Agenda Date: 7/26/23
Agenda Item: 8C

STATE OF NEW JERSEY

Board of Public Utilities
44 South Clinton Avenue, 1st Floor
Post Office Box 350
Trenton, New Jersey 08625-0350
www.nj.gov/bpu/

		CLEAN ENERGY AND ENERGY
IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, C. 17, THE NEW JERSEY CLEAN ENERGY ACT OF 2018, REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS	)	ORDER DIRECTING THE UTILITIES TO PROPOSE SECOND TRIENNIUM ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS
IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, C. 17, THE NEW JERSEY CLEAN ENERGY ACT OF 2018, REGARDING THE SECOND TRIENNIUM OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS	)	DOCKET NO. QO19010040 DOCKET NO. QO23030150
IN THE MATTER OF ELECTRIC PUBLIC UTILITIES AND GAS PUBLIC UTILITIES OFFERING ENERGY EFFICIENCY AND CONSERVATION PROGRAMS, INVESTING IN CLASS I RENEWABLE ENERGY RESOURCES AND OFFERING CLASS I RENEWABLE ENERGY PROGRAMS IN THEIR RESPECTIVE SERVICE TERRITORIES ON A REGULATED BASIS, PURSUANT TO N.J.S.A. 48:3-98.1 AND N.J.S.A. 48:3-87.9 – MINIMUM FILING REQUIREMENTS	)	DOCKET NO. QO17091004

Parties of Record:

Brian O. Lipman, Esq., Director, New Jersey Division of Rate Counsel
Philip J. Passanante, **Esq.**, Assistant General Counsel, Atlantic City Electric Company
Robert H. Oostdyk, Jr., Esq., Murphy McKeon P.C., on behalf of Butler Power and Light Company
Tori Giesler, Esq., Managing Counsel, Jersey Central Power & Light Company
Andrew K. Dembia, Esq., Regulatory Affairs Counsel, New Jersey Natural Gas Company
Joseph F. Accardo, Jr., Esq. Vice President – Regulatory & Deputy General Counsel, Public Service Electric and Gas Company
Margaret Comes, Esq., Associate Counsel, Rockland Electric Company
Dominick DiRocco, Esq., Vice President, Rates & Regulatory Affairs, SJI Utilities, Inc.

BY THE BOARD:[1]

Following Board action on May 24, 2023, through which the New Jersey Board of Public Utilities ("Board" or "BPU") directed each electric public utility and gas public utility in the State of New Jersey to propose energy efficiency ("EE")[2] programs for the second three-year cycle of programs ("Triennium 2") implemented pursuant to the New Jersey Clean Energy Act of 2018 ("CEA")[3] and established certain aspects of the EE Triennium 2 framework (marked as "addressed" below), this Order pertains to the remaining aspects of the EE Triennium 2 framework: goals, targets, performance incentive mechanism, energy savings carryover, building decarbonization ("BD") start-up programs ("BD Programs"), and demand response ("DR") programs.[4]

Taken together, the consolidated set of requirements and guidance provided in Attachment A comprise the EE Triennium 2 framework.

[1] Commissioner Marian Abdou has recused herself from voting on this matter.

[2] As noted by the U.S. Department of Energy, "[e]nergy efficiency is the use of less energy to perform the same task or produce the same result. Energy-efficient homes and buildings use less energy to heat, cool, and run appliances and electronics, and energy-efficient manufacturing facilities use less energy to produce goods. https://www.energy.gov/eere/energy-efficiency.

[3] L. 2018, c. 17 (N.J.S.A. 48:3-87.8 et seq.).

[4] In re the Implementation of P.L. 2018, c. 17, The New Jersey Clean Energy Act of 2018, Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs; In re the Implementation of P.L. 2018, c. 17, The New Jersey Clean Energy Act of 2018, Regarding the Second Triennium of Energy Efficiency and Peak Demand Reduction Programs; In re: Electric Public Utilities and Gas Public Utilities Offering Energy Efficiency and Conservation Programs, Investing in Class I Renewable Energy Resources and Offering Class I Renewable Energy Programs in Their Respective Service Territories on a Regulated Basis, Pursuant to N.J.S.A. 48:3-98.1 and N.J.S.A. 48:3-87.9 - Minimum Filing Requirements, BPU Docket Nos. QO19010040, QO23030150, and QO17091004, Order dated May 24, 2023 ("May 2023 Order").

INTRODUCTION 4
State Legal and Policy Authorities and Drivers 4
Energy Efficiency Triennium 1 (July 1, 2021 – June 30, 2024) 6
Energy Efficiency Triennium 2 and New Jersey's 100% Clean Energy Future 10

BACKGROUND 11

PROCEDURAL HISTORY 13

STAFF RECOMMENDATIONS 13
I. PROGRAM ADMINISTRATION 13
A. Program Years ("PYs") *(ADDRESSED)* 13
B. Utility-Led Programs 13
i. Utility Core Programs *(ADDRESSED)* 13
ii. Additional Utility Initiatives 13
iii.–vi. *(ADDRESSED)* 19
C.–E. *(ADDRESSED)* 19
II. PROGRAM FUNDING *(ADDRESSED)* 19
III. GOALS, TARGETS, PERFORMANCE INCENTIVE MECHANISM, ENERGY SAVINGS CARRYOVER 20
A. Goals 20
B. Targets and Quantitative Performance Indicators 23
C. Performance Incentive Mechanism ("PIM") 27
D. Energy Savings Carryover for QPIs 28
IV.–X. *(ADDRESSED)* 30

DISCUSSION AND FINDINGS 30
I. Program Administration 30
II. Program Funding *(ADDRESSED)* 32
III. Goals, Targets, Performance Incentive Mechanism, Energy Savings Carryover 33
IV.–X. *(ADDRESSED)* 34

INTRODUCTION

State Legal and Policy Authorities and Drivers

On May 23, 2018, Governor Murphy signed the CEA into law. The CEA called for a significant overhaul of New Jersey's energy systems while growing the economy, building sustainable infrastructure, creating well-paying local jobs, reducing carbon emissions, and improving public health to ensure a cleaner environment for current and future residents. The CEA plays a key role in achieving the State's goal of 100% clean energy by establishing aggressive energy reduction requirements, among other clean energy strategies. This action by the Governor came at a critical time in our global fight against climate change and set New Jersey on a path to once again be a leader in charting a course towards a greener future.

The CEA emphasizes the importance of EE and peak demand reduction ("PDR") and calls upon New Jersey's electric and gas public utilities to play an increased role in delivering EE and PDR programs to customers.[5] The Act requires each utility in the State to reduce the use of electricity and natural gas in its service territory by its customers below what would have otherwise been used. Specifically, the CEA directs the BPU to require:

> (a) each electric public utility to achieve, within its territory by its customers, annual reductions of at least 2% of the average annual electricity usage in the prior three years within five years of implementation of its electric energy efficiency program; and
>
> (b) each natural gas public utility to achieve, within its territory by its customers, annual reductions in the use of natural gas of at least 0.75% of the average annual natural gas usage in the prior three years within five years of implementation of its gas energy efficiency program.[6]

The CEA also called for the Board to adopt programs that "ensure universal access to energy efficiency measures, and serve the needs of low-income communities . . ."[7]

While the CEA is one of the primary drivers of EE programs in New Jersey, multiple other State laws and policy authorities guide the Board's establishment and continued development of the framework for these programs. New Jersey must not only meet targets set forth in the CEA but do so in a way that is consistent with the principles and goals of the following State laws and other authorities.

On July 6, 2007, the State enacted the Global Warming Response Act ("GWRA"), L. 2007, c. 112, which established a statewide goal of reducing greenhouse gas ("GHG") emissions to 80% below 2006 levels by 2050. On July 23, 2019, Governor Murphy signed into law L. 2019, c. 197, which reinforced the GWRA by requiring action in the short-term to better enable the State to meet its GHG reduction goal. In October 2020, the New Jersey Department of Environmental Protection's

---

[5] New Jersey's electric and gas public utilities include Atlantic City Electric Company ("ACE"), Butler Power and Light Company ("Butler"), Elizabethtown Gas Company ("Elizabethtown"), Jersey Central Power & Light Company ("JCP&L"), New Jersey Natural Gas Company ("NJNG"), Public Service Electric and Gas Company ("PSE&G"), Rockland Electric Company ("RECO"), and South Jersey Gas Company ("SJG").

[6] N.J.S.A. 48:3-87.9(a).

[7] N.J.S.A. 48:3-87(g)–(h).

GWRA 80x50 Report found that, without steep and permanent reductions in GHG emissions, New Jersey will increasingly experience significant adverse effects of climate change.[8] On November 10, 2021, Governor Murphy signed Executive Order No. 274, setting a policy for the State of reducing GHG emissions to 50% below 2006 levels by 2030, to complement the GWRA's goal.[9]

On January 27, 2020, pursuant to Executive Order 28,[10] the Board released New Jersey's 2019 Energy Master Plan ("EMP"), which provided a comprehensive blueprint for an equitable and smooth transition from reliance on fossil fuels that contribute to climate change to 100% clean energy sources on or before January 1, 2050.[11] The EMP defines 100% clean energy to mean 100% carbon-neutral electricity generation and maximum electrification of the transportation and building sectors to meet or exceed the GWRA GHG emissions reductions.[12] Maximizing EE and conservation and reducing peak demand (Strategy 3) and reducing energy consumption and GHG emissions from the building sector (Strategy 4) are among the seven (7) key strategies identified in the EMP. These strategies play an essential role in meeting the State's long-term clean energy goals, including advancing building electrification. The EMP found that building space and water heating, appliances, and industrial uses are responsible for 28% of State GHG emissions and 62% of the State's total end-use energy consumption; identified electrification as a significantly more cost-effective means of meeting GHG emissions targets than retaining gas use in buildings; and called for electrification of 90% of building space and water heating by 2050, with an early focus on new construction and the electrification of oil- and propane-fueled buildings.[13]

On January 20, 2023, Governor Murphy announced that the State would begin planning for the development of a new EMP for release in 2024 that will update and expand on the pathway to achieving a 100% clean energy economy by 2050 set forth in the 2019 EMP.[14]

---

[8] New Jersey's Global Warming Response Act 80x50 Report ("GWRA 80x50 Report") (2020), at 5, *available at* https://www.nj.gov/dep/climatechange/docs/nj-gwra-80x50-report-2020.pdf

[9] Exec. Order No. 274 (Nov. 10, 2021), 53 N.J.R. 2105(b) (Dec. 20, 2021), ¶ 25.

[10] Exec. Order No. 28 (May 23, 2018), 50 N.J.R. 1394(b) (June 18, 2018), ¶ 3.

[11] https://www.nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf.

[12] Id. at 11.

[13] Id. at 157, 160. The EMP noted that, for example, more than 85% of New Jersey homes are heated with natural gas, oil, or propane. Id. at 149. In addition, the Board's August 2022 New Jersey EMP Ratepayer Impact Study incorporated the findings of the EMP into a comprehensive model of customer rate and energy cost impacts. The study found that, if the State continues to follow the approach laid out in the EMP, retail natural gas sales will fall by 25% by 2030, and an average residential customer will pay 25–30% more for natural gas heat and have higher overall non-vehicle energy costs in 2030 than in 2020, while a customer adopting EE and electric heating will have lower overall non-vehicle energy costs.

[14] "Governor Murphy Announces Planning for New 2024 Energy Master Plan," https://www.nj.gov/governor/news/news/562023/approved/20230120a.shtml.

On February 15, 2023, Governor Murphy signed three (3) executive orders.

- Executive Order No. 315 ("EO 315") set a goal that 100% of the electricity sold in the State be derived from clean sources of electricity by January 1, 2035, including through clean energy market mechanisms.[15] EO 315 also directed the Board to make updates to the EMP consistent with the new 2035 goal and provide specific proposals to be implemented both in the short-term and longer-term to achieve this goal.[16]

- Executive Order No. 316 ("EO 316") directed that "[i]t is the policy of the State to advance the electrification of commercial and residential buildings with the goal that, by December 31, 2030, 400,000 additional dwelling units and 20,000 additional commercial spaces and/or public facilities statewide will be electrified, and an additional 10 percent of residential units serving households earning less than 80 percent of area median income will be made ready for electrification through the completion of necessary electrical repairs and upgrades."[17] EO 316 defined electrification as "the retrofitting or construction of a building with electric space heating and cooling and electric water heating systems."[18]

- Executive Order No. 317 directed the Board to initiate a proceeding to engage with stakeholders and develop recommendations concerning decarbonization of the natural gas industry.[19]

Energy Efficiency Triennium 1 (July 1, 2021 – June 30, 2024)

On October 11, 2018, PSE&G filed a petition with the Board requesting approval of its Clean Energy Future- Energy Efficiency ("CEF-EE") Program.

By Order dated June 10, 2020, the Board approved a transition framework for EE programs ("EE Programs") implemented pursuant to the CEA, including requirements for the utilities to establish programs that reduce the use of electricity and natural gas within their territories.[20] In the June 2020 Order, the Board directed New Jersey's electric and gas companies to submit their first respective three-year filings for EE and PDR programs by September 25, 2020 for Board approval by May 1, 2021 and implementation beginning July 1, 2021.[21] Also in the June 2020 Order, the Board directed Board Staff ("Staff") to return with recommendations specific to Butler by December 31, 2020.

---

[15] Exec. Order No. 315 (Feb. 15, 2023), 55 N.J.R. 509(a) (Mar. 20, 2023), ¶ 26, available at https://www.nj.gov/infobank/eo/056murphy/pdf/EO-315.pdf.

[16] Id. ¶ 27.

[17] Exec. Order No. 316 (Feb. 15, 2023), 55 N.J.R. 510(a) (Mar. 20, 2023), ¶ 17, available at https://nj.gov/infobank/eo/056murphy/pdf/EO-316.pdf.

[18] Ibid.

[19] Exec. Order No. 317 (Feb. 15, 2023), 55 N.J.R. 511(a) (Mar. 20, 2023), ¶ 23, available at https://www.nj.gov/infobank/eo/056murphy/pdf/EO-317.pdf.

[20] In re the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, BPU Docket Nos. QO19010040, QO19060748, and QO17091004, Order dated June 10, 2020 ("June 2020 Order").

[21] Id. at 38.

By Order dated August 24, 2020, the Board adopted the first New Jersey Cost Test ("NJCT") and directed the utilities to use it to perform benefit-cost analyses during Triennium 1.[22]

By Order dated September 23, 2020, the Board approved a stipulation of settlement authorizing PSE&G to implement its CEF-EE Program.[23]

On September 25, 2020, ACE, ETG, JCP&L, NJNG, RECO, and SJG filed petitions with the Board requesting approval of their respective EE Programs. On March 3, 2021, the Board issued an Order approving a stipulation of settlement for NJNG's SAVEGREEN 2020 Program.[24] On April 7, 2021, the Board issued Orders approving stipulations of settlement for the ETG and SJG programs.[25] On April 27, 2021, the Board issued Orders approving stipulations of settlement for ACE and JCP&L, and on June 9, 2021, the Board issued an Order approving a stipulation of settlement for RECO.[26]

By Order dated December 16, 2020, the Board directed Staff and Butler to work collaboratively with the New Jersey Division of Rate Counsel ("Rate Counsel") and the investor-owned electric and gas utilities, as applicable, to develop a proposal for Butler's EE and PDR programs and for Butler to file a petition by October 1, 2021. [27]

By Order dated March 24, 2021, the Board approved a contract for a Statewide Evaluator ("SWE") of New Jersey's EE and PDR programs.[28]

---

[22] In re the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs; In re the Clean Energy Act of 2018 – New Jersey Cost Test, BPU Docket Nos. QO19010040 and QO20060389, Order dated August 24, 2020 ("NJCT Order").

[23] In re the Petition of Public Service Electric and Gas Company for Approval of Its Clean Energy Future – Energy Efficiency ("CEF-EE") Program on a Regulated Basis, BPU Docket Nos. GO18101112 and EO18101113, Order dated September 23, 2020.

[24] In re the Petition of New Jersey Natural Gas Company for Approval of Energy Efficiency Program and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act, N.J.S.A. 48:3-87.8 et seq. and 48:3-98.1 et seq., BPU Docket Nos. QO19010040 and GO20090622, Order dated March 3, 2021.

[25] In re the Petition of Elizabethtown Gas Company for Approval of New Energy Efficiency Programs and Associated Cost Recovery Pursuant to the Clean Energy Act and the Establishment of a Conservation Incentive Program, BPU Docket No. GO20090619, Order dated April 7, 2021; In re the Petition of South Jersey Gas Company for Approval of New Energy Efficiency Programs and Associated Cost Recovery Pursuant to the Clean Energy Act, BPU Docket No. GO20090618, Order dated April 7, 2021.

[26] In re the Petition of Atlantic City Electric Company for Approval of an Energy Efficiency Program, Cost Recovery Mechanism, and Other Related Relief for Plan Years One Through Three, BPU Docket No. EO20090621, Order dated April 27, 2021; In re the Verified Petition of Jersey Central Power & Light Company for Approval of JCP&L's Energy Efficiency and Conservation Plan Including Energy and Peak Demand Reduction Programs (JCP&L EE&C), BPU Docket No. EO20090620, Order dated April 27, 2021; In re the Petition of Rockland Electric Company for Approval of Its Energy Efficiency Program and Peak Demand Reduction Programs, BPU Docket No. EO20090623, Order dated June 9, 2021.

[27] In re the Implementation of L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, Butler Electric, BPU Docket Nos. QO19010040 & QO20100684, Order dated December 16, 2020.

[28] In re a Contract for a Statewide Evaluator of New Jersey's Energy Efficiency and Peak Demand Reduction Programs, BPU Docket No. QO20110700, Order dated March 24, 2021.

By Order dated September 14, 2021, the Board extended the deadline for Butler to file a petition by October 1, 2022.[29] On September 20, 2022, PSE&G filed a letter petition to extend the term of the 10 subprograms of the CEF-EE Program for a nine-month period (October 1, 2023 through June 30, 2024) in order to align the program with the three-year program cycle authorized by the Board for the other utilities ("CEF-EE Extension Program"). Additionally, the petition proposed offering PSE&G's electric CEF-EE programs to PSE&G gas customers who are also Butler customers during the nine-month extension period. On October 10, 2022, the Board issued an Order determining that PSE&G's CEF-EE petition filed on September 20, 2022 satisfied Butler's requirement.[30]

On November 8, 2021, ACE, ETG, JCP&L, NJNG, PSE&G, RECO, and SJG (collectively, "Petitioners") filed a joint letter petition with the Board requesting approval to implement a proposed joint utility solution to address budget constraints experienced during Triennium 1. On August 17, 2022, the Board approved a stipulation of settlement executed by the Petitioners, Rate Counsel, and Staff, which resolved the Petitioners' requests related to the November 8, 2021 joint letter petition.[31]

[29] In re the Implementation of L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, Butler Electric, BPU Docket Nos. QO19010040 and QO20100684, Order dated September 14, 2021.

[30] In re the Implementation of L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, Butler Electric, BPU Docket Nos. QO19010040 & QO20100684, Order dated October 12, 2022.

[31] In re the Implementation of L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs; In re the Petition of Atlantic City Electric Company for Approval of an Energy Efficiency Program, Cost Recovery Mechanism and Other Related Relief for Plan Years One Through Three; In re the Petition of Elizabethtown Gas Company for Approval of New Energy Efficiency Programs and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act and the Establishment of a Conservation Incentive Program; In re the Verified Petition of Jersey Central Power & Light Company for Approval of JCP&L's Energy Efficiency and Conservation Plan Including Energy Efficiency and Peak Demand Reduction Programs (JCP&L EEC); In re the Petition of New Jersey Natural Gas Company for Approval of Energy Efficiency Program and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act, N.J.S.A. 48:3-87.8 et seq. and 48:3-98.1 et seq.; In re the Petition of Public Service Electric and Gas Company for Approval of Its Clean Energy Future - Energy Efficiency ("CEF-EE") Program on a Regulated Basis; In re the Petition of Rockland Electric Company for Approval of Its Energy Efficiency Program and Peak Demand Reduction Programs; In re the Petition of South Jersey Gas Company for Approval of New Energy Efficiency Programs and the Associated Cost Recovery Pursuant to the Clean Energy Act, BPU Docket Nos. QO19010040, EO20090621, GO20090619, EO20090620, GO20090622, GO18101112, EO18101113, EO20090623, & GO20090618, Order dated August 17, 2022.

By Order dated November 9, 2022, the Board approved updates and revisions to the Triennium 1 EE framework regarding the following topics: use of a "Low-income Lifetime Savings" metric; Staff's recommendations related to the utilities' offering eligible PDR resources into the PJM Interconnection, LLC ("PJM") forward capacity market ("FCM") such that net revenues from cleared resources are used to offset revenue requirements of the utilities' EE Programs; renaming the Protocols to Measure Resource Savings as the Technical Reference Manual ("TRM"); utilities' energy savings reporting; and development of a comprehensive update of the TRM for the Board's consideration ahead of the commencement of Triennium 2 EE Programs.[32]

On January 19, 2023, the utilities and Board executed a Non-Disclosure Agreement ("NDA") under Docket No. QO19010040 to facilitate the exchange of confidential information that a utility or the utilities, or its or their agents, may be requested or required to provide to the Board, Staff, and/or its vendors in connection with that docket and in order to comply with the CEA's directives to evaluate, measure, and verify utility energy usage reduction, PDRs, and the utilities' EE Programs or research related to such.

Review of the first program year (July 1, 2021 – June 30, 2022) after the transition of EE programs pursuant to the CEA shows the following aggregated, statewide results by New Jersey's Clean Energy Program ("NJCEP") EE programs, utility EE Programs established pursuant to the CEA, and other utility "legacy" EE programs:[33]

- Budgets: $1.02 billion
- Expenditures: $501 million, including $241 million in incentives
- Electric savings: 138,480 kilowatts ("kW") of demand savings, 1,067,697 megawatt hours ("MWh") of annual savings, and 14,763,458 MWh of lifetime savings
- Gas savings: 2,907,504 MMBtu of annual savings and 27,549,801 MMBtu of lifetime savings

[32] In re the Implementation of L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs; In re the Petition of Atlantic City Electric Company for Approval of an Energy Efficiency Program, Cost Recovery Mechanism and Other Related Relief for Plan Years One Through Three; In re the Petition of Elizabethtown Gas Company for Approval of New Energy Efficiency Programs and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act and the Establishment of a Conservation Incentive Program; In re the Verified Petition of Jersey Central Power & Light Company for Approval of JCP&L's Energy Efficiency and Conservation Plan Including Energy Efficiency and Peak Demand Reduction Programs (JCP&L EEC); In re the Petition of New Jersey Natural Gas Company for Approval of Energy Efficiency Program and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act, N.J.S.A. 48:3-87.8 et seq. and 48:3-98.1 et seq.; In re the Petition of Public Service Electric and Gas Company for Approval of Its Clean Energy Future - Energy Efficiency ("CEF-EE") Program on a Regulated Basis; In re the Petition of Rockland Electric Company for Approval of Its Energy Efficiency Program and Peak Demand Reduction Programs; In re the Petition of South Jersey Gas Company for Approval of New Energy Efficiency Programs and the Associated Cost Recovery Pursuant to the Clean Energy Act, BPU Docket Nos. QO19010040, EO20090621, GO20090619, EO20090620, GO20090622, GO18101112, EO18101113, EO20090623, & GO20090618, Order dated November 9, 2022.

[33] The 4Q FY22 Statewide Report includes more detailed results and is *available at* https://www.njcleanenergy.com/main/public-reports-and-library/financial-reports/clean-energy-program-financial-reports. Individual utility annual reports, available on the same webpage, provide detailed information about program implementation and outcomes, including cost-effectiveness, performance targets, and equity metrics. Utility quarterly reports are also available on the same webpage.

- Annual GHG emissions reductions: 817,352 metric tons of carbon dioxide ("CO_2"), 1,500 metric tons of nitrogen oxide, 325 metric tons of sulfur dioxide, and 1,174 grams of mercury
- Lifetime GHG emissions reductions: 10,839,794 metric tons of CO_2, 15,963 metric tons of nitrogen oxide, 4,496 metric tons of sulfur dioxide, and 16,240 grams of mercury

Energy Efficiency Triennium 2 and New Jersey's 100% Clean Energy Future

In striving to achieve the new goal of having 100% of New Jersey's energy demand supplied by clean energy by 2035, EE will play a critical role in terms of reducing the amount of clean energy that is needed, thereby lowering costs and ensuring that there is enough to power all of our needs.[34] Also, given the State's new targets to advance electrification in commercial and residential buildings, Staff seeks through the Triennium 2 EE framework to maximize EE in buildings thereby leading to a reduction of GHG emissions from the building sector.

Using energy more efficiently is one of the easiest and most cost-effective strategies in our fight against the global climate crisis. EE programs are available for all sectors and offer a wide variety of targeted incentives for residents and businesses with varying needs throughout the State. EE helps to reduce GHG emissions and other pollutants and mitigate climate impacts, thereby providing health benefits, while bolstering the economy. EE is the largest energy sector in New Jersey, employing more than 34,500 people and supporting more than 4,700 EE businesses.[35] EE projects are labor intensive, and increased achievement of EE will greatly strengthen the job market. EE projects also reduce energy use and can reduce energy costs for consumers, allowing those consumers to use those funds elsewhere, including injecting them back into the economy.

New Jersey's EE framework has the following primary objectives:

- Afford access to EE programs for all market segments and for all New Jersey residents and businesses, regardless of geographic location, including through energy-efficient improvements that support New Jersey's path toward decarbonization;
- Decrease energy burdens for all ratepayers, with a specific focus on increasing affordability for lower-income customers and those living in disadvantaged, environmental justice, or overburdened communities ("OBCs");[36]
- Ensure that low- and moderate-income ("LMI") communities and OBCs share the same level of access to the benefits associated with EE investments as wealthier communities;
- Continue to increase accountability and reporting of spending and savings related to EE and PDR;
- Reduce costs for energy saved through reliable and consistent program delivery;

---

[34] ENERGY STAR, "Be Part of a Clean Energy Future," https://www.energystar.gov/about/how_energy_star_protects_environment/clean_energy_future

[35] E2, New Jersey: Energy Efficiency Jobs in America (2022), *available at* https://e4thefuture.org/wp-content/uploads/2022/12/New-Jersey_2022.pdf.

[36] See the following webpage for the identification of and more information about OBCs: https://dep.nj.gov/ej/communities. The framework for New Jersey EE Programs seeks to reduce the inequity currently experienced by groups and individuals across New Jersey who disproportionately lack access to energy-efficient housing, appliances, and technologies. The lack of access is often reflected in a household's energy burden. Research shows that the average low-income household devotes more than three times more of their income to energy bills than the average non-low-income household. See https://www.energy.gov/eere/slsc/low-income-community-energy-solutions. Families who face higher energy burdens experience many negative long-term effects.

- Reduce administrative costs passed through to ratepayers; and
- Expand job opportunities and increased economic benefits of EE for New Jersey.

EE remains both an immediate and long-term component of reducing energy costs and improving health and safety for all households. Moreover, EE must be integrated seamlessly with other government efforts to promote public health, safety, and comfort, including, but not limited to, weatherization, lead removal, improving household determinants of residents' health, and other programs, and the Board is committed to fostering a more integrated approach. A holistic program that coordinates or combines the delivery of multiple services to New Jersey residents with lower barriers to entry can begin to address systemic inequities. Energy affordability, which can be improved through EE, is more important than ever; New Jersey needs clean and affordable energy for everyone.

New Jersey's EE programs will continue to play a central role in rising to meet the challenge of the climate crisis while providing significant benefits to residents and businesses throughout the state and growing a clean energy workforce. In order to achieve New Jersey's robust clean energy goals, Staff recommends the framework for Triennium 2 of EE programs, as laid out herein and as will be supported by anticipated future modifications, to continue New Jersey's path to a 100% clean energy future.

