Before the
New York Public Service Commission

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.	))))	Case 19-E-0065
Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. For Gas Service.	))))	Case 19-G-0066

DIRECT TESTIMONY OF
TIM WOOLF
AND
ALICE NAPOLEON

ON BEHALF OF
NATURAL RESOURCES DEFENSE COUNCIL

May 24, 2019

Table of Contents

1. INTRODUCTION AND QUALIFICATIONS

Q. Please state your name, title, and employer.

A. **Mr. Woolf:** My name is Tim Woolf. I am a Vice President at Synapse Energy Economics, located at 485 Massachusetts Avenue, Cambridge, MA 02139.

A. **Ms. Napoleon:** My name is Alice Napoleon. I am a Senior Associate at Synapse Energy Economics, located at 485 Massachusetts Avenue, Cambridge, MA 02139.

Q. Please describe Synapse Energy Economics.

A. Synapse Energy Economics is a research and consulting firm specializing in electricity and gas industry regulation, planning, and analysis. Our work covers a range of issues, including economic and technical assessments of demand-side and supply-side energy resources; energy efficiency policies and programs; integrated resource planning; electricity market modeling and assessment; renewable resource technologies and policies; and climate change strategies. Synapse works for a wide range of clients, including state attorneys general, offices of consumer advocates, trade associations, public utility commissions, environmental advocates, the U.S. Environmental Protection Agency, U.S. Department of Energy, U.S. Department of Justice, the Federal Trade Commission, and the National Association of Regulatory Utility Commissioners. Synapse has over 25 professional staff with extensive experience in the electricity industry.

Q. Please summarize your professional and educational experience.

A. **Mr. Woolf:** Before joining Synapse Energy Economics, I was a commissioner at the Massachusetts Department of Public Utilities (DPU) from 2007 through 2011. In that

capacity, I was responsible for overseeing a substantial expansion of clean energy policies, including significantly increased ratepayer-funded energy efficiency programs; an update of the DPU energy efficiency guidelines; the implementation of decoupled rates for electric and gas companies; the promulgation of net metering regulations; review and approval of smart grid pilot programs; and review and approval of long-term contracts for renewable power. I was also responsible for overseeing a variety of other dockets before the Commission, including several electric and gas utility rate cases.

A large portion of my career has been dedicated to the review and development of energy efficiency programs and regulatory policies. My work encompasses all aspects of energy efficiency program planning and implementation, including program design, avoided cost analyses, cost-benefit analyses, cost recovery, decoupling, utility performance incentives, integrated resource planning, and other relevant regulatory policies.

I have reviewed and critiqued utility energy efficiency programs and policies in 20 states and Canadian provinces—including Arkansas, British Columbia, Colorado, Delaware, Florida, Georgia, Kentucky, Louisiana, Maine, Massachusetts, Minnesota, Missouri, Nevada, New Brunswick, New York, Nova Scotia, Prince Edward Island, Rhode Island, Québec, and Vermont—and have also led several national and regional studies addressing energy efficiency program opportunities and policy issues. I am the lead technical advisor for the National Efficiency Screening Project and was the primary author of the National Standard Practice Manual for Assessing the Cost-Effectiveness of Energy Efficiency Resources.

I have testified as an expert witness in more than 45 state regulatory proceedings and have authored more than 60 reports on electricity industry regulation and restructuring. I

represent clients in collaboratives, task forces, and settlement negotiations, and I have published articles on electric utility regulation in *Energy Policy*, *Public Utilities Fortnightly*, *The Electricity Journal*, *Local Environment*, *Utilities Policy*, *Energy and Environment*, and *The Review of European Community and Environmental Law*.

I hold a Master's in Business Administration from Boston University, a Diploma in Economics from the London School of Economics, a Bachelors in Mechanical Engineering and a Bachelors in English from Tufts University. My resume is attached as Exhibit TW/AN-1.

A. **Ms. Napoleon:** Since joining Synapse in 2005, I have provided economic and policy analysis of electric systems and emissions regulations, with a focus on energy efficiency policies and programs, on behalf of a diverse set of clients throughout the United States and in Canada. I was co-author of several reports and comments on the role of energy efficiency in New York State in meeting REV objectives. I also co-authored a manual for regulators on designing performance incentive mechanisms, which has been highly utilized by many states. On the national level, I led the team that developed a cost-effectiveness calculator, provided guidance on program design, and developed communications materials and case studies to help state and utility energy efficiency program administrators with implementing offerings to support participation in the U.S. Department of Energy's Superior Energy Performance program. In Colorado, Maryland, and South Carolina, I facilitated and provided expert analysis on program costs and benefits for demand-side resource policy working groups.

Since 2009, I have provided extensive and ongoing expert analysis and support for the State of New Jersey regarding its state- and utility-administered energy efficiency and

combined heat and power programs. In over a dozen dockets regarding utility-administered efficiency programs, I have conducted expert analysis, provided litigation support, and drafted testimony when appropriate on behalf of the State with respect to a number of issues, including energy efficiency program implementation, cost-effectiveness, design, and overlap between utility- and state-administered programs. I have also provided expert advice on DSM programs in Nova Scotia regarding a range of issues including incentive setting methodologies, cost-benefit analysis, load forecasting, and locational DSM.

Before joining Synapse, I worked at Resource Insight, Inc., where I supported investigations of electric, gas, steam, and water resource issues, primarily in the context of reviews by state utility regulatory commissions.

I hold a Master's in Public Administration from the University of Massachusetts at Amherst and a Bachelor's in Economics from Rutgers University. My resume is attached as Exhibit TW/AN-2.

Q. On whose behalf are you testifying in this case?

A. We are testifying on behalf of the Natural Resources Defense Council (NRDC).

Q. Have you previously testified before a state commission?

A. **Mr. Woolf:** Yes. I have testified as an expert witness in more than 45 state and provincial regulatory proceedings. Many of those testimonies were related to energy efficiency resources and integrated resource planning, while in recent years I have increased attention on issues related to grid modernization and distributed energy resources.

Ms. Napoleon: Yes. I have testified before the Public Service Commission of South Carolina and the Nova Scotia Utility and Review Board.

Q. Have you previously testified before the New York Public Service Commission?

A. **Mr. Woolf:** Yes. I testified on behalf of Advanced Energy Economy Institute regarding National Grid's proposed earnings adjustments mechanisms in Case 17-E-0238, and on behalf of NRDC on Central Hudson Gas & Electric's proposed energy efficiency earnings adjustment mechanisms in Case 17-E0459.

Ms. Napoleon: No.

Q. What is the purpose of your testimony?

A. The purpose of our testimony is to review and critique Con Edison's proposed approach to heat pump, electric energy efficiency, and natural gas energy efficiency resources. Secondarily, our testimony considers a potential additional renewable energy offering for customers.

Q. Are you sponsoring any exhibits with your testimony?

A. Yes. we are sponsoring the following exhibits:

- Resume of Tim Woolf: Exhibit TW/AN-1
- Resume of Alice Napoleon: Exhibit TW/AN-2

2. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

2.1. Summary of Conclusions

Q. Please summarize your conclusions.

A. In general, Con Edison's energy efficiency proposals represent a significant step forward in complying with the Commission's Energy Efficiency Order (EE Order), meeting New York energy efficiency goals, reducing greenhouse gas (GHG) emissions, and providing significant net benefits to customers. We support many aspects of the proposal and commend the Company for making progress on this important topic.

Our specific conclusions are summarized as follows:

- The electricity and gas efficiency savings proposed by Con Edison, both in the rate case filing and the Joint Filing, are expected to be very cost-effective and to provide significant net benefits.
- The electricity savings targets filed in Con Edison's January rate case filing exceed the targets in the Commission's EE Order, but the targets later proposed in the Joint Filing are significantly below those of the EE Order. It appears that this is primarily a result of Con Edison moving funds from electricity efficiency programs to support gas programs.
- Con Edison's natural gas efficiency savings targets filed in this rate case and in the Joint Filing are above the minimum requirements set by the EE Order.
- Con Edison's proposed savings target for its heat pump initiative is consistent with the EE Order's assumptions for heat pump potential and the associated minimum target for Con Edison. Con Edison proposed a budget that is $115 million above the $75 million allocation to the Company made in NYSERDA's January 2019 Heat Pump Potential Study.
- Con Edison's revised earnings adjustment mechanisms (EAM) proposal reduced the total potential basis-points (bps) for its earnings opportunities from 170 bps

to 90 bps, but its new cross-commodity incentives are to be calculated from the larger joint electric and gas rate bases. Also, the Company introduced a new shared cost savings earnings opportunity.

- The gas peak reduction EAM provided in Con Edison's original rate case filing was omitted from the April update, with no explanation for why it was omitted.
- The form of the electric peak reduction metric proposed in the April update is unnecessarily complex and may render the EAM less effective in driving down peak demand.
- The MMBtu (million British thermal units) savings, GHG reduction, and distributed energy resources (DER) utilization EAMs may be substantially overlapping and run the risk of overcompensating the Company.
- The Company's application of the BCA framework established by the Commission does not properly account for (a) other fuel savings; (b) avoided gas infrastructure investments, and (c) the potential for new gas infrastructure to become obsolete and stranded as a result of New York's GHG goals.
- While Con Edison's energy efficiency savings targets are an important step in the right direction, they do not include all the cost-effective energy efficiency savings that are available in its service territory.

2.2. Summary of Recommendations

Q. What do you recommend regarding Con Edison's efficiency savings targets and budgets?

A. We recommend the following:

- The Commission should clarify that the EE Order savings targets should be treated as a floor, i.e., as the minimum amount of efficiency savings that utilities need to achieve.

