STATE OF NEW YORK

PUBLIC SERVICE COMMISSION

In the Matter of a Comprehensive Energy Efficiency Initiative

Case 18-M-0084

Natural Resources Defense Council

Dated: July 1, 2019

Natural Resources Defense Council, Building Performance Association, Building Performance Contractors Association, Centsible House, Citizens Campaign for the Environment, Damascus Citizens for Sustainability, Lime Energy, New Yorkers for Clean Power, Pace Energy & Climate Center, Sallan Foundation, Sealed, Sierra Club, TRC Companies

Comments to New York State Department of Public Service

NY Utilities Report Regarding Energy Efficiency Budgets and Targets, Collaboration, Heat Pump Technology, and Low- and Moderate-Income Customers and Requests for Approval

Case 18-M-0084

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I. Summary

Following a commitment from Governor Cuomo in his 2018 State of the State address, NYSERDA and the Department of Public Service released a white paper (the New Efficiency: New York or NE:NY paper) in April 2018 with a comprehensive approach to achieving the energy efficiency and greenhouse gas (GHG) reduction goals of the State Energy Plan.

On December 13, 2018, the New York Public Service Commission (the Commission) issued an order in Case 18-M-0084 (EE Order) that adopted the NE:NY overall utility energy savings goal of 31 TBtu, as part of a broader goal of 185 TBtu savings below 2025 forecasted levels. The Order set immediate minimum electric and gas energy efficiency savings targets for each of the state's utilities for the period 2019-2020 and laid out utility-specific goals through 2025 to create market certainty and guide future implementation decisions.[1] On June 19, 2019, the New York legislature passed the Climate Leadership and Community Protection Act (CLCPA) incorporating the 185 TBtu goal into the state's energy planning process and setting an economy-wide goal of net-zero emissions.[2] Governor Cuomo is expected to sign the legislation.

As required by the EE Order, on April 1, 2019 the state's electric and gas distribution utilities submitted a joint proposal on electric and gas utility energy efficiency savings targets and budgets in Case 18-M-0084 (Joint Proposal or Joint Filing).[3] The utilities submitted an update of the Joint Filing on May 21, 2019 (Joint Filing Update).[4] In these comments, the Natural Resources Defense Council (NRDC), Building Performance Association, Building Performance Contractors Association, Centsible House, Citizens Campaign for the Environment, Damascus Citizens for Sustainability, New Yorkers for Clean Power, Pace Energy & Climate Center, Sallan Foundation, Sierra Club, Lime Energy, Sealed, TRC Companies (collectively "Energy Efficiency Advocates") address the Joint Filing and the Joint Filing Update.[5]

The Commission's EE Order and the Joint Proposal represent significant progress in meeting the state's energy efficiency and climate change goals. With the EE Order and the utilities' proposed energy efficiency savings targets, New York is poised to be a leader in energy efficiency planning and implementation, resulting in substantially reduced costs for electricity and gas customers, reduced energy burdens for low- and moderate-income customers, reduced GHG emissions, improved air quality, and increased economic development in the state.

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1 EE Order, p. 26.

2 S 6599/A 8429, available at https://www.nysenate.gov/legislation/bills/2019/s6599.

3 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), National Fuel Gas Distribution Corporation (NFG), New York State Electric & Gas Corporation NYSEG), Orange and Rockland Utilities, Inc. (Orange & Rockland), and Rochester Gas and Electric Corporation (RG&E) (collectively, Joint Utilities).

4 Joint Utilities, May 21, 2019 NY Updated Report. Case 18-M-0084.

5 These comments were prepared with the assistance of Synapse Energy Economics, Inc.

Yet much work remains to be done. In these comments Energy Efficiency Advocates offer a set of recommendations to ensure that the utility energy efficiency targets and programs are fully aligned with the state's energy and climate goals and fully leverage energy efficiency to meet the requirements of the CLCPA. To do so, the Commission must provide the utilities with clear guidance to pursue all cost-effective energy efficiency resources and ensure that the utilities have the funding and other resources necessary to meet the ambitious energy efficiency and emissions reduction goals set forth in the EE Order and in the CLCPA. To that end, the Energy Efficiency Advocates offer the following recommendations:

- The Commission should clarify that the electricity and gas savings targets proposed in the EE Order should be treated as minimum savings targets, i.e., "floors," and the utilities should plan to exceed those targets to the extent that there is additional cost-effective energy efficiency available.

- The Commission should direct the utilities to achieve both the electricity and gas savings targets in the EE Order and clarify that utilities should not shift funding away from the programs in one sector to pay for programs in another sector.

- The Commission should require utilities to pursue all cost-effective electric and gas energy efficiency resources, as defined by the Commission's benefit-cost analysis order (BCA Order).[6]

- The Commission should initiate a statewide proceeding focusing on reforming gas system planning to provide a more transparent and deliberate process that is consistent with the state's GHG reduction goals, and to approve cost-effective non-pipeline solutions above and beyond the efficiency targets set forth in this proceeding.

- The Commission should direct the utilities to update their Utility BCA Handbooks to account for new and evolving policy directives. Utilities should update their BCA Handbooks to include other fuel savings, non-energy benefits (NEBs), and the benefits of avoiding gas infrastructure that is likely to become obsolete in the context of New York GHG goals. Further, the Commission should consider revisiting the BCA Order based on new legislative developments.

- The Commission should direct the utilities to work with NYSERDA and the Technical Reference Manual (TRM) Committee to investigate opportunities for implementing a modern, state-of-the-art, digital framework for updating and improving the New York TRM. The utilities should also update the New York TRM to properly analyze the interactions between packages of energy efficiency measures.

- The Commission should articulate the importance of gas energy efficiency programs in light of gas peaking constraints, the challenges of meeting New York long-term climate goals, and the inconsistency between building new long-lived gas infrastructure and a future where the state's

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6 January 21, 2016 Order Establishing the Benefit Cost Analysis Framework in Case 14-M-0101.

climate goals are achieved. Programs and portfolios to harness "non-pipe solutions" to reduce gas demand and eliminate need for new supply infrastructure should be supported by budget allocations that are *additional to* the budgets in the December EE Order, based on the value they have in reducing gas supply costs and reducing GHG emissions over the long term.

- The Commission should direct the utilities to establish Earnings Adjustment Mechanisms (EAMs) consistently across the state, in order to apply best practices state-wide, reduce confusion, enable stakeholder input, and maximize the value of EAMs.

- The Commission should establish funding practices that allow utilities to implement low- and moderate- income (LMI) programs beyond those in the EE Order targets and direct the utilities to establish metrics and EAMs on the energy savings and participation rates associated with LMI programs.

II. Background and Overview

In 2014, Governor Cuomo launched Reforming the Energy Vision (REV), a broad initiative to build an integrated energy network able to harness the combined benefits of the central grid with clean power. The 2015 State Energy Plan, which serves as a roadmap for REV, includes GHG reduction targets of 40 percent from 1990 levels by 2030 and 80 percent by 2050. It also established goals that energy efficiency savings will increase to 600 trillion Btu statewide and that 50 percent of electricity will come from renewable energy resources.[7]

Following a commitment from Governor Cuomo in his 2018 State of the State address, NYSERDA and the Department of Public Service released a white paper in April 2018 with ambitious goals and a comprehensive approach to achieving the energy efficiency and GHG reduction goals of the State Energy Plan. This white paper, entitled New Efficiency: New York, identified 185 TBtu of realistically achievable, cumulative statewide site energy savings by 2025, of which 31 TBtu of accelerated action could be achieved through additional utility programs.

On December 13, 2018, the Commission issued the EE Order in Case 18-M-0084 that adopted the overall utility goal of 31 TBtu set forth by the NE:NY paper. It set immediate minimum electric and gas energy efficiency savings targets for each of the state's utilities for the period 2019-2020, and it laid out utility-specific goals through 2025 to create market certainty and guide future implementation decisions.[8] As a subset of the electric efficiency target, the EE Order established a savings target of 5 TBtu for heat pumps as a minimum target for all the state's electric utilities combined. Further, the EE Order set forth the Commission's expectations for cost reduction, offerings to LMI customers within efficiency portfolios, and regulatory provisions including performance incentive mechanisms. In addition, it

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7 https://www.nyserda.ny.gov/Researchers-and-Policymakers/New-York-State-Energy-Plan.

