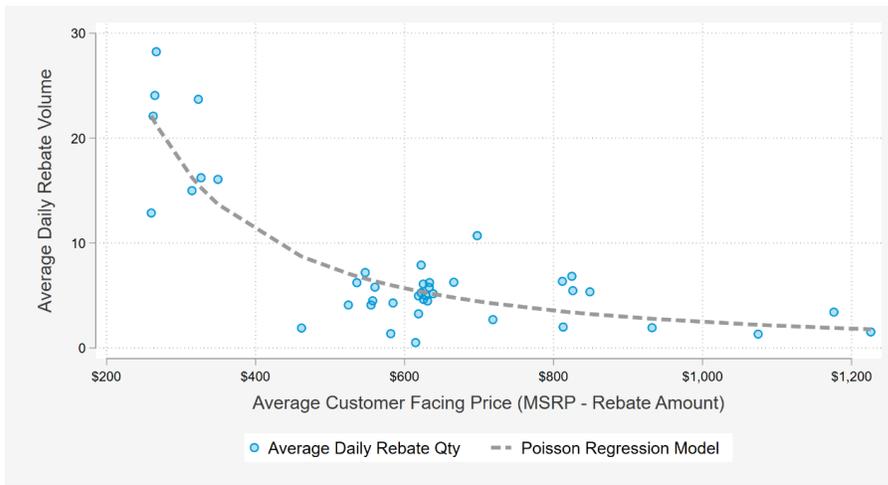
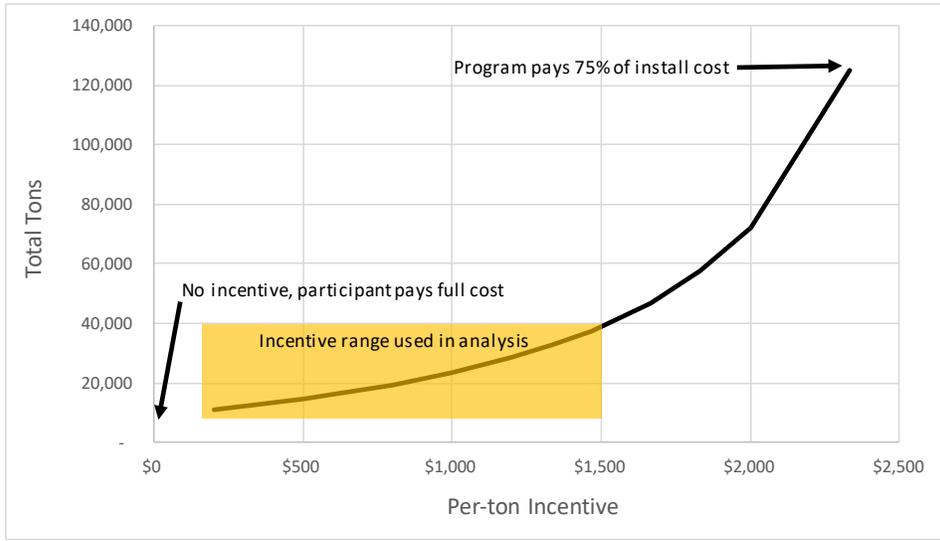


Figure 2 shows the regression data from Figure 1, adapted for mini-split heat pump incentives. Central Hudson used the data in the shaded region to estimate the change in program participation as incentives increase.

Figure 2. Visualization of Pricing Trial Data Adapted for Mini-split Program Participation



Central Hudson’s approach assumes adoption rate varies by the proportion of the programs’ contribution to full installation cost. Central Hudson accepted and used NYSERDA’s original assumption (a budget of \$24.6M would drive 18,915 tons of heat pump installations) as the starting point in our analysis, projecting the number of tons that would be installed if the budget and incentives increased, and the customer-facing cost decreased. Table 1 shows modeled participation levels (on a per-ton basis) and the % share that Central Hudson used in their analysis of program savings. The % share used in analysis is Central Hudson’s estimate of expected program participation.

Table 1. Modeled Participation of Expected Tons Installed

System Type	% Share	% Share Used in Analysis
ASHP	33%	15%
Mini-split	49%	70%
GSHP	18%	15%

Though the ASHP and mini-split % share differ significantly from the % share used in analysis of program savings, this has no material impact on overall program savings because ASHPs and mini-splits generate nearly the same savings per ton of installed capacity. Ultimately, Central Hudson chose a mix of 15% ASHP, 70% mini-split, 15% GSHP based on their collaboration with the EM&V team and others with industry experience.

Alternative Scenarios

Central Hudson estimated program participation and savings for two alternative scenarios. Based on the same methodology used to arrive at the figures in Table 1, Central Hudson would be able to achieve 222 GBtu with NYSERDA's original program budget of \$24.6M. Additionally, Central Hudson would require a budget of \$68.9M to achieve NYSERDA's revised presumptive target of 416 GBtu.

III. Incremental Cost Recovery

Per the Central Hudson's Rate Plan Order, electric and gas energy efficiency program costs are now recovered in base rates beginning on July 1, 2018. Additionally, the Rate Plan Order anticipated that Energy Efficiency Program costs and targets are subject to change pursuant to Commission action in Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative* ("Energy Efficiency Proceeding") and granted the Company authorization to defer and recover any such changes approved by the Commission.

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For the period of January 1, 2016 through June 30, 2018, Central Hudson had a cumulative underspend of approximately \$5.1M and \$0.3M within its electric and natural gas portfolios respectively. The Company proposes to utilize these regulatory liabilities to fund the incremental energy efficiency and heat pump⁵² program budgets before creating a regulatory asset. The Company proposes that any incremental staffing associated with increases to the heat pump or energy efficiency programs should be funded through this cost recovery mechanism. The Company's expectation is that any regulatory assets and future costs incurred would be fully addressed within a future rate proceeding.

III.IV. Sustainability of Current Funding Mechanisms

Central Hudson is very supportive of utilizing clean electric heating technologies as a carbon reduction strategy. The Company launched its first heat pump conversion program in 2018 and has achieved early success.

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According to the Accelerated Targets Energy Efficiency Order, utility-specific mechanisms within electric rates or surcharges would be used to fund their heat pump programs. Central Hudson's current proposed heat pump program budget of \$30.2M over the period of 2020-2025 is forecasted to enable the Company to achieve approximately 9,000 installations, according to the updated Heat Pump Potential Study. Although the bill impact of this initiative may appear manageable in the short term, the Company is concerned about the long-term sustainability of funding this and other beneficial electrification initiatives primarily through electric bills.

There are over 175,000 electric customers within the Central Hudson service territory which utilize fuel oil or propane as their primary heating fuel. If the statewide heat pump

⁵² The electric energy efficiency portfolio and the heat pump program would specifically be funded through the electric portfolio underspend. The gas energy efficiency portfolio and heat pump program would be funded through the gas portfolio underspend.

framework were scaled to bring efficient heat pump systems to this number of customers at current funding levels, the program would cost Central Hudson's customers approximately \$557M, which equates to 52 percent of the average electric rate base within Central Hudson's Rate Plan Order⁵³. This funding strategy is not sustainable, since it may create a barrier to fuel switching as electric prices increase, results in an unfair cost burden on non-participating electric customers. The Company requests that alternative funding sources are explored and considered for the purposes of scaling beneficial electrification initiatives.

IV.V. Low- and Moderate-Income Considerations

Central Hudson ~~is in agreement~~agrees with the NY Utilities that flexibility will be necessary with respect to the proportional budgets and targets by fuel type. In addition, budget levels should not be imposed on an annual basis as programs will take time to ramp up. In addition, Central Hudson is in alignment with the heat pump proposal within the LMI section of the Joint Utility filing and the Company will collaborate with NYSERDA to identify and deploy heat pump technology through demonstration and pilot projects.

The housing stock within Central Hudson's service territory is predominantly single-family units, including the homes of low- and moderate-income customers. Any LMI strategy which places prescriptive requirements with respect to multifamily uptake rates would significantly disadvantage Central Hudson because there is very limited potential for this segment. The Company requests that no specific LMI uptake requirements be imposed with respect to multifamily.

VI. Kickers

The Energy Efficiency Order directed each of the New York Utilities to address how the concept of kickers might be applied in their respective service territories. Central Hudson does not believe the use of kickers would be beneficial within its service territory at this time. The electric peak demand on transmission & distribution systems has flattened or declined in recent years, resulting in substantial excess capacity. Studies completed in 2016 and 2018 indicated system-wide load reduction values of \$14.55/kW-year and \$0.13/kW-year, respectively. Areas of localized load growth are currently being addressed through NWA initiatives which cover approximately 16% of the service territory, by load. Within these NWA's, the Company has already leveraged synergies with its Energy Efficiency efforts. Similar in concept to kickers, locational value is being used to boost incentives to customers located within NWA zones. These incentives are tailored to specific locational needs and funded by both Energy Efficiency programs and NWA budgets. The Company expects to re-evaluate the use of kickers if future constraints are identified.

⁵³ Central Hudson's Rate Case Order, Appendix A, Schedule 1 – Average electric rate base is \$1,080,276,000.

X. Con Edison Chapter

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Executive Summary

Con Edison ([the “Company”](#)) supports New York’s ambitious environmental and clean energy goals and is committed to helping meet the Energy Efficiency Order’s energy savings goals. As proposed in the Company’s pending rate case,⁵⁴ the Company intends to meet the [Energy Efficiency](#) Order’s presumptive goals through expanding existing programs and adding new programs and delivery channels, innovating to deliver additional savings cost-effectively, and using data analytics to increase program and marketing effectiveness. Further, the Company will diversify its portfolio and seek opportunities for deeper energy efficiency savings, to the extent that such diversification can be undertaken under the [Energy Efficiency](#) Order’s existing budget and unit cost limits. The Company also intends to expand resource acquisition programs for its portfolios to include cost-effective and scalable programs upstream of customers, and establish a new initiative (the “kicker” incentive discussed below) to incentivize a broad array of space cooling related technologies that provide system value. Finally, the Company will integrate the

⁵⁴ Cases 19-E-0065 and 19-G-0066, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric and Gas Service* filed January 31, 2019 (“Rate Case”). See related testimony and exhibits of the Customer Energy Solutions Panel (“CES testimony”).

Non-pipeline Solutions (“NPS”)⁵⁵ portfolio into its overall portfolio, including integrating peak day gas demand reduction as a priority.

Con Edison’s proposal is designed around five core principles intended to meet the Energy Efficiency Order’s goals:

- (i) advance the State’s clean energy policy objectives through an overall reduction in emissions across commodities, and make progress towards a more fuel-neutral approach;
- (ii) manage the portfolio of electric energy efficiency, gas energy efficiency, and heat pump programs as a single combined portfolio, which requires allowing appropriate flexibility of budgets within the overall budget as proposed in the Company’s rate case testimony and in this filing;
- (iii) allow for changes to program designs, electric, gas or heat pump budgets, and other program or portfolio attributes as necessary to innovate and continuously improve with the objective of driving results;
- (iv) deliver meaningful lifetime benefits cost-effectively and with moderate changes to customer bills; and
- (v) establish earnings adjustment mechanisms (“EAMs”), discussed later, aligned with the key State policy objectives facilitated through utility action.

This filing provides Con Edison’s plans, including budgets and targets, which, as described below, replaces the indicative energy efficiency (“EE”) budgets and targets included in the Company’s January 31, 2019 CES testimony and the Company’s February 19, 2019 ETIP/SEEP filing⁵⁶ as it relates to 2020, and includes heat pump programs and LMI programs through 2025 in compliance with the Energy Efficiency Order, the Storage Order,⁵⁷ and the NPS Order. As explained below, this Con Edison Chapter includes the following proposals, including those related to 2020-2022 that the Company plans to incorporate as part of its pending rate proceedings:

- [EE Energy Efficiency](#) plan for budgets and targets, including heat pumps and LMI initiatives;
- integration of the NPS portfolio, with additional focus on peak day gas demand reductions within the efficiency and heat pump portfolios;
- kicker incentive to facilitate adoption of efficient space cooling technologies that have system value;

⁵⁵ Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving with Modification the Non-Pipeline Solutions Portfolio (issued February 7, 2019) (“NPS Order”).

⁵⁶ Case 15-M-0252, *Con Edison Energy Efficiency Transition Implementation/System Energy Efficiency Plan* (filed February 19, 2019) (“ETIP/SEEP”).

⁵⁷ Case 18-E-0130, *In the Matter of Energy Storage Deployment Program*, Order Establishing Energy Storage Goal and Deployment Policy (issued December 13, 2018) (“Storage Order”).

- treatment of unspent funds from previous EE proceedings;
- cost recovery for the EE portfolio, including heat pump and LMI initiatives;
- additional expenditures related to systems and labor necessary to implement the Company's plans for the potential rate plan period;⁵⁸
- inclusion of Non-Wires Solutions' costs for the RY1-RY3 period;
- revised EAMs with indicative results of a benefit cost analysis ("BCA") where available and appropriate; and
- illustrative portfolio and program descriptions with indicative results of a BCA.

Since the Company's electric and gas rate filings address energy efficiency plans for a three-year period (2020-2022) that overlaps with the five-year period that is the target of this April 1, 2019 filing (2021-2025) and the two years 2019-2020 addressed in the Energy Efficiency Order (and ETIP⁵⁹ and Enhanced Gas EE⁶⁰ Orders), the Company is providing this filing both in response to the Energy Efficiency Order and as a proposal in the Company's rate cases. The Company's rate case CES testimony noted that there was inadequate time to complete review and evaluation of the Energy Efficiency [Order](#) and Storage [OrdersOrder](#) prior to finalizing revenue requirements and that an update of the Company's energy efficiency and EAM proposals by the preliminary update stage of the rate proceedings may be needed. The Company completed its review and addresses those items herein. The Company advised parties to the rate proceedings at the March 13, 2019 Technical Conference of the Company's intention to incorporate this filing into its rate case filing.⁶¹

Background and Con Edison Rate Case Filing

The Company's rate case filing CES testimony included a plan for energy efficiency investments and EAMs, which the Company noted was under review based on the Energy Efficiency [Order](#) and Storage [OrdersOrder](#). The Energy Efficiency Order established (i) incremental budgets and targets for electric EE, including heat pumps, and gas EE for 2019-2020; and (ii) presumptive budgets and targets for the same programs for 2021-2025, which covers RY2-RY3. The Energy Efficiency Order also recommended utilities propose a new EAM focused on a "share of savings" approach that considers lifetime energy efficiency benefits. The Storage Order sets storage targets and required utilities to propose a new EAM focused on system efficiency, and, in particular, on improvements in load factor that provide system or local peak reductions.

⁵⁸ In the rate filings, the Rate Year is 2020 ("RY1") and the two illustrative years are 2021 and 2022 ("RY2" and "RY3," respectively).

⁵⁹ Case 15-M-0252, *In the Matter of Utility Energy Efficiency Programs*, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 (issued March 15, 2018) ("ETIP Order").

⁶⁰ Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving in Part, with Modification, and Denying in Part Smart Solutions Program (issued July 12, 2018) ("Enhanced Gas EE Order").

⁶¹ The Company expects that the Con Edison Chapter will be addressed in its pending rate case and that this will be made clear in any State Administrative Procedure Act notice issued for this filing.

Subsequently, the Commission's NPS Order authorized the Company to pursue a portfolio of NPS and required the integration of the NPS portfolio into the broader energy efficiency activities authorized in the Energy Efficiency Order based on the constraints established in the Energy Efficiency Order.

Budgets and Targets

Con Edison's proposed budgets and targets comply with the Energy Efficiency Order's overall goals, in British Thermal Units ("Btus") for energy savings. The Company plans to meet these goals through electric (including heat pump initiatives) and gas efficiency. The NPS Order provides for increased gas energy efficiency, including the adoption of efficient technologies that allow "fuel switching," *i.e.*, switching to other energy sources in lieu of gas and an additional focus on peak day gas demand reductions. Consequently, NPS integration results in a plan that shifts a portion of the budget that would be allocated to electric energy efficiency efforts to gas energy efficiency efforts. As a result, although the Company is planning to exceed the overall Btu energy savings goals established by the Commission, the Company's plans have lower electric energy efficiency targets, and higher gas energy efficiency, and higher overall energy efficiency savings than those set forth in the Energy Efficiency Order. A summary of the Company's plans is provided in the tables below.

Further, the Company proposes to fund the electric (including heat pump programs and a kicker incentive) and gas EE portfolios, including efforts targeted to LMI customers, through a combination of (i) cost recovery mechanisms established in the Company's rate proceeding for 2020 through 2022 (and in this proceeding for the remaining years) and (ii) the use of existing unspent funds, discussed in the cost recovery section.

Table 2⁶² and Table 3 below reflect Con Edison's proposed annual, incremental targets and annual budgets, inclusive of the portion for which the Company is seeking cost recovery as discussed later, for electric non-LMI EE, heat pumps, and gas non-LMI EE, and LMI electric EE and LMI gas EE.⁶³ Budgets and targets are shown in further detail in Exhibit A. As discussed later in the Unified Portfolio and Expanded Eligibility section, the Company intends to manage its portfolio to the total budgets and targets in Tables 1 and 2.

⁶² The Energy Efficiency Order budgets set forth above do not include funding for kicker incentives, which will be supplemental to the budgets shown above.

⁶³ In developing this filing, the Company made key assumptions, including: (i) all budgets and targets provided in this filing for portfolios and EAMs are based on gross savings, which is the currently applicable metric used in the reporting of energy efficiency savings in the State; and (ii) all budgets and targets provided in this filing were premised on and developed using currently applicable baseline rules and using a savings calculation methodology proposed by NYSERDA for heat pumps. Changes or updates to these assumptions would require corresponding changes reflected in the targets and/or budgets.

Table 2 – EE Non-LMI Target and Budget Schedule

	2020	2021	2022	2023	2024	2025	Total (RY1- RY3)
Non-LMI MMbtu	1,987,890	2,324,532	2,630,626	2,963,161	3,310,237	3,654,771	6,943,048
Non-LMI Budget	\$159,683,619	\$197,565,671	\$224,307,920	\$258,677,836	\$296,578,977	\$332,565,083	\$581,557,210

Table 3 – EE LMI Target and Budget Schedule

	2020	2021	2022	2023	2024	2025	Total (RY1- RY3)
LMI MMbtu	70,559	127,743	157,842	192,726	228,797	260,145	356,144
LMI Budget	\$11,922,224	\$20,325,928	\$25,345,369	\$31,078,255	\$36,895,570	\$41,868,802	\$57,593,521

Portfolio Development Considerations

The Company’s illustrative portfolio (which assumes that we will expend the amount we are requesting at the current target level) builds upon our experience in delivering EE.⁶⁴ Three key portfolio development considerations were:

- Focus on cost-effective and scalable programs upstream of the customer, such as through retailers, contractors, or distributors, as a key component of the portfolio’s development. Such interventions can both directly drive EE adoption as well as transform markets by positively biasing behavior in favor of EE across the supply chain.
- Diversify beyond lighting, the predominant electric EE driver today to the extent such diversification can be undertaken under the budget and unit cost limits. Such diversification will require Con Edison to work with customers to achieve greater and deeper levels of savings from more complex measures, such as heating, ventilation, and air conditioning (“HVAC”) and building envelope improvements that have longer customer payback periods and implementation lead times.

⁶⁴ Although the Company developed an illustrative portfolio based on the best information available, the Company notes that the scale of expansion of gas EE and heat pump initiatives are unprecedented and are expected to present considerable operational challenges in execution. In particular, gas EE measures are generally more complex, requiring longer lead times, municipal permits, and greater capital investment. Similarly, lack of customer awareness and challenges with customer economics may present a barrier to customer adoption of heat pumps.

- Expand the gas portfolio to develop additional focus towards, and experience with, fuel-neutral approaches and beneficial electrification technologies to (i) continue the development of the EE market for gas EE and heat pump projects and (ii) provide more and relevant choices to customers such as those seeking heating electrification.

Portfolio Changes and Evolution

The Company's illustrative portfolio has evolved to reflect priorities as reflected in the Energy Efficiency Order and NPS Order. Changes to the portfolio include more gas EE than prior portfolios with additional focus on peak day gas demand reductions, so the Company expects that there will be changes over time, with program design and implementation flexibility necessary to facilitate achievement of desired outcomes. Changes to the structure and composition of the portfolio includes: (i) development of a kicker incentive focused on space cooling and related technologies, (ii) integration on NPS into the overall EE portfolio, and (iii) expansion of heat pumps as a greater initiative within the overall EE portfolio.

Kicker Incentive

The Energy Efficiency Order called for NY Utilities to introduce a "kicker" incentive, primarily focused on space cooling and related technologies that provide additional customer incentives to adopt such technologies, based on the greater system value these technologies can provide. Consequently, Con Edison proposes an electric kicker incentive to provide customers with incentives to increase adoption of space cooling and related measures that provide system value. For example, the Company is considering a kicker incentive to drive adoption of efficient cooling technologies, such as more efficient room air conditioners that provide greater system value such as through load relief during peak summer hours. The Company is still developing the kicker incentive.

Con Edison proposes a three-year spending of up to \$48 million over 2020-2022 for the kicker incentive to determine its effectiveness in encouraging customers to adopt efficient space cooling efficiency technologies. As appropriate, the Company will incorporate any learnings from the kicker incentive in future portfolio development. Given that the structure of the incentive has not been fully developed from both a design and an operational implementation perspective, the Company emphasizes the importance of flexibility so the kicker incentive can serve as a test for such an approach.

NPS Integration into EE Portfolio

In alignment with the NPS Order, the Company is integrating its NPS portfolio into the broader EE portfolio. This effort requires a careful and thoughtful balancing of electric and gas portfolios, which considers: (a) customers' needs throughout our service territory, and (b) challenges in delivering unprecedented levels of gas energy efficiency, and heat pump savings, that require consideration of peak day gas demand reductions. As part of integrating NPS, the Company intends to track progress and establish methodologies to estimate gas peak reductions.

As NPS is integrated into its portfolio, the Company will work to achieve the Btu savings anticipated in the Energy Efficiency Order, however, with an increased percentage of the portfolio savings coming from gas efficiency measures.

Heat Pumps

Pursuant to the Energy Efficiency Order and NPS Orders Order, Con Edison is filing heat pump targets and budgets in the NY Utilities' Heat Pump Chapter, which are referenced in this Con Edison Chapter. The heat pump targets include the proposed Con Edison allocation from the Energy Efficiency Order (0.8 trillion Btu or TBtu attributable to Con Edison's electric service territory out of 5 TBtu expected from heat pumps statewide based on NYSERDA's analysis) and also integrates the heat pump portion of the NPS portfolio. The proposed heat pump targets and budgets will replace the beneficial electrification program proposed in the CES testimony.

The heat pump targets presented in this filing are based on the estimated number of heat pumps necessary to meet Con Edison's 2025 TBtu goal inclusive of heat pumps in the NPS portfolio. The number of heat pumps needed to meet the Company's 2025 heat pump goal was estimated by using the savings calculation methodologies that underpinned the heat pump goals in the Energy Efficiency Order that NYSERDA developed and recently updated. Due to updates to the savings methodology used in NYSERDA's heat pump potential study issued in January,⁶⁵ the per unit savings achieved by heat pumps in the NYSERDA's updated methodology is lower than estimated in the January NYSERDA Heat Pump Potential Study. This requires the NY Electric Utilities, including Con Edison, to install significantly higher numbers of heat pumps to achieve the Energy Efficiency Order's 5 TBtu. The Company has incorporated the savings calculation methodology without verifying the underlying models or developing a methodology of its own.

As discussed in the heat pump chapter, the Company made additional adjustments impacting the total expenditures the Company requires to achieve the 0.8 TBtu goal. Consequently, Company expects that total expenditures will significantly exceed NYSERDA's original estimate of the NY Electric Utilities' allocation of \$75 million of the heat pump budget to Con Edison. The Company expects that it will require expenditures of \$189.6 million, and is thus proposing a \$189.6 million budget for the heat pump program, in order to attempt to deliver 0.8 Tbtu of energy savings through 2025. The Company believes this budget will support incentive levels that will develop a market for heat pumps in its service territory, and would thereby increase customer adoption rates, including in the portion of Westchester County subject to the Company's temporary gas moratorium.

⁶⁵ New York State Energy Research and Development Authority, *New Efficiency: New York Analysis of Residential Heat Pump Potential and Economics Final Report*, Report Number 18-44 (issued in January 2019) ("NYSERDA Heat Pump Potential Study").

Enabling Tools for Implementation

In order to store, track, and record EE savings achieved, and better target and assist customers to engage in EE efforts, the Company plans to enhance its existing systems. While the CES testimony discussed some enhancements, the efforts the Company expects to pursue based on the Energy Efficiency Order and NPS Orders Order requires additional enhancements to two systems. These enhancements will further develop data and analytics platforms to improve implementation and delivery effectiveness:

- Demand Management Tracking System (“DMTS”) serves as the EE system of record, which tracks, stores, records, and verifies energy and demand savings of the various programs within the combined EE portfolio. Information contained within DMTS also enables the Company to better understand and manage the performance of programs in meeting the overall portfolio goals.
- Demand Management Analytics Platform (“DMAP”) serves as a platform for internal and external data sources related to, for example, participating and non-participating customers; building types and vintage; the type of energy related equipment in different buildings; and customer segmentation by energy usage and sector, which will allow for development and application of analytics to such datasets. The Company will apply any actionable insights from such analytics to help improve effectiveness of implementing EE programs, such as by targeting customers, building types, or neighborhoods for specific EE technologies with a greater likelihood of adoption of EE.

The expected additional costs for these systems above the levels included in the CES testimony are discussed in the cost recovery section below.

Unified Portfolio Approach and Expanded Eligibility

As explained in the CES testimony, the Company proposes to manage its electric and gas EE programs as a single combined portfolio for the benefit of electric and gas customers. For purposes of setting rates, the costs are allocated between electric and gas based on the costs of the electric and gas programs in the portfolio. The Company seeks flexibility to move actual expenditures between the electric and gas programs as needed to meet Energy Efficiency Order targets.

Thus, while the Company’s program includes separate, annual electric and gas energy savings targets, the Company proposes to manage the portfolio of electric and gas EE programs as a single combined budget; if a three-year rate plan is established, the costs would be reconciled at the end of the applicable rate plan period. Managing the Company’s EE portfolio on a combined basis will benefit customers, for example, by providing flexibility:

- within the budget, which allows for the portfolio to respond to market conditions and customer needs, creating opportunities for focus to be shifted across programs to more cost-effective efforts that are driving results, and
- within the electric and gas programs, including heat pump programs, allowing a fuel-neutral approach to programs.

Currently, only firm gas customers are eligible to participate in energy efficiency programs. Beginning in 2020, Con Edison would consider eligibility to interruptible gas customers allowing such customers to participate in the Company's EE initiatives.

Cost Recovery

This section discusses expenditures for the EE portfolio (Electric EE, including heat pumps, gas EE, and EE targeted to LMI customers), the kicker incentive, non-wire solutions ("NWS"), Energy Efficiency and Demand Management ("EEDM") O&M, and additional expenditures related to systems and labor. The section further discusses the sources of funds for those expenditures, cost allocation based on customer eligibility, and cost recovery mechanisms.

EE Portfolio Expenditures Considering Integration of NPS into the EE Portfolio

Summary:

- **Source of funds:** Base delivery rates supplemented by use of unspent Energy Efficiency Portfolio Standard ("EEPS") and ETIP funds
- **Cost allocation:** For electric, all electric customers excluding New York Power Authority ("NYPA") supplied customers, and for gas, all gas customers⁶⁶
- **Cost recovery:** Excepting the portion provided by unspent funds, as a regulatory asset with a 10-year amortization period under the Regulatory Asset Framework discussed in the CES testimony

Table 4 below shows the estimated EE expenditures which the Company proposes to recover under the regulatory asset framework discussed in the CES testimony and further below. The expenditures represent the portion of the expenditures requiring cost recovery, net of the use of the unspent funds the Company is proposing use to fund the remaining portion of the total expenditures shown in Table 5 below.

⁶⁶ The Company is considering developing a proposal that would include interruptible gas customers. If such a proposal is developed, the Company will provide it to parties to this proceeding and the gas rate proceeding.

Table 4 – Schedule for Cost Recovery

Funds Recovered through 10 Year Regulatory Assets	2020	2021	2022
Electric	\$78,367,711	\$171,674,914	\$195,974,537
Gas	\$24,530,241	\$36,788,314	\$40,209,650
Total	\$102,897,952	\$208,463,228	\$236,184,187

The electric and gas revenue requirements included in the Company’s April 10, 2019 preliminary update will reflect the recovery of these expenditures in base rates as regulatory assets amortized over a 10-year period.⁶⁷

Shift of Funds from Electric to Gas EE

To comply with the NPS [Order](#) and Energy Efficiency [Orders](#) in delivering the overall Btu savings mandated by the Energy Efficiency Order, Con Edison shifted expenditures from the electric portfolio to the gas portion of the portfolio. This shift basically reflects the NPS Order’s separately authorized expenditures of \$222.6 million, inclusive of gas energy efficiency and heat pumps.

Use of Unspent Funds for Customer Benefit

Con Edison is proposing to utilize unspent EEPS, ETIP and DMP⁶⁸ Funds in the following manner:

- Use of \$59.6 million of unspent electric EEPS funds to be used towards the 2020 electric EE expenditures as required by the Energy Efficiency Order.
- Use of \$115 million of unspent electric EEPS funds and unspent electric ETIP funds towards heat pumps in the 2020-2025 period, with roughly \$26 million of expenditures anticipated in the 2020-2022 period. The Company is proposing to use unspent funds to provide incentives to customers to adopt heating electrification technologies. With this shift, the Company expects to provide these incentives without the need for incremental

⁶⁷ Although the Company proposed a 20-year recovery period for solutions in the NPS portfolio to recognize the longer useful lives of gas EE, the Company is now proposing to amortize and recover new costs over a 10-year period. A common amortization period will result in uniformity in treatment for the EE portfolio comprised of all electric EE (including heat pumps) and gas EE expenditures. Such uniformity is appropriate because the Company intends to implement all EE and heat pump programs as a single portfolio across electric and gas commodities, and the Company’s objective to moderate customer bills, over a period when benefits are still being provided would be achieved.

⁶⁸ Case 12-E-0503, *Proceeding on Motion of the Commission to Review Generation Retirement Contingency Plans*, Order Accepting IPEC Reliability Contingency Plans, Establishing Costs Allocation and Recovery, and Denying Requests for Rehearing (issued November 4, 2013). The Company notes that the Demand Management Program (“DMP”) is nearly completed and there are no pending proposals for additional programs through the DMP.

funds over NYSERDA’s estimated allocation to Con Edison of \$75 million of the Energy Efficiency Order’s \$250 million heat pump indicative budget to meet the Company’s proposed \$189.6 million budget for heat pumps.

- Use of up to \$48 million, during 2020-2022, of unspent and uncommitted DMP funds towards the kicker incentive.
- Use of \$5.7 million of unspent gas EEPS/ETIP to be used towards the 2020 gas EE expenditures as required by the NPS Order.

Table 5 – Schedule for Use of Unspent Funds

	Use	2020	2021	2022	2023	2024	2025
DMP 1.0	Kicker Incentive	\$16,066,667	\$16,066,667	\$16,066,667	\$0	\$0	\$0
EEPS Electric	Electric EE	\$59,611,120	\$0	\$0	\$0	\$0	\$0
EEPS Electric	Heat Pump	\$1,562,371	\$4,374,639	\$6,249,484	\$9,467,312	\$13,583,534	\$18,110,502
ETIP Electric	Heat Pump	\$1,804,904	\$5,053,732	\$7,219,618	\$10,936,963	\$15,692,164	\$20,921,872
Electric Total	Various	\$79,045,062	\$25,495,038	\$29,535,768	\$20,404,274	\$29,275,698	\$39,032,373
EEPS Gas	Gas EE	\$2,717,060	\$0	\$0	\$0	\$0	\$0
ETIP Gas	Gas EE	\$3,012,436	\$0	\$0	\$0	\$0	\$0
Gas Total	Gas EE	\$5,729,496	\$0	\$0	\$0	\$0	\$0

Regulatory Asset Framework

The Company’s CES testimony noted that the Company would continue the ratemaking framework established in the Company’s current electric rate plan, which provides for the recovery of EE costs over ten years. For the reasons explained in the CES testimony, this treatment should be extended to heat pumps and gas EE and NPS costs, which have been integrated into the broader EE portfolio, with the proposed three-year reconciliation across the commodities during RY1-RY3. Amortization of new investments has the important benefit of moderating bill impacts by allowing costs to be smoothed over a 10-year period, allocating those costs to the customers benefitting as customers change over time, and aligning costs with realized benefits over that period.

This framework was implemented in the current rate plan⁶⁹ and has assisted the Company in delivering on its EE targets and providing benefits to its customers. Further, the Energy Efficiency Order notes that “amortization of EE program costs may be permitted where the overall context of the rate plan establishes a benefit to doing so, such as moderation of overall customer bill impacts.”⁷⁰ The Company’s testimony remains applicable and for the sake of brevity, will not be repeated here.

Cost Allocation and EAM Cost Recovery

The Company proposes to continue using the current allocation methodologies for EE costs, whereby electric customers, excluding NYPA-supplied customers, are allocated electric EE portfolio costs, and firm gas customers are allocated the costs of the gas portion of the EE portfolio. These allocation methodologies were used to develop the Company’s revenue requirements in the rate filing and reflect the fact that, currently, only firm gas customers are eligible to participate in EE programs.

In addition, the Company proposes that earned cross-commodity EAMs be collected through a combination of the Monthly Adjustment Clause (“MAC”) for electric customers and the Monthly Revenue Adjustment (“MRA”) for gas customers in proportion to the respective electric and gas rate base amounts, and that the earned electric-only EAMs be collected from electric customers through the MAC.⁷¹ The Company proposes that NYPA contribute the class allocation for electric rate base portion of any achieved EAMs with exception of Annual MMBtu, Share The Savings and MWh:MW Ratio EAMs. Any NYPA contributions would be collected from the NYPA OTH Statement. As indicated in the CES testimony and consistent with the current rate period, the Company proposes that all EAM collections occur in equal increments over a 12-month period following the Company’s submission of an annual EAM achievements report and absent Commission action to the contrary within a 45-day review period.

Kicker Incentives

Summary:

- **Source of funds:** Unspent Demand Management Program (“DMP”) funds
- **Cost allocation:** All electric customers who paid into the DMP

⁶⁹ Case 16-E-0060 and Case 16-G-0061, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service and Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. Gas Service*, Order Approving Electric and Gas Rate Plans (issued January 25, 2017).

⁷⁰ Energy Efficiency Order, p. 10.

⁷¹ The Company proposes to collect these EAMs through the MAC and MRA because this would allow the Company to dedicate program funding towards achieving energy savings for customer benefit and allow increased flexibility with respect to the use of funds. Using the MAC and MRA also continues the existing precedent of the collecting EAMs through MAC.

- **Cost recovery:** Redirecting DMP funds towards the kicker incentive with no change to the previously established collection schedule

Con Edison also proposes using unspent and uncommitted funds available to the Company from the DMP because the DMP and the kicker incentives have similar goals. The Company’s proposed kicker incentive will incent adoption of demand side space cooling and related EE technologies that provide system peak coincident peak reductions. Given that DMP and the proposed kicker incentive are both focused on system peak and value, the Company is proposing to use unspent and uncommitted⁷² DMP funds towards the establishment and development of a kicker incentive for 2020-2022.

NWS Program Expenditures

Summary:

- **Source of funds:** Base delivery rates
- **Cost allocation:** All electric customers, including NYPA supplied customers
- **Cost recovery:** As a regulatory asset with a 10-year amortization period

As set forth in the electric rate filing, the Company will pursue the Water and Plymouth Street NWS projects as one project because the load relief needs at both stations are required to eliminate common work at the supply station, Farragut. As such, the portfolio will be pursued as one 32 MW portfolio. The Company is pursuing these NWS projects in accordance with the terms of its current rate plan.⁷³

Table 6 below shows expenditures for the Company’s NWS programs that will be reflected in the revenue requirements the Company will provide as part of the April 10, 2019 preliminary update.

Table 6 – NWS Expenditures

	2019	2020	2021	2022	2023	2024	2025
Water St / Plymouth St	\$10,450,000	\$25,950,000	\$31,590,000	\$2,570,000	\$2,560,000	\$10,450,000 \$2,550,000	\$25,950,000 \$2,540,000
Columbus Circle	\$0	\$0	\$260,000	\$0	\$0	\$0	\$0

⁷² As DMP funds currently committed become uncommitted, those dollars would then become eligible for use through the kicker incentive.

⁷³ The Company intends to file benefit cost analyses related to the NWS projects that will include costs and benefits, including the costs of the traditional project(s) that the NWS will seek to defer or eliminate.

EEDM O&M Expenditures

Summary:

- **Source of funds:** Base delivery rates
- **Cost allocation:** All electric and gas customers
- **Cost recovery:** As O&M expenditures

Table 7 below shows the Company’s updated expenditures for EEDM O&M costs. This replaces the expenditures provided in the Company’s testimony in the rate proceedings.

Table 7 – EEDM O&M Expenditures

	2020	2021	2022
Electric	\$14,013,000	\$15,383,000	\$16,157,000
Gas	\$300,000	\$300,000	\$300,000
Total	\$14,313,000	\$15,683,000	\$16,457,000

In order for the Company to achieve its proposed EE portfolio from 2020-2022, an increase in labor resources across a number of functions will be critical. In total, we forecast that we will need to add thirty-nine (39) incremental full-time employees, as described in the CES testimony.⁷⁴

- 19 incremental Full Time Equivalent (“FTE”) to be added in 2020 or earlier,
- 13 incremental FTEs to be added in 2021, and
- 7 incremental FTEs to be added in 2022.

The Company is increasing its rate case request by three FTEs to account for the expanded gas EE and heat pump efforts required under the NPS Order. The Company’s initial Filing discussing the NPS portfolio requested six FTEs, three of whom have already been hired to support the development of the NPS portfolio.

These three requested employees will assist in implementing the NPS portfolio’s new projects and programs and develop the implementation strategies as the number of active projects and programs increase and as the Company executes contracts with winning bidders. Throughout the implementation process, these three additional FTEs will help manage the portfolio while continuously re-evaluating projects and programs to optimize implementation and efforts to meet energy and peak day demand reduction goals. The three incremental FTEs requested will be crucial to implementing projects, project management towards annual and longer-term goals, and portfolio strategy as the Company executes and optimizes the portfolio.

⁷⁴ Rate Case, CES Testimony, Exhibit __ (CES-1).

Additional Expenditures Related to Systems and Labor

Summary:

- **Source of funds:** Base delivery rates
- **Cost allocation:** All electric and gas customers
- **Cost recovery:** Systems as 10-year capital asset and labor as O&M expenditures

Table 8 and Table 9 below show expenditures for the DMAP, DMTS, and Web Service Interface portions of the Company’s proposed Distributed System Platform (“DSP”) Capital and O&M costs.

Table 8 – DSP Capital

	2020	2021	2022
DMTS	\$3,333,000	\$3,333,000	\$3,333,000
DMAP	\$1,667,000	\$1,667,000	\$1,667,000
Total	\$5,000,000	\$5,000,000	\$5,000,000

Table 9 – DSP O&M

	2020	2021	2022
DMTS	\$2,020,000	\$2,380,000	\$2,630,000
DMAP	\$160,000	\$303,000	\$327,000
Web Service Interface	\$225,000	\$225,000	\$225,000
Total O&M	\$2,405,000	\$2,908,000	\$3,182,000

The DSP projects in Table 8 and Table 9 propose increased capital for DMTS and DMAP and increased O&M for DMTS as a result of the additional requirements set forth through the Energy Efficiency [Order](#) and NPS [Orders](#)/[Order](#). Expansions to the scope for these systems include the incorporation of new NPS projects and heat pump projects and programs in DMTS; for DMAP this includes the expansion of use cases, such as, inclusion of better targeting of customers to deliver higher volumes of gas measures within smaller geographic areas and better targeting of customers for conversion to heating electrification using technologies such as heat pumps.

BCA and Benefits Stream

Table 9 includes benefits and costs for the Company’s electric and gas portfolios, developed pursuant to the Company’s current BCA handbook. The BCA is for the non-LMI portion of Con Edison’s portfolio, as that is utility specific. The LMI portfolio BCA will be completed at the State level as discussed in the LMI chapter of this filing.

Table 10 – 2020-2022 Portfolio BCA Results

Benefits and Costs (\$ millions)	2020	2021	2022	Total
Electric Benefits (\$millions)	\$264	\$349	\$410	\$1,023
Electric Costs (\$millions)	\$139	\$174	\$198	\$512
Electric Societal Cost Test	1.89	2.00	2.07	2.00
Gas Benefits (\$millions)	\$63	\$64	\$71	\$198
Gas Costs (\$millions)	\$33	\$37	\$41	\$111
Gas Societal Cost Test	1.91	1.71	1.75	1.78
Total Benefits (\$millions)	\$326	\$413	\$481	\$1,221
Total Costs (\$millions)	\$172	\$211	\$239	\$623
Total Societal Cost Test	1.90	1.95	2.01	1.96

Earnings Adjustment Mechanisms

Con Edison’s proposed EAMs build on Con Edison’s progress under its 2017-2019 EAMs structure and on the experience gained from stakeholder engagement through recent collaborative efforts. As such, the proposed EAMs are expected to provide Con Edison with an incentive to drive achievement consistent with State policy objectives that will also benefit our customers and stakeholders. In this filing, Con Edison updated its EAM proposal in its CES testimony to better align with State goals and the Energy Efficiency [Order](#) and Storage [Orders](#)[Order](#).

The Company has identified five areas as appropriate for EAMs because they advance State policy goals:

- Continued delivery of cost-effective EE based on the State’s existing construct of budgeting for and measuring annual energy savings, with integration of electric and gas EE;
- Development and testing of a shared savings approach based on EE cost efficiencies related to delivering lifetime benefits;
- Alignment of the EE portfolio with system peak demand reduction;
- Integration of distributed energy resources (“DERs”); and
- Reduction of greenhouse gas (“GHG”) emissions.

The Company has designed this proposal to best align utility actions with various policy objectives by:

- Supporting advancement of policy objectives, such as (i) growing EE and DERs, including beneficial electrification technologies, such as heat pumps and advanced technologies like storage, (ii) improving cost efficiencies to achieve lifetime Btu savings,

(iii) improving system peak coincidence of the EE portfolio to incent higher peak reductions, (iv) improving distribution system efficiencies through load factor improvements, and (v) reducing GHG emissions, through a fuel neutral, cross-commodity approach; and

- Providing meaningful EAMs to drive measurable outcomes by appropriately accounting for the Company's ability to both facilitate positive outcomes as well as directly influence these outcomes through the Company's portfolio of programs.

With the above objectives in mind, the Company is proposing three cross-commodity EAMs, *i.e.*, inclusive of both electric and gas commodity efforts, along with three electric-only EAMs:

- Cross-commodity EAMs (Electric and Gas)
 - Annual MMBtu
 - Share the Savings EAM based on \$/lifetime MMBtu
 - GHG Emissions Reductions
- Electric Only EAMs
 - MWh:MW Ratio
 - DER Utilization
 - System Efficiency

For each of the six EAMs below, the Company defines the metric and its purpose, sets forth the basis for the development of the targets, and describes its proposed measurement method.

Cross-commodity EAMs

Annual MMBtu EAM:

Definition: The annual MMBtu EAM ("EE EAM") is a cross-commodity approach that measures the sum of reported gross electric and gas savings, including savings from conversions from delivered fuels such as fuel oil and heat pumps, but excluding EE achieved through LMI allocated funds, achieved in the first year after conversion of MWh and Dth to MMBtu units.

Purpose: This EE EAM represents continuity of the current EAM established for the Company's current rate plan that drove achievement of annual electric EE savings. The Company's proposed EAM includes gas EE and electric EE savings to continue driving Company achievements on a more fuel-neutral basis to support State policy goals such as those in the Energy Efficiency Order and the Clean Energy Standard.⁷⁵

Target Development: The Company proposes to use the first year annual MMBtu targets developed in this proceeding as the mid-point target for the purposes of this EAM. The Company proposes to use 75% of the mid-point as the minimum achievement level and 125% of the mid-point as the maximum achievement level for this EAM.

⁷⁵ Case 15-E-0302, *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, Order Adopting a Clean Energy Standard (issued August 1, 2016).

Measurement: The first year annual EE EAM measures the energy savings achieved through increased efficiency of electricity and gas use by our customers. Con Edison proposes the EE EAM to be based on the total incremental, annual MMBtu reductions achieved through Con Edison's non-LMI electric, including heat pumps, and non-LMI gas EE programs.

Share the Savings EAM:

Definition: The Share the Savings EAM ("STS EAM") measures improvements in cross-commodity cost efficiencies of the overall EE portfolio, excluding EE achieved through funds dedicated to LMI customers, on a lifetime-MMBtu basis and allocates a portion of the cost savings achieved to the Company as an EAM. The cost-efficiency improvements are measured relative to the expected cost-efficiency of the portfolio based on an established lifetime cost baseline.

Purpose: The STS EAM encourages the Company to deliver electric and gas program savings at improved cost-efficiencies with a longer-life measure mix.

Target Development: The Company has developed a lifetime cost-efficiency baseline from where improvements will be measured for the purposes of this EAM. The Company proposes the baseline be based on (i) the annual budgets and targets for the Company's portfolio for each of the rate years, and (ii) the actual useful life for the Company's EE portfolio in 2018.

Measurement: The Company will measure the STS EAM by calculating energy efficiency cost savings from the Company's overall EE portfolio on a dollars per lifetime-MMBtu basis, which will be measured against the baseline discussed above. The total savings amount will be calculated by computing improvements in cost efficiency (on a unit btu basis) over the baseline and multiplying by the lifetime-MMBtu savings achieved. The EAM will be set at a 50% share of the total savings.

GHG Emissions Reduction:

Definition: The GHG Emissions Reduction EAM ("GHG EAM") measures the amount of incremental GHG emission (carbon dioxide equivalent "CO₂e") reductions resulting from increasing adoption of technologies or other mechanisms that reduce, replace, or avoid the use of grid-supplied electricity, or technologies that reduce the use of natural gas. The Company is basing this EAM on Con Edison's existing GHG Emissions Reduction EAM with continued adoption of a fuel-neutral approach that includes gas and delivered fuels, like fuel oil.