- The Commission require Con Edison to adopt at a minimum the electricity savings targets included in its January rate case filing for 2021 and 2022.
- The Commission require Con Edison to adopt at a minimum the gas savings targets from the April Joint Filing.
- The Commission should clarify that utilities should not reduce the funding and targets of the electricity (or gas) efficiency programs in order to support the funding and targets of the gas (or efficiency) programs. Utilities should meet both targets, as well as the overall trillion British Thermal Units (TBtu) target.
- The Commission should require Con Edison to demonstrate that its proposed savings targets for the next few years would enable the Company to meet its own 2.0 percent savings target by 2025.
- The Commission should require Con Edison to investigate and pursue all cost-effective electric energy efficiency resources for the purpose of setting future efficiency savings targets and budgets.

Q. What do you recommend regarding the Company's proposed EAMs?

A. We recommend the following:

- The Commission should require Con Edison to return to a simplified electric system peak reduction EAM by eliminating the energy saving portion of that EAM.
- The Commission should require Con Edison to restore the gas peak reduction metric and to reallocate a portion of the basis-point earnings proposed for the electric system peak reduction EAM to the gas peak reduction EAM.
- To avoided redundancy in EAMs, the Commission should require Con Edison to modify the proposed GHG reduction EAM so that it rewards Con Edison only for performance superior to what would be expected from attainment of the Annual MMBtu and DER utilization targets.

- The Commission should require Con Edison to use a continuous formula to relate incentive earnings to performance, with no steps or ceiling, instead of the stepwise approach proposed by the Company.
- The Commission should allow Con Edison to earn EAM incentives beyond the maximum cap proposed by the Company, provided that all program expenditures are cost-effective.
- The Commission should require Con Edison to incorporate lifetime energy savings and dollar-per-Btu measure cost savings into its EAMs, based on the guidance of the EE Order.

Q. What do you recommend regarding low- and moderate-income (LMI) programs?

A. We recommend the following:

- The Commission should establish program funding policies that will encourage the Company to go above and beyond its proposed LMI efforts.
- The Commission should ensure that Con Edison's financial incentives are better aligned with the state's LMI policy goals. We recommend that Con Edison propose two new EAMs: 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 Commission should require Con Edison to regularly report energy efficiency savings, expenditures, and participation metrics for its programs serving LMI customers.
- The Commission should direct Con Edison to consider options for accounting for the non-energy benefits (NEBs) associated with LMI programs, to facilitate prioritization of energy efficiency investments. At a minimum, Con Edison 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.

Q. What do you recommend regarding the Company's application of the BCA framework established by the Commission?

A. We recommend the following:

- The Commission should require the Company to modify its BCA Handbook and practices to clarify that other fuel savings must be accounted for when assessing the cost-effectiveness of energy efficiency resources.[1]
- The Commission should require the Company to modify its BCA Handbook and practices to account for the likelihood that gas infrastructure installed in the future is increasingly likely to become obsolete, and a stranded cost, in order to meet New York's GHG goals.
- The Commission should require the Company to modify its BCA Handbook and practices to ensure that BCA Reference Cases include forecasts of the most likely future, which might include, for example, avoided pipeline capacity costs and avoided lifecycle GHG emissions.

[1] In fact, other fuel savings should not be described as non-energy benefits, because they are energy related. But the description is not as important as how they are treated.

Q. What do you recommend regarding the cost-effectiveness of energy efficiency programs?

A. We recommend that the Commission require Con Edison to identify and pursue all cost-effective energy efficiency resources in setting savings targets and budgets and in designing efficiency programs.

3. BACKGROUND AND OVERVIEW OF FILING

Q. Please describe the policy framework and goals for energy efficiency.

A. In 2014, Governor Andrew 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 to increase energy efficiency savings to 600 trillion Btu statewide, and that 50 percent of electricity will come from renewable energy resources.[2]

In April 2018, following a commitment from Governor Cuomo in his 2018 State of the State address, NYSERDA and the Department of Public Service proposed 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 or the NE:NY paper, identified 185 TBtu of realistically achievable, cumulative

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

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 New York Public Service Commission (Commission) issued the EE Order in Case 18-M-0084. The EE Order 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.[3] 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 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.[4]

On January 31, 2019, Con Edison filed a proposal for a new rate plan to begin in January 2020 for electric and gas service in New York City and Westchester County (Rate Filing). The testimony provided with the Rate Filing noted that Con Edison developed elements of the Rate Filing in advance of the EE Order. Further, it noted that the

[3] EE Order, p. 26.

[4] EE Order, p. 34.

Company would likely propose changes to the incentive framework to better align with the EE Order in its preliminary update.[5]

On February 7, 2019, the Commission issued an order in Case 17-G-0606 approving the Smart Solutions program for natural gas customers proposed by Con Edison.[6] Smart Solutions is a non-pipeline solution (NPS) program offering a portfolio of gas efficiency services to address increasing gas peak demands and increasing need for new gas infrastructure. This Commission order approves with modifications the NPS portfolio, approves additional funding levels, and approves savings targets. This order denied the Company's request for a shareholder incentive but allowed the Company to pursue other incentive mechanisms as part of this rate case.[7]

On April 1, 2019, all the state's electric and gas distribution utilities submitted a joint proposal on electric and gas utility savings targets and budgets in Case 18-M-0084 (Joint Proposal or Joint Filing).[8] Components of Con Edison's proposed energy efficiency initiative and incentive framework were updated in that Joint Filing.

---

5 Consolidated Edison Company of New York, Electric Rate Case Testimony in Case 19-E-0065, Vol. 3, Customer Energy Solutions Panel, p. 133.

6 The New York Public Service Commission, *Order Approving with Modification the Non-Pipeline Solutions Portfolio*, Case 17-G-0606, February 7, 2019. (Smart Solutions Order)

7 Smart Solutions Order, pages 2-3.

8 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. TARGETS AND BUDGETS

4.1. Energy Efficiency Savings Targets

Q. Please provide a short summary of energy savings targets proposed by Con Edison.

A. For the current rate case, Con Edison provided total energy savings targets from 2020 through 2022 in its filing submitted on January 30, 2019 (Vol. 3, p. 50, Table 3) ("January Rate Case filing"). Con Edison then provided more recent energy savings targets, in both incremental and total savings units, in the April Joint Proposal submitted on April 5, 2019.

Q. Please describe how these two efficiency savings targets compare with Con Edison's targets in the EE Order.

A. Figure 1 and Figure 2 compare the Con Edison savings targets from the EE Order with the Con Edison savings targets filed in this rate case in January and the Con Edison targets proposed in the Joint Filing. All the efficiency savings data are presented in the form of incremental savings. Incremental savings estimates take out the expected energy savings from the existing Energy Efficiency Transition Implementation Plan (ETIP) programs.

Figure 1. Electric Savings Targets: EE Order, Rate Case, and Joint Filing

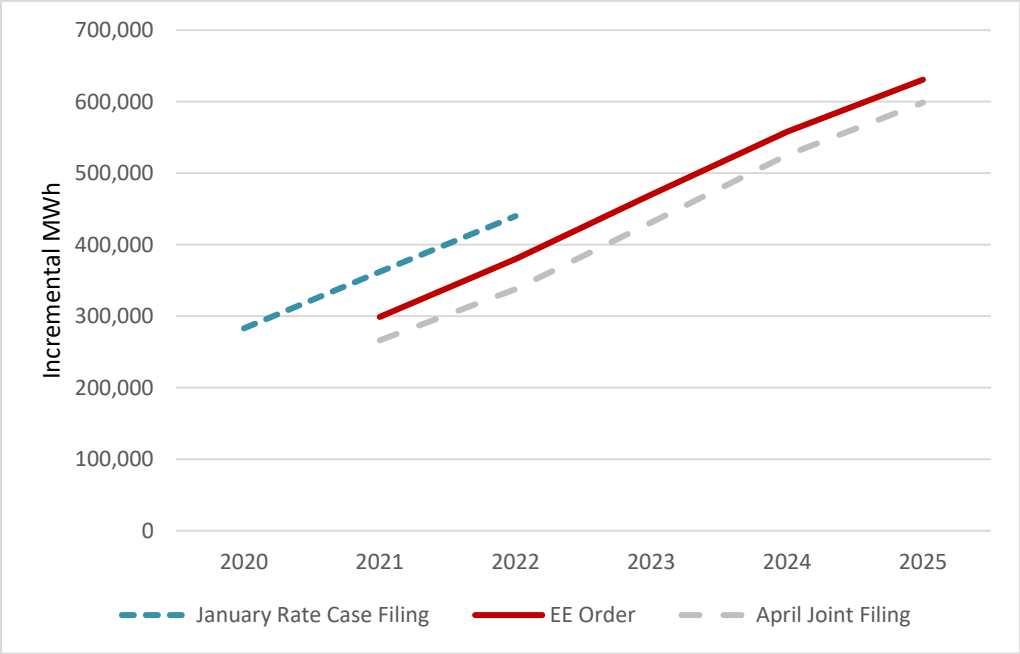
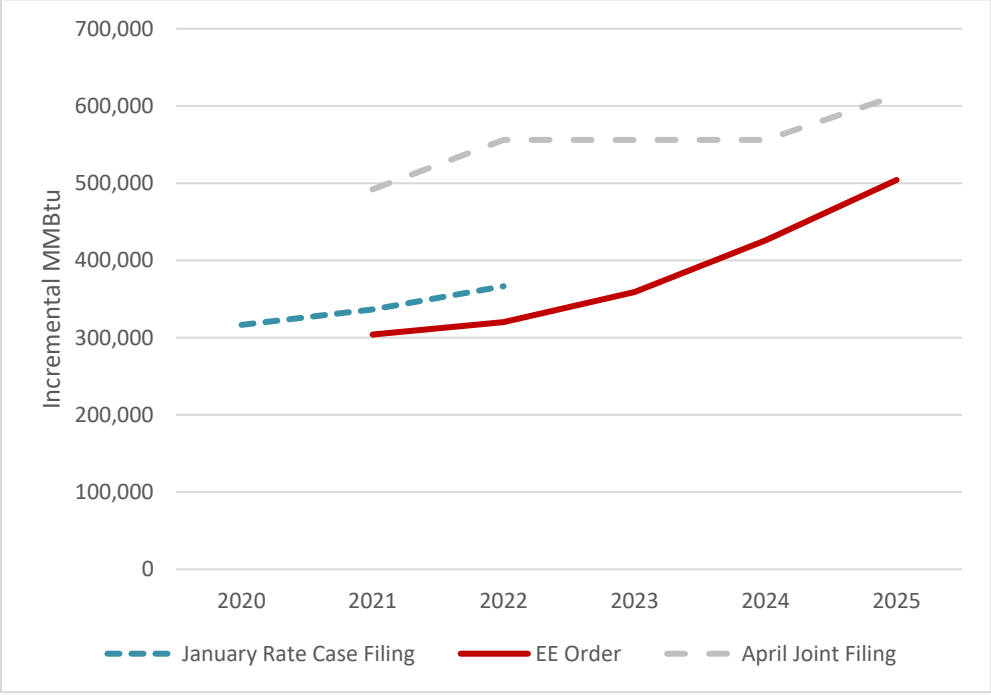