8 EE Order, p. 26.

allowed electric and gas utility programs to be offered to customers whose primary heating fuel is a delivered fuel such as oil or propane, under certain conditions.[9]

As required by the EE Order, all the state's electric and gas distribution utilities submitted a joint proposal in Case 18-M-0084 on April 1, 2019 (Joint Proposal or Joint Filing).[10] This Joint Filing includes the utilities' proposals for electric and gas utility energy efficiency savings targets and budgets. It also includes a description of how the utilities intend to coordinate energy efficiency services with NYSERDA, considerations for ramping up deployment of heat pumps, concepts for a statewide approach to the LMI segment of the population, and a brief mention of the EAM approach. Further, the Joint Filing includes utility-specific chapters. Con Edison's chapter includes updates to components of its proposed energy efficiency initiative and incentive framework to better align with the EE Order.[11]

The electric savings targets presented in the Joint Filing are contrasted with the EE Order targets in Table 1, below.

9 EE Order, p. 34.

10 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), National Fuel Gas Distribution Corporation (NFG), New York State Electric & Gas Corporation NYSEG), Orange and Rockland Utilities, Inc. (Orange & Rockland), and Rochester Gas and Electric Corporation (RG&E) (collectively, Joint Utilities).

11 Con Edison proposed an energy efficiency initiative and incentive framework in its January 31, 2019 rate plan. The testimony provided with Con Edison's Rate Filing noted that elements of its Rate Filing were developed in advance of the EE Order. (Consolidated Edison Company of New York, Electric Rate Case Testimony in Case 19-E-0065, Vol. 3, Customer Energy Solutions Panel, p. 133.)

Table 1. EE Order and proposed gross electric savings targets by utility, 2021-2025

	2021	2022	2023	2024	2025	Total
Central Hudson						
EE Order Targets (MWh)	6,000	10,000	14,000	17,000	21,700	68,700
Proposed Targets (MWh)	6,000	10,000	14,000	17,000	21,700	68,700
Difference (%)	0%	0%	0%	0%	0%	0%
Con Edison						
EE Order Targets (MWh)	299,000	380,000	470,000	558,000	630,700	2,337,700
Proposed Targets (MWh)	266,262	337,755	431,227	525,339	598,701	2,159,284
Difference (%)	-11%	-11%	-8%	-6%	-5%	-8%
Niagara Mohawk						
EE Order Targets (MWh)	41,000	75,000	130,000	182,000	228,200	656,200
Proposed Targets (MWh)	41,000	75,000	130,000	182,000	228,200	656,200
Difference (%)	0%	0%	0%	0%	0%	0%
NYSEG						
EE Order Targets (MWh)	39,000	64,000	106,000	154,000	200,540	563,540
Proposed Targets (MWh)	39,000	64,000	106,000	154,000	200,540	563,540
Difference (%)	0%	0%	0%	0%	0%	0%
O&R						
EE Order Targets (MWh)	15,000	20,000	28,000	39,000	49,450	151,450
Proposed Targets (MWh)	50,162	50,530	51,120	51,931	52,702	256,445
Difference (%)	234%	153%	83%	33%	7%	69%
RG&E						
EE Order Targets (MWh)	22,000	32,000	48,000	68,000	90,000	260,000
Proposed Targets (MWh)	22,000	32,000	48,000	68,000	90,000	260,000
Difference (%)	0%	0%	0%	0%	0%	0%
Total Electric Utilities						
EE Order Targets (MWh)	422,000	581,000	796,000	1,018,000	1,220,590	4,037,590
Proposed Targets (MWh)	424,424	569,285	780,347	998,270	1,191,843	3,964,169
Difference (%)	1%	-2%	-2%	-2%	-2%	-2%

The utilities' proposed electric savings targets are either close to or above those in the EE Order. Con Edison's electric savings target is lower than the EE Order's minimum targets (8 percent lower over 2021 to 2025). Orange and Rockland's (O&R) proposed electricity savings targets are significantly above (69 percent higher over the five-year period) the targets set in the EE Order.

The utilities' gas savings targets are presented in Table 2.

Table 2. EE Order and proposed gas savings targets by utility, 2021-2025

	2021	2022	2023	2024	2025	Total
Central Hudson						
EE Order Targets (MMBtu)	1,000	3,000	6,000	10,000	15,040	35,040
Proposed Targets (MMBtu)	1,000	3,000	6,000	10,000	15,040	35,040
Difference (%)	0%	0%	0%	0%	0%	0%
Con Edison						
EE Order Targets (MMBtu)	304,000	320,000	359,000	426,000	504,155	1,913,155
Proposed Targets (MMBtu)	492,000	556,000	556,000	556,000	613,335	2,773,335
Difference (%)	62%	74%	55%	31%	22%	45%
KEDLI						
EE Order Targets (MMBtu)	102,000	135,000	177,000	240,000	322,200	976,200
Proposed Targets (MMBtu)	102,000	135,000	177,000	240,000	322,200	976,200
Difference (%)	0%	0%	0%	0%	0%	0%
KEDNY						
EE Order Targets (MMBtu)	228,000	292,000	422,000	584,000	729,688	2,255,688
Proposed Targets (MMBtu)	228,000	292,000	422,000	584,000	729,688	2,255,688
Difference (%)	0%	0%	0%	0%	0%	0%
NFG						
EE Order Targets (MMBtu)	2,000	5,000	8,000	14,000	20,950	49,950
Proposed Targets (MMBtu)	2,000	5,000	8,000	14,000	20,950	49,950
Difference (%)	0%	0%	0%	0%	0%	0%
NiMo						
EE Order Targets (MMBtu)	-	-	-	-	-	-
Proposed Targets (MMBtu)	-	-	-	-	-	-
Difference (%)	0%	0%	0%	0%	0%	0%
NYSEG						
EE Order Targets (MMBtu)	47,000	60,000	82,000	113,000	147,560	449,560
Proposed Targets (MMBtu)	47,000	60,000	82,000	113,000	147,560	449,560
Difference (%)	0%	0%	0%	0%	0%	0%
O&R						
EE Order Targets (MMBtu)	29,000	44,000	61,000	79,000	95,870	308,870
Proposed Targets (MMBtu)	17,493	44,000	61,000	79,000	95,870	297,363
Difference (%)	-40%	0%	0%	0%	0%	-4%
RG&E						
EE Order Targets (MMBtu)	17,000	28,000	43,000	61,000	80,399	229,399
Proposed Targets (MMBtu)	17,000	28,000	43,000	61,000	80,399	229,399
Difference (%)	0%	0%	0%	0%	0%	0%
Total Gas Utilities						
EE Order Targets (MMBtu)	730,000	887,000	1,158,000	1,527,000	1,915,862	6,217,862
Proposed Targets (MMBtu)	906,493	1,123,000	1,355,000	1,657,000	2,025,042	7,066,535
Difference (%)	24%	27%	17%	9%	6%	14%

Except O&R, all of the utilities propose to meet or exceed the natural gas efficiency savings targets from the EE Order in each year from 2021 to 2025. O&R's proposed gas target is below the EE Order savings target in one year, 2021. Con Edison proposes to go significantly above the EE Order gas efficiency targets in all years.

The utilities' proposed electric and gas budgets are presented in Table 3 and Table 4.