BACKGROUND

The Board began approving utility demand side management ("DSM") programs for energy conservation in the 1980s and adopted DSM regulations in 1991 that (1) required electric and gas public utilities to offer conservation, EE, and load management programs, known collectively as DSM programs; (2) provided incentives to initiate and implement programs; and (3) permitted cost recovery of the programs and recovery of the fixed cost portion of lost revenues due to the programs.

On February 9, 1999, the Electric Discount and Competition Act ("EDECA") restructured the electric and gas utility industries in New Jersey by authorizing the Board to permit competition in the electric generation and gas marketplace.[37] EDECA, as amended, also directed the Board to undertake a comprehensive resource analysis ("CRA") of energy programs every four (4) years; determine the appropriate level of funding for EE, plug-in electric vehicles ("EVs") and charging infrastructure, and Class I renewable energy ("RE") programs in consultation with the New Jersey Department of Environmental Protection; and determine, as a result of the CRA, the programs to be funded by a Societal Benefits Charge ("SBC"), the utilities' level of cost recovery and performance incentives for existing and proposed programs, and whether the recovery of DSM costs may be reduced or extended.[38] EDECA charged the Board with making these determinations while taking into consideration existing market barriers and environmental benefits, with the objective of transforming markets, capturing lost opportunities, making energy services more affordable for low-income customers, and eliminating subsidies for programs that could be delivered in the marketplace without electric public utility and gas public utility customer funding.[39]

[37] L. 1999, c. 23 (N.J.S.A. 48:3-49 to -98).

[38] N.J.S.A. 48:3-60(a)(3).

[39] Ibid.

Accordingly, in 1999, the Board initiated its first CRA proceeding. In 2001, the Board issued an order that set funding levels for EE and RE programs for the years 2001 through 2003.[40] The Board directed the utilities to administer the EE programs for one (1) year and indicated that it would retain a consultant to assist in evaluating how best to continue the administration of the programs in the following years.[41] In 2002, the Board's consultant recommended that the utilities retain EE program administration. In 2003, the Board established the New Jersey Clean Energy Council, which recommended that the Board administer EE and RE programs, and established the NJCEP, which is administered by the Board's Office of Clean Energy (now Division of Clean Energy or "DCE").

On January 13, 2008, L. 2007, c. 340 ("RGGI Act") was signed into law based on the New Jersey Legislature's findings that EE and conservation measures must be essential elements of the state's energy future and that greater reliance on EE and conservation will provide significant benefits to the citizens of New Jersey. The Legislature also found that public utility involvement and competition in the conservation and EE industries are essential to maximize efficiencies.[42]

Pursuant to Section 13 of the RGGI Act, codified at N.J.S.A. 48:3-98.1(a)(1), an electric or gas public utility may provide and invest in EE and conservation programs in its service territory on a regulated basis. Such investment in EE and conservation programs may be eligible for rate treatment approved by the Board, including a return on equity ("ROE"), or other incentives or rate mechanisms that decouple utility revenue from sales of electricity and gas.[43] Ratemaking treatment may include placing appropriate technology and program costs investments in the utility's rate base, or recovering the utility's technology and program costs through another ratemaking methodology approved by the Board.[44] An electric or gas utility seeking cost recovery for any EE and conservation programs pursuant to N.J.S.A. 48:3-98.1 must file a petition with the Board.[45]

Prior to the implementation of Triennium 1, and continuing to date, Staff hosts monthly Energy Efficiency Stakeholder Group meetings that are open to the public and provide opportunities for stakeholder participation.[46] Additionally, as part of the development of the overall Triennium 2 framework, Staff had ongoing meetings with Rate Counsel, the utilities, the Statewide Evaluator, and contractors to discuss ideas for the components of the framework, including through weekly or bi-weekly Utility Working Group and EM&V Working Group meetings.

---

[40] In re the Filings of the Comprehensive Resource Analysis of Energy Programs Pursuant to Section 12 of the Electric Discount and Energy Competition Act of 1999, BPU Docket Nos. EX99050347 et al., Order dated March 9, 2001.

[41] This proceeding and the Board's consultant's evaluation did not include Butler.

[42] N.J.S.A. 26:2C-45.

[43] N.J.S.A. 48:3-98.1(b).

[44] Ibid.

[45] Ibid.

[46] An archive of monthly Energy Efficiency Stakeholder Group meeting dates, agendas, materials, and recordings is available at https://njcleanenergy.com/committees/energy-efficiency/archive, and registration for upcoming meetings and Energy Efficiency listserv notifications is available at https://njcleanenergy.com/stakeholdergroups/energy-efficiency.

PROCEDURAL HISTORY

By the May 2023 Order, the Board approved the following initial aspects of the Triennium 2 EE framework: program administration and design, filing and reporting requirements, cost recovery, EE as a resource, and evaluation, measurement, and verification ("EM&V") (marked as "addressed" in the "Staff Recommendations" and "Discussion and Findings" sections below).

Following proper notice, Staff released straw proposals on June 7, 2023 and held two (2) public stakeholder meetings on June 20, 2023 on the following remaining topics related to the Triennium 2 EE framework: goals, targets, performance incentive mechanism, energy savings carryover ("EE3"), BD Programs ("EE4"), and DR programs ("EE5"). Staff invited stakeholders to provide written comments on these topics by June 27, 2023.

Staff reviewed and considered all stakeholder comments received throughout this process and used stakeholder input to develop and modify recommendations. Attachment D contains a summary of stakeholder comments and Staff's responses on EE3; Attachment E contains a summary of stakeholder comments and Staff's responses on EE4; and Attachment F contains a summary of stakeholder comments and Staff's responses on EE5. Based on Staff's review of comments from stakeholders, Staff provides the following recommendations pertaining to the remaining aspects of the framework for implementation of the second triennium of New Jersey's EE programs.

STAFF RECOMMENDATIONS

I. PROGRAM ADMINISTRATION

A. Program Years ("PYs") *(ADDRESSED)*

B. Utility-Led Programs

i. *Utility Core Programs (ADDRESSED)*

ii. *Additional Utility Initiatives*

- **Building Decarbonization Start-up Programs**

  Given New Jersey's mid- and long-term goals for energy usage reductions, building electrification, clean energy, and GHG emissions reductions by 2026, 2030, 2035, and 2050, respectively, Staff's recommendation is to initiate BD start-up programs of a large enough scale to set the foundation for New Jersey in Triennium 2 to make significant progress in Triennium 3 (2027–2030) – with a specific focus on achieving EO 316 goals – and thereafter toward cost-effectively transforming New Jersey's building sector and achieving the State's efficiency, conservation, and BD goals. These Triennium 2 BD Programs would help the State to evaluate policies on program design, EM&V, equity, workforce development, cost-effectiveness, and performance incentives for future BD Programs.

  In addition to the June 7, 2023 BD Programs stakeholder notice, the two (2) public stakeholder meetings on June 20, 2023, and written comments received on the BD start-up programs in June 2023, Staff also received initial oral and

written comments on BD programs in response to the March 23, 2023 notice with straw proposals that indicated that Staff anticipated that BD programs would be included as additional utility initiatives. Stakeholders offered initial oral and written comments on BD programs as part of the virtual public meeting held on April 6, 2023 and the comment period that remained open through April 28, 2023. Staff also hosted 16 meetings, primarily through the Utility Working Group, EM&V Working Group, and ad hoc Building Decarbonization Committee meetings – with 2-4 meetings per month and an average of more than 3 meetings per month, on development of the proposal – that included Rate Counsel and the utilities between January and May 2023 before release of the straw for comment in June 2023. Staff's recommendations are based on careful consideration of all comments received.

Staff recommends that the Board direct electric distribution companies ("EDCs") to propose BD Programs as part of their portfolio of EE Programs. These programs would prioritize customer incentives for electric space and water heating in the residential and multifamily sectors, focusing on switching from delivered fuels to electric heat pumps ("HPs") and making buildings electrification-ready while supporting participation by LMI and multifamily customers who are not eligible for the low-income Comfort Partners program. Staff recommends that the gas distribution companies ("GDCs") be allowed to propose BD Programs specifically for gas customers who are eligible for hybrid heating systems (as described further below), as well as district geothermal heating. In addition, Staff recommends that the Board direct the EDCs and allow the GDCs to propose BD Programs that target the commercial sector, which may include smaller-scale programs that focus on switching from delivered fuels to electric HPs in smaller commercial buildings and/or district geothermal systems for commercial customers. After consideration of stakeholder comments, Staff recommends that EDCs and GDCs also be allowed to propose BD Programs designed to serve large commercial and/or industrial customers for consideration by the Board that are complementary with the Large Energy Users Program ("LEUP") offered by New Jersey's Clean Energy Program. Staff recommends that BD Programs for commercial and/or industrial customers may comprise up to 30% of a utility's BD Program budget.

Staff believes that it is within the BPU's authority – based on the CEA, RGGI Act, and N.J.S.A. 52:27F-11 – to establish BD Programs whose primary objectives are efficiency and conservation, with conservation constituting reductions in overall energy usage below what would have otherwise been used. Staff believes that the BD Programs as recommended are consistent with the overall purpose and intent of the CEA, which is to reduce energy consumption throughout the state; consistent with the purpose and intent of the RGGI Act, which is to conserve energy or make the use of electricity or natural gas more efficient by New Jersey consumers; and consistent with N.J.S.A. 52:27F-11.

Regarding efficiency, the BD Programs would offer financial incentives for New Jersey consumers currently using fossil-fueled equipment to voluntarily adopt more efficient electric equipment. The BD Programs would prioritize incentives for electric space and water heating equipment; electric HPs are 200–400% efficient (meaning that they deliver two to four times as much energy in the

form of heat than the electrical energy that they consume), while fossil-fueled furnaces and boilers have maximum efficiencies below 100%.[47] The BD Programs may also offer incentives for highly efficient electric HP technology that is available for cooling and clothes drying, as well as electric induction technology, which is an alternative to fossil-fueled cook tops that uses dramatically less energy.[48]

Regarding conservation, the BD Programs would be designed to ensure that all projects result in net source energy savings on a fuel-neutral MMBtu basis and would track and evaluate projects and measures for net source energy savings on an MMBtu basis by fuel type. Moreover, Staff notes that, as with EE Programs, energy savings from BD Programs will increase over time as the electric grid introduces increasing amounts of clean energy and electricity production becomes more efficient. In addition, the BD Programs would focus on supporting participation by LMI and multifamily customers who are not eligible for Comfort Partners, and energy savings will have a relatively more significant beneficial impact on reducing these customers' energy burdens compared to higher income customers.

Regarding New Jersey consumers currently using fossil-fueled equipment who voluntarily choose to convert to electric equipment, Staff notes that the BD Programs would offer financial incentives to these consumers – as existing electric public utility customers – to adopt more efficient equipment and use less energy than what they otherwise would have used as part of this fuel-switching. Staff therefore asserts that the BD Programs are consistent with the Board's statutory authority and its call to conserve energy and make the use of electricity or natural gas by utility customers more efficient compared to what would have otherwise been used. When consumers currently using fossil-fueled equipment voluntarily choose to convert to electric equipment, their energy consumption on an electricity-only basis will increase but their overall energy consumption across fuels will decrease. Staff believes that it is within the BPU's authority to establish BD Programs that will reduce overall energy usage by New Jersey consumers. Staff also anticipates that fuel switching delivered fuels customers to electricity, in particular, will result in cost savings to these customers based on current fuel costs and the efficiency of measures incentivized by the BD Programs.

Staff also notes that, in calling for the Board to establish quantitative performance indicators ("QPIs") that ensure that public utilities' incentives or penalties are based upon performance, the CEA takes into account the growth in the use of EVs, microgrids, and distributed energy resources ("DER"). Staff suggests that building electrification, especially strategic or beneficial

[47] See, for example, U.S. Department of Energy, "Energy Saver 101 Infographic: Home Heating" (Mar. 2, 2023), energy.gov/energysaver/articles/energy-saver-101-infographic-home-heating; and MIT Technology Review, MIT Technology Review Explains, "Everything you need to know about the wild world of heat pumps" (Feb. 14, 2023), https://www.technologyreview.com/2023/02/14/1068582/everything-you-need-to-know-about-heat-pumps/

[48] ENERGY STAR, "Be Part of a Clean Energy Future," https://www.energystar.gov/about/how_energy_star_protects_environment/clean_energy_future

electrification, is analogous to EVs, microgrids, and DER as clean energy policy initiatives that increase electricity consumption to achieve net economic, environmental, and social benefits.

Regarding GHG emissions, Staff posits that, while not all decarbonization is based on efficiency or conservation, advancing efficiency and conservation through the BD Programs will *also* reduce emissions. BPU would not regulate emissions through the BD Programs; the BD Programs would not set any targets or objectives for emissions. In addition to tracking and evaluating projects and measures for net source energy usage reductions by fuel type, the BD Programs would *also* track and evaluate projects and measures for net source carbon dioxide equivalent ("CO_2e") reductions by fuel type. In other words, the BD Programs would use both source energy and source CO_2e emissions as "metrics" that provide data about outcomes of the start-up programs that Staff believes will be helpful in designing full-fledged BD Programs in Triennium 3.

In developing program proposals, the utilities should collaborate to ensure a consistent set of BD Program requirements and features statewide, utilizing the Triennium 2 BD Programs Framework ("BD Programs Framework") (Attachment B) as a starting point. Prior to filing proposed programs with the Board, the utilities should also seek stakeholder input to refine the design of these programs through at least two (2) virtual public stakeholder outreach sessions during and after business hours that are advertised on their websites.

Highlights from the BD Programs Framework are as follows:

- All BD Programs should seek to leverage Inflation Reduction Act ("IRA") tax credits and electrification rebates based on customer eligibility.

- The BD Programs should be designed in alignment with core EE Programs (and the IRA EE rebates that those programs will leverage) and promote targeted complementary measures that support and enhance BD, such as weatherization, replacement of electric resistance heating with HPs, electrification-readiness when combined with other EE upgrades, and behind-the-meter demand response measures, through integration with EE Programs. More specifically, weatherization should be incentivized along with a BD measure.

- BD Programs serving the multifamily sector should similarly be designed in alignment with core EE Programs and also in consultation with the New Jersey Housing and Mortgage Finance Agency and New Jersey Economic Development Authority to ensure alignment with other existing and complementary State programs or incentives for affordable and multifamily housing.

- Examples of program measures include:

    - Fuel switching of a space heating system, such as a fuel oil or natural gas furnace, to an electric HP;

- Fuel switching of a domestic water heater, such as a propane or natural gas heater, to an electric HP;

- Replacement of both a furnace and air conditioner with an electric HP;

- Hybrid, or dual-fuel, heating system, such as the replacement of an air conditioner with an electric HP in a central air system that retains a well-operating natural gas furnace that is not close to the end of its useful life; the replacement HP should be sized to meet either the full or partial heating demand load, with higher incentives for full load; the system could include integrated controls to switch between the furnace and the HP during the heating season when either the operating cost or emissions are lower for the furnace than for the HP; and

- Conversion of other gas to electric end-uses, such as induction cooking and dryers.

- Staff recommends that the utilities adopt a consistent set of minimum performance specifications for the BD measures statewide and should take into account existing standards to maximize alignment with other state and federal incentives.

- Staff recommends using the NJCT to prioritize and evaluate all BD Program proposals and outcomes but does not recommend requiring BD Programs to meet or exceed a benefit-cost ratio of 1.0 in Triennium 2. The CEA at N.J.S.A. 48:3-87.9(d)(2) states that a program may be exempt from the 1.0 requirement if implementation of the program is in the public interest. Staff believes that the BD Programs, as recommended, are in the public interest and that it is reasonable to not require BD Programs to pass a cost-effectiveness test because these are intended to be limited start-up programs that provide valuable information and will offer valuable data necessary to design and scale BD Programs in the longer-term. The rationale for aiming for, but not requiring, an NJCT result of 1.0 or greater is that the goals of the BD Programs in Triennium 2 include building the necessary capacity and skills for delivering meaningful energy and GHG emissions reductions while also producing the empirical data needed to fully assess impacts and cost-effectiveness. As also noted in the recommended BD Programs Framework, there may be a greater expectation for the BD Programs to pass the NJCT in Triennium 3.

- After consideration of stakeholder comments recommending higher budget levels, Staff recommends a more robust budget for BD Programs statewide that increases annually and sums to approximately $144 million by the third year of Triennium 2 to better align with achievement of EO 316 goals while also taking into account the effects of complementary IRA tax credits and rebates. Staff therefore recommends that each EDC should – and each GDC may – design its BD program to scale to achieve EO 316 goals with a budget maximum of approximately 7%, 8%, and 9% of the utility's EE budgets for Program Year 4 ("PY4" or "PY2025") (2024–2025), Program Year 5 ("PY5" or "PY2026") (2025–2026), and Program Year 6 ("PY6" or

"PY2027") (2026–2027), respectively. If based on the estimated utility EE budgets in the goal-setting study under the full compliance scenario, BD Programs budgets statewide would be approximately $84 million, $120 million, $144 million, respectively. Staff also notes, however, that these are estimated budgets and the utilities will propose overall EE budgets, including BD Program budgets, for consideration by the Board.

- **Demand Response Programs**

DR services offer an important mechanism for managing the reliability and economic optimization of the electric distribution system through voluntary customer participation. With the evolution of communication and control technology, including the spread of advanced metering infrastructure ("AMI"), the industry is rapidly moving away from traditional manual load shedding of large concentrated commercial loads through dedicated and proprietary control networks to sophisticated and precise coordination of smaller loads, managed alongside increasing amounts of DER at the grid edge. This transition has increased the variety and value of DR services. The urgency of achieving maximum grid integration of clean energy at reasonable cost to ratepayers means that compensative incentives should be provided to participating customers to utilize all their cost-effective response mechanisms, including DR and DER, in as many ways as possible.

Staff views utility-led DR programs as part of a larger market of open, portable grid flexibility services. The programs' rules and standards for data, information technology ("IT"), and pricing, such as time-of-use ("TOU") tariffs, should be forward-looking to reasonably align with the DR Guiding Principles, which envisions an increasing presence of dispatchable DER. Attachment C contains Staff's recommendations establishing the Triennium 2 framework for the DR programs ("DR Programs Framework"), including the DR Guiding Principles.

Staff recommends that the Board direct the EDCs to propose new DR programs for customers wishing to take advantage of incentives. Staff recommends that program proposals be consistent with open, modular, and portable grid flexibility services as defined in the DR Programs Framework. Staff recommends that programs may only be based on load management of non-generation assets (e.g., heating, ventilation, and air conditioning and water heaters). While a program may or may not incorporate AMI data, Staff recommends leveraging AMI data to provide measurement and verification at a suitable level of granularity for future DR transactions and to maximize the value of DR services.

Staff recommends that GDCs propose new DR service programs that leverage smart thermostats or other communication technologies for load management of gas appliances for customers wishing to participate. The core principle of portability is applicable in that GDC-run programs should not prevent customers from choosing or switching to third-party DR service providers and should give customers the rights to any data generated in connection to participation in GDC-run DR program. Staff recommends that the GDCs be

allowed to propose DR programs designed to incentivize customer actions during times of peak usage, in either of the following circumstances:

1. With a TOU rate design that reflects higher natural gas prices during the peak months and potentially a critical peak signal for periodic market spikes; or

2. Where smart thermostats are used to control natural gas demand during extreme cold events, with the resulting temperature offset acting as a measured proxy for reduced gas consumption until interval metering is available directly for GDC billing.

In developing these program proposals, the utilities should collaborate to ensure a consistent set of DR program requirements and features statewide.

Staff also recommends conducting a statewide study on a DER roadmap that would identify the priorities, experimentation, milestones, and timing required to achieve the mission outlined in the DR Guiding Principles. Staff would use the roadmap to develop recommendations for the Board on specific actions and DER and DR programs for Triennium 3.

Staff recommends that the utilities be allowed to propose to identify, design, and execute pilot programs. Pilots should align with the principles of the DR Guiding Principles and could focus on the following topics:

- Technology application, particularly DER management systems;
- Demonstration of measurement and verification ("M&V") through emerging AMI data access;
- Market pricing and clearing mechanisms (including TOU programs); and
- Market communication and aggregation frameworks.

The pilots may deploy non-generation, storage, and Class I generation assets, including, but not limited to, fuel cells, vehicle-to-grid, and solar. Approval of pilots will be predicated on their alignment with the DR Guiding Principles as described in the DR Programs Framework.

Prior to filing proposed programs with the Board, the utilities should seek stakeholder input to refine the design of the programs through at least two (2) virtual public stakeholder outreach sessions during and after business hours that are advertised on their websites.

iii.–vi. ***(ADDRESSED)***

C.–E. ***(ADDRESSED)***

II. PROGRAM FUNDING ***(ADDRESSED)***

III. GOALS, TARGETS, PERFORMANCE INCENTIVE MECHANISM, ENERGY SAVINGS CARRYOVER

The CEA establishes that the Board "shall require each electric public utility and gas public utility to reduce the use of electricity, or natural gas, as appropriate, within its territory, by its customers, below what would have otherwise been used."[49] Utilities must achieve energy savings of 0.75% for the natural gas utilities and 2% for the electric utilities "of the average annual usage in the prior three years within five years of implementation of its energy efficiency program."[50]

The CEA also provided the following guidance:

> [T]he board shall adopt quantitative performance indicators for each electric public utility and gas public utility, which shall establish reasonably achievable targets for energy usage reductions and peak demand reductions and take into account the public utility's energy efficiency measures and other non-utility energy efficiency measures including measures to support the development and implementation of building code changes, appliance efficiency standards, the Clean Energy program, any other State-sponsored energy efficiency or peak reduction programs, and public utility energy efficiency programs that exist on the date of enactment of [the CEA]. In establishing quantitative performance indicators, the board shall use a methodology that incorporates weather, economic factors, customer growth, outage-adjusted efficiency factors, and any other appropriate factors to ensure that the public utility's incentives or penalties . . . are based upon performance, and take into account the growth in the use of electric vehicles, microgrids, and distributed energy resources. . . . A public utility may apply all energy savings attributable to programs available to its customers, including demand side management programs, other measures implemented by the public utility, non-utility programs, including those available under energy efficiency programs in existence on the date of enactment of P.L.2018, c.17 (C.48:3-87.8 et al.), building codes, and other efficiency standards in effect, to achieve the targets established in this section.[51]

A. Goals

Following the transition of EE Programs to utilities during Triennium 1, those programs have been slowly but steadily ramping up in terms of participation, expenditures, and energy savings. As the programs continue to expand during Triennium 2, participation, energy savings, and budgets are expected to steadily increase to meet CEA goals by the fifth program year.

Staff commissioned a goal-setting study to establish cost-effective goals for the three (3) years of Triennium 2.[52]

---

[49] N.J.S.A. 48:3-87.9(a).

[50] Ibid.

[51] N.J.S.A. 48:3-87.9(c).

[52] The 2023 New Jersey BPU Goal Setting Study is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Market Potential Studies" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an

Staff notes several key assumptions of the goal-setting study:

- Estimated and incorporated the impacts of federal efficiency rebates anticipated to be available through the IRA during Triennium 2
- Assumed aggressive adoption rates for several electric measures
- Assumed that incentive levels match 100% of incremental measure costs
- Did not take into account energy savings expected to be achieved through New Jersey's codes and standards (e.g., Energy Subcode applicable to new construction, Rehabilitation Code applicable to existing buildings, and appliance standards law) and State-run programs by State agencies outside of BPU [e.g., Weatherization Assistance Program ("WAP") administered by the New Jersey Department of Community Affairs].

The study sought to identify cost-effective goals for State- and utility-run programs by conducting three (3) scenarios – including business as usual, full compliance, and high adoption – and provided "estimates of potential energy savings and [program] budgets" for each scenario.

Notably, the full compliance scenario (Scenario B) presented in Table 1 below was based on identification of achievable, cost-effective energy savings measures by State- and utility-administered programs and outlined the progression of energy savings expected to be needed during Triennium 2 to meet CEA goals. The scenario assumes that savings goals are capped at the CEA-mandated goals, increasing the rate of annual adoption for select measures by adjusting maximum achievable penetrations based on current market conditions and increasing administrative costs by 10% for those measures. Table 1 includes Triennium 1 (July 2021–June 2024) PY2024 energy reduction goals for the purposes of comparison with the Triennium 2 energy reduction goals presented in the goal-setting study.

Starting with the $1.1 billion expected EE incentive program budgets statewide in PY2024, the goal-setting study provided the following estimated budgets for EE incentive programs statewide in Triennium 2 under the full compliance scenario: $1.4 billion in PY2025, $1.6 billion in PY2026, and $1.8 billion in PY2027.

Table 1[53]

	Natural Gas			Electric		
Year	**Scenario B. Net State-Administered Annual Energy Reduction Target** *(% of retail sales)*	**Scenario B. All Net Utility-Administered Annual Energy Reduction Target** *(% of retail sales)*	**Total**	**Scenario B. Net State-Administered Annual Energy Reduction Target** *(% of retail sales)*	**Scenario B. All Net Utility-Administered Annual Energy Reduction Target** *(% of retail sales)*	**Total**
Triennium 1						
PY2024	0.07%	0.55%	**0.61%**	0.13%	1.18%	**1.31%**
Triennium 2						
PY2025	0.08%	0.61%	**0.68%**	0.18%	1.48%	**1.66%**
PY2026	0.08%	0.67%	**0.75%**	0.23%	1.77%	**2.00%**
PY2027	0.08%	0.67%	**0.75%**	0.23%	1.77%	**2.00%**

For Triennium 1, based on the CEA's call for all attributable energy savings to be calculated, as well as Staff's recommendation that using net savings to measure and evaluate energy savings is appropriate, the Board adopted Staff's recommendation that, in (1) calculating energy reductions resulting from EE and PDR programs and (2) applying other permissible savings, State and utility program administrators should report energy savings in both gross and net savings, and use net savings for all aspects of program review, including compliance and cost-effectiveness testing.

For Triennium 2, Staff recommends that the Board use net savings to support program planning and review of State and utility incentive programs, including for compliance and cost-effectiveness analysis. Also, per the CEA's language permitting application of energy savings attributable to programs available to utility customers – including other EE programs, building codes, and other efficiency standards – to achieve performance targets, Staff recommends that the Board apply toward the goals established for State programs the net energy savings achieved through New Jersey's building codes and efficiency standards (e.g., Energy Subcode applicable to new construction, Rehabilitation Code applicable to existing buildings, and appliance standards law) and State-run programs by other State agencies (e.g., WAP).

Regarding gross energy savings, Staff recognizes that other initiatives and activities outside of State and utility programs reduce energy consumption in the state but believes that, when evaluating achievement of CEA energy reduction goals, the CEA – in particular, specific allowance for application of energy savings from other programs, building codes, and efficiency standards, as well as the directive that each utility shall

[53] Staff notes that the Board allowed for a net-to-gross ("NTG") value of 1.0 for the purpose of determining programs' compliance with Triennium 1 targets and called for the development of New Jersey-specific NTG factors. In contrast, the proposed Triennium 2 targets above include NTG adjustments specific to New Jersey based on the effects of free ridership and spillover effects of EE programs that alter the level of energy savings that program administrators can claim for purposes of compliance with the CEA. The NTG study is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Technical Reference Manuals" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an.

reduce the use of electricity or natural gas, as appropriate, within its territory, by its customers, *below what would have otherwise been used* (emphasis added) – precludes the Board from applying energy reductions from market-driven activities that occur independent of incentive programs. Staff therefore recommends applying the following sources of energy savings toward the CEA's annual energy reduction goals:

- Net energy savings from State and utility incentive programs
- Net energy savings from New Jersey's building codes and efficiency standards (e.g., building energy codes and appliance standards) and net energy savings from other State programs and initiatives (e.g., WAP)

Recognizing some of the limitations of the goal-setting study, Staff recommends that State and utility program administrators use the State- and utility-specific net savings goals provided in the goal-setting study as a starting point when developing proposed annual energy reduction goals.