Purpose: The GHG EAM is intended to drive utility action to reduce, or otherwise facilitate reductions of, GHG emissions, in line with clean energy and environmental policy goals. The GHG EAM continues the consensus metric developed in consultation with stakeholders through a collaborative process.

Target Development: The Company has developed a baseline for this EAM, which follows the methodology developed through the Company's 2018 EAM collaborative, *i.e.*, by using a combination of (i) for technologies required to enter the standardized interconnection requirement ("SIR") process the MW of customer projects in the SIR inventory adjusted for

historical cancellation rates, delay rates, and other historical trends by technology; (ii) for technologies not required to enter the SIR process (e.g., EVs, heat pumps, DR, electric buses, and ice energy storage), the Company's forecasted expected DER adoption levels that would be reasonably expected to be reached while considering the Company's anticipated initiatives. The Company proposes the minimum EAM level be set at the baseline, the midpoint be set 10 percent above the baseline, and the maximum be set 20 percent above the baseline.

Measurement: Con Edison will measure contributions to the GHG EAM by tracking installations and calculating incremental, annual metric tons CO₂e emissions reduced from the following measures: battery storage, electric buses, electric DR, ice energy storage, medium and light-duty battery and plug-in hybrid EVs, solar PV, the cooling efficiencies from air- and ground-source heat pumps, distributed wind energy, and voluntary renewable energy certificates ("VRECs") as well as metric tons of CO₂e emissions reduced from air-source and ground-source heat pump heating loads, and heat pump water heaters that replace natural gas. Installations will be tracked through various means, as outlined in the Company's 2018 Outcome-Based EAM Collaborative Report.⁷⁶ To standardize measurement across technologies, all measurements will be in avoided metric tons CO₂e using the general formulae described in the CES testimony, Exhibit __ (CES-8).⁷⁷

Metric tons CO₂e are treated as positive values with the sum of avoided kg CO₂e emissions, converted after initial calculation to metric tons CO₂e emissions, determining achievement. The avoided emissions measurements use electricity emissions factors of Grid kg CO₂e per MWh and/or Peak kg CO₂e per MWh, and other technology-specific factors, to determine avoided metric tons CO₂e. For the purposes of the GHG EAM, the Grid kg CO₂e value is the New York City electricity emissions factor from the most recently published New York City GHG Inventory.⁷⁸ The Peak kg CO₂e per MWh value is sourced from the Environmental Protection Agency ("EPA") Emissions & Generation Resource Integrated Database ("eGRID") for the Northeast Power Coordinating Council ("NPCC") NYC/Westchester sub region.⁷⁹

Electric-only EAMs

Electric EE MWh:MW Ratio:

Definition: The EE MWh:MW Ratio EAM ("Peak Ratio EAM") will measure the amount of energy efficiency savings achieved for each megawatt of peak reduction.

⁷⁶ Case 16-E-0060, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service*, 2018 Outcome-Based EAM Collaborative Report (filed October 17, 2018).

⁷⁷ For the purposes of the GHG and DER EAMs, the Company will use detailed calculations as developed through the 2018 Outcome-Based EAM Collaborative.

⁷⁸ <https://nyc-ghg-inventory.cusp.nyu.edu/>

⁷⁹ <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid>

Purpose: The Peak Ratio EAM is intended to maintain an additional focus on peak reductions through the electric EE portfolio to deliver additional system benefits, complementing other EAMs that drive annual savings and cost-efficient lifetime energy savings.

Target Development: The Company has developed a MWh:MW ratio baseline from where improvements will be measured for this EAM. The Company proposes the baseline be based on the average of achieved 2017 and 2018 MWh:MW ratios. The Company proposes the minimum EAM level be set 100 points below the baseline, the midpoint be set 200 points below the baseline and the maximum be set 300 points below the baseline.

Measurement: The Peak Ratio EAM will be measured by calculating the MWh:MW ratio from electric EE efforts. The EAM amount will be based on improvements in achieved MWh:MW ratio beyond a baseline level derived from the average of achieved 2017-2018 MWh:MW ratios.

Electric DER Utilization:

Definition: The DER Utilization EAM (“DER EAM”) measures the amount of incremental annual MWh Con Edison’s customers do not need to rely on the grid for, through generating locally or through reductions by participation in Con Edison’s Demand Response (“DR”) programs, and MWh from certain beneficial electrification technologies. This EAM is identical to the DER Utilization EAM in the current rate plan.

Purpose: The DER EAM supports additional DER integration into the Company’s energy system and DER market animation, resulting in reduced reliance on grid-supplied electricity.

Target Development: The Company has developed a baseline for this EAM that follows the methodology developed in the Company’s EAM collaborative efforts, *i.e.*, by using a combination of (i) for technologies requiring to enter the SIR process, the MW of customer projects in the SIR inventory adjusted for historical cancellation rates, delay rates, and historical trends by technology; (ii) for technologies not required to enter the SIR process (*e.g.*, EVs including electric buses, heat pumps, DR, and thermal energy storage including ice energy storage), the Company forecasted expected DER adoption levels that would be reasonably expected to be reached while considering the Company’s anticipated initiatives. The Company proposes the minimum EAM level be set at the baseline, the midpoint to be set 10 percent above the baseline, and the maximum to be set 20 percent above the baseline.

Measurement: For the DER EAM, Con Edison will track installations, and calculate annualized MWh using standardized formulae, from air- and ground-source heat pumps, battery storage, battery and plugin hybrid light-duty EVs, Combined Heat and Power (“CHP”), electric DR, fuel cells, electric buses, ice energy storage, solar PV, and distributed wind energy. This tracking methodology is based on Con Edison’s existing tracking methods being used for the purposes of the existing DER EAM as shown in its 2018 Outcome-Based EAM Collaborative Report. For example, end-of-year incremental installed capacity from solar PV, CHP, fuel cells, and batteries will be tracked through the SIR process and following Con Edison’s submittal of a final interconnection letter to the customer noting that all interconnection work has been completed. The Company will measure DERs in terms of their rated capacity and related capacity factors,

except for DR for which the number of DR events and actual performance will be used. All measurements will be in annualized MWh using the general formulae described in the CES testimony, Exhibit __ (CES-8). For each DER type, the Company will determine annualized MWh produced, consumed, discharged, or reduced from incremental resources. MWh are treated as positive values with the sum of produced, consumed, and reduced (in the case of DR and heat pump efficiency) energy determining achievement against a target; that is, one MWh produced is equivalent to one MWh consumed (or one MWh reduced in the case of DR and heat pump efficiency) for the purpose of the DER EAM.

System Efficiency:

Definition: The System Efficiency EAM (“SE EAM”) will target improvements in system efficiency on specific portions of distribution system. This EAM would capture reductions in peak load and improvements in load factor at a substation level.

Purpose: For the SE EAM, a targeted geographic approach within the distribution system will enable the Company to effectively measure and subsequently improve the system efficiency of key portions of the distribution system, through reduced peak and increased load factor, where it is beneficial, in alignment with the Storage Order. By focusing on specific substation areas, the Company can focus efforts on both increasing system utilization and reducing peak distribution loads, such as through encouraging smart charging of energy storage and other applications of beneficial electrification.

Target Development: The Company proposes to develop baselines and targets in 2020-2021 for use as an EAM in 2022 by first measuring substation performance in identified key substation areas. The Company proposes that once baselines are determined, the Company will propose minimum, midpoint, and maximum target levels.

Measurement: For this EAM, the Company proposes using three constrained substation areas, Brownsville, Plymouth Street, and Water Street, to measure current levels of system efficiency. The Company anticipates that these substations will have higher penetration of customer-side DER that provide opportunities to improve system efficiency at the substation level that may result in both environmental and reliability benefits. This new EAM is designed to measure improvements in operating performance and system utilization over the entire year in constrained areas of the distribution system, distinct from the focus on achieving peak reduction on peak summer days during peak hours for deferral or displacement of traditional infrastructure investments, which is addressed in NWS initiatives. The Company proposes to measure peak load and load factor in the identified three areas over a three-year period beginning in 2020 using a phase-in approach. Years 2020 and 2021 will establish a baseline and will be reported as a scorecard metric. The two baseline years will be used to establish the EAM metric targets for 2022.

Target and Basis Points:

The below tables summarize the Company’s proposed EAM targets and basis points allocation.

Table 11 shows the Company’s proposed targets for its Cross-Commodity EAMs.

Table 11 – Cross Commodity EAM Targets

		2020	2021	2022
Annual MMBtu EAM	Min	1,490,917	1,743,399	1,972,969
	Mid	1,987,890	2,324,532	2,630,626
	Max	2,484,862	2,905,665	3,288,282
Greenhouse Gas Emissions Reductions EAM ⁸⁰	Min	44,868	TBD	TBD
	Mid	49,355	TBD	TBD
	Max	53,842	TBD	TBD
Share the Savings EAM	N/A	See description of STS EAM above		

Table 12 shows the Company’s proposed targets for its Electric-Only EAMs.

Table 12 – Electric-Only EAM Targets

		2020	2021	2022
MWh:MW Ratio EAM	Min	5,710	5,710	5,710
	Mid	5,610	5,610	5,610
	Max	5,510	5,510	5,510
System Efficiency EAM	Min	N/A	N/A	TBD
	Mid	N/A	N/A	TBD
	Max	N/A	N/A	TBD
DER Utilization EAM ⁸¹	Min	166,598	TBD	TBD
	Mid	183,258	TBD	TBD
	Max	199,918	TBD	TBD

Table 13 shows the Company’s proposed basis point allocation for its Cross-Commodity EAMs. The Company notes that the basis points for the cross-commodity EAMs will be over the combined electric and gas rate bases and will be allocated to electric and gas customers in proportion to their respective rate base sizes.

Table 13 – Cross Commodity EAM Basis Points

		2020	2021	2022
Annual MMBtu EAM	Min	7	7	7
	Mid	21	21	21
	Max	35	35	35
Greenhouse Gas	Min	5	5	5

⁸⁰ The targets shown are tentative with the best information at the time of this filing. The Company expects to more precisely propose targets at a later date as the interconnection queue progresses in 2019.

⁸¹ The targets shown are tentative with the best information at the time of this filing. The Company expects to more precisely propose targets at a later date as the interconnection queue progresses in 2019.

Emissions Reductions EAM	Mid	15	15	15
	Max	25	25	25
Totals	Min	12	12	12
	Mid	36	36	36
	Max	60	60	60
Share The Savings EAM	N/A	50% of total cost savings below baseline		

Table 14 shows the Company’s proposed basic point allocation for its Electric-Only EAMs.

Table 14 – Electric-Only EAM Basis Points

		2020	2021	2022
MWh:MW Ratio EAM	Min	2	2	2
	Mid	6	6	6
	Max	10	10	10
System Efficiency EAM	Min	N/A	N/A	1
	Mid	N/A	N/A	3
	Max	N/A	N/A	5
DER Utilization EAM	Min	3	3	3
	Mid	9	9	9
	Max	15	15	15
Totals	Min	5	5	6
	Mid	15	15	18
	Max	25	25	30

EAM Benefits The utility costs associated with the EAMs are \$582 million over RY1-RY3, comprising of the utility cost of the EE portfolio. The benefits related to EAMs are in

Table 15.

Table 15 – EAM Benefits

Benefits and Costs (\$ millions)	2020	2021	2022	Total
Annual MMBtu and MWh:MW Ratio Benefits	\$261	\$341	\$398	\$1,000
Annual MMBtu and MWh:MW Ratio Costs	\$134	\$159	\$176	\$468
GHG Emission Reduction Benefits	\$146	N/A	N/A	\$146
GHG Emission Reduction Costs	\$11	N/A	N/A	\$11
DER Utilization Reduction Benefits	\$196	N/A	N/A	\$196

DER Utilization Reduction Costs	\$11	N/A	N/A	\$11
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Planned Illustrative Portfolio and Program Descriptions

As discussed in the CES testimony, the Company’s portfolio is forward-looking but reflects and builds upon its prior experience running cost-effective EE programs.

At the broad level, the EE portfolio is expected to offer electric (including heat pumps) and gas offerings across customer segments. We reach our customers through a focus on four primary customer segments designed to meet each customer group’s needs:

- Commercial and Industrial (“C&I”)
- Small business
- Multifamily and
- Residential.

The Company plans to evolve the portfolio from current levels by:

- Optimizing delivery for current offerings in order to generate more energy savings and demand reductions from current offerings, for example, by further streamlining the customer experience from the application stage to the point of full implementation of the EE measure using transparent information and simplifying and standardizing processes; and
- Employing new strategies to reach deeper savings, expanding beyond lighting offers to the extent such expansion can be made under the budget and unit costs, exploring upstream interventions in the supply chain to fundamentally transform markets towards greater EE, and engaging harder to reach customers, such as residential customers.

In developing an illustrative higher-level portfolio, the Company envisions reaching all customer segments. To achieve the portfolio targets included in this filing, including a trajectory for electric savings achievement to 1.3 percent of electric sales by 2022, the Company projects significant growth in the C&I, small business, and multifamily sectors for electric efficiency and C&I, residential, and multifamily sectors for gas efficiency over 2020-2022. The integration of NPS within the portfolio projects gas savings achievement to 0.48 percent of gas sales by 2022. This growth will occur alongside the launch of a heat pump program and increased focus on LMI customers.

The Company intends for the portfolio to evolve iteratively as it adjusts to the market response. Efficiency offerings and delivery channels are not static, nor are they uniform within a segment. Accordingly, the Company intends to manage and revise offerings and delivery channels applying continuous improvement and innovation as key priorities.

In addition to the delivery channels described above, the Company will employ a host of strategies and operational improvements to better serve customers in a more innovative and market-oriented manner that is transparent and transformational for our customers, partners and other stakeholders in the EE marketplace. This includes providing customers with options and opportunities to reduce their energy use based on their unique needs and continuing or expanding programs targeted to upstream portions of the supply chain that align interests in promoting more widespread installations of energy efficient equipment at our customer locations. Examples for residential customers include accessing rebates and incentives through market partners, managing energy and demand through smart thermostats and Wi-Fi-enabled air conditioners, and benefiting at the retail level from market-based partnerships between Con Edison and mid- and up-stream retailers and distributors.

The Con Edison Online Marketplace may transition in late 2019 from a REV Demonstration Project to full integration within the EE portfolio. If this transition occurs, the Marketplace and how the Company employs it to support energy savings is expected to evolve to meet customers' needs through engagement channels of their preference.

Other examples of programs that explore innovative delivery models and promote transformative offerings include (i) Instant Lighting, an upstream program that provides instant incentives to customers on eligible ENERGY STAR®-certified and Design Lights Consortium-listed lamps at the distributor point of sale; (ii) Strategic Energy Partnerships, through which the Company is focused on identifying and engaging customers that are heavy-energy users (working to secure longer-term partnerships with customers in segment verticals such as hospitals, schools, and the banking sector are some of the areas where Con Edison may see significant potential for savings); (iii) Retail Lighting that provides instant rebates to customers at their point of purchase in big-box retailers, as well as other retailers, such as drug stores and dollar stores, providing accessibility to customers, including LMI; (iv) Residential Upstream HVAC that focuses on incenting distributors or other entities in the supply chain upstream of the customer; and (v) ENERGY STAR™ Retail Products Platform that leverages the purchasing power of multiple nation-wide utilities to work with retailers nationally to incent them to stock and sell efficient appliances.

Beyond these innovative offerings, the Company is developing programs to promote heat pumps and to encourage LMI engagement and participation in EE efforts. These programs are discussed in further detail below. Additionally, in alignment with the NPS Order, the Company is designing and implementing plans to meet growing gas demand in constrained areas through its set of NPS, which will be integrated into existing programs.

Con Edison will strive to engage customers and provide them with greater control over their energy choices. Under the broad commercial and residential segment umbrella portfolios, the Company's programs will be tailored to each customer segment's particular needs. The offerings described below are evolving strategies that respond to market changes so as to serve a broad and diverse set of customers.

Commercial Customer Programs (or Commercial and Industrial “C&I”)

Con Edison plans to offer a robust suite of products and services to commercial electric and gas customers of various sizes and business types. Recognizing the distinct nature of commercial customers, the Company intends to continue to offer market-based offerings through which customers may address their particular business objectives and constraints. These include large C&I prescriptive incentives, *i.e.*, pre-set and fixed incentives on a per unit basis, C&I custom incentives, the Commercial Direct Install (“CDI”) program providing incentives to smaller businesses, Instant Lighting focused on incenting lighting upstream in the supply chain, and Strategic Energy Partnerships targeting incentives to our larger energy consumers to adopt electric and gas EE beyond efficient lighting. Further, the Company intends to launch new offerings focused on midstream and upstream delivery channels to incentivize EE measures in this sector.

Customer segment verticals, *i.e.*, a group of customers engaged in the same industry or type of activity, such as hospitals, schools, and the banking sector, are some areas where Con Edison may see significant potential for savings. Working to secure longer term partnerships with some of the larger energy consumers in the service territory can potentially produce considerable savings. The Strategic Energy Partnership is intended to engage such customers to incorporate EE into their medium- and longer-term capital planning and budgeting cycles.

The Instant Lighting Incentive Program (“ILIP”) is an upstream lighting program currently open to commercial, small business, and multifamily customers. The Company intends to continue ILIP so customers can receive instant incentives on eligible ENERGY STAR®-certified and Design Lights Consortium-listed lamps at the distributor point of sale.

To align with NPS objectives, the commercial customer focused program is launching a new targeted incentives opportunity for commercial building owners and property managers in Westchester County. These incentives will cover prescriptive measures, such as steam trap repair, and custom measures, such as demand-controlled ventilation, and are expected to be approximately 50 percent higher than the previously available offer.

The Company expects to continue the CDI program, offering small to mid-size commercial customers, with average peak demand of up to 300 kW, low cost EE equipment upgrades for their businesses. In addition to LED lighting and refrigeration measures, the program includes gas measures, HVAC measures, controls, and cooking equipment to provide a more comprehensive set of energy solutions to this group of customers.

Residential Programs

Con Edison will continue to approach the residential segment through a portfolio approach by developing a variety of electric and gas offerings aimed to service customers’ distinct needs. The Company intends to further test and implement upstream interventions building on lessons learned from the residential electric and gas HVAC portfolio that has transitioned to an upstream model where incentive funds flow through the distributor to customers. An upstream program

model engages the distributor and contractor and aligns their interest with more efficient equipment. The Company expects the approach to be impactful because distributors and contractors often make HVAC recommendations to residential customers.

Con Edison's retail lighting program, offering discounted LEDs through select retailers, was expanded beyond big-box stores to include second tier retailers, such as drug stores and dollar stores where customers shop, and also distributed LEDs to low income customers through partnering with food banks in Con Edison's territory. The Company will continue to grow this program to reach more customers to increase adoption of more efficient products.

Further, to pursue NPS needs, the Residential Program is offering new opportunities for single-family home customers in Westchester County to either (1) upgrade their existing heating system to an air-source heat pump or a geothermal heat pump, or (2) to weatherize their home envelope and ductwork with improved insulation.

Additionally, Con Edison intends to continue the successful Smart Kids program that delivers kits containing EE measures such as LEDs to fifth-graders across the service territory and pairs the issuance of the kits with an in-classroom EE lesson plan. The program is expected to result in lasting market transformation as new generations of New Yorkers become aware of EE and learn about ways they can contribute towards sustainability.

The Multifamily Program promotes EE for existing multifamily electric and gas customers. This program is targeted for owners and property managers of residential buildings with five or more units. Customers in qualifying affordable buildings are also eligible for enhanced incentives. The Multifamily Program will develop strategies to further enhance adoption of EE. The Company also intends to further facilitate retrofits of multi-family buildings through building on partnerships with programs such as the City's Retrofit Accelerator.

Customers will have the ability to apply for EE incentives for both common area and in-unit measures, and custom rebates. For those buildings that need assistance in developing a plan for EE, the program offers on site assessments to identify areas of meaningful opportunity.

As with the Company's Commercial and Residential Programs, the Multifamily Program is designing offerings, to meet NPS goals such as a new targeted incentives opportunity for residential building owners and property managers in Westchester County. These incentives will cover prescriptive air sealing and boiler controls measures and custom measures such as boiler stack economizers.

The program is also pursuing approximately five site specific project agreements with mostly low-income multifamily building customers in Westchester County. These customized project opportunities offer each customer the ability to undergo comprehensive heating system upgrades within their buildings. Measures will address electrification with heat pumps, balancing of uneven heating temperatures within the apartment spaces, and eliminating steam heat losses due broken steam traps, uninsulated piping, and poor boiler operating conditions.

Test and Learn (“T&L”)

The Company’s ongoing T&L strategy is a systematic method of identifying, designing, and implementing new technologies, programs, initiatives, and campaigns. The Company uses the T&L strategy to identify new measures, uses, and delivery mechanisms for existing offerings, and to identify and test new programs and initiatives before full scale implementation is undertaken. As a T&L initiative reaches maturity, the Company will evaluate its long-term viability and potential for success, after which the initiative will either be scaled up, retired or retooled, as appropriate.

Current T&L initiatives needing continued testing include the Energy Star Retail Products Platform, based on intervening just upstream of the customer, a new customer welcome program focused on new customers coming into the Company territory, residential and multifamily behavioral programs, based on development of home energy reports detailing consumption information, Building Energy Performance Commercial behavioral programs focused on using behavioral approaches in the Commercial sector, and third party residential financing.

Heat Pumps

The Heat Pump chapter includes a proposal from the NY Electric Utilities, in collaboration with NYSERDA, that will: (i) drive market scale to reduce costs, (ii) provide a clear and stable market signal, (iii) be simple and workable for consumers, and (iv) provide a smooth transition from current programs. The NY Electric Utilities will operate heat pump resource acquisition programs (including incentives, eligibility, marketing, QA/QC, EM&V) while NYSERDA will perform market enablement functions (developing a statewide messaging toolkit, workforce training, community outreach). The NY Electric Utilities will meet periodically to assess heat pump program performance, and continue to engage with NYSERDA on NYSERDA’s market enablement activities and focus on statewide heat pump program consistency. Specific incentive level ranges and delivery channels, including strategies to reach residential, multifamily and commercial customer segments, are pending finalized implementation plans. Each electric utility will also be responsible for addressing several key issues that will impact a future heat pump program, such as rate design, geographic adders for non-wires and non-pipe alternatives, and specific offerings for the LMI customer segment. The Company currently offers incentives for heat pump technology, *e.g.*, the Residential HVAC program provides incentives to both the distributor and contractor for air-source heat pump installations. The Company expects to transition existing offerings to the new heat pump framework discussed in the heat pump chapter of the filing.

LMI Programs

The LMI chapter establishes a collaborative framework with NYSERDA that seeks to allow the Company to reach a larger number of LMI customers within its territory. The Company strives to coordinate the Company’s low-income discount program with EE to more holistically advance energy affordability through bill reductions achieved through lower energy use for LMI customers. Through the implementation of simplified processes, the Company will operate

resource acquisition programs to drive increased adoption rates of EE programs in LMI multi-family and residential homes.

Exhibit A
Budgets and Targets Schedules

Table 1 – Electric EE Budget Schedule

	2020	2021	2022	2023	2024	2025
ETIP Budget	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022
Energy Efficiency Order Budget	\$49,614,344	\$79,374,793	\$101,050,659	\$129,728,218	\$158,515,897	\$180,848,751
Total Electric EE Budget	\$135,792,366	\$165,552,815	\$187,228,681	\$215,906,240	\$244,693,919	\$267,026,773
Total Non-LMI Budget	\$123,870,142	\$147,457,663	\$164,231,498	\$187,462,355	\$210,924,371	\$228,857,501
Total LMI Budget	\$11,922,224	\$18,095,152	\$22,997,183	\$28,443,885	\$33,769,548	\$38,169,272

Table 2 – Electric EE Savings Schedule

	2020	2021	2022	2023	2024	2025
Total MMBtu	1,258,678	1,590,885	1,834,822	2,153,746	2,474,858	2,725,168
Non-LMI MMBtu	1,188,119	1,483,793	1,698,718	1,985,408	2,275,001	2,499,272
LMI MMBtu	70,559	107,092	136,103	168,339	199,857	225,896
Total MWh	368,898	466,262	537,755	631,227	725,339	798,701
Non-LMI MWh	348,218	434,875	497,866	581,890	666,765	732,495
LMI MWh	20,680	31,387	39,890	49,337	58,575	66,206

Table 3 – Electric EE Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Total \$/MMBtu	\$108	\$104	\$102	\$100	\$99	\$98
Non-LMI \$/MMBtu	\$104	\$99	\$97	\$94	\$93	\$92
LMI \$/MMBtu	\$169	\$169	\$169	\$169	\$169	\$169
Total \$/kWh	\$0.37	\$0.36	\$0.35	\$0.34	\$0.34	\$0.33
Non-LMI \$/kWh	\$0.36	\$0.34	\$0.33	\$0.32	\$0.32	\$0.31
LMI \$/kWh	\$0.58	\$0.58	\$0.58	\$0.58	\$0.58	\$0.58

Table 4 – Heat Pump Budget Schedule

	2020	2021	2022	2023	2024	2025
Use of EEPS / ETIP Unspent Funds	\$3,367,275	\$9,428,371	\$13,469,101	\$20,404,274	\$29,275,698	\$39,032,373
Energy Efficiency Order	\$2,186,464	\$6,122,099	\$8,745,856	\$13,249,054	\$19,009,512	\$25,346,016
Total Budget	\$5,553,739	\$15,550,470	\$22,214,958	\$33,653,328	\$48,285,210	\$64,378,389

Table 5 – Heat Pump Savings Schedule

	2020	2021	2022	2023	2024	2025
Total MMBtu	23,546	65,929	94,184	142,679	204,713	272,950

Table 6 – Heat Pump Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Total \$ / MMBtu	\$236	\$236	\$236	\$236	\$236	\$236

Table 7 – Gas EE Budget Schedule

	2020	2021	2022	2023	2024	2025
Unspent EEPS Budget	\$2,717,060	\$0	\$0	\$0	\$0	\$0
Unspent ETIP Budget	\$3,012,436	\$0	\$0	\$0	\$0	\$0
ETIP Budget	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466
NENY Budget	\$9,996,775	\$22,254,848	\$25,676,184	\$25,663,057	\$25,961,952	\$28,495,257
Total Gas EE Budget	\$30,259,737	\$36,788,314	\$40,209,650	\$40,196,523	\$40,495,418	\$43,028,723
Total Non-LMI Budget	\$30,259,737	\$34,557,538	\$37,861,464	\$37,562,152	\$37,369,396	\$39,329,194
Total LMI Budget	\$0	\$2,230,776	\$2,348,185	\$2,634,370	\$3,126,022	\$3,699,529

Table 8 – Gas EE Savings Schedule

	2020	2021	2022	2023	2024	2025
Total MMBtu	776,224	795,462	859,462	859,462	859,462	916,798
Non-LMI MMBtu	776,224	774,811	837,724	835,074	830,523	882,549
LMI MMBtu	-	20,652	21,738	24,388	28,939	34,249

Table 9 – Gas EE Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Total \$ / MMBtu	\$39	\$46	\$47	\$47	\$47	\$47
Non-LMI \$ / MMBtu	\$39	\$45	\$45	\$45	\$45	\$45
LMI \$ / MMBtu	N/A	\$108	\$108	\$108	\$108	\$108

Table 10 – All Programs Budget Schedule

	2020	2021	2022	2023	2024	2025
Electric Non-LMI Budget	\$123,870,142	\$147,457,663	\$164,231,498	\$187,462,355	\$210,924,371	\$228,857,501
Heat Pump Budget	\$5,553,739	\$15,550,470	\$22,214,958	\$33,653,328	\$48,285,210	\$64,378,389
Non-LMI Electric + Heat Pump Budget	\$129,423,882	\$163,008,133	\$186,446,455	\$221,115,683	\$259,209,581	\$293,235,889
Gas Non-LMI Budget	\$30,259,737	\$34,557,538	\$37,861,464	\$37,562,152	\$37,369,396	\$39,329,194
Total Non-LMI Budget	\$159,683,619	\$197,565,671	\$224,307,920	\$258,677,836	\$296,578,977	\$332,565,083
Electric LMI Budget	\$11,922,224	\$18,095,152	\$22,997,183	\$28,443,885	\$33,769,548	\$38,169,272
Gas LMI Budget	\$0	\$2,230,776	\$2,348,185	\$2,634,370	\$3,126,022	\$3,699,529
Total LMI Budget	\$11,922,224	\$20,325,928	\$25,345,369	\$31,078,255	\$36,895,570	\$41,868,802

Table 11 – All Programs Savings Schedule

	2020	2021	2022	2023	2024	2025
Electric Non-LMI MMBtu	1,188,119	1,483,793	1,698,718	1,985,408	2,275,001	2,499,272
Heat Pump MMBtu	23,546	65,929	94,184	142,679	204,713	272,950
Non-LMI Electric + Heat Pump MMBtu	1,211,665	1,549,721	1,792,902	2,128,086	2,479,714	2,772,222
Gas Non-LMI MMBtu	776,224	774,811	837,724	835,074	830,523	882,549
Total Non-LMI MMBtu	1,987,890	2,324,532	2,630,626	2,963,161	3,310,237	3,654,771
Electric LMI MMBtu	70,559	107,092	136,103	168,339	199,857	225,896
Gas LMI MMBtu	-	20,652	21,738	24,388	28,939	34,249
Total LMI MMBtu	70,559	127,743	157,842	192,726	228,797	260,145

Table 12 – All Programs Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Electric Non-LMI \$/MMBtu	\$104	\$99	\$97	\$94	\$93	\$92
Heat Pump \$/MMBtu	\$236	\$236	\$236	\$236	\$236	\$236
Non-LMI Electric + Heat Pump \$/MMBtu	\$107	\$105	\$104	\$104	\$105	\$106
Gas Non-LMI \$/MMBtu	\$39	\$45	\$45	\$45	\$45	\$45
Total Non-LMI \$/MMBtu	\$80	\$85	\$85	\$87	\$90	\$91
Electric LMI \$/MMBtu	\$169	\$169	\$169	\$169	\$169	\$169
Gas LMI \$/MMBtu	N/A	\$108	\$108	\$108	\$108	\$108
Total LMI \$/MMBtu	\$169	\$159	\$161	\$161	\$161	\$161

Table 13 – Total Budget Schedule

	2020	2021	2022	2023	2024	2025
Electric Budget	\$135,792,366	\$165,552,815	\$187,228,681	\$215,906,240	\$244,693,919	\$267,026,773
Gas EE Budget	\$30,259,737	\$36,788,314	\$40,209,650	\$40,196,523	\$40,495,418	\$43,028,723
Total EE Budget	\$166,052,104	\$202,341,129	\$227,438,331	\$256,102,763	\$285,189,336	\$310,055,496
Heat Pump Budget	\$5,553,739	\$15,550,470	\$22,214,958	\$33,653,328	\$48,285,210	\$64,378,389
Total Budget	\$171,605,843	\$217,891,599	\$249,653,288	\$289,756,091	\$333,474,546	\$374,433,884

Table 14 – Total Savings Schedule

	2020	2021	2022	2023	2024	2025
Electric MMBtu	1,258,678	1,590,885	1,834,822	2,153,746	2,474,858	2,725,168
Gas MMBtu	776,224	795,462	859,462	859,462	859,462	916,798
Total EE MMBtu	2,034,903	2,386,347	2,694,284	3,013,208	3,334,320	3,641,966
Heat Pump MMBtu	23,546	65,929	94,184	142,679	204,713	272,950
Total MMBtu	2,058,449	2,452,275	2,788,468	3,155,887	3,539,033	3,914,916

Table 15 – Total Unit Cost Request

	2020	2021	2022	2023	2024	2025
Electric \$/MMBtu	\$108	\$104	\$102	\$100	\$99	\$98
Gas \$/MMBtu	\$39	\$46	\$47	\$47	\$47	\$47
Total EE \$/MMBtu	\$82	\$85	\$84	\$85	\$86	\$85
Heat Pump \$/MMBtu	\$236	\$236	\$236	\$236	\$236	\$236
Total \$/MMBtu	\$83	\$89	\$90	\$92	\$94	\$96

NFGDC Chapter

Information Supplement

National Fuel Gas Distribution Corporation (“Distribution” or “NFGDC”) hereby submits this supplement to the NY Utilities Report, at Department of Public Service Staff’s (“Staff”) request, to respectfully: (1) request New York State Public Service Commission (“Commission”) approval of Distribution’s cost recovery proposal outlined herein, (2) request Commission approval of “base” and “incremental” NFGDC budgetary funding components for the 2021 – 2025 program years, and (3) affirm NFGDC’s energy efficiency budgets for the 2019 through 2025 program years, as set forth in a central transparent location outlined in the table below.

Distribution’s “base” budgetary funding for the 2019 and 2020 program years has already been approved by the Commission, in its 2018 Energy Efficiency Order.⁸² In compliance with ordering clause 19 of the 2018 Energy Efficiency Order, Distribution filed tariff amendments in Case 15-M-0252 on April 2, 2018, identifying the Energy Efficiency Tracker Surcharge Rate as the method of cost recovery for NFGDC’s 2019 and 2020 program years. These tariff amendments became effective January 1, 2019. The Commission’s Order Adopting Accelerated Energy Efficiency Targets (“~~NENY~~[Energy Efficiency](#) Order”), issued and effective December 13, 2018 in Case 18-M-0084, did not recommend 2019 or 2020 budgetary funding changes for NFGDC.⁸³ It is important to note that additional information on Distribution’s 2019 and 2020 energy efficiency portfolio is included in NFGDC’s Updated Energy Efficiency Transition Implementation Plan (“ETIP”) and System Energy Efficiency Plan (“SEEP”), filed in Cases 18-M-0084, 15-M-0252 and 07-G-0141, on February 19, 2019.

With regard to the 2021 – 2025 program years, NFGDC’s energy efficiency budgets would be comprised of two elements: (1) continued “base” funding, with Distribution recommending no increases or decreases to the “base” component; and (2) “incremental” funding, as outlined in the Commission’s ~~NENY~~[Energy Efficiency](#) Order.⁸⁴ Budgetary funding for the 2021 – 2025 program years (*i.e.*, both the “base” and “incremental” components) has not yet been approved by the Commission. As such, Distribution proposes and hereby requests Commission approval of, the following cost recovery proposal:

- 1) Continue funding the unchanged “base” component via the Energy Efficiency Tracker Surcharge Rate, for the 2021 – 2025 period.
- 2) Apply all remaining unspent funding from the 2012 – 2015 program years (inclusive of interest accumulated and to the extent not otherwise ordered by the

⁸² 2018 Energy Efficiency Order, p. 51.

⁸³ Energy Efficiency Order, ~~at~~ Appendix A, p. 4.

⁸⁴ Energy Efficiency Order, ~~at~~ Appendix C, p. 4.

Commission),⁸⁵ \$242,097.68 of unspent evaluation, measurement and verification (“EM&V”) funding from the 2016 program year, \$212,046.56 of unspent Residential Rebate Program funding from the 2017 program year, \$199,420.30 of unspent EM&V funding from the 2017 program year, and all interest accumulated on balances associated with ~~the New York State Energy Research and Development Authority’s~~ NYSERDA’s Clean Energy Fund to the ~~NENY~~ Energy Efficiency Order “incremental” funding requirement. At a minimum, this recommended approach would “cover” approximately 32 percent of the “incremental” funding requirement and may even result in “entirely covering” the “incremental” funding requirement while simultaneously refunding any remaining unspent funds to customers.⁸⁶

- 3) To the extent there are any shortfalls in meeting the “incremental” funding requirement, then and only then, collect the remaining balance via an adjusted Energy Efficiency Tracker Surcharge Rate, for the 2021 – 2025 period.
- 4) Continue to calculate and apply interest to 2021 – 2025 program year principal balances at the Other Customer Provided Capital Interest Rate (*i.e.*, the rate currently being applied to NFGDC energy efficiency principal balances).
- 5) Update and re-file tariff amendments for the Energy Efficiency Tracker Surcharge Rate and the Clean Energy Fund Surcharge Rate, prior to January 1, 2021, to reflect a future Commission determination in this proceeding.

In the table set forth below (which summarizes all NFGDC energy efficiency budgets for 2019 – 2025 program years in a central location), Distribution is hereby affirming the 2019 – 2020 program years and requesting Commission approval of the following energy efficiency budgets for the 2021 - 2025 program years. It should be noted that Table 1, below, includes the “presumptive” 2021 – 2025 budgets specified in the Commission’s NENY Energy Efficiency Order.

⁸⁵ It should be noted that Distribution filed a Verified Petition with the Commission on August 27, 2018, in Case 18-G-0553, which sought to repurpose unspent funding from the 2012 – 2015 program years, among other things. To the extent the Commission were to approve Distribution’s petition, this unspent funding would be used for a new safety pilot program and enhanced energy efficiency initiatives. To the extent the Commission were to approve a portion of Distribution’s petition, or deny the petition, then some or all of the unspent funding from the 2012 – 2015 program years would remain available for the use proposed herein.

⁸⁶ *Id.*

Table 1: Budgets (As Specified in the [NENY Energy Efficiency Order](#))

Program Year	"Base" Funding Approved by the Commission	"Base" Funding Not Yet Approved by the Commission	"Incremental" NENY Order Funding Not Yet Approved by the Commission	Total
2019	\$10,040,000	\$0	\$0	\$10,040,000
2020	\$10,040,000	\$0	\$0	\$10,040,000
2021	\$0	\$10,040,000	\$104,172	\$10,144,172
2022	\$0	\$10,040,000	\$260,431	\$10,300,431
2023	\$0	\$10,040,000	\$416,690	\$10,456,690
2024	\$0	\$10,040,000	\$729,207	\$10,769,207
2025	\$0	\$10,040,000	\$1,091,206	\$11,131,206
2019 - 2025	\$20,080,000	\$50,200,000	\$2,601,706	\$72,881,706

Distribution envisions that the mix of programs in its 2021 – 2025 energy efficiency portfolios will be determined, and publicly disclosed, in future ETIP/SEEP filings to the Commission. However, at this time, NFGDC commits to ensuring that a *minimum* of 20 percent of all “incremental” funding will be dedicated for low and moderate income (“LMI”) customers, in compliance with the [NENY Energy Efficiency Order](#).

This chapter does not include any additional discussion of energy savings targets, since the NY Utilities’ Targets and Budgets chapter already noted that Distribution is adopting the Commission’s “presumptive targets” as further described therein. While the Company understands the ratemaking need for annual budgets, the Company respectfully requests that the Commission provide flexibility, as respects energy savings targets from energy efficiency programs. Specifically, the Company is requesting that the energy savings targets be treated as “cumulative” rather than “annual,” similar to how the energy savings targets were established during the 2012 to 2015 program years (*i.e.*, the Energy Efficiency Portfolio Standard 2 or “EEPS 2”).

Distribution appreciates this opportunity to provide this supplement to the NY Utilities [Updated Report](#) and request for budgetary and cost recovery approval. NFGDC respectfully requests that the Commission approve all aspects of its thoughtful cost recovery proposal set forth above, including both the “base” and “incremental” NFGDC budgetary funding components for the 2021 – 2025 program years.

[Kickers Proposal](#)

[The Commission’s Energy Efficiency Order stated:](#)

[The potential for system value kickers to increase the effectiveness of programs is such that utilities, where peak reduction is a substantial portion of a](#)

program's benefit, must present a program that includes the use of kickers. If a utility determines that a program structure without kickers would be more effective, the utility may also present an alternative and demonstrate why the alternative is preferable. When the Commission considers the proposed utility programs in 2019, all cost reduction assumptions will be analyzed, and lost opportunities represented by the absence of kickers and other cost reduction possibilities will be taken into account.⁸⁷

It should be noted that the Commission's Energy Efficiency Order, at footnote 64, clarified that the aforementioned requirement will apply to space cooling programs at a minimum.

NFG notes that the concept of kickers (as presented in the Energy Efficiency Order), seems to primarily apply to the electric industry, with an applicability and particular focus on space cooling programs and non-wires alternative demonstration projects. However, as a natural gas-only utility, the Company believes that the concept of kickers has some merit and is worthy of a demonstration within its energy efficiency portfolio.

Specifically, Distribution is proposing the following kicker construct:

- The Company's kicker would be part of its Residential Rebate Program, launching as a pilot demonstration in January 2021.
- The overall goal of the kicker would be to drive deeper energy savings, by incenting customers to install multiple energy efficiency measures simultaneously, rather than a single measure.
- This approach would potentially reduce peak usage and help the Company achieve additional savings towards Commission-ordered targets, generating incremental contributions towards New York State Energy Plan goals.
- When customers install three or more energy efficiency measures on a single application form, they would be eligible for a one-time kicker incentive of \$100.
- A survey instrument would be included with the incentive payment to the customer, to understand if the kicker incentive motivated the customer to pursue a larger project scope.
- Based on the survey results, or potential insights observed as part of future Residential Rebate Program evaluation, measurement and verification ("EM&V") studies, the Company would continue, modify, or discontinue the kicker incentive.
- A description of the kicker construct, as well as the Company's intention to continue, modify or discontinue the kicker incentive, would be included in future Energy Efficiency Transition Implementation Plan and System Energy Efficiency Plan ("ETIP/SEEP") filings submitted to the Commission.

⁸⁷ Energy Efficiency Order, p. 49.

- Costs associated with the provision of kicker incentives would be segregated on the books and records of Distribution for tracking purposes. These costs would accumulate throughout the year and would be included in the annual rate filing supporting the residential Energy Efficiency Tracker. Accumulated costs would be recovered via the residential Energy Efficiency Tracker, using the mechanism's currently effective mechanics, as an incremental collection above Commission-ordered budgets for the Company's energy efficiency portfolio.

NFG appreciates the opportunity to provide this proposal on kickers, including necessary cost recovery details to support the pilot demonstrative initiative, further informing the April 1, 2019 NY Utilities Report filed with the Commission in Case 18-M-0084. The Company respectfully requests that the Commission approve all aspects of the kicker construct outlined in detail above.

Other Considerations

On April 24, 2019, the Commission issued an Order Addressing Use of Funds in Cases 18-G-0553, 16-G-0257 and 13-G-0136, specific to the Company. Specifically, the April 24, 2019 Order stated the following, at pages 13 and 14:

"Moreover, the Commission is currently considering an enhanced Statewide Energy Efficiency Initiative, through which it will set budgets and targets for the State's large investor owned utilities for the 2019-2025 period, and the Company recently filed its energy efficiency proposal on April 2, 2019 (April 2 Proposal). In its April 2 Proposal, National Fuel notes "to the extent the Commission were to approve a portion of Distribution's [August 27, 2018] petition, or deny the petition, then some or all of the unspent funding from the 2012-2015 program years would remain available for the use proposed herein." The Commission will determine the disposition of unspent CIP funds when it addresses all of the Company's energy efficiency programs, including its LIURP and the Furnace Repair and Replacement Program, within the Statewide Energy Efficiency Proceeding."

In light of the April 24, 2019 Order, the Company respectfully requests that the Commission determine the disposition of its unspent CIP funds in this Statewide Energy Efficiency Proceeding, when it addresses all of the Company's energy efficiency programs. The Company's Information Supplement (described in detail above in the NFGDC Chapter) outlines Distribution's current proposal in this regard, which the Company respectfully requests the Commission approve.

Solely as a productive alternative to the current proposal, Distribution further notes that it would also support the Commission "renewing" and "approving" the Company's request included in its August 27, 2018 Petition filed in Case 18-G-0553 (i.e., Paragraphs 35 through 38, on pages 15 through 17 of the Petition), with the following updates:

- As respects Paragraph 37, it should be noted that Distribution has finalized the contract with NYSERDA to have the agency perform furnace replacements for

the Company, just like they do with respect to weatherization work. This was finalized in September 2018.

- As respects Paragraph 37, the Company's request was to repurpose \$1.95 million, as a one-time funding infusion for its Low-Income Usage Reduction Program ("LIURP"), for both the weatherization and furnace replacement elements. Distribution would support this same level of repurposed funding during the 2021-2025 time period, with the remainder following the Company's current proposal contained in its Information Supplement, to the extent directed by the Commission. Distribution would also support increasing this one-time funding infusion further than \$1.95 million, to the extent practicable with flexibility to utilize funding over multiple years, if supported by the Commission.

The Company believes that while its current LIURP is very helpful in assisting its low-income customers in reducing their natural gas consumption, further expansion of LIURP would be desirable and in ratepayer and public interest. If the Commission elects to approve the alternative proposed herein, it would provide funding for environmental and energy efficiency benefits, which are consistent with the State Energy Plan and New York's policies for greenhouse gas reduction, while preserving the importance of natural gas as an environmentally beneficial and highly cost effective fuel for our low income customers.

XI. National Grid Chapter

1. National Grid Funding Sources

Table 1 presents budgets and funding sources for the energy efficiency portfolios of KEDLI, KEDNY, and Niagara Mohawk- (collectively “National Grid” or the “Company”). Additional target and budget information is provided for all the NY Utilities in Appendix A.

Table 1: Budgets and Funding Sources for the Energy Efficiency Portfolios of KEDLI, KEDNY, and Niagara Mohawk

UNY - Electric (MWH)	2019	2020	2021	2022	2023	2024	2025
ETIP EE Min	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893
Incremental EE	\$ -	\$ -	\$ 8,284,634	\$ 15,154,819	\$ 26,268,353	\$ 36,775,694	\$ 46,111,063
Heat Pump		\$ 4,295,000	\$ 9,250,000	\$ 12,068,000	\$ 12,050,000	\$ 10,762,000	\$ 9,211,000
Total	\$ 63,897,893	\$ 68,192,893	\$ 81,432,527	\$ 91,120,712	\$ 102,216,246	\$ 111,435,587	\$ 119,219,956
Funding Source	NA	Uncommitted/Unspent EEPS/Rates	Rates	Rates	Rates	Rates	Rates
UNY - Gas (DTH)	2019	2020	2021	2022	2023	2024	2025
ETIP EE Min	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262
Incremental EE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262
Funding Source	NA	NA	NA	NA	NA	NA	NA
KEDLI - Gas (DTH)	2019	2020	2021	2022	2023	2024	2025
ETIP EE Min	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182
Incremental EE	\$ 1,215,829	\$ 2,127,701	\$ 2,872,048	\$ 3,801,240	\$ 4,983,849	\$ 6,757,761	\$ 9,072,294
Total	\$ 8,380,011	\$ 9,291,883	\$ 10,036,230	\$ 10,965,422	\$ 12,148,031	\$ 13,921,943	\$ 16,236,476
Funding Source	Uncommitted/Unspent EEPS	Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates
KEDNY - Gas (DTH)	2019	2020	2021	2022	2023	2024	2025
ETIP EE Min	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114
Incremental EE	\$ 2,933,009	\$ 5,132,766	\$ 7,465,446	\$ 9,561,010	\$ 13,817,623	\$ 19,122,019	\$ 23,892,308
Total	\$ 15,704,123	\$ 17,903,880	\$ 20,236,560	\$ 22,332,124	\$ 26,588,737	\$ 31,893,133	\$ 36,663,422
Funding Source	Uncommitted/Unspent EEPS	Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates

2. Kickers

The Energy Efficiency Order requires National Grid and other utilities to consider the addition of an energy efficiency kicker (“EE kicker”) incentive to provide additional system value and benefit to both the grid and to customers. As specified in the Energy Efficiency Order, these kickers are to apply to space cooling initiatives, in particular, and potentially to other technologies that could provide additional benefits to the peak and the overall electric system.