Table 3. EE Order and proposed electric budgets by utility, 2021-2025

	2021	2022	2023	2024	2025	Total
Central Hudson						
EE Order Budget ($)	948,377	1,580,629	2,212,881	2,687,069	3,429,965	10,858,921
Proposed Budget ($)	1,647,000	2,693,000	3,685,000	4,408,000	5,562,000	17,995,000
Difference (%)	74%	70%	67%	64%	62%	66%
Con Edison						
EE Order Budget ($)	90,475,760	114,985,916	142,219,423	168,847,740	190,846,361	707,375,200
Proposed Budget ($)	79,374,793	101,050,659	129,728,218	158,515,897	180,848,751	649,518,318
Difference (%)	-12%	-12%	-9%	-6%	-5%	-8%
Niagara Mohawk						
EE Order Budget ($)	8,284,634	15,154,819	26,268,353	36,775,694	46,111,063	132,594,563
Proposed Budget ($)	8,284,634	15,154,819	26,268,353	36,775,694	46,111,063	132,594,563
Difference (%)	0%	0%	0%	0%	0%	0%
NYSEG						
EE Order Budget ($)	8,428,564	13,831,489	22,908,404	33,282,021	43,340,150	121,790,628
Proposed Budget ($)	8,428,564	13,831,489	22,908,404	33,282,021	43,340,150	121,790,628
Difference (%)	0%	0%	0%	0%	0%	0%
O&R						
EE Order Budget ($)	3,187,783	4,250,377	5,950,528	8,288,235	10,509,057	32,185,980
Proposed Budget ($)	4,235,394	7,488,185	7,828,216	8,295,757	8,739,921	36,587,473
Difference (%)	33%	76%	32%	0%	-17%	14%
RG&E						
EE Order Budget ($)	4,555,827	6,626,657	9,939,986	14,081,647	18,637,473	53,841,590
Proposed Budget ($)	4,555,827	6,626,657	9,939,986	14,081,647	18,637,473	53,841,590
Difference (%)	0%	0%	0%	0%	0%	0%
Total Electric Utilities						
EE Order Budget ($)	115,880,945	156,429,887	209,499,575	263,962,406	312,874,069	1,058,646,882
Proposed Budget ($)	106,526,212	146,844,809	200,358,177	255,359,016	303,239,358	1,012,327,572
Difference (%)	-8%	-6%	-4%	-3%	-3%	-4%

In total, the utilities' proposed budgets for their electric energy efficiency programs are slightly lower than the budgets from the EE Order. Central Hudson's and O&R's annual electric budgets are much higher than the budget levels established for these utilities in the EE Order, while Con Edison's annual budgets are somewhat lower.

Table 4. EE Order and proposed gas budgets by utility, 2021-2025

	2021	2022	2023	2024	2025	Total
Central Hudson						
EE Order Budget ($)	15,830	47,490	94,980	158,300	238,084	554,684
Proposed Budget ($)	33,000	98,000	195,000	322,000	482,000	1,130,000
Difference (%)	108%	106%	105%	103%	102%	104%
Con Edison						
EE Order Budget ($)	11,153,880	11,740,926	13,171,852	15,630,108	18,497,646	70,194,412
Proposed Budget ($)	22,254,848	25,676,184	25,663,057	25,961,952	28,495,257	128,051,298
Difference (%)	100%	119%	95%	66%	54%	82%
KEDLI						
EE Order Budget ($)	2,872,048	3,801,240	4,983,849	6,757,761	9,072,294	27,487,192
Proposed Budget ($)	2,872,048	3,801,240	4,983,849	6,757,761	9,072,294	27,487,192
Difference (%)	0%	0%	0%	0%	0%	0%
KEDNY						
EE Order Budget ($)	7,465,446	9,561,010	13,817,623	19,122,019	23,892,308	73,858,406
Proposed Budget ($)	7,465,446	9,561,010	13,817,623	19,122,019	23,892,308	73,858,406
Difference (%)	0%	0%	0%	0%	0%	0%
NFG						
EE Order Budget ($)	104,172	260,431	416,690	729,207	1,091,206	2,601,706
Proposed Budget ($)	104,172	260,431	416,690	729,207	1,091,206	2,601,706
Difference (%)	0%	0%	0%	0%	0%	0%
NiMo						
EE Order Budget ($)	-	-	-	-	-	-
Proposed Budget ($)	-	-	-	-	-	-
Difference (%)	0%	0%	0%	0%	0%	0%
NYSEG						
EE Order Budget ($)	1,072,870	1,369,621	1,871,816	2,579,453	3,368,355	10,262,115
Proposed Budget ($)	1,072,870	1,369,621	1,871,816	2,579,453	3,368,355	10,262,115
Difference (%)	0%	0%	0%	0%	0%	0%
O&R						
EE Order Budget ($)	1,108,064	1,681,201	2,330,756	3,018,520	3,663,107	11,801,648
Proposed Budget ($)	387,666	1,681,201	2,330,756	3,018,520	3,663,107	11,081,250
Difference (%)	-65%	0%	0%	0%	0%	-6%
RG&E						
EE Order Budget ($)	347,283	571,995	878,421	1,246,132	1,642,423	4,686,254
Proposed Budget ($)	347,283	571,995	878,421	1,246,132	1,642,423	4,686,254
Difference (%)	0%	0%	0%	0%	0%	0%
Total Gas Utilities						
EE Order Budget ($)	24,139,593	29,033,914	37,565,987	49,241,500	61,465,423	201,446,417
Proposed Budget ($)	34,537,333	43,019,682	50,157,212	59,737,044	71,706,950	259,158,221
Difference (%)	43%	48%	34%	21%	17%	29%

Proposed budgets for the gas energy efficiency programs are higher than the budgets set in the EE Order. Both Central Hudson and Con Edison propose annual gas efficiency budgets that are much higher than those established for these utilities in the EE Order. O&R proposes a gas efficiency budget that is below the EE Order budget in one year (2021). Otherwise, all other utilities proposed budgets consistent with the amounts set in the EE Order.

While the Commission provided guidance on formulating EAMs in the EE Order, only Con Edison provided any detail on intended EAMs in the Joint Utility filing. EAMs are discussed further in Section VI of these comments.

III. Energy Efficiency Targets and Budgets

Energy Efficiency Advocates commend the utilities for proposing the energy efficiency savings targets and budgets in the Joint Proposal. They represent substantial progress in meeting the state's energy and GHG goals. While the Commission's EE Order represents an important step forward in re-establishing New York's role as a national leader on energy efficiency, Energy Efficiency Advocates believe more can and should be done to foster greater investment in energy efficiency. In that spirit, we offer these recommendations.

First, the Commission should clarify that the electricity and gas savings targets in the EE Order are to be treated as minimum savings targets, and the utilities should plan to exceed those minimum targets to the extent that there is additional cost-effective energy efficiency available. Cost-effective efficiency savings above the EE Order targets will help reduce electricity and gas costs to customers and reduce the cost of achieving the state's GHG goals. We recommend that the Commission direct all utilities to identify all cost-effective energy savings beyond the those in the EE Order.

Clearly potential for cost-effective savings beyond the EE Order targets exists. For example, the electric efficiency savings proposed by Con Edison in its April filing are not only lower than the targets in the Commission's EE Order, they are also significantly lower than the electric savings that Con Edison itself proposed in its initial January rate case filing. In its rebuttal testimony in its rate case, Con Edison explains that it "is not proposing to increase electric efficiency budgets and targets or pursuing additional cost-effective electric EE as Energy Efficiency Advocates suggest *primarily* because it is subject to a budget cap under the Commission's Order in the EE proceeding …" (emphasis added).[12]

The urgency of greater and more immediate investment in cost-effective energy efficiency measures is underscored by the recent passage of the CLCPA. Energy efficiency is a critical element in any effective strategy designed to achieve CLCPA's ambitious targets . The Commission should be encouraging and enabling the utilities to do all that they can to achieve these State policy goals.

Second, we recommend that the Commission direct the utilities to achieve *both* the electricity and gas savings targets in the EE Order and clarify that utilities should not shift funding away from the programs in one sector to pay for programs in another sector. Con Edison's proposal to shift funding from electricity programs to pay for gas programs will undermine electricity efficiency opportunities and eventually require customers to pay more for electricity services and for meeting New York's GHG goals. The Commission should direct Con Edison to modify its electricity targets to meet or exceed those identified in the EE Order.

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[12] Consolidated Edison Company of New York, Customer Energy Solutions Update and Rebuttal Testimony in Case 19-E-0065,, June 14, 2019, p. 43.

Third, we recommend that the Commission clarify that efficiency budgets should be flexible enough to be modified over time to meet the efficiency savings targets. The savings targets should be viewed as paramount, and the efficiency budgets should be designed to meet those targets. If the utilities can find ways to meet the savings targets at lower cost, or if they find they need additional funding to meet the savings targets, then the budgets should be modified accordingly.