At the same time, BPU is currently overseeing efforts to estimate the energy savings from New Jersey's recent adoption of more stringent building energy codes and appliance standards, as well as energy savings from WAP, which would contribute to additional energy savings achievement by State-run programs.

Staff therefore recommends that, as part of Staff's review of State and utility program proposals, the Board authorize Staff to consider recommending State or utility net savings goals at levels different from than those in the goal-setting study in the interest of reducing incentive program budgets and ratepayer impacts if assessment of energy savings from building codes, efficiency standards, and other State programs supports increasing the State's relative share of annual net energy reduction goals and thereby lowering utility annual net energy goals.

B. Targets and Quantitative Performance Indicators

For Triennium 2, Staff recommends tracking and evaluating the utilities' performance with the following six (6) QPIs.

Table 2: Triennium 2 Quantitative Performance Indicators

QPI	Description	Weight	Unit
1) Annual Energy Savings	Verified first year energy savings from measures completed in the given program year	30%	Source MMBtu
2) Annual Demand Savings	Verified peak demand savings from measures completed in the given program year	10%	Peak MW or peak-day therm
3) Lifetime Energy Savings	Verified lifetime energy savings from measures completed in the given program year	20%	Source MMBtu
4) LMI and OBC Lifetime Energy Savings	Verified lifetime energy savings from measures completed in the given program year from LMI and OBC customers	10%	Source MMBtu
5) Small Business Lifetime Energy Savings	Verified lifetime energy savings from measures completed in the given program year from small business customers	10%	Source MMBtu
6) Cost to Achieve	Total EE portfolio costs divided by total portfolio verified lifetime energy savings	20%	Total EE portfolio $ / Lifetime source MMBtu

Use of Source MMBtu

While the CEA requires reductions in electricity and natural gas consumption, estimated as a percent of retail sales, for the purpose of setting detailed QPIs, Staff recommends using source MMBtu units to provide a unifying, common energy unit for analyzing and combining impacts across fuels and to capture energy savings from fuel switching measures implemented pursuant to the BD Programs. In addition to utilities counting source MMBtu savings from EE Programs toward achievement of their annual performance targets, Staff recommends that utilities be allowed to count source MMBtu savings from BD Programs. After consideration of stakeholder comments, Staff also recommends capping by 10% the amount that utilities are allowed to increase an energy-related QPI in Triennium 2 due to the inclusion of anticipated source MMBtu savings from BD Programs in acknowledgment of the start-up approach to integrating EE and BD Programs.

Source MMBtu shall be calculated by multiplying the site-based kWh and therm impact values, from the TRM, with site-to-source conversion factors expressed as the ratio of Source Btu to Site Btu, by year.

For electricity, source Btu shall incorporate losses associated with electricity generation efficiency and transmission and distribution losses that occur between generation and site. Source Btu for electricity are based on an estimate of the heat rate per MWh for PJM, de-escalated to a value equivalent to a 50% reduction in CO_2 emissions by 2050, as compared to the initial PJM-based value, consistent with the rate of de-escalation of CO_2 emissions as specified in the NJCT. For electricity, conversion of site kWh to site Btu is first calculated based on 3,412 Btu per kWh and then converted to source Btu using the site-to-source conversion factors in Table 4 in the Building Decarbonization Start-up Programs Framework (Attachment B).

The starting value for the heat rate is based on the mix of marginal generation units for PJM using heat rates by plant type from the U.S. Energy Information Administration ("EIA") and calculating a weighted average heat rate based on PJM's reported share of each plant type associated with marginal generation.[54] The resulting heat rates are also shown in Table 4 in Attachment B. The values in the table include line losses, which are calculated using a statewide average of 5.8% multiplied by a marginal loss factor of 1.5, as per the NJCT.

Source Btu for fossil fuels shall be based on the latest EPA Btu conversion values, adjusted to account for losses [source Btu = site Btu/(1-losses)].

QPIs

For the purposes of calculating QPIs, the utilities should submit forecasts of retail sales

[54] Heat rates for fossil and nuclear resources are from EIA's Electric Power Annual, https://www.eia.gov/electricity/annual/. For renewable resources, including wind and solar, a heat rate of 3,412 was used. A weighted average heat value was calculated for 2022 using the percent of each generator type from *PJM's 2018–2022 CO2, SO2 and NOX Emission Rates*, April 27, 2023, Table 1 for the year 2022. https://www.pjm.com/-/media/library/reports-notices/special-reports/2023/2022-emissions-report.ashx

in each of the preceding years that comprise the three-year average. Verified savings will be utilized for the purposes of calculating actual performance and applying incentives and penalties relative to that three-year average, which will apply for the duration of the triennium.

Each QPI is the percent achievement against a target that the utility shall file for each program year.

The first QPI, annual savings, directly pertains to the goals in Section III(A). For each remaining QPI, the utility shall file a target for the QPI along with detailed calculation based on the forecast of measures in their portfolio of programs across the three (3) program years. In calculating and filing proposed QPIs, the utilities should use a consistent methodology based on the formulas and other guidance provided by Staff.

Staff recommends deriving the ratio of lifetime savings to annual savings, the so-called portfolio weighted average expected useful life, from the goal-setting study results. This value will serve as a starting or reference point for Staff to evaluate the QPI targets proposed by the utilities in their filings.

Staff recommends that the targets applicable to LMI and OBC lifetime energy savings (QPI #4) should be approximately proportional to the contributions to retail sales by LMI customers and residential customers residing in OBCs and, likewise, that the utility targets applicable to small business lifetime energy savings (QPI #5) should be approximately proportional to small business customers' contributions to retail sales. Staff recommends that the Board direct the utilities to propose targets for QPI #4 and QPI #5, provide each group's respective contribution to retail sales, and allow the utilities to provide rationale if the proposed targets are different from the percentage of retail sales from those market segments or explain if this information is unavailable.

For cost to achieve (QPI #6), the filed value is the numerator and the achievement is the denominator.

For energy savings, BPU-approved QPI targets and verified energy savings accomplishments are first calculated in the units associated with site electricity (kWh) and site natural gas (therms). Next, approved QPI savings targets and verified EE savings accomplishments are converted to source MMBtu using the conversion rates in the preceding Use of Source MMBtu section. Next, the initial QPI is calculated as the ratio of the verified EE savings accomplishments divided by the approved QPI savings target (both in source MMBtu). Next, the verified source MMBtu savings from any approved BD Programs are added to the verified EE source MMBtu savings. This value (EE+BD source MMBtu savings) is then divided by the approved QPI target (in source MMBtu), which provides an adjusted QPI value inclusive of any approved BD savings. This adjusted QPI value is then used in the weighted average QPI calculation.

An illustrative example for a hypothetical utility is provided below in Table 3. As shown in this example, for the first-year savings QPI, the utility achieves a QPI ratio of 0.95 with EE-only savings and 1.02 with the addition of savings from approved BD Programs.

Table 3: Example of QPI Calculation for First-Year Energy Savings

Item Label	Parameter	Calculation	Value
A	Utility 3-Year Average kWh Sales	Average 3 year kWh sales	15,000,000,000
B	Utility PY5 EE Goal at 1.77% of kWh Sales, First-Year Savings	A X 0.0177	265,500,000
C	Utility PY5 EE Goal in Source MMBtu, First-Year Savings	B X 3412 X 2.5/1,000,000 (2.5 = Site-to-Source Conversion Factor)	2,264,715
D	Utility PY5 EE First-Year Savings Accomplishment, kWh	Verified Savings	252,225,000
E	Utility PY5 EE First-Year Savings Accomplishment, Source MMBtu	D X 3412 X 2.5/1,000,000 (2.5 = Site-to-Source Conversion Factor)	2,151,479
F	Utility PY5 EE First-Year Savings QPI Value	E/C	0.95
G	Utility PY5 BD Savings, Source MMBtu	Verified Savings	150,000
H	Utility PY5 EE+BD Savings, Source MMBtu	G + E	2,301,479
I	Utility PY5 EE+BD First-Year Savings QPI Value	H/C	1.02

Staff recommends that the Board authorize Staff to provide corrections, adjustments, and clarifications on the source MMBtu approach, including site-to-source conversion, if needed, in consultation with the EM&V Working Group.

The total weighted QPIs, which is the input to calculate performance incentives and penalties, equates to the weighted sum of the QPI ratios, %QPI, as follows:

$$Total\ Weighted\ QPI = \sum_{i=1}^{6} weight_i * \%QPI_i$$

As a dual-fuel utility, PSE&G requires unique guidance for annual demand savings (QPI #2) because that QPI has different units of measure between electricity (MW) and natural gas (peak day therm) while the other QPIs already use source MMBtu as the unit of measure. Staff recommends that PSE&G should use the following formula for QPI #2:

PSE&G weighted Annual Demand Savings = ((Electric QPI result * source MMBtu baseline retail electric sales) + (Natural gas QPI result * source MMBtu baseline retail

natural gas sales)) / (total source MMBtu baseline electric + natural gas)

Similar to the approach recommended in the June 2020 Order, when calculating QPIs associated with each metric, Staff recommends using a methodology that, pursuant to N.J.S.A. 48:3-87.9(c), does the following:

- Incorporates weather, economic factors, customer growth, outage-adjusted efficiency factors, and any other appropriate factors to ensure that the public utility's incentives or penalties are based upon performance; and

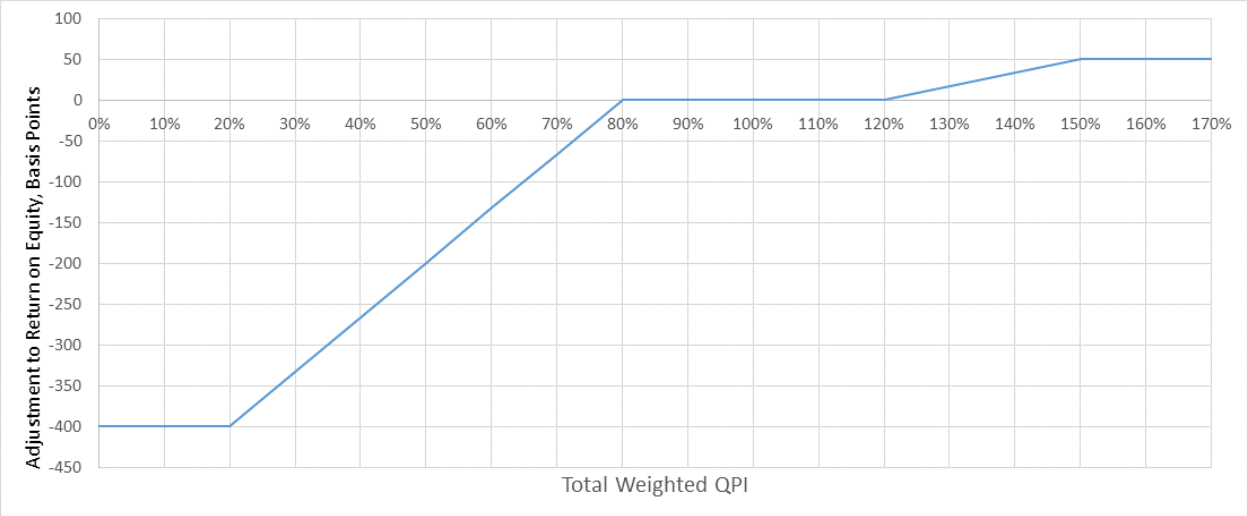
- Takes into account the growth in the use of EVs, microgrids, and DER, as well as electrification resulting from BD Programs.

C. Performance Incentive Mechanism ("PIM")

According to N.J.S.A. 48:3-87.9(e)(2), if an electric or gas public utility achieves its performance targets, the utility shall receive an incentive as determined by the Board through an accounting mechanism established pursuant to N.J.S.A. 48:3-98.1 for its EE and PDR measures for the following year. The incentive shall scale in a linear fashion to a maximum established by the Board that reflects the extra value of achieving greater savings. According to N.J.S.A. 48:3-87.9(e)(3), if a utility fails to achieve the reductions in its performance targets, it "shall be assessed a penalty as determined by the [B]oard through an accounting mechanism established pursuant to [N.J.S.A. 48:3-98.1] for its [EE] and [PDR] measures for the following year. The penalty shall scale in a linear fashion to a maximum established by the [B]oard that reflects the extent of the failure to achieve the required savings." Pursuant to N.J.S.A. 48:3-87.9(e)(4), the incentive and penalty adjustments may be made through adjustment of the utility's ROE related to the EE or PDR programs only, or through a specified dollar amount, reflecting the incentive and penalty structure. The CEA states that adjustments shall not be included in a revenue or cost in any base rate filing.

Staff's recommended PIM adjusts a utility's ROE on the utility's EE Program investment based on the total weighted QPI as shown in the figure below. Staff believes that using a utility's ROE, established from the utility's most recent base rate case, is fair and represents the current market value of shareholder returns in the interim period. Staff recommends that the weighted average cost of capital used as a utility's carrying cost of EE Program investment occurring in the following year be comprised of (a) the cost of debt and (b) the ROE, as established in the "Cost Recovery: Investment Treatment" section of the EE Triennium 2 Framework.

Figure 1: Triennium 2 Performance Incentive Mechanism



The graph shows no adjustment to the ROE if a utility scores between 80% to 120%. Above 120%, the ROE adjustment increases linearly to +50 basis points at 150%. If a utility achieves 150% or higher, 50 basis points are added to its ROE. Going from 80% to 20%, the ROE adjustment (or penalty) becomes increasingly negative. If a utility is below 20% achievement, then the ROE is adjusted by -400 basis points.

Since the CEA does not mandate utility achievement of energy use reductions until after PY5, Staff recommends that awards of incentives and assessments of penalties not begin until after the conclusion of PY5 and that these be based on PY5 performance.

Per Table 1: Use of TRM Revisions in the Board-approved Evaluation Framework, CEA and QPI/PIM compliance are based on the Triennium 2 TRM in the first year of the triennium and Annual TRM Updates with Category 1 changes in the second and third years of the triennium. Category 1 changes include, but are not limited to in-service rates, algorithm errors, non-conformance with the TRM, codes and standards, new measures, and deleted measures.55

Staff also recommends that the Board exercise flexibility in levying penalties due to circumstances outside of utility control, such as unforeseeable catastrophic circumstances that constitute force majeure events.

D. Energy Savings Carryover for QPIs

For Triennium 1, the Board approved a stipulation of settlement that allowed the utilities, in the interest of promoting customer adoption of EE and ensuring EE Program continuity, to apply energy savings in excess of annual compliance goals ("Carryover Savings") toward goals and QPIs for Program Years 2023, 2024, and 2025, without

[55] Energy Efficiency Triennium 2 Evaluation Framework at 11, *available at* https://www.njcleanenergy.com/files/file/BPU/2023/Market%20Analysis%20Baseline%20Studies/EE%20T2%20Evaluation%20Framework.pdf

alleviating the utilities' minimum energy savings obligations under the CEA.[56] The Board allows Carryover Savings to be applied to only the immediately subsequent Program Year, with the Carryover Savings being the first savings counted prior to application of any EE savings captured in the subsequent Program Year. Carryover Savings applied to Program Year 2025 is limited to no more than 10% of any utility's Program Year 2025 annual compliance goal based solely on the savings calculation using the primary metric for Program Year 2025. Should a utility seek to apply Carryover Savings in excess of 10% of its Program Year 2025 annual compliance goal, the Carryover Savings shall be adjusted based on information reported in each utility's Triennium 1 progress report. Such adjustment shall be based on a ratio of the savings reported after application of the Program Year 2024 secondary metric for key measures, as defined by the TRM Committee of the EM&V Working Group, compared against the savings reported using the Program Year 2024 primary metric used for compliance.

For Triennium 2, Staff recommends that the Board continue to allow the utilities to "bank" and carry over portfolio savings achievements in excess of their annual targets in a given year and apply such achievements to the immediately subsequent program year according to the parameters outlined below. The intent of this approach is to encourage acceleration of EE project adoption, support coordinated program delivery between gas and electric utilities, and promote continuity of market offerings. Carried over achievements would continue to be reported in the year incurred and included during that period for EM&V and cost-effectiveness.

Under this approach, QPI performance incentives or penalties would continue to be calculated based on a utility's total weighted performance. However, the utilities would be allowed to elect energy and demand QPI results in excess of their annual target to be "banked" for use in a subsequent year prior to calculation of performance for each QPI element. Utilities would identify banked QPI achievements and exclude those results to calculate adjusted QPI performance in their annual compliance reports. The final QPI performance for each year, including such adjustments (either added or removed from a given year), would be utilized for the purposes of applying incentives and penalties.

[56] In re the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, BPU Docket No. QO19010040; In re the Petition of Atlantic City Electric Company for Approval of an Energy Efficiency Program, Cost Recovery Mechanism and Other Related Relief for Plan Years One Through Three, BPU Docket No. EO20090621; In re the Petition of Elizabethtown Gas Company for Approval of New Energy Efficiency Programs and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act and the Establishment of a Conservation Incentive Program, BPU Docket No. GO20090619; In re the Verified Petition of Jersey Central Power & Light Company for Approval of JCP&L's Energy Efficiency and Conservation Plan Including Energy and Peak Demand Reduction Programs (JCP&L EEC), BPU Docket No. EO20090620; In re the Petition of New Jersey Natural Gas Company for Approval of Energy Efficiency Program and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act, N.J.S.A. 48:3-87.8 et seq. and 48:3-98.1 et seq., BPU Docket No. GO20090622; In re the Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future - Energy Efficiency ("CEF-EE") Program on a Regulated Basis, BPU Docket Nos. GO18101112 & EO18101113; In re the Petition of Rockland Electric Company for Approval of its Energy Efficiency Program and Peak Demand Reduction Programs, BPU Docket No. EO20090623; In re the Petition of South Jersey Gas Company for Approval of New Energy Efficiency Programs and the Associated Cost Recovery Pursuant to the Clean Energy Act, BPU Docket No. GO20090618, Order dated August 17, 2022.

Staff recommends that, as a continuation of the approach adopted in Triennium 1, Carryover Savings applied to each program year should be limited to no more than 10% of any utility's annual compliance goal based on the savings calculation using the Triennium 2 TRM. Should a utility seek to apply Carryover Savings in excess of 10% of its annual compliance goal, the Carryover Savings shall be adjusted based on information reported in each utility's annual progress report for the applicable year. Such adjustment shall be based on a ratio of the savings reported after application of the primary metric (as defined in Table 1 of the Evaluation Framework cited above) for key measures (as defined by the TRM Committee) compared against the savings reported using the secondary metric used for compliance in that program year. Staff recommends that the Board authorize Staff to provide corrections, adjustments, and clarifications on this approach, if needed, in consultation with the EM&V Working Group.

After consideration of stakeholder comments, Staff recommends that the banked QPI achievements should only be utilized to offset a penalty and not to earn incentives. Further, Staff recommends that the utilities should have the opportunity to elect bank QPI achievements at the end of a program year and that election will not be reversible.

IV.–X. *(ADDRESSED)*

DISCUSSION AND FINDINGS

The Board **FINDS** that the processes utilized in developing Staff's recommendations were appropriate and provided stakeholders and interested members of the public with adequate notice and opportunity to comment.

The Board has carefully reviewed the stakeholder comments and Staff's recommendations. The Board **FINDS** that Staff's recommendations will benefit New Jersey's residents, energy users, ratepayers, and electric and gas public utilities and are consistent with the goals of the Clean Energy Act, the EMP, and other relevant laws and policy authorities. Therefore, the Board **HEREBY APPROVES** Staff's recommendations, with specific directives included below.

I. Program Administration

A. Program Years ("PYs") (ADDRESSED)

B. Utility-Led Programs

i. Utility Core Programs (ADDRESSED)

ii. Additional Utility Initiatives

Building Decarbonization Start-up Programs

Given New Jersey's mid- and long-term goals for energy usage reductions, building electrification, clean energy, and GHG emissions reductions by 2026, 2030, 2035, and 2050, respectively, the Board **ACCEPTS** Staff's recommendation to initiate BD Start-up Programs of a large enough scale to set the foundation for New Jersey in Triennium 2 to make significant progress in Triennium 3 – with a specific focus on achieving EO 316 goals – and thereafter toward cost-effectively transforming New Jersey's building sector and achieving the State's efficiency, conservation, and BD goals. These Triennium 2 BD Programs should help the State to evaluate

policies on program design, EM&V, equity, workforce development, cost-effectiveness, and performance incentives for future BD Programs.

The Board **FINDS** that the primary objectives of the BD Start-up Programs are efficiency and conservation, with conservation constituting reductions in electricity and gas usage below what would have otherwise been used, as well as reductions in overall energy usage. The Board **FINDS** that BD Programs are consistent with the overall purpose and intent of the CEA, which is to reduce energy consumption throughout the state; consistent with the purpose and intent of the RGGI Act, which is to conserve energy or make the use of electricity or natural gas more efficient by New Jersey consumers; and consistent with N.J.S.A. 52:27F-11, which provides the Board with various authorities, including the authority to conduct and supervise research projects and programs for the purpose of increasing EE and evaluating energy conservation measures. The Board **AGREES** with Staff's recommendations that all BD projects and measures be tracked and analyzed for both net source energy usage reductions on an MMBtu basis by fuel type and net source CO_2e reductions by fuel type. The Board also **AGREES** with Staff that fuel switching delivered fuels customers to electricity is expected to result in bill savings to these customers based on current fuel costs and the efficiency of measures incentivized by the BD Programs.

The Board **AGREES** with Staff's recommendation that the EDCs be required to propose BD Programs as part of their portfolios of EE Programs and prioritize customer incentives for electric space and water heating in the residential and multifamily sectors, focusing on switching from delivered fuels to electric heat pumps and making buildings electrification-ready while supporting participation by LMI and multifamily customers who are not eligible for Comfort Partners. The Board also **AGREES** with Staff's recommendation that the GDCs be allowed to propose BD Programs specifically for gas customers who are eligible for hybrid heating systems, as well as district geothermal heating. In addition, the Board **AGREES** with Staff's recommendation that EDCs should be required and GDCs be allowed to propose BD Programs that target the commercial sector and that EDCs and GDCs also be allowed to propose BD Programs designed to serve large commercial and/or industrial customers that are complementary with LEUP.

The Board **AGREES** with Staff's recommendation that BD Start-up Programs will utilize the NJCT to prioritize and evaluate all BD Program proposals and outcomes but shall not be required to meet or exceed a NJCT result of 1.0 in Triennium 2 in order to promote energy efficiency technologies and in the public interest of obtaining from a smaller scale program information necessary to implement, design, and scale BD Programs in future years. The Board also **AGREES** with Staff's recommendations on BD Program budgets.

The Board **AGREES** with Staff's recommendations on program goals and scale, program criteria and considerations, guidance for aligning the BD Programs with core EE Programs, examples of program measures and fuel switching events, program impacts for program administrators, treatment of source energy and emissions impacts, program evaluation and reporting, planning, and minimum filing requirements. The Board therefore **ADOPTS** Staff's recommendations, including establishing the BD Programs Framework as contained in Attachment B, and **DIRECTS** Staff to make corrections, adjustments, and clarifications to the framework as needed as part of implementation of the BD Programs.

The Board **HEREBY DIRECTS** the EDCs to propose BD Programs and budgets consistent with the BD Programs Framework. The Board also **DIRECTS** all utilities proposing BD Programs to collaborate to ensure a consistent set of BD Program requirements and features statewide pursuant to the BD Programs Framework and to seek stakeholder input to refine the

design of these programs prior to filing proposed programs with the Board, as recommended by Staff.

The Board also **DIRECTS** Staff to update the Triennium 2 TRM and NJCT as needed to align with the Board's approval of the EE Triennium 2 framework, including the BD Programs Framework.

Demand Response Programs

DR balances demand on power by encouraging customers to voluntarily shift electric or gas demand to times when demand is lower or supply is higher, through incentives. The Board **FINDS** that DR services offer an important mechanism for managing the reliability and economic optimization of the electric distribution system and that utility-led DR programs should fit within a larger market of open, portable grid flexibility services. The Board **ADOPTS** Staff's recommendations, including establishing the DR Programs Framework as contained in Attachment C, and **DIRECTS** the EDCs to propose new DR programs consistent with open, modular, and portable grid flexibility services as defined in the DR Programs Framework. Programs may only be based on load management of non-generation assets. While a program may or may not incorporate AMI data, AMI data should be leveraged to provide M&V at a suitable level of granularity for future DR transactions and maximize the value of DR services. The programs' rules and standards for data, IT, and pricing, such as TOU tariffs, should be forward-looking to reasonably align with core principles of the DR Guiding Principles, which envisions an increasing presence of dispatchable DER. The Board also **DIRECTS** the GDCs to implement new DR service programs consistent with the DR Programs Framework. Such programs should leverage smart thermostats or other communication technologies for load management of gas appliances. GDC-run programs should not prevent customers from choosing or switching to third-party DR service providers and should give customers the rights to any data generated in connection to participation in GDC-run DR program. The Board **ACCEPTS** Staff's recommendation that the GDCs be allowed to propose DR programs designed to incentivize customer actions during times of peak usage. The Board also **ACCEPTS** Staff's recommendation that the utilities may identify, design, and execute pilot programs in alignment with the DR Guiding Principles.

The Board **DIRECTS** all utilities proposing DR programs to collaborate to ensure a consistent set of BD Program requirements and features statewide pursuant to the DR Programs Framework. The Board also **DIRECTS** all EDCs and GDS proposing DR programs and pilots to seek stakeholder input to refine the design of these programs and pilots prior to filing proposals with the Board, as recommended by Staff.
The Board **DIRECTS** Staff to conduct and complete during Triennium 2 a statewide study on a DER roadmap that would identify the priorities, experimentation, milestones, and timing required to achieve the mission outlined in the DR Guiding Principles.

iii.–vi. (ADDRESSED)

C.–E. (ADDRESSED)

II. Program Funding *(ADDRESSED)*

III. Goals, Targets, Performance Incentive Mechanism, Energy Savings Carryover

A. Goals

The Board **ACCEPTS** Staff's recommendation to use net savings to support program planning and review of State and utility incentive programs, including for compliance and cost-effectiveness analysis. The Board also **ACCEPTS** Staff's recommendation that the Board apply toward the goals established for State programs the net energy savings achieved through New Jersey's building codes and efficiency standards and State-run programs by other State agencies. Therefore, the Board **ADOPTS** Staff's recommendation to apply the following sources of energy savings toward the CEA's annual energy reduction goals:

- Net energy savings from State and utility incentive programs
- Net energy savings from New Jersey's building codes and efficiency standards (e.g., building energy codes and appliance standards) and net energy savings from other State programs and initiatives (e.g., WAP)

The Board also **ADOPTS** Staff's recommendation that State and utility program administrators use the State- and utility-specific net savings goals provided in the goal-setting study as a starting point when developing proposed annual energy reduction goals.

The Board **RECOGNIZES** that energy savings from New Jersey's recent adoption of more stringent building energy codes and appliance standards, as well as energy savings from other State programs and initiatives would contribute to additional energy savings achievement by State-run programs. The Board **DIRECTS** Staff to evaluate whether energy savings from these sources would support increasing the State's relative share of annual net energy reduction goals and thereby lowering utility annual net energy goals. This evaluation will help Staff to determine whether to recommend Board approval of State or utility net savings goals at levels different from than those in the goal-setting study.