In support of the Energy Efficiency Order, National Grid proposes the use of kickers in space cooling to provide additional value to both identified constrained areas and to the entire system with the use of a tiered-incentive business model. The Company will work through the adoption of these incentives through 2019 and will add other technologies and measures, including peak-coincident measures and location-based incentives in 2020 and beyond. Several internal teams will need to be consulted to implement these EE kickers, and an implementation plan will be developed over the next year. The Company will keep the Commission apprised of progress with the development of EE kickers.

2.3. Niagara Mohawk Heat Pump Target

National Grid supports the overall goal of 40 percent statewide reduction of greenhouse gas (“GHG”) emissions from 1990 levels by 2030 and the role of heat pump technology in achieving necessary emissions reductions. In collaboration with the NY Electric Utilities and NYSERDA, National Grid generally agrees with the statewide budgets and targets outlined in the “Accelerated Heat Pump Deployment” chapter.

The initial statewide \$250 Million budget and five TBtu proposal was based on ~~NYSERDA’s~~ [the April 26, 2018 New Efficiency NY: New York](#) white paper, [jointly developed by Staff and NYSERDA](#). After further analysis and comment, NYSERDA recently revised their methodology and analysis [therein regarding heat pumps](#) to reflect load factor and efficiency factor changes. NYSERDA’s revised methodology places downward pressure on savings and upward pressure on incentive budgets. Approximately 4,800 installations or a 20 percent increase will be needed above the original aggressive estimates for Niagara Mohawk’s service territory to achieve the statewide five TBtu target. The scale of this adjustment frontloads an additional year or more of program performance to the six-year time frame. ~~Further, it~~ is challenging to commit to savings targets when the savings methodology is still to be finalized in the ~~TRM~~ [New York Technical Resources Manual \(“TRM”\)](#). The feasibility of proposed savings targets is further exacerbated by limited program history and an in-progress potential study not anticipated to be finalized until later this year. The installation projections and corresponding GBtu estimates identified below for Niagara Mohawk, while still ambitious, reflect a primarily residential market as outlined in the ~~order~~ [Energy Efficiency Order](#), a gradual program ramp period, ~~and~~ are reflective of the Electric Heat Initiative⁸⁸ performance in 2018~~9~~; and NYSERDA’s [air source heat pump \(“ASHP-~~&~~”\) and ground source heat pump \(“GSHP”\)](#) performance rates from 2017-present~~90~~. Niagara Mohawk’s proposal is further substantiated by NYSERDA’s capacity estimates for all residential and small-scale (up to ten tons) non-residential installations; ~~as~~ noted in Table 7 [presented earlier in this Updated Report](#) and also included in Table 2 [below](#).

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⁸⁸ ~~The Environmentally Beneficial Electrification EAM metric consists of the Electric Heat and Electric Vehicle Initiatives outlined in Case 17-E-0238 & 17-G-0239, Order Adopting Joint Proposal and Electric and Gas Rate Plans, (issued March 15, 2018), Attachment 1, Appendix 7.~~

⁸⁹ ~~Electric Heat Initiative: 247 installations between 4/1/18 to 12/31/2018.~~ [The Environmentally Beneficial Electrification EAM metric consists of the Electric Heat and Electric Vehicle Initiatives outlined in Case 17-E-0238, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation d/b/a National Grid for Electric Service, Order Adopting Joint Proposal and Electric and Gas Rate Plans \(issued March 15, 2018\), Attachment 1, Appendix 7, with 247 installations between 4/1/18 to 12/31/2018 for the Electric Heat Initiative.](#)

⁹⁰ ~~NYSERDA Air Source and Ground Source~~ [Consisting of 483 installations of ASHP and GSHP between 5/2017 to 3/21/2019.](#)

Table 2: National Grid, Estimated Heat Pump Installations (2020-2025)

	2020	2021	2022	2023	2024	2025	Total
<u>NIMONiagara Mohawk Proposal</u>	975	2,100	3,000	3,600	4,000	4,400	18,075
NYSERDA Original Methodology	1,971	2,634	3,615	4,156	4,848	5,549	22,773
NYSERDA Revised Methodology	2,507	3,344	4,181	5,015	5,850	6,684	27,581
NYSERDA Residential & Small-Scale Projections	1,671	2,229	2,991	3,344	3,900	4,556	18,591

Table 3: National Grid, Estimated GBtu Savings (2020-2025)

	2020	2021	2022	2023	2024	2025	Total
<u>NIMONiagara Mohawk Proposal</u>	55	117	168	201	224	246	1,010
NYSERDA Original Methodology	138	185	244	282	329	377	1,555
NYSERDA Revised Methodology	140	187	250	281	327	374	1,559

The additional savings necessary to meet the statewide goal could possibly be met within the Niagara Mohawk service territory through NYSERDA’s LMI heat pump pilots, potential [NPA/non-wires alternatives \(“NWA”\)/non-pipeline solutions \(“NPS”\)](#) initiatives, large commercial applications, or geothermal offerings in [the KEDNY/KEDLI service territories](#). National Grid is hesitant to include the potential savings from possible initiatives outlined above in [Niagara Mohawk’s](#) presumptive targets without [an](#) understanding of savings potential, [adaptionadoption](#) rates, or budgetary needs. [National Grid requests ~~to~~that the Commission](#) address possible savings targets and budgets associated with these activities in future orders. [All the New YorkNY](#) Electric Utilities will work with NYSERDA to further assess this potential when preparing implementation plans later this year.

a. Niagara Mohawk Heat Pump Budget

In addition to the feasibility of Niagara Mohawk’s allocation of the statewide target, National Grid is also cognizant of the pressures this program will have on customers. [Proposed budgets](#) include a reduction in incentives in the out years based on NYSERDA’s forecasted market transformation and cost reductions. Proposed budgets are the minimum budget necessary to

meet the corresponding GBtu targets and may require an increase if market transformation and cost reductions are not at pace with the assumptions used in modeling. The Niagara Mohawk ~~Proposed~~ proposed budget also does not reflect additional funding that may be needed to advance heat pump adoption in the large commercial (greater than 10 tons) market segments.

At the time of the filing of this Updated Report, National Grid has not fully analyzed the bill impacts a program of this scale will have on customers. The illustrative budget presented in Table 4 is derived from the run rates presented in NYSERDA’s analysis and adjusted to Niagara Mohawk’s suggestive GBtu target.

Table 4: Niagara Mohawk Heat Pump Budget (\$1,000’s)

	2020	2021	2022	2023	2024	2025	Total
NIMON <u>Niagara Mohawk Proposal</u>	4,295	9,250	12,068	12,050	10,762	9,211	57,636
NYSERDA Original Methodology	7,941	10,611	12,551	12,941	11,968	10,133	66,145
NYSERDA Revised Methodology	11,033	14,719	17,992	16,828	15,739	14,009	90,320

b. Niagara Mohawk Heat Pump Transition plan ~~Plan~~

The implementation of the Electric Heat Initiative began in 2018, as part of Niagara Mohawk’s Environmentally Beneficial Electrification EAM metric. The metric consists of the Electric Heat and Electric Vehicle Initiatives. The initiatives run through December 31, 2020, per the Joint Proposal as adopted by the Commission in approving the rate plan as agreed upon in Cases 17-E-0238 & 17-G-0239. The 2020 proposal above is in line with the maximum target for the Environmentally Beneficial Electrification EAM metric. National Grid proposes that the Electric Heat Initiative (“EHI”) adopt the statewide framework where possible to smooth the transition to the statewide Heat Pump Program (“HPP”).

National Grid proposes the additional funding allotted for HPP in 2020 be used to close the gap between existing EHI incentive levels and statewide incentive levels identified for HPP. Potential funding sources are under review and anticipated to be identified in the implementation ~~plan~~ to be developed later this year. While in practice the two programs will be offered during the transition year of 2020, from a customer and provider standpoint a shared application and implementation vendor will provide a uniform experience. If the implementation plan and subsequent program manual conflict with the EHI program, funding will be allocated from the HPP. Both carbon and Btu savings would be shared where funding is provided by both programs. If an installation is not eligible for the EHI, but meets eligibility requirements for the statewide HPP, the savings will be tied to the funding source. Logistically managing two programs during the transition is likely to create an increased administrative burden, however, maintaining the Beneficial Electrification EAM metric leads to stability for the Electric Vehicle Initiative, maintains ~~company~~ the Company’s earnings potential, and provides a clear and stable

| market signal consistent with the [efforts of the other](#) NY Electric Utilities [as of](#) on January 1, 2020.

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XII. NYSEG and RG&E Chapter

As described in Chapter One of this Report, the Companies’ proposed targets and budgets of NYSEG and RG&E (the “Companies”) are aligned with the data presented in the December Commission’s Energy Efficiency Order. The Companies’ reiterate the concerns addressed by the NY Utilities in Chapter One of the Updated Report regarding whether the presumptive targets are achievable utilizing the budgets authorized in the Energy Efficiency Order. Specifically, the Companies are concerned that funding levels relative to the targets may be inadequate as traditionally lower cost per unit of savings opportunities such as light emitting diode (“LED”) lighting dissipate and unit costs associated with deeper savings approaches remain flat or increase. Other factors such as higher costs to achieve deeper program market penetration and project comprehensiveness to levels previously not pursued will increase costs. As a result, achieving the incremental targets within the incremental authorized funding levels may not be possible, depending on actual costs of future technologies and other factors. The Companies will address forecasted costs of planned program specific technologies in future ETIP/SEEP filings.

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1. NYSEG and RG&E Funding Source for Incremental Budgets

Tables 1 - 4 below provides, as requested by Staff, the Companies’ anticipated funding sources for the incremental budgets. The Companies ETIP/SEEP filing on February 19, 2019 outlined the use of some unspent ETIP funds from prior years. The Companies anticipate using remaining unspent ETIP funds starting in 2021 until such funds are depleted, which is expected to occur within the first year. Additionally, the Companies plan to file new rate cases for all businesses in 2019 and will be proposing to transition the current surcharge cost recovery mechanism for energy efficiency costs to recovery in base rates starting in 2020, consistent with guidance received from the Commission. The incremental budgets shown in Tables 1 - 4 do not include assumptions or allocations for separate heat pump funding or “not-yet-approved” targets for future rate cases or ETIP/SEEP proposals.

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Table 1: NYSEG Electric Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$8,428,564	Unspent Funds/Base Rates
2022	\$13,831,489	Base Rates
2023	\$22,908,404	Base Rates
2024	\$33,282,021	Base Rates
2025	\$43,340,150	Base Rates
Total	\$121,790,627	

Table 2: RG&E Electric Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$4,555,827	Unspent Funds/Base Rates
2022	\$6,626,657	Base Rates
2023	\$9,939,986	Base Rates
2024	\$14,081,647	Base Rates
2025	\$18,637,473	Base Rates
Total	\$53,841,590	

Table 3: NYSEG Gas Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$1,072,870	Unspent Funds/Base Rates
2022	\$1,369,621	Base Rates
2023	\$1,871,816	Base Rates
2024	\$2,579,453	Base Rates
2025	\$3,368,355	Base Rates
Total	\$10,262,115	

Table 4: RG&E Gas Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$347,283	Unspent Funds/Base Rates
2022	\$571,995	Base Rates
2023	\$878,421	Base Rates
2024	\$1,246,132	Base Rates
2025	\$1,642,423	Base Rates
Total	\$4,686,254	

2. Accelerated Heat Pump Deployment

- a. ~~The Companies support implementing heat pump technology but have concerns with the potential targets developed from the NYSERDA analysis. Specifically, the Companies have concerns with the magnitude of the heat pump targets and whether the budgets would be sufficient to achieve targeted savings. NYSEG's heat pump targets and funding are most concerning. The Energy Efficiency Order directs a~~

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statewide goal of five TBtu of energy savings through heat pump technologies and authorizes a statewide budget of \$250 million. NYSERDA's most recent analysis recognizes that to meet the five TBtu target, a statewide spending level of more than \$334 million will be needed, exceeding the authorized funding in the Energy Efficiency Order by 34 percent. Additionally, NYSERDA's analysis shows potential for NYSEG to achieve 1.907 TBtu of the statewide energy savings target, which results in \$110 million of the needed \$334 million. Given these targeted savings amounts and its widely dispersed service territory, NYSEG reasonably expects to have heightened challenges, including higher costs per unit. Based on NYSERDA's analysis, an estimated number of 34,435 heat pump installations will be needed by 2025 for NYSEG to meet the 1.907 TBtu target. This is a significant penetration rate to achieve in a relatively short period. The \$110 million of incremental heat pump program costs from the Potential Study would need to be funded through NYSEG ratepayer delivery rates. Given other cost pressures faced by NYSEG customers, the Company proposes that the Commission instead consider keeping the maximum heat pump funding level at \$250 million per the Energy Efficiency Order, with a corresponding downward adjustment to the heat pump energy savings goal of five TBtu. Any differences could be re-allocated based on the original methodology used for the non-heat pump targets. If the Commission were to specifically identify a workable alternative methodology of funding the NYSEG specific, non-LMI, heat pump incremental costs that would reduce the impact to NYSEG customers, NYSEG would certainly reconsider this proposal. Until this occurs, the Companies would have no alternative other than to include the currently estimated costs of the heat pump incremental program in proposed base delivery rates for our customers.

Additional information/concerns with the magnitude of the NYSEG savings target are:

- Assumptions in NYSERDA's potential study:
 - There are about 18,000 end-of-life replacements and new construction opportunities per year of residential and small multifamily delivered fuel and resistance systems across NYSEG and RG&E's territories. These systems are the study's conversion targets. Using NYSERDA's updated unit savings values, NYSEG and RG&E programs would need to convert almost one quarter of them to heat pumps each year, on average. Allowing for program ramp-up, the annual conversion rate would need to be over one third by the end of the 2021—2025 period. These conversion rates are extremely ambitious given what may be perceived as a modest incentive (buydown to 6-year payback time), the complexity of conversions and large capital outlays required by customers.
- Economic Potential is based on all oil end-of-life conversions for fuel oil and propane customers:
 - While the study's "missing money" analysis shows the incentive can make the project a viable investment with a six-year payback time, we believe many of our

rural oil-fired customers simply will not convert when facing the estimated net \$12,400 to \$34,500 of purchase and installation costs (depending on the type of heat pump and difficulty of installation) along with the corresponding disruption. Customers will compare these factors with a faster and less expensive (approximately \$6,800) boiler replacement. Even with a projected \$2,500 to \$4,600 incentive amount, the net cash outflow from customers will be much higher for a heat pump.

- Experience delivering heat pump incentive programs in Connecticut:
 - The Companies have specific experience with a heat pump program delivered by the Companies' affiliated utility in Connecticut. The annual number of homes currently heated by oil which converted to a heat pump was 0.25 percent, despite the program components which included robust incentives, aggressive contractor education, and significant customer outreach and marketing. This 0.25 percent annual conversion represents about five percent of end of life replacements, assuming a 20 year life for oil based heating systems. As noted above, the NYSERDA study average conversions of end of life replacements needed to meet the savings targets is about 25 percent, or about five times the rate experienced in Connecticut. This helps to confirm the ambitious nature of the targets, particularly those in the NYSEG service territory.

To meet the April 1, 2019 filing date, the Companies were not able to complete a thorough analysis required to confirm if the savings targets based on NYSERDA's potential study could be achievable. Therefore, the Companies propose the Commission provide the opportunity for us to finalize analysis and file final heat pump targets and budgets in an update to this Company specific chapter with the SEEP update filing on June 1, 2019. The Companies support the overall statewide clean energy goals including goals specific to heat pumps however, underscore additional work is needed to determine the appropriate heat pump targets for each service territory.

NYSEG and RG&E believe that, to achieve Btu savings included in the Order, other heat pump markets than those currently included in the potential study (including the commercial sector, the natural gas market, heat pump water heaters, and non end of life replacements) will need to be focused on. To our knowledge, none of these markets have been fully analyzed for their potential contributions to the target achievement. Our experience confirms that thorough analysis, thoughtful program design and flexibility are critical in reaching the desired goals.

The Companies will continue to work collaboratively with NYSERDA on a robust marketing strategy and will look for a refinement of our company specific targets that are more reasonably aligned with our experiences and overall market potential and will plan to conduct further analyses on the potential for various heat pump technologies to support more refined heat pump savings targets and associated funding in our next ETIP/SEEP filing.

-As discussed in the NY Utilities April 1, 2019 Report filed with the Commission, the Companies support the overall, statewide clean energy goals including implementation of heat pump technology with emphasis that additional work is needed to determine the appropriate level of heat pump targets for each service territory. To develop potential heat pump specific targets and budgets for this supplemental filing, the Companies reviewed both the conversion rate of heat pump deployments experienced by utilities in comparable service territories and the estimated savings per heat pump technology developed by NYSERDA in its potential study.

The results of the Companies' analysis were used to develop two versions of market potential heat pump savings and budget forecasts. The first forecast is based on adoption rates of a heat pump program administered by NYSERDA with escalation rates obtained from a "NEEP Air Source and Heat Pump Market Transformation Strategies Report"⁹¹. Potential targets and budgets for NYSEG/RG&E based on the NYSERDA administered program are significantly lower than those presented in the NYSERDA analysis. Specifically, NYSEG potential savings are 5% of the NYSERDA analysis and budget levels are 8% while RG&E potential savings are 18% of the NYSERDA analysis and budget levels are 29%. As an alternative, the Companies developed a second forecast of potential targets and budgets based on a heat pump program administered by Efficiency Maine. This alternative resulted in NYSEG potential savings at 22% of the NYSERDA analysis with budgets at 36% and RG&E potential savings at 37% of the NYSERDA analysis with budgets at 60%. The Companies also considered using experience from a heat pump program administered by their affiliate utility in Connecticut (United Illuminating Company) to develop targets and budgets. However, the actual adoption rates for that program were even lower than the NYSERDA program so the Companies determined not to use them in the potential forecast development. The approaches to developing both forecasts based on (1) the NYSERDA program and (2) the Efficiency Maine program are described below in detail.

The Companies further recognize that Staff and NYSERDA are working together to propose updated savings calculations for the New York Technical Resource Manual ("TRM") consistent with the approach NYSERDA used in the updated potential study. Since this information is not available at this time to review or to incorporate in this filing, NYSEG and RG&E developed their own analysis as described below and acknowledge future updates may be warranted. The result of the Companies' analysis has been incorporated into the estimated heat pump target and budget forecast outlined in this filing.

Proposed Heat Pump Budgets and Targets

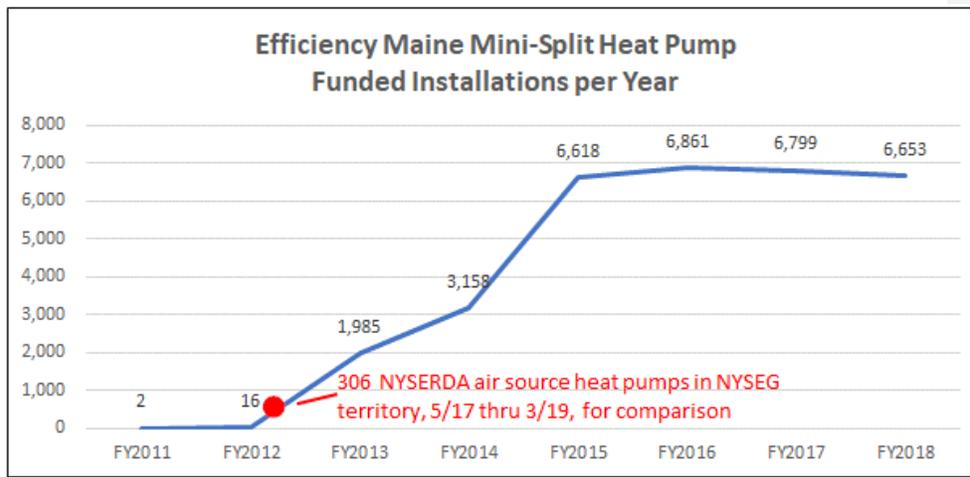
⁹¹ https://neep.org/sites/default/files/NEEP_ASHP_2016MTStrategy_Report_FINAL.pdf

During its research NYSEG and RG&E found minimal published historical program participation rate data. However, the Companies did find one strong point of reference: Efficiency Maine.

The state of Maine is reasonably comparable to NYSEG’s service territory. Both have significant urban and suburban populations, but also vast rural areas where, in Maine’s case, over half of the population lives. Maine has about 25% fewer households than NYSEG serves with electricity, although climate ranges are similar.

The Efficiency Maine program is focused on deployment of air-source mini-split heat pumps and was originally launched as a pilot in 2011, began running full scale in 2013 and has been in operation as such since 2013. Through 2017 this program ran as a conventional downstream program and in 2018 Efficiency Maine added “instant” rebates, although it appears not to be a full-scale vendor-driven “midstream” program. Efficiency Maine’s program does include and requires vendor engagement with an approval process. Figure 1 shows Efficiency Maine’s heat pump installation trend based on annual report data.

Figure 1: Efficiency Maine Heat Pump Program History



The most recent six-year total is 32,074 installations. The annual reports do not provide details of the program such as the counterfactual baseline (e.g. a window heat pump, electric

resistance, oil, etc.) or details about implementation, besides discussion of aggressive vendor engagement and training.

In order to develop forecasted targets for NYSEG, Efficiency Maine’s air source mini split heat pump adoption curve was adjusted upward to account for NYSEG’s larger number of residences and the planned offering of ducted systems. Similarly, it was adjusted downward in anticipation of a slower ramp-up period, as well as to reflect Maine’s significantly larger percentage of wood and delivered fuel homes (more than 75%). RG&E targets were also forecasted using Maine’s data, but with the expectation that the service territory is further advanced on the adoption curve and will ramp up more rapidly than NYSEG. The net effect is more adoption per capita for RG&E. With these changes, the NYSEG and RG&E projected participation rates are shown in Figures 2 and 3 below.

Figure 2: NYSEG Projected Participation Based on Efficiency Maine and Adjustments

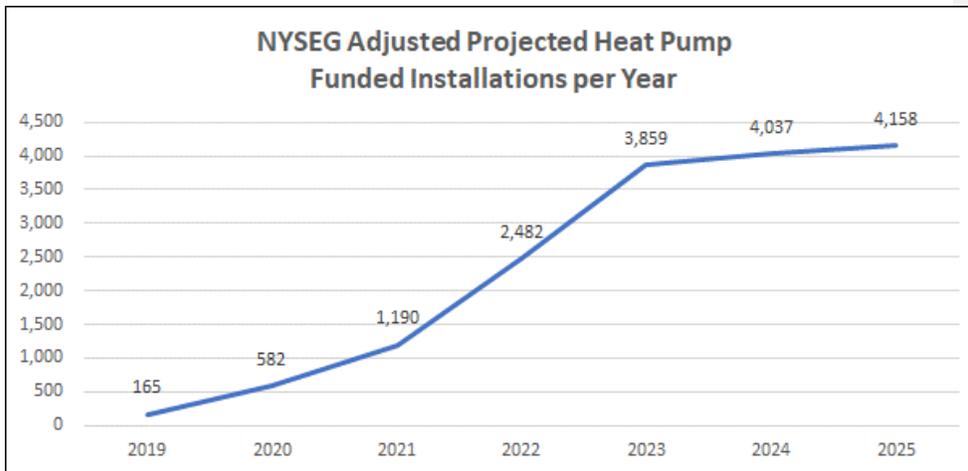
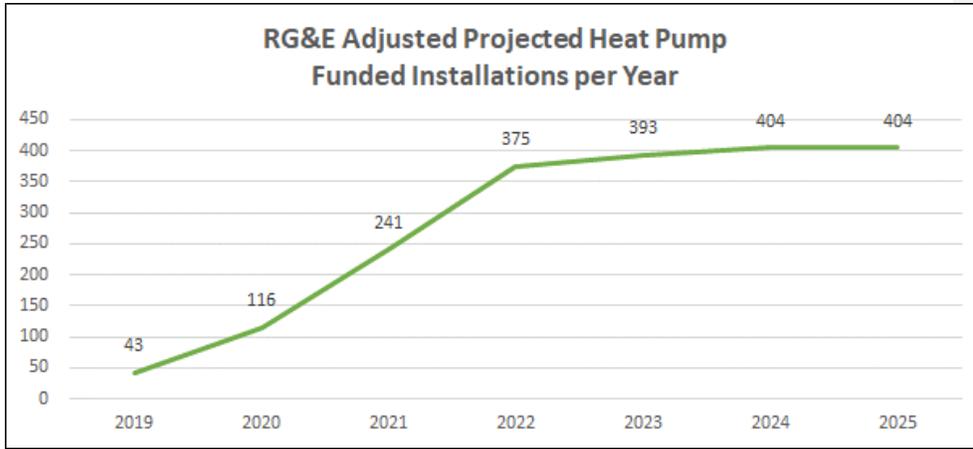


Figure 3: RG&E Projected Participation Based on Efficiency Maine, NYSEG and Adjustments



[Based on correlating market adoption achieved in Efficiency Maine’s program, the total NYSEG and RG&E six-year projections from 2020 through 2025 are 16,308 and 1,933 heat pump installations, respectively. Projected installations per year were spread to technology type based on the NYSERDA program historic performance data. The declining incentive structure for the various heat pump technologies, as outlined in NYSERDA’s March 19, 2019 analysis, was also maintained as an incentive structure. This methodology results in the budgets and targets per Company presented below in Table 5.](#)

[Table 5: NYSEG and RG&E Proposed Heat Pump Budgets, Targets & Installations – based on Efficiency Maine Experience](#)

Budget (\$000)	2020	2021	2022	2023	2024	2025	Total
NYSEG	\$ 1,922	\$ 3,930	\$ 7,915	\$ 10,378	\$ 8,839	\$ 7,034	\$ 40,018
RG&E	\$ 419	\$ 870	\$ 1,315	\$ 1,163	\$ 974	\$ 754	\$ 5,496
Target (Gbtu)							
NYSEG	15	31	65	101	106	109	427
RG&E	3	7	11	11	12	12	56
Number of installations							
NYSEG	582	1190	2482	3859	4037	4158	16,308
RG&E	116	241	375	393	404	404	1,933

[To calculate the Gbtu potential target, the number of heat pump installations for each year was multiplied by the estimated annual net Gbtu savings per technology type and shown in](#)

Table 6 below. The savings estimates for each technology were developed based on the New York TRM. Full load hour (“FLH”) values for central systems were used based on the TRM but lower FLH’s were used for mini splits. The lower FLH’s for mini splits is based on other studies that measured operation from metered data and found that mini splits were often used in a supplemental, rather than primary manner. Both the TRM and modified mini-split FLH appear to be lower than those in NYSERDA’s potential study. The projected number of installations per technology type was derived using the heat pump implementation data provided by NYSERDA Table 7 as a starting baseline.

Table 6: Annual Net Gbtu Savings

<u>Updated TRM Annual Net Gbtu/Year Savings per Installation</u>			
<u>Baseline</u>	<u>ASHP</u>	<u>Mini-Split</u>	<u>GSHP</u>
<u>NYSEG Gbtu</u>	<u>0.031</u>	<u>0.013</u>	<u>0.045</u>
<u>RG&E Gbtu</u>	<u>0.032</u>	<u>0.013</u>	<u>0.047</u>

Table 7: NYSERDA Heat Pump Program (May 2017 to March 2019) – Applications Received per Service Territory

<u>Electric Utility</u>	<u>Number of Applications</u>	
	<u>GSHP</u>	<u>ASHP</u> <u>(Ducted and Mini-Split)</u>
<u>New York State Electric & Gas</u>	<u>208</u>	<u>306</u>
<u>Rochester Gas and Electric</u>	<u>68</u>	<u>78</u>

For purposes of establishing specific goals, the Companies propose to adopt the potential targets and budgets using actual experience of the heat pump program administered in Maine as the baseline and shown in Table 58. The Companies underscore that this is an optimistic approach to support statewide goals and caution that actual results will be based on a number of factors including development and deployment of a statewide framework currently underway. Additionally, the targets and funding levels will need to be closely monitored and reassessed with adjustments based on actual program performance and customer adoption. Required funding levels to support heat pump targets based on the Maine program will have potentially significant bill impacts, especially for NYSEG residential customers. This potential impact to customers makes it increasingly important to continually reassess whether approved budgets are reasonable and appropriate.

Despite the demographic and climate similarities between the NYSEG and Maine service territories, the Companies believe the targets and budgets in Table 58 are a stretch forecast, particularly in light of the experience of the Companies' affiliate, United Illuminating in Connecticut, as well as compared to the recent NYSERDA program experience. Unlike the other NY Utilities, NYSEG and RG&E do not have experience offering heat pump technology in its programs. Furthermore, the long-term plan to reduce incentive levels significantly after allowing for market transformation is an important consideration and reason for caution with respect to later year targets and forecasts. NYSERDA's moderate success as compared to Maine despite recent increasing of incentive levels is also a reason for conservatism.

As a result of the considerations and concerns expressed about the optimistic targets produced from the Efficiency Maine methodology described above, the Companies have prepared a second forecast using a market adoption rate more consistent with the experience of its affiliate, United Illuminating, in Connecticut. The Companies applied an annual escalation rate of two percent per year to the historic number of heat pump applications in the NYSERDA program to arrive at a yearly number of heat pump installations for the period of 2020 through 2025. The escalation rate was obtained from the "NEEP Air Source and Heat Pump Market Transformation Strategies Report" issued in January 2017. Two percent is the average annual penetration rate of the ASHP's as a primary heating source in the Northeast and Mid-Atlantic under a market transformation strategy.

For this second forecast, the Companies also used the heat pump implementation data provided by NYSERDA shown above, as a starting baseline. The same annual Gbtu and incentive levels used in the Efficiency Maine based forecast were applied. Resulting potential targets and budgets are outlined in Table 8. As previously discussed, the results are substantially lower than potential targets presented in the NYSERDA analysis.

Table 8: Heat Pump Budgets, Targets & Installations – Forecast based on NEEP Report

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Budget (\$000)	2020	2021	2022	2023	2024	2025	Total
NYSEG	\$ 1,730	\$ 1,763	\$ 1,734	\$ 1,488	\$ 1,233	\$ 974	\$ 8,921
RG&E	\$ 536	\$ 545	\$ 537	\$ 460	\$ 381	\$ 299	\$ 2,759
Target (Gbtu)							
NYSEG	14	14	14	14	15	15	86
RG&E	4	4	4	5	5	5	27
Number of installations							
NYSEG	524	534	544	554	564	576	3,296
RG&E	149	152	155	158	161	164	939

As demonstrated from the comparison of the two methodologies as well as the NYSERDA program historic results, the actual outcome of implementing an accelerated heat pump strategy in the NYSEG and RG&E service territories as well as throughout the state, may have vastly different results compared to the forecast projected in the NYSERDA potential study. To demonstrate commitment to the statewide clean energy initiatives, the Companies propose the optimistic Efficiency Maine based forecast reflected in Table 58 for its targets and budgets with the caveats outlined above. Should the actual results align more with the alternative forecast based on the NEEP report during the initial years of the program, the Companies anticipate mid-term adjustments to the budgets and targets will be appropriate.

Kickers:

As outlined in the main chapter of this Updated Report, Staff requested the electric utilities to address the applicability of kickers to their energy efficiency activities. NYSEG and RG&E do not currently offer customer incentives for space cooling equipment and do not believe a kicker incentive in their service territories is justified based on anticipated system value relative to the additional peak reduction to be obtained with kickers. Therefore, the Companies do not plan to include kicker incentives as part of their energy efficiency activities.

**XIII. Orange & Rockland Chapter
Executive Summary**

Orange and Rockland (“O&R” or the “Company”) supports New York’s ambitious environmental and clean energy goals and is committed to exceeding the presumptive overall electric and gas energy efficiency targets. The Company will continue to innovate and improve program delivery and implementation to increase participation and adoption of energy efficient equipment and technology to meet the budget constraints and targets presumed in the Energy Efficiency Order and as defined in the 2019 Rate Order.⁹² The 2019 Rate Order that adopted the Joint Proposal in the Company’s recently concluded electric and gas rate cases, modified the Company’s targets and budgets included in the Energy Efficiency Order. These modified targets and budgets are included as inputs to the Earnings Adjustment Mechanisms (“EAMs”) adopted in the 2019 Rate Order. These EAMs, both programmatic and outcome-based, are in effect for 2019 through 2021. A summary of the adopted budgets and targets for these programs is set forth in Table 1 below. The Company expects to file its next electric and gas rate cases in 2021 and file updated programs for 2022-2025 as part of those rate case filings.

TABLE 1: O&R Joint Proposal Budgets and Targets			
Electric Portfolio			
	2019	2020	2021
Budget	\$7,100,000	\$8,100,000	\$9,900,000
Gross MWH Target			
Minimum	38,036	43,432	53,076
Mid-Point	43,400	49,557	60,561
Maximum	50,525	57,693	70,503
Gas Portfolio			
	2019	2020	2021
Budget	\$703,000	\$703,000	\$703,000
Gross DTH Target			
Minimum	22,853	22,853	22,853
Mid-Point	26,860	26,860	26,860
Maximum	31,764	31,764	31,764

Budgets and Targets

Electric

The electric budgets contained in the 2019 Rate Order are lower and the targets are higher than the budgets and targets found in the Energy Efficiency Order for 2019-2021. The 2019 Rate Order, however, did not provide for funding for LMI programs in 2021 or anticipate that NYSERDA would terminate its electric heat pump rebate program as of December 31, 2019.

⁹² Case 18-E-0067, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Electric Service*, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans (issued March 14, 2019) (“2019 Rate Order”).

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As discussed below, the Company will develop additional programs and fund both efforts with unspent electric and gas ETIP funds collected from 2016-2018. The estimated unspent electric and gas ETIP collections as of February 2019 are \$6.9 million and \$0.5 million, respectively. The energy efficiency targets set forth in the Energy Efficiency Order for 2022 through 2025 are lower than those contained in the 2019 Rate Order for 2021. Therefore, the Company expects to propose targets and budgets for 2022 through 2025 consistent with those contained in the 2019 Rate Order, requiring a corresponding increase in budgets for 2022 through 2025. The Company expects to address these target and budget issues in its next electric and gas rate filings.

The Company will leverage its experience in delivering energy efficiency programs where possible to achieve additional cost-effective energy savings. However, the cost of energy efficiency will increase from historic levels as the Company pursues fewer low-cost lighting opportunities, which have dominated the savings in its existing electric portfolio. As customers migrate from low-cost lighting measures to refrigeration, heating, and cooling end uses, the higher upfront cost of these measures will increase the \$/MWh adoption costs, thereby increasing overall spending to achieve consistent MWh targets. The tables below reflect the budgets and targets by initiative for 2021-2025.

	2021	2022	2023	2024	2025	Total
ETIP	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$49,500,000
Incremental EE	\$0	\$3,040,273	\$3,040,273	\$3,040,273	\$3,040,273	\$12,161,091
LMI	\$637,557	\$850,075	\$1,190,106	\$1,657,647	\$2,101,811	\$6,437,196
Heat Pump	\$1,841,000	\$2,256,000	\$2,109,000	\$2,049,000	\$1,986,000	\$10,241,000
Total	\$12,378,557	\$16,046,348	\$16,239,379	\$16,646,920	\$17,028,084	\$78,339,287

	2021	2022	2023	2024	2025	Total
ETIP (MWH)	70,503	70,503	70,503	70,503	70,503	352,515
ETIP (\$/MWH)	\$140	\$184	\$184	\$184	\$184	\$175
LMI (MWH)	1,106	1,474	2,064	2,875	3,646	11,165
LMI (\$/MWH)	\$576	\$577	\$577	\$577	\$576	\$577
Total (MWH)	71,609	71,977	72,567	73,378	74,149	363,680
Total (\$/MWH)	\$147	\$192	\$195	\$199	\$203	\$187

Gas

The gas budgets in the 2019 Rate Order for 2019-2020 are lower and the targets are higher than the budgets and targets found in the Energy Efficiency Order. While the 2021 budget and targets will remain at the levels found in the 2019 Rate Order, the Company currently plans to adopt the budgets and targets for 2022-2025 set forth in the Energy Efficiency Order. As with the electric portfolio, the Company proposes to fund 2021 LMI expenditures with remaining gas ETIP funds.⁹³ The Company will leverage its experience in delivering energy efficiency programs where possible to achieve cost effective energy savings. The tables below reflect the budgets and targets by initiative for 2021-2025.

⁹³ After using the funds set forth in Table 2 and Table 3, there will be \$3.0 million and \$279,000 in electric and gas ETIP funds respectively remaining.

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TABLE 3: Proposed Gas Budgets						
	2021	2022	2023	2024	2025	Total
ETIP	\$703,000	\$703,000	\$703,000	\$703,000	\$703,000	\$3,515,000
Incremental EE	\$0	\$1,178,908	\$1,698,552	\$2,248,763	\$2,764,433	\$7,890,656
LMI	\$221,613	\$336,240	\$466,151	\$603,704	\$732,621	\$2,360,329
Total	\$924,613	\$2,218,148	\$2,867,703	\$3,555,467	\$4,200,054	\$13,765,985

TABLE 3-1: Proposed Gas Gross Targets & (\$/MMBTU)						
	2021	2022	2023	2024	2025	Total
ETIP (MMBTU)	31,764	57,210	73,008	89,734	105,411	357,128
ETIP (\$/MMBTU)	\$22	\$33	\$33	\$33	\$33	\$32
LMI (MMBTU)	2,052	3,113	4,315	5,589	6,782	21,851
LMI (\$/MMBTU)	\$108	\$108	\$108	\$108	\$108	\$108
Total (MMBTU)	33,816	60,323	77,323	95,323	112,193	378,979
Total (\$/MMBTU)	\$27	\$37	\$37	\$37	\$37	\$36

The table below summarizes O&R’s expected expenditures for 2021-2025 and the source of the funding for such expenditures.

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TABLE 4: O&R Budgets by Initiative and Funding Source							
O&R Electric Portfolio	2021	2022	2023	2024	2025	Total	Funding Source
ETIP	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$49,500,000	Base Rates
Incremental EE	\$0	\$3,040,273	\$3,040,273	\$3,040,273	\$3,040,273	\$12,161,091	Base Rates
LMI	\$637,557	\$850,075	\$1,190,106	\$1,657,647	\$2,101,811	\$6,437,196	Remaining ETIP/Base Rates
Heat Pump	\$1,841,000	\$2,256,000	\$2,109,000	\$2,049,000	\$1,986,000	\$10,241,000	Remaining ETIP/Base Rates
Total	\$12,378,557	\$16,046,348	\$16,239,379	\$16,646,920	\$17,028,084	\$78,339,287	
O&R Gas Portfolio	2021	2022	2023	2024	2025	Total	Funding Source
ETIP	\$703,000	\$703,000	\$703,000	\$703,000	\$703,000	\$3,515,000	Base Rates
Incremental EE	\$0	\$1,178,908	\$1,698,552	\$2,248,763	\$2,764,433	\$7,890,656	Base Rates
LMI	\$221,613	\$336,240	\$466,151	\$603,704	\$732,621	\$2,360,329	Remaining ETIP/Base Rates
Total	\$924,613	\$2,218,148	\$2,867,703	\$3,555,467	\$4,200,054	\$13,765,985	

Low and Moderate Income (“LMI”) Customers

As directed in the Energy Efficiency Order and discussed in the LMI Chapter, [of this Updated Reports](#), the NY Utilities have collaborated with NYSERDA to develop a statewide LMI Portfolio. A statewide LMI Portfolio will allow investments to be positioned in a more complementary manner, expanding the reach of energy efficiency programs, advancing the State’s energy affordability goals, and increasing the impact of customer funding dedicated to LMI customers. The Company supports the expansion of LMI ~~portfolio~~Portfolio to address the needs of LMI customers. Providing customers solely with bill credits to meet their six percent energy cost is not a sustainable paradigm, as it only provides short-term relief without the consideration of a longer-term, more economic and sustainable solution. By reducing LMI customers’ energy bills with a long-lasting energy efficient solution, a more sustainable model emerges that will lower customer bills and ultimately lower the bill credits needed to meet the six percent energy cost. As set forth in the table below, the Company will coordinate with NYSERDA in 2021 to deliver a complementary electric and gas energy efficiency solution, enhance the [EmpowerEmPower New York](#) Program offering, and explore the concepts

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introduced in the O&R Low Income Implementation Plan.⁹⁴ In addition, the Company plans to coordinate with NYSERDA to maximize electric and gas energy savings. Because the 2019 Rate Order does not provide funding for LMI expenditures, the Company proposes to use remaining ETIP collections to fund the 2021 LMI expenditures identified in Table 5 below.

	2021	2022	2023	2024	2025	Total
Electric	\$637,557	\$850,075	\$1,190,106	\$1,657,647	\$2,101,811	\$6,437,196
Gas	\$221,613	\$336,240	\$466,151	\$603,704	\$732,621	\$2,360,329
Total	\$859,170	\$1,186,315	\$1,656,257	\$2,261,351	\$2,834,432	\$8,797,525

Heat Pump Program

The Company will strive to achieve the Commission’s ambitious heat pump goal for O&R’s service territory (*i.e.*, 160 GBtu) by offering incentive programs designed to transform the heat pump market and reduce carbon emissions. As noted above, the funding levels for heat pumps contained in the 2019 Rate Order did not anticipate NYSERDA’s termination of its heat pump rebate program effective December 31, 2019. Accordingly, to make up this shortfall and meet the targets set forth in the 2019 Rate Order, the Company projects that it will use unspent ETIP funds in the amount of \$1.3 million in 2020 and \$1.8 million in 2021. The Company may address any changes to its heat pump budgets and targets for periods beyond 2021 in its next electric rate filing.

The Company notes, however, that the potential savings identified in the NYSERDA report, “Analysis of Residential Heat Pump Potential and Economics,” published in January 2019, needs further analysis and verification. These include the potential for regional market growth and the incentive levels necessary to drive heat pump adoption and aligning savings estimates with the Technical Resource Manual to meet the statewide 5.0 TBtu goal. In the short term, the Company has adopted the NYSERDA analysis to determine the incentive budgets without verifying the underlying methodology. However, adjustments may be needed as more details and assumptions are verified in the current market.

Moreover, the historical adoption level for heat pumps has been low. O&R’s goal requires a significant increase in adoption levels that may or may not be achievable. As more experience is gained, NYSERDA’s goal for the O&R service territory may need to be modified and, incentives may need to be increased to meet the overall 160 GBtu goal by 2025. As discussed in the NY Utilities section of this [Updated](#) Report, the Commission can support these efforts by permitting O&R the flexibility to make mid-course adjustments based on actual experience.

Cost Recovery

While the 2019 Rate Order provides for recovery of energy efficiency costs through base rates as expenses, the Company expects that it will request to recover costs under the regulatory

⁹⁴ Case 14-M-0565, *Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Customers* O&R Plan (filed September 2016).

asset framework in its next rate case. By providing for the recovery of energy efficiency costs over a ten-year period, customer bill impacts are moderated, customers who take service over the ten-year period contribute fairly in recognition that customers do change over that time horizon, and importantly, costs are aligned with the realized lifetime benefits of the electric and gas portfolios.

Potential Study

The Company is conducting a Distributed Energy Resources (“DER”) Potential Study and expects that the results will inform the budgets and targets for O&R’s service territory including the potential for heat pump adoption rates. After reviewing the results, the Company may update this filing to reflect the potential that exists for both electric and gas energy efficiency programs and the funding required to achieve that potential.

Kickers

The Energy Efficiency Order called for the utilities to introduce a kicker incentive, primarily focused on space cooling and related technologies that provide additional incentives to adopt such technologies, based on the increased system value that these technologies can provide. O&R proposes an electric kicker to provide customers with incentives to increase adoption of space cooling equipment or other technologies in areas of system constraint. These incentives would be provided to technologies that would reduce peak demand in order to defer infrastructure investment. O&R believes that increased incentives are justifiable in these constrained areas as a result of the increased avoided transmission and/or distribution benefits that are realized from the deferral of the investment. In addition, utilizing time differentiated avoided costs in benefit cost analysis provides the value of technologies that are coincident with higher cost peak periods. For example, a load shape that impacts summer usage, (i.e. a space cooling technology load shape), would produce higher avoided cost benefits to justify the implementation of a kicker. The Company will determine the eligible technologies and the value of the kicker on a case by case basis in these constrained areas.

XIV. Conclusion

The Commission's Energy Efficiency Order goals will advance the State's Clean Energy objectives. The NY Utilities appreciate the opportunity to provide a proposal on the Order. The Utilities request that the Commission approve the energy efficiency budgets and targets as well as cost recovery included herein as well as the other items noted for Commission approval in section 1 and throughout the [updated](#) document as well as in the separate utility chapters. The Utilities look forward to working with NYSERDA, Staff and the Commission to meet the 2025 objectives.