Fourth, heat pumps, combined with the state's initiatives to reduce GHG emissions from the electricity industry, represent the most promising and cost-effective way to reduce fossil fuel end-use consumption in New York's homes and businesses. Heat pumps represent a critical strategy for avoiding gas infrastructure investments that will be stranded in less than 20 years, well before the end of their potential useful life, and for meeting the state's carbon policy cost-effectively. (See discussion in Section V of these comments.) We recommend that the state and the utilities should investigate additional heat pump savings opportunities, including new and innovative deployment models such as shared loops for multiple ground source heat pumps, integrated controls, hot water heat pumps, variable refrigerant flow heat pumps and water source heat pumps in large commercial buildings, and low temperature district heating with heat pumps. This is important for the following reasons:

- The EE Order's statewide savings target of 5 TBtu by 2025, similar to the other targets in the order, is a minimum target.[13]
- Since the Heat Pump Potential Study that was used to set the heat pump target focused solely on the residential market, we anticipate that the state has significantly more heat pump savings potential in the commercial sector.[14]
- Even within the residential sector, VEIC estimates that much faster ramp rates are possible if adequate incentives are provided and the market grows at a pace that has been achieved by other clean energy technologies, suggesting that up to two-thirds of households could adopt heat pumps by 2030, contributing 31 TBtu of energy savings in 2025 and 85 TBtu in 2030.[15]
- Buildings use substantial amounts of fossil fuels for space heating; these will need to be converted to heat pumps in the future in order to meet the state's 85 percent GHG reduction target. As a reference, NYSERDA's Initial Heat Pump Potential Study indicates that the state has

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13 EE Order, p. 60.

14 As noted on p. 18 of the May 10 Joint Filing, "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."

15 *See* VEIC, Ramping Up Heat Pump Adoption in New York State: Targets and Programs to Accelerate Savings (2018), available at https://www.veic.org/documents/default-source/resources/reports/veic-ramping-up-heat-pump-adoption-in-new-york-state.pdf?Status=Temp&sfvrsn=4

190 TBtu of technical heat pump potential in residential buildings.[16,17] In contrast, the heat pump savings target proposed for all of the utilities in all sectors is only 2.7 TBtu over the 2020-2025 period.[18]

Finally, we are disappointed by the lack of programmatic details contained in the utilities' filings. This lack of detail makes it very difficult to evaluate the potential effectiveness of an individual utility's efficiency efforts. The utilities indicate that these programmatic details will be contained in future efficiency implementation plans. The Commission should consider providing more detailed guidance as to what these implementation plans should include. For example, Energy Efficiency Advocates recommend that the utility efficiency implementations plans should focus on comprehensive energy efficiency measures, especially in the context of building retrofits that would involve deeper and more comprehensive measures that produce larger energy savings. Utilities should be allowed to provide greater incentives when related efficiency measures are packaged and achieve larger savings. These packaged, comprehensive measures can be critical for maximizing heat pump savings. For multi-family buildings, where such measures may involve a multi-year investment, the Commission should encourage the utilities to consider payment arrangements that would support greater private sector investment in such projects.

IV. Energy Efficiency Cost-Effectiveness

All Cost-Effective Energy Efficiency Mandate

Energy Efficiency Advocates recommend that the Commission explicitly require all New York electric and gas utilities to identify and pursue all energy efficiency resources that are determined to be cost-effective, where cost-effectiveness is defined by the BCA Order. We also recommend that NYSERDA, in consultation with the electric and gas utilities, conduct a statewide assessment of the potential for all cost-effective energy efficiency savings. The Commission should then modify any planned electricity and gas efficiency targets based on the findings of this potential study.[19]

A mandate to implement all cost-effective energy efficiency resources provides very clear guidance about how much energy efficiency resources should be pursued, how to design energy efficiency

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16 NYSERDA. 2019. New Efficiency: New York Analysis of Residential Heat Pump Potential and Economics Table 4-8, page 17.

17 NYSERDA issued an update to the potential study in May 2019. However, the update did not provide total technical potential. The technical potential based on the methodology reflected in the May update may be lower, but the conclusion that technical potential is much higher than the utilities' targets still holds.

18 May Joint Filing Update, p. 7.

19 Conducting a study on a statewide basis would reduce costs, better align utility planning cycles, and ensure comparable results. Such a study should present utility-level results and reflect the allocation of responsibility between NYSERDA and the IOUs that is ultimately approved by the PSC.

programs, and how to determine appropriate energy efficiency savings targets.[20] The rationale for establishing an all cost-effective energy efficiency policy is simple: Implementing all cost-effective energy efficiency resources is the lowest-cost option for meeting customers' electricity and gas demands. If an energy efficiency resource is cost-effective then it will cost less than alternative resources. Therefore, utilities should implement as many of such resources as possible in order to maximize net benefits to customers. Conversely, if utilities do not implement all cost-effective energy efficiency resources, then they will need to incur greater costs to implement the supply-side resources instead.

An all cost-effective energy efficiency policy is especially important for New York. It is a simple, clear regulatory mechanism for guiding all electric and gas utilities to optimize the benefits of energy efficiency, consistent with New York energy policy goals. An all cost-effective efficiency requirement:

- Will align energy efficiency efforts with the CLCPA, the Commission's REV initiative, the 2015 State Energy Plan, and the NE:NY goals;
- Will help achieve New York's short-term, 2030, and 2050 carbon goals at the lowest cost;
- Will help guide New York's long-term planning processes designed to optimize the level of energy efficiency and other distributed energy resources; and
- Provides a much more dynamic and flexible planning approach than relying upon the Commission's energy efficiency targets well into the future, allowing utilities to respond to changes in costs, benefits, technologies, market trends, and customer demands.

Also, an all cost-effective efficiency requirement would help New York plan for and achieve the energy efficiency savings levels being achieved in other leading states around the country. California, Connecticut, Maine, Massachusetts, Rhode Island, Vermont, and Washington have enacted policies that require utilities and efficiency program administrators to capture all cost-effective efficiency resources available to them.[21] These states have prioritized energy efficiency as a resource, requiring that customer needs be met to the greatest extent possible through energy efficiency, and they are capturing some of the highest levels of energy efficiency savings in the country. The energy efficiency savings achieved by these states ranged from 0.8 percent to 3.3 percent of sales annually in 2017. Each of the five states that ranked ahead of New York in the American Council for an Energy-Efficient Economy's 2018 Energy Efficiency Scorecard has an all cost-effective energy efficiency policy.[22]

Such a mandate influences and guides several aspects of efficiency planning, including:

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[20] It is important to note that all cost-effective mandates are distinct from the requirement that energy efficiency resources must be cost-effective as this requirement does not provide any indication of how much of those efficiency resources should be implemented. It creates a threshold that all energy efficiency resources must cross to be approved, but that is all.

[21] Gilleo, Annie. American Council for an Energy-Efficient Economy (ACEEE). Picking All the Fruit: All Cost-Effective Energy Efficiency Mandates.

[22] Including Massachusetts (1), California (2), Rhode Island (3), Vermont (4), and Connecticut (5). ACEEE's 2018 Energy Efficiency Scorecard is available here: https://aceee.org/research-report/u1808.

- Encouraging utilities to identify all cost-effective opportunities on a regular basis;
- Encouraging utilities to set efficiency savings targets, budgets, and program designs that achieve as much of the cost-effective efficiency savings as possible within a reasonable amount of time; and
- Accounting for additional regulatory and policy considerations, such as customer participation and equity issues. Stakeholder participation throughout this process is important to ensure that efficiency program portfolios represent the interests of a variety of stakeholders and are consistent with New York energy policy goals.

Encouraging utilities to identify opportunities on a regular basis is often done with an energy efficiency potential study, which quantifies the size of the available energy efficiency resource in the jurisdiction of interest over the long term. We recognize that energy efficiency targets are already established by the Commission. However, we recommend that energy efficiency targets be considered a floor, and that the utilities should acquire additional efficiency savings if they are cost-effective. The all cost-effective energy efficiency policy can complement the Commission's targets by providing guidance to New York's electric and gas utilities about how much farther above that floor they should go and encourage New York electric and gas utilities to achieve greater levels of cost-effective savings sooner.

We also acknowledge and support the Commission's requirement that energy efficiency benefit-cost decisions be applied at the portfolio level. This means that efficiency programs and measures do not have to be cost-effective in order to be included in the portfolio of programs, providing flexibility for cases where a beneficial program is stymied due to the specific formula used for BCA analysis, while at the same time requiring the total portfolio of programs to be cost-effective. This does not, however, mean that utilities should not assess the costs and benefits of efficiency resources at the program level. The BCA Order notes that the portfolio approach "need not preclude application of the BCA framework to specific projects where appropriate."[23] We recommend that utilities consider cost-effectiveness when designing each program, with the goal of achieving all cost-effectiveness savings available from that program (or customer type or market type addressed by that program).