Figure 2. Gas Efficiency Savings Targets: EE Order, Rate Case, and Joint Filing



Q. Please describe how you derived the April Joint Filing data presented in Figure 1 and Figure 2.

A. The efficiency savings targets included in the April Joint Proposal are presented in Table 1 and Table 2. This information is from Table 3 and Table 5 of the Joint Proposal.[9]

Table 1. Electric Savings Targets: Joint Proposal vs. EE Order (MWh)

	2021	2022	2023	2024	2025	Total (2021 - 2025)
Joint Proposal	266,262	337,755	431,227	525,339	598,701	2,159,284
EE Order	299,000	380,000	470,000	558,000	630,700	2,337,700
Difference	-32,738	-42,245	-38,773	-32,661	-31,999	-178,416
Difference (%)	-11%	-11%	-8%	-6%	-5%	-8%

Table 2. Gas Savings Targets: Joint Proposal vs. EE Order (MMBtu)

	2021	2022	2023	2024	2025	Total (2021 - 2025)
Joint Proposal	492,000	556,000	556,000	556,000	613,335	2,773,335
EE Order	304,000	320,000	359,000	426,000	504,155	1,913,155
Difference	188,000	236,000	197,000	130,000	109,180	860,180
Difference (%)	62%	74%	55%	31%	22%	45%

Q. Please describe how you derived the January rate case data presented in Figure 1 and Figure 2.

A. The January Rate Case filing provides only the total efficiency targets inclusive of the ETIP program. Thus, we derived the level of ETIP savings assumed in the Joint Proposal for 2021 and 2022 and subtracted those savings from the January Rate Case filing in order to estimate the incremental targets under the January Rate Case Filing.[10] The resulting incremental savings targets are provided in Table 3 and Table 4.

[9] New York utilities, Case 18-M-0084, April 1 2019, Chapter One, Table 3 and Table 5, page 10-11.

[10] New York utilities, Case 18-M-0084, April 1 2019, Chapter One, Table 3 and Table 5; Con Edison Chapter, Table 2 and Table 8, page 81 and 82.

Table 3. Electric Savings Targets: January Rate Case vs. EE Order (MWh)

	2021	2022	2023	2024	2025
Jan Rate Case	362,000	440,000	-	-	-
EE Order	299,000	380,000	470,000	558,000	630,700
Difference	63,000	60,000	n/a	n/a	n/a
Difference (%)	21%	16%	n/a	n/a	n/a

Table 4. Gas Savings Targets: January Rate Case vs. EE Order (MMbtu)

	2021	2022	2023	2024	2025
Jan Rate Case	336,538	366,538	-	-	-
EE Order	304,000	320,000	359,000	426,000	504,155
Difference	32,538	46,538	n/a	n/a	n/a
Difference (%)	11%	15%	n/a	n/a	n/a

Q. Please summarize the differences between the efficiency savings targets.

A. For the electricity efficiency, the Company's Rate Case targets are higher than those in the EE Order. In particular, the electric incremental savings targets in the January Rate Case filing are 16 to 21 percent higher than the EE Order. However, the Company's Joint Filing targets are lower than those in the EE Order.

For the gas efficiency, the Company's Rate Case targets are slightly higher than those in the EE Order, and the Joint Filing targets are significantly higher than both of the other targets.

Q. Does the Company explain why electricity savings targets are lower and the gas savings targets are higher than the targets in the EE Order?

A. The Company explains that it reduced the electricity efficiency budgets (and therefore savings targets) in order to provide more funding for the gas efficiency budgets (and therefore savings targets). The Joint Proposal states that:

> 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. [11]

Q. Do you have any concerns regarding Con Edison's electricity savings targets?

A. Yes. The Company's proposed electricity savings targets are a step in the right direction. However, Con Edison's proposed electric targets are not consistent with the EE Order, which indicated that in no event should the aggregate statewide targets submitted with the Joint Proposal be less than 31 TBtu plus already authorized target levels.[12] The actual Joint Proposal incremental electric savings (3,964 GWh) are below the targets set forth in the EE Order (4,038 GWh) for all the electric utilities combined. Since the overall state target and the associated utility allocations were set relative to the state energy goals, any individual utility target that is below the EE Order targets would undermine the state's ability to achieve the Governor's statewide goals.

Further, the EE Order includes a sub-target whereby the electric utilities and NYSERDA are required to achieve efficiency savings equal to 3.0 percent of electricity load by 2025, where 1.0 percent of the 3.0 percent target is assumed to be achieved by NYSERDA. However, the Joint Proposal is not clear if and to what extent the proposed savings projection will meet the 3.0 percent savings target by Con Edison and other individual utilities. Further, Con Edison's electricity savings targets are expected to reach only 1.6

[11] Joint Proposal, page 61.

[12] EE Order, page 72.

percent of electricity load by 2025, less than the 2.0 percent target for electric utilities (see Table 13).

Q. What do you recommend regarding Con Edison's electricity savings targets?

A. We offer several recommendations regarding Con Edison's electricity savings targets. First, we recommend that the Commission clarify that the EE Order savings targets should be treated as a floor, i.e., as the minimum amount of efficiency savings that utilities need to achieve.

Second, we recommend that the Commission require Con Edison to adopt the electricity savings targets included in its January rate case filing for 2021 and 2022. The Company has determined that this amount of electricity savings is cost-effective, and therefore the Company should achieve those savings to acquire the associated net benefits.

Third, we recommend that the Commission clarify that utilities should not reduce the funding and targets of the electricity (or gas) efficiency programs in order to support the funding and targets of the gas (or efficiency) programs. The NE:NY paper and the EE Order are clear that both types of efficiency savings are important and that the utilities should use a fuel-neutral approach to achieve cost-effective savings from both fuels.

Fourth, we recommend Con Edison demonstrate that its proposed savings targets for the next few years would enable the Company to meet its own 2.0 percent savings target by 2025. In order to do so, Con Edison needs to provide its own sales forecast based on the best available information to support that demonstration.

Finally, we recommend that the Commission require Con Edison to investigate and pursue all cost-effective electric energy efficiency resources for the purpose of setting

future efficiency savings targets and budgets. Con Edison and other utilities should be encouraged to propose savings targets beyond the EE Order targets by maximizing the cost-effective energy efficiency opportunities to the extent that a proposed portfolio of energy efficiency program is still cost-effective overall. A good example of this approach is Con Edison's own non-wires alternative (NWA) initiative, where the Company sought to acquire various demand-side resources to the extent that the portfolio's overall benefit-cost ratio was close to a benefit-cost ratio of 1.0.[13] This concept of establishing an all cost-effective efficiency policy is described in more detail in Section 7.

Q. Do you have any comments regarding Con Edison's gas savings?

A. We support the Company's gas savings targets. We support the proposal to exceed the EE Order gas savings targets. As noted above, we recommend that the EE Order savings targets should be seen as a floor, and that utilities should propose additional savings targets above that floor if the savings are cost-effective.

The Company's gas energy efficiency programs represent an important initiative for Con Edison to address constraints in natural gas supply in its service area. In September 2017, Con Edison filed a petition for approval of its Smart Solutions program to address its forecasted growing shortfall of peak day pipeline capacity in Westchester county, opening Case 17-G-0606. The Smart Solutions program filing contained several initiatives including an enhanced gas energy efficiency program, a gas demand response pilot, an NPS portfolio, and shareholder incentives. The Commission approved the

[13] Con Edison. 2019. Letter Submitting Semi-Annual BCA_February 2019, February 28, 2019, Available at http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={B24D4535-18FC-44C9-BF83-414A54567326}; Con Edison. 2019. BQDM Program Cost Benefit Model_February 2019, February 28, 2019, Available at http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={FE8266ED-ECFB-4043-B743-9C59E2352C24}

Company's NPS proposal with modifications, and the Company began the Westchester Moratorium on March 15, 2019.

Q. Would it be appropriate for Con Edison to adopt even higher gas efficiency savings?

A. Yes. As described in Section 7, we recommend that the Commission require all utilities to implement all cost-effective efficiency savings. While Con Edison's initiatives to implement NPS in Case 17-G-0606 and its gas energy efficiency targets in the current proceeding are commendable, if Con Edison can identify additional cost-effective gas efficiency savings, it should pursue those savings as well. This will help avoid the need to pay for higher cost supply-side gas resources.