Dated: ~~April~~[May 10](#), 2019

Respectfully submitted,

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Appendix A: [New York Utilities' Targets and Budgets](#)

[Central Hudson](#)

EE Electric Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ¹	\$ 9,773,000	\$ 9,773,000	\$ 9,773,000	\$ 9,773,000	\$ 9,773,000	\$ 48,865,000
Incremental NENY Budget	\$ 1,647,000	\$ 2,693,000	\$ 3,685,000	\$ 4,408,000	\$ 5,562,000	\$ 17,995,000
Total	\$ 11,420,000	\$ 12,466,000	\$ 13,458,000	\$ 14,181,000	\$ 15,335,000	\$ 66,860,000

EE Targeted Electric Savings Summary (MWh)	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MWh) ²	53,262	53,262	53,262	53,262	53,262	266,310
Incremental NENY Target (Gross MWh)	6,000	10,000	14,000	17,000	21,700	68,700
Total (Gross MWh)	59,262	63,262	67,262	70,262	74,962	335,010

EE Gas Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ²	\$ 1,182,000	\$ 1,182,000	\$ 1,182,000	\$ 1,182,000	\$ 1,182,000	\$ 5,910,000
Incremental NENY Budget	\$ 33,000	\$ 98,000	\$ 195,000	\$ 322,000	\$ 482,000	\$ 1,130,000
Total	\$ 1,215,000	\$ 1,280,000	\$ 1,377,000	\$ 1,504,000	\$ 1,664,000	\$ 7,040,000

EE Targeted Gas Savings Summary (MMBtu)	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu) ²	58,016	58,016	58,016	58,016	58,016	290,080
Incremental NENY Target (Gross MMBtu)	1,000	3,000	6,000	10,000	15,040	35,040
Total (Gross MMBtu)	59,016	61,016	64,016	68,016	73,056	325,120

1. Figures shown reflect incremental budgets determined in most recent rate case and minimum-level EAM targets.

2. Figures shown reflect incremental budgets determined in most recent rate case and minimum-level EAM targets.

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Con Edison

Gas						
EE Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget	\$20,262,962	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466	\$78,396,826
Incremental NENY Budget	\$9,996,775	\$22,254,848	\$25,676,184	\$25,663,057	\$25,961,952	\$109,552,815
Total	\$30,259,737	\$36,788,314	\$40,209,650	\$40,196,523	\$40,495,418	\$187,949,641
EE Targeted Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu)	606,924	303,462	303,462	303,462	303,462	1,820,773
Incremental NENY Target (Gross MMBtu)	169,300	492,000	556,000	556,000	556,000	2,329,300
Total (Gross MMBtu)	776,224	795,462	859,462	859,462	859,462	4,150,073
Electric						
EE Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$430,890,110
Incremental NENY Budget	\$49,614,344	\$79,374,793	\$101,050,659	\$129,728,218	\$158,515,897	\$518,283,911
Total	\$135,792,366	\$165,552,815	\$187,228,681	\$215,906,240	\$244,693,919	\$949,174,021
EE Targeted Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu)	682,400	682,400	682,400	682,400	682,400	3,412,000
Incremental NENY Target (Gross MMBtu)	576,278	908,485	1,152,422	1,471,346	1,792,458	5,900,989
Total (Gross MMBtu)	1,258,678	1,590,885	1,834,822	2,153,746	2,474,858	9,312,989
Total						
EE Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget	\$106,440,984	\$100,711,488	\$100,711,488	\$100,711,488	\$100,711,488	\$509,286,936
Incremental NENY Budget	\$59,611,120	\$101,629,641	\$126,726,843	\$155,391,275	\$184,477,848	\$627,836,726
Total	\$166,052,104	\$202,341,129	\$227,438,331	\$256,102,763	\$285,189,336	\$1,137,123,662
EE Targeted Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu)	1,289,324	985,862	985,862	985,862	985,862	5,232,773
Incremental NENY Target (Gross MMBtu)	745,578	1,400,485	1,708,422	2,027,346	2,348,458	8,230,289
Total (Gross MMBtu)	2,034,903	2,386,347	2,694,284	3,013,208	3,334,320	13,463,062

May 21, 2019 Redline NY Utilities Updated Report

National Fuel Gas

Budget Summary ⁽¹⁾	2019	2020	2021	2022	2023	2024	2025	Total
Base Energy Efficiency Budget	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 10,040,000	\$ 70,280,000
Incremental NENY Budget	\$ -	\$ -	\$ 104,172	\$ 260,431	\$ 416,690	\$ 729,207	\$ 1,091,206	\$ 2,601,706
Total Budget	\$ 10,040,000	\$ 10,040,000	\$ 10,144,172	\$ 10,300,431	\$ 10,456,690	\$ 10,769,207	\$ 11,131,206	\$ 72,881,706

Savings Target Summary	2019	2020	2021	2022	2023	2024	2025	Total
Base Energy Efficiency Savings Target (Gross MMBtu) ⁽²⁾	349,684	349,684	349,684	349,684	349,684	349,684	349,684	2,447,788
Incremental NENY Savings Target (Gross MMBtu) ⁽³⁾	-	-	2,000	5,000	8,000	14,000	20,950	49,950
Total Savings Target (Gross MMBtu)	349,684	349,684	351,684	354,684	357,684	363,684	370,634	2,497,738

Notes:

(1) National Fuel Gas Distribution Corporation's Budget Summary is the same information included on page 87 of the NY Utilities' April 1, 2019 filing in Case 18-M-0084 (i.e., the NFGDC Chapter).

(2) National Fuel Gas Distribution Corporation's Base Energy Efficiency Savings Target is based on the Company's Updated Energy Efficiency Transition Implementation Plan and System Energy Efficiency Plan for the 2019-2020 Program Years, filed on February 19, 2019 in Case 18-M-0084.

(3) National Fuel Gas Distribution Corporation's Incremental NENY Savings Target is based on the New York State Public Service Commission's Order Adopting Accelerated Energy Efficiency Targets, issued and effective December 13, 2018, in Case 18-M-0084.

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National Grid

Budgets

NMPC - Electric	2019	2020	2021	2022	2023	2024	2025
Base EE Budget	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893
Incremental NENY	\$ -	\$ -	\$ 8,284,634	\$ 15,154,819	\$ 26,268,353	\$ 36,775,694	\$ 46,111,063
Total	\$ 63,897,893	\$ 63,897,893	\$ 72,182,527	\$ 79,052,712	\$ 90,166,246	\$ 100,673,587	\$ 110,008,956
* Funding Source			Rates	Rates	Rates	Rates	Rates

NMPC - Gas	2019	2020	2021	2022	2023	2024	2025
Base EE Budget	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262
Incremental NENY	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262

KEDLI - Gas	2019	2020	2021	2022	2023	2024	2025
Base EE Budget	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182
Incremental NENY	\$ 1,215,829	\$ 2,127,701	\$ 2,872,048	\$ 3,801,240	\$ 4,983,849	\$ 6,757,761	\$ 9,072,294
Total	\$ 8,380,011	\$ 9,291,883	\$ 10,036,230	\$ 10,965,422	\$ 12,148,031	\$ 13,921,943	\$ 16,236,476
* Funding Source	Uncommitted/Unspent EEPS	Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates

KEDNY - Gas	2019	2020	2021	2022	2023	2024	2025
Base EE Budget	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114
Incremental NENY	\$ 2,933,009	\$ 5,132,766	\$ 7,465,446	\$ 9,561,010	\$ 13,817,623	\$ 19,122,019	\$ 23,892,308
Total	\$ 15,704,123	\$ 17,903,880	\$ 20,236,560	\$ 22,332,124	\$ 26,588,737	\$ 31,893,133	\$ 36,663,422
* Funding Source	Uncommitted/Unspent EEPS	Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates

Targets

NMPC- Electric (MWh)	2019	2020	2021	2022	2023	2024	2025
Base EE Target	319,383	319,383	319,383	319,383	319,383	319,383	319,383
Incremental NENY	-	-	41,000	75,000	130,000	182,000	228,200
Total MWh	319,383	319,383	360,383	394,383	449,383	501,383	547,583

NMPC - Gas (MMBtu)	2019	2020	2021	2022	2023	2024	2025
Base EE Target	870,798	870,798	870,798	870,798	870,798	870,798	870,798
Incremental NENY	-	-	-	-	-	-	-
Total MMBtu	870,798	870,798	870,798	870,798	870,798	870,798	870,798

KEDLI - Gas (MMBtu)	2019	2020	2021	2022	2023	2024	2025
Base EE Target	166,821	166,821	166,821	166,821	166,821	166,821	166,821
Incremental NENY	43,180	75,565	102,000	135,000	177,000	240,000	322,200
Total MMBtu	210,001	242,386	268,821	301,821	343,821	406,821	489,021

KEDNY - Gas (MMBtu)	2019	2020	2021	2022	2023	2024	2025
Base EE Target	282,740	282,740	282,740	282,740	282,740	282,740	282,740
Incremental NENY	89,576	156,758	228,000	292,000	422,000	584,000	729,000
Total MMBtu	372,316	439,498	510,740	574,740	704,740	866,740	1,011,740

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NYSEG and RG&E

NYSEG EE Electric Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ¹	\$ 17,035,451	\$ 17,035,451	\$ 17,035,451	\$ 17,035,451	\$ 17,035,451	\$ 85,177,255
Incremental NENY Budget	\$ 8,428,564	\$ 13,831,489	\$ 22,908,404	\$ 33,282,021	\$ 43,340,150	\$ 121,790,627
Total	\$ 25,464,015	\$ 30,866,940	\$ 39,943,855	\$ 50,317,472	\$ 60,375,601	\$ 206,967,882

NYSEG EE Targeted Electric Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MWh) ¹	59,508	59,508	59,508	59,508	59,508	297,540
Incremental NENY Target (Gross MWh)	39,000	64,000	106,000	154,000	200,540	563,540
Total (Gross MWh)	98,508	123,508	165,508	213,508	260,048	861,080

RG&E EE Electric Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ¹	\$ 10,482,078	\$ 10,482,078	\$ 10,482,078	\$ 10,482,078	\$ 10,482,078	\$ 52,410,390
Incremental NENY Budget	\$ 4,555,827	\$ 6,626,657	\$ 9,939,986	\$ 14,081,647	\$ 18,637,473	\$ 53,841,590
Total	\$ 15,037,905	\$ 17,108,735	\$ 20,422,064	\$ 24,563,725	\$ 29,119,551	\$ 106,251,980

RG&E EE Targeted Electric Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MWh) ¹	35,307	35,307	35,307	35,307	35,307	176,535
Incremental NENY Target (Gross MWh)	22,000	32,000	48,000	68,000	90,000	260,000
Total (Gross MWh)	57,307	67,307	83,307	103,307	125,307	436,535

NYSEG EE Gas Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ¹	\$ 2,038,215	\$ 2,038,215	\$ 2,038,215	\$ 2,038,215	\$ 2,038,215	\$ 10,191,075
Incremental NENY Budget	\$ 1,072,870	\$ 1,369,621	\$ 1,871,816	\$ 2,579,453	\$ 3,368,355	\$ 10,262,114
Total	\$ 3,111,085	\$ 3,407,836	\$ 3,910,031	\$ 4,617,668	\$ 5,406,570	\$ 20,453,189

NYSEG EE Targeted Gas Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu) ¹	94,486	94,486	94,486	94,486	94,486	472,430
Incremental NENY Target (Gross MMBtu)	47,000	60,000	82,000	113,000	147,560	449,560
Total (Gross MMBtu)	141,486	154,486	176,486	207,486	242,046	921,990

RG&E EE Gas Funding Summary	2021	2022	2023	2024	2025	Total
Base EE Budget ¹	\$ 2,720,749	\$ 2,720,749	\$ 2,720,749	\$ 2,720,749	\$ 2,720,749	\$ 13,603,745
Incremental NENY Budget	\$ 347,283	\$ 571,995	\$ 878,421	\$ 1,246,132	\$ 1,642,423	\$ 4,686,254
Total	\$ 3,068,032	\$ 3,292,744	\$ 3,599,170	\$ 3,966,881	\$ 4,363,172	\$ 18,289,999

RG&E EE Targeted Gas Savings Summary	2021	2022	2023	2024	2025	Total
Base EE Target (Gross MMBtu) ¹	141,246	141,246	141,246	141,246	141,246	706,230
Incremental NENY Target (Gross MMBtu)	17,000	28,000	43,000	61,000	80,399	229,399
Total (Gross MMBtu)	158,246	169,246	184,246	202,246	221,645	935,629

1. Figures shown reflect a continuation of current PSC-authorized ETIP budgets & targets.
 2. Figures shown reflect incremental budgets determined in most recent rate case and minimum-level EAM targets.

May 21, 2019 Redline NY Utilities Updated Report

Orange and Rockland

<u>EE Electric Funding Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Budget ²	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$49,500,000
Incremental NENY Budget	\$637,557	\$3,890,348	\$4,230,379	\$4,697,920	\$5,142,084	\$18,598,287
Total	\$10,537,557	\$13,790,348	\$14,130,379	\$14,597,920	\$15,042,084	\$68,098,287

<u>EE Targeted Electric Savings Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Target (Gross MWh) ²	70,503	70,503	70,503	70,503	70,503	352,515
Incremental NENY Target (Gross MWh)	1,106	1,474	2,064	2,875	3,646	11,165
Total (Gross MWh)	71,609	71,977	72,567	73,378	74,149	363,680

<u>EE Gas Funding Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Budget ²	\$703,000	\$703,000	\$703,000	\$703,000	\$703,000	\$3,515,000
Incremental NENY Budget	\$221,613	\$1,515,148	\$2,164,703	\$2,852,467	\$3,497,054	\$10,250,985
Total	\$924,613	\$2,218,148	\$2,867,703	\$3,555,467	\$4,200,054	\$13,765,985

<u>EE Targeted Electric Savings Summary</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>	<u>2025</u>	<u>Total</u>
Base EE Target (Gross MMBtu) ²	31,764	31,764	31,764	31,764	31,764	158,820
Incremental NENY Target (Gross MMBtu)	2,052	28,559	45,559	63,559	80,429	220,159
Total (Gross MMBtu)	33,816	60,323	77,323	95,323	112,193	378,979

1. Figures shown reflect a continuation of current PSC-authorized ETIP budgets & targets.

2. Figures shown reflect incremental budgets determined in most recent rate case and **maximum**-level EAM targets.

[Appendix B](#): Illustrative Utility-NYSERDA Collaboration Models

ID #	Collaboration Model	Description and Example(s)	Design and Delivery Considerations
1	Co-market/co-brand	Utility and NYSERDA partner to leverage brand and related strengths to advance solution(s) Ex) Central Hudson-NYSERDA marketing for clean heating and cooling solutions	Can leverage individual organization strengths such as utility relationship and brand with local customer or distributor complemented with the need for state-level outreach and general awareness.
2.1	Cross market available solutions and programs	Utility and NYSERDA customer engagement channels become more coordinated (i.e., utility outreach/sales resources and websites) by presenting the programs and services made available by both organizations to core customer sectors. Ex) National Grid and NYSERDA are working to integrate outreach to industrial customers and will be co-hosting a commercial Energy Solutions Summit later in 2019.	Across market sectors and utility territories, enable customers to easily learn about energy efficiency incentives available to that customer, whether the incentive is offered by the utility or by NYSERDA.
2.2	Direct referrals to available program(s)	Utilities and NYSERDA would routinely refer a customer to available programs at the other organization, according to what best meets the customer's needs. Ex) Utility referral of customers to the NYSERDA EmPower New York Program.	Consider allowing each utility to report toward its savings goals a percentage of the energy savings that are achieved from the utility referral of customers to specific NYSERDA programs, thereby providing credit for driving increased market uptake.
3.1	Complimentary incentives for the same project, but for different services	Utility and NYSERDA work with the same customer and fund different aspects of a project. Ex) Agriculture: NYSERDA funds project technical assistance and National Grid provides rebates, working together with the same customer. Commercial Buildings: NYSERDA supports Real Time Energy Management ("RTEM") and Con Edison provides lighting rebates at the same facility.	As described in the CE-04 Multiple Incentive Guidance, in designing and delivering complimentary incentives and market development support, the utility(s) and NYSERDA will: (1) further develop and state a clear rationale for how the approach will achieve greater or higher value results; (2) will ensure that coordination has occurred with regard to marketing and delivery channels; and (3) will maintain a clear objective and well-defined impact.
3.2	Complimentary incentives and/or market development support for the same technology or same measure class, that address different points in the supply chain	Utility and NYSERDA layer coordinated incentives and/or complementary market development support at the manufacturer, distributor, contractor, and/or customer level. Ex) Heat Pumps: electric utilities provide customer support through rebates and related offerings, and NYSERDA to provide support to installers and distributors for cooperative advertising and training.	
3.3	Complimentary	Utility and NYSERDA co-fund the same	

ID #	Collaboration Model	Description and Example(s)	Design and Delivery Considerations
	incentives for the same project, but for different value streams	project which has multiple value streams (system, environmental, locational, temporal). Ex) Combined Heat and Power projects in Non-Wires Solution areas: Con Edison incentivizes peak reduction achievement and NYSERDA provides incentives for CO ₂ and resiliency.	
3.4	Complimentary incentives for the same project to enable deep energy savings, that address different services, different value streams, different performance objectives, or potentially different measures	Utility and NYSERDA co-fund deep energy savings projects with complimentary incentives for different services or value streams. Ex) New strategies to influence developments or re-developments to achieve high energy performance at the community- or campus-level may couple NYSERDA incentives for technical assistance with utility project incentives.	
4	Co-design/co-implement a pilot	Utility(s) and NYSERDA work together to jointly design, launch, and test an innovative strategy. Ex) Pay for Performance Pilots between Con Edison National Grid and NYSERDA	Utilities and NYSERDA leverage strengths and each commit meaningful resources in the collaboration. Can also include co-branding.
5	Pool resources to extend the impact of an initiative which is administered by a single lead entity	Utilities and NYSERDA work together on large initiatives to achieve greater savings than could be achieved individually Ex) NYSERDA and utilities could explore collaboration in a large-scale C&I Climate Challenge	See 3.1 – 3.4
6.1	Coordinated implementation of a statewide portfolio	Statewide portfolio allows utility and NYSERDA LMI investments to be positioned in a more complementary manner, with coordinated customer outreach and certain shared administrative infrastructure. Ex) Statewide LMI Portfolio	
6.2	Coordinated implementation of a statewide framework	Statewide framework for heat pumps includes a common program design, program manual, and eligibility criteria to be applied consistently on a statewide basis. Ex) Statewide electric utility heat pump framework	
7	NYSERDA de-risks a strategy and utility implements some version of it in the future	NYSERDA supports an early-stage technology or initiative by testing it in the market. If successful, consider handing off to utility(s) to scale. Ex) NYSERDA RTEM program may be adopted/adapted within utility offering.	Market readiness (customer demand, solution provider network) and potential impacts must be closely considered prior to hand-off.

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Mary Krayeske
Associate Counsel
Law Department
April 1, 2019

Honorable Kathleen Burgess
Secretary
State of New York Public Service Commission
Three Empire State Plaza
Albany, NY 12223-1350

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

Dear Secretary Burgess:

Pursuant to the New York State Public Service Commission’s December 13, 2018 *Order Adopting Accelerated Energy Efficiency Targets* in the above-referenced proceeding, Central Hudson Gas & Electric Corporation, Consolidated Edison Company of New York, Inc., KeySpan Gas East Corporation d/b/a National Grid, The Brooklyn Union Gas Company d/b/a National Grid NY, Niagara Mohawk Power Corporation d/b/a National Grid (collectively, “National Grid”), National Fuel Gas Distribution Corporation, New York State Electric & Gas Corporation, Orange and Rockland Utilities, Inc., and Rochester Gas and Electric Corporation submits the attached *NY Utilities Report Regarding Energy Efficiency Budgets and Targets, Collaboration, Heat Pump Technology and Low- and Moderate-Income Customers and Requests for Approval*.

The summary of the March 8, 2019 stakeholder technical conference will be filed with the Commission shortly.

If there are any questions, please contact me.

Sincerely,

/s/ Mary Krayeske

Mary Krayeske

Attachment

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**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

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

NY UTILITIES REPORT REGARDING ENERGY EFFICIENCY BUDGETS AND TARGETS, COLLABORATION, HEAT PUMP TECHNOLOGY, AND LOW- AND MODERATE-INCOME CUSTOMERS AND REQUESTS FOR APPROVAL

The New York State Public Service Commission (the “Commission”) in the *Order Adopting Accelerated Energy Efficiency Targets*¹ (the “Energy Efficiency Order” or the “Order”) directed the NY Utilities² to work collaboratively with the New York State Energy Research and Development Authority (“NYSERDA”) to file energy efficiency targets and budgets for 2021-2025 that meet 2025 New York State objectives. The Energy Efficiency Order also addressed the accelerated introduction of heat pump technologies by electric utilities and the continued provision and enhancement of programs for low and moderate income (“LMI”) customers. The NY Utilities hereby file this Report in response to the Energy Efficiency Order and request Commission approval of the energy efficiency budgets as set forth below and, in the utility-specific chapters included herein.

I. Summary of NY Utilities’ Requests

In this Report, the NY Utilities seek authority to spend specified amounts over 2021 to 2025 on electric and gas energy efficiency programs and request that the Commission provide the Utilities the flexibility to periodically adjust budgets as necessary. The NY Electric Utilities request authority to spend \$289 million on an accelerated heat pump installation program. The NY Electric Utilities also request that certain changes to the Clean Energy Guidance Document CE-04.³ Finally, to the extent that the total budget (net of unspent energy efficiency funds) established by the Commission exceeds the rate impact cap established in the Energy Efficiency Order, the NY Utilities request that the cap be adjusted upwards.

¹ Case 18-M-0084, *In the Matter of a Comprehensive Energy Efficiency Initiative*, Order Adopting Accelerated Energy Efficiency Targets (“Energy Efficiency Order”) (issued December 13, 2018).

² Central Hudson Gas & Electric Corporation (“Central Hudson”), Consolidated Edison Company of New York, Inc. (“Con Edison”), KeySpan Gas East Corporation d/b/a National Grid (“KEDLI”), The Brooklyn Union Gas Company d/b/a National Grid NY (“KEDNY”), Niagara Mohawk Power Corporation d/b/a National Grid (“Niagara Mohawk”)(collectively “National Grid”), National Fuel Gas Distribution Corporation (“NFGDC” or “NFG”), New York State Electric & Gas Corporation (“NYSEG”), Orange and Rockland Utilities, Inc. (“Orange & Rockland”), and Rochester Gas and Electric Corporation (“RG&E”) (collectively, “NY Utilities” or “Utilities”). The NY Utilities with electric operations are referred to as “NY Electric Utilities.”

³ CEAC I&C Working Group, Neville Letter Regarding Layered Incentive Guidance, (issued October 3, 2016).

The NY Utilities request Commission authorization of the 2021 to 2025 incremental energy efficiency budgets and targets presented in Table 1.

Table 1: Incremental Budgets and Targets by Company (2021-2025)

IOU	Millions		Targets	
	Electric	Gas	Electric MWH	Gas MMBTu
CenHud	\$ 18.0	\$ 1.1	68,700	35,040
ConEd	\$ 649.5	\$ 128.1	2,159,284	2,773,335
KEDLI		\$ 27.5		976,200
KEDNY		\$ 73.9		2,255,688
NFG		\$ 2.6		49,950
NiMo	\$ 132.6	\$ -	656,200	-
NYSEG	\$ 121.8	\$ 10.3	563,540	449,560
O&R	\$ 36.6	\$ 11.1	256,447	297,363
RG&E	\$ 53.8	\$ 4.7	260,000	229,399
Total	\$ 1,012.3	\$ 259.3	3,964,171	7,066,535

Three utilities, Central Hudson, Con Edison, and Orange & Rockland performed company-specific analyses to develop budgets and targets. Details of these analyses are provided in utility-specific chapters later in this Report. The remaining utilities adopted the presumptive targets and budgets that were presented in Appendix A of the Energy Efficiency Order.

The NY Electric Utilities request Commission authorization of those 2020 to 2025 utility budgets and targets provided in Table 2 to accelerate the installation of heat pumps in the State. As background, while the Commission established an initial heat pump budget target of \$250 million, NYSERDA updated the heat pump savings methodology presented in its January 2019 “Analysis of Residential Heat Pump Potential and Economics” report (the “Heat Pump Potential Study”)⁴ and presented it to the NY Electric Utilities two weeks ago. These updates were made to achieve better alignment with the heat pump savings methodology used in the New York State Technical Resource Manual (“TRM”) by modifying assumptions related to the resources that heat pumps are replacing and reflecting more accurate heat pump load factors. The updates resulted in the overall budget estimate increasing from \$250 million to \$334 million. Table 2 compares the results of the updated Heat Pump Potential Study to the NY Electric Utilities’ proposed heat pump budgets and targets.

⁴ <https://www.nyserdera.ny.gov/-/media/Files/Publications/PPSER/NYSERDA/18-44-HeatPump.pdf>

Table 2: Comparison of Electric Utility Heat Pump Budgets and Targets to Those Developed in the NYSERDA Heat Pump Potential Study Update (for years 2020-2025)

	GBtu Target		Budget (\$millions)	
	Heat Pump Potential Study	Utility Proposed	Heat Pump Potential Study	Utility Proposed
CenHud	416	TBD	\$ 30.2	\$ 30.2
ConEd	804	804	\$ 83.2	\$ 189.6
NYSEG	1,907	TBD	\$ 110.1	TBD
NiMO	1,559	1,010	\$ 90.3	\$ 57.6
O&R	160	160	\$ 11.6	\$ 11.6
RG&E	153	TBD	\$ 9.2	TBD
Total	4,999	1,974	\$ 334.6	\$ 289.0

	GBtu Target		Budget (\$millions)	
	Heat Pump Potential Study	Utility Proposed	Heat Pump Potential Study	Utility Proposed
CenHud	416	416	\$ 30.2	\$ 30.2
ConEd	804	804	\$ 83.2	\$ 189.6
NYSEG	1,907	TBD	\$ 110.1	TBD
NiMO	1,559	1,010	\$ 90.3	\$ 57.6
O&R	160	160	\$ 11.6	\$ 11.6
RG&E	153	TBD	\$ 9.2	TBD
Total	4,999	2,390	\$ 334.6	\$ 289.0

The figures in this table for Con Edison reflect a \$106 million increase over the projected budget from the updated Heat Pump Potential Study.⁵ Con Edison increased the budget because it determined that it would not be able to achieve its TBtu target without a budget increase above the amount reflected in the updated Heat Pump Potential Study. A detailed discussion explaining the reasons for Con Edison’s budget increase request appears later in this Report.

These figures also show that National Grid has reduced its budget and TBtu target based on its own analysis of heat pump potential for Niagara Mohawk. This is discussed in more detail later in National Grid’s utility-specific chapter.

NYSEG and RG&E are still assessing the heat pump potential and respective budgets for their territories and are not able to a commit to a target or budget at this time. Central Hudson proposes to adopt the company-specific cumulative budget developed within the updated Heat Pump Potential Study of \$30.2M. The Company is still assessing the heat pump potential for its service territory and is not able to commit to a specific target at this time.

⁵ Con Edison proposes to use \$115 million of unspent energy efficiency moneys to partially fund its budget.

Finally, from an administrative perspective, the NY Utilities request that that Staff revise the Clean Energy Guidance Document CE-04⁶ to reflect the fact that a regularly updated inventory of energy efficiency programs will be maintained on the Clean Energy Dashboard (“Dashboard”) and to remove references in that document to Clean Energy Advisory Council (“CEAC”) Working Groups that have been disbanded.⁷

II. Introduction

The NY Utilities support New York’s efforts to advance the cost-effective development of energy efficiency resources. This Report augments the February 2019 utility-specific Energy Efficiency Transition Implementation Plan/System Energy Efficiency Plan (“ETIP/SEEP”) filings for 2019-2020 by establishing energy efficiency targets and budgets for 2021 through 2025. These targets and budgets facilitate the achievement of New York’s 2025 goals of an incremental reduction of 31 trillion British Thermal Units (“TBtu”) of energy use and the statewide energy efficiency target of 185 TBtu of end-use energy savings. This Report also addresses the Energy Efficiency Order’s requirement that heat pumps deliver five TBtu of the overall 31 TBtu target and that more resources be devoted to enhancing services to LMI customers.

This Report should be viewed as a preliminary step in an iterative process establishing the way the NY Utilities seek to achieve energy efficiency goals over the longer term. The principles and concepts outlined herein are, in many instances high level and require additional work, refinement, and testing, with additional focus on the following two key areas for the 2021 through 2025 period.

The first area is continued collaboration between NYSERDA and the Utilities. The Utilities and NYSERDA developed this Report together, although the proposals contained herein represent the positions of the NY Utilities. The next steps involve the development of implementation plans and actual implementation activities which will require continued communication, collaboration, and coordination between the Utilities and NYSERDA. Representative examples of future collaboration opportunities include, but are not limited to, the establishment of a statewide electric utility heat pump program, the development of more uniform contractor eligibility requirements, and the implementation of a statewide LMI platform. The second area involves recognition that the targets, budgets, electric utility heat pump projections, and LMI program concepts in this Report are based on current “best estimates” of the trajectory of energy efficiency programs and that to meet the goals set forth in the Energy Efficiency Order, the Utilities must maintain flexibility to adjust programs as warranted. Energy efficiency implementation plans will provide transparency of such updates and adjustments.

⁶ CEAC I&C Working Group, Neville Letter Regarding Layered Incentive Guidance, (issued October 3, 2016).

⁷ The Commission, in its March 15, 2018 Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 (“2018 Energy Efficiency Order”) in Case 15-M-0252, disbanded the CEAC Steering Committee and its Clean Energy Implementation & Coordination Working Group which previously had the responsibility to maintain an inventory of energy efficiency program information.

III. Organization of Report

This Report is organized into the following chapters and appendices.

Chapter One addresses the NY Utilities' proposed incremental Energy Efficiency targets and budgets. In this Chapter, the Utilities adopt (with certain modifications specific to Con Edison,⁸ Orange & Rockland, and Central Hudson) the presumptive targets and budgets that were included in the Energy Efficiency Order.

Chapter Two addresses collaborative activities between NYSERDA and the Utilities. This Chapter recognizes the collaboration principles developed by the CEAC and guidance provided by the Department of Public Service Staff ("Staff"). This Chapter also describes the collaborative efforts that have produced this Report and identifies areas for future collaborative efforts.

Chapter Three addresses accelerated heat pump programs and describes how NYSERDA and the NY Electric Utilities plan to make progress towards a unified statewide effort. This chapter also explains why the current budget for heat pump acceleration is likely to increase. This updated budget forecast requires that the Commission update its overall budget cap to reflect current expectations of total cost. Alternatively, if the Commission prefers to minimize incremental about bill impacts, it could retain the initial \$250 million heat pump budget while adjusting the TBtu target accordingly.

Chapter Four addresses programs for LMI customers and assesses the strengths of NYSERDA and the Utilities and presents a high-level plan to better utilize the skills of relevant entities to deliver enhanced energy efficiency products and services to LMI customers. A considerable aspect of this work involves collaboration between NYSERDA and the Utilities to position the expanded LMI programs to complement other programs administered by the NY Utilities, such as the bill payment assistance programs and REV demonstration projects.

A section regarding energy efficiency-related Earnings Adjustment Mechanisms ("EAMs") follows Chapter Four. This section notes that EAMs should be developed in pending and future rate cases and states that flexibility is necessary given the diverse needs of the utility service territories.

Lastly, utility-specific chapters are included at the end of this Report which address various matters related to each utility's targets, budgets, cost recovery, and funding sources.

⁸ Con Edison's filing is more expansive than other filings as Con Edison includes additional energy efficiency rate case items. Con Edison's filing will be considered within the context of its pending rate case. Cases 19-E-0065 and 19-G-0066, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric and Gas Service*, filed January 31, 2019.

IV. Chapter One: Energy Efficiency Targets and Budgets

The Energy Efficiency Order required the Utilities, in consultation with NYSERDA, to submit a filing proposing energy efficiency targets and budgets for 2021-2025.⁹ The Commission developed presumptive targets and budgets in the Energy Efficiency Order, that produce incremental savings of 31 TBtu and a reduction in adjusted annual utility electricity sales of three percent by 2025, on a statewide basis.¹⁰ The presumptive electric targets assume that each utility will achieve a two percent reduction in electric sales by 2025, which, when combined with NYSERDA energy efficiency efforts, achieves the three percent of MWh sales by 2025.

The presumptive targets and budgets in the Energy Efficiency Order are a reasonable starting point in the continued development and execution of energy efficiency programs that make meaningful contributions to support the achievement of the State's 2025 energy efficiency targets. While the NY Utilities' proposed targets are generally aligned with the data presented in the Energy Efficiency Order,¹¹ the NY Utilities are concerned about whether the energy savings targets are achievable at the initially identified funding levels, due to: (1) the anticipated need for the Utilities to pursue deeper energy efficiency savings; (2) changing budget estimates as baselines change and cheaper measures begin to saturate; and (3) the fact that the budgets and targets presented in the Energy Efficiency Order are forecasts. For example, NYSERDA updated the current estimated cost of implementing the Commission's requirement that heat pumps displace five TBtu of other energy resources to reflect more realistic assumptions. Additional changes to some of the budget estimates may be needed as more experience is gained. The NY Utilities, therefore, request that the Commission provide the flexibility to periodically modify energy efficiency budgets proactively, as needed.

The remainder of this chapter summarizes the proposed incremental targets and budgets, over levels assumed under ETIP/SEEP and inclusive of the integration of Non-Pipeline Solutions portfolio¹² for Con Edison, for each utility from 2021 through 2025. The budgets and targets presented in Tables 3 through 6 start with the incremental targets outlined in the Energy

⁹ Energy Efficiency Order, pp. 29-30.

¹⁰ Presumptive electric targets are based on the 2015 New York Independent System Operator ("NYISO") Gold Book (which is also the basis forecast for the State's Clean Energy Standard) and the 2015 Energy Information Administration ("EIA") Annual Energy Outlook, which was used to forecast onsite electricity generation and consumption. The gas forecast used 2016 sales and was held static through 2025. Both forecasts are adjusted to reflect jurisdictional utility load as well as prior years' projected efficiency achievements under anticipated programs, so that the forecast for 2025 reflects utility sales after adjusting for energy efficiency.

¹¹ Con Edison and Orange & Rockland have made adjustments to their budgets and targets which are described in more detail in their respective chapters. The remaining utilities have adopted the presumptive targets and budgets and provide additional information in utility specific chapters later in this Report.

¹² Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving with Modification the Non-Pipeline Solutions Portfolio ("NPS Order").

Efficiency Order, reflect company-specific modifications where necessary and as outlined in each company’s chapter, and do not include assumptions for “not-yet-approved” targets from future rate cases. These figures also do not reflect the budget for electric utility heat pumps which is developed in the chapter Three of this Report. Table 1 below provides the NY Utilities’ proposed incremental electric gross MWh targets for 2021 through 2025. Utility-specific assumptions are outlined in utility-specific chapters later in this Report.

Table 3: Proposed Incremental Electric Targets by IOU (Gross MWh)¹³

IOU	2021	2022	2023	2024	2025	2021-2025
CenHud	6,000	10,000	14,000	17,000	21,700	68,700
ConEd	266,262	337,755	431,227	525,339	598,701	2,159,284
NiMo	41,000	75,000	130,000	182,000	228,200	656,200
NYSEG	39,000	64,000	106,000	154,000	200,540	563,540
O&R	50,162	50,530	51,120	51,931	52,702	256,447
RG&E	22,000	32,000	48,000	68,000	90,000	260,000
Total	389,262	538,755	757,227	985,339	1,188,591	3,964,171

Table 4 below provides the NY Utilities’ proposed incremental electric budgets corresponding to the proposed incremental electric targets for 2021 through 2025.

Table 4: Proposed Incremental Electric Budgets by IOU

IOU	2021	2022	2023	2024	2025
CenHud	\$1,647,000	\$2,693,000	\$3,685,000	\$4,408,000	\$5,562,000
ConEd	\$79,374,793	\$101,050,659	\$129,728,218	\$158,515,897	\$180,848,751
NiMo	\$8,284,634	\$15,154,819	\$26,268,353	\$36,775,694	\$46,111,063
NYSEG	\$8,428,564	\$13,831,489	\$22,908,404	\$33,282,021	\$43,340,150
O&R	\$4,235,394	\$7,488,185	\$7,828,216	\$8,295,757	\$8,739,921
RG&E	\$4,555,827	\$6,626,657	\$9,939,986	\$14,081,647	\$18,637,473
Total	106,526,212	146,844,809	200,358,177	255,359,016	303,239,358

Table 5 below provides the NY Utilities’ proposed incremental gas gross million British thermal unit (“MMBtu”) targets for 2021 through 2025.

¹³ While the electric targets shown in Table 1 are expressed in Gross MWh, the NY Utilities recognize that the Commission has outlined corresponding MMBtu-equivalent presumptive targets in the Energy Efficiency Order.

Table 5: Proposed Incremental Gas Targets by IOU (Gross MMBtu)¹⁴

IOU	2021	2022	2023	2024	2025	2021-2025
CenHud	1,000	3,000	6,000	10,000	15,040	35,040
ConEd	492,000	556,000	556,000	556,000	613,335	2,773,335
KEDLI	102,000	135,000	177,000	240,000	322,200	976,200
KEDNY	228,000	292,000	422,000	584,000	729,688	2,255,688
NFG	2,000	5,000	8,000	14,000	20,950	49,950
NiMo	-	-	-	-	-	-
NYSEG	47,000	60,000	82,000	113,000	147,560	449,560
O&R	17,493	44,000	61,000	79,000	95,870	297,363
RG&E	17,000	28,000	43,000	61,000	80,399	229,399
Total	906,493	1,123,000	1,355,000	1,657,000	2,025,042	7,066,535

Table 6 below provides the NY Utilities’ proposed incremental gas budgets corresponding to the proposed incremental gas targets for 2021 through 2025.

Table 6: Proposed Incremental Gas Budgets by IOU

IOU	2021	2022	2023	2024	2025
CenHud	\$33,000	\$98,000	\$195,000	\$322,000	\$482,000
ConEd	\$22,254,848	\$25,676,184	\$25,663,057	\$25,961,952	\$28,495,257
KEDLI	\$2,872,048	\$3,801,240	\$4,983,849	\$6,757,761	\$9,072,294
KEDNY	\$7,465,446	\$9,561,010	\$13,817,623	\$19,122,019	\$23,892,308
NFG	\$104,172	\$260,431	\$416,690	\$729,207	\$1,091,206
NiMo	\$-	\$-	\$-	\$-	\$-
NYSEG	\$1,072,870	\$1,369,621	\$1,871,816	\$2,579,453	\$3,368,355
O&R	\$387,666	\$1,681,201	\$2,330,756	\$3,018,520	\$3,663,107
RG&E	\$347,283	\$571,995	\$878,421	\$1,246,132	\$1,642,423
Total	\$34,537,333	\$43,019,682	\$50,157,212	\$59,737,044	\$71,706,950

¹⁴ Niagara Mohawk’s gas targets are currently at a level that does not necessitate an incremental increase.

V. Chapter Two: Collaboration

The Energy Efficiency Order identified the need for the NY Utilities to coordinate their efforts with NYSERDA as an important practice for as part of the development program strategies where it makes sense for the NY Utilities, NYSERDA, and customers. The Order noted that the NY Utilities and NYSERDA should continue to align mutual efforts with State goals, provide services to the market with “comprehensive offerings including outreach and marketing,” better coordinate utility energy efficiency efforts with market development work related to the Clean Energy Fund (“CEF”) where practical, develop structures that enhance the ability of market actors to drive uptake, reduce costs and develop innovative solutions, and assure that sufficient public-facing program information is available to stakeholders.¹⁵ The Order noted that this Report should describe the collaboration structure between the NY Utilities and NYSERDA, with delineated roles, and proposed conditions under which savings resulting from collaborative efforts that encompass NYSERDA programs may be counted toward utility EAMs where applicable.

The NY Utilities and NYSERDA have collaborated extensively to produce this Report, are committed to work together collaboratively in the future and are in the process of determining how best to work together in a manner that leverages their respective capabilities. The collaboration principles developed in 2016 and 2017, as part of the CEAC and the subsequent Staff guidance,¹⁶ form a foundation for future work with NYSERDA. This vision for collaboration with NYSERDA involves building upon ongoing activities (e.g., activities in support of this Report) and structuring activities that will continue to focus on customers. The collaboration structure going forward is intended to support the Utilities’ and NYSERDA’s planning to address identified market needs. To accomplish this, the NY Utilities and NYSERDA will share with each other current and prospective energy efficiency strategies by sector and will engage regularly to scout strategic opportunities for potential collaboration.

One example of collaboration has been the joint efforts of the Utilities and NYSERDA to develop the Chapters Three and Four of this Report. While the proposals contained in chapters Three and Four represent the positions of the NY Utilities, NYSERDA helped identify key issues, develop the overall approach to address such issues, helped develop supporting figures, and in some cases, provide drafts of chapter segments. The NY Utilities appreciate this support.

Another example of collaboration between NYSERDA and the Utilities is the online Clean Energy Dashboard (the “Dashboard”) being developed by NYSERDA with Staff and the Utilities. The Dashboard tracks results from all customer-funded clean energy activities.¹⁷ The

¹⁵ Energy Efficiency Order, pp. 31-32.

¹⁶ Matter 16-01005, *In the Matter of the CEAC’s Clean Energy Implementation & Coordination Working Group*, New York Program Administrator Coordination Report (“CEAC I&C Working Group”) (filed January 31, 2017) and Multiple Incentives Recommendations Report (filed September 13, 2016).

¹⁷ The Commission, in its January 21, 2016 Order Authorizing the Clean Energy Fund Framework in Case 14-M-0094, required NYSERDA to develop and implement this online dashboard.

Dashboard will provide transparency to stakeholders while minimizing the administrative burdens and costs associated with reporting going forward.

At launch (currently anticipated in April 2019), the energy efficiency program inventory maintained on the Dashboard will include a brief description of each energy efficiency program in each utility's ETIP/SEEP and rate case energy efficiency portfolio (where applicable) as well as in NYSERDA's Clean Energy Fund market development and innovation portfolios. In subsequent quarterly updates, the Dashboard will further expand to include additional non-ETIP/SEEP utility energy efficiency activities¹⁸ as well as NYSERDA's NY Green Bank portfolio. The NY Utilities and NYSERDA will also consider opportunities to augment the program inventory information made available on the Dashboard, such as providing greater insight into collaborative activities and complementary incentives. Consequently, the NY Utilities propose that Staff revise the Clean Energy Guidance Document CE-04¹⁹ to reflect that a regularly updated inventory of energy efficiency programs will be maintained on the Dashboard and to remove references to CEAC Working Groups which have since been disbanded.²⁰

The NY Utilities will continue to explore potential areas of future collaboration with NYSERDA. As part of this effort, the NY Utilities will provide NYSERDA access to certain data based on currently effective Commission Orders and policy.²¹ The NY Utilities are also actively working with NYSERDA on the Utility Energy Registry.²²

Over the next few years, it is expected that there will be multiple meaningful collaborations between specific utilities and NYSERDA to address targeted market opportunities and advance potential programmatic enhancements to provide value to customers and/or stakeholders. Examples include determining contractor eligibility requirements, addressing sector-specific or solution-specific barriers and/or market gaps, and leveraging NYSERDA's statewide awareness and outreach capabilities with utilities offering more focused, targeted marketing to their customers.

Further, the development of more uniform contractor eligibility requirements across the State may reduce administrative costs by eliminating the need for energy efficiency solution providers to meet different contracting requirements. For example, the NY Utilities may be able to better standardize contractor insurance and licensing requirements, based on the types of

¹⁸ Case 15-M-0252, *In the Matter of Utility Energy Efficiency Programs*, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 ("Energy Efficiency Proceeding"), Revised CE-02: ETIP/SEEP Guidance Document, (issued December 20, 2018).

¹⁹ CEAC I&C Working Group, Neville Letter Regarding Layered Incentive Guidance, (issued October 3, 2016).

²⁰ The Commission, in its March 15, 2018 Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 in Case 15-M-0252, disbanded the CEAC Steering Committee and its Clean Energy Implementation & Coordination Working Group which previously had the responsibility to maintain an inventory of energy efficiency program information.

²¹ For example, the Commission recently articulated the circumstances by which NYSERDA is permitted to request customer-specific data from the NY Utilities without customer consent in its Order Regarding New York State Energy Research and Development Authority Data Access and Legacy Reporting ("NYSERDA Data Order"), issued January 17, 2019 in Cases 14-M-0094, et al.

²² Cases 17-M-0315 et al., *In the Matter of the Utility Energy Registry*.

programs and initiatives being offered. The NY Utilities will explore this and other related coordination efforts with NYSERDA.

NYSERDA and the NY Utilities are also exploring ways to better align NYSERDA's statewide awareness and outreach capabilities with more targeted marketing by the Utilities to their customers. Furthermore, the Utilities and NYSERDA will strive to make it easier for customers and market partners to learn about available energy efficiency incentives, whether those incentives are offered by the NY Utilities or by NYSERDA. Implementation steps to advance this objective may vary across utility territories and will include the development, publication, and maintenance of public-facing resources with program information.

Various potential collaboration models are under consideration and will be explored. Examples of collaboration models are outlined in Appendix A. The models are intended to:

- Identify and pursue situations where combined efforts drive meaningful incremental benefits over individual efforts;
- Determine optimal paths to increase energy savings and related benefits from the various programs (*e.g.*, ETIP/SEEP efforts, new utility programs, and CEF initiatives); and
- Determine how dual reported savings (*i.e.*, by both a utility and NYSERDA) should be netted out at the state level.

Where a defined collaborative effort is developed between a specific utility and NYSERDA, the utility and NYSERDA will describe the initiative in their respective public-facing filings (*i.e.*, in ETIP/SEEP updates and in the relevant CEF Investment Plan chapters). As outlined in the 2018 ETIP Order,²³ an individual utility and NYSERDA may jointly contribute to the design and implementation of a pilot or program for which both the individual utility and NYSERDA will report the resulting energy savings. The NY Utilities propose that such collaborative pilots and defined collaborative efforts not be subject to a predetermined cap on the energy savings that may be counted toward utility achievements, provided that the ETIP/SEEP or the CEF Investment Plan filings contain clear descriptions of the objective and scope, implementation period, rationale for how joint investments will increase impact, and how the resulting energy savings will be quantified and reported.

²³ Energy Efficiency Order.

VI. Chapter Three: Accelerated Heat Pump Deployment

Introduction

This chapter addresses the following aspects of a proposed statewide heat pump policy framework for the period 2020-2025:

1. Utility funding and budgets
2. Utility commitment
3. Target by electric utility
4. Incentive structure
5. Eligibility
6. Leveraging building envelope improvements
7. Deployment projection
8. Cost Reductions
9. Low- and moderate- income customers
10. Inverse cost shift
11. Quality assurance and quality control
12. Program roles, delivery and review
13. Timing and transitional arrangements
14. Complementary interventions: NWA and NPAs
15. Complementary interventions: electric rate design
16. Complementary interventions: market development through Clean Energy Fund
17. Energy savings accounting, target accounting and utility compensation
18. Implementation plan topics

1. Utility Funding and Budgets

During the Collaborative Process, NYSERDA updated the savings methodology presented in its January 2019 “Analysis of Residential Heat Pump Potential and Economics” report.²⁴ The updates were made to achieve better alignment with the heat pump savings methodology used in the TRM by modifying assumptions related to the resources that heat pumps are replacing and reflecting more accurate heat pump load factors. The updates resulted in an overall budget estimate increase from \$250 million to \$334 million.