B. Targets and Quantitative Performance Indicators

The Board **FINDS** that Staff's recommended QPIs for Triennium 2 strike a reasonable balance between annual and lifetime savings and sets appropriate weighting for lifetime energy savings from LMI, OBC, and small business customers. The Board also **FINDS** that the cost to achieve QPI is not duplicative of cost-effectiveness testing and will provide the Board with valuable information about the relative cost of EE programs compared to other clean energy initiatives. Moreover, the Board **ACCEPTS** Staff's recommendation to use source MMBtu for the purpose of setting detailed QPIs because it provides a unifying, common energy unit for analyzing and combining impacts across fuels and enables accounting of energy savings from fuel switching measures implemented pursuant to the BD Programs. The Board therefore **ADOPTS** Staff's recommended Triennium 2 QPIs and **DIRECTS** that utilities may count source MMBtu savings from BD Programs toward QPI achievement. The Board **DIRECTS** Staff to make corrections, adjustments, and clarifications on the source MMBtu approach, including site-to-source conversion, if needed, in consultation with the EM&V Working Group.

For the purposes of calculating QPIs, the Board **APPROVES** Staff's recommended approach and **DIRECTS** the utilities to submit forecasts of retail sales in each of the preceding years that comprise the three-year average. Verified savings will be utilized for the purposes of calculating actual performance and applying incentives and penalties relative to that three-year average, which will apply for the duration of the triennium.

The Board **DIRECTS** the utilities to file annual proposed targets for each QPI, including annual energy savings that are consistent with Section III(A). For each remaining QPI, the Board **DIRECTS** the utilities to file annual proposed targets along with detailed calculations based on the forecast of measures in the utilities' portfolios of programs across the three program year. The Board **DIRECTS** the utilities to use a consistent methodology based on the formulas and other guidance provided by Staff.

C. Performance Incentive Mechanism

Regarding performance incentives and penalties during Triennium 2, the Board **ADOPTS** Staff's recommendation that each utility's potential incentive and penalty both take the form of an ROE adjustment applied to EE and PDR program investment based on the total weighted QPI with the WACC comprising the utility's cost of debt and the ROE. The Board **FINDS** that Staff's recommendations on the performance incentive and penalty structure are compliant with CEA guidance and a reasonable and fair structure for Triennium 2. The Board **ACCEPTS** Staff's recommendation that achievement of 80% to 120% of a utility's total weighted performance will represent compliance with the Board-established targets and that no incentive be awarded or penalty assessed within this range. The Board also **ACCEPTS** Staff's recommendations to scale incentives more conservatively compared to penalties, to establish a conservative ceiling on incentives and a reasonable floor on penalties. The Board therefore **ADOPTS** Staff's recommended approach to the Triennium 2 PIM and **DIRECTS** Staff to implement the PIM after the conclusion of PY5. The Board also agrees that the Board may exercise its discretion in levying penalties due to circumstances outside of utility control, such as unforeseeable catastrophic circumstances that constitute force majeure events. The Board **DIRECTS** each utility to include in its annual cost recovery filing calculation of any performance incentives or penalties consistent with the approved Triennium 2 PIM.

D. Energy Savings Carryover for QPIs

For Triennium 2, the Board **FINDS** that allowing the utilities to "bank" and carry over portfolio savings achievements in excess of their annual targeted goals in a given year and apply such achievements to the immediately subsequent future program year is advisable to encourage acceleration of EE project adoption, support coordinated program delivery between gas and electric utilities, and promote continuity of market offerings. The Board **AGREES** with Staff's recommended parameters limiting energy savings carryover, including allowing banked QPI achievements to only be utilized to offset a penalty and not to earn incentives, providing the utilities with the irreversible opportunity to elect bank QPI achievements at the end of a program year, and calculating savings relative to Carryover Savings that are below or that exceed 10% of utilities' annual compliance goals. The Board therefore **ADOPTS** Staff's recommendations pertaining to Carryover Savings and **DIRECTS** Staff to provide corrections, adjustments, and clarifications on this approach, if needed, in consultation with the EM&V Working Group.

IV.–X. *(ADDRESSED)*

The effective date of this order is August 2, 2023.

DATED: July 26, 2023

BOARD OF PUBLIC UTILITIES
BY:

JOSEPH L. FIORDALISO
PRESIDENT

MARY-ANNA HOLDEN
COMMISSIONER

DR. ZENON CHRISTODOULOU
COMMISSIONER

CHRISTINE GUHL-SADOVY
COMMISSIONER

ATTEST:

SHERRI L. GOLDEN
SECRETARY

I HEREBY CERTIFY that the within document is a true copy of the original in the files of the Board of Public Utilities.

IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, C. 17, THE NEW JERSEY CLEAN ENERGY ACT OF 2018, REGARDING THE ESTABLISHMENT OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS, DOCKET NO. QO19010040

IN THE MATTER OF THE IMPLEMENTATION OF P.L. 2018, C. 17, THE NEW JERSEY CLEAN ENERGY ACT OF 2018, REGARDING THE SECOND TRIENNIUM OF ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS, DOCKET NO. QO23030150

IN THE MATTER OF ELECTRIC PUBLIC UTILITIES AND GAS PUBLIC UTILITIES OFFERING ENERGY EFFICIENCY AND CONSERVATION PROGRAMS, INVESTING IN CLASS I RENEWABLE ENERGY RESOURCES AND OFFERING CLASS I RENEWABLE ENERGY PROGRAMS IN THEIR RESPECTIVE SERVICE TERRITORIES ON A REGULATED BASIS, PURSUANT TO N.J.S.A. 48:3-98.1 AND N.J.S.A. 48:3-87.9 – MINIMUM FILING REQUIREMENTS, DOCKET NO. QO17091004

SERVICE LIST

New Jersey Division of Rate Counsel

140 East Front Street, 4th Floor
P.O. Box 003
Trenton, NJ 08625-0003

Brian O. Lipman, Esq., Director
blipman@rpa.nj.gov

Maura Caroselli, Esq.
Manager, Gas and Clean Energy
maura.caroselli@rpa.nj.gov

Mamie Purnell, Esq.
Assistant Rate Counsel
mamie.purnell@rpa.nj.gov

Rate Counsel Consultants

Ezra Hausman, Ph.D.
77 Kaposia St.
Auburndale, MA 02466
ezra@ezrahausman.com

David Dismukes, Ph.D.
Consulting Economist/Managing Partner
Acadian Consulting Group
5800 One Perkins Place, Suite 5F
Baton Rouge, LA 70808
daviddismukes@acadianconsulting.com

New Jersey Board of Public Utilities

44 South Clinton Avenue, 1st Floor
P.O. Box 350
Trenton, NJ 08625-0350

Sherri L. Golden, Board Secretary
board.secretary@bpu.nj.gov

Bob Brabston, Executive Director
robert.brabston@bpu.nj.gov

Stacy Peterson, Deputy Executive Director
stacy.peterson@bpu.nj.gov

General Counsel's Office

Michael Beck, General Counsel
michael.beck@bpu.nj.gov

Carol Artale, Deputy General Counsel
carol.artale@bpu.nj.gov

James Creech, Legal Specialist
james.creech@bpu.nj.gov

New Jersey Board of Public Utilities, cont'd

Office of the Economist

Dr. Benjamin Witherell, Director
benjamin.witherell@bpu.nj.gov

Division of Clean Energy

Kelly Mooij, Director
kelly.mooij@bpu.nj.gov

Stacy Ho Richardson, Deputy Director
stacy.richardson@bpu.nj.gov

Rupa Deshmukh
Energy Efficiency Manager
rupa.deshmukh@bpu.nj.gov

Philip Chao, Senior Program Manager
philip.chao@bpu.nj.gov

Kevin Nedza
kevin.nedza@bpu.nj.gov

Dustin Wang, Program Specialist
dustin.wang@bpu.nj.gov

Alexis Trautman, Research Scientist
alexis.trautman@bpu.nj.gov

David Titus, Program Specialist Trainee
david.titus@bpu.nj.gov

Olivia Najjar, Program Specialist Trainee
olivia.najjar@bpu.nj.gov

Division of Water and Energy

Michael Kammer, Director
michael.kammer@bpu.nj.gov

Malike Cummings, Deputy Director
malike.cummings@bpu.nj.gov

Bart Kilar
bart.kilar@bpu.nj.gov

William Barkasy
william.barkasy@bpu.nj.gov

New Jersey Board of Public Utilities, cont'd

Division of State Energy Services

Sara Bluhm Gibson, Director
sara.bluhm@bpu.nj.gov

New Jersey Division of Law

Department of Law & Public Safety
Division of Law
R.J. Hughes Justice Complex, 7th Floor West
25 Market Street
P.O. Box 112
Trenton, NJ 08625-0112

David Apy, Assistant Attorney General
david.apy@law.njoag.gov

Daren Eppley, Section Chief, DAG
daren.eppley@law.njoag.gov

Pamela Owen, Assistant Section Chief, DAG
pamela.owen@law.njoag.gov

Matko Ilic, DAG
matko.ilic@law.njoag.gov

Paul Youchak, DAG
paul.youchak@law.njoag.gov

Atlantic City Electric Company

Philip J. Passanante, Esq.
Assistant General Counsel
Mailstop 92DC42
500 North Wakefield Drive
Newark, DE 19702-5440
philip.passanante@pepcoholdings.com

Jessica Yu, Manager
Energy Efficiency & Demand Response
Portfolio Planning, Design, and Evaluation
Edison Place
701 9th Street
Washington, D.C. 20001
jessica.yu@exeloncorp.com

Butler Power and Light Company

Robert H. Oostdyk, Jr., Esq.
Murphy McKeon P.C.
51 Route 23 South
P.O. Box 70
Riverdale, NJ 07456
admin@butlerborough.com

Jim Lampmann
Borough Administrator
One Ace Road
Butler, NJ 07405
jlampmann@butlerborough.com

Elizabethtown Gas Company and South Jersey Gas Company

1 S. Jersey Plaza
Folsom, NJ 08037

Dominick DiRocco, Esq.
Vice President, Rates & Regulatory Affairs
SJI Utilities
ddirocco@sjindustries.com

Sheree Kelly, Regulatory Affairs Counsel
SJI Utilities
skelly@sjindustries.com

Maureen Minkel
Senior Director, Energy Efficiency and Conservation
South Jersey Gas Company
1 South Jersey Place
Atlantic City, NJ 08401
mminkel@sjindustries.com

Jersey Central Power & Light Company

Tori Giesler, Esq., Managing Counsel
2800 Pottsville Pike
Reading, PA 19612-6001
tgiesler@firstenergycorp.com

76 South Main
Akron, OH 44308

Kurt Turosky
Director, Energy Efficiency Compliance & Reporting
kturosky@firstenergycorp.com

Eren Demiray
Manager, Energy Efficiency Reporting
eren.demiray@firstenergycorp.com

Diane Rapp
Manager, Evaluation, Measurement, & Verification
diane.rapp@firstenergycorp.com

New Jersey Natural Gas Company

1415 Wyckoff Road
PO Box 1464
Wall, NJ 07719

Andrew K. Dembia, Esq.
Regulatory Affairs Counsel
adembia@njng.com

Anne-Marie Peracchio
Managing Director, Marketing and Energy Efficiency
aperacchio@njng.com

Jerry Ryan, Director, SAVEGREEN
jryan@njng.com

Public Service Electric and Gas Company

PSEG Services Corporation
80 Park Plaza, T5
P.O. Box 570
Newark, NJ 07102

Joseph F. Accardo, Jr., Esq.
Vice President –Regulatory & Deputy General Counsel
joseph.accardojr@pseg.com

Stacey Barnes, Esq.
Associate Counsel – Regulatory
stacey.barnes@pseg.com

Danielle Lopez, Esq.
Associate Counsel – Regulatory
danielle.lopez@pseg.com

Karen Reif
Vice President – Renewables & Energy Solutions
karen.reif@pseg.com

Susanna Chiu
Senior Director – Operational Services
susanna.chiu@pseg.com

Tim Fagan
Manager, Planning and Evaluation
PSE&G – Renewables & Energy Solutions
tim.fagan@pseg.com

Jessica (Brand) Hood
Res – Program Growth & Strategy
jessica.hood@pseg.com

Rockland Electric Company

John Carley, Esq.
Associate General Counsel
4 Irving Place Room 1815-S
New York, New York 10003
carleyj@coned.com

Margaret Comes, Esq.
Associate Counsel
4 Irving Place Room 1815-S
New York, New York 10003
comesm@coned.com

Phil Madnick, Section Manager
Customer Energy Services
Orange & Rockland Utilities, Inc.
390 West Route 59
Spring Valley, NY 10977
madnickp@oru.com

In the Matter of the Implementation of P.L. 2018, c. 17, the New Jersey Clean Energy Act of 2018 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs
Docket No. QO19010040

In the Matter of the Implementation of P.L. 2018, c. 17, the New Jersey Clean Energy Act of 2018, Regarding the Second Triennium of Energy Efficiency and Peak Demand Reduction Programs
Docket No. QO23030150

In the Matter of Electric Public Utilities and Gas Public Utilities Offering Energy Efficiency and Conservation Programs, Investing in Class I Renewable Energy Resources and Offering Class I Renewable Energy Programs in Their Respective Service Territories on a Regulated Basis Pursuant to N.J.S.A. 48:3-98.1 and N.J.S.A. 48:3-87.9 – Minimum Filing Requirements
Docket No. QO17091004

TRIENNIUM 2 ENERGY EFFICIENCY FRAMEWORK

TABLE OF CONTENTS

I. PROGRAM ADMINISTRATION 3
A. Program Years (“PYs”) 3
B. Utility-Led Programs 3
i. Utility Core Programs 3
ii. Additional Utility Initiatives 5
iii. Consistency in Program Elements and Design Standards 11
iv. Budgeting Based on Commitments 13
v. Joint Utility Coordination 13
vi. Flexibility 13
C. State-Led Programs and Initiatives 15
D. Workforce Development 15
E. Coordination Between Utility-Led and State-Led Programs 16
II. PROGRAM FUNDING 17
III. GOALS, TARGETS, PERFORMANCE INCENTIVE MECHANISM 17
A. Goals 18
B. Targets and Quantitative Performance Indicators 21
C. Performance Incentive Mechanism (“PIM”) 25
D. Energy Savings Carryover for QPIs 27
IV. FILING REQUIREMENTS 28
A. Utility Program Filings 28
Minimum Filing Requirements 30
B. State Program Filings 30

C. Utility Annual Compliance Petitions....30
V. COST RECOVERY....31
A. Program Costs....31
B. Investment Treatment....31
i. Amortization....31
ii. Rate Caps....32
iii. Return on Equity....32
C. Lost Revenue Treatment....32
VI. ENERGY EFFICIENCY AS A RESOURCE....32
VII. EVALUATION, MEASUREMENT, AND VERIFICATION....33
A. EM&V Administrative Structure and Working Group....33
B. Evaluation Studies....34
C. Goal Setting Process....34
D. Evaluating Energy Savings....35
i. Technical Reference Manual....35
ii. Net-to-Gross Factors....35
E. Benefit-Cost Analyses (“BCAs”) / Cost-Effectiveness Testing....36
i. New Jersey Cost Test....37
VIII. REPORTING REQUIREMENTS....38
A. Utility Reports....38
i. Quarterly Progress Reports....39
ii. Annual Progress Reports....39
iii. Triennial Progress Reports....39
B. State Reports....39
C. Statewide Compilation Reports....39
IX. TRIENNIAL REVIEW....40
X. STAKEHOLDER GROUPS....40

I. PROGRAM ADMINISTRATION

A. Program Years ("PYs")

Triennium 2 comprises the following three (3) program years:

July 1, 2024–June 30, 2025 ("PY4" or "PY2025")
July 1, 2025–June 30, 2026 ("PY5" or "PY2026")
July 1, 2026–June 30, 2027 ("PY6" or "PY2027")

B. Utility-Led Programs

i. *Utility Core Programs*

The utilities shall administer a suite of core programs that serve the following sectors and are consistently available throughout the state:

- **Residential** – Residential programs should provide comprehensive energy efficiency ("EE") opportunities for existing residential buildings. At a minimum, the programs should include the following:
    - In-depth energy assessments where appropriate;
    - Incentives for whole home EE and electrification solutions, including solutions that generate deep, long-lasting, and cost-effective energy savings;
    - Efficient products, including heating, ventilation, and air conditioning ("HVAC") rebates, appliance rebates, retail products via stores and online marketplaces, and appliance recycling, with online marketplaces providing a range of point-of-sale products for customers and integration of applicable rebates; and
    - Behavioral solutions.

Low- and Moderate-Income ("LMI") and Overburdened Communities ("OBCs") Residential: Residential programs should include specific opportunities for LMI and OBC customers, such as enhanced incentives and more favorable financing terms. They should continue to include an approach to income eligibility that is based on location of primary residence and self-attestation of income for customers residing in LMI census tracts, as employed in Triennium 1 (July 1, 2021 – June 30, 2024), with the addition of primary residence and self-attestation of income for customers residing in OBC census blocks for Triennium 2. In addition, the programs should continue to streamline the income eligibility process for customers who receive benefits from an automatic qualifying program based on income.

In addition to these incentive programs, the utilities may propose to administer the Comfort Partners program, which provides EE upgrades to low-income households at no cost to homeowners, with continued oversight by the State. If the utilities propose to administer Comfort Partners, the utilities should develop a proposed

plan to deliver Comfort Partners in coordination with the utilities' moderate-income weatherization programs, including attention to anticipated net cost savings (i.e., anticipated cost savings associated with increased efficiencies vs. additional cost of utility return on investment on the program) and other benefits for ratepayers, as well as attention to how the utilities would ensure continuation of sufficient budgets for the program.

Residential programs should also seek to provide benefits to tenants by offering no-cost and low-cost actions or improvements and through strategies that may include: 1) educating building owners about the multiple benefits of EE improvements (e.g., energy savings, cost savings, additional non-energy benefits) to both tenants and building owners; and 2) providing enhanced incentives and more favorable financing terms when building owners undertake EE improvements that benefit LMI or OBC tenants.

- **Multifamily** – In addition to providing program offerings comparable to those available to residential customers where applicable (notably, in-depth energy assessments where appropriate and incentives for whole building EE and electrification solutions, including solutions that generate deep, long-lasting, and cost-effective energy savings), multifamily programs should pay particular attention to effectively serving the affordable and/or subsidized housing sectors and minimizing or eliminating as many of the barriers to EE adoption in multifamily housing as possible, including by offering specific opportunities for LMI and OBC customers, such as enhanced incentives and more favorable financing terms. As with residential programs, multifamily programs should also seek to provide benefits to tenants by offering no-cost and low-cost actions or improvements and through strategies that may include: 1) educating building owners about the multiple benefits of EE improvements; and 2) providing enhanced incentives and more favorable financing terms when building owners undertake EE improvements that benefit LMI or OBC tenants.

- **Commercial and Industrial ("C&I") –** C&I programs should provide comprehensive EE opportunities for existing C&I buildings; at a minimum, the programs should include the following:

    - In-depth energy assessments;
    - Prescriptive and custom incentives;
    - Incentives for whole building EE and electrification solutions, including solutions that generate deep, long-lasting, and cost-effective energy savings; and
    - Energy management.

  C&I programs should include specific opportunities that ensure access for small commercial customers.

  C&I programs should also provide comprehensive opportunities for existing buildings of all types that are interested in whole building EE solutions, in a way that is complementary with the State's Large Energy Users Program ("LEUP").

Furthermore, different contracting and financing requirements apply to public entities (most notably, public schools and local, county, and State government) than apply to non-public entities. Utilities should consider these differences when designing C&I programs. This includes offering public sector program pathways specifically designed to meet the unique needs of and requirements associated with public sector customers. Utilities should work with Staff to address any barriers to participation by public sector customers. In particular, utilities should be mindful of the requirements of the various public contracting laws with which public entities must comply. These laws specify various requirements for public contracts, including but not limited to bidding of contracts, publicly disclosed pricing sheets, public works contractor registration, prevailing wage, prohibitions on the use of debarred contractors, New Jersey Division of Property Management Construction qualification and/or certification, and equal employment opportunity / affirmative action. Prior to marketing their programs to any public entities, utilities are responsible for ensuring that these programs are structured to provide for public entity compliance with their unique legal requirements.

ii. ***Additional Utility Initiatives***

- **Building Decarbonization Start-up Programs**

Given New Jersey's mid- and long-term goals for energy usage reductions, building electrification, clean energy, and GHG emissions reductions by 2026, 2030, 2035, and 2050, respectively, Staff recommended initiating building decarbonization ("BD") start-up programs ("BD Programs") of a large enough scale to set the foundation for New Jersey in Triennium 2 to make significant progress in Triennium 3 (2027–2030) – with a specific focus on achieving EO 316 goals – and thereafter toward cost-effectively transforming New Jersey's building sector and achieving the State's efficiency, conservation, and BD goals. These Triennium 2 BD Programs will help the State to evaluate policies on program design, EM&V, equity, workforce development, cost-effectiveness, and performance incentives for future BD Programs.

In addition to the June 7, 2023 BD Programs stakeholder notice, the two (2) public stakeholder meetings on June 20, 2023, and written comments received on the BD start-up programs in June 2023, Staff also received initial oral and written comments on BD programs in response to the March 23, 2023 notice with straw proposals that indicated that Staff anticipated that BD programs would be included as additional utility initiatives. Stakeholders offered initial oral and written comments on BD programs as part of the virtual public meeting held on April 6, 2023 and the comment period that remained open through April 28, 2023. Staff also hosted 16 meetings, primarily through the Utility Working Group, EM&V Working Group, and ad hoc Building Decarbonization Committee meetings – with 2-4 meetings per month and an average of more than 3 meetings per month, on development of the proposal – that included Rate Counsel and the utilities between January and May 2023 before release of the straw for comment in June 2023.

Staff's recommendations are based on careful consideration of all comments received.

The electric distribution companies ("EDCs") shall propose BD Programs as part of their portfolios of EE programs implemented pursuant to the CEA ("EE Programs"). These programs should prioritize customer incentives for electric space and water heating in the residential and multifamily sectors, focusing on customers voluntarily switching from delivered fuels to electric heat pumps ("HPs") and making buildings electrification-ready while supporting participation by low- and moderate-income and multifamily customers who are not eligible for the low-income Comfort Partners program, which is developing its own BD pilot program for low-income customers at no cost to participants. The BD Programs may also offer incentives for gas customers to voluntarily adopt more efficient electric equipment. The gas distribution companies ("GDCs") may propose BD Programs specifically for gas customers who are eligible for hybrid heating systems (as described further below), as well as district geothermal heating. In addition, EDCs shall and GDCs may propose BD Programs that target the commercial sector, which may include smaller-scale programs that focus on switching from delivered fuels to electric HPs in commercial buildings and/or district geothermal systems for commercial customers. EDCs and GDCs may also propose BD Programs that serve large commercial and/or industrial customers that are complementary with LEUP. BD Programs for C&I customers may comprise up to 30% of a utility's BD Program budget in consideration of EO 316's relative targets for the residential and non-residential sectors.

Staff believes that it is within the BPU's authority – based on the CEA, RGGI Act, and N.J.S.A. 52:27F-11 – to establish BD Programs whose primary objectives are efficiency and conservation, with conservation constituting reductions in electricity, natural gas, and overall energy usage below what would have otherwise been used. Staff believes that the BD Programs as recommended are consistent with the overall purpose and intent of the CEA, which is to reduce energy consumption throughout the state; consistent with the purpose and intent of the RGGI Act, which is to conserve energy or make the use of electricity or natural gas more efficient by New Jersey consumers; and consistent with N.J.S.A. 52:27F-11.

Regarding efficiency, the BD Programs should offer financial incentives for New Jersey consumers currently using fossil-fueled equipment to voluntarily adopt more efficient electric equipment. The BD Programs should prioritize incentives for electric space and water heating equipment; electric HPs are 200–400% efficient (meaning that they deliver two to four times as much energy in the form of heat than the electrical energy that they consume), while fossil-fueled furnaces and

boilers have maximum efficiencies below 100%.[1] The BD Programs may also offer incentives for highly efficient electric HP technology that is available for cooling and clothes drying, as well as electric induction technology, which is an alternative to fossil-fueled cook tops that uses dramatically less energy.[2]

Regarding conservation, the BD Programs should be designed to ensure that all projects result in net source energy savings on a fuel-neutral MMBtu basis and should track and evaluate projects and measures for net source energy savings on an MMBtu basis by fuel type. Moreover, Staff notes that, as with EE Programs, energy savings from BD Programs will increase over time as the electric grid introduces increasing amounts of clean energy and electricity production becomes more efficient. In addition, the BD Programs should focus on supporting participation by LMI and multifamily customers who are not eligible for Comfort Partners, and energy savings will have a relatively more significant beneficial impact on reducing these customers' energy burdens compared to higher income customers.

Regarding New Jersey consumers currently using fossil-fueled equipment who voluntarily choose to convert to electric equipment, the BD Programs should offer financial incentives to these consumers – as existing electric public utility customers – to voluntarily adopt more efficient equipment and use less energy than what they otherwise would have used as part of this fuel switching. Staff therefore asserts that the BD Programs are consistent with the Board's statutory authority and its call to conserve energy and make the use of electricity or natural gas by utility customers more efficient compared to what would have otherwise been used. When consumers currently using fossil-fueled equipment voluntarily choose to convert to electric equipment, their energy consumption on an electricity-only basis will increase but their overall energy consumption across fuels will decrease. Staff believes that it is within the BPU's authority to establish BD Programs that will reduce overall energy usage by New Jersey consumers. Staff also anticipates that fuel switching delivered fuels customers to electricity, in particular, will result in cost savings to these customers based on current fuel costs and the efficiency of measures incentivized by the BD Programs.

Staff also notes that, in calling for the Board to establish quantitative performance indicators ("QPIs") that ensure that public utilities' incentives or penalties are based upon performance, the CEA takes into account the growth in the use of EVs, microgrids, and distributed energy resources ("DER"). Staff suggests that building electrification, especially strategic or beneficial electrification, is analogous to EVs,

---

[1] See, for example, U.S. Department of Energy, "Energy Saver 101 Infographic: Home Heating" (Mar. 2, 2023), energy.gov/energysaver/articles/energy-saver-101-infographic-home-heating; and MIT Technology Review, MIT Technology Review Explains, "Everything you need to know about the wild world of heat pumps" (Feb. 14, 2023), https://www.technologyreview.com/2023/02/14/1068582/everything-you-need-to-know-about-heat-pumps/

[2] ENERGY STAR, "Be Part of a Clean Energy Future," https://www.energystar.gov/about/how_energy_star_protects_environment/clean_energy_future

microgrids, and DER as clean energy policy initiatives that increase electricity consumption to achieve net economic, environmental, and social benefits.

Regarding GHG emissions, Staff posits that, while not all decarbonization is based on efficiency or conservation, advancing efficiency and conservation through the BD Programs will *also* reduce emissions. BPU will not regulate emissions through the BD Programs; the BD Programs will not set any targets or objectives for emissions. In addition to tracking and evaluating projects and measures for net source energy usage reductions by fuel type, the BD Programs should *also* track and evaluate projects and measures for net source carbon dioxide equivalent ("CO_2e") reductions by fuel type. In other words, the BD Programs should use both source energy and source CO_2e emissions among the "metrics" that provide data about outcomes of the start-up programs that Staff believes will be helpful in designing full-fledged BD Programs in Triennium 3.

In developing program proposals, the utilities should collaborate to ensure a consistent set of BD Program requirements and features statewide, utilizing the Triennium 2 BD Programs Framework ("BD Programs Framework") (Attachment B) as a starting point. Prior to filing proposed programs with the Board, the utilities should also seek stakeholder input to refine the design of these programs through at least two (2) virtual public stakeholder outreach sessions during and after business hours that are advertised on their websites.

Highlights from the BD Programs Framework are as follows:

- All BD Programs should seek to leverage Inflation Reduction Act ("IRA") tax credits and electrification rebates based on customer eligibility.