Gas efficiency savings are especially important because they are an essential component of the State's medium- and long-term GHG reduction targets. Gas efficiency programs can help avoid making new investments in gas infrastructure that might become obsolete well before its costs have been fully recovered, resulting in stranded costs that all customers will need to bear.[14]

[14] Smart Solutions Order, page 35.

Q. What do you recommend regarding Con Edison's gas savings targets?

A. We recommend that the Commission require Con Edison to adopt the gas savings targets from the April Joint Filing. The Company has found that these savings levels are cost-effective, therefore the Company should achieve those savings to acquire the associated net benefits.

As with electricity efficiency, we recommend that the Commission require Con Edison and other utilities to investigate and pursue all cost-effective gas efficiency savings. This policy is described in more detail in Section 7. An all cost-effective efficiency policy is important to maximize the net benefits of gas efficiency, and to help provide guidance for the planning process to fully account for non-pipeline solutions. As the Commission has already made clear, cost-effective non-pipeline solutions should be investigated and pursued in a timely manner to avoid or defer future needs for new gas supply-side infrastructure.

4.2. Energy Efficiency Budgets

Q. Please summarize how the budget proposals in the April Joint Filing and the Rate Case filing compare with the budget estimates included in the EE Order.

A. Figure 3 and Figure 4 compare the Con Edison targets from the EE Order with the Con Edison savings targets filed in this rate case in January, and the Con Edison targets proposed in the April Joint Filing.

Figure 3. Electric Efficiency Budgets: EE Order, Rate Case, and Joint Filing

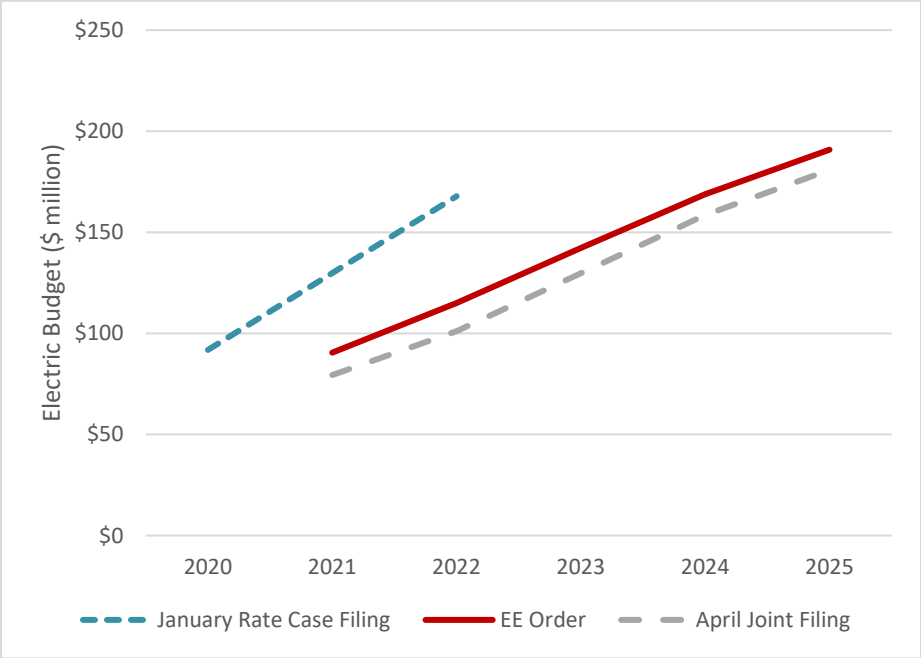
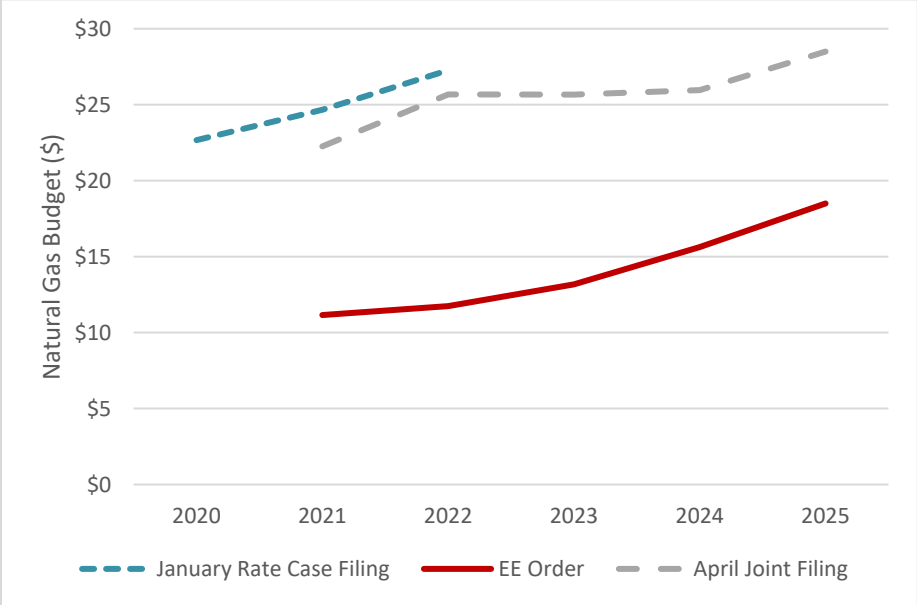


Figure 4. Gas Efficiency Budgets: EE Order, Rate Case, and Joint Filing



The electricity and gas efficiency budgets follow the same general patterns of the electricity and gas efficiency savings targets. The electricity rate case filing budgets are significantly higher than those in the EE Order, but the electricity Joint Filing budgets are

below those in the EE Order. The gas rate case filing budgets are significantly higher than those in the EE Order, and the gas Joint Filing budgets are also significantly higher than those in the EE Order. As explained above, for the Joint Filing Con Edison moved a considerable amount of the efficiency budget (and therefore efficiency savings) from the electricity efficiency programs to support the gas efficiency programs.

Q. What are your recommendations regarding the proposed efficiency budgets?

A. In the previous section we make many recommendations regarding electricity and gas efficiency targets. We recommend that the Commission support all those recommendations with commensurate requirements for efficiency budgets. In particular:

We recommend that the Commission approve the efficiency budgets necessary to support the Con Edison efficiency targets recommended above: the electricity efficiency budget associated with the Rate Case filing and the gas efficiency budget associated with the Joint Filing.

As noted above, we recommend that the Commission clarify that utilities should not reduce the funding and targets of the electricity (or gas) efficiency programs in order to support the funding and targets of the gas (or efficiency) programs.

Finally, we recommend that the Commission state the utilities will be allowed to recover costs associated with efficiency savings that are based on all cost-effective efficiency savings. If a utility can identify and implement cost-effective savings, then it should have the opportunity to recover the associated costs.

4.3. Heat Pump Savings and Budgets

Q. What did Con Edison propose for its heat pump program savings target?

A. In the Joint Proposal, Con Edison proposed a savings target of 0.8 TBtu for its heat pump initiative. This is consistent with the EE Order's assumptions for heat pump potential and associated minimum target for Con Edison.[15]

Q. Please describe what Con Edison proposed for its heat pump program budget.

A. Con Edison proposed a budget that is $115 million above the $75 million allocation to the Company made in NYSERDA's January 2019 Heat Pump Potential Study. The Company proposed to increase the budget for heat pumps because it found that incentive levels in the NYSERDA study are "insufficient for Con Edison's customers to achieve economic indifference between heat pumps and alternative heating technologies such as oil-based heating."[16]

Q. Are heat pumps an important component within the overall portfolio of GHG reduction strategies?

A. Heat pumps will be an important component of any strategy to aggressively reduce GHG emissions from the building sector and to meet the state's ambitious GHG reduction target of 80 percent by 2050. 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.

[15] Joint Proposal, Table 7, page 18.

[16] Joint Proposal, p. 15.

Q. Do you have any recommendations for Con Edison's heat pump savings target?

A. We recommend that Con Edison investigate additional heat pump savings opportunities. This is important for a number of reasons. First, the EE Order's statewide savings target of 5 TBtu by 2025 is a minimum target.[17] Second, since the Heat Pump Potential Study that was used to set the heat pump target focused on the residential market, the state may have more heat pump savings potential in the commercial sector.[18] Lastly, buildings in the Con Edison territory (and other areas in the state as well) 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 80 percent GHG reduction target. As a reference, NYSERDA's Heat Pump Potential Study indicates that New York City has nearly 30 TBtu of technical heat pump potential in buildings.[19] In contrast, Con Edison's heat pump savings target is only 0.8 TBtu.

Q. What do you think about Con Edison's heat pump budget proposal?

A. At this point, it is uncertain how high incentives and the total budget need to be to meet Con Edison's target. Critically, the Joint Proposal fails to provide details substantiating the need for higher incentives, or any information about incentive amounts. The Joint Proposal stated that the NY Electric Utilities will propose specific program delivery rules and incentive levels in heat pump implementation plan submissions later in 2019.[20] Thus, it is premature to present our opinions about the budget. However, the Joint Proposal

[17] EE Order, page 60.

[18] Joint Proposal, page 16.

[19] NYSERDA Heat Pump Potential Study, Table 4-8.