For Con Edison, the updates included the use of a new and unique downstate discount rate, which resulted in a significant reduction in assumed incentive levels. The new incentive levels, however, are insufficient for Con Edison’s customers to achieve economic indifference between heat pumps and alternative heating technologies such as oil-based heating. As a result,

²⁴ <https://www.nyserd.org/-/media/Files/Publications/PPSER/NYSERDA/18-44-HeatPump.pdf>

Con Edison determined that a budget of \$190 million will be required to achieve the 0.8 TBtu target for its service territory. This amount is \$115 million above the \$75 million NYSERDA allocation to Con Edison from the updated Heat Pump Potential Study. Con Edison developed the budget based on the NYSERDA methodology but applied a customer discount rate at the same level that NYSERDA applied to the upstate electric utility territories and assumed a more modest pace of reductions in real installed costs. Con Edison will use \$115 million of unspent energy efficiency moneys to help fund its budget.

National Grid estimates that Niagara Mohawk will spend approximately \$58 million on a residential and small-scale heat pump program by 2025 rather than the \$90 million that NYSERDA estimated as part of the revised budget computation, which included large-scale market assumptions. As explained in more detail in the National Grid chapter, the company does not believe its TBtu target in the updated Heat Pump Potential Study is achievable.

NYSEG and RG&E are currently still assessing the heat pump potential in their service territories and are not able to commit to a target and budget estimate at this time. More information is provided in the NYSEG and RG&E chapter later in this Report.

NYSERDA proposes to fund heat pump demonstration projects and pilots through the CEF. The NY Electric Utilities support NYSERDA's proposal. This approach will leverage the CEF to test and demonstrate strategies that can increase adoption of heat pumps for LMI customers, while addressing institutional barriers and advancing solutions that can work in typical low-income building types.

While the NY Electric Utilities believe that the proposed budget will encourage higher levels of adoption across the state, the heat pump TBtu target and budget estimates are premised on uncertain assumptions related to regional variations of market growth, required level of financial support, and general customer receptivity and adoption rates over the next six years. Because of the inherent uncertainty of forecasts, the NY Electric Utilities believe that program budget flexibility is critical to achieving significant TBtu savings through heat pumps.

It is also important to recognize that while the adoption rate projections from the Heat Pump Potential Study focus on the residential market, NYSERDA's program data shows that there is interest in heat pumps by the commercial sector where larger buildings have produced about 35 percent of the overall savings in NYSERDA's heat pump program. This data suggests that heat pump efforts can focus on both residential and commercial heat pump applications. The commercial/large building market will be explored in further detail during the development of the implementation plan and could become an important component of the statewide framework.

2. Utility Commitment

The NY Electric Utilities will strive to achieve the Energy Efficiency Order's heat pump goals by creating and operating incentive programs designed to transform the heat pump market over the next six years. To support the NY Electric Utilities' efforts, NYSERDA has committed to continuing many of its market enablement activities related to heat pumps. The commitment

by the NY Electric Utilities to work to achieve the goal during the 2020-2025 period represents a significant increase in State support for heat pump investments, including more than a 250 percent increase in the annual monetary support for heat pumps by electric customers as compared to the 2019 funding for incentive levels in place in 2019. The five TBtu cumulative savings goal also requires a significant increase in market adoption rates from current levels and as explained in the utility-specific chapters later in this Report may not be achievable.

The remainder of this chapter describes the NY Electric Utilities' proposals regarding key principles provided by the Commission in the Energy Efficiency Order for a policy framework to develop the heat pump market in New York:

- **Drive market scale to produce cost reductions:** the program will enable cost effective heat pump adoption and increase uptake levels with the additional goal of striving to reduce costs which, if demonstrated to be feasible, could reduce the need for incentives over time. The approach to incentive level reductions over time is set out in Section 6.
- **A clear and stable market signal:** the proposal offers the heat pump market a six-year commitment to supporting this technology, at a substantially higher total budget amount than was previously provided, which is expected to enable the long-term investments by market participants to deliver economies of scale and technological innovation that could produce a sustainable market and potentially cost reductions. Key elements of a clear and stable program structure are an initial period of incentive stability, followed by adjustments to incentives if warranted, based on actual results. Recognizing that to operate within budget limits, incentives need to decrease over time, the NY Electric Utilities will consider approaches as appropriate such as the declining block mechanism in the NY Sun program, as is discussed in Section 8.
- **Simple and workable from the consumer standpoint:** the proposed incentive structure should balance program simplicity with the importance of reflecting differences between regional installation costs, operating costs, and market segments. The proposal is transparent from a customer's perspective because it contains a small number of different incentive payment levels with utilities in the same region adopting similar incentive levels in order to increase overall program consistency and simplicity. The proposed incentive structure is discussed in more detail in Section 3.
- **Uniformity and Flexibility:** the NY Electric Utilities will strive to pursue a largely uniform program framework, including the development of a common program manual during the implementation stage. The NY Electric Utilities will pursue incentive structures that reflect the appropriate level of uniformity while also maintaining flexibility at the program delivery level to reflect differences among utility service territories. In the past few years, the NY Electric Utilities have operated their energy efficiency portfolios with greater flexibility for program design, delivery, and implementation. This flexibility has been an integral component of success. Flexibility should be a key consideration for the statewide heat pump program to provide a balanced approach to meeting the ambitious targets outlined in this filing.

- **Smooth transition from current programs to avoid disruption:** both existing NYSERDA and NY Electric Utility heat pump incentive programs will be transitioned into the new framework, where the NY Electric Utilities conduct resource procurement for heat pumps and NYSERDA performs market enablement functions, as discussed in Section 12.

In addition, the proposal incorporates two other themes:

- Seek solutions that allow LMI customers to receive benefits from heat pump solutions.
- Encourage customer actions that synchronize building envelope improvements and heat pump installations to the extent possible under the overall budget and unit cost limits, which will enhance customer savings and mitigate the possibility of a potential electric winter peak. However, care will be taken not to discourage customers from participating in heat pump programs.

3. Initial Heat Pump Targets by Electric Utility

The initial statewide heat pump savings target for the period 2020-2025 in this proposal is consistent with the five TBtu target set out in the Order. The proposed initial allocation of this target based on NYSERDA’s updated Heat Pump Potential Study for NY Electric Utility is shown in Table 7.

Table 7: NYSERDA Estimated Heat Pump GBtu Targets by Electric Utility

Utility	Heat Pump Potential Study	Utility Proposed
Central Hudson	416	416
ConEd	804	804
NYSEG	1,907	TBD
NiMo	1,559	1,010
O&R	160	160
RGE	153	TBD
Total	5,000	2,390

Authorized targets should be applied to the NY Electric Utilities as cumulative targets to be met by 2025. Annual deployment projections, however, can be developed by each utility to assess progress against the target on an ongoing basis and identify the need for program changes. An indicative projected deployment trajectory is provided in Section 6. The NY Electric Utilities will use, as necessary, the appropriate level of flexibility to achieve program targets within the constraint of their individual funding levels. Consideration should also be given, during the program review process, to the development of a mechanism that allows the NY Electric Utilities to shift savings targets among their respective service territories.

4. Incentive Structure

In order to achieve the heat pump targets, the Energy Efficiency Order recognizes that a program incentivizing adoption of heat pumps is needed.²⁵ Effective incentives also require complementary non-incentive initiatives. As such, the proposed budget for the statewide incentive program (see Section 8) includes funding for electric utility implementation activities, including marketing/outreach and QA/QC activities. In addition, Section 15 describes ongoing and planned NYSERDA market enablement actions, such as workforce training and supply chain development.

In accordance with the principles discussed in Section 1 above, this proposal describes the following high-level characteristics of the incentive programs:

- Flexibility is a key consideration. The NY Electric Utilities will consider incentive options such as those put forth in the Energy Efficiency Order. However, the nascence of this market, as well as lack of precedent or local data, increases the risk that rigid incentive mechanisms conceived in an early phase of program framework development will result in incentives being too high or too low. The NY Electric Utilities will propose specific program delivery rules (including incentive levels) in heat pump implementation plan submissions later in 2019.
- Incentive levels are proposed to be provided in most cases as one-time rebate payments per thermal ton of installed capacity for all residential and small-scale (up to ten tons) non-residential installations.²⁶
- Incentive design for larger installations will likely include some level of one-time rebate, but the incentive levels and other program delivery specifics for the application of the incentive to large-scale installations will be developed as part of each NY Electric Utility's implementation plan. The NY Electric Utilities agree that larger installations will likely be needed to reach statewide targets and be included in the incentive offerings. The NY Electric Utilities request flexibility to propose territory specific large commercial programs in the implementation plan, future programs reviews outlined in section X, ETIP/SEEP filings or rate cases.
- Incentive differentiation for the NY Electric Utilities by geography primarily reflecting three regions across the State, based on quantification of subsidy needs.
- Limited differentiation of incentive levels (per ton) across the various types of heat pumps, reflecting differences in the amounts of incentive needed between heat pump types to make them competitive with the lifetime capital expenditure and operating costs of a fuel oil-based heating system. The specifics of technology incentive level differentiation will be considered further during the implementation.

²⁵ Energy Efficiency Order, pp. 60-61.

²⁶ Central Hudson and Orange & Rockland are required, under existing rate plans, to make certain incentive payments over time.

- The opportunity to leverage the combination of heat pumps and building envelope efficiency may be addressed through the incentive program and/or related approaches outside the incentive as described in Sections 5 and 7.
- Options for delivery as downstream, midstream or upstream incentives (direct to customers, direct to contractors or through distributors) or some combination of incentive delivery points will be explored at the implementation stage.
- NY Electric Utilities will consider a mechanism to reduce incentives over time, if warranted by market circumstances and customer adoption rates, in a predictable manner that provides a level of market certainty, such as by exploring a block structure as described in Section 8.
- Any changes to incentive structure or incentive levels would be considered through a program review process as set out in Section 12.

While the budget and funding projections set forth in Section 8 reflect the current estimates of the NY Electric Utilities and NYSERDA, such estimates may need to be updated during the development of implementation plans.

5. Eligibility

The following high-level approach is proposed regarding incentive eligibility. Eligibility criteria will be developed and applied consistently on a statewide basis, building upon current NYSERDA program guidelines (see also Section 12 on development of a common program manual).

- The incentive would be available across the range of heat pump types, including ground source and air source, space heating and cooling, hot water heating, process heating, and across all building heat and cooling distribution systems including ducts, hydronic and variable refrigerant flow technologies.
- The adoption of air source cold climate heat pumps will be encouraged where appropriate, based on the parameters of the application.
- While the program will primarily pursue systems that include heating (either space heating combined with cooling or hot water heating), the program may continue to provide some funding to cooling-only heat pumps, employing the same savings methodology as used for all other types of heat pumps. Similarly, the program is expected to primarily pursue whole-building systems (heat pumps that deliver all or most of a buildings space heating/cooling needs, hot water needs, or both), but may provide some level of funding to heat pumps that serve only part of the relevant thermal load.
- The heat pump program will be designed primarily to offset consumption of the most carbon intensive delivered fuels. Other applications, such as sites that currently heat with natural gas, may not be cost beneficial for customers. The range of displaced fuels and baseline conditions will be evaluated for eligibility in more detail during the implementation phase and may be revised over time as technologies improve.

- Eligibility would include heat pumps for new construction properties as well as retrofits in existing buildings.
- The heat pump initiative will strive to reach all types of customers and buildings, including small-scale and large-scale residential, and commercial buildings.
- Participation will be contingent on current or (in the case of new construction) future customer contribution to electric rate elements that provide cost recovery for utility heat pump incentive programs. Customers who do not fund the heat pump incentive through their electric delivery rates may not ‘opt-in’ to the program.
- Further eligibility requirements to be developed in the implementation plan may include requirements related to parameters such as heat pump coefficient of performance, qualifying equipment and installer/ contractor lists, and other quality assurance requirements.

6. Leveraging Building Shell Improvements

Encouraging customers to improve the energy efficiency of their homes through building shell measures such as air sealing and insulation offers several advantages. Building shell measures reducing overall heating and cooling demand of the building would, allow the customer to potentially install a smaller heat pump system. The efficiency and effectiveness of the heat pump itself would reduce the heating and cooling needs of the building, reducing system peak demand. It would also lower the heat pump customer’s electric bill. Building shell improvements may also facilitate customers being able to benefit from innovative electric rate designs, for example by reducing peak heat pump electric demand for customers participating in demand-based electric rates.

Barriers to the tight coupling of heat pump incentives to building shell improvements should be considered. These barriers include: (1) higher upfront capital costs when building shell improvements are required; (2) extended customer disruption due to a retrofit of a heat pump and building shell improvements; and (3) that requiring building shell improvements for heat pumps when they are not required for other clean energy investments (*e.g.*, distributed solar) may result in customers preferring those other clean energy options.

Approaches to synchronizing building shell improvements with heat pump installations will be explored in the implementation phase.

NYSERDA is exploring simple packages of measures and strategies to make a building “heat pump ready” – focusing on air sealing and insulation. This may potentially be delivered in concert with NY Electric Utility heat pump incentives.

7. Deployment Projection

Based on the updated Heat Pump Potential Study (including the heat pump methodology updates described in Section 1), a program adoption projection is provided in Tables 8 and 9. These figures are for illustrative purposes only and as noted in Section 2, targets are proposed as cumulative 2025 targets. The primary uptake indicator is expressed as projected energy savings by year and electric utility. An estimate of the resulting number residential and small-scale (up to

ten tons) non-residential installations is provided as well. This assumes, consistent with adoption data under NYSERDA’s current heat pump rebate programs, that approximately one third of the savings would be delivered through large commercial or large multifamily installations, and accordingly reflects two thirds of the total target.

Table 8: Projected Total Onsite Net Energy Savings by Year (GBtu/y)

Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	TBD	TBD	TBD	TBD	TBD	TBD	TBD
ConEd	24	66	94	143	205	273	804
NYSEG	TBD	TBD	TBD	TBD	TBD	TBD	TBD
NiMo	55	117	167	201	224	246	1,010
O&R	14	19	26	29	34	38	160
RGE	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total	402	606	811	909	1,060	1,212	1,974

Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	37	50	67	75	87	100	416
ConEd	24	66	94	143	205	273	804
NYSEG	TBD	TBD	TBD	TBD	TBD	TBD	TBD
NiMo	55	117	167	201	224	246	1,010
O&R	14	19	26	29	34	38	160
RGE	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total	402	606	811	909	1,060	1,212	2,390

Table 9: Projected Small-Scale & Residential Installations by Year

Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	TBD	TBD	TBD	TBD	TBD	TBD	TBD
ConEd	500	1,400	2,000	3,030	4,347	5,796	17,073
NYSEG	TBD	TBD	TBD	TBD	TBD	TBD	TBD
NiMo	975	2,100	3,000	3,600	4,000	4,400	18,075
O&R	209	279	370	418	488	557	2,321
RGE	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total	5,061	7,627	10,196	11,441	13,341	15,246	37,469

Utility	2020	2021	2022	2023	2024	2025	Total
Central Hudson	543	724	959	1,086	1,266	1,447	6,024
ConEd	500	1,400	2,000	3,030	4,347	5,796	17,073
NYSEG	TBD	TBD	TBD	TBD	TBD	TBD	TBD
NiMo	975	2,100	3,000	3,600	4,000	4,400	18,075
O&R	209	279	370	418	488	557	2,321
RGE	TBD	TBD	TBD	TBD	TBD	TBD	TBD
Total	5,061	7,627	10,196	11,441	13,341	15,246	43,493

8. Cost Reductions

The NY Electric Utilities recognize the need for costs to decline over time. Block incentive structures represent one way to address this intent.

During the implementation phase, the NY Electric Utilities will evaluate the potential for a declining block strategy to deliver predictable incentive levels, while also considering other approaches that may deliver the desired outcomes. Minimum incentives, for example, may also

satisfy the market's need for stability while creating flexibility to redistribute a portion of the incentive budget amongst technology types as true adoption rates are assessed over time. Further specifics on the block structure, if appropriate are to be developed in the implementation plan.

9. Low- and Moderate-Income Customers

The NY Electric Utilities recommend a phased approach for the deployment of heat pumps in the LMI market segment, while the NY Electric Utilities work with NYSERDA to develop solutions that address the barriers and dynamics unique to LMI customers and affordable housing. The NY Electric Utilities and NYSERDA support advancing heat pumps as an option for LMI customers, however, it is imperative that energy affordability should remain the top priority in this market segment. Coupled with specific program design considerations, incremental incentive funding may be needed to advance heat pump adoption in the LMI market segments.

When considering the application of heat pumps for LMI customers, it is necessary to understand implications for overall energy affordability, including how a shift in load profile and primary heating fuel affects the customer's energy bills and the level of support through utility bill discounts or the Home Energy Assistance Program ("HEAP"). Given the financial constraints of many LMI customers, it is important to develop an approach so that energy efficiency to improve the envelope of the home can be paired with heat pump installations. In affordable housing or rental applications, addressing the split incentive, models for financing, and system design issues for larger multifamily building present additional challenges to the effective deployment of heat pumps. To address these challenges, the NY Electric Utilities propose to work with NYSERDA to develop pilot initiatives to explore solutions to address the unique characteristics of the LMI market segment. The NY Electric Utilities and NYSERDA expect that pilot activities will commence in 2019, the results of which will inform the broader LMI heat pump strategy.

The Order requires 20 percent of the overall New Efficiency New York budget on efforts targeted to LMI customers. In lieu of a dedicated heat pump budget for LMI customers in the Order, NYSERDA will develop and file an investment plan within the CEF to fund LMI heat pump initiatives starting with near term demonstrations to inform the long-term heat pump strategy. The NY Electric Utilities support the incremental funding of LMI heat pump activities through the CEF and look forward to working closely with NYSERDA to develop solutions to enable electrification in the LMI market segment in a manner that does not negatively impact affordability.

10. Inverse Cost Shift

The Energy Efficiency Order stated that the benefit of heat pumps to non-participating customers converting from oil or propane which result in large volumetric increases in electric

sales should be captured to help incentivize heat pump installations.²⁷ The actual additional revenue produced through heat pump deployment, if realized and measurable, will depend on the electric rate design in place for heat pump customers, the design of the heat pumps installed, and the ways in which customers utilize heat pumps under their specific electric rate designs. To the extent that residential and small-commercial heat pump customers choose utility rates which recover costs through volumetric charges, there will likely be increases in sales due to heat pump deployment. However, to the extent that demand-based rates are available to customers, heat pump customers may not contribute as much revenue to their individual rate classes as they would have under volumetric rates and as a result the amount of incremental revenues produced by heat pumps under demand-based rate designs is likely to be less than under volumetric rates. Other factors that will affect the amount of customer contribution under demand-based rates include the amount of use of supplemental electric resistance heating by the heat pump and the time periods when customers choose to use their heat pumps.

Unlike net-energy-metering where there is a shift of costs to non-participants, customer adoption of heat pumps may have the opposite effect, if the customer's other underlying usage is typical for the service class. Because the incremental revenues produced by heat pumps through fuel switching if realized would, under the traditional ratemaking model, offset other costs that electric utility customers would normally have to pay in rates, there is the potential for an inverse cost shift. Normally, an unexpected increase in revenues would be returned to customers via the electric utilities' Revenue Decoupling Mechanism ("RDM") in the year after the revenues were realized and would eventually be reflected in the revenue requirement computation in an electric utility rate case. Consequently, a mechanism that takes incremental revenues from specific customers adopting heat pump technology and tracks that revenue as a source of funds to help offset the cost of a heat pump incentive program can at best work in limited circumstances and generally over the short term. The Energy Efficiency Order states that these revenues should be used to establish bill credits for customers with qualifying heat pumps and notes that Central Hudson and Orange & Rockland have already adopted this type of crediting approach for its geothermal program.²⁸

Further, such an approach when viable does not capture the timing difference between when an incentive is paid and when the heat pump begins to generate electric revenues. One approach that moderates rate impacts and better aligns the useful life of the heat pump with the timing of the benefits of the heat pump would be not to change the mechanics of the RDM but rather to allow the NY Electric Utilities to treat heat pump initiative expenditures as a regulatory asset that is included in base delivery rates and collected over the years that the heat pump is expected to be in use. Such collection over time may be offset by the inverse revenue impact from heat pumps flowing to customers over that same time period, although it will be challenging to specifically track these collections. A second approach would be to treat the incentive as an expense in the revenue requirement for the year it will be incurred with revenue

²⁷ Energy Efficiency Order, pp. 61-62.

²⁸ *Id.*, p. 62.

impact from heat pumps flowing to customers in subsequent years. These matters as well as any related regulatory accounting treatments are best addressed in future electric utility rate cases.

A related question concerns whether the incentive is paid out annually or on a one-time basis. The NY Electric Utilities believe that the approach most likely to induce customers to adopt heat pumps would involve a one-time payment to help defray initial customer out-of-pocket costs.²⁹ Such an incentive would likely be based on savings the electric utility can claim over the useful life of the heat pump. Thus, the revenues realized in any year, assuming they can even be measured, from the heat production may not fully offset the size of the incentive. In such cases, it may be necessary to defer the incentive payment and amortize it over a reasonable period to better match the incentive with the revenues it produces. Again, while details are best addressed in future electric utility rate cases, an interim approach will be needed.

It is important to note that initial funding for heat pump incentives could be provided from unused electric utility SBC and ETIP/SEEP funds. Details regarding the availability of funds by company and their expected use is provided in the NY Electric Utility-specific chapters.

11. Quality Assurance and Quality Control

Program delivery is proposed to pursue a largely uniform structure, with the NY Electric Utilities proposing to apply a common program manual including quality assurance (“QA”) and quality control (“QC”) principles and protocols. Standardized QA/QC for emerging technologies aims to achieve both high quality and functioning installations as well as an expanded pool of competent and experienced designers and installers, while minimizing difference among utility-specific rules which supports the ability of heat pump installers/developers to operate across service territories. The QA/QC details will be developed based on NYSERDA’s heat pump programs during the implementation stage. The following high-level approach is proposed regarding QA/QC principles and protocol.

Installed systems, system components, and installations must comply with manufacturers’ installation requirements, applicable laws, regulations, codes, licensing, and permit requirements.

The QA/QC system would consist of several components, including review of applicant professional qualifications and credentials, establishment of program standards and a comprehensive inspection.³⁰ The purpose of the inspections is to evaluate the accuracy of the site analysis, design paperwork, and the installed heat pump system to determine, and to verify that the heat pump system was installed according to all program requirements.

²⁹ As noted above, Central Hudson and Orange & Rockland are currently required to pay certain heat pump incentive rate impact credits over time per their individual rate plans.

³⁰ The inspections could include verification of contracted scope of work, accuracy of site analysis, comparison of installation to submitted design drawings, and the delivered quality of the heat pump installation. Inspections would primarily focus on the quality of the installation but may also include selected health and safety and performance items, and specific compliance items per applicable code.

Specific details of the QA/QC approach will be further defined in the implementation plan.

12. Program Roles, Delivery and Review

Program delivery is proposed to be carried out by each electric utility in its territory, in a generally uniform manner. While specific details will be provided in the implementation plans, this approach is proposed to be implemented by the NY Electric Utilities is as follows:

- NY Electric Utilities will each develop or expand heat pump-specific web pages as part of their customer energy efficiency education and will cooperate with each other and NYSERDA to leverage marketing and consumer awareness campaigns;
- NY Electric Utilities will provide appropriate customer support during the customer application process;
- NY Electric Utilities (in consultation with NYSERDA) will develop and use a common program manual. The process to develop the manual will be similar to the process used in the development of the TRM. The program manual will follow the proposals set out in this chapter and consider NYSERDA's existing GSHP program manual;
- QA/QC will be carried out by the NY Electric Utilities in accordance with the QA/QC protocol as per the program manual described above – see Section 11; and
- Application processing, approval, incentive funding and incentive payment will be carried out by each electric utility.

The NY Electric Utilities will explore the development of a new statewide collaborative approach model for the development of the heat pump program framework and program delivery. The new statewide model will offer several advantages, including potential economies of scale, consistency of messaging, and reduced customer confusion. This new model will offer an opportunity for the NY Electric Utilities to adopt an incremental approach to increasing collaboration allowing for deliberative experimentation and expansion of efforts that prove to be beneficial to customers. Such a collaborative approach will enable the NY Electric Utilities to begin to: (1) establish a governance process for collaboration allowing for uniformity when appropriate and regional difference where necessary; (2) test statewide marketing approaches for ASHP & GSHP programs; and (3) leverage NYSERDA efforts on contractor eligibility and other market enablement efforts as well as NY Electric Utility efforts in reaching their customers via different parts of the supply chain with incentives that drive cost-effective adoption of heat pumps.

The governance approach for this new collaborative model is to develop a Joint Management Committee to assist in creating a common program design, appropriate incentives levels based on regional differences, and marketing that will assist with achieving significant market penetration of these technologies. The Committee, comprised of members from each NY Electric Utility, will coordinate its efforts with NYSERDA to develop technical training for workforce development, will leverage NYSERDA's contractor qualification and approval process as well as other NYSERDA market enablement efforts. Each year the Committee will prioritize needed program changes to program design, marketing, and incentive levels by means

of the process for program changes outlined below. However, each electric utility will be responsible for achieving its individual goals, complying with individual regulatory obligations, and managing services to their customers. Success is derived when the NY Electric Utilities collaborate and implement solutions that benefit customers and stakeholders. The Committee members will meet regularly to discuss program process, results of marketing initiatives, delivery model changes, and to share best practices. Within the new collaborative approach model, the NY Electric Utilities will continue to make strides in energy efficiency and build a clean energy future for everyone in the state.

It is proposed that throughout the six-year program period that the NY Electric Utilities will request feedback and input from NYSERDA and Staff on planned program changes. The first planned program review is expected to occur in 2021 and it will consider incentive levels as well as other program adjustments as appropriate.

Specific aspects of program delivery flexibility that would not impact customers directly, such as budget flexibility, as referred to in Section 8, could be applied by each NY Electric Utility and would not be subject to the program review process. Such aspects will be identified during the implementation phase.

To complement the statewide incentive program (including flanking electric utility action under the incentive program in respect of marketing and outreach), NYSERDA has developed and is further developing a range of non-incentive initiatives – see Section 16.

13. Timing and Transitional Arrangements

It is important that market disruptions are avoided during the transition to a statewide heat pump program. While the goal is for each NY Electric Utility to have a heat pump incentive program in effect as of January 1, 2020, there may be reasons why some utilities need additional time to complete the transition. Specific details regarding the timing of the transition will be developed in the heat pump implementation plans. If an electric utility is not ready to commence a heat pump program by January 1, 2020, such electric utility and NYSERDA may have to explore the viability of continuing the NYSERDA statewide program with updated incentives in that utility's service territory to ensure a seamless transition to the electric utility administered statewide framework. Electric utilities with heat pump programs that are unable to complete the transition by January 1, 2020, are expected to continue their programs and adjust the incentive accordingly to align with the statewide framework. Individual transition schedules will consider electric utility-specific factors such as pre-existing funding levels. Regardless of the specific transition plan, the NY Electric Utilities and NYSERDA intend to make incentives available in all regions at either current NYSERDA levels or the level proposed in the statewide framework by January 1, 2020.

The following approach is proposed regarding the transition of heat pump incentive programs for all NY Electric Utilities.

- All electric utilities are expected to have heat pump incentive programs available in 2020, with all current NYSERDA or NY Electric Utility heat pump incentive programs transitioning into the statewide framework.

- New heat pump programs will generally not be developed outside of the statewide framework, except when such regional variations are warranted.
- The statewide program will be adjusted as necessary to conform to current and future electric utility rate reform initiatives. The interaction between such initiatives and the statewide framework is discussed in Section 15 below.

The transition to the statewide framework of current NYSERDA and NY Electric Utility heat pump programs will, in most cases involve closing the availability of the existing incentive as of December 31, 2019. The programs that will transition are:

- The current NYSERDA GSHP and ASHP rebate programs are scheduled to close as of December 31, 2019;
- Central Hudson's Environmentally Beneficial Electrification / Carbon Reduction Programs;
- Orange & Rockland's Environmentally Beneficial Electrification / Carbon Reduction Programs;
- NY Electric Utility ASHP/ minisplit programs;
- Niagara Mohawk's Electric Heat Initiative of the Environmentally Beneficial Electrification metric;
- Central Hudson's Rate Impact Credit program for GSHP is proposed to remain in place as a complementary/ additional program as currently designed and for its currently intended duration; and
- Orange & Rockland's Rate Impact Credit program for GSHP is proposed to remain in place as a complementary/ additional program as currently designed and for its currently intended duration.

The NY Electric Utilities will work with NYSERDA to coordinate these various activities in an efficient manner and anticipate that the new statewide program would be made public by the end of 2019.

14. Complementary Interventions: NWA, and NPS

The statewide framework incentive outlined in this Report reflects benefits from heat pumps in terms of targeting energy efficiency opportunities as part of New York's overall carbon, clean energy and energy efficiency targets. It does not pursue more specific locational value, such as the value of avoided investments or potential other locational value streams. Where such value exists, accessing it could bring additional benefits to customers, and this proposal therefore proposes that any initiatives that pursue such value should be complementary to the statewide framework.

As noted above, heat pump installation in areas where the distribution system is constrained has the potential to provide benefits that help with the constraint. To the extent that areas of constraint are identified as candidates for non-wires or non-pipes alternatives and heat

pump technologies can be an option to help relieve the constraint, they should be considered as one potential element in a portfolio of resources designed to relieve a system need and receive any appropriate compensation under that framework.

15. Complementary Interventions: Electric Rate Design

The Energy Efficiency Order notes “As a general matter, technology-specific rate designs are not preferred where they are not necessary. In this instance, bill credits or incentives will suffice in the near term.”³¹ The NY Electric Utilities agree that rate designs should not be developed for specific technologies but note that demand-based rates have been evaluated in the Value of Distributed Energy Resources (“VDER”) Rate Design Working Group and the Department of Public Service Staff’s Whitepaper on Standby and Buyback Service Rate Design and Residential Voluntary Demand Rates noted that standby rates, which are demand based, “are among the most theoretically pure rate designs available for aligning individual customers’ contribution to system costs with the rates such customers pay and thereby sending accurate price signals to those customers.”³²

Given this, all customers including those with heat pumps should have the option of selecting demand-based rates. The potential benefits of demand-based rates for heat pump customers are significant. Electric utility system investments are driven much more by customer demands than by total volume of kWh sales. Demand-based rates better align customer pricing with cost causation and promote efficient (high load factor) use of the electric delivery system. To the extent that heat pumps operate at a high load factor and are controlled in a manner that limits or reduces demand in peak hours, customers will likely see lower bills than they otherwise would have under volumetric rates. Moreover, demand-based rates reward customers for investments and behaviors that reduce burdens on the electric system and thereby lower costs for all customers compared to what would otherwise occur under volumetric rate designs. Both outcomes serve the public interest and are also consistent with REV principles.

In summary, initiatives to provide residential customers with alternative opt-in demand-based rates are underway or under consideration in a number of forums and at a number of NY Electric Utilities. As explained in more detail above, it is expected that these could better serve heat pump customers in a technology neutral way and not result in significantly greater revenues from heat pump load than would otherwise occur. However, because it is unknown how many customers will switch from current standard rates at least in the near term, this reduced revenue impact is difficult to predict. The implication of these findings is that, because customers who opt for demand-based rates will monetize at least part of the inverse cost shift through lower overall charges, the level of the incentive provided to such customers could be less than that for customers on volumetric rates. Demand-based rates could prove to be an economically efficient way to encourage adoption of heat pumps.

³¹ Energy Efficiency Order, p. 65.

³² Case 15-E-0751, *In the Matter of the Value of Distributed Energy Resources*, Whitepaper on Standby and Buyback Service Rate Design and Residential Voluntary Demand Rates (issued December 12, 2018).

This proposal does not envision limiting the ongoing development of alternative rate structures. As a result, customers should in many cases have access to both the statewide framework incentive and opt-in rates.

16. Complementary Interventions: Market Development and Innovation through the Clean Energy Fund

Throughout the period of the statewide framework, NYSERDA will coordinate any market development activities under the Clean Energy Fund with the NY Electric Utilities to work in coordination with electric utility heat pump incentives. These complimentary market development strategies include:

Clean Heating and Cooling Communities

In August 2018, NYSERDA announced the Clean Heating and Cooling (“CH&C”) Community Campaign initiative. The initiative is based on the State’s highly successful Solarize campaigns, which bring together groups of residents and businesses to install solar. The initiative aims to reduce the high upfront purchase costs and increase CH&C technology deployment. The initiative is designed to educate and increase the awareness and knowledge of clean heating and cooling technologies among New York customers.

NYSERDA funded eight organizations to run CH&C campaigns throughout the State, bringing together groups of potential customers to obtain discounts for air and ground source heat pumps, and, in one case, biomass heating through aggregated purchases and a simplified procurement process. The second round of the initiative was released in August 2018, and NYSERDA selected seven additional organizations. Organizations can apply and receive additional funds to incorporate plans for workforce development training and low-to-moderate income household engagement in the campaigns.

NYSERDA will continue to support community campaigns to drive interest and investment in heat pumps in support of the State’s goal.

Workforce Development

In 2018, NYSERDA began developing a comprehensive Workforce Development strategy document specific to the State’s Clean Heating and Cooling industry. There is a widening talent gap for the HVAC industry throughout the country due to both the anticipated growth in the industry and HVAC workers choosing to retire. The expected shortfall of HVAC workers impedes the development of the CH&C industry. In order to help grow and develop the market for CH&C technologies, NYSERDA’s CH&C Workforce Development strategy will be informed by engagements with various stakeholders in the HVAC industry, including distributors, manufacturers, installers, educators, trade and labor groups, higher education administrators, and electric utilities.

In 2018, NYSERDA released three Clean Energy Workforce development solicitations that represent a combined investment of over \$27 Million in pipeline development, on-the-job training and internships. The heat pump supply chain is among those eligible to receive funding.

NYSERDA will continue to work with the heat pump supply chain to cultivate ideas and promote the availability of this funding.

To support achievement of the five TBtu State goal, NYSERDA will target its heat pump workforce development efforts in high growth regions and regions with labor shortages.

Co-operative Advertising and Training

In late 2017, NYSERDA issued a solicitation for Co-operative Advertising and Training for Clean Heating and Cooling partners. Cost-sharing for 50 percent, up to \$50,000 per company, per year, is available to installers and distributors for advertising or training with respect to program eligible heat pump and biomass systems. Manufacturers are also eligible for 50 percent up to \$50,000 per year for training. As of December 31, 2018, NYSERDA received 144 applications for advertising co-funding requesting \$1.1 million and 14 applications for training co-funding requesting over \$200,000.

NYSERDA will continue to support coop advertising and training with supply chain partners, to build support and raise awareness of heat pump options.

Marketing and Awareness

From September through December 2018, NYSERDA piloted a co-branded marketing and awareness campaign with Central Hudson. Highlighted results include: almost 5,000 landing page visits, over 500 landing page actions and an increase over baseline measurements of relevant key word searches of between 130 and 440 percent. NYSERDA is planning to work with the NY Electric Utilities to implement similar co-branded campaigns on a cost-shared basis throughout 2019 and beyond building on the lessons learned from the pilot.

Tools and Calculators

In January 2019, NYSERDA formally launched a customer targeting tool developed and offered by Faraday, Inc. to NYSERDA's first cohort in the Communities Campaign and an initial set of 30 installers. Over the next two years, the tool will be made available to approximately 200 participating installers and continuously improved. Eventually, it is expected that the tool will be made available by Faraday to market participants via a monthly paid subscription. The goal is to increase installer heat pump sales and reduce their cost of acquiring customers by helping them target high probability customers. NYSERDA also plans to work with regional stakeholders to develop customer value propositions for heat pumps that would provide customers with simple, objective information about the benefits of installing heat pumps.

Technical Assistance and Financing

NYSERDA provides energy audits for residential customers and detailed engineering studies for commercial customers and multifamily building owners. These audits will include options for electrification and provide customers and property owners with decision-quality information that can lead to investment in heat pumps.

In addition, through Green Jobs Green NY, NYSERDA can provide financing for heat pumps. These financing programs will be available along with electric utility incentives.

Research and Innovation

NYSERDA has supported several Advanced Buildings Challenges, focusing on cold-climate heat pumps. Future work may explore opportunities to drive improvements in refrigerants, thermal distribution systems, geothermal drilling, and manufacturing cost reduction. In addition, through efforts like “Retrofit New York” and Buildings of Excellence, NYSERDA will continue to try to develop strategies for buildings to achieve net zero carbon emissions, including standardized solutions for retrofit/new construction packages that include several options for all fuel types.

17. Energy Savings Accounting, Target Accounting and Compensation

It is proposed that net onsite all-fuels energy savings, as contributing to the heat pump target discussed earlier are accounted on a deemed basis for residential installations, as detailed further below. In the development of this filing, the deemed annual and lifetime savings, expressed as MMBtu of net onsite energy savings per thermal ton of installed heat pump capacity, were quantified based on NYSERDA’s analysis in this chapter.

The NY Electric Utilities are applying this approach to all residential whole-house heat pump installations (both single family and multifamily) as well as small non-residential installations (up to ten tons of thermal capacity). Whole-house installations refer to those that serve all or most of the space heating and cooling load of the site in question. A similar “deeming” approach is to be applied to heat pumps that serve only part of the site (*e.g.*, systems that serve cooling but not space heating, systems that serve hot water but not space heating or cooling). The deemed savings amounts for these categories should be developed during the implementation stage.

The resulting quantification of deemed savings, as effective at the start of the program, is expected to be reviewed and revised further as necessary after the start of the program, through a consultative process between the NY Electric Utilities and NYSERDA. It is expected that the quantification approach will rely on the TRM once the heat pump measure documentation has been reviewed and updated. The NY Electric Utilities note that if, as a result of subsequent changes to the savings methodology applied to heat pumps, a higher number of installations is required to achieve the five TBtu target, either adjustments to heat pump incentive budgets will need to be made to achieve the higher number of installations, or a lower total heat pump savings target will need to be authorized.

It is proposed that for large-scale (greater than 10 tons) non-residential installations, net onsite energy savings are quantified using custom audit information for each individual site, with the process to be developed in more detail during implementation. At the start of the program, such savings estimates would still be deemed. It is expected that a switch to metering of savings is considered as part of a future review of the program.

It is also proposed that all heat pump installations that receive support under the statewide incentive framework count towards the respective electric utility heat pump targets.

18. Implementation Plan

The planning and implementation phase of the statewide heat pump program will include program level details for the NY Electric Utilities, such as:

- Eligibility specifics – applicants, contractors, sites, equipment
- Incentive structure and level specifics
- Detail on approach to heat pumps for LMI including a discussion of pilots to develop scalable LMI heat pump programs
- Detail on approach to combining heat pump and building shell installs
- Evaluation of block structure
- Program Manual
- Application intake & incentive payment process
- Project management, data collection, customer support
- Milestones for project completion
- Reporting requirements & process
- Deemed savings accounting
- QA requirements & process
- Transition and wind down of current programs, interaction with locational value programs
- Statewide program review
- Establish the Joint Management Committee

VII. Chapter Four: LMI Portfolio

1. Statewide LMI Portfolio Concept

As directed in the Order, the NY Utilities have collaborated with NYSERDA and will continue to do so in the refinement of a statewide LMI Portfolio. The statewide LMI Portfolio will allow Utility and NYSERDA investments to be positioned in a more complementary manner, further expanding the reach of energy efficiency programs, advancing the State’s energy affordability goals, and increasing the impact of customer funding dedicated to LMI customers. As outlined in the Order, NYSERDA will maintain its central role in administering LMI programs, and the NY Utilities will collaborate with NYSERDA in a more integrated way to expand the reach of LMI services.

The statewide portfolio approach provides the opportunity to further focus the customer-funded programs targeting the LMI sector, allowing the NY Utilities and NYSERDA to address energy affordability in a more holistic manner. This approach will also improve the experience of customers seeking to access energy efficiency services, reduce administrative costs, and provide more consistency for participating service providers. In developing and executing the LMI Portfolio with NYSERDA, the NY Utilities will advance the following principles:

- Advancing energy affordability for LMI customers;
- Exploring and implementing efficiencies to potentially reduce administrative costs and optimize resources;
- Developing simplified processes for LMI customers (*e.g.*, the application process), and consistent messaging;
- Executing a statewide approach that is as consistent as possible, while also allowing the NY Utilities to tailor offerings to accommodate local service territory needs;
- Increasing the number of households served;
- Continue to target underserved customers and communities; and
- Prioritizing affordable multifamily buildings for LMI Portfolio participation, where it makes sense across the State’s varying types of housing stock.

To achieve administrative efficiencies and expand the reach of LMI programs, the NY Utilities will work with NYSERDA to leverage each entity’s relative strengths. Table 10 lists some of the strengths of each program administrator, which can be leveraged to support the development and implementation of a comprehensive LMI portfolio.

Table 10: NYSERDA and NY Utility Strengths

Administrator	Strengths
NYSERDA	<ol style="list-style-type: none"> 1. Statewide reach and ability to achieve economies of scale. 2. Management of statewide network of service providers to realize lower costs and consistency in standards and work quality. 3. Ability to coordinate efficiently with other State agencies,

	<p>programs, community advocates and trade associations on policy and program alignment to improve effectiveness of customer funds (e.g., the Weatherization Assistance Program (“WAP”), HEAP, housing, health, aging).</p> <ol style="list-style-type: none"> 4. Development and testing of potential energy efficiency solutions. 5. Market development with respect to soft cost reductions, workforce development and training, and other market supporting activities. 6. Development of financing solutions and incorporation of philanthropic and other third-party capital. 7. Identifying income eligible customers for LMI Portfolio participation and for referral to the Utilities.
<p>NY Utilities</p>	<ol style="list-style-type: none"> 1. Access to customers and customer data, including energy consumption that the Utilities can use to target services. 2. Familiarity with characteristics of customer base. 3. Ability to pair energy efficiency with the statewide low-income bill discount and other payment assistance programs that are authorized in the <i>Order to Address Energy Affordability for Low Income Utility Customers</i> in (Case 14-M-0565). 4. Ability to tailor offerings to the unique characteristics of their service territory. 5. Customer recognition of the utility facilitates local marketing effectiveness and results in higher customer participation levels. 6. Ability to leverage existing program implementation contractors and trade ally networks. 7. Leveraging robust utility outreach and education channels (including customer service call centers).

In addition, the emphasis of the LMI Portfolio will position utility-funded LMI initiatives as complements to NYSERDA’s CEF and other utility-funded initiatives. This emphasis will increase the impact of customer funds while enhancing energy affordability and access to energy efficiency solutions. The design of the LMI Portfolio will also consider complementary and innovative programs and interventions beyond energy efficiency. The LMI Portfolio will also consider the programs and offerings funded by other State agencies, the U.S. Department of Housing and Urban Development (“HUD”), and other sources, to account for a full range of approaches to address energy affordability access and solutions for the LMI market segment. At this time, the NY Utilities and NYSERDA envision that portfolio design will consider programs that provide incentives targeted at the residential, multifamily, and new construction sub-segments such as:

- Bill payment assistance for low-income customers through the Low Income Order’s statewide utility bill discount program (Case 14-M-0565³³);
- Outreach, education, and awareness campaigns to increase energy literacy and access to programs;
- Market development initiatives that develop and test new solutions for enhanced access to improvements across the LMI market segment, with opportunities for integrating energy efficiency, including heat pumps, and renewable energy;
- Coordination and alignment across the customer-funded LMI Portfolio and with programs and resources administered by other State agencies and local administrators; and
- Continuous optimization of the LMI Portfolio by tracking results such as units served, implementation costs, and energy savings.

2. **LMI Platform**

The Energy Efficiency Order called for the development of a single, statewide platform to facilitate effective administration of the LMI Portfolio. In collaboration with NYSERDA, the NY Utilities have identified two primary elements of the LMI platform: a customer-facing hub and an administrative component. The LMI platform may potentially be modelled on the current NYSERDA referral system being used by local approved contractors. These components are intended to improve customer experience, potentially reduce administrative costs, and potentially offer increased operational efficiencies, while simultaneously offering an appropriate level of commonality across the LMI Portfolio.

2.1 Customer Facing Hub

As currently envisioned, NYSERDA will host the customer facing hub that will serve as the primary information source of and/or entry point to the programs, services, and energy education. This hub and its availability will be highlighted on utility and NYSERDA webpages and in marketing materials. The customer-facing hub will be developed to engage both residential end-use customers and multifamily affordable building owners, developers, and occupants as appropriate. The NY Utilities envision that this could potentially feature a statewide branding approach in conjunction with localized marketing implemented by the NY Utilities in their respective service territories. For customers, the hub will provide consistent information on all relevant LMI programs and services, including energy efficiency, renewable energy, bill payment assistance, and energy education materials. For affordable building owners and occupants, similar information will also be provided, although the messaging presented would be relevant to their segment. In addition, the customer facing hub will also reflect a coordinated outreach and education strategy between NYSERDA and the NY Utilities, which will include work with intermediaries, including human service agencies, and affordable housing agencies.

³³ 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 Modifications and Directing Utility Filings (issued May 19, 2016).

The customer facing hub will be jointly developed by the Utilities and NYSERDA, with specific details included in future implementation plans.

2.2 Administrative Infrastructure

Through the administrative infrastructure component, the NY Utilities and NYSERDA will administer the LMI Portfolio considering potential efficiencies and cost savings. The administrative infrastructure component will include several systems to facilitate cross referral of customers in accordance with currently effective Commission policy (including customer consent) and may potentially include additional functionality for customer targeting, reporting, and evaluation purposes. As noted in Chapter Two, data sharing will be in alignment with Commission Orders and policies on the sharing of customer information.

For the 1-4 family homes portion of the infrastructure, NYSERDA will leverage and build upon the existing systems used to manage the EmPower NY and Assisted Home Performance with ENERGY STAR programs. This will include a single database that will handle referral of customers by utilities to NYSERDA, customer applications, project workflow, and will include functionality for data sharing between NYSERDA and the utilities to track progress on specific projects and report energy savings results. As part of this infrastructure, NYSERDA will manage the network of contractors working in this space across the State. For other initiatives, a blend of utility-owned and maintained, and NYSERDA owned and maintained infrastructure will be in place. The decision to bifurcate the information technology and administrative infrastructure between 1-4 family and other initiatives reflects that several utilities have already developed information technology and administrative infrastructures to support existing initiatives. These utility offerings generally provide services beyond 1-4 family homes and, in some cases, the systems are integrated into other systems for customer relationship management and billing.