- The BD Programs should be designed in alignment with core EE Programs (and the IRA EE rebates that those programs will leverage) and promote targeted complementary measures that support and enhance BD, such as weatherization, replacement of electric resistance heating with HPs, electrification-readiness when combined with other EE upgrades, and behind-the-meter demand response measures, through alignment with EE Programs. More specifically, weatherization should be incentivized along with a BD measure.

- BD Programs serving the multifamily sector should similarly be designed in alignment with core EE Programs and also in consultation with the New Jersey Housing and Mortgage Finance Agency and New Jersey Economic Development Authority to ensure alignment with other existing and complementary State programs or incentives for affordable and multifamily housing.

- Examples of program measures include:

    - Fuel switching of a space heating system, such as a fuel oil or natural gas furnace, to an electric HP;

- Fuel switching of a domestic water heater, such as a propane or natural gas heater, to an electric HP;

- Replacement of both a furnace and air conditioner with an electric HP;

- Hybrid, or dual-fuel, heating system, such as the replacement of an air conditioner with an electric HP in a central air system that retains a well-operating natural gas furnace that is not close to the end of its useful life; the replacement HP should be sized to meet either the full or partial heating demand load, with higher incentives for full load; the system could include integrated controls to switch between the furnace and the HP during the heating season; and

- Conversion of other gas to electric end-uses, such as induction cooking and dryers.

- The utilities should adopt a consistent set of minimum performance specifications for the BD measures statewide and should take into account existing standards to maximize alignment with other state and federal incentives.

- The NJCT will be used to prioritize and evaluate all BD Program proposals and outcomes but does not recommend requiring BD Programs to meet or exceed a benefit-cost ratio of 1.0 in Triennium 2. The CEA at N.J.S.A. 48:3-87.9(d)(2) states that a program may be exempt from the 1.0 requirement if implementation of the program is in the public interest. Staff believes that the BD Programs, as recommended, are in the public interest and that it is reasonable to not require BD Programs to pass a cost-effectiveness test because these are intended to be limited start-up programs that provide valuable information and are a learning experience about how to design full-fledged BD Programs in the longer-term. The rationale for aiming for, but not requiring, an NJCT result of 1.0 or greater is that the goals of the BD Programs in Triennium 2 include building the necessary capacity and skills for delivering meaningful energy and GHG emissions reductions while also producing the empirical data needed to fully assess impacts and cost-effectiveness. As also noted in the recommended BD Programs Framework, there may be a greater expectation for the BD Programs to pass the NJCT in Triennium 3.

- BD Programs budget statewide should increase annually and reaches approximately $144 million in the third year of Triennium 2 to align with achievement of EO 316 goals while also taking into account the effects of complementary IRA tax credits and rebates. Each utility proposing a BD Program should design the program to scale to achieve EO 316 goals with a budget maximum of approximately 7%, 8%, and 9% of the utility's EE budgets for Program Year 4 ("PY4" or "PY2025") (2024–2025), Program Year 5 ("PY5" or "PY2026") (2025–2026), and Program Year 6 ("PY6" or "PY2027") (2026–2027), respectively. If based on the estimated utility EE budgets in the goal-setting study under the full compliance scenario, BD Programs budgets statewide would be approximately $84 million, $120 million, $144 million, respectively. Staff also notes, however, that these are estimated budgets and

the utilities will propose overall EE budgets, including BD Programs budgets, for consideration by the Board.

- Staff will update the Triennium 2 Technical Reference Manual ("TRM") and New Jersey Cost Test ("NJCT") as needed to align with the EE Triennium 2 framework, including the BD Program Framework.

- **Demand Response ("DR") Programs**

  DR services offer an important mechanism for managing the reliability and economic optimization of the electric distribution system. With the evolution of communication and control technology, including the spread of advanced metering infrastructure ("AMI"), the industry is rapidly moving away from traditional manual load shedding of large concentrated commercial loads through dedicated and proprietary control networks to sophisticated and precise coordination of smaller loads, managed alongside increasing amounts of distributed energy resource ("DER") at the grid edge. This transition has increased the variety and value of DR services. The urgency of achieving maximum grid integration of clean energy at reasonable cost to ratepayers means that compensative incentive should be provided to participants to utilize all their cost-effective response mechanisms, including DR and DER, in as many ways as possible.

  Staff views utility-led DR programs as part of a larger market of open, portable grid flexibility services. The programs' rules and standards for data, information technology, and pricing, such as time-of-use ("TOU") tariffs, should be forward-looking to reasonably align with core principles of the DR Strategic Plan, which envisions an increasing presence of dispatchable DER. Attachment C contains the Triennium 2 framework for the DR programs ("DR Programs Framework"), including DR Guiding Principles.

  The EDCs shall propose new DR programs for customers wishing to take advantage of incentives. DR program proposals should be consistent with open, modular, and portable grid flexibility services as defined in the DR Programs Framework. The programs may only be based on load management of non-generation assets (e.g., HVAC and water heaters). While a program may or may not incorporate AMI data, AMI data should be leveraged to provide measurement and verification ("M&V") at a suitable level of granularity for future DR transactions and to maximize the value of DR services.

  GDCs shall propose new DR service programs that leverage smart thermostats or other communication technologies for load management of gas appliances. The core principle of portability is applicable in that GDC-run programs should not prevent customers from choosing or switching to third-party DR service providers and should give customers the rights to any data generated in connection to participation in GDC-run DR programs. The GDCs may propose DR programs designed to incentivize customer actions during times of peak usage, in either of the following circumstances:

1. With a TOU rate design that reflects higher natural gas prices during the peak months and potentially a critical peak signal for periodic market spikes; or

2. Where smart thermostats are used to control natural gas demand during extreme cold events, with the resulting temperature offset acting as a measured proxy for reduced gas consumption until interval metering is available directly for GDC billing.

In developing these program proposals, the utilities should collaborate to ensure a consistent set of DR program requirements and features statewide.

Staff will conduct and complete during Triennium 2 a statewide study on a DER roadmap that will identify the priorities, experimentation, milestones, and timing required to achieve the mission outlined in the DR Strategic Plan. Staff will use the roadmap to develop recommendations for the Board on specific actions and DER and DR programs for Triennium 3.

The utilities may propose pilot programs. Pilots should align with the DR Guiding Principles and could focus on the following topics:

- Technology application, particularly DER management systems;
- Demonstration of M&V through emerging AMI data access;
- Market pricing and clearing mechanisms (including TOU programs); and
- Market communication and aggregation frameworks.

The pilots may deploy non-generation, storage, and Class I generation assets, including, but not limited to, fuel cells, vehicle-to-grid, and solar. Approval of pilots will be predicated on their alignment with the DR Guiding Principles as described in the DR Programs Framework.

Prior to filing proposed programs with the Board, the utilities should seek stakeholder input to refine the design of the programs through at least two (2) virtual public stakeholder outreach sessions during and after business hours that are advertised on their websites.

iii. ***Consistency in Program Elements and Design Standards***

The utilities should file individual program proposals but collaborate to consistently implement the utility core programs. Coordinated program elements for utility core programs should include the following:

Contractors/Trade Allies:

- Contractor engagement platforms;
- Processes to qualify and register trade allies, including a streamlined process to the greatest extent possible so as to avoid contractors having to undertake duplicative activity with each individual utility;
- Processes to verify DPMC qualification/certification of contractor based on type of service provided;

- Processes to engage program implementation contractors, with procurement protocols including policies and practices developed in consultation with the Equity Working Group and Workforce Development Working Group that encourage supplier diversity (including contractors and subcontractors) and contractor coaching/mentoring of diverse business enterprises;
- Training requirements;
- Clear guidelines for trade allies and program implementation contractors regarding compliance with prevailing wage law and the Public Works Contractor Registration Act for applicable projects, as well as any additional requirements applicable to public entities (e.g., public schools and local, county, and State government);
- Common forms for use by contractors; and
- Incentive payment processes and timeframes.

In addition, utilities should confer with the Equity Working Group to continue to develop and implement procurement protocols for all applicable programs that encourage supplier diversity (including contractors and subcontractors) and with the Workforce Development Working Group regarding contractor coaching/mentoring of diverse business enterprises.

Customers:

- Processes to engage with customers, including a streamlined process to the greatest extent possible so that customers have a clear understanding of program offerings and are able to efficiently and effectively participate in the programs;
- Customer and property eligibility requirements and processes, including alternative/automatic eligibility methods for LMI customers (e.g., based on census tracts, environmental justice communities, Urban Enterprise Zones, etc.);
- Common data elements on forms for use by customers; and
- Incentive payment processes and timeframes.

Other Elements and Design Standards

- Eligible measures;
- Incentive ranges;
- Data platforms and database sharing among program administrators, where appropriate; and
- Quality control standards and remediation policies.

Additionally, the following common elements are required for both core programs and additional initiatives:

- Easy customer access to current and historic energy usage data, with reasonable protections from inappropriate release, with the data remaining the property of customers; and

- On-bill and/or third-party, including locally-based, financing options for qualified EE investments in utility programs.

iv. ***Budgeting Based on Commitments***

Consistent with existing practices and prior Board guidance regarding DCE and utility programs, each utility's portfolio plan budget should include investment amounts that will be committed to, and spent during, each three-year program cycle, as well as amounts that will be committed to during the three-year cycle but that may be spent subsequent to the cycle in which they were committed.

v. ***Joint Utility Coordination***

In areas where gas and electric service territories overlap, in addition to establishing programs that include agreed-upon program design standards, as described above, the utilities should design a program structure that results in coordinated, consistent delivery of programs among all of the utilities and allocates costs and energy savings appropriately based on the fuel type(s) treated by EE measures. The utilities should ensure that customers do not face confusion as a result of overlapping territories and can access both electric and gas measures simultaneously, where appropriate. As part of this approach, the utilities should continue to jointly engage a Statewide Coordinator system to facilitate the exchange of information and coordinate implementation of programs in overlapping utility territories by Lead and Partner utilities.[3]

The utilities should continue to jointly plan and coordinate budgets in overlapping utility territories, with support from the Statewide Coordinator system as appropriate, as well as to work cooperatively to identify and address budget constraints between the utilities through the Joint Budget Allocation Committee (which has been established to monitor and manage program budget coordination among the utilities) and as set forth in the utilities' bilateral Memoranda of Agreement.

vi. ***Flexibility***

The utilities are permitted to make certain adjustments to utility-led programs according to the conditions below. The utilities should collaborate and coordinate on proposed changes, and a utility should notify Staff, Rate Counsel, and any parties to the utility's filing of changes to programs, budgets, or incentive ranges as defined below. Furthermore, no shift within or between sectors can result in a program being terminated without Board approval.

[3] The utility that serves as the primary point of contact for customers, contractors, and trade allies for a project is considered to be the lead utility ("Lead Utility") for that project. The Lead Utility follows the project through to completion, pays the project incentive and financing/on-bill repayment, if relevant, and then works with the partner utility ("Partner Utility") to transfer the energy savings for their fuel and the cost of the investment for their share of the project.

- Sectors shall be defined as:
    - Residential
    - Commercial & Industrial
    - Multifamily
    - Other
- The addition of new programs, discontinuation of existing programs, or major modifications that significantly alter the nature of existing program structures as approved will require Board approval.[4]
- Budget Adjustments
    - Within any 365-day period of time, each utility can shift budget(s) between individual programs within the same sector up to and including 25% of the total triennium budget with Staff and Rate Counsel notification; greater than 25% and up to 50% with Staff approval; and greater than 50% with Board approval.
    - Within any 365-day period of time, each utility can shift budget(s) out of a sector up to and including 10% of the total triennium budget with Staff and Rate Counsel notification; greater than 10% and up to 20% with Staff approval; and greater than 20% with Board approval.
    - Requests for budget adjustments within the three-year program filing necessitating Staff approval shall be responded to within 30 days after receipt of the notification by Staff and Rate Counsel. In addition, Rate Counsel may object within 30 days after receipt of the notification, which will also trigger Staff's review and decision within 30 days of Rate Counsel's objection. Otherwise, if there is no response from Rate Counsel or Staff within 30 days, those requests will be automatically granted.
- Incentive Adjustments
    - Core programs: As mentioned previously, the utilities shall propose incentive ranges as common elements for core programs within which they can adjust incentives as needed; any adjustments outside the established range requires Staff approval.
    - Additional utility-led initiatives: The utilities shall propose incentive ranges for additional utility-led initiatives within which they can adjust

[4] In an instance where a Utility or Utilities anticipate that a program is at risk of being shut down due to the budget being exhausted, the Utilities will provide Staff and Rate Counsel with notification at least 30 days before the program is shut down so that the parties may work together to avoid the shut down. However, in the event of exigent circumstances, which may include instances where sudden market activity makes 30 days' advance notice impractical, the Utilities will provide notice to Staff and Rate Counsel as soon as possible.

incentives as needed; any adjustments outside the established range requires Staff approval.

- Requests for incentive adjustments necessitating Staff approval shall be responded to within 15 days. In addition, Rate Counsel may object within 15 days, which will also trigger Staff's review and decision within 15 days of Rate Counsel's objection. Otherwise, if there is no response from Rate Counsel or Staff within 15 days, those requests will be automatically granted.

C. State-Led Programs and Initiatives

The State will administer a series of complementary programs serving the following market sectors or addressing the following areas:

- New construction for all building types through a program that is redesigned to increase EE and environmental performance and transform the new construction market into one in which most new buildings in the state will be "net zero energy."

- Commercial and Industrial – existing large energy users, not including hospitals, pursuing comprehensive projects via the LEUP;

- Combined heat and power / fuel cell projects;

- State and Local Government – Local Government Energy Audits, Energy Savings Improvement Program ("ESIP"), and State Facilities Initiative; and

- Quantification of energy savings from building energy codes.

D. Workforce Development

The Board and Staff will continue to coordinate with State agencies and other entities to develop statewide workforce development pathways and other initiatives, including for local, underrepresented, and disadvantaged individuals and communities. The utilities should work in collaboration with the Workforce Development Working Group to support the continued development and implementation of workforce development and job training partnerships and pipelines (e.g., with vocational institutions, community colleges, community-based organizations, non-profits, etc.) that recruit, train, and employ residents for EE jobs, including local, underrepresented, and disadvantaged workers.

To this end, Staff and the utilities will pursue a complementary approach between State-funded and utility-funded initiatives, as follows:

State-funded workforce development initiatives would include provision of employment and training services for individuals interested in clean energy careers through competitive grants to community-based organizations from the New Jersey Department of Labor in partnership with utility companies. These grants will recruit eligible participants from New

Jersey's OBCs to receive core employment and training services, such as workforce readiness and financial literacy instruction, wrap-around supportive services, job coaching, and job placement services to facilitate entrance into the clean energy workforce.

These State-funded grants will also provide opportunities for intensive employment and training services, such as occupation skills trainings resulting in industry-recognized credentials, and needs-based on-the-job training placements with employers intended to provide a bridge for participants into sustainable, unsubsidized employment.

The Workforce Development Working Group should explore opportunities to provide coaching for small businesses.

Utility-funded initiatives would include subsidized or no-cost training programs for workers to gain credentials, including certifications, that are required for employment in EE and decarbonization jobs. The utilities should develop these training programs in consultation with the EE Workforce Development Working Group (see Section X), including with consideration of flexible and online training opportunities.

E. <u>Coordination Between Utility-Led and State-Led Programs</u>

When utility-led and State-led programs overlap in their service to the same customers, the administrators of these programs should coordinate and adjust their respective program rules, as needed, to simplify the process for customers. This coordination may apply to the development of complementary, rather than duplicative, program requirements and offerings.

ESIP:

Specifically regarding ESIP projects, utility programs should assign a designated staff member to work in collaboration with the BPU ESIP Coordinator on ESIP-designated projects. The ESIP Coordinator will notify the staff member when they are aware of an ESIP project. The utility shall provide written confirmation to the ESIP Coordinator of the utility's agreement on the incentives that are expected to be paid out to the project.

Where utility program design overlaps with ESIP law, the law will control in designing implementation, including but not limited to the choices made around energy assessments and energy savings plan design. ESIP projects will be eligible to bid demand response for energy conservation measures that are not being incentivized by the utility. Furthermore, the ESIP law allows for two (2) types of financing: bonds or lease purchase agreement. Utilities should plan to offer incentives that comport with these two (2) options or structure the incentive as a rebate.

The ESIP law gives BPU the ability to withhold EE incentives from an ESIP project. As such and in an effort to avoid this outcome, the ESIP Coordinator will work in conjunction with the utility administrator as the project progresses. Periodic reporting may be required, including a true-up of incentives at completion of construction. The ESIP program will

designate ECMs as either utility-incentivized or non-utility incentivized. Non-utility incentivized ECMs will count towards the State's goal and be eligible for demand response.

II. PROGRAM FUNDING

Utility program administration costs will be expensed annually, whereas program investments will be amortized over time, as explained in more detail in the "IV. Filing Requirements: C. Utility Annual Compliance and Cost Recovery Petitions" and "V. Cost Recovery" sections below. Electric utilities must offer electric savings associated with EE investment into the capacity markets operated by PJM, as explained in more detail in the "VI. Energy Efficiency as a Resource" section below.

State-administered programs will be implemented using SBC funds, which are collected by utilities through their rates. The State and utilities should explore and pursue additional State and federal funding that supports and complements New Jersey's existing EE programs and defrays burdens on ratepayers. Following the Board's receipt of guidance from the U.S. Department of Energy on IRA funding for efficiency and electrification rebates, Staff should work with utility and State program administrators, Rate Counsel, and other stakeholders propose for feedback from public stakeholders how to most efficiently and effectively leverage this additional funding to maximize the benefits of existing programs. Staff will work with program administrators and implement needed adjustments to utility and State program design and delivery that are consistent with the goals and requirements of this Triennium 2 Energy Efficiency Framework.

III. GOALS, TARGETS, PERFORMANCE INCENTIVE MECHANISM

The CEA establishes that the Board "shall require each electric public utility and gas public utility to reduce the use of electricity, or natural gas, as appropriate, within its territory, by its customers, below what would have otherwise been used."[5] Utilities must achieve energy savings of 0.75% for the natural gas utilities and 2% for the electric utilities "of the average annual usage in the prior three years within five years of implementation of its energy efficiency program."[6]

The CEA also provided the following guidance:

> [T]he board shall adopt quantitative performance indicators for each electric public utility and gas public utility, which shall establish reasonably achievable targets for energy usage reductions and peak demand reductions and take into account the public utility's energy efficiency measures and other non-utility energy efficiency measures including measures to support the development and implementation of building code changes, appliance efficiency standards, the Clean Energy program, any other State-sponsored energy efficiency or

[5] N.J.S.A. 48:3-87.9(a).

[6] Ibid.

> peak reduction programs, and public utility energy efficiency programs that exist on the date of enactment of [the CEA]. In establishing quantitative performance indicators, the board shall use a methodology that incorporates weather, economic factors, customer growth, outage-adjusted efficiency factors, and any other appropriate factors to ensure that the public utility's incentives or penalties . . . are based upon performance, and take into account the growth in the use of electric vehicles, microgrids, and distributed energy resources. . . . A public utility may apply all energy savings attributable to programs available to its customers, including demand side management programs, other measures implemented by the public utility, non-utility programs, including those available under energy efficiency programs in existence on the date of enactment of P.L.2018, c.17 (C.48:3-87.8 et al.), building codes, and other efficiency standards in effect, to achieve the targets established in this section.[7]

A. Goals

Following the transition of EE programs to utilities during Triennium 1, those programs have been slowly but steadily ramping up in terms of participation, expenditures, and energy savings. As the programs continue to expand during Triennium 2, participation, energy savings, and budgets are expected to steadily increase to meet CEA goals by the fifth program year.

Staff commissioned a goal-setting study to establish cost-effective goals for the three years of Triennium 2.[8]

Staff notes several key assumptions of the goal-setting study:

- Estimated and incorporated the impacts of federal efficiency rebates anticipated to be available through the IRA during Triennium 2
- Assumed aggressive adoption rates for several electric measures
- Assumed that incentive levels match 100% of incremental measure costs
- Did not take into account energy savings expected to be achieved through New Jersey's codes and standards (e.g., Energy Subcode applicable to new construction, Rehabilitation Code applicable to existing buildings, and appliance standards law) and State-run programs by State agencies outside of BPU (e.g., Weatherization Assistance Program ("WAP") administered by the New Jersey Department of Community Affairs).

The study sought to identify cost-effective goals for State- and utility-run programs by conducting three (3) scenarios – business as usual, full compliance, and high adoption –

[7] N.J.S.A. 48:3-87.9(c).

[8] The 2023 New Jersey BPU Goal Setting Study is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Market Potential Studies" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an

and provided "estimates of potential energy savings and [program] budgets" for each scenario.

Notably, the full compliance scenario (Scenario B) presented in Table 1 below was based on identification of achievable, cost-effective energy savings measures by State- and utility-administered programs and outlined the progression of energy savings expected to be needed during Triennium 2 to meet CEA goals. The scenario assumes that savings goals are capped at the CEA-mandated goals, increasing the rate of annual adoption for select measures by adjusting maximum achievable penetrations based on current market conditions and increasing administrative costs by 10% for those measures. Table 1 includes Triennium 1 PY2024 energy reduction goals for the purposes of comparison with the Triennium 2 energy reduction goals presented in the goal-setting study.

Starting with the $1.1 billion expected EE incentive program budgets statewide in PY2024, the goal-setting study provided the following estimated budgets for EE incentive programs statewide in Triennium 2 under the full compliance scenario: $1.4 billion in PY2025, $1.6 billion in PY2026, and $1.8 billion in PY2027.

Table 1[9]

	Natural Gas			Electric		
Year	**Scenario B. Net State-Administered Annual Energy Reduction Target** *(% of retail sales)*	**Scenario B. All Net Utility-Administered Annual Energy Reduction Target** *(% of retail sales)*	**Total**	**Scenario B. Net State-Administered Annual Energy Reduction Target** *(% of retail sales)*	**Scenario B. All Net Utility-Administered Annual Energy Reduction Target** *(% of retail sales)*	**Total**
Triennium 1						
PY2024	0.07%	0.55%	**0.61%**	0.13%	1.18%	**1.31%**
Triennium 2						
PY2025	0.08%	0.61%	**0.68%**	0.18%	1.48%	**1.66%**
PY2026	0.08%	0.67%	**0.75%**	0.23%	1.77%	**2.00%**
PY2027	0.08%	0.67%	**0.75%**	0.23%	1.77%	**2.00%**

For Triennium 1, based on the CEA's call for all attributable energy savings to be calculated, as well as Staff's recommendation that using net savings to measure and

[9] Staff notes that the Board allowed for a net-to-gross ("NTG") value of 1.0 for the purpose of determining programs' compliance with Triennium 1 targets and called for the development of New Jersey-specific NTG factors. In contrast, the proposed Triennium 2 targets above include NTG adjustments specific to New Jersey based on the effects of free ridership and spillover effects of EE programs that alter the level of energy savings that program administrators can claim for purposes of compliance with the CEA. The NTG study is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Technical Reference Manuals" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an

evaluate energy savings is appropriate, the Board adopted Staff's recommendation that, in (1) calculating energy reductions resulting from EE and PDR programs and (2) applying other permissible savings, State and utility program administrators should report energy savings in both gross and net savings, and use net savings for all aspects of program review, including compliance and cost-effectiveness testing.

For Triennium 2, the Board will use net savings to support program planning and review of State and utility incentive programs, including for compliance and cost-effectiveness analysis. Also, per the CEA's language permitting application of energy savings attributable to programs available to utility customers – including other EE programs, building codes, and other efficiency standards – to achieve performance targets, the Board will apply the net energy savings achieved through New Jersey's building codes and efficiency standards (e.g., Energy Subcode applicable to new construction, Rehabilitation Code applicable to existing buildings, and appliance standards law) and State-run programs by other State agencies (e.g., WAP) toward the goals established for State programs.

Regarding gross energy savings, Staff recognizes that other initiatives and activities outside of State and utility programs reduce energy consumption in the state but believes that, when evaluating achievement of CEA energy reduction goals, the CEA – in particular, specific allowance for application of energy savings from other programs, building codes, and efficiency standards, as well as the directive that each utility shall reduce the use of electricity or natural gas, as appropriate, within its territory, by its customers, *below what would have otherwise been used* (emphasis added) – precludes the Board from applying energy reductions from market-driven activities that occur independent of incentive programs. The Board will therefore apply the following sources of energy savings toward the CEA's annual energy reduction goals:

- Net energy savings from State and utility incentive programs
- Net energy savings from New Jersey's building codes and efficiency standards (e.g., building energy codes and appliance standards) and net energy savings from other State programs and initiatives (e.g., WAP)

Recognizing some of the limitations of the goal-setting study, State and utility program administrators should use the State- and utility-specific net savings goals provided in the goal-setting study as a starting point when developing proposed annual energy reduction goals.

At the same time, BPU is currently overseeing efforts to estimate the energy savings from New Jersey's recent adoption of more stringent building energy codes and appliance standards, as well as energy savings from WAP, which would contribute to additional energy savings achievement by State-run programs.

Therefore, as part of Staff's review of State and utility program proposals, Staff will evaluate whether energy savings from building energy codes and appliance standards, as well as from other State programs and initiatives, would support increasing the State's relative share of annual net energy reduction goals and thereby lowering utility annual net

energy goals. This evaluation will help Staff to determine whether to recommend Board approval of State or utility net savings goals at levels different from than those in the goal-setting study in the interest of reducing incentive program budgets and ratepayer impacts.

B. Targets and Quantitative Performance Indicators

For Triennium 2, the Board will track and evaluate the utilities' performance with the following six (6) QPIs.

Table 2: Triennium 2 Quantitative Performance Indicators

QPI	Description	Weight	Unit
1) Annual Energy Savings	Verified first year energy savings from measures completed in the given program year	30%	Source MMBtu
2) Annual Demand Savings	Verified peak demand savings from measures completed in the given program year	10%	Peak MW or peak-day therm
3) Lifetime Energy Savings	Verified lifetime energy savings from measures completed in the given program year	20%	Source MMBtu
4) LMI and OBC Lifetime Energy Savings	Verified lifetime energy savings from measures completed in the given program year from LMI and OBC customers	10%	Source MMBtu
5) Small Business Lifetime Energy Savings	Verified lifetime energy savings from measures completed in the given program year from small business customers	10%	Source MMBtu
6) Cost to Achieve	Total EE portfolio costs divided by total portfolio verified lifetime energy savings	20%	Total EE portfolio $ / Lifetime source MMBtu

Use of Source MMBtu

While the CEA requires reductions in electricity and natural gas consumption, estimated as a percent of retail sales, for the purpose of setting detailed QPIs, the Board will use source MMBtu units to provide a unifying, common energy unit for analyzing and combining impacts across fuels and to capture energy savings from fuel switching measures implemented pursuant to the BD Programs. In addition to utilities counting source MMBtu savings from EE programs toward achievement of their annual performance targets, utilities may count source MMBtu savings from BD Programs. The amount that utilities may increase an energy-related QPI in Triennium 2 due to the inclusion of anticipated source MMBtu savings from BD Programs is capped at 10% in acknowledgment of the start-up approach to aligning EE and BD Programs.

Source MMBtu shall be calculated by multiplying the site-based kWh and therm impact values, from the New Jersey Technical Reference Manual ("TRM"), with site-to-source conversion factors expressed as the ratio of source Btu to site Btu, by year.

For electricity, Source Btu shall incorporate losses associated with electricity generation efficiency and transmission and distribution losses that occur between generation and site. Source Btu for electricity are based on an estimate of the heat rate per MWh for PJM, de-escalated to a value equivalent to a 50% reduction in CO_2 emissions by 2050, as compared to the initial PJM-based value, consistent with the rate of de-escalation of CO_2 emissions as specified in the NJCT. For electricity, conversion of site kWh to site Btu is first calculated based on 3,412 Btu per kWh and then converted to source Btu using the site-to-source conversion factors in Table 4 in the Building Decarbonization Start-up Programs Framework (Attachment B).