[20] Joint Proposal, p. 19.

discussed a declining block incentive structure as a potential incentive design for heat pumps, because such a structure can recognize the likelihood of heat pump costs to decline over time and thereby impose fewer costs for the program.[21] This idea has promise to reduce the overall costs of meeting the target for heat pumps. The cost of heat pumps could decline over time, due to advancements in technologies, improved program designs and delivery mechanisms, and economies of scale. We understand that there have been updates in the savings methodology used in the Heat Pump Potential study, and we continue to encourage Con Edison to maintain and expand heat pump targets to include commercial and large building applications, especially as other New York utilities have proposed reduced targets in their filings. The Joint Proposal indicates that expansion to the other building sectors could allow the Commission's 5 TBtu target to be possible. "This may be a means of moving the NY Utilities proposed TBtu target of 2,710 more toward the goal established by the Commission."[22]

Q. Do you have other thoughts on administration of the heat pump programs?

A. Yes. The Joint Proposal discussed the importance of program coordination with NYSERDA and among the electric utilities. We support this effort. Further, we recommend that Con Edison, the other utilities, and NYSERDA adopt best practices from other states to create a single, statewide brand name for the heat pump programs to avoid

[21] Joint Proposal, p. 22.

[22] NY Utilities Updated Report, May 21 version, p. 18.

or reduce confusion consumers are likely to have about heat pump programs provided by different utilities.

5. EARNINGS ADJUSTMENT MECHANISMS

5.1. Con Edison's EAM proposals

Q. Please summarize the EAMs that have been proposed by Con Edison.

A. In its January 2019 filing, Con Edison proposed seven EAMs, with incentives covering energy efficiency, system coincident peak reduction, and GHG reductions separately for electricity and gas, as well as an incentive for increased DER utilization. Subsequently, in the Joint Proposal, Con Edison submitted a new set of EAMs that included components of the earlier filing along with some additional ones, indicating that this new portfolio of EAMs represented an update on the rate case submission to better align with state goals and the Energy Efficiency and Storage Orders. Table 5 presents both sets of EAMs.

Table 5. Con Edison's EAMs proposals: Rate Case Filing vs. Joint Proposal

Rate Case Filing	Joint Proposal
Electric Energy Efficiency Natural Gas Energy Efficiency	Annual MMBtu
Electric Peak Reduction Natural Gas Peak Reduction	Electric EE MWh: MW Ratio
Natural Gas Greenhouse Gas Emissions Reduction Electric Greenhouse Gas Emissions Reduction	GHG Emissions Reduction
DER Utilization	Electric DER Utilization Share the Savings System Efficiency

As Table 5 shows, Con Edison's revised proposal has collapsed the four fuel-specific energy efficiency and GHG EAMs from its first filing into two cross-fuel measures, respectively targeting reductions in MMBtu from both electric and gas sector energy efficiency programs, and

reductions in GHGs from both the electric and gas sectors. Con Edison has removed its separate natural gas and electric system peak reduction EAMs and has proposed a single EAM to target reductions in the ratio of total electric efficiency savings in Megawatt-hours (MWh) to Megawatts (MW) of electric system peak reduction. The utility has maintained its DER utilization EAM from the earlier filing and has also proposed two new measures: A "Share the Savings" EAM that jointly targets cost-savings and lifetime energy savings in gas and electric efficiency measures, and a system efficiency EAM that targets reductions in peak demand and load factor at the substation level. Following Commission guidance, Con Edison has excluded energy efficiency achieved through LMI funds from its Annual MMBtu and shared savings EAMs; we address LMI-specific EAMs later in this testimony.

5.2. EAM Principles

Q. Please summarize the guidance on EAMs provided by the Commission.

A. Staff presented clear guidance for formulating EAMs in the NE:NY paper and the subsequent EE Order. In the whitepaper, staff articulated a fuel-neutral perspective for future energy efficiency goals.[23] In the Order, the Commission emphasized that EAMs should focus on dollars per lifetime Btu savings, to encourage "longer lived savings."[24]

Q. What is your perspective on this Commission's guidance?

A. Generally, we support the Commission's fuel-neutral approach, and we believe that an emphasis on shared cost savings should help to promote efficacy and equity. However,

[23] New Efficiency: New York. p. 35.

[24] EE Order. p. 68.

we suggest that other objectives, beyond cost savings, may be appropriate in advancing other important efficiency policy goals.

Q. Are there other relevant principles that apply to the design of effective EAMs?

A. Yes. EAMs should include metrics that are clearly tied to policy goals, unambiguously defined, easily quantifiable, and easily understood. Attainment of these goals should be largely free from outside influence.[25] Also, incentive formulas that determine how much the utility is compensated at different levels of achievement should be consistent with the desired outcome and should be calibrated to effectively incent utility performance.[26]

5.3. Response to Proposed EAMs

Q. What is your opinion on the revised EAMs proposed by Con Edison in the Joint Utility filing?

A. Con Edison's updated EAMs represent an improvement over those in its previous proposal, better aligning with the principles of the EE Order. The utility should be commended for proposing cross-commodity measures in step with the state policy vision and in the interest of ratepayers. Moreover, the proposed shared-savings EAM aligns with the Commission's focus on lifetime cost savings. However, Con Edison's EAMs still may not go far enough to emphasize lifetime energy and cost savings. Following the Commission's guidance, both cost savings on a per-Btu basis and lifetime energy

[25] 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.

[26] Id. 42.

savings—through longer measure effective useful lives and by increasing rates of measure utilization—should be central to Con Edison's proposed EAMs.

Q. Do you have any other concerns about the proposed EAMs?

A. We have three specific concerns:

1) The new peak reduction EAM is unduly complicated and does not address the gas peak.

2) Several of the proposed EAMs may overlap, raising the risk of overcompensation.

3) The stepwise incentive formula for most of the EAMs may be less effective than alternative approaches.

Q. What are your concerns about the peak reduction metric?

A. In the earlier rate case filing, Con Edison proposed two separate peak reduction metrics, one for gas peak reductions and one for electric system peak reductions. In the revised proposal, gas peak reductions are no longer targeted in the set of EAMs. It is not clear why this has been omitted.

Furthermore, Con Edison has also not justified why it changed the form of the electric peak reduction metric. Instead of targeting a simple reduction in the system coincident peak, the new metric tracks the ratio of energy efficiency savings, in MWh, to peak demand reductions, in MW.

Q. What are your concerns about the new electric peak reduction EAM?

A. If the aim is to reduce peak demand, then it is unclear how coupling peak demand with the separate goal of reducing overall energy consumption is preferable to simply targeting peak demand reduction. On the contrary, we believe that it introduces unnecessary complexity and may render the EAM less effective in driving down peak demand.

This EAM targets reductions in the ratio between total energy savings and peak demand reduction, such that the greater the energy efficiency savings, the greater the peak reduction required to earn the incentive. The problem is that since the goal is to reduce the value of this ratio, the utility may succeed either by increasing peak demand reduction—the desired effect—or by reducing overall energy efficiency savings, which is not consistent with the intent of the EE Order.

Q. Please explain your concerns about overlap in the proposed EAMs.

A. As a general matter, separate EAMs should target separate goals. When a set of EAMs target connected outcomes, there is a risk of providing excess incentive to the utility.

This basic principle was articulated in the EE Order, which cautioned that, "Program-specific EAMs, if any, must be reconciled with portfolio-wide EAMs to avoid double-counting."[27] We note that the proposed Annual MMBtu EAM (program-based) and the GHG reduction EAM (portfolio- or outcome-based) are highly correlated; we also observe that DER utilization and GHG reduction metrics, while both portfolio-based, are largely targeting the same outcome.

[27] EE Order. p. 69.

While we do support a separate GHG reduction EAM, we emphasize that its targets should be set higher than those the utility would be expected to achieve from earning the Annual MMBtu and/or DER utilization incentives.[28]

Q. Please explain how you propose the targets for the GHG reduction metric be set.

A. While Con Edison suggests that the minimum target for its GHG reduction metric should be set at the expected level of GHG reduction, based upon its adjusted interconnection queue and its forecast for other DER installations associated with its current program offerings, we suggest otherwise. The minimum target for the GHG reduction metric should be meaningfully higher than Con Edison's expected level of GHG reduction.

Q. What are your concerns about the proposed stepwise incentive formula?

A. For all but the "Share the Savings" EAM, Con Edison proposes a stepwise incentive formula with three compensation levels corresponding to minimum, midpoint, and maximum performance targets. We have two concerns with this approach.

First, a stepwise incentive structure places disproportionate importance on achievement of specific thresholds (the minimum, midpoint, and high targets), when in reality all incremental cost-effective improvements in performance are important. The risk with these incentive "steps" is that the utility generally does not have any financial incentive to improve performance above its maximum attainable threshold (and no utility has financial incentive to improve above the maximum target of the EAM). While this issue

[28] We note that while Con Edison does track GHG reductions as part of its current performance incentive regime, this metric is reported as a scorecard, without any associated earnings opportunity.

with respect to the Annual MMBtu EAM is tempered by the shared savings EAM, it appears to be unmitigated for the other EAMs.

The second issue is a regulatory one. Since attainment of the specific targets associated with incentives earnings is so critical for the utility with a stepwise incentive structure, performance tracking and incentive earnings calculations can become contentious and expensive for the regulatory system, increasing costs to ratepayers.

Q. Can you suggest an alternative incentive structure?

A. We recommend that the Commission consider a continuous, rather than a stepwise incentive function for Con Edison. Such a formula might use a linear function, with earnings that increase at a constant rate with performance improvements, or some other functional form. The key point is that there should be no steps and no ceiling in incentive earnings opportunities: Con Edison should be incented to achieve as much cost-effective performance improvement as it can and should not face diminishing or halting earnings opportunities merely because it has exceeded a specific threshold.