NYSERDA will have responsibility for conducting income eligibility verification at the individual customer level and for informing utilities of income eligible customers who are eligible to participate in the LMI Portfolio. The NY Utilities will work with NYSERDA to explore a process for identifying eligible affordable multi-family buildings using proxies for affordable housing designations as established by housing agencies such as NYS Homes and Community Renewal, NYC Housing Preservation and Development, and HUD. Options for alternate income eligibility determinations will also be explored, such as using census tracts to determine eligibility for programs.

3. Roles and Responsibilities of Utilities and NYSERDA

Under the statewide LMI portfolio, the NY Utilities expect to work with NYSERDA in a collaborative manner. The NY Utilities expect that the roles and responsibilities for each program administrator will generally align with the descriptions in Table 11:

Table 11: Potential Program Administrator Roles and Responsibilities

Utilities	NYSERDA
<ul style="list-style-type: none"> • Supporting outreach strategy for program facilitation • Marketing and outreach efforts specific to the utility territory • Providing utility bill discounts, Deferred Payment Agreements, etc. • Connecting customer to other relevant utility rebates/programs/offerings • Administration of utility-specific programming where applicable (e.g. community initiatives and multi-family offerings) 	<ul style="list-style-type: none"> • Administration of statewide implementation and integrated database • Marketing and outreach efforts to support statewide program awareness • Performing income-eligibility verifications and program referrals • Management of the network of service providers for statewide programs • Coordination with state agencies, non-utility programs, and trade associations • Funding collaborative pilots designed with utilities under the CEF

3.1 Alignment with other LMI Initiatives

To optimize customer funding for the LMI market segment and expand the reach of programs, LMI Portfolio will need to align with and leverage existing energy efficiency programs and with other LMI related programs administered at the State and local levels. This will require the NY Utilities and NYSERDA to establish complementary administrative roles. By coupling energy efficiency programs with bill payment assistance programs, the NY Utilities may further reduce the energy bill for LMI households.

The NY Utilities will work collaboratively with NYSERDA to harmonize the expanded LMI programs with CEF-related investments. This may take a variety of forms, including: (1) establishing complementary program design and implementation; (2) developing and using supporting initiatives such as workforce development or financing solutions; (3) funding statewide programming that is not currently offered by the NY Utilities; and (4) leveraging the CEF to test novel solutions and alternative approaches to program deployment broad-scale roll out. The NY Utilities plan to work with NYSERDA during the program design and implementation phase of the statewide LMI Portfolio to explore potential opportunities that integrate electric energy efficiency with renewable energy offerings.

As outlined in the CEF LMI Chapter, NYSERDA administers several initiatives targeting affordability and access to clean energy solutions in the LMI market segment. NYSERDA invests approximately \$70 million annually on “standard offer” programs that address energy efficiency in existing single and multifamily buildings, greater efficiency in affordable new construction, and access to solar through rooftop and community solar initiatives. As part of the LMI portfolio implementation design activities, the NY Utilities will work with NYSERDA to further align the expanded LMI programs with the existing CEF programs. In addition,

NYSERDA funds market development initiatives intended to test innovative solutions and develop models for reducing soft costs and scaling access to energy efficiency.³⁴ The NY Utilities look forward to further understanding “lessons learned” from NYSERDA’s market development work funded through the CEF and may be able to use this information to inform future customer offerings.

The NY Utilities and NYSERDA will strive to increase collaboration with other programs such as WAP, HEAP, and other social service/affordable housing programs. Through this work, the NY Utilities and NYSERDA may reduce administrative burdens and will streamline participation, leverage touchpoints with customers, increase awareness and education, and identify funding streams outside of energy efficiency sources.

4. Expanded LMI Programs

Under the LMI Portfolio, the NY Utilities will fund and work with NYSERDA to implement initiatives to increase access to energy efficiency solutions to improve energy affordability for LMI customers. In particular, depending on the characteristics of each utility’s service territory, the NY Utilities will focus on energy efficiency in 1-4 family homes and affordable multifamily buildings, and on increasing customer adoption through community-based demonstration approaches. The Utilities will also work closely with NYSERDA to pilot new initiatives and approaches for implementing LMI programs which may result in reduced administrative complexity or cost, and lead to improved outcomes for LMI customers.

The NY Utilities will strive for consistency, as appropriate, by utility service territory, in program design across the State. Such consistency should serve to reduce customer confusion and limit complications for existing and new market actors (*i.e.*, contractors and social service providers). However, the programs will consider the regional differences in demographics, housing characteristics, and community needs by utility territory in order to enhance program effectiveness. As such, the NY Utilities anticipate that designs of individual programs may vary to a certain degree. The NY Utilities expect that the mix of LMI programs funded will generally fall within the following categories:

- **Comprehensive energy efficiency and direct install for 1-4 family homes**
Under the statewide LMI Portfolio construct, the NY Utilities expect that NYSERDA will continue to administer the 1-4 family homes programs³⁵ on a statewide basis, with the Utilities contributing incremental funding to increase the reach of programs in their service territory. In this role, NYSERDA will be responsible for managing

³⁴ These initiatives include clean energy solutions such as Retrofit NY, which seeks to develop scalable design solutions to enable the retrofit of existing buildings to net-zero performance, and the healthy homes pilots, which are targeted at developing models for incorporating health and energy treatments in a single intervention.

³⁵ EmPower NY provides no-cost energy efficiency upgrades for low-income households (households with annual income at or below 60 percent of the State Median Income). The program is available to home owners and renters in single family properties, and renters in multifamily buildings. The Assisted Home Performance with ENERGY STAR program provides incentives for energy efficiency upgrades to moderate-income households (households with annual income up to 80 percent of the Area Median Income or SMI, whichever is greater).

customer intake and referrals, administrative infrastructure, and the statewide network of service providers.

In addition, the Utilities will work with NYSERDA to explore and consider the development of a direct-install component for these programs with the goal of increasing the adoption of energy efficiency for underserved LMI customers. Renters, homes with structural or safety issues that may prevent a full energy efficiency work scope, and LMI customers that may not otherwise choose to “go forward” with energy efficiency upgrades are good candidates for this type of direct install approach.

The NY Utilities expect that the approach to the 1-4 family homes market segment may drive cost savings from a single statewide administrative platform, managed by NYSERDA. In addition, this approach leverages the strength of each of the program administrators. NYSERDA operate at a statewide level and may realize LMI Portfolio economies of scale while the Utilities will be able to identify and refer customers with high energy burdens to receive relief through energy efficiency.

- **Increasing adoption of energy efficiency in affordable multifamily buildings**
As outlined in the Order, a significant opportunity for energy efficiency exists in the affordable multi-family segment, where applicable for each utility. Like the 1-4 family homes market segment, the NY Utilities expect that a complementary approach will help to address affordable multi-family buildings in a more comprehensive way.

The NY Utilities and NYSERDA will continue to work to reduce market confusion among building owners and contractors. The NY Utilities propose that affordable multifamily incentive programs be administered by Con Edison, National Grid, and NYSEG/RG&E in their respective service territories. NYSERDA will provide “default” affordable multifamily program offerings in the remaining utility service territories, so that a consistent offering is available statewide. The shared approach to multifamily incentive programs between the NY Utilities and NYSERDA reflects that existing utility multifamily programs have an established place in the market and a change in administration may disrupt the market and unintentionally cause backsliding. The NY Utilities have already invested in the information technology infrastructure to deploy those programs, and the potential for multi-family opportunities will vary by service territory.

The affordable multi-family market segment is an area in which complementary efforts by NYSERDA under the CEF can address market barriers to increased adoption of energy efficiency. By addressing soft costs such as support for predevelopment and underwriting, and the development of models that can increase the adoption of energy efficiency at the time of refinancing, NYSERDA can address

components of the affordable multi-family equation that are difficult to tackle on a service territory-specific basis. In addition to incentive programs funded jointly by the Utilities and NYSERDA, and market development initiatives available through the CEF, the Utilities expect to work with NYSERDA to explore opportunities to drive deeper savings for LMI customers and in affordable multifamily buildings. Additional program design and planning on “driving deeper” is necessary, and details will be included in future implementation plans.

- **Community-based approaches**

The NY Utilities are engaging community-based and mid-stream approaches in alternative ways by partnering with community-based organizations,³⁶ testing neighborhood based-delivery models such as a “community blitz,”³⁷ and targeting retailers that are prominent in lower-income communities with point of sale or midstream programs.

While the focus of these models has been predominantly lighting and lower-cost measures, they may be an effective way to engage the LMI community and reach customers that may not otherwise participate in traditional programs. Incremental energy efficiency can be achieved through modest initiatives such as lighting giveaways. In addition, models like the “community blitz,” which have been implemented by Duke Energy and PPL Electric, tie community outreach and education with the direct install of energy efficiency measures and direct referrals to other comprehensive programs. Currently, several utilities are interested in “community blitz” pilots with NYSERDA to test the potential for improved engagement, program participation, and administrative cost savings associated with geo-targeting neighborhoods.

The NY Utilities expect to continue to develop and implement community-based initiatives where it makes sense, coordinating with NYSERDA, where practical.

- **Developing electric utility heat pump solutions for LMI customers**

As referenced in the Chapter Three of this Report, the NY Electric Utilities will work with NYSERDA to develop an approach to deploy heat pump technologies in the LMI market segment when heat pumps help reduce energy burdens of LMI customers. The potential deployment of heat pumps in the LMI market is characterized by challenges, including access to capital, split incentives, and the potential impact of load profile shifts on energy affordability. Recognizing these

³⁶ Central Hudson has partnered with United Way and Con Edison has partnered with local food banks to distribute LEDs in the community.

³⁷ Con Edison, National Grid, and Orange & Rockland are supporting NYSERDA in its test of community blitz models in their territories in 2019. National Fuel continues to partner with faith-based organizations and local block clubs as part of its outreach and education initiatives.

issues, the NY Electric Utilities and NYSERDA plan to identify opportunities and solutions to deploy cost effective heat pump technologies through demonstrations and pilots. This may inform the long-term approach for incentivizing heat pumps. As outlined in the Chapter Three of this Report, NYSERDA will leverage the CEF to support the development and testing of such strategies.

The NY Utilities expect that the varied approach to addressing the LMI market segment and alignment with NYSERDA can expand the reach of programs. Program design details will be filed in future implementation plans. As discussed previously, the statewide LMI Portfolio will evolve to address developments and opportunities in the LMI landscape (including changes in technologies, new solutions, and additional models for reaching LMI customers).

5. Benefit-Cost-Analysis (“BCA”) for LMI Portfolio

As part of the statewide LMI Portfolio, the NY Utilities will work with NYSERDA to develop a methodology for conducting a statewide LMI portfolio-level BCA, containing LMI investments and associated energy savings of both the NY Utilities and NYSERDA. As outlined in the Order, the BCA for the LMI Portfolio will be determined independent of other utility program BCAs and will not count toward each utility’s aggregate portfolio BCA. In addition, the Order states that the BCA need not demonstrate net benefits due to the importance of serving this underserved community and the relatively high customer incentive levels (compared to other types of programs/sectors). The NY Utilities expect to develop details on the statewide BCA as part of future implementation plan filings.

6. Program Planning and Stakeholder Engagement

To guide the collaborative process necessary to implement a statewide portfolio effectively, an LMI Program Council will be established. This Council, composed of representatives from the NY Utilities and NYSERDA, will consider the planning and calibration of the portfolio over time. The NY Utilities envision the LMI Program Council will meet at regular intervals to review progress, modify programming where necessary, and plan for future years. The NY Utilities will work with NYSERDA on an approach for stakeholder engagement to obtain input and identify new opportunities. It is expected that regular stakeholder engagement will continue through venues such as the Low-Income Forum on Energy. The NY Utilities will also collaborate with NYSERDA, so that NYSERDA’s coordination with other State agencies³⁸ through the low-income energy task force, includes information on utility-funded LMI initiatives. Additional details on the LMI Program Council and future stakeholder engagement will be included in future implementation plans.

7. LMI Targets and Budgets

The Order adopted the New Efficiency: New York Whitepaper proposal to dedicate at least 20 percent of incremental energy efficiency funding to LMI programs. The Order also

³⁸ NYS Homes and Community Renewal administers the Weatherization Assistance Program and finances the development of affordable housing. NYS Office of Temporary and Disability Assistance administers the Home Energy Assistance Program.

provides flexibility in that the percentage of LMI spending need not be identical across all the NY Utilities. The Utilities request that the Commission approve that they will not have annual budget levels due to the expectation that programs will take time to ramp up (*i.e.*, the number of contractors and their associated staffing levels may need to increase) and funding needs may vary by Utility service territory.

The NY Utilities also expect the need for flexibility with respect to the proportional distribution of budgets and targets by fuel type. Some of the NY Utilities may need to shift budgets and targets from electric to gas or vice versa. However, the magnitude of the shift will not be known until more information is available to size the LMI Portfolio opportunities. Based on the analysis of existing programs and opportunities, the Utilities will allocate budgets to programs and necessary administrative, marketing, and other implementation costs. Additional details on budgets will be included in future implementation plans.

8. Elements of Program and Implementation Design and Projected Timeline

The NY Utilities will work with NYSERDA following the filing of this Report, on overall LMI Portfolio development including program and implementation design. This work will include program sizing, planning for opportunities for alignment with the CEF, portfolio branding and marketing approaches, and development of a statewide portfolio BCA methodology. Additional information on these topics will be included in future implementation plans.

Even though the development of the LMI Portfolio is currently “in progress,” there will be LMI programming available on January 1, 2020 as existing LMI programs administered by the Utilities and NYSERDA will continue. The NY Utilities expect that the new LMI Portfolio will be “rolled out” in a phased manner during 2020.

VIII. Earnings Adjustment Mechanisms

The Energy Efficiency Order states that the Commission may address some EAM-related matters in a 2019 Order. The NY Utilities suggest that because all utilities are on different rate case cycles, the Commission's most efficient course of action would be to provide each Utility flexibility to propose EAMs, consistent with the principles already established in the Energy Efficiency Order.³⁹ This is also consistent with previous Commission determinations in Case 15-M-0252.

³⁹ Con Edison's Chapter includes a discussion of proposed EAMs as part of its pending rate cases.

IX. Central Hudson Chapter

The purpose of this chapter is to address items that are of specific concern to Central Hudson (“the Company”).

I. Accelerated Energy Efficiency Budgets and Targets

The Company plans to adopt the presumptive electric and natural gas energy efficiency targets as proposed within the Energy Efficiency Order. However, Central Hudson proposes to increase the electric and natural gas budgets to accommodate the higher cost necessary to achieve those energy savings. The proposed increase would align Central Hudson’s available budget to that of the other utilities in the state.

Electric Energy Efficiency

Central Hudson’s proposed electric energy efficiency budget and targets for 2019-2025 are detailed below. The Company proposes to adopt the presumptive incremental targets as shown in Table 12.

Table 12: Central Hudson Proposed Electric Energy Efficiency Targets (2019-2025)

Energy Efficiency - Electric Targets								
Year	2019	2020	2021	2022	2023	2024	2025	Total
Current ETIP Level	79,102	79,102	79,102	79,102	79,102	79,102	79,102	553,715
Incremental			6,000	10,000	14,000	17,000	21,700	68,700
Total	79,102	79,102	85,102	89,102	93,102	96,102	100,802	622,415

The presumptive electric budgets within the Energy Efficiency Order are not sufficient to meet these targets. As shown in Table 13, Central Hudson has the lowest presumptive \$/kWh budget, with the average Joint Utility budget being 66 percent higher than Central Hudson’s \$/kWh.

Table 13: Central Hudson & Joint Utilities Accelerated Electric Targets Comparison, 2021-2025

Utility	Total Budget, 2021-2025 (\$000)	Total Target, 2021-2025 (MWh)	\$/kWh, 2021-2025	\$/kWh Difference from Central Hudson (%)
Central Hudson	\$10,859	68,700	\$0.16	0%
Con Edison	\$707,375	2,337,700	\$0.30	91%
Niagara Mohawk	\$132,595	656,200	\$0.20	28%
NYSEG	\$121,791	563,540	\$0.22	37%
O&R	\$32,186	151,450	\$0.21	34%
RG&E	\$53,846	260,000	\$0.21	31%
Total Electric Portfolios	\$1,058,647	4,037,590	\$0.26	66%

The presumptive budgets within the Energy Efficiency Order were derived from historical run rates. However, Central Hudson’s recent performance was heavily dependent on residential lighting and behavioral programs, which were adopted by Central Hudson earlier than the other NY Utilities. Central Hudson’s early adoption limits the potential to utilize these same measures in the future, forcing the need for comprehensive and costly energy savings strategies.

Moreover, these programs have already been optimized to the appropriate scale in Central Hudson’s service territory⁴⁰ and cannot be proportionately scaled up as targets increase. As such, it is useful to segment out lighting and behavioral programs which are not reflective of the portfolio’s scalability. Without these programs, Central Hudson’s historical cost is approximately \$0.24/kWh. For the purposes of setting incremental budgets, this figure is more indicative of the portion of Central Hudson’s portfolio which must be scaled up to meet accelerated targets.

For the reasons described above, Central Hudson proposes incremental budgets that match the statewide average \$/kWh of \$0.26. This equates to a total incremental budget of \$18.0M over the currently approved ETIP funding levels, as shown in Table 14.

Table 14: Electric Energy Efficiency Budget (2019-2025)

Energy Efficiency - Electric Budget (\$000)								
Year	2019	2020	2021	2022	2023	2024	2025	Total
Current ETIP Level	\$9,773	\$9,773	\$9,773	\$9,773	\$9,773	\$9,773	\$9,773	\$68,411
Presumptive			\$948	\$1,581	\$2,213	\$2,687	\$3,430	\$10,859

⁴⁰ Both measurement & verification practices, and effective useful life impacts dictate the appropriate scale of the programs.

Additional Proposed			\$699	\$1,112	\$1,472	\$1,721	\$2,132	\$7,136
Total	\$9,773	\$9,773	\$11,420	\$12,466	\$13,458	\$14,181	\$15,335	\$86,406

Natural Gas Energy Efficiency

Central Hudson’s proposed natural gas energy efficiency budget and targets for 2019-2025 are detailed below. The Company proposes to adopt the presumptive incremental targets as shown in Table 15.

Table 15: Central Hudson Proposed Natural Gas Energy Efficiency Targets (2019-2025)

Energy Efficiency - Gas Targets								
Year	2019	2020	2021	2022	2023	2024	2025	Total
Current ETIP Level	58,016	58,016	58,016	58,016	58,016	58,016	58,016	406,112
Incremental			1,000	3,000	6,000	10,000	15,040	35,040
Total	58,016	58,016	59,016	61,016	64,016	68,016	73,056	441,152

The presumptive natural gas budgets within the Energy Efficiency Order are not sufficient to meet these targets. As shown in Table 16, Central Hudson has the lowest presumptive \$/MMBtu budget, with the average Joint Utility budget being 105 percent higher than Central Hudson’s \$/MMBtu.

Table 16. Central Hudson & Joint Utilities Accelerated Gas Targets Comparison, 2021-2025

Utility	Total Budget, 2021-2025 (\$000)	Total Target, 2021-2025 (MMBtu)	\$/MMBtu, 2021-2025	\$/MMBtu % Difference from Central Hudson
Central Hudson	\$555	35,040	\$15.83	0%
Con Edison	\$70,194	1,913,155	\$36.69	132%
KEDLI	\$27,487	976,200	\$28.16	78%
KEDNY	\$73,858	2,255,688	\$32.74	107%
NFG	\$2,602	49,950	\$52.09	229%
NYSEG	\$10,262	449,560	\$22.83	44%
O&R	\$11,802	308,870	\$38.21	141%
RG&E	\$4,686	229,399	\$20.43	29%
Total Gas	\$201,446	6,217,862	\$32.40	105%

The presumptive budgets within the Energy Efficiency Order were derived from historical run rates. However, Central Hudson’s recent performance was heavily dependent upon its behavioral program. Central Hudson’s early adoption limits the potential to utilize these same measures in the future, forcing the need for comprehensive and costly energy savings strategies. This program has already been optimized to the appropriate scale in its service territory⁴¹ and cannot be proportionately scaled up as targets increase. As such, it is useful to segment out the behavioral program, which is not reflective of the portfolio’s scalability. Without behavioral, Central Hudson’s historical cost is approximately \$27/MMBtu. For the purposes of setting incremental budgets, this figure is more indicative of the portion of Central Hudson’s portfolio which must be scaled up to meet accelerated targets.

Furthermore, Central Hudson’s natural gas conversion program has historically been a catalyst for adoption of efficient natural gas heating equipment. Within the current Rate Plan Order⁴², this program has been significantly reduced, considerably limiting the potential compared to prior years. Additionally, the catalog of natural gas measures that pass an economic screen are limited, simply because there are fewer gas end uses than with electric.

For the reasons described above, Central Hudson proposes incremental budgets that match the statewide average \$/MMBtu of \$32.40. This equates to a total incremental budget of \$1.1M over the currently approved ETIP funding levels, as shown in Table 17.

Table 17. Gas Energy Efficiency Budget (2019-2025)

Energy Efficiency - Gas Budget (\$000)								
	2019	2020	2021	2022	2023	2024	2025	Total
Current ETIP Level	\$1,182	\$1,182	\$1,182	\$1,182	\$1,182	\$1,182	\$1,182	\$8,274
Presumptive Incremental			\$16	\$47	\$95	\$158	\$238	\$554
Additional Proposed			\$17	\$51	\$100	\$164	\$244	\$576
Total	\$1,182	\$1,182	\$1,215	\$1,280	\$1,377	\$1,504	\$1,664	\$9,404

**II. Incremental Heat Pump Program
Budgets and Targets**

Central Hudson proposes to adopt the company-specific budget developed within the updated Heat Pump Potential Study of \$30.2M. Incremental staffing requirements are proposed to be included within this funding request. The Company requires additional time to identify an appropriate and achievable target and is not able to commit to a specific target within this filing.

⁴¹ Both measurement & verification practices, and effective useful life impacts dictate the appropriate scale of the program.

⁴² Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plan issued and effective: June 14, 2018: Case 17-E-0459 and Case 17-G-0460 *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Central Hudson Gas & Electric Corporation for Electric and Gas Service* (“Central Hudson’s Rate Case Order”).

Central Hudson plans to collaborate with DPS Staff in developing the target and would propose any associated adjustments to its EAM’s within future SEEP filings.

Table 18. Heat Pump Budget & Target (2020-2025)

Heat Pump Program Budgets & Targets	
Year	Total
Heat Pump Budget (\$000)	\$30,212
Heat Pump Target (GBtu)	TBD

Importance of Heat Pump Program Flexibility

Utilities were directed within the Energy Efficiency Order to strive for uniform incentive mechanisms across the state and explore the incorporation of block structures which could result in rigidity of incentive levels and other aspects of program implementation. The importance of retaining flexibility is discussed within the heat pump section of this Joint Utility filing. Central Hudson provides this additional context for consideration.

The heat pump economic analyses prepared by NYSERDA are a useful resource as utilities begin to plan and implement programs to achieve aggressive heat pump goals. Any program design must be based on assumptions about customer behavior and adoption and a prospective economic analysis is a natural starting point. We found the economic analysis conducted by NYSERDA to be particularly comprehensive and well-reasoned. At the same time, economic analysis alone is insufficient grounds for setting uniform incentive levels. It must be supplemented with actual empirical data on how customers respond to incentives.

To optimize incentive levels and program design, it is necessary to test different incentives, measure real-world adoption rates, and assess how customer uptake varies as a function of different incentives. Experimentation in incentive levels is a critical requirement for innovation and optimization. If incentive levels are set in a uniform way, it is not possible to empirically understand the relationship between incentives and customer adoption and, therefore, it is difficult to adjust and optimize the program design. Requiring uniform incentive levels too early may stunt innovation and lead to slower market acceleration than allowing for experimentation in incentive levels.

We believe flexibility in setting incentives is more valuable than uniformity for new initiatives and technologies. Flexibility allows utilities to test the market response, learn how adoption rates vary as a function of incentives, and optimize program activities based on real time evaluation.

Central Hudson is also concerned that the uniform incentive levels per thermal ton among different technologies and application types may prove too restrictive and limit utility flexibility to test heat pump adoption patterns, achieve goals, and guard against over-subscription. Assigning benefits on a per-thermal-ton basis is a good start for developing incentives, but other factors should be considered when setting incentive schedules:

- **Efficiency** – utilities should have the flexibility to offer larger incentives for an 18 SEER/10 HSPF unit than a 16 SEER/9 HSPF unit. A ground source heat pump is more efficient and has a higher incremental cost than an air source heat pump. Incentive levels should be flexible enough to acknowledge this and encourage customers to install the most efficient option.
- **Incremental Cost** – it would be useful for utilities to be able to monitor heat pump costs (equipment and labor) and have flexibility to adjust incentive levels for different technologies based on market conditions
- **Counterfactual Heating Type** – there are sound economic reasons for setting different incentive levels and eligibility requirements based on the type of heating system being replaced (electric resistance, gas furnace, fuel oil, propane etc.) as well as the presence of central air conditioning. The benefit-cost parameters, including emissions reductions and customer payback, varies significantly depending on the displaced heating fuel.
- **System Sizing** – Per-thermal-ton incentives may motivate market actors to oversize systems in certain circumstances to maximize the incentive.

In conclusion, flexibility and experimentation in setting incentive levels is critical to successful program design, particularly when technologies and/or programs are new. While uniformity may have some theoretical benefits, we believe it is too early to require uniform incentive structures for the heat pump program and that doing so may detract from successful program implementation.

III. Incremental Cost Recovery

Per the Central Hudson's Rate Plan Order, electric and gas energy efficiency program costs are now recovered in base rates beginning on July 1, 2018. Additionally, the Rate Plan Order anticipated that Energy Efficiency Program costs and targets are subject to change pursuant to Commission action in Case 18-M-0084, In the Matter of a Comprehensive Energy Efficiency Initiative ("Energy Efficiency Proceeding") and granted the Company authorization to defer and recover any such changes approved by the Commission.

For the period of January 1, 2016 through June 30, 2018, Central Hudson had a cumulative underspend of approximately \$5.1M and \$0.3M within its electric and natural gas portfolios respectively. The Company proposes to utilize these regulatory liabilities to fund the incremental energy efficiency and heat pump⁴³ program budgets before creating a regulatory asset. The Company proposes that any incremental staffing associated with increases to the heat pump or energy efficiency programs should be funded through this cost recovery mechanism. The Company's expectation is that any regulatory assets and future costs incurred would be fully addressed within a future rate proceeding.

⁴³ The electric energy efficiency portfolio and the heat pump program would specifically be funded through the electric portfolio underspend. The gas energy efficiency portfolio and heat pump program would be funded through the gas portfolio underspend.

IV. Sustainability of Current Funding Mechanisms

Central Hudson is very supportive of utilizing clean electric heating technologies as a carbon reduction strategy. The Company launched its first heat pump conversion program in 2018 and has achieved early success.

According to the Accelerated Targets Order, utility-specific mechanisms within electric rates or surcharges would be used to fund their heat pump programs. Central Hudson's current proposed heat pump program budget of \$30.2M over the period of 2020-2025 is forecasted to enable the Company to achieve approximately 9,000 installations, according to the updated Heat Pump Potential Study. Although the bill impact of this initiative may appear manageable in the short term, the Company is concerned about the long-term sustainability of funding this and other beneficial electrification initiatives primarily through electric bills.

There are over 175,000 electric customers within the Central Hudson service territory which utilize fuel oil or propane as their primary heating fuel. If the statewide heat pump framework were scaled to bring efficient heat pump systems to this number of customers at current funding levels, the program would cost Central Hudson's customers approximately \$557M, which equates to 52 percent of the average electric rate base within Central Hudson's Rate Plan Order⁴⁴. This funding strategy is not sustainable, since it may create a barrier to fuel switching as electric prices increase, results in an unfair cost burden on non-participating electric customers. The Company requests that alternative funding sources are explored and considered for the purposes of scaling beneficial electrification initiatives.

V. Low- and Moderate-Income Considerations

Central Hudson is in agreement with the NY Utilities that flexibility will be necessary with respect to the proportional budgets and targets by fuel type. In addition, budget levels should not be imposed on an annual basis as programs will take time to ramp up. In addition, Central Hudson is in alignment with the heat pump proposal within the LMI section of the Joint Utility filing and the Company will collaborate with NYSERDA to identify and deploy heat pump technology through demonstration and pilot projects.

The housing stock within Central Hudson's service territory is predominantly single-family units, including the homes of low- and moderate-income customers. Any LMI strategy which places prescriptive requirements with respect to multifamily uptake rates would significantly disadvantage Central Hudson because there is very limited potential for this segment. The Company requests that no specific LMI uptake requirements be imposed with respect to multifamily.

⁴⁴ Central Hudson's Rate Case Order, Appendix A, Schedule 1 – Average electric rate base is \$1,080,276,000

X. Con Edison Chapter

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Executive Summary

Con Edison supports New York’s ambitious environmental and clean energy goals and is committed to helping meet the Energy Efficiency Order’s energy savings goals. As proposed in the Company’s pending rate case,⁴⁵ the Company intends to meet the Order’s presumptive goals through expanding existing programs and adding new programs and delivery channels, innovating to deliver additional savings cost-effectively, and using data analytics to increase program and marketing effectiveness. Further, the Company will diversify its portfolio and seek opportunities for deeper energy efficiency savings, to the extent that such diversification can be undertaken under the Order’s existing budget and unit cost limits. The Company also intends to expand resource acquisition programs for its portfolios to include cost-effective and scalable programs upstream of customers, and establish a new initiative (the “kicker” incentive discussed below) to incentivize a broad array of space cooling related technologies that provide system value. Finally, the Company will integrate the Non-pipeline Solutions (“NPS”)⁴⁶ portfolio into its overall portfolio, including integrating peak day gas demand reduction as a priority.

⁴⁵ Cases 19-E-0065 and 19-G-0066, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric and Gas Service* filed January 31, 2019 (“Rate Case”). See related testimony and exhibits of the Customer Energy Solutions Panel (“CES testimony”).

⁴⁶ Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving with Modification the Non-Pipeline Solutions Portfolio (issued February 7, 2019) (“NPS Order”).

Con Edison's proposal is designed around five core principles intended to meet the Energy Efficiency Order's goals:

- (i) advance the State's clean energy policy objectives through an overall reduction in emissions across commodities, and make progress towards a more fuel-neutral approach;
- (ii) manage the portfolio of electric energy efficiency, gas energy efficiency, and heat pump programs as a single combined portfolio, which requires allowing appropriate flexibility of budgets within the overall budget as proposed in the Company's rate case testimony and in this filing;
- (iii) allow for changes to program designs, electric, gas or heat pump budgets, and other program or portfolio attributes as necessary to innovate and continuously improve with the objective of driving results;
- (iv) deliver meaningful lifetime benefits cost-effectively and with moderate changes to customer bills; and
- (v) establish earnings adjustment mechanisms ("EAMs"), discussed later, aligned with the key State policy objectives facilitated through utility action.

This filing provides Con Edison's plans, including budgets and targets, which, as described below, replaces the indicative energy efficiency ("EE") budgets and targets included in the Company's January 31, 2019 CES testimony and the Company's February 19, 2019 ETIP/SEEP filing⁴⁷ as it relates to 2020, and includes heat pump programs and LMI programs through 2025 in compliance with the Energy Efficiency Order, the Storage Order,⁴⁸ and the NPS Order. As explained below, this Con Edison Chapter includes the following proposals, including those related to 2020-2022 that the Company plans to incorporate as part of its pending rate proceedings:

- EE plan for budgets and targets, including heat pumps and LMI initiatives;
- integration of the NPS portfolio, with additional focus on peak day gas demand reductions within the efficiency and heat pump portfolios;
- kicker incentive to facilitate adoption of efficient space cooling technologies that have system value;
- treatment of unspent funds from previous EE proceedings;
- cost recovery for the EE portfolio, including heat pump and LMI initiatives;
- additional expenditures related to systems and labor necessary to implement the Company's plans for the potential rate plan period⁴⁹;

⁴⁷ Case 15-M-0252, Con Edison Energy Efficiency Transition Implementation/System Energy Efficiency Plan (filed February 19, 2019) ("ETIP/SEEP").

⁴⁸ Case 18-E-0130, *In the Matter of Energy Storage Deployment Program*, Order Establishing Energy Storage Goal and Deployment Policy (issued December 13, 2018) ("Storage Order").

⁴⁹ In the rate filings, the Rate Year is 2020 ("RY1") and the two illustrative years are 2021 and 2022 ("RY2" and "RY3," respectively).

- inclusion of Non-Wires Solutions' costs for the RY1-RY3 period;
- revised EAMs with indicative results of a benefit cost analysis ("BCA") where available and appropriate; and
- illustrative portfolio and program descriptions with indicative results of a BCA.

Since the Company's electric and gas rate filings address energy efficiency plans for a three-year period (2020-2022) that overlaps with the five-year period that is the target of this April 1, 2019 filing (2021-2025) and the two years 2019-2020 addressed in the Energy Efficiency Order (and ETIP⁵⁰ and Enhanced Gas EE⁵¹ Orders), the Company is providing this filing both in response to the Energy Efficiency Order and as a proposal in the Company's rate cases. The Company's rate case CES testimony noted that there was inadequate time to complete review and evaluation of the Energy Efficiency and Storage Orders prior to finalizing revenue requirements and that an update of the Company's energy efficiency and EAM proposals by the preliminary update stage of the rate proceedings may be needed. The Company completed its review and addresses those items herein. The Company advised parties to the rate proceedings at the March 13, 2019 Technical Conference of the Company's intention to incorporate this filing into its rate case filing.⁵²

Background and Con Edison Rate Case Filing

The Company's rate case filing CES testimony included a plan for energy efficiency investments and EAMs, which the Company noted was under review based on the Energy Efficiency and Storage Orders. The Energy Efficiency Order established (i) incremental budgets and targets for electric EE, including heat pumps, and gas EE for 2019-2020; and (ii) presumptive budgets and targets for the same programs for 2021-2025, which covers RY2-RY3. The Energy Efficiency Order also recommended utilities propose a new EAM focused on a "share of savings" approach that considers lifetime energy efficiency benefits. The Storage Order sets storage targets and required utilities to propose a new EAM focused on system efficiency, and, in particular, on improvements in load factor that provide system or local peak reductions.

Subsequently, the Commission's NPS Order authorized the Company to pursue a portfolio of NPS and required the integration of the NPS portfolio into the broader energy efficiency activities authorized in the Energy Efficiency Order based on the constraints established in the Energy Efficiency Order.

⁵⁰ Case 15-M-0252, *In the Matter of Utility Energy Efficiency Programs*, Order Authorizing Utility-Administered Energy Efficiency Portfolio Budgets and Targets for 2019-2020 (issued March 15, 2018) ("ETIP Order").

⁵¹ Case 17-G-0606, *Petition of Consolidated Edison Company of New York, Inc. for Approval of the Smart Solutions for Natural Gas Customers Program*, Order Approving in Part, with Modification, and Denying in Part Smart Solutions Program (issued July 12, 2018) ("Enhanced Gas EE Order").

⁵² The Company expects that the Con Edison Chapter will be addressed in its pending rate case and that this will be made clear in any State Administrative Procedure Act notice issued for this filing.

Budgets and Targets

Con Edison’s proposed budgets and targets comply with the Energy Efficiency Order’s overall goals, in British Thermal Units (“Btus”) for energy savings. The Company plans to meet these goals through electric (including heat pump initiatives) and gas efficiency. The NPS Order provides for increased gas energy efficiency, including the adoption of efficient technologies that allow “fuel switching,” *i.e.*, switching to other energy sources in lieu of gas and an additional focus on peak day gas demand reductions. Consequently, NPS integration results in a plan that shifts a portion of the budget that would be allocated to electric energy efficiency efforts to gas energy efficiency efforts. As a result, although the Company is planning to exceed the overall Btu energy savings goals established by the Commission, the Company’s plans have lower electric energy efficiency targets, and higher gas energy efficiency, and higher overall energy efficiency savings than those set forth in the Energy Efficiency Order. A summary of the Company’s plans is provided in the tables below.

Further, the Company proposes to fund the electric (including heat pump programs and a kicker incentive) and gas EE portfolios, including efforts targeted to LMI customers, through a combination of (i) cost recovery mechanisms established in the Company’s rate proceeding for 2020 through 2022 (and in this proceeding for the remaining years) and (ii) the use of existing unspent funds, discussed in the cost recovery section.

Table 1⁵³ and Table 2 below reflect Con Edison’s proposed annual, incremental targets and annual budgets, inclusive of the portion for which the Company is seeking cost recovery as discussed later, for electric non-LMI EE, heat pumps, and gas non-LMI EE, and LMI electric EE and LMI gas EE.⁵⁴ Budgets and targets are shown in further detail in Exhibit A. As discussed later in the Unified Portfolio and Expanded Eligibility section, the Company intends to manage its portfolio to the total budgets and targets in Tables 1 and 2.

Table 1 – EE Non-LMI Target and Budget Schedule

	2020	2021	2022	2023	2024	2025	Total (RY1-RY3)
Non-LMI MMBtu	1,987,890	2,324,532	2,630,626	2,963,161	3,310,237	3,654,771	6,943, 048
Non-LMI	\$159,683,619	\$197,565,671	\$224,307,920	\$258,677,836	\$296,578,977	\$332,565,083	\$581,557,210

⁵³ The Energy Efficiency Order budgets set forth above do not include funding for kicker incentives, which will be supplemental to the budgets shown above.

⁵⁴ In developing this filing, the Company made key assumptions, including: (i) all budgets and targets provided in this filing for portfolios and EAMs are based on gross savings, which is the currently applicable metric used in the reporting of energy efficiency savings in the State; and (ii) all budgets and targets provided in this filing were premised on and developed using currently applicable baseline rules and using a savings calculation methodology proposed by NYSERDA for heat pumps. Changes or updates to these assumptions would require corresponding changes reflected in the targets and/or budgets.

Budget							
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Table 2 – EE LMI Target and Budget Schedule

	2020	2021	2022	2023	2024	2025	Total (RY1- RY3)
LMI MMbtu	70,559	127,743	157,842	192,726	228,797	260,145	356,144
LMI Budget	\$11,922,224	\$20,325,928	\$25,345,369	\$31,078,255	\$36,895,570	\$41,868,802	\$57,593,521

Portfolio Development Considerations

The Company’s illustrative portfolio (which assumes that we will expend the amount we are requesting at the current target level) builds upon our experience in delivering EE.⁵⁵ Three key portfolio development considerations were:

- Focus on cost-effective and scalable programs upstream of the customer, such as through retailers, contractors, or distributors, as a key component of the portfolio’s development. Such interventions can both directly drive EE adoption as well as transform markets by positively biasing behavior in favor of EE across the supply chain.
- Diversify beyond lighting, the predominant electric EE driver today to the extent such diversification can be undertaken under the budget and unit cost limits. Such diversification will require Con Edison to work with customers to achieve greater and deeper levels of savings from more complex measures, such as heating, ventilation, and air conditioning (“HVAC”) and building envelope improvements that have longer customer payback periods and implementation lead times.
- Expand the gas portfolio to develop additional focus towards, and experience with, fuel-neutral approaches and beneficial electrification technologies to (i) continue the development of the EE market for gas EE and heat pump projects and (ii) provide more and relevant choices to customers such as those seeking heating electrification.

⁵⁵ Although the Company developed an illustrative portfolio based on the best information available, the Company notes that the scale of expansion of gas EE and heat pump initiatives are unprecedented and are expected to present considerable operational challenges in execution. In particular, gas EE measures are generally more complex, requiring longer lead times, municipal permits, and greater capital investment. Similarly, lack of customer awareness and challenges with customer economics may present a barrier to customer adoption of heat pumps.

Portfolio Changes and Evolution

The Company's illustrative portfolio has evolved to reflect priorities as reflected in the Energy Efficiency and NPS Orders. Changes to the portfolio include more gas EE than prior portfolios with additional focus on peak day gas demand reductions, so the Company expects that there will be changes over time, with program design and implementation flexibility necessary to facilitate achievement of desired outcomes. Changes to the structure and composition of the portfolio includes: (i) development of a kicker incentive focused on space cooling and related technologies, (ii) integration on NPS into the overall EE portfolio, and (iii) expansion of heat pumps as a greater initiative within the overall EE portfolio.

Kicker Incentive

The Energy Efficiency Order called for NY Utilities to introduce a "kicker" incentive, primarily focused on space cooling and related technologies that provide additional customer incentives to adopt such technologies, based on the greater system value these technologies can provide. Consequently, Con Edison proposes an electric kicker incentive to provide customers with incentives to increase adoption of space cooling and related measures that provide system value. For example, the Company is considering a kicker incentive to drive adoption of efficient cooling technologies, such as more efficient room air conditioners that provide greater system value such as through load relief during peak summer hours. The Company is still developing the kicker incentive.

Con Edison proposes a three-year spending of up to \$48 million over 2020-2022 for the kicker incentive to determine its effectiveness in encouraging customers to adopt efficient space cooling efficiency technologies. As appropriate, the Company will incorporate any learnings from the kicker incentive in future portfolio development. Given that the structure of the incentive has not been fully developed from both a design and an operational implementation perspective, the Company emphasizes the importance of flexibility so the kicker incentive can serve as a test for such an approach.

NPS Integration into EE Portfolio

In alignment with the NPS Order, the Company is integrating its NPS portfolio into the broader EE portfolio. This effort requires a careful and thoughtful balancing of electric and gas portfolios, which considers: (a) customers' needs throughout our service territory, and (b) challenges in delivering unprecedented levels of gas energy efficiency, and heat pump savings, that require consideration of peak day gas demand reductions. As part of integrating NPS, the Company intends to track progress and establish methodologies to estimate gas peak reductions.

As NPS is integrated into its portfolio, the Company will work to achieve the Btu savings anticipated in the Energy Efficiency Order, however, with an increased percentage of the portfolio savings coming from gas efficiency measures.

Heat Pumps

Pursuant to the Energy Efficiency and NPS Orders, Con Edison is filing heat pump targets and budgets in the NY Utilities' Heat Pump Chapter, which are referenced in this Con Edison Chapter. The heat pump targets include the proposed Con Edison allocation from the Energy Efficiency Order (0.8 trillion Btu or TBtu attributable to Con Edison's electric service territory out of 5 TBtu expected from heat pumps statewide based on NYSERDA's analysis), and also integrates the heat pump portion of the NPS portfolio. The proposed heat pump targets and budgets will replace the beneficial electrification program proposed in the CES testimony.

The heat pump targets presented in this filing are based on the estimated number of heat pumps necessary to meet Con Edison's 2025 TBtu goal inclusive of heat pumps in the NPS portfolio. The number of heat pumps needed to meet the Company's 2025 heat pump goal was estimated by using the savings calculation methodologies that underpinned the heat pump goals in the Energy Efficiency Order that NYSERDA developed and recently updated. Due to updates to the savings methodology used in NYSERDA's heat pump potential study issued in January,⁵⁶ the per unit savings achieved by heat pumps in the NYSERDA's updated methodology is lower than estimated in the January NYSERDA Heat Pump Potential Study. This requires the NY Electric Utilities, including Con Edison, to install significantly higher numbers of heat pumps to achieve the Energy Efficiency Order's 5 TBtu. The Company has incorporated the savings calculation methodology without verifying the underlying models or developing a methodology of its own.

As discussed in the heat pump chapter, the Company made additional adjustments impacting the total expenditures the Company requires to achieve the 0.8 TBtu goal. Consequently, Company expects that total expenditures will significantly exceed NYSERDA's original estimate of the NY Electric Utilities' allocation of \$75 million of the heat pump budget to Con Edison. The Company expects that it will require expenditures of \$189.6 million, and is thus proposing a \$189.6 million budget for the heat pump program, in order to attempt to deliver 0.8 Tbtu of energy savings through 2025. The Company believes this budget will support incentive levels that will develop a market for heat pumps in its service territory, and would thereby increase customer adoption rates, including in the portion of Westchester County subject to the Company's temporary gas moratorium.

Enabling Tools for Implementation

In order to store, track, and record EE savings achieved, and better target and assist customers to engage in EE efforts, the Company plans to enhance its existing systems. While the CES testimony discussed some enhancements, the efforts the Company expects to pursue based on the Energy Efficiency and NPS Orders requires additional enhancements to two systems. These enhancements will further develop data and analytics platforms to improve implementation and delivery effectiveness:

⁵⁶ New York State Energy Research and Development Authority, *New Efficiency: New York Analysis of Residential Heat Pump Potential and Economics Final Report*, Report Number 18-44 (issued in January 2019) ("NYSERDA Heat Pump Potential Study").

- Demand Management Tracking System (“DMTS”) serves as the EE system of record, which tracks, stores, records, and verifies energy and demand savings of the various programs within the combined EE portfolio. Information contained within DMTS also enables the Company to better understand and manage the performance of programs in meeting the overall portfolio goals.
- Demand Management Analytics Platform (“DMAP”) serves as a platform for internal and external data sources related to, for example, participating and non-participating customers; building types and vintage; the type of energy related equipment in different buildings; and customer segmentation by energy usage and sector, which will allow for development and application of analytics to such datasets. The Company will apply any actionable insights from such analytics to help improve effectiveness of implementing EE programs, such as by targeting customers, building types, or neighborhoods for specific EE technologies with a greater likelihood of adoption of EE.

The expected additional costs for these systems above the levels included in the CES testimony are discussed in the cost recovery section below.

Unified Portfolio Approach and Expanded Eligibility

As explained in the CES testimony, the Company proposes to manage its electric and gas EE programs as a single combined portfolio for the benefit of electric and gas customers. For purposes of setting rates, the costs are allocated between electric and gas based on the costs of the electric and gas programs in the portfolio. The Company seeks flexibility to move actual expenditures between the electric and gas programs as needed to meet Energy Efficiency Order targets.

Thus, while the Company’s program includes separate, annual electric and gas energy savings targets, the Company proposes to manage the portfolio of electric and gas EE programs as a single combined budget; if a three-year rate plan is established, the costs would be reconciled at the end of the applicable rate plan period. Managing the Company’s EE portfolio on a combined basis will benefit customers, for example, by providing flexibility:

- within the budget, which allows for the portfolio to respond to market conditions and customer needs, creating opportunities for focus to be shifted across programs to more cost-effective efforts that are driving results, and
- within the electric and gas programs, including heat pump programs, allowing a fuel-neutral approach to programs.