Utilities should always seek to design programs to maximize their net benefits, to ensure that ratepayer funds are used as efficiently and effectively as possible. Ideally, each program would be (a) cost-effective on its own, and (b) designed to achieve all cost-effectiveness savings. If one of the programs is not cost-effective on its own, it could nonetheless be included in the portfolio of programs if there were enough net benefits in the portfolio to offset the net costs of the program that is not cost-effective and if it otherwise "fits" within the cost-effectiveness of the total portfolio. In our view, such programs should be included in the portfolio if there is a sound rationale that the program will be in the public interest. For example, new construction or market transformation programs that might provide many long-term benefits that are difficult to capture in cost-effectiveness analyses but are nonetheless likely to be in the public interest. Conversely, efficiency programs that include overly expensive or "gold-plated"

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[23] BCA Order, page 34.

equipment should not be approved by the Commission, even if their net costs can fit within the net benefits of the total efficiency portfolio.

The New York BCA Handbooks

Each New York utility has prepared a BCA Handbook in response to the Commission's BCA Order. These handbooks play a fundamental role in determining the cost-effectiveness of energy efficiency programs and meeting the state's energy efficiency targets. However, the utilities' BCA Handbooks were prepared prior to the NE:NY paper and prior to the Commission's December 2018 EE Order. The BCA Handbooks need to be updated to reflect the guidance and the directives from these two recent developments.

First, the Commission should direct the utilities to update their BCA Handbooks to properly account for "other fuel savings," i.e., the savings of fuels that are not the primary target of the efficiency program. The BCA Order categorizes other fuel savings as "operational and societal non-energy benefits (NEBs)."[24] The BCA Order is clear that monetizable NEBs should be included in the BCA and included in the utilities' BCA handbooks.[25] However, the utility BCA handbooks do not address other fuel savings, apparently considering these savings as NEBs that are too hard to monetize. The value of the other fuel savings can be easily determined using market prices for those fuels, along with forecasts for future market prices. This is a major omission in the utilities' BCA approach that needs to be addressed if the state is to meet its clean energy and GHG goals. The NE:NY paper and the EE Order are very clear that utilities should seek to implement fuel-neutral efficiency programs across all fuel sources (electricity, natural gas, heating oil, and propane), and to optimize the efficiency savings across those fuels. This requires proper consideration of other fuel savings.

Second, the Commission should direct the utilities to update their BCA Handbooks to account for other NEBs that are particularly important for meeting the energy efficiency targets and other New York energy policy goals. For example, the utilities and NYSERDA should investigate opportunities for identifying and applying low- and moderate-income NEBs to support those important programs. (This issue is discussed in more detail in Section VII.) Other important NEBs worth investigating include benefits such as reduced sick days, improved productivity, reduced environmental and safety costs, and improved system resilience.[26]

Third, the Commission should direct the utilities to update their BCA Handbooks to properly account for the benefits of avoiding gas infrastructure that is increasingly likely to become obsolete in the context of New York's GHG reduction goals, especially in light of the reductions mandated by the CLCPA. The Commission has been clear that GHG emissions from the gas industry must be significantly reduced, and

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24 BCA Order, page 19.

25 BCA Order, page 35.

26 NEEP, "Non-Energy Impacts Approaches and Values: an Examination of the Northeast, Mid-Atlantic, and Beyond", June 2017, available at: https://neep.org/sites/default/files/resources/NEI%20Final%20Report%20for%20NH%206.2.17.pdf.

this means that gas infrastructure installed today might become obsolete during its operating lifetime. In the Smart Solutions Order, the Commission stated that:

> Gas utilities will need to maintain safe and reliable services, accommodate economic development, and improve affordability, all while carbon emissions are dramatically reduced, sales of fossil fuels decline over the longer term, and traditional infrastructure solutions become infeasible.[27]

If a gas utility installs new gas infrastructure that becomes obsolete before its costs are fully recovered from customers, it will create stranded costs that may need to be borne by all customers and will increase the costs of achieving the state's GHG targets. This risk of gas infrastructure obsolescence should be accounted for when evaluating the cost-effectiveness of gas energy efficiency programs. Cost-effectiveness screening should consider all costs and benefits, including avoided gas pipeline costs. One way to take into account the risk of new gas infrastructure becoming obsolete and stranded well before the end of its physical life is to assume an economic life for gas pipelines that is shorter than the expected physical life of the avoided asset. This approach would result in a much higher annual avoided gas infrastructure cost and provide a more accurate depiction of the actual cost of gas supply-side infrastructure in light of New York's aggressive GHG goals.

Fourth, the Commission should direct the utilities to update their BCA Handbooks to properly account for the lifecycle GHG emissions from the gas and electricity industries. It is particularly important to account for the methane leakages from gas distribution systems because of the high incidence of leakages and the high global warming potential of methane. Ignoring these important emissions can undervalue gas energy efficiency programs and increase the cost of meeting the state's GHG goals.

Fifth, the Commission should direct the utilities to update their BCA Handbooks to properly account for the value of avoiding new gas infrastructure, even that which has not yet been identified. Utilities tend to be conservative about avoiding gas capacity costs if they are not able to identify a specific gas infrastructure project that can be delayed or cancelled by energy efficiency programs.[28] This undervalues gas energy efficiency programs and increases the cost of meeting the state's GHG goals. Utilities should adopt reasonable assumptions about avoided gas infrastructure capital costs under the premise that gas energy efficiency programs can postpone or avoid the need for some new gas infrastructure; to the extent possible, these methodologies should be consistent with the distribution valuation methodologies adopted in the VDER and DSIP processes.

In sum, the utility efficiency programs and initiatives required to meet New York's energy efficiency and GHG reduction targets will need to continually evolve to reflect market developments, emerging technologies, and new policy directives. It is essential that the utilities' BCA Handbooks and practices be modified and updated to keep up with industry and regulatory developments.

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27 Smart Solutions Order, page 35.

28 See, for example, the Direct Testimony of Tim Woolf and Alice Napoleon, on behalf of Natural Resources Defense Council, in Case 19-E-0065 and Case 19-G-0066, May 24, 2019, pages 51-52.

Beyond amending the BCA Handbooks, we recommend that the Commission consider whether the BCA Order should be revisited in light of the passage of the CLCPA. With the CLCPA's deep cuts to carbon, the benefits associated with avoided emissions will likely be underestimated, possibly drastically so, by the methodologies adopted in the BCA Order. Further, the CLCPA calls for taking a longer-term view than is reflected in the discount rate adopted by the BCA Order, the weighted average cost of capital. A societal discount rate is much better suited to the mid- to long-term perspective taken in the CLCPA's targets. The use of a societal discount rate is also important for properly valuing the risk that new natural gas investments are likely to be stranded in the next two decades.

The New York Technical Reference Manual

The New York Technical Resource Manual (NY TRM) is used in program planning, implementation, tracking, reporting, and evaluation of impacts associated with energy efficiency measures promoted to meet energy savings goals. In order to remain accurate, relevant, and effective, any TRM must be updated frequently to account for market developments, emerging technologies, new program designs, and evolving policy initiatives.

The NY TRM needs improvement—not just the document itself, but the process for maintaining, updating, and improving the TRM. The NY TRM is currently a 700+ page PDF document, uses 30-year old simplified calculation approaches, cannot adequately assess the impacts of modern energy efficiency technologies, and is not consistent with the state's energy efficiency goals as outlined in the EE Order.

As an example of needed improvements, the NY TRM is unable to support the development of synergistic packages of energy efficiency measures. We agree with New York City that the NY TRM provides no motivation for program implementers or building owners to pursue comprehensive energy efficiency initiatives in buildings, frustrating efforts to achieve deeper and more comprehensive measures that produce larger energy savings. More specifically, the TRM does not support analysis of the interactive effects of envelope efficiency measures and heat pumps, even though envelope efficiency measures can significantly reduce the size of heat pumps resulting in energy and dollar savings for electricity customers. This is a critical update to the TRM given the need to aggressively promote heat pumps in order to achieve the state's climate targets.

Just as importantly, the TRM currently does not have protocols for calculating savings associated with switching from equipment that consumes fuel to electricity measures. All of the savings protocols in the TRM compare efficiency or energy usage levels for two measures using the same fuel type and only value the incremental efficiency gain over the efficiency of a standard measure with the same fuel. The lack of guidance on estimating non-electric fuel savings is a glaring omission that must be remedied, because the state's strategy for achieving climate targets relies in part on deep decarbonization through electrification using measures like heat pumps.