Q. Would such an approach be costlier for ratepayers?

A. Not necessarily. First, the baseline incentive target and the slope of the incentive function can be calibrated to ensure that Con Edison is not earning an excessive return from its EAMs. Second, by requiring that all efficiency program expenditures be cost-effective, increasing program investments should result in net benefits to ratepayers.

Q. Please discuss the total value of incentives that have been proposed by Con Edison.

A. The Joint Filing EAM proposal requests a maximum earnings opportunity of 90 basis points (bps), and also includes a new shared savings earning opportunity.[29] While Con Edison's proposal represents a reduction from the 170 bps maximum requested in the earlier rate case filing, the fact that three of the newly proposed EAMs target cross-commodity goals mean that 75 out of 90 bps will now be applied to the larger joint electric and gas rate bases.[30] Table 6 presents estimated earnings opportunities.

Table 6 – Estimated Earnings Opportunities for Proposed EAMs (2018 Rate Base)

EAM		Minimum	Midpoint	Maximum
Annual MMBtu	*Basis Points*	7	21	35
GHG Reduction	*Basis Points*	5	15	25
DER Utilization	*Basis Points*	3	9	15
Electric EE MWH: MW Ratio	*Basis Points*	2	6	10
System Efficiency	*Basis Points*	1	3	5
Total	*Basis Points*	18	54	90

Though Con Edison did not detail how much each EAM could yield in incentive earnings, in dollar terms, when the potential earnings from the shared savings EAM are taken into account, Con Edison may be eligible for an even greater total incentive under the current Joint Filing proposal than under the previous rate case proposal.

Q. Do you have any thoughts on the proposed level of incentives?

A. In general, the magnitude of incentives available through the energy efficiency EAMs is reasonable. As noted above, we recommend that the maximum "cap" be removed to

[29] Joint Proposal. p. 74.

[30] We surmise that the electric-only EAMs will be calculated just from the electric rate base.

allow the Company to be rewarded for performance that exceeds the EE Order's targets, provided the superior performance is achieved in a cost-effective manner.[31]

Q. Is there evidence that energy efficiency EAMs have been effective in recent years?

A. Yes. Con Edison's existing energy efficiency EAMs appear to have worked as intended. In 2018, the utility qualified for the maximum incentive earnings on its two program-based EAMs and on the one outcome-based EAM for which data was available (outcomes have not yet been determined for the energy intensity EAMs).[32] Further, Con Edison has proposed significantly higher efficiency savings targets since the energy efficiency EAMs were established.

5.4. EAMs and Cost Recovery

Q. According to the EE Order, are EAMs meant to provide program cost recovery?

A. No. The Order indicates that the cost recovery standard will continue to be full recovery of prudently incurred costs, that EAMs will provide utilities with incentive beyond the recovery of costs, and that EAMs are intended to be financed with funds from savings below approved program budgets.

Q. What is your opinion on amortization of program costs?

A. The EE Order indicates that amortization of energy efficiency program costs will be permitted only when the benefits of doing so can be established.[33] We believe that

[31] Con Edison has reduced its electric energy savings target from the level originally proposed and suggest that the electric savings target be returned to the former, higher level.

[32] Con Edison. "2018 Energy Efficiency Earnings Adjustment Mechanism Achievement Report." p. 3.

[33] EE Order. p. 67.

allowing some amortization of program costs may be appropriate where warranted. While the Order offers bill moderation as a potential reason for permitting amortization, we suggest that there may be other compelling reasons to allow Con Edison to earn a return on program costs. It is not clear that an EAM incentive regime that is funded only by shared savings, as envisaged by the Commission, will provide sufficient incentive to induce Con Edison to adequately pursue all articulated efficiency policy goals. Allowing amortization of some or all costs can create an additional inducement for the utility to pursue efficiency. It is worth noting that shared savings incentives can effectively complement amortization by countering the utility's natural incentive to overspend in the interest of increasing its total return.

Q. What are your overall recommendations for improving Con Edison's proposed EAMs?

A. We offer the following recommendations:

- The Commission should require Con Edison to return to a simplified electric system peak reduction EAM by eliminating the energy saving portion of that EAM.
- The Commission should require Con Edison to restore the gas peak reduction metric, and a portion of the basis-point earnings proposed for the electric system peak reduction EAM should be reallocated to the gas peak reduction EAM.
- To avoided redundancy in EAMs, the Commission should require Con Edison to modify the proposed GHG reduction EAM so that it rewards Con Edison only for performance superior to what would be expected, based upon adjusted interconnection queue data and DER installation forecast.

- The Commission should require Con Edison to use a continuous formula to relate incentive earnings to performance, with no steps or ceiling, instead of the stepwise approach proposed by the Company.
- The Commission should allow Con Edison to earn EAM incentives beyond the maximum cap proposed by the Company, provided that all program expenditures are cost-effective.
- The Commission should require Con Edison to further incorporate lifetime energy savings and dollar-per-Btu measure cost savings into its EAMs, based on the guidance of the EE Order.

Table 7 provides a summary of our recommendations.

Table 7. Recommended Modifications to EAMs

Proposed EAM	Suggested Change
All EAMs, as relevant	*Increase focus on lifetime cost savings, consider non-stepwise approach to earnings incentives*
Annual MMBtu	*No change*
Electric EE MWH: MW Ratio	*Restore original electric and gas peak metrics*
GHG Reduction	*Set minimum target above Con Edison's expected reduction in GHG*
DER Utilization	
Share the Savings	
System Efficiency	

6. LOW- AND MODERATE-INCOME EFFICIENCY PROGRAMS

Q. Please describe the state's policy direction on energy affordability for LMI customers.

A. 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).[34] 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).[35] 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.[36]

Q. What has Con Edison proposed in terms of spending for its LMI offerings?

A. In keeping with the LMI funding requirement, Con Edison proposed in the Joint Proposal to allocate 20 percent of total incremental energy efficiency spending to its LMI programs each year from 2020 to 2025, as shown in Table 12.

Table 8. Total Electric and Gas LMI Budgets: Joint Proposal vs. EE Order

	2020	2021	2022	2023	2024	2025
Joint Proposal – LMI Budget (million $)	$11.9	$20.3	$25.3	$31.1	$36.9	$41.9
EE Order Incremental Budget (million $)	$59.6	$101.6	$126.7	$155.4	$184.5	$209.3
LMI Spending Share of Total	20%	20%	20%	20%	20%	20%

As shown in Table 9, Con Edison's proposed spending on electric energy efficiency for LMI is higher than the EE Order LMI funding requirement. Proposed incremental electric LMI spending as a percent of total incremental EE budgets starts at 24 percent in 2020 and gradually declines to 21 percent in 2025.

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

[35] EE Order, p. 50.

[36] EE Order, p. 56.

Table 9. Con Edison's Electric LMI Budgets: Joint Proposal vs. EE Order

	2020	2021	2022	2023	2024	2025
Joint Proposal – LMI Budget (million $)	$11.9	$18.1	$23.0	$28.4	$33.8	$38.2
EE Order Incremental Budget (million $)	$49.6	$79.4	$101.1	$129.7	$158.5	$180.8
LMI Spending Share of Total	24%	23%	23%	22%	21%	21%

In contrast with proposed spending on LMI electric efficiency, proposed spending on LMI gas efficiency relative to the total annual gas budget is lower than the LMI funding requirement but increases over time, as shown in Table 10. This likely accounts for the fact that Con Edison needs time to ramp up its programs for LMI gas energy efficiency.

Table 10. Con Edison's Gas LMI Budgets: Joint Proposal vs. EE Order

	2020	2021	2022	2023	2024	2025
Joint Proposal – LMI Budget (million $)	$0	$2.2	$2.3	$2.6	$3.1	$3.7
EE Order Incremental Budget (million $)	$10.0	$22.3	$25.7	$25.7	$26.0	$28.5
LMI Spending Share of Total	0%	10%	9%	10%	12%	13%

Q. What has Con Edison proposed for LMI programs?

A. The April Joint Filing proposes that the utilities, including Con Edison, 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."[37] Yet the Joint Filing provides little information about plans to target LMI customers in Con Edison's territory.

[37] Joint Filing, p. 35.

Important details about how LMI programs will be rolled out in Con Edison's service area, such as program designs, incentive strategies, outreach channels, delivery mechanisms, and eligibility were either not provided or not yet available when the Joint Filing was released.

Q. Why do these LMI program details matter?

A. The characteristics of the LMI sector in Con Edison's service area differ from other service areas in the state in ways that are important for implementing energy efficiency. Poverty rates in Con Edison's service area, reflective of those on the lower end of the income range for LMI customers, are high.[38] As shown in Table 11, three of the ten New York counties with the highest poverty rates are in Con Edison's service area (Bronx, Kings, and New York counties). With a 30 percent poverty rate, Bronx county has the highest percent of persons in poverty in the state.

Table 11. Counties in New York State with the highest poverty rates

County	Percent in Poverty	Rank by Percent	Number in Poverty	Rank by Number
Bronx	29.73%	1	422,197	2
Kings	21.85%	2	570,731	1
Tompkins	20.36%	3	18,411	25
Montgomery	19.59%	4	9,486	35
Franklin	19.38%	5	8,793	38
St. Lawrence	19.37%	6	19,142	23
Chautauqua	18.49%	7	23,101	19
Oswego	18.33%	8	20,978	21
New York	17.27%	9	277,483	4
Broome	17.1%	10	31,795	16

Source: New York State Community Action Association, March 2019.

[38] Poverty rates reflect the number of people who meet the Census Bureau's income thresholds that vary by family size and composition, relative to total population.