Currently, only firm gas customers are eligible to participate in energy efficiency programs. Beginning in 2020, Con Edison would consider eligibility to interruptible gas customers allowing such customers to participate in the Company’s EE initiatives.

Cost Recovery

This section discusses expenditures for the EE portfolio (Electric EE, including heat pumps, gas EE, and EE targeted to LMI customers), the kicker incentive, non-wire solutions (“NWS”), Energy Efficiency and Demand Management (“EEDM”) O&M, and additional expenditures related to systems and labor. The section further discusses the sources of funds for those expenditures, cost allocation based on customer eligibility, and cost recovery mechanisms.

EE Portfolio Expenditures Considering Integration of NPS into the EE Portfolio

Summary:

- **Source of funds:** Base delivery rates supplemented by use of unspent Energy Efficiency Portfolio Standard (“EEPS”) and ETIP funds
- **Cost allocation:** For electric, all electric customers excluding New York Power Authority (“NYPA”) supplied customers, and for gas, all gas customers⁵⁷
- **Cost recovery:** Excepting the portion provided by unspent funds, as a regulatory asset with a 10-year amortization period under the Regulatory Asset Framework discussed in the CES testimony

Table 3 below shows the estimated EE expenditures which the Company proposes to recover under the regulatory asset framework discussed in the CES testimony and further below. The expenditures represent the portion of the expenditures requiring cost recovery, net of the use of the unspent funds the Company is proposing use to fund the remaining portion of the total expenditures shown in Table 4 below.

Table 3 – Schedule for Cost Recovery

Funds Recovered through 10 Year Regulatory Assets	2020	2021	2022
Electric	\$78,367,711	\$171,674,914	\$195,974,537
Gas	\$24,530,241	\$36,788,314	\$40,209,650
Total	\$102,897,952	\$208,463,228	\$236,184,187

The electric and gas revenue requirements included in the Company’s April 10, 2019 preliminary update will reflect the recovery of these expenditures in base rates as regulatory assets amortized over a 10-year period.⁵⁸

⁵⁷ The Company is considering developing a proposal that would include interruptible gas customers. If such a proposal is developed, the Company will provide it to parties to this proceeding and the gas rate proceeding.

Shift of Funds from Electric to Gas EE

To comply with the NPS and Energy Efficiency Orders in delivering the overall Btu savings mandated by the Energy Efficiency Order, Con Edison shifted expenditures from the electric portfolio to the gas portion of the portfolio. This shift basically reflects the NPS Order's separately authorized expenditures of \$222.6 million, inclusive of gas energy efficiency and heat pumps.

Use of Unspent Funds for Customer Benefit

Con Edison is proposing to utilize unspent EEPS, ETIP and DMP⁵⁹ Funds in the following manner:

- Use of \$59.6 million of unspent electric EEPS funds to be used towards the 2020 electric EE expenditures as required by the Energy Efficiency Order.
- Use of \$115 million of unspent electric EEPS funds and unspent electric ETIP funds towards heat pumps in the 2020-2025 period, with roughly \$26 million of expenditures anticipated in the 2020-2022 period. The Company is proposing to use unspent funds to provide incentives to customers to adopt heating electrification technologies. With this shift, the Company expects to provide these incentives without the need for incremental funds over NYSERDA's estimated allocation to Con Edison of \$75 million of the Energy Efficiency Order's \$250 million heat pump indicative budget to meet the Company's proposed \$189.6 million budget for heat pumps.
- Use of up to \$48 million, during 2020-2022, of unspent and uncommitted DMP funds towards the kicker incentive.
- Use of \$5.7 million of unspent gas EEPS/ETIP to be used towards the 2020 gas EE expenditures as required by the NPS Order.

⁵⁸Although the Company proposed a 20-year recovery period for solutions in the NPS portfolio to recognize the longer useful lives of gas EE, the Company is now proposing to amortize and recover new costs over a 10-year period. A common amortization period will result in uniformity in treatment for the EE portfolio comprised of all electric EE (including heat pumps) and gas EE expenditures. Such uniformity is appropriate because the Company intends to implement all EE and heat pump programs as a single portfolio across electric and gas commodities, and the Company's objective to moderate customer bills, over a period when benefits are still being provided would be achieved.

⁵⁹Case 12-E-0503, *Proceeding on Motion of the Commission to Review Generation Retirement Contingency Plans, Order Accepting IPEC Reliability Contingency Plans, Establishing Costs Allocation and Recovery, and Denying Requests for Rehearing* (issued November 4, 2013). The Company notes that the Demand Management Program ("DMP") is nearly completed and there are no pending proposals for additional programs through the DMP.

Table 4 – Schedule for Use of Unspent Funds

	Use	2020	2021	2022	2023	2024	2025
DMP 1.0	Kicker Incentive	\$16,066,667	\$16,066,667	\$16,066,667	\$0	\$0	\$0
EEPS Electric	Electric EE	\$59,611,120	\$0	\$0	\$0	\$0	\$0
EEPS Electric	Heat Pump	\$1,562,371	\$4,374,639	\$6,249,484	\$9,467,312	\$13,583,534	\$18,110,502
ETIP Electric	Heat Pump	\$1,804,904	\$5,053,732	\$7,219,618	\$10,936,963	\$15,692,164	\$20,921,872
Electric Total	Various	\$79,045,062	\$25,495,038	\$29,535,768	\$20,404,274	\$29,275,698	\$39,032,373
EEPS Gas	Gas EE	\$2,717,060	\$0	\$0	\$0	\$0	\$0
ETIP Gas	Gas EE	\$3,012,436	\$0	\$0	\$0	\$0	\$0
Gas Total	Gas EE	\$5,729,496	\$0	\$0	\$0	\$0	\$0

Regulatory Asset Framework

The Company’s CES testimony noted that the Company would continue the ratemaking framework established in the Company’s current electric rate plan, which provides for the recovery of EE costs over ten years. For the reasons explained in the CES testimony, this treatment should be extended to heat pumps and gas EE and NPS costs, which have been integrated into the broader EE portfolio, with the proposed three year reconciliation across the commodities during RY1-RY3. Amortization of new investments has the important benefit of moderating bill impacts by allowing costs to be smoothed over a 10-year period, allocating those costs to the customers benefitting as customers change over time, and aligning costs with realized benefits over that period.

This framework was implemented in the current rate plan⁶⁰ and has assisted the Company in delivering on its EE targets and providing benefits to its customers. Further, the Energy Efficiency Order notes that “amortization of EE program costs may be permitted where the overall context of the rate plan establishes a benefit to doing so, such as moderation of overall customer bill impacts.”⁶¹ The Company’s testimony remains applicable and for the sake of brevity, will not be repeated here.

Cost Allocation and EAM Cost Recovery

The Company proposes to continue using the current allocation methodologies for EE costs, whereby electric customers, excluding NYPA-supplied customers, are allocated electric EE

⁶⁰ Case 16-E-0060 and Case 16-G-0061, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service and Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. Gas Service*, Order Approving Electric and Gas Rate Plans (issued January 25, 2017).

⁶¹ Energy Efficiency Order, p. 10.

portfolio costs, and firm gas customers are allocated the costs of the gas portion of the EE portfolio. These allocation methodologies were used to develop the Company's revenue requirements in the rate filing and reflect the fact that, currently, only firm gas customers are eligible to participate in EE programs.

In addition, the Company proposes that earned cross-commodity EAMs be collected through a combination of the Monthly Adjustment Clause ("MAC") for electric customers and the Monthly Revenue Adjustment ("MRA") for gas customers in proportion to the respective electric and gas rate base amounts, and that the earned electric-only EAMs be collected from electric customers through the MAC.⁶² The Company proposes that NYPA contribute the class allocation for electric rate base portion of any achieved EAMs with exception of Annual MMBtu, Share The Savings and MWh:MW Ratio EAMs. Any NYPA contributions would be collected from the NYPA OTH Statement. As indicated in the CES testimony and consistent with the current rate period, the Company proposes that all EAM collections occur in equal increments over a 12-month period following the Company's submission of an annual EAM achievements report and absent Commission action to the contrary within a 45-day review period.

Kicker Incentives

Summary:

- **Source of funds:** Unspent Demand Management Program ("DMP") funds
- **Cost allocation:** All electric customers who paid into the DMP
- **Cost recovery:** Redirecting DMP funds towards the kicker incentive with no change to the previously established collection schedule

Con Edison also proposes using unspent and uncommitted funds available to the Company from the DMP because the DMP and the kicker incentives have similar goals. The Company's proposed kicker incentive will incent adoption of demand side space cooling and related EE technologies that provide system peak coincident peak reductions. Given that DMP and the proposed kicker incentive are both focused on system peak and value, the Company is proposing to use unspent and uncommitted⁶³ DMP funds towards the establishment and development of a kicker incentive for 2020-2022.

NWS Program Expenditures

⁶² The Company proposes to collect these EAMs through the MAC and MRA because this would allow the Company to dedicate program funding towards achieving energy savings for customer benefit and allow increased flexibility with respect to the use of funds. Using the MAC and MRA also continues the existing precedent of the collecting EAMs through MAC.

⁶³ As DMP funds currently committed become uncommitted, those dollars would then become eligible for use through the kicker incentive.

Summary:

- **Source of funds:** Base delivery rates
- **Cost allocation:** All electric customers, including NYPA supplied customers
- **Cost recovery:** As a regulatory asset with a 10-year amortization period

As set forth in the electric rate filing, the Company will pursue the Water and Plymouth Street NWS projects as one project because the load relief needs at both stations are required to eliminate common work at the supply station, Farragut. As such, the portfolio will be pursued as one 32 MW portfolio. The Company is pursuing these NWS projects in accordance with the terms of its current rate plan.⁶⁴

Table 5 below shows expenditures for the Company’s NWS programs that will be reflected in the revenue requirements the Company will provide as part of the April 10, 2019 preliminary update.

Table 5 – NWS Expenditures

	2019	2020	2021	2022	2023	2024	2025
Water St / Plymouth St	\$10,450,000	\$25,950,000	\$31,590,000	\$2,570,000	\$2,560,000	\$10,450,000	\$25,950,000
Columbus Circle	\$0	\$0	\$260,000	\$0	\$0	\$0	\$0

EEDM O&M Expenditures

Summary:

- **Source of funds:** Base delivery rates
- **Cost allocation:** All electric and gas customers
- **Cost recovery:** As O&M expenditures

Table 6 below shows the Company’s updated expenditures for EEDM O&M costs. This replaces the expenditures provided in the Company’s testimony in the rate proceedings.

Table 6 – EEDM O&M Expenditures

	2020	2021	2022
Electric	\$14,013,000	\$15,383,000	\$16,157,000
Gas	\$300,000	\$300,000	\$300,000

⁶⁴ The Company intends to file benefit cost analyses related to the NWS projects that will include costs and benefits, including the costs of the traditional project(s) that the NWS will seek to defer or eliminate.

Total	\$14,313,000	\$15,683,000	\$16,457,000
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In order for the Company to achieve its proposed EE portfolio from 2020-2022, an increase in labor resources across a number of functions will be critical. In total, we forecast that we will need to add thirty-nine (39) incremental full-time employees, as described in the CES testimony⁶⁵:

- 19 incremental Full Time Equivalents (“FTE”) to be added in 2020 or earlier,
- 13 incremental FTEs to be added in 2021, and
- 7 incremental FTEs to be added in 2022.

The Company is increasing its rate case request by three FTEs to account for the expanded gas EE and heat pump efforts required under the NPS Order. The Company’s initial Filing discussing the NPS portfolio requested six FTEs, three of whom have already been hired to support the development of the NPS portfolio.

These three requested employees will assist in implementing the NPS portfolio’s new projects and programs and develop the implementation strategies as the number of active projects and programs increase and as the Company executes contracts with winning bidders. Throughout the implementation process, these three additional FTEs will help manage the portfolio while continuously re-evaluating projects and programs to optimize implementation and efforts to meet energy and peak day demand reduction goals. The three incremental FTEs requested will be crucial to implementing projects, project management towards annual and longer-term goals, and portfolio strategy as the Company executes and optimizes the portfolio.

Additional Expenditures Related to Systems and Labor

Summary:

- **Source of funds:** Base delivery rates
- **Cost allocation:** All electric and gas customers
- **Cost recovery:** Systems as 10-year capital asset and labor as O&M expenditures

Table 7 and Table 8 below show expenditures for the DMAP, DMTS, and Web Service Interface portions of the Company’s proposed Distributed System Platform (“DSP”) Capital and O&M costs.

Table 7 – DSP Capital

	2020	2021	2022
DMTS	\$3,333,000	\$3,333,000	\$3,333,000
DMAP	\$1,667,000	\$1,667,000	\$1,667,000
Total	\$5,000,000	\$5,000,000	\$5,000,000

⁶⁵ Rate Case, CES Testimony, Exhibit __ (CES-1).

Table 8 – DSP O&M

	2020	2021	2022
DMTS	\$2,020,000	\$2,380,000	\$2,630,000
DMAP	\$160,000	\$303,000	\$327,000
Web Service Interface	\$225,000	\$225,000	\$225,000
Total O&M	\$2,405,000	\$2,908,000	\$3,182,000

The DSP projects in Table 7 and Table 8 propose increased capital for DMTS and DMAP and increased O&M for DMTS as a result of the additional requirements set forth through the Energy Efficiency and NPS Orders. Expansions to the scope for these systems include the incorporation of new NPS projects and heat pump projects and programs in DMTS; for DMAP this includes the expansion of use cases, such as, inclusion of better targeting of customers to deliver higher volumes of gas measures within smaller geographic areas and better targeting of customers for conversion to heating electrification using technologies such as heat pumps.

BCA and Benefits Stream

Error! Reference source not found. Table 9 includes benefits and costs for the Company’s electric and gas portfolios, developed pursuant to the Company’s current BCA handbook. The BCA is for the non-LMI portion of Con Edison’s portfolio, as that is utility specific. The LMI portfolio BCA will be completed at the State level as discussed in the LMI chapter of this filing.

Table 9 – 2020-2022 Portfolio BCA Results

Benefits and Costs (\$ millions)	2020	2021	2022	Total
Electric Benefits (\$millions)	\$264	\$349	\$410	\$1,023
Electric Costs (\$millions)	\$139	\$174	\$198	\$512
Electric Societal Cost Test	1.89	2.00	2.07	2.00
Gas Benefits (\$millions)	\$63	\$64	\$71	\$198
Gas Costs (\$millions)	\$33	\$37	\$41	\$111
Gas Societal Cost Test	1.91	1.71	1.75	1.78
Total Benefits (\$millions)	\$326	\$413	\$481	\$1,221
Total Costs (\$millions)	\$172	\$211	\$239	\$623
Total Societal Cost Test	1.90	1.95	2.01	1.96

Earnings Adjustment Mechanisms

Con Edison’s proposed EAMs build on Con Edison’s progress under its 2017-2019 EAMs structure and on the experience gained from stakeholder engagement through recent collaborative efforts. As such, the proposed EAMs are expected to provide Con Edison with an incentive to drive achievement consistent with State policy objectives that will also benefit our

customers and stakeholders. In this filing, Con Edison updated its EAM proposal in its CES testimony to better align with State goals and the Energy Efficiency and Storage Orders.

The Company has identified five areas as appropriate for EAMs because they advance State policy goals:

- Continued delivery of cost-effective EE based on the State’s existing construct of budgeting for and measuring annual energy savings, with integration of electric and gas EE;
- Development and testing of a shared savings approach based on EE cost efficiencies related to delivering lifetime benefits;
- Alignment of the EE portfolio with system peak demand reduction;
- Integration of distributed energy resources (“DERs”); and
- Reduction of greenhouse gas (“GHG”) emissions.

The Company has designed this proposal to best align utility actions with various policy objectives by:

- Supporting advancement of policy objectives, such as (i) growing EE and DERs, including beneficial electrification technologies, such as heat pumps and advanced technologies like storage, (ii) improving cost efficiencies to achieve lifetime Btu savings, (iii) improving system peak coincidence of the EE portfolio to incent higher peak reductions, (iv) improving distribution system efficiencies through load factor improvements, and (v) reducing GHG emissions, through a fuel neutral, cross-commodity approach; and
- Providing meaningful EAMs to drive measurable outcomes by appropriately accounting for the Company’s ability to both facilitate positive outcomes as well as directly influence these outcomes through the Company’s portfolio of programs.

With the above objectives in mind, the Company is proposing three cross-commodity EAMs, *i.e.*, inclusive of both electric and gas commodity efforts, along with three electric-only EAMs:

- Cross-commodity EAMs (Electric and Gas)
 - Annual MMBtu
 - Share the Savings EAM based on \$/lifetime MMBtu
 - GHG Emissions Reductions
- Electric Only EAMs
 - MWh:MW Ratio
 - DER Utilization
 - System Efficiency

For each of the six EAMs below, the Company defines the metric and its purpose, sets forth the basis for the development of the targets, and describes its proposed measurement method.

Cross-commodity EAMs

Annual MMBtu EAM:

Definition: The annual MMBtu EAM (“EE EAM”) is a cross-commodity approach that measures the sum of reported gross electric and gas savings, including savings from conversions from delivered fuels such as fuel oil and heat pumps, but excluding EE achieved through LMI allocated funds, achieved in the first year after conversion of MWh and Dth to MMBtu units.

Purpose: This EE EAM represents continuity of the current EAM established for the Company’s current rate plan that drove achievement of annual electric EE savings. The Company’s proposed EAM includes gas EE and electric EE savings to continue driving Company achievements on a more fuel-neutral basis to support State policy goals such as those in the Energy Efficiency Order and the Clean Energy Standard.⁶⁶

Target Development: The Company proposes to use the first year annual MMBtu targets developed in this proceeding as the mid-point target for the purposes of this EAM. The Company proposes to use 75% of the mid-point as the minimum achievement level and 125% of the mid-point as the maximum achievement level for this EAM.

Measurement: The first year annual EE EAM measures the energy savings achieved through increased efficiency of electricity and gas use by our customers. Con Edison proposes the EE EAM to be based on the total incremental, annual MMBtu reductions achieved through Con Edison’s non-LMI electric, including heat pumps, and non-LMI gas EE programs.

Share The Savings EAM:

Definition: The Share the Savings EAM (“STS EAM”) measures improvements in cross-commodity cost efficiencies of the overall EE portfolio, excluding EE achieved through funds dedicated to LMI customers, on a lifetime-MMBtu basis and allocates a portion of the cost savings achieved to the Company as an EAM. The cost-efficiency improvements are measured relative to the expected cost-efficiency of the portfolio based on an established lifetime cost baseline.

Purpose: The STS EAM encourages the Company to deliver electric and gas program savings at improved cost-efficiencies with a longer-life measure mix.

Target Development: The Company has developed a lifetime cost-efficiency baseline from where improvements will be measured for the purposes of this EAM. The Company proposes the baseline be based on (i) the annual budgets and targets for the Company’s portfolio for each of the rate years, and (ii) the actual useful life for the Company’s EE portfolio in 2018.

Measurement: The Company will measure the STS EAM by calculating energy efficiency cost savings from the Company’s overall EE portfolio on a dollars per lifetime-MMBtu basis, which

⁶⁶ Case 15-E-0302, *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, Order Adopting a Clean Energy Standard (issued August 1, 2016).

will be measured against the baseline discussed above. The total savings amount will be calculated by computing improvements in cost efficiency (on a unit btu basis) over the baseline and multiplying by the lifetime-MMBtu savings achieved. The EAM will be set at a 50% share of the total savings.

GHG Emissions Reduction:

Definition: The GHG Emissions Reduction EAM (“GHG EAM”) measures the amount of incremental GHG emission (carbon dioxide equivalent “CO₂e”) reductions resulting from increasing adoption of technologies or other mechanisms that reduce, replace, or avoid the use of grid-supplied electricity, or technologies that reduce the use of natural gas. The Company is basing this EAM on Con Edison’s existing GHG Emissions Reduction EAM with continued adoption of a fuel-neutral approach that includes gas and delivered fuels, like fuel oil.

Purpose: The GHG EAM is intended to drive utility action to reduce, or otherwise facilitate reductions of, GHG emissions, in line with clean energy and environmental policy goals. The GHG EAM continues the consensus metric developed in consultation with stakeholders through a collaborative process.

Target Development: The Company has developed a baseline for this EAM, which follows the methodology developed through the Company’s 2018 EAM collaborative, *i.e.*, by using a combination of (i) for technologies required to enter the standardized interconnection requirement (“SIR”) process the MW of customer projects in the SIR inventory adjusted for historical cancellation rates, delay rates, and other historical trends by technology; (ii) for technologies not required to enter the SIR process (*e.g.*, EVs, heat pumps, DR, electric buses, and ice energy storage), the Company’s forecasted expected DER adoption levels that would be reasonably expected to be reached while considering the Company’s anticipated initiatives. The Company proposes the minimum EAM level be set at the baseline, the midpoint be set 10 percent above the baseline, and the maximum be set 20 percent above the baseline.

Measurement: Con Edison will measure contributions to the GHG EAM by tracking installations and calculating incremental, annual metric tons CO₂e emissions reduced from the following measures: battery storage, electric buses, electric DR, ice energy storage, medium and light-duty battery and plug-in hybrid EVs, solar PV, the cooling efficiencies from air- and ground-source heat pumps, distributed wind energy, and voluntary renewable energy certificates (“VRECs”) as well as metric tons of CO₂e emissions reduced from air-source and ground-source heat pump heating loads, and heat pump water heaters that replace natural gas. Installations will be tracked through various means, as outlined in the Company’s 2018 Outcome-Based EAM Collaborative Report.⁶⁷ To standardize measurement across technologies, all measurements will be in avoided

⁶⁷ Case 16-E-0060, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Electric Service*, 2018 Outcome-Based EAM Collaborative Report (filed October 17, 2018).

metric tons CO₂e using the general formulae described in the CES testimony, Exhibit __ (CES-8).⁶⁸

Metric tons CO₂e are treated as positive values with the sum of avoided kg CO₂e emissions, converted after initial calculation to metric tons CO₂e emissions, determining achievement. The avoided emissions measurements use electricity emissions factors of Grid kg CO₂e per MWh and/or Peak kg CO₂e per MWh, and other technology-specific factors, to determine avoided metric tons CO₂e. For the purposes of the GHG EAM, the Grid kg CO₂e value is the New York City electricity emissions factor from the most recently published New York City GHG Inventory.⁶⁹ The Peak kg CO₂e per MWh value is sourced from the Environmental Protection Agency (“EPA”) Emissions & Generation Resource Integrated Database (“eGRID”) for the Northeast Power Coordinating Council (“NPCC”) NYC/Westchester sub region.⁷⁰

Electric-only EAMs

Electric EE MWh:MW Ratio:

Definition: The EE MWh:MW Ratio EAM (“Peak Ratio EAM”) will measure the amount of energy efficiency savings achieved for each megawatt of peak reduction.

Purpose: The Peak Ratio EAM is intended to maintain an additional focus on peak reductions through the electric EE portfolio to deliver additional system benefits, complementing other EAMs that drive annual savings and cost-efficient lifetime energy savings.

Target Development: The Company has developed a MWh:MW ratio baseline from where improvements will be measured for this EAM. The Company proposes the baseline be based on the average of achieved 2017 and 2018 MWh:MW ratios. The Company proposes the minimum EAM level be set 100 points below the baseline, the midpoint be set 200 points below the baseline and the maximum be set 300 points below the baseline.

Measurement: The Peak Ratio EAM will be measured by calculating the MWh:MW ratio from electric EE efforts. The EAM amount will be based on improvements in achieved MWh:MW ratio beyond a baseline level derived from the average of achieved 2017-2018 MWh:MW ratios.

Electric DER Utilization:

Definition: The DER Utilization EAM (“DER EAM”) measures the amount of incremental annual MWh Con Edison’s customers do not need to rely on the grid for, through generating locally or through reductions by participation in Con Edison’s Demand Response (“DR”) programs, and MWh from certain beneficial electrification technologies. This EAM is identical to the DER Utilization EAM in the current rate plan.

⁶⁸ For the purposes of the GHG and DER EAMs, the Company will use detailed calculations as developed through the 2018 Outcome-Based EAM Collaborative.

⁶⁹ <https://nyc-ghg-inventory.cusp.nyu.edu/>

⁷⁰ <https://www.epa.gov/energy/emissions-generation-resource-integrated-database-egrid>

Purpose: The DER EAM supports additional DER integration into the Company's energy system and DER market animation, resulting in reduced reliance on grid-supplied electricity.

Target Development: The Company has developed a baseline for this EAM that follows the methodology developed in the Company's EAM collaborative efforts, *i.e.*, by using a combination of (i) for technologies requiring to enter the SIR process, the MW of customer projects in the SIR inventory adjusted for historical cancellation rates, delay rates, and historical trends by technology; (ii) for technologies not required to enter the SIR process (*e.g.*, EVs including electric buses, heat pumps, DR, and thermal energy storage including ice energy storage), the Company forecasted expected DER adoption levels that would be reasonably expected to be reached while considering the Company's anticipated initiatives. The Company proposes the minimum EAM level be set at the baseline, the midpoint to be set 10 percent above the baseline, and the maximum to be set 20 percent above the baseline.

Measurement: For the DER EAM, Con Edison will track installations, and calculate annualized MWh using standardized formulae, from air- and ground-source heat pumps, battery storage, battery and plugin hybrid light-duty EVs, Combined Heat and Power ("CHP"), electric DR, fuel cells, electric buses, ice energy storage, solar PV, and distributed wind energy. This tracking methodology is based on Con Edison's existing tracking methods being used for the purposes of the existing DER EAM as shown in its 2018 Outcome-Based EAM Collaborative Report. For example, end-of-year incremental installed capacity from solar PV, CHP, fuel cells, and batteries will be tracked through the SIR process and following Con Edison's submittal of a final interconnection letter to the customer noting that all interconnection work has been completed. The Company will measure DERs in terms of their rated capacity and related capacity factors, except for DR for which the number of DR events and actual performance will be used. All measurements will be in annualized MWh using the general formulae described in the CES testimony, Exhibit __ (CES-8). For each DER type, the Company will determine annualized MWh produced, consumed, discharged, or reduced from incremental resources. MWh are treated as positive values with the sum of produced, consumed, and reduced (in the case of DR and heat pump efficiency) energy determining achievement against a target; that is, one MWh produced is equivalent to one MWh consumed (or one MWh reduced in the case of DR and heat pump efficiency) for the purpose of the DER EAM.

System Efficiency:

Definition: The System Efficiency EAM ("SE EAM") will target improvements in system efficiency on specific portions of distribution system. This EAM would capture reductions in peak load and improvements in load factor at a substation level.

Purpose: For the SE EAM, a targeted geographic approach within the distribution system will enable the Company to effectively measure and subsequently improve the system efficiency of key portions of the distribution system, through reduced peak and increased load factor, where it is beneficial, in alignment with the Storage Order. By focusing on specific substation areas, the Company can focus efforts on both increasing system utilization and reducing peak distribution

loads, such as through encouraging smart charging of energy storage and other applications of beneficial electrification.

Target Development: The Company proposes to develop baselines and targets in 2020-2021 for use as an EAM in 2022 by first measuring substation performance in identified key substation areas. The Company proposes that once baselines are determined, the Company will propose minimum, midpoint, and maximum target levels.

Measurement: For this EAM, the Company proposes using three constrained substation areas, Brownsville, Plymouth Street, and Water Street, to measure current levels of system efficiency. The Company anticipates that these substations will have higher penetration of customer-side DER that provide opportunities to improve system efficiency at the substation level that may result in both environmental and reliability benefits. This new EAM is designed to measure improvements in operating performance and system utilization over the entire year in constrained areas of the distribution system, distinct from the focus on achieving peak reduction on peak summer days during peak hours for deferral or displacement of traditional infrastructure investments, which is addressed in NWS initiatives. The Company proposes to measure peak load and load factor in the identified three areas over a three-year period beginning in 2020 using a phase-in approach. Years 2020 and 2021 will establish a baseline and will be reported as a scorecard metric. The two baseline years will be used to establish the EAM metric targets for 2022.

Target and Basis Points:

The below tables summarize the Company’s proposed EAM targets and basis points allocation.

Table 10 shows the Company’s proposed targets for its Cross-Commodity EAMs.

Table 10 – Cross Commodity EAM Targets

		2020	2021	2022
Annual MMBtu EAM	Min	1,490,917	1,743,399	1,972,969
	Mid	1,987,890	2,324,532	2,630,626
	Max	2,484,862	2,905,665	3,288,282
Greenhouse Gas Emissions Reductions EAM ⁷¹	Min	44,868	TBD	TBD
	Mid	49,355	TBD	TBD
	Max	53,842	TBD	TBD
Share The Savings EAM	N/A	See description of STS EAM above		

Table 11 shows the Company’s proposed targets for its Electric-Only EAMs.

⁷¹ The targets shown are tentative with the best information at the time of this filing. The Company expects to more precisely propose targets at a later date as the interconnection queue progresses in 2019.

Table 11 – Electric-Only EAM Targets

		2020	2021	2022
MWh:MW Ratio EAM	Min	5,710	5,710	5,710
	Mid	5,610	5,610	5,610
	Max	5,510	5,510	5,510
System Efficiency EAM	Min	N/A	N/A	TBD
	Mid	N/A	N/A	TBD
	Max	N/A	N/A	TBD
DER Utilization EAM ⁷²	Min	166,598	TBD	TBD
	Mid	183,258	TBD	TBD
	Max	199,918	TBD	TBD

Table 12 shows the Company’s proposed basis point allocation for its Cross-Commodity EAMs. The Company notes that the basis points for the cross-commodity EAMs will be over the combined electric and gas rate bases and will be allocated to electric and gas customers in proportion to their respective rate base sizes.

Table 12 – Cross Commodity EAM Basis Points

		2020	2021	2022
Annual MMBtu EAM	Min	7	7	7
	Mid	21	21	21
	Max	35	35	35
Greenhouse Gas Emissions Reductions EAM	Min	5	5	5
	Mid	15	15	15
	Max	25	25	25
Totals	Min	12	12	12
	Mid	36	36	36
	Max	60	60	60
Share The Savings EAM	N/A	50% of total cost savings below baseline		

Table 13 shows the Company’s proposed basic point allocation for its Electric-Only EAMs.

Table 13 – Electric-Only EAM Basis Points

		2020	2021	2022
MWh:MW Ratio EAM	Min	2	2	2
	Mid	6	6	6
	Max	10	10	10
System Efficiency EAM	Min	N/A	N/A	1
	Mid	N/A	N/A	3
	Max	N/A	N/A	5

⁷² The targets shown are tentative with the best information at the time of this filing. The Company expects to more precisely propose targets at a later date as the interconnection queue progresses in 2019.

DER Utilization EAM	Min	3	3	3
	Mid	9	9	9
	Max	15	15	15
Totals	Min	5	5	6
	Mid	15	15	18
	Max	25	25	30

EAM Benefits The utility costs associated with the EAMs are \$582 million over RY1-RY3, comprising of the utility cost of the EE portfolio. The benefits related to EAMs are in

Table 14.

Table 14 – EAM Benefits

Benefits and Costs (\$ millions)	2020	2021	2022	Total
Annual MMBtu and MWh:MW Ratio Benefits	\$261	\$341	\$398	\$1,000
Annual MMBtu and MWh:MW Ratio Costs	\$134	\$159	\$176	\$468
GHG Emission Reduction Benefits	\$146	N/A	N/A	\$146
GHG Emission Reduction Costs	\$11	N/A	N/A	\$11
DER Utilization Reduction Benefits	\$196	N/A	N/A	\$196
DER Utilization Reduction Costs	\$11	N/A	N/A	\$11

Planned Illustrative Portfolio and Program Descriptions

As discussed in the CES testimony, the Company’s portfolio is forward-looking but reflects and builds upon its prior experience running cost-effective EE programs.

At the broad level, the EE portfolio is expected to offer electric (including heat pumps) and gas offerings across customer segments. We reach our customers through a focus on four primary customer segments designed to meet each customer group’s needs:

- Commercial and Industrial (“C&I”)
- Small business
- Multifamily and
- Residential.

The Company plans to evolve the portfolio from current levels by:

- Optimizing delivery for current offerings in order to generate more energy savings and demand reductions from current offerings, for example, by further streamlining the customer experience from the application stage to the point of full implementation of the EE measure using transparent information and simplifying and standardizing processes; and
- Employing new strategies to reach deeper savings, expanding beyond lighting offers to the extent such expansion can be made under the budget and unit costs, exploring upstream interventions in the supply chain to fundamentally transform markets towards greater EE, and engaging harder to reach customers, such as residential customers.

In developing an illustrative higher-level portfolio, the Company envisions reaching all customer segments. To achieve the portfolio targets included in this filing, including a trajectory for electric savings achievement to 1.3 percent of electric sales by 2022, the Company projects significant growth in the C&I, small business, and multifamily sectors for electric efficiency and C&I, residential, and multifamily sectors for gas efficiency over 2020-2022. The integration of NPS within the portfolio projects gas savings achievement to 0.48 percent of gas sales by 2022. This growth will occur alongside the launch of a heat pump program and increased focus on LMI customers.

The Company intends for the portfolio to evolve iteratively as it adjusts to the market response. Efficiency offerings and delivery channels are not static, nor are they uniform within a segment. Accordingly, the Company intends to manage and revise offerings and delivery channels applying continuous improvement and innovation as key priorities.

In addition to the delivery channels described above, the Company will employ a host of strategies and operational improvements to better serve customers in a more innovative and market-oriented manner that is transparent and transformational for our customers, partners and other stakeholders in the EE marketplace. This includes providing customers with options and opportunities to reduce their energy use based on their unique needs and continuing or expanding programs targeted to upstream portions of the supply chain that align interests in promoting more widespread installations of energy efficient equipment at our customer locations. Examples for residential customers include accessing rebates and incentives through market partners, managing energy and demand through smart thermostats and Wi-Fi-enabled air conditioners, and benefiting at the retail level from market-based partnerships between Con Edison and mid- and up-stream retailers and distributors.

The Con Edison Online Marketplace may transition in late 2019 from a REV Demonstration Project to full integration within the EE portfolio. If this transition occurs, the Marketplace and how the Company employs it to support energy savings is expected to evolve to meet customers' needs through engagement channels of their preference.

Other examples of programs that explore innovative delivery models and promote transformative offerings include (i) Instant Lighting, an upstream program that provides instant incentives to

customers on eligible ENERGY STAR®-certified and Design Lights Consortium-listed lamps at the distributor point of sale; (ii) Strategic Energy Partnerships, through which the Company is focused on identifying and engaging customers that are heavy-energy users (working to secure longer-term partnerships with customers in segment verticals such as hospitals, schools, and the banking sector are some of the areas where Con Edison may see significant potential for savings); (iii) Retail Lighting that provides instant rebates to customers at their point of purchase in big-box retailers, as well as other retailers, such as drug stores and dollar stores, providing accessibility to customers, including LMI; (iv) Residential Upstream HVAC that focuses on incenting distributors or other entities in the supply chain upstream of the customer; and (v) ENERGY STAR™ Retail Products Platform that leverages the purchasing power of multiple nation-wide utilities to work with retailers nationally to incent them to stock and sell efficient appliances.

Beyond these innovative offerings, the Company is developing programs to promote heat pumps and to encourage LMI engagement and participation in EE efforts. These programs are discussed in further detail below. Additionally, in alignment with the NPS Order, the Company is designing and implementing plans to meet growing gas demand in constrained areas through its set of NPS, which will be integrated into existing programs.

Con Edison will strive to engage customers and provide them with greater control over their energy choices. Under the broad commercial and residential segment umbrella portfolios, the Company's programs will be tailored to each customer segment's particular needs. The offerings described below are evolving strategies that respond to market changes so as to serve a broad and diverse set of customers.

Commercial Customer Programs (or Commercial and Industrial “C&I”)

Con Edison plans to offer a robust suite of products and services to commercial electric and gas customers of various sizes and business types. Recognizing the distinct nature of commercial customers, the Company intends to continue to offer market-based offerings through which customers may address their particular business objectives and constraints. These include large C&I prescriptive incentives, *i.e.*, pre-set and fixed incentives on a per unit basis, C&I custom incentives, the Commercial Direct Install (“CDI”) program providing incentives to smaller businesses, Instant Lighting focused on incenting lighting upstream in the supply chain, and Strategic Energy Partnerships targeting incentives to our larger energy consumers to adopt electric and gas EE beyond efficient lighting. Further, the Company intends to launch new offerings focused on midstream and upstream delivery channels to incentivize EE measures in this sector.

Customer segment verticals, *i.e.*, a group of customers engaged in the same industry or type of activity, such as hospitals, schools, and the banking sector, are some areas where Con Edison may see significant potential for savings. Working to secure longer term partnerships with some of the larger energy consumers in the service territory can potentially produce considerable savings. The Strategic Energy Partnership is intended to engage such customers to incorporate EE into their medium and longer term capital planning and budgeting cycles.

The Instant Lighting Incentive Program (“ILIP”) is an upstream lighting program currently open to commercial, small business, and multifamily customers. The Company intends to continue ILIP so customers can receive instant incentives on eligible ENERGY STAR®-certified and Design Lights Consortium-listed lamps at the distributor point of sale.

To align with NPS objectives, the commercial customer focused program is launching a new targeted incentives opportunity for commercial building owners and property managers in Westchester County. These incentives will cover prescriptive measures, such as steam trap repair, and custom measures, such as demand-controlled ventilation, and are expected to be approximately 50 percent higher than the previously available offer.

The Company expects to continue the CDI program, offering small to mid-size commercial customers, with average peak demand of up to 300 kW, low cost EE equipment upgrades for their businesses. In addition to LED lighting and refrigeration measures, the program includes gas measures, HVAC measures, controls, and cooking equipment to provide a more comprehensive set of energy solutions to this group of customers.

Residential Programs

Con Edison will continue to approach the residential segment through a portfolio approach by developing a variety of electric and gas offerings aimed to service customers’ distinct needs. The Company intends to further test and implement upstream interventions building on lessons learned from the residential electric and gas HVAC portfolio that has transitioned to an upstream model where incentive funds flow through the distributor to customers. An upstream program model engages the distributor and contractor and aligns their interest with more efficient equipment. The Company expects the approach to be impactful because distributors and contractors often make HVAC recommendations to residential customers.

Con Edison’s retail lighting program, offering discounted LEDs through select retailers, was expanded beyond big –box stores to include second tier retailers, such as drug stores and dollar stores where customers shop, and also distributed LEDs to low income customers through partnering with food banks in Con Edison’s territory. The Company will continue to grow this program to reach more customers to increase adoption of more efficient products.

Further, to pursue NPS needs, the Residential Program is offering new opportunities for single-family home customers in Westchester County to either (1) upgrade their existing heating system to an air-source heat pump or a geothermal heat pump, or (2) to weatherize their home envelope and ductwork with improved insulation.

Additionally, Con Edison intends to continue the successful Smart Kids program that delivers kits containing EE measures such as LEDs to fifth-graders across the service territory and pairs the issuance of the kits with an in-classroom EE lesson plan. The program is expected to result in

lasting market transformation as new generations of New Yorkers become aware of EE and learn about ways they can contribute towards sustainability.

The Multifamily Program promotes EE for existing multifamily electric and gas customers. This program is targeted for owners and property managers of residential buildings with five or more units. Customers in qualifying affordable buildings are also eligible for enhanced incentives. The Multifamily Program will develop strategies to further enhance adoption of EE. The Company also intends to further facilitate retrofits of multi-family buildings through building on partnerships with programs such as the City's Retrofit Accelerator.

Customers will have the ability to apply for EE incentives for both common area and in-unit measures, and custom rebates. For those buildings that need assistance in developing a plan for EE, the program offers on site assessments to identify areas of meaningful opportunity.

As with the Company's Commercial and Residential Programs, the Multifamily Program is designing offerings, to meet NPS goals such as a new targeted incentives opportunity for residential building owners and property managers in Westchester County. These incentives will cover prescriptive air sealing and boiler controls measures and custom measures such as boiler stack economizers.

The program is also pursuing approximately five site specific project agreements with mostly low-income multifamily building customers in Westchester County. These customized project opportunities offer each customer the ability to undergo comprehensive heating system upgrades within their buildings. Measures will address electrification with heat pumps, balancing of uneven heating temperatures within the apartment spaces, and eliminating steam heat losses due broken steam traps, uninsulated piping, and poor boiler operating conditions.

Test and Learn ("T&L")

The Company's ongoing T&L strategy is a systematic method of identifying, designing, and implementing new technologies, programs, initiatives, and campaigns. The Company uses the T&L strategy to identify new measures, uses, and delivery mechanisms for existing offerings, and to identify and test new programs and initiatives before full scale implementation is undertaken. As a T&L initiative reaches maturity, the Company will evaluate its long-term viability and potential for success, after which the initiative will either be scaled up, retired or retooled, as appropriate.

Current T&L initiatives needing continued testing include the Energy Star Retail Products Platform, based on intervening just upstream of the customer, a new customer welcome program focused on new customers coming into the Company territory, residential and multifamily behavioral programs, based on development of home energy reports detailing consumption information, Building Energy Performance Commercial behavioral programs focused on using behavioral approaches in the Commercial sector, and third party residential financing.

Heat Pumps

The Heat Pump chapter includes a proposal from the NY Electric Utilities, in collaboration with NYSERDA, that will: (i) drive market scale to reduce costs, (ii) provide a clear and stable market signal, (iii) be simple and workable for consumers, and (iv) provide a smooth transition from current programs. The NY Electric Utilities will operate heat pump resource acquisition programs (including incentives, eligibility, marketing, QA/QC, EM&V) while NYSERDA will perform market enablement functions (developing a statewide messaging toolkit, workforce training, community outreach). The NY Electric Utilities will meet periodically to assess heat pump program performance, and continue to engage with NYSERDA on NYSERDA's market enablement activities and focus on statewide heat pump program consistency. Specific incentive level ranges and delivery channels, including strategies to reach residential, multifamily and commercial customer segments, are pending finalized implementation plans. Each electric utility will also be responsible for addressing several key issues that will impact a future heat pump program, such as rate design, geographic adders for non-wires and non-pipe alternatives, and specific offerings for the LMI customer segment. The Company currently offers incentives for heat pump technology, *e.g.*, the Residential HVAC program provides incentives to both the distributor and contractor for air-source heat pump installations. The Company expects to transition existing offerings to the new heat pump framework discussed in the heat pump chapter of the filing.

LMI Programs

The LMI chapter establishes a collaborative framework with NYSERDA that seeks to allow the Company to reach a larger number of LMI customers within its territory. The Company strives to coordinate the Company's low-income discount program with EE to more holistically advance energy affordability through bill reductions achieved through lower energy use for LMI customers. Through the implementation of simplified processes, the Company will operate resource acquisition programs to drive increased adoption rates of EE programs in LMI multi-family and residential homes.