Furthermore, methodologies for early replacement measures—or at least references to such methodologies—need to be clearly incorporated in the main body of the TRM. The TRM currently provides a detailed methodology for early replacement measures in Appendix M. However, this appendix is not referenced anywhere in the main body of the document, which may result in users not applying the early replacement methodology. In whole building renovation projects, there is a high

likelihood that some of the existing appliances or HVAC systems that are going to be replaced are still functioning. The early replacement methodology should be applied in such situations. Furthermore, an early replacement methodology should be used to estimate energy savings from heat pumps, as the EE Order targets call for the utilities to aggressively promote switching from other fuels to heat pumps. Most of this switching will happen while the systems consuming other fuels are still functioning.

The NY TRM provides utilities with critical information and inputs to conduct their energy efficiency BCAs. However, the NY TRM has not been updated to reflect the Commission's directives in the BCA Order, nor has it been updated to reflect the new energy efficiency savings targets proposed by the utilities in this docket. In particular, the guidance on how to use the TRM should explicitly acknowledge and address the Commission's directive that cost-effectiveness is assessed at the portfolio level.[29] Updating the TRM will be essential if the utilities are to meet their EE goals effectively and efficiently.

Energy Efficiency Advocates offer the following recommendations for improving the NY TRM:

- The Commission should direct the utilities to work with NYSERDA and the TRM Committee to investigate opportunities for implementing a modern framework of open source standardized simulation-based calculation methods supporting an expanding range of state-of-the-art energy efficiency technologies. This should include, for example, "eTRMs," use of the DOE Uniform Methods Project, credentialled dynamically deemed calculations, data standardization, cloud computing, machine-to-machine automation, and accounting for location and time-specific information.
- The Commission should direct the utilities to work with NYSERDA and the TRM Committee to update the NY TRM to support analyses of electrification, particularly heat pumps.
- The Commission should direct the utilities to work with NYSERDA and the TRM Committee to update the NY TRM to support analyses of packages of efficiency measures within a single dwelling, business, or program.
- The Commission should direct the utilities to work with NYSERDA and the TRM Committee to incorporate meaningful and timely input from energy efficiency stakeholders when improving and updating the NY TRM.

V. Gas Energy Efficiency in the Context of New York Climate Goals

New York has aggressive climate change goals, most notably the GHG reduction targets of 40 percent from 1990 levels by 2030 and 85 percent by 2050 established by the CLCPA. Meeting these targets will be challenging, but achievable if the state utilities and NYSERDA aggressively implement energy efficiency and promote fuel switching to heat pumps from gas and other fuels. Gas efficiency and heat pumps are critical components of the state's GHG reduction strategy because they can help reduce the use of fossil fuels and GHG emissions from buildings cost-effectively. Both measures are also prime

[29] EE Order, p. 71.

candidates to resolve or alleviate issues associated with gas supply and delivery constraints and building new gas infrastructure.

The Joint Filing acknowledges the role of energy efficiency and heat pumps as NPS to infrastructure investment needs (see section titled "Complementary Interventions: NWA, and NPS").[30] The Joint Filing discusses in detail Con Edison's NPS initiative, which integrates peak day gas demand reduction measures within the efficiency and heat pump portfolios.[31] These measures are especially important for Con Edison because it recently placed a gas moratorium in Westchester County due to its own projections of future gas supply constraints.[32] But the concept is also of critical importance to utilities elsewhere in the state, which are reporting similar gas constraints. If these issues are resolved through construction of new pipeines and/or other new gas infrastructure, that may result in under-utilized or stranded assets within 20 years. Implementation of NPS initiatives that reduce gas demand instead could resolve pipeline constraints without stranding assets while helping New York meet its GHG targets.

Reforms are needed to utility gas system planning processes to ensure that they are consistent with the state's climate policies and fully leverage all cost-effective non-pipe solutions. While initiatives such as Con Edison's smart solutions proceeding have been a step forward, they do not fully and transparently assess the full range of potential non-pipe solutions, provide an opportunity for stakeholders to scrutinize future demand projections, or leverage opportunities to coordinate actions across multiple utility jurisdictions within the state. For example, with regard to non-pipe solutions benefits, Con Edison's assessment of cost-effectiveness of NPS measures does not fully take into account several key benefits and costs, such as the avoided costs of lifecycle methane leaks and potential traditional pipeline projects.[33] And coordination across service territories is critical because, as the Commission stated, "gas supply constraints solutions will need to involve greater visibility of the distribution planning process to stakeholder and local communities, to enable joint problem solving" for the local and upstream pipeline constraints.[34]

The process administered by Con Edison was a positive and important first step to reform the existing gas planning process in that it identified NPSs that will clearly be needed to reduce the company's gas demand and contribute to the state's GHG emissions reductions goals. The Commission also

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30 Joint Filing, page 28.

31 Joint Filing, page 53.

32 Con Edison. n.d. "About the Westchester Natural Gas Moratorium," Available at https://www.coned.com/en/save-money/convert-to-natural-gas/westchester-natural-gas-moratorium/about-the-westchester-natural-gas-moratorium.

33 Direct Testimony of Tim Woolf and Alice Napoleon on Behalf of NRDC on Con Edison's proposed approach to heat pump, electric energy efficiency, and natural gas energy efficiency resources. May 24, 2019. Cases 19-E-0065 and 19-G-0066.

acknowledged that "[t]he measures approved in this Order … are early stages of a long-term comprehensive approach. The Company is encouraged to work closely with stakeholders and local governments as this effort continues."[35] By proactively planning for a system that comports with the state's climate goals, the Commission can allow for adequate stakeholder involvement *before* the urgency of a moratorium proceeding forces a rushed decision-making process.

There is a clear need for consistency in gas efficiency and infrastructure planning that provides a transparent and deliberate process that facilitates the achievement of the state's efficiency and GHG goals. Energy Efficiency Advocates recommend the following:

- Gas efficiency programs, NPS, and long-term gas infrastructure planning should be coordinated across the state.
- A policy framework should be developed to ensure that gas supply decisions and infrastructure investments are consistent with the State's energy, climate policy, and GHG reduction goals. This policy framework should target the efficiency and clean electric heating solutions with the greatest potential to avoid gas infrastructure, and it should enable utilities to deploy these measures in the most cost-effective manner possible.
- As discussed in Section IV, the natural gas policy evaluation framework should incorporate a cost-benefit analysis that reflects a long-term societal perspective.
- The Commission should require that utilities improve the robustness, transparency, and organization of their processes for reviewing gas NPSs and gas-side investments in general. The processes should support and expand upon the Smart Solutions remedies. Gas demand projections should be examined in a transparent process that would allow for stakeholders to examine assumptions and data behind the projection and thereby assess its validity. NPSs should be considered in a consistent, integrated process that provides sufficient lead time for development of NPSs and that compares NPSs with conventional investment alternatives, such as upstream pipeline expansions and capital investments in distribution infrastructure.
- The Commission should require gas utilities to pursue all cost-effective energy efficiency measures (see previous section).

VI. Energy Efficiency Earnings Adjustment Mechanisms

While the Commission provided guidance on formulating EAMs in the EE Order, only Con Edison provided any detail on intended plans for developing future EAMs in the Joint Utility filing. In line with the Efficiency Order's directive, [36] the utilities expressed their intentions to continue to develop their respective EAMs in rate case dockets. Without more clarity on utility designs for future EAMs, however, it is difficult to ensure that each future proposal will be consistent with Commission guidance and in the public interest.

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35 NPS Order, Feb 7, 2019, page 26.

36 EE Order. p. 68.

We suggest that the Commission facilitate a dedicated process for the development of EAMs, either in the form of a generic proceeding or another stakeholder process. To guide future development of EAMs, the Commission should expand on its set of core principles beyond what has already been provided in the whitepaper and Efficiency Order. Ultimately, this should be a comprehensive process that results in a set of core EAMs to be adopted by all the Joint Utilities.

The suggested approach has several advantages. It would ensure that EAMs adopted by individual utilities are consistent with best practices, would relieve the Commission of some regulatory burden, and would facilitate comparison of utility performance across several key domains. This comparison would provide regulators, policymakers, and the public with important performance data, enabling further refinement of targets and goals.[37]

NRDC has already commented on Con Edison's proposed EAMs in that rate case docket.[38] While our aim here is not to focus on Con Edison to the exclusion of the other utilities, we reiterate these comments to provide the state with a concrete basis for further developing its guidance on EAMs. We suggest that Con Edison's set of EAMs, properly refined to address certain shortcoming detailed below, could serve as basis for the set to be adopted by all utilities.