The starting value for the heat rate is based on the mix of marginal generation units for PJM using heat rates by plant type from EIA and calculating a weighted average heat rate based on PJM's reported share of each plant type associated with marginal generation.[10] The resulting heat rates are also shown in Table 4 in Attachment B. The values in the table include line losses, which are calculated using a statewide average of 5.8% multiplied by a marginal loss factor of 1.5, as per the NJCT.

Source Btu for fossil fuels shall be based on the latest EPA Btu conversion values, adjusted to account for losses (source Btu = site Btu/(1-losses)).

QPIs

For the purposes of calculating QPIs, the utilities should submit forecasts of retail sales in each of the preceding years that comprise the three-year average. Verified savings will be utilized for the purposes of calculating actual performance and applying incentives and penalties relative to that three-year average, which will apply for the duration of the triennium.

Each QPI is the percent achievement against a target that the utility shall file for each program year.

Each utility shall file annual proposed targets for each QPI, including annual energy savings that are consistent with Section III(A). For each remaining QPI, each utility shall file a target for the QPI along with detailed calculation based on the forecast of measures in its portfolio of programs across the three program years. In calculating and filing

[10] Heat rates for fossil and nuclear resources are from EIA's Electric Power Annual, https://www.eia.gov/electricity/annual/. For renewable resources, including wind and solar, a heat rate of 3,412 was used. A weighted average heat value was calculated for 2022 using the percent of each generator type from *PJM's 2018–2022 CO2, SO2 and NOX Emission Rates*, April 27, 2023, Table 1 for the year 2022. https://www.pjm.com/-/media/library/reports-notices/special-reports/2023/2022-emissions-report.ashx

proposed QPIs, the utilities should use a consistent methodology based on the formulas and other guidance provided by Staff.

The ratio of lifetime savings to annual savings, the so-called portfolio weighted average expected useful life, should be derived from the goal-setting study results. This value will serve as a starting or reference point for Staff to evaluate the QPI targets proposed by the utilities in their filings.

The targets applicable to LMI and OBC lifetime energy savings (QPI #4) should be approximately proportional to the contributions to retail sales by LMI customers and residential customers residing in OBCs and, likewise, the utility targets applicable to small business lifetime energy savings (QPI #5) should be approximately proportional to small business customers' contributions to retail sales. The utilities should propose targets for QPI #4 and QPI #5, provide each group's respective contribution to retail sales, and provide rationale if the proposed targets are different from the percentage of retail sales from those market segments or explain if this information is unavailable.

For cost to achieve (QPI #6), the filed value is the numerator and the achievement is the denominator.

For energy savings, BPU-approved QPI targets and verified energy savings accomplishments are first calculated in the units associated with site electricity (kWh) and site natural gas (therms). Next, approved QPI savings targets and verified EE savings accomplishments are converted to source MMBtu using the conversion rates in the preceding Use of Source MMBtu section. Next, the initial QPI is calculated as the ratio of the verified EE savings accomplishments divided by the approved QPI savings target (both in source MMBtu). Next, the verified source MMBtu savings from any approved BD Programs are added to the verified EE source MMBtu savings. This value (EE+BD source MMBtu savings) is then divided by the approved QPI target (in source MMBtu), which provides an adjusted QPI value inclusive of any approved BD savings. This adjusted QPI value is then used in the weighted average QPI calculation.

An illustrative example for a hypothetical utility is provided below in Table 3. As shown in this example, for the first-year savings QPI, the utility achieves a QPI ratio of 0.95 with EE-only savings and 1.02 with the addition of savings from approved BD Programs.

Table 3: Example of QPI Calculation for First-Year Energy Savings

Item Label	Parameter	Calculation	Value
A	Utility 3-Year Average kWh Sales	Average 3 year kWh sales	15,000,000,000
B	Utility PY5 EE Goal at 1.77% of kWh Sales, First-Year Savings	A X 0.0177	265,500,000
C	Utility PY5 EE Goal in Source MMBtu, First-Year Savings	B X 3412 X 2.5/1,000,000 (2.5 = Site-to-Source Conversion Factor)	2,264,715
D	Utility PY5 EE First-Year Savings Accomplishment, kWh	Verified Savings	252,225,000
E	Utility PY5 EE First-Year Savings Accomplishment, Source MMBtu	D X 3412 X 2.5/1,000,000 (2.5 = Site-to-Source Conversion Factor)	2,151,479
F	Utility PY5 EE First-Year Savings QPI Value	E/C	0.95
G	Utility PY5 BD Savings, Source MMBtu	Verified Savings	150,000
H	Utility PY5 EE+BD Savings, Source MMBtu	G + E	2,301,479
I	Utility PY5 EE+BD First-Year Savings QPI Value	H/C	1.02

Staff will provide corrections, adjustments, and clarifications on the source MMBtu approach, if needed, in consultation with the EM&V Working Group.

The total weighted QPIs, which is the input to calculate performance incentives and penalties, equates to the weighted sum of the QPI ratios, %QPI, as follows:

$$Total\ Weighted\ QPI = \sum_{i=1}^{6} weight_i * \%QPI_i$$

As a dual-fuel utility, PSE&G requires unique guidance for annual demand savings (QPI #2) because that QPI has different units of measure between electricity (MW) and natural gas (peak day therm) while the other QPIs already use source MMBtu as the unit of measure. PSE&G should use the following formula for QPI #2:

PSE&G weighted Annual Demand Savings = ((Electric QPI result * source MMBtu baseline retail electric sales) + (Natural gas QPI result * source MMBtu baseline retail natural gas sales)) / (total source MMBtu baseline electric + natural gas)

Similar to the approach recommended in the June 2020 Order, when calculating QPIs associated with each metric, the methodology should, pursuant to N.J.S.A. 48:3-87.9(c), do the following:

- Incorporate weather, economic factors, customer growth, outage-adjusted efficiency factors, and any other appropriate factors to ensure that the public utility's incentives or penalties are based upon performance; and

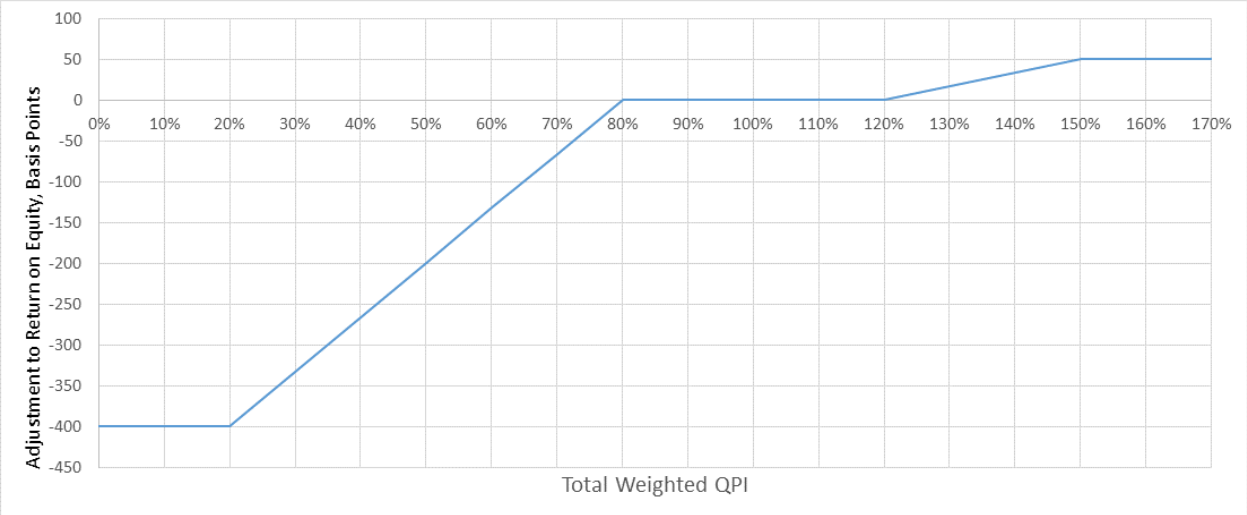
- Take into account the growth in the use of EVs, microgrids, and DER, as well as electrification resulting from BD Programs.

C. Performance Incentive Mechanism ("PIM")

According to N.J.S.A. 48:3-87.9(e)(2), if an electric or gas public utility achieves its performance targets, the utility shall receive an incentive as determined by the Board through an accounting mechanism established pursuant to N.J.S.A. 48:3-98.1 for its EE and PDR measures for the following year. The incentive shall scale in a linear fashion to a maximum established by the Board that reflects the extra value of achieving greater savings. According to N.J.S.A. 48:3-87.9(e)(3), if a utility fails to achieve the reductions in its performance targets, it "shall be assessed a penalty as determined by the [B]oard through an accounting mechanism established pursuant to [N.J.S.A. 48:3-98.1] for its [EE] and [PDR] measures for the following year. The penalty shall scale in a linear fashion to a maximum established by the [B]oard that reflects the extent of the failure to achieve the required savings." Pursuant to N.J.S.A. 48:3-87.9(e)(4), the incentive and penalty adjustments may be made through adjustment of the utility's return on equity ("ROE") related to the EE or PDR programs only, or through a specified dollar amount, reflecting the incentive and penalty structure. The CEA states that adjustments shall not be included in a revenue or cost in any base rate filing.

The Triennium 2 PIM adjusts a utility's ROE on the utility's EE and PDR program investment based on the total weighted QPI as shown in the figure below. Staff believes that using a utility's ROE, established from the utility's most recent base rate case, is fair and represents the current market value of shareholder returns in the interim period. The weighted average cost of capital used as a utility's carrying cost of EE program investment occurring in the following year should be comprised of (a) the cost of debt and (b) the ROE, as established in the "Cost Recovery: Investment Treatment" section of the EE Triennium 2 Framework.

Figure 1: Triennium 2 Performance Incentive Mechanism



The graph shows no adjustment to the ROE on the utility's EE and PDR Program investment if a utility scores between 80% to 120%. Above 120%, the ROE adjustment increases linearly to +50 basis points at 150%. If a utility achieves 150% or higher, 50 basis points are added to its ROE. Going from 80% to 20%, the ROE adjustment (or penalty) becomes increasingly negative. If a utility is below 20% achievement, then the ROE is adjusted by -400 basis points.

Since the CEA does not mandate utility achievement of energy use reductions until after Program Year 5 ("PY5"), awards of incentives and assessments of penalties will not begin until after the conclusion of PY5 and will be based on PY5 performance.

Per "Table 1: Use of TRM Revisions" in the Board-approved Evaluation Framework, CEA and QPI/PIM compliance are based on the Triennium 2 TRM in the first year of the triennium and Annual TRM Updates with Category 1 changes in the second and third years of the triennium. Category 1 changes include, but are not limited to in-service rates, algorithm errors, non-conformance with the TRM, codes and standards, new measures, and deleted measures.[11]

The Board will exercise flexibility in levying penalties due to circumstances outside of utility control, such as unforeseeable catastrophic circumstances that constitute force majeure events.

[11] Energy Efficiency Triennium 2 Evaluation Framework at 11, available at https://www.njcleanenergy.com/files/file/BPU/2023/Market%20Analysis%20Baseline%20Studies/EE%20T2%20Evaluation%20Framework.pdf

D. Energy Savings Carryover for QPIs

For Triennium 1, the Board approved a stipulation of settlement that allowed the utilities, in the interest of promoting customer adoption of EE and ensuring EE program continuity, to apply energy savings in excess of annual compliance goals ("Carryover Savings") toward goals and QPIs for Program Years 2023, 2024, and 2025, without alleviating the utilities' minimum energy savings obligations under the CEA.[12] The Board allows Carryover Savings to be applied to only the immediately subsequent Program Year, with the Carryover Savings being the first savings counted prior to application of any EE savings captured in the subsequent Program Year. Carryover Savings applied to Program Year 2025 is limited to no more than 10% of any utility's Program Year 2025 annual compliance goal based solely on the savings calculation using the primary metric for Program Year 2025. Should a utility seek to apply Carryover Savings in excess of 10% of its Program Year 2025 annual compliance goal, the Carryover Savings shall be adjusted based on information reported in each utility's Triennium 1 progress report. Such adjustment shall be based on a ratio of the savings reported after application of the Program Year 2024 secondary metric for key measures, as defined by the TRM Manual Committee of the Evaluation, Measurement, & Verification ("EM&V") Working Group, compared against the savings reported using the Program Year 2024 primary metric used for compliance.

For Triennium 2, the Board will continue to allow the utilities to "bank" and carry over portfolio savings achievements in excess of their annual targeted goals in a given year and apply such achievements to the immediately subsequent future program year according to the parameters outlined below. The intent of this approach is to encourage acceleration of EE project adoption, support coordinated program delivery between gas and electric utilities, and promote continuity of market offerings. Carried over achievements will continue to be reported in the year incurred and included during that period for EM&V and cost-effectiveness.

[12] In re the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, BPU Docket No. QO19010040; In re the Petition of Atlantic City Electric Company for Approval of an Energy Efficiency Program, Cost Recovery Mechanism and Other Related Relief for Plan Years One Through Three, BPU Docket No. EO20090621; In re the Petition of Elizabethtown Gas Company for Approval of New Energy Efficiency Programs and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act and the Establishment of a Conservation Incentive Program, BPU Docket No. GO20090619; In re the Verified Petition of Jersey Central Power & Light Company for Approval of JCP&L's Energy Efficiency and Conservation Plan Including Energy and Peak Demand Reduction Programs (JCP&L EEC), BPU Docket No. EO20090620; In re the Petition of New Jersey Natural Gas Company for Approval of Energy Efficiency Program and the Associated Cost Recovery Mechanism Pursuant to the Clean Energy Act, N.J.S.A. 48:3-87.8 et seq. and 48:3-98.1 et seq., BPU Docket No. GO20090622; In re the Petition of Public Service Electric and Gas Company for Approval of its Clean Energy Future - Energy Efficiency ("CEF-EE") Program on a Regulated Basis, BPU Docket Nos. GO18101112 & EO18101113; In re the Petition of Rockland Electric Company for Approval of its Energy Efficiency Program and Peak Demand Reduction Programs, BPU Docket No. EO20090623; In re the Petition of South Jersey Gas Company for Approval of New Energy Efficiency Programs and the Associated Cost Recovery Pursuant to the Clean Energy Act, BPU Docket No. GO20090618, Order dated August 17, 2022.

Under this approach, QPI performance incentives or penalties will continue to be calculated based on a utility's total weighted performance. However, the Board allows the utilities to elect energy and demand QPI results in excess of their annual target to be "banked" for use in a subsequent year prior to calculation of performance for each QPI element. Utilities will identify banked QPI achievements and exclude those results to calculate adjusted QPI performance in their annual compliance reports. The final QPI performance for each year, including such adjustments (either added or removed from a given year), will be utilized for the purposes of applying incentives and penalties.

As a continuation of the approach adopted in Triennium 1, Carryover Savings applied to each program year will be limited to no more than 10% of any utility's annual compliance goal based on the savings calculation using the Triennium 2 TRM. Should a utility seek to apply Carryover Savings in excess of 10% of its annual compliance goal, the Carryover Savings shall be adjusted based on information reported in each utility's annual progress report for the applicable year. Such adjustment shall be based on a ratio of the savings reported after application of the primary metric (as defined in Table 1 of the Evaluation Framework cited above) for key measures (as defined by the Technical Reference Manual Committee) compared against the savings reported using the secondary metric used for compliance in that program year.

Staff will provide corrections, adjustments, and clarifications on this approach, if needed, in consultation with the EM&V Working Group.

Banked QPI achievements should only be utilized to offset a penalty and not to earn incentives. The utilities have the opportunity to elect bank QPI achievements at the end of a program year, and that election will not be reversible.

IV. FILING REQUIREMENTS

A. Utility Program Filings

As noted earlier, the CEA states that each electric and gas public utility shall establish EE and PDR programs to be approved by the Board no later than 30 days prior to the start of the energy year, which begins on June 1 every year.[13] The programs adopted by each utility shall comply with the QPIs adopted by the Board.[14]

The utilities should submit three-year program filings compliant with minimum filing requirements ("MFRs") by October 2, 2023 for approval by the Board by May 1, 2024 and implementation beginning July 1, 2024. Per the Board's Order issued May 12, 2008

[13] N.J.S.A. 48:3-87.9(d)(1).

[14] Ibid.

establishing MFRs for EE, renewable energy, and conservation programs, the following applies:[15]

> Pursuant to N.J.S.A. 48:3-98.1 (c), electric public utilities and gas public utilities shall be allowed to invest in and offer energy efficiency and/or conservation programs, to invest in Class I renewable energy resources, and to offer Class I renewable energy programs in their respective service territories on a regulated basis provided that they file a petition and obtain Board approval for each such program and for any program cost recovery;
>
> At least 30 days prior to the filing of a petition pursuant to the Act, the petitioning electric or gas public utility shall meet with Board Staff and Rate Counsel to discuss the nature of the program and program cost recovery mechanism to be proposed in the forthcoming petition and the Appendix A minimum filing requirements to be submitted;
>
> With any petition filed pursuant to the Act and this Order, an electric or gas public utility shall submit such information as is required for the petition by the minimum filing requirements set forth in Appendix A hereto, as may be modified by Board Staff in accordance with this Order; and
>
> Board Staff shall, within 30 days after the filing of a petition pursuant to the Act, (i) determine whether the petition is administratively complete, and (ii) advise the petitioner in writing that the petition is administratively complete or that the petition is not administratively complete, and set forth the deficiencies, and the items required to remedy the deficiencies. If the petition is deemed administratively complete by Board Staff, the 180 day time period under N.J.S.A. 48:3-98.1 for issuance of a written order will commence at the time of the petition's filing. If Board Staff has notified the utility that the petition is not administratively complete, the 180 day period will not commence until the deficiencies are corrected and the filing is deemed administratively complete by Board Staff. In that event, the 180 day period will commence on the date that the petition is deemed administratively complete, that is, on the last filing date of the remediation of all deficiencies.

The utilities should jointly develop a consistent organizational structure with common elements in their filings, to the greatest extent practicable. This will help to facilitate and expedite review by the Board and parties to each of the seven (7) utility filings, toward the end of program implementation beginning July 1, 2024. Staff will also endeavor to provide any notice of administrative deficiency as soon as possible so that a utility can promptly remedy any deficiencies.

[15] In re Electric Public Utilities and Gas Public Utilities Offering Energy Efficiency and Conservation Programs, Investing in Class I Renewable Energy Resources, and Offering Class I Renewable Energy Programs in Their Respective Service Territories on a Regulated Basis Pursuant to N.J.S.A. 48:3-98.1, BPU Docket No. EO08030164, Order dated May 12, 2008.

Butler should again work collaboratively Rate Counsel and the investor-owned electric and gas utilities, as applicable, to develop a proposal for Butler's EE and PDR programs and for Butler to file a petition at the same time as the investor-owned utilities.

Utilities will also file annual compliance and cost recovery petitions, as described below.

Minimum Filing Requirements

The CEA further states that each electric and gas public utility shall file with the Board implementation and reporting plans, as well as EM&V strategies, to determine the energy usage and PDR achieved by approved EE and PDR programs.[16] The filings shall include details of expenditures made by the utility and the resulting reduction in energy usage and peak demand. The Board shall determine the appropriate level of reasonable and prudent costs for each program as part of its review of the utilities' cost recovery filings, as further described in Section IV(C) below.

Pursuant to these requirements, updated and revised MFRs are provided below.

Revisions to the MFRs for petitions under N.J.S.A. 48:3-98.1 and N.J.S.A. 48:3-87.9 reallocate required information between the sections describing programs and portfolios; require consistent use of program cost categories; provide for a separate accounting of workforce development and job training costs, health and safety costs, and costs of outreach to community-based organizations; and include updates consistent with current New Jersey evaluation guidance documents and standards.

B. State Program Filings

Staff will oversee the development and submission of NJCEP filings, or program plans, during Triennium 2 to align with the delivery of utility-administered EE programs. More specifically, Staff will work with NJCEP's program administrator to develop three-year NJCEP program plans in coordination with utility program administrators and stakeholders as appropriate, file those plans with the Board every three (3) years as part of the NJCEP annual budget process, and file updates to each three-year plan on an annual basis to confirm each year's program budget, subject to allocations based on the CRA process.[17] These program plans will be based on the State's performance targets, as established by the Board.

C. Utility Annual Compliance Petitions

Pursuant to N.J.S.A. 48:3-87.9(e)(1), each utility shall file an annual petition with the Board to demonstrate compliance with its approved EE and PDR program plans and to demonstrate compliance with the targets established pursuant to the QPIs based on its annual program report. Each utility shall submit its annual compliance filing no later than

[16] N.J.S.A. 48:3-87.9(d)(3).

[17] NJCEP compliance filings would be submitted for public comment by the second quarter of each applicable year for approval by the Board prior to the beginning of each applicable fiscal year.

150 days following the end of each program year. The Board provides Staff with the flexibility to adjust the filing due date when necessary.

V. COST RECOVERY

N.J.S.A. 87.9(e)(1) provides that each utility shall file "to recover on a full and current basis through a surcharge all reasonable and prudent costs incurred" as a result of EE and PDR programs, "including but not limited to recovery of and on capital investment, and the revenue impact of sales losses resulting from implementation" of the programs, which shall be determined by the Board pursuant to N.J.S.A. 48:3-98.1.

N.J.S.A. 48:3-98.1(b) provides that, in determining the recovery by utilities of program costs, the Board "may take into account the potential for job creation from such programs, the effect on competition for such programs, existing market barriers, environmental benefits, and the availability of such programs in the marketplace." This statutory section also provides that ratemaking treatment may include placing appropriate technology and program cost investments in the utility's rate base or recovering the utility's technology and program costs through another ratemaking methodology approved by the Board, including, but not limited to, the SBC established pursuant to N.J.S.A. 48:3-60. Finally, this statutory section provides that all utility investment in EE and conservation programs may be eligible for rate treatment approved by the Board, including an ROE, or other incentives or rate mechanisms that decouple utility revenue from sales of electricity and gas.

Generally, Staff has been guided by the concept that there are three (3) crucial regulatory tools needed to align the utility business model with EE and the aggressive energy saving targets set forth in the CEA: 1) recovery of program costs; 2) recovery of potential lost revenues due to efficiency programs; and 3) earnings consequences for efficiency investments through performance incentives and penalties. The Triennium 2 cost recovery framework addresses these components.

A. Program Costs

Each utility shall annually file on a full and current basis, through a surcharge, all reasonable and prudent costs incurred as a result of EE and PDR programs, including but not limited to recovery of and on capital investment. This filing should also include calculation of any performance incentives or penalties consistent with the Triennium 2 Performance Incentive Mechanism.

B. Investment Treatment

i. *Amortization*

Most program investments will be amortized over a time period that aligns with the weighted average useful life of each utility's proposed portfolio but this period should not exceed 10 years. However, the parties to each utility filing and stakeholders are allowed to explore shorter amortization periods to align with the State's energy policy goals, as set forth in the EMP and Executive Orders 316 and 317.

ii. *Rate Caps*

In order to encourage reaching EE goals, the Board continues the practice of not establishing an absolute cap on customer distribution rates or bills associated with EE and PDR investments. Instead, the Board will ensure financial discipline by requiring utilities to continually monitor investments and report on program costs, comply with cost-benefit requirements, and otherwise demonstrate that the investments are prudent. Additionally, Staff will closely monitor rate impacts through the annual petitions for cost recovery, and the Board will evaluate the need for a cap on rates or customer bill impacts during the triennial review.

iii. *Return on Equity*

The carrying costs for program investments will use the capital structure established in each utility's most recent base rate case, incorporating both the cost of debt and the ROE. There will be no basis point reduction on the ROE in order to recognize EE's importance compared to traditional utility investments.

C. <u>Lost Revenue Treatment</u>

The CEA calls for utilities to file for the revenue impact of sales losses resulting from implementation of EE and PDR programs. The utilities continue to be able to file for, and recover potential lost revenues, in the amount that they can demonstrate were attributable to utility-run EE and PDR programs.

Utilities may propose either a Lost Revenue Adjustment Mechanism ("LRAM") or a Conservation Incentive Program ("CIP").

Utilities shall file a base rate case no later than five (5) years after the commencement of an approved EE program in order to update usage projections and reset lost revenues. The five-year requirement may be satisfied sooner if the utility files a base rate case due to a prior obligation, such as one from an Infrastructure Investment Program.

Actual ROE shall be determined through an earnings test based on the actual net income of the utility for the most recent 12-month period divided by the average of the beginning and ending common equity balances for the corresponding period. For any EE portfolio approved by the Board, if the calculated ROE exceeds the allowed ROE from the utility's last base rate case by 50 basis points or more, recovery of lost revenues through a CIP or LRAM shall not be allowed for the applicable filing period.

VI. ENERGY EFFICIENCY AS A RESOURCE

Staff acknowledges that participation in the PJM forward capacity market ("FCM") benefits New Jersey customers by obtaining revenues that offset EE/PDR program costs. Therefore, the electric utilities should continue to offer into the PJM FCM-eligible EE measures and their associated peak reduction values ("EE resources") from projects that they have led.[18] The

[18] PSE&G will offer measures from projects it has led in its gas-only service territory as well.

EE peak reduction values should be calculated and evaluated consistent with PJM's governing Manuals 18 and 18B. The timing and execution of FCM offers by the electric utilities are as follows:

The electric utilities should offer EE resources for program years within the Triennium 2 program cycle into the eligible FCM Base Residual Auctions ("BRAs"). Sell offers and/or buy bids into the Incremental Auctions ("IAs") or into secondary markets to true up market positions originally offered in the BRA shall be allowed as permitted under PJM market rules.

In order to increase the revenues returned to customers as early as possible, the Board permits the electric utilities to offer EE resources for core programs from program years that are beyond the currently approved three-year budget for the EE/PDR programs, beginning with the 2026/2027 BRA. The utilities will not have approved EE/PDR program budgets at the time of those auctions, so they should exercise their judgment on the estimated offers for resources and peak reduction values for core programs that may be installed in a program year. Estimates should be conservative to avoid over-commitments and based only on projected demand savings associated with "core" programs, as identified by the Board in the previous triennium.

The utilities will use the IAs, or the secondary market, to true up their market positions originally offered in the BRA as needed once the utilities gain more certainty on their available resources. If utilities incur any PJM penalties or losses, the utilities may petition to recover such losses or penalties incurred in a subsequent cost recovery filing, providing support that the utilities exercised prudence in their FCM offers and acted reasonably with respect to their positions in the IAs or in the secondary market.

The electric utilities should submit confidential reports to Staff and Rate Counsel after every auction providing the offered and cleared EE resource megawatt values and clearing prices.

If a utility determines that its participation in the PJM FCM will not cost-effective for New Jersey customers – in other words, that the utility anticipates that the costs required to obtain the revenues will exceed the revenues obtained, the utility may seek a waiver of the requirement.

VII. EVALUATION, MEASUREMENT, AND VERIFICATION

The CEA directs the Board to establish the process for evaluating, measuring, and verifying energy usage reductions and peak demand reductions by the public utilities.[19]

A. EM&V Administrative Structure and Working Group

In the June 10, 2020 Order, the Board called for establishment of an EM&V Working Group ("EM&V WG"). Facilitated by the Statewide Evaluator ("SWE"), the EM&V WG brings together Staff, Rate Counsel, and the utilities – with technical evaluation contractors, program implementation contractors, and representatives from the other EE working groups as appropriate to provide guidance and input on relevant issues – to collaborate

[19] N.J.S.A. 48:3-87.9(f)(1).

to develop a standard, transparent, and replicable approach for evaluating, measuring, and verifying the results of EE and PDR programs implemented pursuant to the CEA. As part of this standard statewide approach, the State and utilities are held to the same accountability standards through collaboratively developed plans, schedules, procedures, guidelines, and requirements for program administrators. The EM&V WG shares associated data, as appropriate, considers best practices from other jurisdictions, and facilitates the necessary stakeholder processes related to the State's EM&V policies. The EM&V WG is highly deliberative and advisory regarding key EM&V plans and recommendations, and provides recommendations to Staff, with the Board retaining ultimate decision-making authority.