Q. Why does a high poverty rate matter for energy efficiency implementation?

A. A high poverty rate matters for energy efficiency implementation in two ways. First, there is an increased societal imperative of providing energy efficiency to such 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 unhealth and unsafe temperatures due to lack of appropriate heating and cooling, and face significant adverse financial consequences due to incurring utility debt. The high poverty rate in Con Edison's service territory provides a powerful reason for the Company to increase its LMI targets above those it has proposed. Second, the customers in the low-income sector, including those in poverty, face significant barriers to adopting energy efficiency technologies, such as:

- 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.
- Low-income customers are frequently renters and frequently live in public housing facilities, which means that they have less ability, and potentially significant 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.[39]

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.

Given the high poverty rates in Con Edison's territory, how the LMI funds are used will be critical. These funds can yield substantial benefits for low-income participants, as well as for all ratepayers 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. But programs must be effectively designed and targeted to reach this sector and to achieve these benefits.

Q. Does the existing policy framework provide guidance on how decisions on LMI efficiency investments should be made?

A. Yes, to some extent. 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, incorporate community-based approaches, and increase participation in multi-family programs.

[39] 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.

However, guidance on how to prioritize LMI energy efficiency opportunities is generally lacking.

Cost-effectiveness testing is generally an important means for prioritizing energy efficiency opportunities, in New York and elsewhere. But the EE Order indicates that cost-effectiveness of the LMI portfolio will 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, incorporating low-income NEBs into the benefit-cost analysis framework can help to guide LMI energy efficiency investments to the most effective, most needed uses.

Q. What is a non-energy benefit?

A. A non-energy benefit, also known as a non-energy impact, is an "additional benefit (positive or negative) for participants in energy efficiency beyond the energy savings gained from installing energy efficient measures."[40] NEBs include benefits such as reduced sick days, improved productivity, and reduced environmental and safety costs. NEBs associated with energy efficiency efforts targeting low-income populations are generally much greater than NEBs for non-low-income programs.

[40] 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

Q. Do other jurisdictions consider NEBs in cost-effectiveness testing?

A. Yes. Many jurisdictions incorporate NEBs into cost-effectiveness assessment. Of the 30 states included in the Database of State Efficiency Screening Practices (DSESP),[41] 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);[42] three include monetized low-income NEBs; four use proxies for low-income NEBs;[43] and three consider both quantitative and qualitative considerations for low-income NEB.[44]

Q. Why is it important to quantify NEBs in cost-effectiveness testing?

A. 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.

[41] 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/)

[42] Alternative thresholds may be setting a BCA threshold lower than 1.0 for low-income programs, or not requiring these programs to meet any BCA threshold.

[43] 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 P. 60)

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

Q. Are there non-energy benefits from LMI programs that are enjoyed by all utility customers?

A. Yes. 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.

Q. Do you have other comments on Con Edison's LMI proposal?

A. Yes. Currently, Con Edison is proposing 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.

Q. What do you recommend for LMI EAMs?

A. To ensure that the dedicated funds result in tangible benefits throughout the LMI sector, Con Edison 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.

Q. Please summarize your recommendations for LMI energy efficiency.

A. Our recommendations are as follows:

- The Commission should establish program funding policies that will encourage the Company to go above and beyond its proposed LMI efforts. Program funding for LMI programs should encourage Con Edison to ramp up its programs for LMI customers as rapidly as possible to levels that tap the full potential of LMI programs.
- The Commission should ensure that Con Edison's financial incentives are better aligned with the state's LMI policy goals. We recommend that Con Edison propose two new EAMs: 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. Con Edison should work collaboratively with local LMI stakeholders on the design and rollout of its programs to ensure programs are appropriately designed and targeted to overcome barriers and realize benefits.
- The Commission should require Con Edison 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 Con Edison to consider options for accounting for the NEBs associated with LMI programs, to facilitate prioritization of energy efficiency investments. At a minimum, Con Edison 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.

7. COST-EFFECTIVENESS

7.1. Proper Application of the New York BCA Framework

Q. Please describe the New York BCA framework.

A. In the Reforming the Energy Vision docket (Case 14-M-0101), the Commission provided guidance for assessing the cost-effectiveness of energy efficiency and other DER programs in its January 21, 2016 Order Establishing the Benefit Cost Analysis Framework (BCA Order). The BCA Order sets the Societal Cost test as the primary test for assessing the cost-effectiveness of energy efficiency programs and allows utilities to consider the cost-effectiveness of energy efficiency programs on a portfolio basis.

Q. Do you have any concerns about how the New York BCA framework is applied by Con Edison?

A. Yes. The BCA Order categorizes other fuel savings, i.e., savings of fuels that are not the primary target of the efficiency program, as "operational and societal non-energy benefits (NEBs)."[45] The BCA Order is clear that monetizable NEBs should be included in the BCA and included in the utilities' BCA handbooks.[46] However, the utility BCA handbooks do not address other fuel savings, apparently categorizing these savings as NEBs that are too hard to monetize.

[45] BCA Order, page 19.

[46] BCA Order, page 35.

Q. Are these other fuel savings easily quantified and monetized?

A. Yes, and it is standard practice in other jurisdictions to do so. The value of the other fuel savings can be determined using market prices for those fuels, along with forecasts for future market prices. This is a major omission in the Company's BCA approach that needs to be addressed if the state is to meet its clean energy and GHG goals.

Q. Do you have other concerns about how the New York BCA framework is applied by Con Edison?

A. Yes. In the context of BCAs for gas efficiency programs and non-pipe solutions, it is important to recognize the role that the gas industry must play in meeting New York's GHG goals. The Commission has been clear that GHG emissions from the gas industry must be significantly reduced, and 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.[47]

In this context there is a very real risk that new gas infrastructure will become obsolete before its costs are fully recovered from customers. Such an outcome is inefficient and creates stranded costs that may need to be borne by all customers and will increase the costs of achieving the state's GHG targets.

[47] Smart Solutions Order, page 35.

It is important that this risk be accounted for when evaluating the cost-effectiveness of non-pipe solutions. One way to do this is to assume a book life (i.e., cost recovery period) that is shorter than otherwise to reflect the likelihood of new gas infrastructure becoming obsolete and stranded. This approach would provide a more accurate depiction of the actual cost of gas supply-side infrastructure in light of New York's aggressive GHG goals.

Q. Do you have other comments about how the New York BCA framework is applied by Con Edison?

A. Yes. In its request for approval of its non-pipeline solutions portfolio, Con Edison conducted a Reference Case BCA and two sensitivities. One sensitivity assumed that the non-pipeline solution portfolio was able to reduce Con Edison's need to purchase a combination of pipeline capacity and delivered services based on their location; and the other sensitivity accounted for the impact of lifecycle greenhouse gas emissions of natural gas, including fugitive emissions.[48] Both sensitivities increased the benefit-cost ratio results of the BCA. The Company accounted for the results of the first sensitivity in finalizing its portfolio, but not the second sensitivity because "nearly all the proposals were included in the portfolio anyway."[49]

We commend Con Edison for conducting these scenario analyses and generally support the way that the results were factored into the final portfolio. However, going forward we recommend that the assumptions used in these sensitivities—the ability to avoid pipeline

[48] Consolidated Edison Company, *Request for Approval of Non-Pipeline Solutions Portfolio in The Smart Solutions for Natural Gas Customers Program*, Case No. 17-G-0606, Appendix B, pages 1-3.

[49] Consolidated Edison Company, *Request for Approval of Non-Pipeline Solutions Portfolio in The Smart Solutions for Natural Gas Customers Program*, Case No. 17-G-0606, Appendix B, page 4.

capacity based on its location and the lifecycle gas emissions including fugitive emissions—should be included in the Reference Case BCA. The Reference case should include assumptions that represent the most likely future, and avoiding local pipeline capacity and avoiding lifecycle GHG emissions seem to be the most likely outcome of the Smart Solutions Programs.

We recommend that the Commission clarify that a BCA for any type of energy efficiency resource, whether it is electricity or gas, pipeline-related or not, should always start with a Reference Case that accounts for the most likely future. The Commission should also clarify that reductions in pipeline capacity and reductions in lifecycle GHG emissions assumed in any Reference Case should be based on the most likely forecast of those impacts. In the case of pipeline capacity reductions, it is not necessary to identify specific infrastructure capacity that might be avoided, but it is necessary to estimate the value of avoided pipeline capacity over the BCA study period, e.g., 20 years.

Q. What do you recommend regarding the application of the New York BCA framework?

A. We recommend the following:

- The Commission should require the Company to modify its BCA Handbook and practices to clarify that other fuel savings must be accounted for when assessing the cost-effectiveness of energy efficiency resources.[50] The value of other fuels should be determined using forecasts of market prices for the fuels, and these values should be incorporated in all programs that save more fuels than the primary target of the program.

[50] In fact, other fuel savings should not be described as non-energy benefits, because they are energy related. But the description is not as important as how they are treated.

- The Commission should require the Company to modify its BCA Handbook and practices to account for the likelihood that gas infrastructure installed in the future is increasingly likely to become obsolete, and a stranded cost, in order to meet New York's GHG goals. One option for doing this is to assume a relatively short book life for gas infrastructure investments.
- The Commission should require the Company to modify its BCA Handbook and practices to ensure that BCA Reference Cases include forecasts of the most likely future, which might include, for example, avoided pipeline capacity costs and avoided lifecycle GHG emissions.

Q. Why is it so important to modify the Company's BCA Handbook and practices now?

A. The Company's BCA Handbook was prepared prior to the NE:NY paper and prior to the Commission's December 2018 EE Order. 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, particularly the electricity savings from gas programs and the gas, oil, and propane savings from electricity programs. It is important to update the Company's BCA Handbook to address this key regulatory directive from the NE:NY and the Commission's 2018 EE Order.