Exhibit A
Budgets and Targets Schedules

Table 1 – Electric EE Budget Schedule

	2020	2021	2022	2023	2024	2025
ETIP Budget	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022	\$86,178,022
Energy Efficiency Order Budget	\$49,614,344	\$79,374,793	\$101,050,659	\$129,728,218	\$158,515,897	\$180,848,751
Total Electric EE Budget	\$135,792,366	\$165,552,815	\$187,228,681	\$215,906,240	\$244,693,919	\$267,026,773
Total Non-LMI Budget	\$123,870,142	\$147,457,663	\$164,231,498	\$187,462,355	\$210,924,371	\$228,857,501
Total LMI Budget	\$11,922,224	\$18,095,152	\$22,997,183	\$28,443,885	\$33,769,548	\$38,169,272

Table 2 – Electric EE Savings Schedule

	2020	2021	2022	2023	2024	2025
Total MMBtu	1,258,678	1,590,885	1,834,822	2,153,746	2,474,858	2,725,168
Non-LMI MMBtu	1,188,119	1,483,793	1,698,718	1,985,408	2,275,001	2,499,272
LMI MMBtu	70,559	107,092	136,103	168,339	199,857	225,896
Total MWh	368,898	466,262	537,755	631,227	725,339	798,701
Non-LMI MWh	348,218	434,875	497,866	581,890	666,765	732,495
LMI MWh	20,680	31,387	39,890	49,337	58,575	66,206

Table 3 – Electric EE Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Total \$/MMBtu	\$108	\$104	\$102	\$100	\$99	\$98
Non-LMI \$/MMBtu	\$104	\$99	\$97	\$94	\$93	\$92
LMI \$/MMBtu	\$169	\$169	\$169	\$169	\$169	\$169
Total \$/kWh	\$0.37	\$0.36	\$0.35	\$0.34	\$0.34	\$0.33
Non-LMI \$/kWh	\$0.36	\$0.34	\$0.33	\$0.32	\$0.32	\$0.31
LMI \$/kWh	\$0.58	\$0.58	\$0.58	\$0.58	\$0.58	\$0.58

Table 4 – Heat Pump Budget Schedule

	2020	2021	2022	2023	2024	2025
Use of EEPS / ETIP Unspent Funds	\$3,367,275	\$9,428,371	\$13,469,101	\$20,404,274	\$29,275,698	\$39,032,373
Energy Efficiency Order	\$2,186,464	\$6,122,099	\$8,745,856	\$13,249,054	\$19,009,512	\$25,346,016
Total Budget	\$5,553,739	\$15,550,470	\$22,214,958	\$33,653,328	\$48,285,210	\$64,378,389

Table 5 – Heat Pump Savings Schedule

	2020	2021	2022	2023	2024	2025
Total MMBtu	23,546	65,929	94,184	142,679	204,713	272,950

Table 6 – Heat Pump Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Total \$ / MMBtu	\$236	\$236	\$236	\$236	\$236	\$236

Table 7 – Gas EE Budget Schedule

	2020	2021	2022	2023	2024	2025
Unspent EEPS Budget	\$2,717,060	\$0	\$0	\$0	\$0	\$0
Unspent ETIP Budget	\$3,012,436	\$0	\$0	\$0	\$0	\$0
ETIP Budget	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466	\$14,533,466
NENY Budget	\$9,996,775	\$22,254,848	\$25,676,184	\$25,663,057	\$25,961,952	\$28,495,257
Total Gas EE Budget	\$30,259,737	\$36,788,314	\$40,209,650	\$40,196,523	\$40,495,418	\$43,028,723
Total Non-LMI Budget	\$30,259,737	\$34,557,538	\$37,861,464	\$37,562,152	\$37,369,396	\$39,329,194
Total LMI Budget	\$0	\$2,230,776	\$2,348,185	\$2,634,370	\$3,126,022	\$3,699,529

Table 8 – Gas EE Savings Schedule

	2020	2021	2022	2023	2024	2025
Total MMBtu	776,224	795,462	859,462	859,462	859,462	916,798
Non-LMI MMBtu	776,224	774,811	837,724	835,074	830,523	882,549
LMI MMBtu	-	20,652	21,738	24,388	28,939	34,249

Table 9 – Gas EE Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Total \$ / MMBtu	\$39	\$46	\$47	\$47	\$47	\$47
Non-LMI \$ / MMBtu	\$39	\$45	\$45	\$45	\$45	\$45
LMI \$ / MMBtu	N/A	\$108	\$108	\$108	\$108	\$108

Table 10 – All Programs Budget Schedule

	2020	2021	2022	2023	2024	2025
Electric Non-LMI Budget	\$123,870,142	\$147,457,663	\$164,231,498	\$187,462,355	\$210,924,371	\$228,857,501
Heat Pump Budget	\$5,553,739	\$15,550,470	\$22,214,958	\$33,653,328	\$48,285,210	\$64,378,389
Non-LMI Electric + Heat Pump Budget	\$129,423,882	\$163,008,133	\$186,446,455	\$221,115,683	\$259,209,581	\$293,235,889
Gas Non-LMI Budget	\$30,259,737	\$34,557,538	\$37,861,464	\$37,562,152	\$37,369,396	\$39,329,194
Total Non-LMI Budget	\$159,683,619	\$197,565,671	\$224,307,920	\$258,677,836	\$296,578,977	\$332,565,083
Electric LMI Budget	\$11,922,224	\$18,095,152	\$22,997,183	\$28,443,885	\$33,769,548	\$38,169,272
Gas LMI Budget	\$0	\$2,230,776	\$2,348,185	\$2,634,370	\$3,126,022	\$3,699,529
Total LMI Budget	\$11,922,224	\$20,325,928	\$25,345,369	\$31,078,255	\$36,895,570	\$41,868,802

Table 11 – All Programs Savings Schedule

	2020	2021	2022	2023	2024	2025
Electric Non-LMI MMBtu	1,188,119	1,483,793	1,698,718	1,985,408	2,275,001	2,499,272
Heat Pump MMBtu	23,546	65,929	94,184	142,679	204,713	272,950
Non-LMI Electric + Heat Pump MMBtu	1,211,665	1,549,721	1,792,902	2,128,086	2,479,714	2,772,222
Gas Non-LMI MMBtu	776,224	774,811	837,724	835,074	830,523	882,549
Total Non-LMI MMBtu	1,987,890	2,324,532	2,630,626	2,963,161	3,310,237	3,654,771
Electric LMI MMBtu	70,559	107,092	136,103	168,339	199,857	225,896
Gas LMI MMBtu	-	20,652	21,738	24,388	28,939	34,249
Total LMI MMBtu	70,559	127,743	157,842	192,726	228,797	260,145

Table 12 – All Programs Unit Cost Schedule

	2020	2021	2022	2023	2024	2025
Electric Non-LMI \$/MMBtu	\$104	\$99	\$97	\$94	\$93	\$92
Heat Pump \$/MMBtu	\$236	\$236	\$236	\$236	\$236	\$236
Non-LMI Electric + Heat Pump \$/MMBtu	\$107	\$105	\$104	\$104	\$105	\$106
Gas Non-LMI \$/MMBtu	\$39	\$45	\$45	\$45	\$45	\$45
Total Non-LMI \$/MMBtu	\$80	\$85	\$85	\$87	\$90	\$91
Electric LMI \$/MMBtu	\$169	\$169	\$169	\$169	\$169	\$169
Gas LMI \$/MMBtu	N/A	\$108	\$108	\$108	\$108	\$108
Total LMI \$/MMBtu	\$169	\$159	\$161	\$161	\$161	\$161

Table 13 – Total Budget Schedule

	2020	2021	2022	2023	2024	2025
Electric Budget	\$135,792,366	\$165,552,815	\$187,228,681	\$215,906,240	\$244,693,919	\$267,026,773
Gas EE Budget	\$30,259,737	\$36,788,314	\$40,209,650	\$40,196,523	\$40,495,418	\$43,028,723
Total EE Budget	\$166,052,104	\$202,341,129	\$227,438,331	\$256,102,763	\$285,189,336	\$310,055,496
Heat Pump Budget	\$5,553,739	\$15,550,470	\$22,214,958	\$33,653,328	\$48,285,210	\$64,378,389
Total Budget	\$171,605,843	\$217,891,599	\$249,653,288	\$289,756,091	\$333,474,546	\$374,433,884

Table 14 – Total Savings Schedule

	2020	2021	2022	2023	2024	2025
Electric MMBtu	1,258,678	1,590,885	1,834,822	2,153,746	2,474,858	2,725,168
Gas MMBtu	776,224	795,462	859,462	859,462	859,462	916,798
Total EE MMBtu	2,034,903	2,386,347	2,694,284	3,013,208	3,334,320	3,641,966
Heat Pump MMBtu	23,546	65,929	94,184	142,679	204,713	272,950
Total MMBtu	2,058,449	2,452,275	2,788,468	3,155,887	3,539,033	3,914,916

Table 15 – Total Unit Cost Request

	2020	2021	2022	2023	2024	2025
Electric \$/MMBtu	\$108	\$104	\$102	\$100	\$99	\$98
Gas \$/MMBtu	\$39	\$46	\$47	\$47	\$47	\$47
Total EE \$/MMBtu	\$82	\$85	\$84	\$85	\$86	\$85
Heat Pump \$/MMBtu	\$236	\$236	\$236	\$236	\$236	\$236
Total \$/MMBtu	\$83	\$89	\$90	\$92	\$94	\$96

NFGDC Chapter

National Fuel Gas Distribution Corporation (“Distribution” or “NFGDC”) hereby submits this supplement to the NY Utilities Report, at Department of Public Service Staff’s (“Staff”) request, to respectfully: (1) request New York State Public Service Commission (“Commission”) approval of Distribution’s cost recovery proposal outlined herein, (2) request Commission approval of “base” and “incremental” NFGDC budgetary funding components for the 2021 – 2025 program years, and (3) affirm NFGDC’s energy efficiency budgets for the 2019 through 2025 program years, as set forth in a central transparent location outlined in the table below.

Distribution’s “base” budgetary funding for the 2019 and 2020 program years has already been approved by the Commission, in its 2018 Energy Efficiency Order.⁷³ In compliance with ordering clause 19 of the 2018 Energy Efficiency Order, Distribution filed tariff amendments in Case 15-M-0252 on April 2, 2018, identifying the Energy Efficiency Tracker Surcharge Rate as the method of cost recovery for NFGDC’s 2019 and 2020 program years. These tariff amendments became effective January 1, 2019. The Commission’s Order Adopting Accelerated Energy Efficiency Targets (“NENY Order”), issued and effective December 13, 2018 in Case 18-M-0084, did not recommend 2019 or 2020 budgetary funding changes for NFGDC.⁷⁴ It is important to note that additional information on Distribution’s 2019 and 2020 energy efficiency portfolio is included in NFGDC’s Updated Energy Efficiency Transition Implementation Plan (“ETIP”) and System Energy Efficiency Plan (“SEEP”), filed in Cases 18-M-0084, 15-M-0252 and 07-G-0141, on February 19, 2019.

With regard to the 2021 – 2025 program years, NFGDC’s energy efficiency budgets would be comprised of two elements: (1) continued “base” funding, with Distribution recommending no increases or decreases to the “base” component; and (2) “incremental” funding, as outlined in the Commission’s NENY Order.⁷⁵ Budgetary funding for the 2021 – 2025 program years (*i.e.*, both the “base” and “incremental” components) has not yet been approved by the Commission. As such, Distribution proposes and hereby requests Commission approval of, the following cost recovery proposal:

- 1) Continue funding the unchanged “base” component via the Energy Efficiency Tracker Surcharge Rate, for the 2021 – 2025 period.
- 2) Apply all remaining unspent funding from the 2012 – 2015 program years (inclusive of interest accumulated and to the extent not otherwise ordered by the Commission),⁷⁶ \$242,097.68 of unspent evaluation, measurement and verification

⁷³ 2018 Energy Efficiency Order, p. 51.

⁷⁴ Energy Efficiency Order, at Appendix A, p. 4.

⁷⁵ Energy Efficiency Order, at Appendix C, p. 4.

⁷⁶ It should be noted that Distribution filed a Verified Petition with the Commission on August 27, 2018, in Case 18-G-0553, which sought to repurpose unspent funding from the 2012 – 2015 program years, among other things. To the extent the Commission were to approve Distribution’s petition, this unspent funding would be used for a new safety pilot program and enhanced energy efficiency initiatives. To the extent the Commission were to approve a portion of Distribution’s petition, or deny the petition, then some or all of the unspent funding from the 2012 – 2015 program years would remain available for the use proposed herein.

(“EM&V”) funding from the 2016 program year, \$212,046.56 of unspent Residential Rebate Program funding from the 2017 program year, \$199,420.30 of unspent EM&V funding from the 2017 program year, and all interest accumulated on balances associated with the New York State Energy Research and Development Authority’s Clean Energy Fund to the NENY Order “incremental” funding requirement. At a minimum, this recommended approach would “cover” approximately 32 percent of the “incremental” funding requirement and may even result in “entirely covering” the “incremental” funding requirement while simultaneously refunding any remaining unspent funds to customers.⁷⁷

- 3) To the extent there are any shortfalls in meeting the “incremental” funding requirement, then and only then, collect the remaining balance via an adjusted Energy Efficiency Tracker Surcharge Rate, for the 2021 – 2025 period.
- 4) Continue to calculate and apply interest to 2021 – 2025 program year principal balances at the Other Customer Provided Capital Interest Rate (*i.e.*, the rate currently being applied to NFGDC energy efficiency principal balances).
- 5) Update and re-file tariff amendments for the Energy Efficiency Tracker Surcharge Rate and the Clean Energy Fund Surcharge Rate, prior to January 1, 2021, to reflect a future Commission determination in this proceeding.

In the table set forth below (which summarizes all NFGDC energy efficiency budgets for 2019 – 2025 program years in a central location), Distribution is hereby affirming the 2019 – 2020 program years and requesting Commission approval of the following energy efficiency budgets for the 2021 - 2025 program years. It should be noted that Table 18, below, includes the “presumptive” 2021 – 2025 budgets specified in the Commission’s NENY Order.

⁷⁷ *Id.*

Table 18: Budgets (As Specified in the NENY Order)

Program Year	"Base" Funding Approved by the Commission	"Base" Funding Not Yet Approved by the Commission	"Incremental" NENY Order Funding Not Yet Approved by the Commission	Total
2019	\$10,040,000	\$0	\$0	\$10,040,000
2020	\$10,040,000	\$0	\$0	\$10,040,000
2021	\$0	\$10,040,000	\$104,172	\$10,144,172
2022	\$0	\$10,040,000	\$260,431	\$10,300,431
2023	\$0	\$10,040,000	\$416,690	\$10,456,690
2024	\$0	\$10,040,000	\$729,207	\$10,769,207
2025	\$0	\$10,040,000	\$1,091,206	\$11,131,206
2019 - 2025	\$20,080,000	\$50,200,000	\$2,601,706	\$72,881,706

Distribution envisions that the mix of programs in its 2021 – 2025 energy efficiency portfolios will be determined, and publicly disclosed, in future ETIP/SEEP filings to the Commission. However, at this time, NFGDC commits to ensuring that a *minimum* of 20 percent of all “incremental” funding will be dedicated for low and moderate income (“LMI”) customers, in compliance with the NENY Order.

This chapter does not include any additional discussion of energy savings targets, since the NY Utilities’ Targets and Budgets chapter already noted that Distribution is adopting the Commission’s “presumptive targets” as further described therein. While the Company understands the ratemaking need for annual budgets, the Company respectfully requests that the Commission provide flexibility, as respects energy savings targets from energy efficiency programs. Specifically, the Company is requesting that the energy savings targets be treated as “cumulative” rather than “annual,” similar to how the energy savings targets were established during the 2012 to 2015 program years (*i.e.*, the Energy Efficiency Portfolio Standard 2 or “EEPS 2”).

Distribution appreciates this opportunity to provide this supplement to the NY Utilities Report and request for budgetary and cost recovery approval. NFGDC respectfully requests that the Commission approve all aspects of its thoughtful cost recovery proposal set forth above, including both the “base” and “incremental” NFGDC budgetary funding components for the 2021 – 2025 program years.

XI. National Grid Chapter

1. National Grid Funding Sources

Table 19 presents budgets and funding sources for the energy efficiency portfolios of KEDLI, KEDNY, and Niagara Mohawk.

Table 19: Budgets and Funding Sources for the Energy Efficiency Portfolios of KEDLI, KEDNY, and Niagara Mohawk

UNY - Electric (MWH)	2019	2020	2021	2022	2023	2024	2025
ETIP EE Min	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893	\$ 63,897,893
Incremental EE	\$ -	\$ -	\$ 8,284,634	\$ 15,154,819	\$ 26,268,353	\$ 36,775,694	\$ 46,111,063
Heat Pump	\$ -	\$ 4,295,000	\$ 9,250,000	\$ 12,068,000	\$ 12,050,000	\$ 10,762,000	\$ 9,211,000
Total	\$ 63,897,893	\$ 68,192,893	\$ 81,432,527	\$ 91,120,712	\$ 102,216,246	\$ 111,435,587	\$ 119,219,956
Funding Source	NA	Uncommitted/Unspent EEPS/Rates	Rates	Rates	Rates	Rates	Rates
UNY - Gas (DTH)	2019	2020	2021	2022	2023	2024	2025
ETIP EE Min	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262
Incremental EE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Total	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262	\$ 14,014,262
Funding Source	NA	NA	NA	NA	NA	NA	NA
KEDLI - Gas (DTH)	2019	2020	2021	2022	2023	2024	2025
ETIP EE Min	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182	\$ 7,164,182
Incremental EE	\$ 1,215,829	\$ 2,127,701	\$ 2,872,048	\$ 3,801,240	\$ 4,983,849	\$ 6,757,761	\$ 9,072,294
Total	\$ 8,380,011	\$ 9,291,883	\$ 10,036,230	\$ 10,965,422	\$ 12,148,031	\$ 13,921,943	\$ 16,236,476
Funding Source	Uncommitted/Unspent EEPS	Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates
KEDNY - Gas (DTH)	2019	2020	2021	2022	2023	2024	2025
ETIP EE Min	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114	\$ 12,771,114
Incremental EE	\$ 2,933,009	\$ 5,132,766	\$ 7,465,446	\$ 9,561,010	\$ 13,817,623	\$ 19,122,019	\$ 23,892,308
Total	\$ 15,704,123	\$ 17,903,880	\$ 20,236,560	\$ 22,332,124	\$ 26,588,737	\$ 31,893,133	\$ 36,663,422
Funding Source	Uncommitted/Unspent EEPS	Uncommitted/Unspent EEPS	Rates	Rates	Rates	Rates	Rates

2. Niagara Mohawk Heat Pump Target

National Grid supports the overall goal of 40 percent statewide reduction of greenhouse gas (“GHG”) emissions from 1990 levels by 2030 and the role of heat pump technology in achieving necessary emissions reductions. In collaboration with the NY Electric Utilities and NYSERDA, National Grid generally agrees with the statewide budgets and targets outlined in the “Accelerated Heat Pump Deployment” chapter.

The initial statewide \$250 Million budget and five TBtu proposal was based on NYSERDA’s New Efficiency NY white paper. After further analysis and comment, NYSERDA recently revised their methodology and analysis to reflect load factor and efficiency factor changes. NYSERDA’s revised methodology places downward pressure on savings and upward pressure on incentive budgets. Approximately 4,800 installations or a 20 percent increase will be needed above the original aggressive estimates for Niagara Mohawk’s service territory to achieve the statewide five TBtu target. The scale of this adjustment frontloads an additional year or more of program performance to the six-year time frame. It is challenging to commit to savings targets when the savings methodology is still to be finalized in the TRM. The feasibility of proposed savings targets is further exacerbated by limited program history and an in-progress

potential study not anticipated to be finalized until later this year. The installation projections and corresponding GBtu estimates identified below for Niagara Mohawk, while still ambitious, reflect a primarily residential market as outlined in the order, a gradual program ramp period, are reflective of the Electric Heat Initiative⁷⁸ performance in 2018⁷⁹, and NYSERDA’s ASHP & GSHP performance rates from 2017-present⁸⁰. Niagara Mohawk’s proposal is further substantiated by NYSERDA’s capacity estimates for all residential and small-scale (up to ten tons) non-residential installations, noted in Table 7 and also included in Table 21.

Table 20: National Grid, Estimated Heat Pump Installations (2020-2025)

	2020	2021	2022	2023	2024	2025	Total
NIMO Proposal	975	2,100	3,000	3,600	4,000	4,400	18,075
NYSERDA Original Methodology	1,971	2,634	3,615	4,156	4,848	5,549	22,773
NYSERDA Revised Methodology	2,507	3,344	4,181	5,015	5,850	6,684	27,581
NYSERDA Residential & Small-Scale Projections	1,671	2,229	2,991	3,344	3,900	4,556	18,591

Table 21: National Grid, Estimated GBtu Savings (2020-2025)

	2020	2021	2022	2023	2024	2025	Total
NIMO Proposal	55	117	168	201	224	246	1,010
NYSERDA Original Methodology	138	185	244	282	329	377	1,555
NYSERDA Revised Methodology	140	187	250	281	327	374	1,559

The additional savings necessary to meet the statewide goal could possibly be met within the Niagara Mohawk service territory through NYSERDA’s LMI heat pump pilots, potential NPA/NWA initiatives, large commercial applications, or geothermal offerings in KEDNY/KEDLI service territories. National Grid is hesitant to include the potential savings from possible initiatives outlined above in Niagara Mohawk’s presumptive targets without

⁷⁸ The Environmentally Beneficial Electrification EAM metric consists of the Electric Heat and Electric Vehicle Initiatives outlined in Case 17-E-0238 & 17-G-0239, Order Adopting Joint Proposal and Electric and Gas Rate Plans, (issued March 15, 2018), Attachment 1, Appendix 7.

⁷⁹ Electric Heat Initiative: 247 installations between 4/1/18 to 12/31/2018

⁸⁰ NYSERDA Air Source and Ground Source 483 installations between 5/2017 to 3/21/2019

understanding of savings potential, adaption rates, or budgetary needs. National Grid requests to address possible savings targets and budgets associated with these activities in future orders. All the New York Electric Utilities will work with NYSERDA to further assess this potential when preparing implementation plans later this year.

a. Niagara Mohawk Heat Pump Budget

In addition to the feasibility of Niagara Mohawk’s allocation of the statewide target, National Grid is also cognizant of the pressures this program will have on customers. Proposed budgets include a reduction in incentives in the out years based on NYSERDA’s forecasted market transformation and cost reductions. Proposed budgets are the minimum budget necessary to meet the corresponding GBtu targets and may require an increase if market transformation and cost reductions are not at pace with the assumptions used in modeling. The Niagara Mohawk Proposed budget does not reflect additional funding that may be needed to advance heat pump adoption in the large commercial (greater than 10 tons) market segments.

At time of filing, National Grid has not fully analyzed the bill impacts a program of this scale will have on customers. The illustrative budget presented in Table 22 is derived from the run rates presented in NYSERDA’s analysis and adjusted to Niagara Mohawk’s suggestive GBtu target.

Table 22: Niagara Mohawk Heat Pump Budget (\$1,000’s)

	2020	2021	2022	2023	2024	2025	Total
NIMO Proposal	4,295	9,250	12,068	12,050	10,762	9,211	57,636
NYSERDA Original Methodology	7,941	10,611	12,551	12,941	11,968	10,133	66,145
NYSERDA Revised Methodology	11,033	14,719	17,992	16,828	15,739	14,009	90,320

b. Niagara Mohawk Heat Pump Transition plan

The implementation of the Electric Heat Initiative began in 2018, as part of Niagara Mohawk’s Environmentally Beneficial Electrification EAM metric. The metric consists of the Electric Heat and Electric Vehicle Initiatives. The initiatives run through December 31, 2020, as agreed upon in Cases 17-E-0238 & 17-G-0239. The 2020 proposal above is in line with maximum target for the Environmentally Beneficial Electrification EAM metric. National Grid proposes that the Electric Heat Initiative (“EHI”) adopt the statewide framework where possible to smooth the transition to the statewide Heat Pump Program (“HPP”).

National Grid proposes the additional funding allotted for HPP in 2020 be used to close the gap between existing EHI incentive levels and statewide incentive levels identified for HPP. Potential funding sources are under review and anticipated to be identified in the implementation plan. While in practice the two programs will be offered during the transition year of 2020, from a customer and provider standpoint a shared application and implementation vendor will provide a uniform experience. If the implementation plan and subsequent program manual conflict with the EHI program, funding will be allocated from the HPP. Both carbon and Btu savings would

be shared where funding is provided by both programs. If an installation is not eligible for the EHI, but meets eligibility requirements for the statewide HPP, the savings will be tied to the funding source. Logistically managing two programs during the transition is likely to create an increased administrative burden, however, maintaining the Beneficial Electrification EAM metric leads to stability for the Electric Vehicle Initiative, maintains company earnings potential, and provides a clear and stable market signal consistent with the NY Electric Utilities on January 1, 2020.

XII. NYSEG and RG&E Chapter

As described in Chapter One of this Report, the Companies’ proposed targets and budgets are aligned with the data presented in the December Energy Efficiency Order. The Companies’ reiterate the concerns addressed by the NY Utilities in Chapter One regarding whether the presumptive targets are achievable utilizing the budgets authorized in the Order. Specifically, the Companies are concerned that funding levels relative to the targets may be inadequate as traditionally lower cost per unit of savings opportunities such as light emitting diode (“LED”) lighting dissipate and unit costs associated with deeper savings approaches remain flat or increase. Other factors such as higher costs to achieve deeper program market penetration and project comprehensiveness to levels previously not pursued will increase costs. As a result, achieving the incremental targets within the incremental authorized funding levels may not be possible, depending on actual costs of future technologies and other factors. The Companies will address forecasted costs of planned program specific technologies in future ETIP/SEEP filings.

1. NYSEG and RG&E Funding Source for Incremental Budgets

Tables 1 - 4 below provides, as requested by Staff, the Companies’ anticipated funding sources for the incremental budgets. The Companies ETIP/SEEP filing on February 19, 2019 outlined the use of some unspent ETIP funds from prior years. The Companies anticipate using remaining unspent ETIP funds starting in 2021 until such funds are depleted, which is expected to occur within the first year. Additionally, the Companies plan to file new rate cases for all businesses in 2019 and will be proposing to transition the current surcharge cost recovery mechanism for energy efficiency costs to recovery in base rates starting in 2020, consistent with guidance received from the Commission. The incremental budgets shown in Tables 1 - 4 do not include assumptions or allocations for separate heat pump funding or “not-yet-approved” targets for future rate cases or ETIP/SEEP proposals.

Table 1: NYSEG Electric Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$8,428,564	Unspent Funds/Base Rates
2022	\$13,831,489	Base Rates
2023	\$22,908,404	Base Rates
2024	\$33,282,021	Base Rates
2025	\$43,340,150	Base Rates
Total	\$121,790,627	

Table 2: RG&E Electric Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$4,555,827	Unspent Funds/Base Rates
2022	\$6,626,657	Base Rates

2023	\$9,939,986	Base Rates
2024	\$14,081,647	Base Rates
2025	\$18,637,473	Base Rates
Total	\$53,841,590	

Table 3: NYSEG Gas Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$1,072,870	Unspent Funds/Base Rates
2022	\$1,369,621	Base Rates
2023	\$1,871,816	Base Rates
2024	\$2,579,453	Base Rates
2025	\$3,368,355	Base Rates
Total	\$10,262,115	

Table 4: RG&E Gas Cost Recovery Source

Year	Incremental Budgets	Incremental Funding Source
2021	\$347,283	Unspent Funds/Base Rates
2022	\$571,995	Base Rates
2023	\$878,421	Base Rates
2024	\$1,246,132	Base Rates
2025	\$1,642,423	Base Rates
Total	\$4,686,254	

2. Accelerated Heat Pump Deployment

- a. The Companies support implementing heat pump technology but have concerns with the potential targets developed from the NYSERDA analysis. Specifically, the Companies have concerns with the magnitude of the heat pump targets and whether the budgets would be sufficient to achieve targeted savings. NYSEG’s heat pump targets and funding are most concerning. The Energy Efficiency Order directs a statewide goal of five TBtu of energy savings through heat pump technologies and authorizes a statewide budget of \$250 million. NYSERDA’s most recent analysis recognizes that to meet the five TBtu target, a statewide spending level of more than \$334 million will be needed, exceeding the authorized funding in the Energy Efficiency Order by 34 percent. Additionally, NYSERDA’s analysis shows potential for NYSEG to achieve 1.907 TBtu of the statewide energy savings target, which results in \$110 million of the needed \$334 million. Given these targeted savings amounts and its widely dispersed service territory, NYSEG reasonably expects to have heightened challenges, including higher costs per unit. Based on NYSERDA’s

analysis, an estimated number of 34,435 heat pump installations will be needed by 2025 for NYSEG to meet the 1.907 TBtu target. This is a significant penetration rate to achieve in a relatively short period. The \$110 million of incremental heat pump program costs from the Potential Study would need to be funded through NYSEG ratepayer delivery rates. Given other cost pressures faced by NYSEG customers, the Company proposes that the Commission instead consider keeping the maximum heat pump funding level at \$250 million per the Energy Efficiency Order, with a corresponding downward adjustment to the heat pump energy savings goal of five TBtu. Any differences could be re-allocated based on the original methodology used for the non-heat pump targets. If the Commission were to specifically identify a workable alternative methodology of funding the NYSEG specific, non-LMI, heat pump incremental costs that would reduce the impact to NYSEG customers, NYSEG would certainly reconsider this proposal. Until this occurs, the Companies would have no alternative other than to include the currently estimated costs of the heat pump incremental program in proposed base delivery rates for our customers.

Additional information/concerns with the magnitude of the NYSEG savings target are:

- Assumptions in NYSERDA’s potential study:
 - There are about 18,000 end-of-life replacements and new construction opportunities per year of residential and small multifamily delivered fuel and resistance systems across NYSEG and RG&E’s territories. These systems are the study’s conversion targets. Using NYSERDA’s updated unit savings values, NYSEG and RG&E programs would need to convert almost one quarter of them to heat pumps each year, on average. Allowing for program ramp-up, the annual conversion rate would need to be over one third by the end of the 2021 – 2025 period. These conversion rates are extremely ambitious given what may be perceived as a modest incentive (buydown to 6-year payback time), the complexity of conversions and large capital outlays required by customers.
- Economic Potential is based on all oil end-of-life conversions for fuel oil and propane customers:
 - While the study’s “missing money” analysis shows the incentive can make the project a viable investment with a six-year payback time, we believe many of our rural oil-fired customers simply will not convert when facing the estimated net \$12,400 to \$34,500 of purchase and installation costs (depending on the type of heat pump and difficulty of installation) along with the corresponding disruption. Customers will compare these factors with a faster and less expensive (approximately \$6,800) boiler replacement. Even with a projected \$2,500 to \$4,600 incentive amount, the net cash outflow from customers will be much higher for a heat pump.
- Experience delivering heat pump incentive programs in Connecticut:
 - The Companies have specific experience with a heat pump program delivered by the Companies’ affiliated utility in Connecticut. The annual number of homes

currently heated by oil which converted to a heat pump was 0.25 percent, despite the program components which included robust incentives, aggressive contractor education, and significant customer outreach and marketing. This 0.25 percent annual conversion represents about five percent of end of life replacements, assuming a 20-year life for oil-based heating systems. As noted above, the NYSERDA study average conversions of end of life replacements needed to meet the savings targets is about 25 percent, or about five times the rate experienced in Connecticut. This helps to confirm the ambitious nature of the targets, particularly those in the NYSEG service territory.

To meet the April 1, 2019 filing date, the Companies were not able to complete a thorough analysis required to confirm if the savings targets based on NYSERDA's potential study could be achievable. Therefore, the Companies propose the Commission provide the opportunity for us to finalize analysis and file final heat pump targets and budgets in an update to this Company specific chapter with the SEEP update filing on June 1, 2019. The Companies support the overall statewide clean energy goals including goals specific to heat pumps however, underscore additional work is needed to determine the appropriate heat pump targets for each service territory.

NYSEG and RG&E believe that, to achieve Btu savings included in the Order, other heat pump markets than those currently included in the potential study (including the commercial sector, the natural gas market, heat pump water heaters, and non-end-of life replacements) will need to be focused on. To our knowledge, none of these markets have been fully analyzed for their potential contributions to the target achievement. Our experience confirms that thorough analysis, thoughtful program design and flexibility are critical in reaching the desired goals.

The Companies will continue to work collaboratively with NYSERDA on a robust marketing strategy and will look for a refinement of our company-specific targets that are more reasonably aligned with our experiences and overall market potential and will plan to conduct further analyses on the potential for various heat pump technologies to support more refined heat pump savings targets and associated funding in our next ETIP/SEEP filing.

**XIII. Orange & Rockland Chapter
Executive Summary**

Orange and Rockland supports New York’s ambitious environmental and clean energy goals and is committed to exceeding the presumptive overall electric and gas energy efficiency targets. The Company will continue to innovate and improve program delivery and implementation to increase participation and adoption of energy efficient equipment and technology to meet the budget constraints and targets presumed in the Energy Efficiency Order and as defined in the 2019 Rate Order.⁸¹ The 2019 Rate Order that adopted the Joint Proposal in the Company’s recently concluded electric and gas rate cases, modified the Company’s targets and budgets included in the Energy Efficiency Order. These modified targets and budgets are included as inputs to the Earnings Adjustment Mechanisms (“EAMs”) adopted in the 2019 Rate Order. These EAMs, both programmatic and outcome-based, are in effect for 2019 through 2021. A summary of the adopted budgets and targets for these programs is set forth in Table 1 below. The Company expects to file its next electric and gas rate cases in 2021 and file updated programs for 2022-2025 as part of those rate case filings.

TABLE 1: O&R Joint Proposal Budgets and Targets			
Electric Portfolio			
	2019	2020	2021
Budget	\$7,100,000	\$8,100,000	\$9,900,000
Gross MWH Target			
Minimum	38,036	43,432	53,076
Mid-Point	43,400	49,557	60,561
Maximum	50,525	57,693	70,503
Gas Portfolio			
	2019	2020	2021
Budget	\$703,000	\$703,000	\$703,000
Gross DTH Target			
Minimum	22,853	22,853	22,853
Mid-Point	26,860	26,860	26,860
Maximum	31,764	31,764	31,764

Budgets and Targets

Electric

The electric budgets contained in the 2019 Rate Order are lower and the targets are higher than the budgets and targets found in the Energy Efficiency Order for 2019-2021. The 2019 Rate Order, however, did not provide for funding for LMI programs in 2021 or anticipate that NYSERDA would terminate its electric heat pump rebate program as of

⁸¹ Case 18-E-0067, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Orange and Rockland Utilities, Inc. for Electric Service*, Order Adopting Terms of Joint Proposal and Establishing Electric and Gas Rate Plans (issued March 14, 2019) (“2019 Rate Order”).

December 31, 2019. As discussed below, the Company will develop additional programs and fund both efforts with unspent electric and gas ETIP funds collected from 2016-2018. The estimated unspent electric and gas ETIP collections as of February 2019 are \$6.9 million and \$0.5 million, respectively. The energy efficiency targets set forth in the Energy Efficiency Order for 2022 through 2025 are lower than those contained in the 2019 Rate Order for 2021. Therefore, the Company expects to propose targets and budgets for 2022 through 2025 consistent with those contained in the 2019 Rate Order, requiring a corresponding increase in budgets for 2022 through 2025. The Company expects to address these target and budget issues in its next electric and gas rate filings.

The Company will leverage its experience in delivering energy efficiency programs where possible to achieve additional cost-effective energy savings. However, the cost of energy efficiency will increase from historic levels as the Company pursues fewer low-cost lighting opportunities, which have dominated the savings in its existing electric portfolio. As customers migrate from low-cost lighting measures to refrigeration, heating, and cooling end uses, the higher upfront cost of these measures will increase the \$/MWh adoption costs, thereby increasing overall spending to achieve consistent MWh targets. The tables below reflect the budgets and targets by initiative for 2021-2025.

TABLE 2: Proposed Electric Budgets						
	2021	2022	2023	2024	2025	Total
ETIP	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$49,500,000
Incremental EE	\$0	\$3,040,273	\$3,040,273	\$3,040,273	\$3,040,273	\$12,161,091
LMI	\$637,557	\$850,075	\$1,190,106	\$1,657,647	\$2,101,811	\$6,437,196
Heat Pump	\$1,841,000	\$2,256,000	\$2,109,000	\$2,049,000	\$1,986,000	\$10,241,000
Total	\$12,378,557	\$16,046,348	\$16,239,379	\$16,646,920	\$17,028,084	\$78,339,287

TABLE 2-1: Proposed Electric Gross Targets & (\$/MWH)						
	2021	2022	2023	2024	2025	Total
ETIP (MWH)	70,503	70,503	70,503	70,503	70,503	352,515
ETIP (\$/MWH)	\$140	\$184	\$184	\$184	\$184	\$175
LMI (MWH)	1,106	1,474	2,064	2,875	3,646	11,165
LMI (\$/MWH)	\$576	\$577	\$577	\$577	\$576	\$577
Total (MWH)	71,609	71,977	72,567	73,378	74,149	363,680
Total (\$/MWH)	\$147	\$192	\$195	\$199	\$203	\$187

Gas

The gas budgets in the 2019 Rate Order for 2019-2020 are lower and the targets are higher than the budgets and targets found in the Energy Efficiency Order. While the 2021 budget and targets will remain at the levels found in the 2019 Rate Order, the Company currently plans to adopt the budgets and targets for 2022-2025 set forth in the Energy Efficiency Order. As with the electric portfolio, the Company proposes to fund 2021 LMI expenditures with remaining gas ETIP funds.⁸² The Company will leverage its experience in delivering energy efficiency programs where possible to achieve cost

⁸² After using the funds set forth in Table 2 and Table 3, there will be \$3.0 million and \$279,000 in electric and gas ETIP funds remaining.

effective energy savings. The tables below reflect the budgets and targets by initiative for 2021-2025.

TABLE 3: Proposed Gas Budgets						
	2021	2022	2023	2024	2025	Total
ETIP	\$703,000	\$703,000	\$703,000	\$703,000	\$703,000	\$3,515,000
Incremental EE	\$0	\$1,178,908	\$1,698,552	\$2,248,763	\$2,764,433	\$7,890,656
LMI	\$221,613	\$336,240	\$466,151	\$603,704	\$732,621	\$2,360,329
Total	\$924,613	\$2,218,148	\$2,867,703	\$3,555,467	\$4,200,054	\$13,765,985

TABLE 3-1: Proposed Gas Gross Targets & (\$/MMBTU)						
	2021	2022	2023	2024	2025	Total
ETIP (MMBTU)	31,764	57,210	73,008	89,734	105,411	357,128
ETIP (\$/MMBTU)	\$22	\$33	\$33	\$33	\$33	\$32
LMI (MMBTU)	2,052	3,113	4,315	5,589	6,782	21,851
LMI (\$/MMBTU)	\$108	\$108	\$108	\$108	\$108	\$108
Total (MMBTU)	33,816	60,323	77,323	95,323	112,193	378,979
Total (\$/MMBTU)	\$27	\$37	\$37	\$37	\$37	\$36

The table below summarizes O&R's expected expenditures for 2021-2025 and the source of the funding for such expenditures.

TABLE 4: O&R Budgets by Initiative and Funding Source							
O&R Electric Portfolio	2021	2022	2023	2024	2025	Total	Funding Source
ETIP	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$9,900,000	\$49,500,000	Base Rates
Incremental EE	\$0	\$3,040,273	\$3,040,273	\$3,040,273	\$3,040,273	\$12,161,091	Base Rates
LMI	\$637,557	\$850,075	\$1,190,106	\$1,657,647	\$2,101,811	\$6,437,196	Remaining ETIP/Base Rates
Heat Pump	\$1,841,000	\$2,256,000	\$2,109,000	\$2,049,000	\$1,986,000	\$10,241,000	Remaining ETIP/Base Rates
Total	\$12,378,557	\$16,046,348	\$16,239,379	\$16,646,920	\$17,028,084	\$78,339,287	
O&R Gas Portfolio	2021	2022	2023	2024	2025	Total	Funding Source
ETIP	\$703,000	\$703,000	\$703,000	\$703,000	\$703,000	\$3,515,000	Base Rates
Incremental EE	\$0	\$1,178,908	\$1,698,552	\$2,248,763	\$2,764,433	\$7,890,656	Base Rates
LMI	\$221,613	\$336,240	\$466,151	\$603,704	\$732,621	\$2,360,329	Remaining ETIP/Base Rates
Total	\$924,613	\$2,218,148	\$2,867,703	\$3,555,467	\$4,200,054	\$13,765,985	

Low and Moderate Income (“LMI”) Customers

As directed in the Energy Efficiency Order and discussed in the LMI Chapter, the NY Utilities have collaborated with NYSERDA to develop a statewide LMI Portfolio. A statewide LMI Portfolio will allow investments to be positioned in a more complementary manner, expanding the reach of energy efficiency programs, advancing the State's energy affordability goals, and increasing the impact of customer funding dedicated to LMI customers. The Company supports the expansion of LMI portfolio to address the needs of LMI customers. Providing customers solely with bill credits to meet their six percent energy cost is not a sustainable paradigm, as it only provides short-term relief without the consideration of a longer-term, more economic and sustainable solution. By reducing LMI customers' energy bills with a long-lasting energy efficient solution, a more sustainable model emerges that will lower customer bills and ultimately lower the bill credits needed to meet the six percent energy cost. As set forth in the table below, the Company will coordinate with NYSERDA in 2021 to deliver a complementary electric and gas energy efficiency solution, enhance the Empower Program offering, and explore

the concepts introduced in the O&R Low Income Implementation Plan.⁸³ In addition, the Company plans to coordinate with NYSERDA to maximize electric and gas energy savings. Because the 2019 Rate Order does not provide funding for LMI expenditures, the Company proposes to use remaining ETIP collections to fund the 2021 LMI expenditures identified in Table 5 below.

	2021	2022	2023	2024	2025	Total
Electric	\$637,557	\$850,075	\$1,190,106	\$1,657,647	\$2,101,811	\$6,437,196
Gas	\$221,613	\$336,240	\$466,151	\$603,704	\$732,621	\$2,360,329
Total	\$859,170	\$1,186,315	\$1,656,257	\$2,261,351	\$2,834,432	\$8,797,525

Heat Pump Program

The Company will strive to achieve the Commission’s ambitious heat pump goal for O&R’s service territory (*i.e.*, 160 GBtu) by offering incentive programs designed to transform the heat pump market and reduce carbon emissions. As noted above, the funding levels for heat pumps contained in the 2019 Rate Order did not anticipate NYSERDA’s termination of its heat pump rebate program effective December 31, 2019. Accordingly, to make up this shortfall and meet the targets set forth in the 2019 Rate Order, the Company projects that it will use unspent ETIP funds in the amount of \$1.3 million in 2020 and \$1.8 million in 2021. The Company may address any changes to its heat pump budgets and targets for periods beyond 2021 in its next electric rate filing.

The Company notes, however, that the potential savings identified in the NYSERDA report, “Analysis of Residential Heat Pump Potential and Economics,” published in January 2019, needs further analysis and verification. These include the potential for regional market growth and the incentive levels necessary to drive heat pump adoption and aligning savings estimates with the Technical Resource Manual to meet the statewide 5.0 TBtu goal. In the short term, the Company has adopted the NYSERDA analysis to determine the incentive budgets without verifying the underlying methodology. However, adjustments may be needed as more details and assumptions are verified in the current market.

Moreover, the historical adoption level for heat pumps has been low. O&R’s goal requires a significant increase in adoption levels that may or may not be achievable. As more experience is gained, NYSERDA’s goal for the O&R service territory may need to be modified and, incentives may need to be increased to meet the overall 160 GBtu goal by 2025. As discussed in the NY Utilities section of this Report, the Commission can support these efforts by permitting O&R the flexibility to make mid-course adjustments based on actual experience.

Cost Recovery

While the 2019 Rate Order provides for recovery of energy efficiency costs through base rates as expenses, the Company expects that it will request to recover costs under the regulatory asset framework in its next rate case. By providing for the recovery of energy efficiency costs over a

⁸³ Case 14-M-0565, *Proceeding on Motion of the Commission to Examine Programs to Address Energy Affordability for Low Income Customers* O&R Plan (filed September 2016).

ten-year period, customer bill impacts are moderated, customers who take service over the ten-year period contribute fairly in recognition that customers do change over that time horizon, and importantly, costs are aligned with the realized lifetime benefits of the electric and gas portfolios.

Potential Study

The Company is conducting a Distributed Energy Resources (“DER”) Potential Study and expects that the results will inform the budgets and targets for O&R’s service territory including the potential for heat pump adoption rates. After reviewing the results, the Company may update this filing to reflect the potential that exists for both electric and gas energy efficiency programs and the funding required to achieve that potential.

XIV. Conclusion

The Commission's Energy Efficiency Order goals will advance the State's Clean Energy objectives. The NY Utilities appreciate the opportunity to provide a proposal on the Order. The Utilities request that the Commission approve the energy efficiency budgets and targets as well as cost recovery included herein as well as the other items noted for Commission approval in section 1 and throughout the document as well as in the separate utility chapters. The Utilities look forward to working with NYSERDA, Staff and the Commission to meet the 2025 objectives.

Dated: April 1, 2019

Respectfully submitted,

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Appendix A: Illustrative Utility-NYSERDA Collaboration Models

ID #	Collaboration Model	Description and Example(s)	Design and Delivery Considerations
1	Co-market/co-brand	<p>Utility and NYSEDA partner to leverage brand and related strengths to advance solution(s) Ex) Central Hudson-NYSERDA marketing for clean heating and cooling solutions</p>	<p>Can leverage individual organization strengths such as utility relationship and brand with local customer or distributor complemented with the need for state-level outreach and general awareness.</p>
2.1	Cross market available solutions and programs	<p>Utility and NYSEDA customer engagement channels become more coordinated (i.e., utility outreach/sales resources and websites) by presenting the programs and services made available by both organizations to core customer sectors. Ex) National Grid and NYSEDA are working to integrate outreach to industrial customers and will be co-hosting a commercial Energy Solutions Summit later in 2019.</p>	<p>Across market sectors and utility territories, enable customers to easily learn about energy efficiency incentives available to that customer, whether the incentive is offered by the utility or by NYSEDA.</p>
2.2	Direct referrals to available program(s)	<p>Utilities and NYSEDA would routinely refer a customer to available programs at the other organization, according to what best meets the customer's needs. Ex) Utility referral of customers to the NYSEDA EmPower New York Program.</p>	<p>Consider allowing each utility to report toward its savings goals a percentage of the energy savings that are achieved from the utility referral of customers to specific NYSEDA programs, thereby providing credit for driving increased market uptake.</p>
3.1	Complimentary incentives for the same project, but for different services	<p>Utility and NYSEDA work with the same customer and fund different aspects of a project. Ex) Agriculture: NYSEDA funds project technical assistance and National Grid provides rebates, working together with the same customer. Commercial Buildings: NYSEDA supports Real Time Energy Management ("RTEM") and Con Edison provides lighting rebates at the same facility.</p>	<p>As described in the CE-04 Multiple Incentive Guidance, in designing and delivering complimentary incentives and market development support, the utility(s) and NYSEDA will: (1) further develop and state a clear rationale for how the approach will achieve greater or higher value results; (2) will ensure that coordination has occurred with regard to marketing and delivery channels; and (3) will maintain a clear objective and well-defined impact.</p>
3.2	Complimentary incentives and/or market development support for the same technology or same measure class, that address different points in the supply chain	<p>Utility and NYSEDA layer coordinated incentives and/or complementary market development support at the manufacturer, distributor, contractor, and/or customer level. Ex) Heat Pumps: electric utilities provide customer support through rebates and related offerings, and NYSEDA to provide support to installers and distributors for cooperative advertising and training.</p>	
3.3	Complimentary	Utility and NYSEDA co-fund the same	

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	incentives for the same project, but for different value streams	project which has multiple value streams (system, environmental, locational, temporal). Ex) Combined Heat and Power projects in Non-Wires Solution areas: Con Edison incentivizes peak reduction achievement and NYSERDA provides incentives for CO ₂ and resiliency.	
3.4	Complimentary incentives for the same project to enable deep energy savings, that address different services, different value streams, different performance objectives, or potentially different measures	Utility and NYSERDA co-fund deep energy savings projects with complimentary incentives for different services or value streams. Ex) New strategies to influence developments or re-developments to achieve high energy performance at the community- or campus-level may couple NYSERDA incentives for technical assistance with utility project incentives.	
4	Co-design/co-implement a pilot	Utility(s) and NYSERDA work together to jointly design, launch, and test an innovative strategy. Ex) Pay for Performance Pilots between Con Edison National Grid and NYSERDA	Utilities and NYSERDA leverage strengths and each commit meaningful resources in the collaboration. Can also include co-branding.
5	Pool resources to extend the impact of an initiative which is administered by a single lead entity	Utilities and NYSERDA work together on large initiatives to achieve greater savings than could be achieved individually Ex) NYSERDA and utilities could explore collaboration in a large-scale C&I Climate Challenge	See 3.1 – 3.4
6.1	Coordinated implementation of a statewide portfolio	Statewide portfolio allows utility and NYSERDA LMI investments to be positioned in a more complementary manner, with coordinated customer outreach and certain shared administrative infrastructure. Ex) Statewide LMI Portfolio	
6.2	Coordinated implementation of a statewide framework	Statewide framework for heat pumps includes a common program design, program manual, and eligibility criteria to be applied consistently on a statewide basis. Ex) Statewide electric utility heat pump framework	
7	NYSERDA de-risks a strategy and utility implements some version of it in the future	NYSERDA supports an early-stage technology or initiative by testing it in the market. If successful, consider handing off to utility(s) to scale. Ex) NYSERDA RTEM program may be adopted/adapted within utility offering.	Market readiness (customer demand, solution provider network) and potential impacts must be closely considered prior to hand-off.