Table 5. Con Edison's proposed EAMs from the Joint Utility Filing outlines Con Edison's most recent EAMs proposal.

Table 5. Con Edison's proposed EAMs from the Joint Utility Filing

EAM	Description
Annual MMBtu	Sum of gross electric and gas savings, excluding energy efficiency through LMI funds.
Electric EE MWh: MW Ratio	Efficiency savings for each MW of peak reduction
GHG Emissions Reduction	Incremental GHG reduction resulting from technologies that reduce, replace, or avoid use of grid electricity, or those that reduce gas
Electric DER Utilization	Incremental annual MWh of avoided grid energy, due to DG or DR
Share the Savings	Improvements in cross-commodity efficiencies of overall energy efficiency portfolio, excluding LMI-funded efforts, on a lifetime MMBtu basis

[37] We note the considerable alignment that already exists in the current EAMs of Central Hudson Gas & Electric Corporation (Central Hudson), Niagara Mohawk Power Corporation d/b/a National Grid (Niagara Mohawk), New York State Electric & Gas Corporation NYSEG), Orange and Rockland Utilities, Inc. (Orange & Rockland).

[38] Direct Testimony of Tim Woolf and Alice Napoleon. 19-E-0065.

System Efficiency	Reductions in peak/improvements in load factor at select distribution substations

On the whole, Con Edison's set of EAMs serves as a viable template for the standard. Following NYSERDA and Commission guidance, Con Edison proposed three fuel-neutral measures[39] (Annual MMBtu, GHGH Emissions Reduction, and Share the Savings), and incorporated shared cost savings and lifetime energy savings considerations.[40] While the utility may not have focused on these two objectives to the degree expected by the EE Order, Energy Efficiency Advocates do not view this as a shortcoming. While we support the Commission's fuel-neutral perspective and believe that an emphasis on shared cost savings should help to promote efficacy and equity, we suggest that other objectives, beyond cost savings, are appropriate in advancing other important efficiency policy goals.

However, we do have concerns about certain elements of Con Edison's proposed set of EAMs: the peak reduction EAM appears to be unnecessarily complicated and there is no corresponding gas peak reduction measure; several EAMs overlap, raising the risk of overcompensation; the set of EAMs excludes LMI and therefore does not reflect the priority that LMI programs should have (as discussed in section VII, below); and last, the utility suggests a stepwise incentive formulation, rather than a continuous one, providing discontinuous incentives that cut-off at a maximum level of performance.

Together, these issues suggest principles for EAMs design that should be codified in the Commission's guidance. We begin with the set of core design principles in our first recommendation, below.

Recommendations

(1) The Commission should expand on its set of principles for the design of EAMs. These criteria should include the efficiency specific goals outlined in the whitepaper and EE order and incentive mechanism best practices. Best practices for EAMs include:

- Ensuring that EAMs are clearly tied to policy goals, unambiguously defined, and easily quantifiable;[41]
- Calibrating EAM targets to ensure that attainment is largely free of outside influence;
- Setting incentive formulas that determine how much the utility is compensated at different levels of achievement to be consistent with the desired outcome and calibrated to effectively incent utility performance; and[42]

39 New Efficiency: New York. p. 35.

40 EE Order. p. 68.

41 Whited, Melissa, Tim Woolf, and Alice Napoleon. 2015. "Utility Performance Incentive Mechanisms: A handbook for regulators." Prepared for the Western Interstate Energy Board by Synapse Energy Economics. p. 27-31. Available at: https://www.synapse-energy.com/sites/default/files/Utility%20Performance%20Incentive%20Mechanisms%2014-098_0.pdf.

42 Id. 42.

- Using continuous, rather than stepwise incentive formulas without ceilings for potential earnings but requiring that program investments be cost-effective in order to qualify for incentive earnings.

(2) The Commission should establish a core set of EAMs in a generic docket, to be adopted by each of the Joint Utilities. Note that utilities could still adopt additional EAMs if warranted to address specific performance issues. Utility-specific targets and incentives should still be set in standalone rate cases. We present a suggested set of EAMs in Table 6. Suggested core EAMs.

(3) The Commission should establish an annual process to review all the utility EAMs on a statewide basis, which would allow the Commission to compile the EAM results and compare performance across utilities.

Table 6. Suggested core EAMs

EAM	Description
Annual MMBtu	Sum of gross electric and gas savings, excluding energy efficiency through LMI funds
Electric Peak Reduction	Reduction in the electric system coincident peak
Gas Peak Reduction	Reduction in the gas system coincident peak
GHG Emissions Reduction	Incremental GHG reduction resulting from technologies that reduce, replace, or avoid use of grid electricity, or those that reduce gas. (Note that the minimum target for this EAM should be set higher than the expected GHG emissions reduction associated with attainment of minimum targets for the Annual MMBtu and Electric DER Utilization EAMs.)
Electric DER Utilization	Incremental annual MWh of avoided grid energy, due to distributed generation or demand response
Share the Savings	Improvements in cross-commodity efficiencies of overall energy efficiency portfolio, excluding LMI-funded efforts, on a lifetime MMBtu basis
Low income	Sum of gross electric and gas savings for low-income customers
Moderate income	Sum of gross electric and gas savings for moderate-income customers

VII. Low- and Moderate-Income Energy Efficiency Programs

The state has clearly articulated that providing LMI customers access to energy efficiency is a priority. In 2016, the Commission launched its Energy Affordability Policy to limit energy costs for low-income New

Yorkers to no more than 6 percent of household income (i.e., an energy burden of 6 percent or less).[43] Following the recommendation in the NE:NY paper, the EE Order adopted the requirement that 20 percent of additional energy efficiency investment be dedicated to services for LMI households (LMI funding requirement).[44] In recognition of the higher implementation costs and incentive levels of LMI programs, the EE Order exempts LMI energy efficiency investments from overall portfolio cost-effectiveness requirements.[45]

The April Joint Filing proposes that the utilities collaborate with NYSERDA to provide energy efficiency services to the LMI sector. Consistent with the EE Order, the Joint Filing proposes that NYSERDA maintain its central role in administering LMI programs, and the utilities collaborate with NYSERDA to expand the reach of LMI services. The Joint Filing highlights the utilities' "[a]bility to tailor offerings to the unique characteristics of their service territory."[46]

In keeping with the LMI funding requirement, the utilities proposed electric and gas LMI targets of at least 20 percent of incremental budgets. The Joint Filing provides some information about how programs targeting LMI customers will be developed and coordinated administratively, but important details are lacking. For example, the Joint Filing did not provide information about how LMI programs will be rolled out in each utility service area. Details on incentive amounts and strategies, service delivery, eligibility requirements, and eligibility verification are also missing.

The design of LMI programs is important. There is an increased societal imperative of providing energy efficiency to LMI customers because they face a high energy burden and may be forced to forego essential purchases like food or medicine to pay for energy bills, experience unhealthy and unsafe temperatures due to lack of appropriate heating and cooling, and face significant adverse financial consequences due to incurring utility debt. Also, the customers in the low-income sector face significant barriers to adopting energy efficiency technologies, such as the following:

- Low-income customers may be wary of interacting with utilities that have the ability to shut off service for nonpayment.
- Low-income customers typically have limited time and money to commit to energy efficiency projects—though often they have greater energy savings opportunities.
- Health and safety issues are more common in low-income residences, preventing energy saving improvements.

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43 https://www.governor.ny.gov/news/governor-cuomo-announces-new-energy-affordability-policy-deliver-relief-nearly-2-million-low.

44 EE Order, p. 50.

45 EE Order, p. 56.

46 Joint Filing, p. 35.

- Low-income customers are frequently renters and frequently live in public housing facilities, which means that they have less ability, and potentially substantial barriers, to make efficiency modifications to their units or the buildings they live in.
- For some low-income communities, language may be a barrier to program participation.[47]

These barriers are well-documented and particularly persistent for the low-income subset of the LMI sector, although they are also present for moderate-income customers. Energy efficiency programs should be explicitly designed to address the barriers that are most prevalent in the area.

The Commission's minimum funding requirements for LMI is a step forward

Efficiency programs can yield substantial benefits for low-income participants, as well as for all customers and society in general. Benefits include: (1) helping those with high energy costs relative to income to manage their bills; (2) promoting customer equity and affordability; (3) reducing ratepayer costs associated with utility bad debt and collection efforts on unpaid bills; and (4) reducing the environmental impacts of energy use.