In addition, the actions and programs needed to meet New York's GHG targets are evolving with improved understanding and increased urgency of the issue. It is essential that the utilities' BCA Handbooks and practices be modified and updated to keep up with these types of industry and regulatory developments.

7.2. All Cost-Effective Energy Efficiency Policy

Q. Do you recommend the Commission adopt an all cost-effective energy efficiency policy?

A. Yes, we recommend that the Commission explicitly require utilities to identify and pursue all energy efficiency resources that are determined to be cost-effective.

Q. Is an all cost-effective energy efficiency policy different from a cost-effective energy efficiency requirement?

A. Yes, all cost-effective mandates are distinct from the requirement that energy efficiency resources must be cost-effective. The requirement that energy efficiency resources must be cost-effective 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. A mandate to implement all cost-effective energy efficiency resources provides very clear guidance about how much energy efficiency resources should be pursued. It also provides guidance on how to design energy efficiency programs and how to determine appropriate energy efficiency savings targets.

Q. What is the rationale for establishing an all cost-effective energy efficiency policy?

A. The rationale is simple. 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. Put simply,

implementing all cost-effective energy efficiency resources is the lowest-cost option for meeting customers' electricity and gas demands.

Q. Why is an all cost-effective efficiency policy so important for New York?

A. There are several reasons. First, a requirement to pursue all cost-effective energy efficiency resources is consistent with the Commission's REV initiative, the 2015 State Energy Plan, and the NE:NY goals.

Second, an all cost-effective efficiency requirement will help achieve New York's short-term, 2030, and 2050 carbon goals at the lowest cost.

Third, an all cost-effective requirement will help guide New York's long-term planning processes designed to optimize the level of energy efficiency and other distributed energy resources.

Fourth, an all cost-effective policy provides a much more dynamic and flexible planning approach than relying upon the Commission energy efficiency targets well into the future, allowing utilities to respond to changes in costs, benefits, technologies, market trends, and customer demands.

Fifth, an all cost-effective energy efficiency requirement would help New York plan for and achieve the energy efficiency savings levels that are being achieved in leading states around the country.

In sum, an all cost-effective energy efficiency framework 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.

Q. Would an all cost-effective efficiency policy help address some of the key issues identified by you in this case?

A. Yes. In Section 3 above we describe how Con Edison has apparently removed budgets (and commensurate savings) from its electric efficiency programs in order to support its gas efficiency programs. Under an all cost-effective efficiency policy, it would be clear to Con Edison and others that this approach is not appropriate. In order to achieve all cost-effective electric and gas efficiency savings, both sectors should receive sufficient budgets and adopt targets to achieve all cost-effective savings; one should not be sacrificed to support the other.

Q. What would an all cost-effective energy efficiency policy mean in the context of the energy efficiency targets already established by the Commission?

A. As described above, we recommend that the Commission energy efficiency targets be considered a floor, and that utilities should acquire additional efficiency savings if they are cost-effective. The all cost-effective energy efficiency policy would complement the Commission targets by providing guidance to the utilities about how much farther above that floor they should go.

The Company's January rate case filing identified more cost-effective energy efficiency savings that are available above that target. An all cost-effective energy efficiency policy would clarify that cost-effective savings above the Commission target are appropriate, and that even additional cost-effective savings would be appropriate as well.

Q. How would an all cost-effective efficiency policy be used in setting energy efficiency savings and budgets?

A. An all cost-effective efficiency policy should influence and guide several aspects of efficiency planning. First it should encourage utilities to identify all cost-effective opportunities on a regular basis. This 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. Second, this policy should encourage 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. Third, before finalizing the targets and budgets, it is important for energy efficiency program planners to account 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.

Q. The Commission requires that energy efficiency benefit-cost decisions be applied at the portfolio level. How should the all cost-effective efficiency policy be implemented in the New York BCA context?

A. The NY BCA order is clear that the decisions regarding which efficiency resources are deemed cost-effective should be made at the portfolio level.[51] This means that efficiency programs and measures do not have to be cost-effective in order to be included in the portfolio of programs, as long as the total portfolio of programs is cost-effective. This

[51] BCA Order, pages 33-35.

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."[52]

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. In our view, these programs that are not deemed to be cost-effective but can otherwise "fit" within the cost-effectiveness of the total portfolio 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 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" equipment should not be approved by the Commission, even if their net costs can fit within the net benefits of the total efficiency portfolio.

[52] BCA Order, page 34.

Q. Have other states established all cost-effective energy efficiency policies?

A. Yes. 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.[53] These states have prioritized energy efficiency as a resource, requiring that customer needs be met to the greatest extent possible through energy efficiency.

Q. What level of energy efficiency savings are states with all cost-effective energy efficiency policies currently achieving?

A. States with all cost-effective energy efficiency targets are capturing some of the highest levels of energy efficiency savings in the country. The table below shows the annual energy efficiency savings as a percent of sales attained in 2017 in the states with all cost-effective energy efficiency. The energy efficiency savings achieved by these states range from 0.8 percent to 3.3 percent of sales annually. The five states ranked ahead of New York in the American Council for an Energy Efficiency Economy's (ACEEE) 2018 Energy Efficiency Scorecard have all cost-effective energy efficiency policies.[54]

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

[54] 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.

Table 12. Efficiency Savings in States with All Cost-Effective Efficiency Policies

State	2017 Energy Efficiency Savings (as a percent of sales)
Vermont	3.3%
Rhode Island	3.1%
Massachusetts	2.6%
California	2.0%
Connecticut	1.6%
Washington	1.4%
Maine	0.8%

Q. How do these efficiency savings compare to energy efficiency savings targets proposed by Con Edison?

Many states with all cost-effective energy efficiency policies are achieving annual energy efficiency savings levels that are significantly higher than Con Edison's annual energy efficiency targets. The table below shows the annual energy efficiency savings as a percent of sales targeted by Con Edison. This table includes Con Edison's targets under (a) ETIP, (b) Con Edison's 2016 rate case, and (c) the April Joint Proposal.[55] As shown in the table, Con Edison is expected to achieve an annual savings level of about 1.6 percent by 2025. These savings are considerably less than the amount of savings already being achieved in some of the leading states. Further, the rate at which the Con Edison's programs are expanded over time is relatively slow. An all cost-effective energy efficiency policy would encourage the Company to achieve greater levels of cost-effective savings sooner.

[55] The savings in this table are higher than those presented in Tables 1 and 2 above because this table includes savings from ETIP and the 2016 rate case.

Table 13. Total Electric EE Savings Targets for Con Edison through 2025 (GWh)

	2018	2019	2020	2021	2022	2023	2024	2025
Targets for ETIP, 2016 Joint Proposal, April 2019 Joint Proposal Target	289	410	369	466	538	631	725	799
% of projected sales	0.5%	0.8%	0.7%	0.9%	1.0%	1.2%	1.4%	1.6%
Cumulative savings	289	699	1,068	1,534	2,072	2,703	3,428	4,227
Sales projection adjusted for EE	55,029	54,619	54,250	53,784	53,246	52,615	51,889	51,091

Note: Targets for 2018 and 2019 includes targets for ETIP and Con Edison's previous EAM filing. Sales data start with the reported sales data for Con Edison for 2017 from the U.S. Energy Information Administration's Form 861. Projected sales are adjusted only for the projected EE targets, and not sales increases are assumed.

Q. What do you recommend the Commission do regarding the Con Edison efficiency programs proposed in this rate case?

A. We recommend that the Commission require Con Edison to identify and pursue all cost-effective energy efficiency resources in setting savings target and budgets and in designing efficiency programs. We also recommend that the Commission state that the same requirement will be applied to all New York electric and gas utilities in future rate cases and efficiency orders.

We also recommend:

- The Commission require Con Edison to adopt the 2020, 2021, and 2022 electricity efficiency targets and budgets proposed in the January Rate Case filing, as noted above.
- The Commission require Con Edison to adopt the 2020, 2021, and 2022 gas efficiency targets and budgets proposed in the Joint Utilities Filing, as noted above.
- The Commission require Con Edison to assess the potential for all cost-effective energy efficiency savings in its forthcoming Efficiency Potential Study.

- The Commission require Con Edison to modify its 2021 and 2022 electricity and gas efficiency targets based on the findings of its forthcoming Efficiency Potential Study.

8. RENEWABLE ENERGY CREDITS

Q. Do you have any other comments on meeting the Governor's clean energy goals?

A. Yes. We are aware that existing in-state renewable energy resources serve an important role in minimizing the cost of meeting the Clean Energy Standard (CES).[56] Meeting the renewable energy portion of the CES will be costlier if renewable energy credits generated in state are sold to entities out of state, and there is a risk that such out-of-state sales will occur absent some form of compensation for existing renewable resources for their environmental benefits.

Q. Are there other actions Con Edison can take to address the Governor's clean energy goals?

A. Yes. Con Edison could consider developing a green tariff offering, which increases consumers' ability to access power generated using renewable resources. Under a green tariff, customers could opt into renewable energy comprising a larger share of their electricity than is represented in the default power supply mix. The rates paid by green tariff customers would include the incremental cost of renewable energy supply, as well as any administrative costs for Con Edison to run the program. The green tariffs would be supported and verified by in-state renewable energy credits, which would also be used to

[56] Hopkins, A. et al. Policies to Cost-Effectively Retain Existing Renewables in New York, prepared for the Alliance for Clean Energy New York. Synapse Energy Economics. Dec. 22, 2017. Available at www.synapse-energy.com.

comply with the New York CES, thereby reducing the cost of complying with that standard.

Q. Does this conclude your direct testimony?

A. Yes, it does.