The EM&V WG establishes committees as needed on targeted issues. The current committees are the TRM Committee, NJCT Committee, and Guidelines Committee, with each comprising various members of the EM&V WG.

The SWE has led the development of a recommended "New Jersey Energy Efficiency Triennium 2 Evaluation Framework" that describes roles and responsibilities of the entities participating in the EM&V of Triennium 2 programs; and outlines the activities, products, and processes that guide the EM&V of the programs.[20]

B. Evaluation Studies

In the June 10, 2020 Order, the Board directed Staff to ensure that the EM&V WG developed and recommended a timeline for EM&V studies for each triennium. As described in more detail in the recommended Evaluation Framework referenced above, the SWE has developed an "Evaluation Studies List and Plan for Triennium 2."[21] The Evaluation Studies List will be updated annually based on changing priorities and new study and topic needs and in accordance with the Evaluation Framework. Details contained in the Evaluation Studies List and Plan may be updated more frequently based on new information and continuing discussions with Staff and the EM&V WG.

C. Goal Setting Process

Additionally, as described in more detail in the Evaluation Framework, certain studies on the Evaluation Studies List support the development of new utility and State goals for each triennium.

[20] The "New Jersey Energy Efficiency Triennium 2 Evaluation Framework" is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Evaluation Plans" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an.

[21] The "Evaluation Studies List and Plan for Triennium 2" is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Evaluation Plans" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an

D. Evaluating Energy Savings

The CEA calls for the Board to require each electric and gas public utility to reduce the use of electricity or natural gas, as appropriate, within its territory by its customers below what would have otherwise been used.[22] Additionally, N.J.S.A. 87.9(c) provides that a public utility may apply all energy savings attributable to programs available to its customers, including demand side management programs, other measures implemented by the public utility, non-utility programs, including those available under EE programs in existence on the date of enactment of the CEA, building codes, and other efficiency standards in effect, to achieve the targets.

i. *Technical Reference Manual*

The TRM is the compendium of algorithms and parameter assumptions that is used to calculate resource savings – including electricity, natural gas, and other resource savings – and energy and capacity and peak demand savings for technologies and measures supported by the BPU and utilities. It is updated as needed to reflect the addition of new measures, modifications to existing measures, changes to codes and standards, and the results of evaluation studies. The TRM should be used consistently statewide to assess program impacts and calculate energy and peak demand savings consistent with BPU guidance. In particular, the TRM is used to estimate energy savings in EE program filings, evaluate compliance in meeting the energy savings goals in the CEA, and determine achievement of performance targets for the triennium.

In its October 12, 2022 Order updating and revising the Triennium 1 Framework, the Board approved Staff's recommendation for the SWE, EM&V WG, and TRM Committee to support the development of a comprehensive update of the TRM, including input and feedback through a public stakeholder process, for the Board's consideration ahead of the commencement of Triennium 2 EE programs.[23]

As described in the Evaluation Framework, a Triennial TRM will be established prior to the start of each triennium and an Annual TRM Update will be completed in the intervening years. The TRM Committee has developed the Triennium 2 TRM for use in utility and State filings and reports ("New Jersey 2023 Triennial Technical Reference Manual").[24]

ii. *Net-to-Gross Factors*

NTG ratios estimate the savings attributable to specific programs or measures, not including free riders or spillover effects.

---

[22] N.J.S.A. 48:3-87.9(a).

[23] In re the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, BPU Docket Nos. QO19010040 & QO20100684, Order dated October 12, 2022.

[24] The Triennium 2 TRM is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Technical Reference Manuals" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an

For Triennium 1, based on the CEA's call for all attributable energy savings to be calculated, as well as Staff's recommendation that using net savings to measure and evaluate energy savings is appropriate, the Board adopted Staff's recommendation that, in (1) calculating energy reductions resulting from EE and PDR programs and (2) applying other permissible savings, State and utility program administrators should report energy savings in both gross and net savings, and use net savings for all aspects of program review, including compliance and cost-effectiveness testing.

While the Board accepted a NTG value of 1.0 for all programs in Triennium 1, the Board also adopted Staff's recommendation to establish accurate NTG ratios to ensure that program administrators are incented to design programs that maximize savings attributable to those programs and account for free ridership and spillover effects. Based on Board guidance, Staff and the EM&V WG coordinated a study for recommended NTG ratios to calculate net savings and inform planning for Triennium 2 programs ("NTG study"). This NTG study, "New Jersey Recommended Net-to-Gross Ratios Overall Report," submitted by NMR Group, Inc., is available on the NJCEP website.[25]

The Triennium 2 TRM includes an appendix for NTG factors based on the NTG study. The Triennium 2 TRM also includes appendices on realization rates, in-service rates, and other topics.

E. Benefit-Cost Analyses ("BCAs") / Cost-Effectiveness Testing

BCAs of EE programs calculate the benefits (including avoided energy costs and various non-energy benefits) and costs (including incremental measure costs and program administration costs) of the programs.

The CEA at N.J.S.A. 48:3-87.9(d)(2) states:

> The energy efficiency programs and peak demand reduction programs shall have a benefit-to-cost ratio greater than or equal to 1.0 at the portfolio level, considering both economic and environmental factors, and shall be subject to review during the stakeholder process established by the board pursuant to subsection f. of this section. The methodology, assumptions, and data used to perform the benefit-to-cost analysis shall be based upon publicly available sources and shall be subject to stakeholder review and comment. A program may have a benefit-to-cost ratio of less than 1.0 but may be appropriate to include within the portfolio if implementation of the program is in the public interest, including, but not limited to, benefitting low-income customers or promoting emerging energy efficiency technologies.

[25] The NTG study is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Technical Reference Manuals" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an

i. ***New Jersey Cost Test***

Staff notes the CEA's directive for EE and PDR programs to have a benefit-to-cost ratio greater than or equal to 1.0 at the portfolio level and the CEA's requirement that the test consider both economic and environmental factors.

Prior to Triennium 1, the BPU based its BCA of EE programs on the California Standard Practice Manual ("CSPM"), which defines five (5) main cost tests for the BCA to align with the various perspectives of key stakeholders.[26]

For Triennium 1, the Board adopted a primary cost-effectiveness test for the evaluation of EE and PDR programs, which is called the interim NJCT. The Board also required program planners and administrators to continue to report the results of all five (5) CSPM tests for information purposes during Triennium 1. When proposing the interim NJCT, Staff recognized that it might not include the full range of possible non-energy impact benefits and costs that could be included in a primary test.

The Board directed Staff to ensure that the EM&V WG evaluate relevant non-energy benefits and costs for inclusion in the NJCT, recommend third-party studies to further evaluate and quantify non-energy impacts as needed, and recommend on an ongoing basis additional non-energy benefits and costs to consider including in future updates to the NJCT.

Specifically regarding avoided costs, the Board directed Staff to ensure that the EM&V WG develop and recommend an approach to estimating avoided costs on a statewide basis, using utility-specific inputs where appropriate, for consideration by Staff.

For Triennium 2 and beyond, as described in the proposed Evaluation Framework, the NJCT will be updated prior to each triennium through stakeholder input and Board approval.

During Triennium 1, the NJCT Committee evaluated and discussed potential priority updates to the interim NJCT. For Triennium 2, the SWE provided a memo outlining SWE's recommended updates to the NJCT, including 22 recommendations for updates to the design, content, methodologies, and sources used to calculate values contained in the NJCT. As part of this summary document, SWE recommended a review of utility submissions of avoided cost values and their derivation to illustrate the values associated with the methodologies contained in SWE's NJCT recommendations. The utilities provided a spreadsheet of "NJ Sample Avoided Costs – April 2023" toward this end.

[26] These cost tests are the Participant Cost Test, Program Administrator Cost Test or Utility Test, Ratepayer Impact Measure Test, Total Resource Cost Test, and Societal Cost Test.

Additionally, during Triennium 1, SWE provided a memo entitled "Non-Energy Benefits / Non-Energy Impacts (NEBs/NEIs): Analysis of Alternatives for Updates for the State of New Jersey."[27]

Further, during Triennium 1, the EM&V WG, through the Rutgers Center for Green Building, coordinated a study by DNV Energy Insights USA Inc. about incremental measure costs, which represent the difference in price to install EE equipment compared to baseline equipment. The IMC study resulted in recommended IMCs for all measures in the proposed Triennial TRM and prioritized measures for future primary research. As noted in the "NJCT Recommendations Summary," the NJCT Committee recommended incorporation of the IMC values into the NJCT. The recommended IMC values and an accompanying memo are available on the NJCEP website.[28]

The Triennium 2 NJCT includes some but not all of the changes included in Staff's EM&V straw proposal and also incorporates many but not all of the changes suggested by stakeholders.[29] Staff believes that this Triennium 2 NJCT strikes a balanced and reasonable approach to accounting for the costs and benefits of EE programs and notes that the EM&V WG and NJCT Committee will continue to identify, research, and evaluate future changes to the NJCT.

VIII. REPORTING REQUIREMENTS

A. Utility Reports

The utilities shall submit public reports to the Board according to the reporting framework outlined below. Staff will issue standard report formats in collaboration with the utilities through the EM&V WG. All public reports will be available to any interested party on the NJCEP website.[30] The Board provides Staff with the flexibility to adjust the reporting due dates when necessary.

---

[27] The NEBs memo is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Cost Effectiveness Analysis & Avoided Cost" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an

[28] The IMC values and memo are available on the "Program Evaluations, Market Analysis and TRMs" page in the "Cost Effectiveness Analysis & Avoided Cost" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an.

[29] The Triennium 2 NJ Cost Test is available on the "Program Evaluations, Market Analysis and TRMs" page in the "Cost Effectiveness Analysis & Avoided Cost" section at https://www.njcleanenergy.com/main/public-reports-and-library/market-analysis-protocols/market-analysis-baseline-studies/market-an

[30] These progress reports will be available on the "Financial & Energy Savings Reports" page at https://www.njcleanenergy.com/main/public-reports-and-library/financial-reports/clean-energy-program-financial-reports

i. ***Quarterly Progress Reports***

No later than 60 days following the end of each quarter, the utility shall submit a user-friendly, public report in spreadsheet format on the following program-level parameters compared to program projections and goals:

- Annual, lifetime, and peak energy savings
- Number of program participants: total, low- to moderate-income, OBC, and small commercial
- Program expenditures

ii. ***Annual Progress Reports***

No later than 150 days following the end of each program year, the utility shall submit a user-friendly, public report, with accompanying spreadsheet(s), that includes the same program-level data as those that are included in the quarterly reports. The annual report shall show overall progress and performance of programs that are seasonal or cyclical in nature. In addition, the annual report shall include the following:

- A progress/performance narrative that provides an overview of program performance
- A narrative about customer participation and incentives paid
- The utility program administrator's initial and final benefit-cost test results for the programs and portfolio (as defined in Section V of the MFRs)
- Assessment of the portfolio's compliance with the targets established pursuant to the QPIs (addressed in Section VII of the MFRs)
- Any proposed changes or additions for the next year or cycle

If requested, the utilities shall provide end use, measure level, and/or other program data within 30 days to Staff.

iii. ***Triennial Progress Reports***

No later than 150 days following the end of the last year of the triennium, the utility shall submit a public report that takes the place of the annual report for that year. This report will be identical to the annual report but will also review the portfolio's data and assess the portfolio's success over the three-year program cycle.

B. <u>State Reports</u>

State program administrators shall submit public reports consistent with the utility reporting framework, as applicable to State programs.

C. <u>Statewide Compilation Reports</u>

The State will aggregate the data from utility and State programs and produce semi-annual and annual public reports on the performance and progress of all EE and PDR programs

and include GHG emissions reductions. Semi-annual compilation reports will aggregate the content provided in the quarterly reports, and annual compilation reports will aggregate the content provided in the annual reports.

IX. TRIENNIAL REVIEW

Pursuant to the CEA at N.J.S.A. 48:3-87.9(c), the Board shall review each QPI every three (3) years.

Every three (3) years, ahead of each utility filing cycle, Staff will continue to undertake a triennial review process to review and provide recommendations on the following for the subsequent triennium:

- Targets for overall utility territory-specific annual energy use reduction of at least 2% for electricity and at least 0.75% for natural gas that will apply until such time as all cost-effective EE is achieved in the territory, pursuant to N.J.S.A. 48:3-87.9(a) (for *each utility and each energy source)*
    - Targets for State program annual energy savings *(for each utility territory and each energy source)*
    - Targets for utility program annual energy savings *(for each utility territory and each energy source)*
- QPIs *(consistent for all utilities and the State)*
- Weighting structure of QPIs *(consistent for all utilities)*
- Performance incentives and penalties mechanism
- Cost recovery mechanisms
- Program administration and design

X. STAKEHOLDER GROUPS

Utility Working Group ("UWG")

The ongoing UWG (which is comprised of members from each of the utilities and Rate Counsel) meetings will further refine program design details. There will also be ongoing stakeholder opportunities for the public to provide feedback coordinated by Staff.

Staff will also continue to utilize the following working groups and committees.

Workforce Development Working Group ("WFD WG"): The WFD WG comprises Staff, Rate Counsel, the utilities, EE suppliers, job training institutions and organizations, equity stakeholders, other State and local agencies, and organizations and representatives from the other EE working groups as appropriate. This working group develops recommendations for coordinated and collaborative workforce development and job training pathways and pipelines statewide, with a focus on providing economic opportunities for underrepresented and socially or economically disadvantaged individuals. Underrepresented and socially or economically disadvantaged individuals may include women, people of color, veterans, disabled, and formerly incarcerated individuals, as well as those who are unemployed, underemployed, or low- and moderate-income. Programs may include contractor and

subcontractor coaching and mentoring of underrepresented, disadvantaged, and small business enterprises.

Equity Working Group ("EWG"): The EWG comprises stakeholders from representative organizations across the state familiar with the intersection of energy, equity, and health issues, as well as representatives from each of the other working groups. This working group is responsible for developing recommendations for integrating equity metrics and approaches in EE and PDR programs for utility-run and State-run programs. The EWG collaborates with the Supplier Diversity Development Council on recommendations for increasing economic development opportunities for minority-, women-, and veteran-owned businesses, including through, but not limited to, procurement policies for contractors and subcontractors.

Evaluation, Measurement, and Verification Working Group: As described in Section VII(A) above, as facilitated by the SWE, the EM&V WG brings together Staff, Rate Counsel, and the utilities – with technical evaluation contractors, program implementation contractors, and representatives from the other EE working groups as appropriate to provide guidance and input on relevant issues – to collaborate to develop a standard, transparent, and replicable approach for evaluating, measuring, and verifying the results of EE and PDR programs implemented pursuant to the CEA. As part of this standard statewide approach, the State and utilities are held to the same accountability standards through collaboratively developed plans, schedules, procedures, guidelines, and requirements for program administrators. The EM&V WG share associated data, as appropriate, consider best practices from other jurisdictions, and facilitate the necessary stakeholder processes related to the State's EM&V policies. The EM&V WG is highly deliberative and advisory regarding key EM&V plans and recommendations, and provides recommendations to Staff, with the Board retaining ultimate decision-making authority.

The EM&V WG establishes committees as needed on targeted issues. The current committees are the TRM Committee, NJCT Committee, and Guidelines Committee, with each comprising various members of the EM&V WG. Please see Sections VII(D) and VII(E) above for more detail. Staff will increase the frequency of EM&V WG updates and discussions with public stakeholders through EE stakeholder meetings.

Marketing Working Group ("MWG"): The MWG consists of the State and utilities, as well as any relevant partners, and works to promote the programs and the benefits of participation in the programs through coordinated messaging about core programs and a simplified experience for customers and contractors. Utilities and Staff engage in a collaborative effort in branding, messaging, and promotion of all utility- and State-led programs, including in the provision of program materials in Spanish and other languages other than English. Staff leverages State resources to promote general awareness of EE and other clean energy opportunities in New Jersey while the utilities and State program administrator market specific programs and initiatives to customers in a more targeted fashion.

MINIMUM FILING REQUIREMENTS FOR ENERGY EFFICIENCY AND RENEWABLE ENERGY PETITIONS UNDER N.J.S.A. 48:3-98.1 AND N.J.S.A 48:3-87.9

I. General Filing Requirements

a. The utility shall provide a table of contents for each filing.

b. The utility shall provide with all filings, information and data pertaining to the specific program proposed, as set forth in applicable sections of N.J.A.C. 14:1-5.11 and N.J.A.C. 14:1-5.12.

c. All filings shall contain information and financial statements for the proposed program(s) in accordance with the applicable Uniform System of Accounts that is set forth in N.J.A.C. 14:1-5.12. The utility shall provide the accounts and account numbers that will be utilized in booking the revenues, costs, expenses, and assets pertaining to each proposed program so that they can be properly separated and allocated from other regulated and/or other programs.

d. The utility shall provide supporting explanations, assumptions, calculations, and work papers as necessary for each proposed program and cost recovery mechanism petition filed under N.J.S.A. 48:3-98.1. The utility shall provide electronic copies of such supporting information, with all inputs and formulae intact, where applicable.

e. The filing shall include testimony supporting the petition, including all proposed programs.

f. For any proposed program, the utility shall be subject to the requirements in this and all subsequent Sections. If compliance with Section V and VI of these requirements would not be feasible for a particular program or sub-program, the utility may request an exemption but must demonstrate why such exemption should be granted. Examples of historical situations that have qualified for exemption include pilot programs, programs that had an educational or policy goal rather than resource acquisition focus, and programs that introduced novel ideas where documentation supporting estimated costs/benefits may not be easily produced.

g. If the utility is filing for an increase in rates, charges, etc. or for approval of a program that may increase rates/changes to ratepayers in the future, the utility shall include a draft public notice with the petition and proposed publication dates.

II. Program Description

a. The utility shall provide a detailed description of each proposed program for which the utility seeks approval, including, if applicable:

i. Program description/design

ii. Target market segment – including eligible customers, properties, and measures/services – and eligibility requirements and processes

iii. Existing incentives

iv. Proposed incentive structure or incentive ranges, including incentive payment processes and timeframes

v. Customer financing options

vi. Contractor requirements and role: The utility shall provide a description of the extent to which the utility intends to utilize employees, contractors, or both to deliver the program(s). The utility shall also provide a description of contractor requirements, including common application elements and training requirements.

vii. Estimated program participants, by year

viii. Projections for energy savings and associated metrics for each program year relative to the quantitative performance indicators in Section VII.

ix. Program budget, by year

x. Projected program costs, by year, broken down into the following categories, as applicable:
- capital cost;
- utility administration;
- marketing and outreach;
- outside services;
- incentives (including rebates and low- or no-interest loans);
- inspections and quality control; and
- evaluation.

To the extent that the New Jersey Board of Public Utilities ("Board" or "BPU") directs New Jersey's Clean Energy Program ("NJCEP") to report additional categories, the utility shall provide additional categories, as applicable.

Any workforce development and job training costs, health and safety costs, and costs of outreach to community-based organizations shall be shown separately.

b. The utility shall provide the following information about the proposed portfolio:

i. Quality assurance and control standards and remediation policies: The utility shall provide a detailed description of the process(es) for ensuring the quality of the programs and resolving any customer complaints related to the program(s).

ii. Plan for workforce development and job training partnerships and pipelines for energy efficiency jobs, including for local, underrepresented, and disadvantaged workers. The utility will also provide a description of how the utility plans to engage with and support participation by minority-, women-, and veteran-owned and other underrepresented businesses to ensure equitable access to contracting opportunities under the proposed programs.

iii. Customer access to current and historic energy usage data

iv. Total budget summary, including an annual budget summary and joint budgets with partner utilities

v. Benefit-cost analysis (as defined in Section V)

vi. The utility shall list its forecasted average cost to achieve each unit of energy savings in each sector.

vii. Marketing plan: The utility shall provide a description of where and how the proposed portfolio will be marketed or promoted to the sectors served by the utility's customer base, including coordinated customer outreach on core programs with other utilities. This shall include an explanation of how the specific services, along with prices, incentives, and energy bill savings for the proposed portfolio, will be conveyed to customers, where available and applicable. The marketing plan shall also include a description of any known market barriers that may impact implementation and strategies to address known market barriers.

c. In areas where gas and electric service territories overlap, the utility shall provide a description of the program structure for coordinated, consistent delivery of programs between the utilities and estimated coordinated budgets and allocation of costs and energy savings between the utilities. The utility shall provide a description of how the utilities coordinated their program assumptions and other factors that could influence results for each coordinated program.

III. Additional Filing Information Applicable Only to Renewable Energy Projects

a. The utility shall propose the method for treatment of Renewable Energy Certificates ("RECs"), including solar incentives, or any other renewable energy incentive developed by the Board, including Greenhouse Gas Emissions Portfolio and Energy Efficiency Portfolio Standards including ownership and use of the certificate revenue stream(s).

b. The utility shall also propose the method for treatment of any air emission credits and offsets, including Regional Greenhouse Gas Initiative carbon dioxide allowances and offsets, including ownership and use of the certificate revenue stream(s). For programs that are anticipated to reduce electricity sales in its service territory, the utility shall quantify the expected associated annual savings in REC, solar incentive, and any other renewable energy incentive costs.

IV. Cost Recovery Mechanism

a. The utility shall provide appropriate financial data for the proposed program(s), including estimated revenues, expenses, and capitalized investments for each of the first three years of operations and at the beginning and end of each year of the three-year period. The utility shall include pro forma income statements for the proposed program(s) for each of the first three years of operations and actual or estimated balance sheets at the beginning and end of each year of the three-year period.

b. The utility shall provide detailed spreadsheets of the accounting treatment of the proposed cost recovery, including describing how costs will be amortized, which accounts will be debited or credited each month, and how the costs will flow through the proposed program cost recovery method.

c. The utility shall provide a detailed explanation, with all supporting documentation, of the recovery mechanism it proposes to utilize for cost recovery of the proposed program(s), including proposed recovery through the Societal Benefits Charge, a separate clause established for these programs, base rate revenue requirements, government funding reimbursement, retail margin, and/or other mechanisms.

d. The utility's petition for approval, including proposed tariff sheets and other required information, shall be verified as to its accuracy and shall be accompanied by a certification of service demonstrating that the petition was served on the New Jersey Division of Rate Counsel simultaneous to its submission to the Board.

e. The utility shall provide a rate impact summary by year for the proposed program(s) and a cumulative rate impact summary by year for all approved and proposed programs showing the impact of individual programs, based upon a revenue requirement analysis that identifies all estimated program costs and revenues for each proposed program on an annual basis. Such rate impacts shall be calculated for each customer class. The utility shall also provide an annual bill impact summary by year for each program, and an annual cumulative bill impact summary by year for all approved and proposed programs showing bill impacts on a typical customer for each class.

f. The utility shall provide, with supporting documentation, a detailed breakdown of the total costs for the proposed program(s), identified by cost segment, consistent with the program cost categories enumerated in Section II(a)(x). This shall also include a detailed analysis and breakdown and separation of the embedded and incremental costs that will be incurred to provide the services under the proposed program(s), with all supporting documentation. Embedded costs are costs that are provided for in the utility's base rates or through another rate mechanism. Incremental costs are costs associated with or created by the proposed program that are not provided for in base rates or another rate mechanism.

g. The utility shall provide a detailed revenue requirement analysis that clearly identifies all estimated annual program costs and revenues for the proposed program(s), including effects upon rate base and pro forma income calculations.

h. The utility shall provide, with supporting documentation: (i) a calculation of its current capital structure, as well as its calculation of the capital structure approved by the Board in its most recent electric and/or gas base rate cases, and (ii) a statement as to its allowed overall rate of return approved by the Board in its most recent electric and/or gas base rate cases.

i. If the utility is seeking carrying costs for a proposed program, the filing shall include a description of the methodology, capital structure, and capital cost rates used by the utility. A utility seeking performance incentives shall provide all supporting

justifications and rationales for the incentives, along with supporting documentation, assumptions, and calculations. Utilities that have approved rate mechanisms or incentive treatment from previous cases and are not seeking a modification of such treatment through the current filing are not subject to this requirement.

V. Benefit-Cost Analysis

a. The utility shall conduct a benefit-cost analysis of the programs and portfolio using the most recent New Jersey Cost Test, including its most recent avoided cost methodologies, as a primary test. In addition, the utility shall conduct benefit-cost analysis using the Participant Cost Test, Program Administrator Cost Test, Ratepayer Impact Measure Test, Total Resource Cost Test, and Societal Cost Test that assesses all program costs and benefits from a societal perspective i.e., that includes the combined financial costs and benefits realized by the utility and the customer as defined in the then-current version of the California Standard Practice Manual. The utility may also provide any additional benefit-cost analysis that it believes appropriate with supporting rationales and documentation.

b. The utility must demonstrate how the results of the tests in Section V(a) support Board approval of the proposed program(s), including how the programs are designed to achieve a benefit-to-cost ratio greater than or equal to 1.0 at the portfolio level when using the New Jersey Cost Test.

c. Renewable energy programs, workforce development and job training costs, health and safety measures, and outreach to community-based organizations shall not be subject to a benefit-cost test, but the utility must estimate all direct and indirect benefits resulting from such a proposed program as well as provide the projected costs.

d. The level of energy and capacity savings shall be calculated using the most recent Technical Reference Manual approved by the Board. To the extent that a protocol does not exist or an alternative protocol is proposed for a filed program, the utility must submit a savings methodology for the program or contemplated measure for approval by the Board.

e. For calculation of energy and capacity savings, as well as for cost effectiveness calculations, the utility shall apply the applicable net-to-gross ("NTG") ratio and realization rates provided in the current Technical Reference Manual. To the extent that a NTG value does not exist or an alternative NTG value is proposed for a filed program, the utility must submit a NTG value for the program or contemplated measure for approval by the Board.

VI. Evaluation, Measurement, and Verification ("EM&V")

a. The utility shall describe the methodology, processes, and strategies for monitoring and improving program and portfolio performance related to the utility's targets established pursuant to the Quantitative Performance Indicators ("QPIs") in Section VII. The utility shall confirm that these methodologies, processes, and strategies conform with the current New Jersey EM&V guidance documents and standards. The utility shall also provide an EM&V budget consistent with the current New Jersey EM&V guidance documents and standards.

VII. Quantitative Performance Indicators: Targets

a. The utility shall file QPI target values based on the metrics applicable to each program year of the three-year program filing cycle.

b. The utility shall provide a description of how the proposed portfolio achieves the targets established for each utility pursuant to the QPIs outlined in the BPU's most recent Energy Efficiency Framework Order, as applicable for each program year:

VIII. Reporting Plan: The utility shall comply with the reporting requirements as outlined in the BPU's most recent Energy Efficiency Framework Order.