We therefore strongly support the Commission's dedication of at least 20% of incremental efficiency funding to LMI programs, and urge the Commission to explore ways to direct more resources to LMI programs above and beyond this target. Of the 20% funding minimum, we recommend that 40% be allocated specifically to affordable multifamily buildings. In its December EE Order, the Commission required the Joint Utilities and NYSERDA, in working together to develop the LMI Portfolio proposal, to "consider directing 40% of incremental LMI program budgets to multifamily programs" because of "the potential for cost savings in these programs, and considering that approximately 40% of LMI customers live in multifamily housing."[48] The order anticipated that such a funding target would be included in the "statewide ratepayer LMI implementation plan" the Joint Utilities and NYSERDA are expected to file 60 days following the issuance of an order approving budgets and targets in 2019.[49] We recommend that the Commission affirm this requirement and, as further described below, provide stakeholders with the opportunity to review and comment on the LMI implementation plan.

The Commission should provide guidance on LMI program design elements to ensure successful implementation

Programs must be effectively designed and targeted to reach the LMI sector and to achieve their benefits.

The EE Order provides guidance on coordination between NYSERDA and the utilities. It also calls for the statewide portfolio to include direct install programs in addition to comprehensive efficiency treatment,

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[47] Kallay, Jennifer, Alice Napoleon, and Max Chang. 2016. Opportunities to Ramp Up Low-Income Energy Efficiency to Meet State and National Climate Policy Goals. Available at www.synapse-energy.com.

[48] EE Order at 55.

[49] *Id.* at 56.

incorporate community-based approaches, and increase participation in multifamily programs. However, guidance on how to prioritize and effectively implement LMI energy efficiency opportunities is generally lacking.

One method to help achieve success is to implement mechanisms to identify all eligible customers. Identifying customers for enrollment in utility LMI efficiency programs and referrals to EmPower have been a consistent challenge, and is one of the key issues New York must address as part of the LMI Portfolio. The challenge is partly due to the fact that the primary customer identification method is customer receipt of public assistance benefits, which leaves out a large number of customers who are income-qualifying but not currently enrolled in HEAP, SNAP, or other qualifying public assistance programs. Customer identification for outreach and enrollment in efficiency programs remains a challenge, and is one of the key issues that New York utilities must work on improving to increase access to efficiency within the LMI customer segment. The use of census tract or community-wide approaches to delivery of energy efficiency should be explored, and could include identifying eligible affordable housing by using proxies for affordable housing designations through NYS HCR, NYC HPD and HUD. Community-based efforts and "community-blitz" models are worthy of exploration and pilots. We stress, however, that the delivery of efficiency should be accomplished through actual installation and not "hand-outs" that may never result in on-site use. Partnering with trusted community-based service providers is one avenue for success.

Modifications to BCA analysis will help in directing more resources to LMI programs

Modifications to the Commission's BCA implementation methodology can also help. Cost-effectiveness testing is generally an important means for prioritizing energy efficiency opportunities, in New York and elsewhere. However, the EE Order indicates that cost-effectiveness of the LMI portfolio will only be considered on a statewide basis, to include the utility efforts as well as NYSERDA's. It is unclear when cost-effectiveness testing will occur for this sector, to what extent differences within the state will be reflected, and whether this testing will provide information useful for targeting LMI efforts.

While it is appropriate that LMI investments not be held to stringent, bright-line cost-effectiveness standards, benefit-cost analysis can help to guide LMI energy efficiency investments to the most effective, most needed uses if low-income NEBs are included. NEBs associated with energy efficiency efforts targeting low-income populations are generally much greater than NEBs for non-low-income programs. Benefits such as reduced sick days, improved productivity, and reduced environmental and safety costs are important in guiding energy efficiency investments to ensure that they maximize net benefits to society. The large energy burden for low-income families makes it especially important to understand the value and the magnitude of the NEBs for these families.

Low-income NEBs are commonly included in cost-effectiveness screening. Of the 30 states included in the Database of State Efficiency Screening Practices (DSESP),[50] 22 account for low-income NEBs. States take several approaches to account for these benefits. Of the jurisdictions in the DSESP sample, 12 account for low-income benefits by waiving the need for cost-effectiveness analysis or using alternative thresholds (i.e., BCA thresholds less than one);[51] three include monetized low-income NEBs; four use proxies for low-income NEBs;[52] and three consider both quantitative and qualitative considerations for low-income NEB.[53]

LMI programs can help reduce customer arrearages, disconnections, reconnections, and bad debt. In addition to the direct benefits to the LMI customers, the reduced utility costs associated with these LMI non-energy benefits are experienced by all utility customers. These reduced costs are not hard to quantify or to monetize, and therefore should be included in any cost-effectiveness analysis of LMI programs, as required by the Commission's BCA Order.

For all of these reasons, the LMI customer segment is important. Yet in the Joint Filing Con Edison proposes to exclude LMI savings from its set of EAMs for incentivizing energy efficiency program performance. Per the Joint Filing, the formulas underlying the Annual MMBtu and the Share the Savings EAMs will exclude LMI savings. We are concerned that this exclusion will result in insufficient prioritization of programs targeting this important customer segment. Including an EAM for LMI would better reflect the priority that the state places on serving the LMI community through energy efficiency and that efficiency benefits are allocated and experienced equitably across all customers.

To ensure that the dedicated funds result in tangible benefits throughout the LMI sector, Con Edison and all of the utilities should propose two new EAMs: an EAM that encourages annual and lifetime savings for low-income customers, and a separate EAM for annual and lifetime savings for moderate-income customers.

In summary, our recommendations on LMI are as follows:

- The Commission should establish program funding policies that will encourage utilities to go above and beyond the baseline LMI efforts required by the EE Order.

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50 The DSESP provides information regarding state cost-effectiveness screening practices for ratepayer-funded electric efficiency programs. (NESP, "Database of State Efficiency Screening Practices (DSESP)," March 2019, available at: https://nationalefficiencyscreening.org/state-database-dsesp/)

51 Alternatives could include setting a BCA threshold lower than 1.0 for low-income programs or not requiring these programs to meet any BCA threshold.

52 A proxy is "a simple, quantitative value that can be used as a substitute for a value that is not monetized by conventional means. Proxies can be applied to any type of cost or benefit that is hard to monetize and is expected to be of significant magnitude (NEEP 2014)" (NSPM page 60).

53 These methods include "other types of quantitative and qualitative information can be used to inform the cost-effectiveness decision" (NSPM page 62). For example, job impacts may be quantified and presented as a reason to allow a non-cost-effective program to be implemented.

- The Commission should ensure that the utilities' financial incentives are better aligned with the state's LMI policy goals. We recommend that all utilities have two EAMs for LMI: an EAM that encourages annual and lifetime savings for low-income customers, and a separate EAM for annual and lifetime moderate-income customers.
- The Commission should require NYSERDA and utilities to explicitly design LMI efficiency programs to address the barriers that are most prevalent in each utility's service territory. The utilities should work collaboratively with local LMI stakeholders on the design and rollout of LMI programs to ensure programs are appropriately designed and targeted to overcome barriers and realize benefits.
- The Commission should require the utilities to regularly report energy efficiency savings, expenditures, and participation metrics for its programs serving LMI customers. Reporting should include some distinction based on participant income level. This information is critical for understanding whether the LMI sector in general and the low-income population in particular is served effectively.
- The Commission should direct the utilities to account for the NEBs associated with LMI programs, to facilitate prioritization of energy efficiency investments. At a minimum, the utilities should account for the benefits of reducing utility costs associated with customer arrearages, disconnections, reconnections, and bad debt. While we agree with the Commission's approach of separating out LMI programs from BCA portfolio analysis, quantification of NEBs associated with LMI programs will still help to guide LMI energy efficiency investments to the most effective, most needed uses.

VIII. Conclusion

The Commission's EE Order and the efficiency savings targets represent a significant step forward in achieving New York's energy efficiency and carbon reduction goals. Energy Efficiency Advocates respectfully urges the Commission to support the utilities' proposed efficiency savings targets and to adopt the recommendations contained in these comments in order to ensure that the utilities follow through on their commitments and implement all cost-effective energy efficiency resources as effectively and efficiently as possible.

Respectfully submitted,

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