Triennium 2 Building Decarbonization Start-up Programs Framework

Contents

Introduction 1
2.0 Background 2
3.0 Program Goals and Scale 3
4.0 Program Criteria and Considerations 5
4.1 Guidance for Aligning the BD Programs with Core EE Programs 7
5.0 Program Measures 8
5.1 Fuel Switching Events 8
6.0 Program Impacts for Program Administrators 11
6.1. Source Energy and Emissions Impacts 12
7.0 Program Evaluation & Reporting 19
Planning Prior to Triennium 2 20
Minimum Filing Requirements ("MFRs") 21
Glossary 23

Introduction

Under the authority of the New Jersey Board of Public Utilities ("Board" or "BPU"), electric distribution companies ("EDCs") should establish building decarbonization start-up programs ("BD Programs") in Triennium 2 (July 1, 2024 – June 30, 2027) whose primary objectives are efficiency and conservation, such that consumption of energy is reduced below what would have otherwise been used. The BD Programs should offer financial incentives for New Jersey consumers currently using fossil-fueled equipment to adopt more efficient electric equipment. The BD Programs should prioritize fuel-switching of space heating and water heating from delivered fuels to electric heat pumps ("HPs"); that is, they should include switching from delivered fuels to electric HPs, not fuel-switching from delivered fuels to natural gas systems. The programs may also provide incentives for gas customers to adopt electric heat pumps. Gas distribution companies ("GDCs") may offer BD programs specifically to gas customers who are eligible for hybrid heating systems (as described further below), as well as district geothermal heating.

Future manifestations of BD Programs could include policy and programs to promote carbon-free on-site energy generation.

The BD Programs will be part of the portfolio of energy efficiency ("EE") programs ("EE Programs") implemented pursuant to New Jersey's Clean Energy Act of 2018 ("CEA") to explore policy on program design, evaluation, measurement, and verification ("EM&V"), equity, workforce development, cost-effectiveness, and performance incentives for an electrification program. BD Programs should be designed to ensure that all projects result in net source energy savings on a fuel-neutral MMBtu basis; they should track and evaluate projects and measures for net source energy savings on an MMBtu basis by fuel type. In addition, BD Programs should track and evaluate projects and measures for net source CO_2 equivalent

("CO_2e") savings by fuel type. Through the following BD Programs framework, investor-owned utility companies should propose a portfolio of measures and/or sub-programs that serve single and multifamily residential buildings and commercial buildings, with support for low- and moderate-income ("LMI") customers not served by the low-income Comfort Partners program.

2.0 Background

The *2019 New Jersey Energy Master Plan: Pathway to 2050* ("EMP") defines two of the seven key strategies to achieve clean energy by 2050 as "Maximize Energy Efficiency and Conservation and Reduce Peak Demand" (Strategy 3) and "Reduce Energy Consumption and Emissions from the Building Sector" (Strategy 4).[1] With regard to Strategy 4, the EMP states that the building sector should be decarbonized and largely electrified by 2050 with an early focus on new construction and the conversion of electric baseboard heating and oil- and propane-fueled buildings. Section 4.1 of the EMP specifically highlights the urgency to act on electrification:

> Much of the infrastructure, technology, and assets used to power the building sector have decades-long lifespans. Therefore, continuing to expand the gas distribution system and rely on fossil fuel heating for new construction and replacement of aging heating systems will lock in decades of continued emissions and risk financing what will become stranded assets. Delaying the transition might pose a missed opportunity to replace existing equipment with more efficient electric options.

New Jersey's Global Warming Response Act 80x50 Report, "Evaluating Our Progress and Identifying Pathways to Reduce Emissions 80% by 2050" ("80x50 Report"), identifies building space heating and water heating-based electrification as a key strategy to reduce emissions.[2] Specifically, the 80x50 Report cites the modeling results of the Integrated Energy Plan in projecting the need and expectation to quadruple building electrification from about 5% to over 20% from 2020 to 2030 and to increase it to 90% by 2050.

Governor Murphy's Executive Order 315 (February 2023) calls for the development of a new EMP pursuant to the State's new policy to advance clean energy market mechanisms and other programs in order to provide for 100% of the electricity sold in the state to be derived from clean sources of electricity by January 1, 2035.

In addition, Governor Murphy's Executive Order 316 (February 2023) directs that, by 2030:

> 400,000 additional dwelling units and 20,000 additional commercial spaces and/or public facilities statewide will be electrified, and an additional 10 percent of residential units serving households earning less than 80 percent of area median income will be made ready for electrification through the completion of necessary electrical system repairs and upgrades. For purposes of this Order, 'electrification' shall be defined as the retrofitting or construction of a building with electric space heating and cooling and electric water heating systems.

---

[1] *2019 New Jersey Energy Master Plan: Pathway to 2050, available at* https://www.nj.gov/emp/

[2] GWRA 80X50 Report, https://www.nj.gov/dep/climatechange/docs/nj-gwra-80x50-report-2020.pdf

The federal Inflation Reduction Act ("IRA") will further augment New Jersey's BD efforts. The federal home electrification program will provide rebates of up to $8,000 and 100% of the cost of HPs for lower-income households. For higher-income households, a 30% tax credit is available for purchase and installation costs for energy audits, insulation, efficient HVAC and water heating, as well as battery storage and solar.

Two aspects of the CEA influence the design of the BD Programs. First, the CEA requires "each electric public utility and gas public utility to reduce the use of electricity, or natural gas, as appropriate, within its territory, by its customers, below what would have otherwise been used."[3] Since the BD Programs are proposed as part of the portfolio of EE programs, projects implemented within the BD Programs should result in net energy savings on an MMBtu basis. All BD projects and measures should therefore be tracked and analyzed for net source energy usage reductions on an MMBtu basis by fuel type.

Second, the CEA requires that utility EE portfolio benefit-cost ratios equal or exceed 1.0, with exceptions allowed "if implementation of the program is in the public interest," noting emerging energy efficiency technology and low-income programs as exceptions.[4] The 2020 Order in which the Board adopted the first New Jersey Cost Test ("NJCT") expands on the reasons for "reasonable policy interests" for individual programs or measures to not have a 1.0 ratio, "such as to promote health and safety, to ensure equitable access, or to spur innovation, the adoption of other measures, or longer-term market transformation."[5] Electrification from delivered fuels is often cost-effective for customers; and switching from natural gas may be cost-effective under certain scenarios (e.g., when gas customers need to replace both a furnace and air conditioner, or when there are additional, integrated interventions such as weatherization, energy storage, renewable energy, rate changes, or bill credits) and depending on their utility territory and rate plan.[6] The *New Jersey Energy Master Plan: Ratepayer Impact Study* found that, due to natural gas rates rising faster than electricity rates, most utility territories by 2030 will find operating costs for HPs to be less than those for natural gas furnaces.[6]

3.0 Program Goals and Scale

Given New Jersey's mid- and long-term goals for energy usage reductions, building electrification, clean energy, and greenhouse gas ("GHG") emissions reductions by 2026, 2030, 2035, and 2050, respectively, BPU's high-level goals for BD during Triennium 2 (2024–2027) include the following:

- Design, launch, and test a set of BD Programs offered by utilities that prioritize customer incentives for electric space and water heating in the residential and multifamily sectors, focusing on customers voluntarily switching from delivered fuels to electric HPs and making buildings electrification-ready;[7]

[3] N.J.S.A. 48:3-87.9(a).

[4] N.J.S.A. 48:3-87.9(d)(2), *available at* https://pub.njleg.gov/bills/2018/PL18/17_.PDF.

[5] In re the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs; In re the Clean Energy Act of 2018 – New Jersey Cost Test; BPU Docket Nos. QO19010040 and QO20060389, Order dated August 24, 2020, *available at* https://www.state.nj.us/bpu/pdf/boardorders/2020/20200824/8A%20-%20ORDER%20New%20Jersey%20Cost%20Test.pdf.

[6] New Jersey Energy Master Plan: Ratepayer Impact Study (August 2022), *available at* https://www.nj.gov/bpu/pdf/reports/2022-08-13%20-%20BPU,%20EMP%20Ratepayer%20Impact%20Study%20Report_PUBLIC_Brattle.pdf

[7] Electrification readiness measures include panel upgrades; electric wiring; and installation of sufficiently-rated

these programs should support LMI and multifamily customers who are not eligible for the low-income Comfort Partners program; the programs may also provide incentives for gas customers to voluntarily adopt more efficient electric equipment;

- Design, launch, and test a set of BD Programs offered by utilities that serve the commercial sector; these may include smaller scale programs that focus on incentives for customers switching from fossil fuels to electric HPs in smaller commercial buildings, and/or they may include incentives for district geothermal systems for commercial customers; utilities may also propose BD Programs designed to serve large commercial and/or industrial customers that are complementary with the Large Energy Users Program ("LEUP") offered by New Jersey's Clean Energy Program;
- Design, launch, and test a BD pilot program offered to institutions of higher learning through the LEUP;
- Develop programmatic infrastructure to effectively market, deliver, and track BD program impacts and costs;
- Increase market knowledge, infrastructure, and capacity to accelerate the delivery of, and reduce the costs of, BD technologies, systems, and practices to end users;
- Develop New Jersey-specific analyses of BD impacts, costs, opportunities, barriers, and cost-effectiveness (both near term and longer term);
- Collect comprehensive performance and market transformation-related metrics and prepare evaluation studies informed by timely, sub-annual informal reporting using embedded, quasi-real time evaluation;
- Collaborate to consistently implement BD Programs in coordination with core EE Programs; and
- Set the foundation for New Jersey in Triennium 2 to make significant progress in Triennium 3 (2027–2030) – with a specific focus on achieving EO 316 goals – and thereafter towards cost-effectively achieving New Jersey's BD goals.

As noted previously, New Jersey's ambitious GHG reduction goals require significant reductions in emissions from buildings on a rapid trajectory. At the same time, there are a number of new policy, program, analytical, and market issues that need to be developed and assessed in the near term to enable prudent and effective BD over the longer term. Several states have adopted progressive decarbonization strategies such as large-scale building electrification targets, buildings performance standards, and/or clean heat programs with decreasing emissions targets. While New Jersey can build and is building on the lessons learned from other jurisdictions already engaged in BD, this BD program is being launched as a first step towards larger scale transformation in New Jersey's buildings sector, while recognizing the likely market transformation that will result from federal EE and HP rebates.

Staff's intention is to initiate programs of large enough scale in Triennium 2 to achieve some material economies, market adoption, and lessons learned, while managing the total program cost as programs ramp up between Triennium 2 and Triennium 3. Staff suggests a BD Programs budget statewide that increases annually and sums to approximately $144 million by the third year of Triennium 2 to align with achievement of EO 316 goals while also taking into account the effects of complementary IRA tax credits and rebates. Given that the goal-setting study projected utility EE budgets of approximately $1.2B, $1.5B, and $1.6B for Program Year 4 ("PY4") (2024–2025), Program Year 5 ("PY5") (2025–2026), and Program Year 6 ("PY6") (2026–2027), respectively, statewide (not including State programs) in the full compliance scenario, and given the need to ramp up to achieve EO 316 goals, each EDC should – and each GDC may – design its BD Program to scale to achieve EO 316 goals with a budget maximum of approximately 7%, 8%, and 9% of the utility's EE budgets for PY4, PY5, and PY6, respectively. If based on the estimated utility EE budgets in the goal-setting study under the full compliance scenario, BD Program budgets statewide would

electrical receptacles near household ranges, cooking appliances, clothes dryers, and water heaters.

be approximately $84 million, $120 million, and $144 million, respectively. Staff also notes, however, that these are estimated budgets and the utilities will propose overall EE budgets, including BD Program budgets, for consideration by the Board.

BD Programs for the commercial sector may be proposed up to 30% of a utility's BD Program budget; these programs could serve smaller commercial buildings or propose district geothermal heating for commercial customers. As noted above, utilities may also propose BD Programs designed to serve large commercial and/or industrial customers for consideration by the Board that are complementary with LEUP. All told, BD Programs for commercial and/or industrial customers may comprise up to 30% of a utility's BD Programs budget in consideration of EO 316's targets for the residential sector.

Based on Triennium 2 BD Program results, as well as related analyses of market potential and cost-effectiveness, Staff anticipates that BPU will further scale and modify the BD Programs and requirements for Triennium 3.

4.0 Program Criteria and Considerations

Projects implemented by the BD Programs must demonstrate net source energy reductions on an MMBtu basis, within the constraints of policy objectives such as cost-effective delivery to the customer and public health impacts. The BD Programs will be tracked and evaluated assessed based on the following metrics:

1. Net decrease in source energy on an MMBtu basis across affected fuels;
2. Net decrease in source CO_2e emissions across affected fuels;
3. Net end user bill savings across affected fuels; and
4. Cost-effectiveness as defined by the NJCT and Participant Cost Test ("PCT").

Net bill savings are an important goal for the longer term; however, for Triennium 2, the BD Programs would not be required to result in net bill savings. Some early adopters may be willing to adopt BD measures without a reduction in their bills. At the same, customer education is critical so that customers are able to make well-informed choices when participating in incentive programs and also be educated about the installations performed through the programs. The information provided to customers about estimated bill impact and energy use should be defensible and based on a consistent approach across utility programs.[8]

Note that reporting requirements for these metrics are included in the Minimum Filing Requirements section for BD Programs later in this section.

With respect to cost-effectiveness, a goal of this initial BD effort is to demonstrate and, as necessary, improve the cost-effectiveness of BD Programs and measures. The primary basis for assessing BD Programs' cost-effectiveness will be the NJCT. Results for additional Standard Practice Manual tests are also required and should follow the reporting requirements for the CEA EE Programs. For Triennium 2, Staff recommends that BD Programs not be required to achieve a cost-effectiveness ratio greater than or equal to 1.0 because, per the exceptions allowed by the CEA, the Board believes that implementation of the program is in the public interest; however, the level of cost-effectiveness will be an important metric

[8] Initial analysis performed by DNV, one of BPU's consultants, illustrates that electric HPs represent a credible source energy reduction technology compared to fossil fuel heating technologies. Staff will review and discuss this analysis with the EM&V Working Group and share it with public stakeholders through upcoming monthly EE stakeholder meetings.

in consideration of which programs should be approved. The rationale for aiming for but not requiring an NJCT result of 1.0 or greater is that among the goals for the BD Programs in Triennium 2 are building the necessary capacity and skills to deliver meaningful GHG emission reductions while also producing the empirical data needed to fully assess impacts and cost-effectiveness. Based on the results of the Triennium 2 effort, BPU will have the information needed to assess the BD Programs' cost-effectiveness and performance for the purposes of informing Triennium 3 requirements and funding levels. For example, there may be a greater expectation for the BD Programs to pass the NJCT in Triennium 3.

In this start-up phase, Staff encourages the utilities to develop plans for prioritizing customers who currently utilize delivered fuels for their space and water heating needs. As noted above, national data show that switching from delivered fuels to efficient electric HPs is cost-effective.[9] A New Jersey- specific market characterization study to determine how to identify these customers is noted below as an additional research need prior to Triennium 2 and is expected to further inform these programs. In addition, the utilities are encouraged to collaborate to develop a targeted marketing plan to focus on customers who voluntarily switch from delivered fuels. Prioritizing projects that are likely to be highly cost- effective can help drive scale and learnings in this initial phase and eliminate the most emissions-intensive sources of space and heating.

The proposed scope of the BD Programs includes all customers not eligible for Comfort Partners, which is currently developing its own decarbonization pilot for the program. The BD Programs, therefore, should serve non-low-income residential customers, multifamily customers, and commercial customers. While serving all eligible customers, the BD Programs must be designed to enable participation by LMI and multifamily customers and thereby encourage equitable conversion. In particular, EO 316 calls for 10% of LMI residences in communities to be made "electric ready." Moreover, the *NJ Energy Master Plan – Ratepayer Impact Study* noted the importance of encouraging electrification for LMI households. If LMI households comprise an increasing share of the natural gas customer base, they would be disproportionately saddled with rising natural gas rates and therefore unsustainable energy burdens.

All BD Programs should seek to leverage IRA tax credits and electrification rebates based on customer eligibility.

The BD Programs should be designed in alignment with the utilities' core EE Programs (and the IRA EE rebates that those programs will leverage) and promote targeted complementary measures that support and enhance BD, such as weatherization, replacement of electric resistance heating with HPs, electrification-readiness when combined with other EE upgrades, and behind-the-meter demand response measures, through the EE Programs. More specifically, weatherization should be incentivized along with a BD measure. For example, three existing utility residential programs offer incentives for measures that overlap with potential BD Programs' measures, and these should be aligned with the new BD Programs:

- *Home Performance with Energy Star* ("HPwES") offers incentives and financing for whole building solutions which may be a combination of weatherization and HVAC equipment upgrades.
- *Prescriptive incentives* are offered for Energy Star HPs, including cold-climate HPs, as well as HP water heaters.
- *Moderate-Income Weatherization* provides cost-free weatherization for moderate-income

[9] Sherri Billmoria, Mike Henchen, Leia Guccione, and Leah Louis-Prescott, Rocky Mountain Institute, *The Economics of Electrifying Buildings: How Electric Space and Water Heating Supports Decarbonization of Residential Buildings* at 20 (2018), http://www.rmi.org/insights/reports/economics-electrifying-buildings/

households (less than 400% of the federal poverty level).

Additionally, BD Programs serving the multifamily sector should similarly be designed in alignment with the EE Programs and also in consultation with the New Jersey Housing and Mortgage Finance Agency and New Jersey Economic Development Authority to ensure alignment with other existing and complementary State programs or incentives for affordable and multifamily housing.

4.1 Guidance for Aligning the BD Programs with Core EE Programs

In developing program proposals, the utilities should collaborate to ensure a consistent set of BD Program requirements and features statewide, utilizing the below guidance as a starting point. Prior to proposing filed proposed programs with the Board, the utilities should also seek stakeholder input to refine the design of these programs through at least two (2) virtual public stakeholder outreach sessions during and after business hours that are advertised on their websites.

- **Customer choice** – BD Programs should at a minimum offer a pathway for simple equipment swap outs and a more comprehensive pathway that offers packaged measures that include weatherization plus efficient electric equipment. The more comprehensive pathway can be met by serving customers with both BD and EE Programs.
- **Coordinating incentives for BD measures** – Utilities should continue to offer incentives to reduce energy consumption by fuel (including, for example, weatherization measures and appliance incentives for converting from electric resistance to electric HPs) through the EE Programs, and this should be made clear and simple for contractors and customers to navigate. The BD Programs will offer fuel switching and electrification-readiness incentives.
    - For projects that include BD measures + weatherization or other complementary measures to support electrification, the BD Program should be layered with existing EE offerings (e.g., for residential customers, HPwES or Moderate-Income Weatherization) to avoid duplicative or competing program offerings.
    - Utilities should include incentives for customers and contractors in both EE and BD Programs to encourage adoption.
    - In overlapping utility service territories, utilities should coordinate delivery of BD Programs to preclude duplicative or competing program offerings.
- **Single intake with simplified application requirements** – Customers choosing to do EE and electrification should not have to apply separately to the BD Programs and other EE Programs. There should be a single intake where the coordination and incentive stacking is done behind the scenes.
- **Positioning the EE Programs to support BD** – To further support the BD Programs, there should be a mechanism within the utilities' EE Programs to identify whether the customer would be a good candidate for electrification and to inform them of the potential BD incentive opportunities. The utilities should develop criteria to determine whether customers are good candidates for electrification (e.g., age of equipment, decision event, health and safety, envelope efficiency) and have a process for marketing and coordinating BD incentives if a customer is found to be a good candidate. Further, the utilities' EE Programs – for example, Quick Home Energy Check-up – should be configured such that the customers' existing heating equipment type and age is recorded and that customer data should go into a database for future marketing efforts for electrification.
- **Incentive levels and structure** – In developing proposals for core EE programs and for BD Programs,

utilities should assess current customer and contractor incentive amounts for all heating and cooling equipment and realign incentive levels such that there is a clear and strong incentive for customers and contractors to pursue the BD pathway. Utilities should collaborate with BPU Staff and other stakeholders to identify appropriate incentive levels and ensure balance across programs, with consideration of market dynamics, program budgets, etc. Further, incentive structures should be designed to be as simple as practicable to support program accessibility and uptake.

- **Contractor training** – Utilities should develop required trainings for contractors to ensure that contractors have the tools and training that they need to effectively promote the BD Programs, as well as to effectively size and install BD measures.

5.0 Program Measures

For the BD Programs, delivered fuels to electric fuel switching, subject to the requirements above, is the proposed initial priority for Triennium 2, and the programs may also provide incentives for natural gas to electric fuel switching. Examples of program measures include:

- Fuel switching of a space heating system, such as a fuel oil or natural gas furnace, to a HP;
- Fuel switching of a domestic water heater, such as a propane or natural gas heater, to a HP;
- Replacement of both a furnace and air conditioner with a HP;
- Hybrid heating system, such as the replacement of an air conditioner with a HP in a central air system that retains the natural gas furnace that is operating well and not at end of life, and could include integrated controls to switch between the furnace and the HP during the heating season; and
- Conversion of other gas to electric end-uses, such as induction cooking and dryers.

Henceforth, these measures will be referred to as BD measures.

The utilities should adopt a consistent set of minimum performance specifications for the BD measures statewide and should take into account existing standards to maximize alignment with other state and federal incentives.

5.1 Fuel Switching Events

The BD measures depend upon various baseline scenarios, which determine the performance of the particular measure. The baseline condition may be either an existing fossil-based system, a new fossil-based system under consideration, or an early replacement fossil-based system with dual baseline considerations.[10] For space heating, the most common substitutions involve HPs displacing boilers or furnaces. For water heating, HP water heaters displace fossil fuel-fired water heaters. Substitution also covers other end-uses such as cooking equipment and clothes dryers. In all cases, the primary intent is to reduce energy consumption while also tracking net GHG emissions impacts and wherever applicable considering indoor air quality impacts.

It is important that the BD Programs track key parameters that describe the baseline:

[10] The NJ TRM defines these terms in greater detail.

- **Baseline heating fuel.** Displacing an oil-fired boiler will have a different impact than displacing a propane or natural gas furnace or a wood-fired boiler.[11]
- **Baseline equipment type, heating.** A central furnace will have a different baseline energy use than a water boiler or a steam boiler. This variable is less critical than others on the list.
- **Baseline equipment type, cooling.** Is the HP displacing another existing or anticipated cooling system, or is it being installed and used in a space that otherwise would not be cooled? Or is cooling use not planned at all?
- **Baseline condition (event type), heating.** The 2023 Technical Reference Manual ("TRM") presents six baseline conditions or event types. Five of the six could apply to a HP. Table 1 repeats the conditions and provides an illustrative but not exhaustive list of baseline and replacement scenarios. BD Programs should assess each participant's baseline condition, as this affects first-year and lifetime energy savings and cost.
- **Baseline condition (event type), cooling.** Cooling baselines typically follow the logic of the heating baseline. One significant difference that evaluators may investigate is the possibility of program-induced load growth and related emissions impact.

Table 1: Event Type Examples

Event Type	Baseline	Efficient Case
Replace on Failure ("ROF")	Replacement of a failed central air conditioner and old but working propane-fired furnace integrally built with the central air conditioner ("CAC"). The baseline is a new industry standard practice ("ISP") CAC and propane furnace.	New ducted air source heat pump ("ASHP")
Retrofit ("RF")	Existing functional oil-fired central system	Ductless mini-split heat pump added to one room
Early Replacement ("EREP") (including Direct Install)	Replacement of a working propane water heater. The initial baseline is the existing water heater; then, after the remaining useful life expires, nominally 1/3 of the 11-year effective useful life, the baseline is a new ISP propane water heater for the remaining years of life.	New HP water heater
Early Retirement ("ERET")		Not applicable for HPs or HP water heaters. There is no material resale market for them.

Hybrid dual-fuel systems are the combination of a fuel-fired furnace with a HP in a central air system. The replacement HP operates for cooling and heating and should be sized to meet the full heating demand load in order to be eligible for a higher incentive; an incentive should also be offered for needed electrical system upgrades. A more modest incentive should be offered for replacement at partial load. The fuel-fired furnace turns on at a balance point – for example, when the operating cost is lower for the furnace than for the HP. Event types for the replacement of a traditional central air system of a fuel-fired furnace and air conditioner with a hybrid system include two (2) cases: i) replace on failure for air conditioner or furnace and ii) early replacement of the air conditioner or furnace. The financial analysis of the two cases must take into account the age of the still-working system and whether the replacement HP meets full or partial heating demand load.

[11] New Jersey GHG Inventory, https://dep.nj.gov/ghg/nj-ghg-inventory/

6.0 Program Impacts for Program Administrators

For BD measures, the primary policy objectives are cost-effective net reductions in source energy (source Btu) and the measurement of GHG emissions. For reporting and compliance purposes, the source energy savings and emissions impacts shall be claimed by the utility that implements the measure. As discussed earlier, the treatment of energy and emissions savings for fuel switching measures are more complicated than for EE measures in that estimation of the primary impacts requires an assessment of source energy and emissions impacts that considers all of the end uses and fuels affected by the fuel switching measure, rather than only site energy impacts.

For example, a project that replaces a gas furnace and electric air conditioning system with a HP system that provides heating and air conditioning would have a reduction in site therms for heating, an increase in site electric kWh for heating, and a change in site air conditioning usage. The change in air conditioning usage is likely to be a reduction or neutral change in cases where a HP replaces an existing central air conditioner (if the HP's cooling efficiency is equal to or greater than that of the AC unit it replaces, and the size of the systems are the same in terms of cooling tons of capacity). The impact on site air-conditioning usage also could be an increase in site electricity use, if there was no air conditioning system previously and there is low likelihood that air conditioning would have been installed absent the influence of the program.

In addition, some measures that may be targeted at one end use, such as a HP water heater replacing a delivered fuel or gas water heater, may have impacts on other end uses. For example, a HP water heater pulls heat from the surrounding air, which may impact building heating and cooling loads depending on where the water heater is located (e.g., fully-conditioned, semi-conditioned, or unconditioned space) and other factors. These impacts also must be accounted for.

Once all of the site energy impacts have been estimated across all of the impacted end uses and fuels, they can be converted to the common unit of source energy (source Btu) and the total source energy impacts can be estimated and claimed by the implementing utility, as discussed below. For Triennium 2 BD Programs, the utility that implements the BD project and whose ratepayers fund the BD program, may apply source Btu impacts to their EE savings goals and quantitative performance indicators. Table 4 addresses conversion of electricity from site energy to source energy.

For reporting and compliance purposes, the energy savings from BD measures may be claimed by the utility that implements the measure. Unlike for typical EE measures (for which energy savings are reported by each program administrator and CO_2 emissions savings are reported at a statewide level), the CO_2 emission savings from BD measures will also be calculated and reported. When fuel switching results in changes in therms or kWh, there will be no adjustment of retail sales baselines because it has been determined that the three-year average of retail sales will apply for goal setting for the duration of the triennium.[12]

[12] Staff believes that any aggregate impact of fuel switching during the triennium likely would be *de minimus* with respect to energy efficiency goal targets for the triennium.

6.1. Source Energy and Emissions Impacts

As discussed in the preceding section, estimation of fuel switching impacts requires estimation of both site and source energy, as well as emissions, impacts. The TRM provides values for many of the parameters needed to calculate site-level consumption and impacts for the measures related to fuel switching. The TRM will be updated prior to Triennium 2 to directly address the site energy impacts of fuel switching measures for all targeted and affected fuels. The remainder of this section addresses conversion of site-to-source energy and emissions.

1. Source Energy Impact

For BD measures, source energy impacts are the primary objective rather than site energy impacts. This is because source energy impacts are directly related to the total emissions impacts and costs associated with fuel switching, while site energy impacts are not.[13] For electricity impacts, site kWh must be converted to a common energy unit, Btu, and then further adjusted to account for the energy required to generate each kWh. This is known as the heat rate and is typically expressed in Btu per kWh of electric generation. The conversion from site to source Btu must also account for losses associated with delivery of the electricity from generation to site (transmission and distribution or "T&D" losses). Losses shall be calculated consistent with the requirements of the NJCT. Conceptually, source Btu is calculated by taking the site kWh impact, converting kWh to Btu, and then adjusting for losses associated with power plant generation and line losses from T&D.

A key question in developing the source Btu per MWh intensity factors is how to account for different types and mixes of electricity generation. For fossil generation, the source Btu is obtained by accounting for the efficiency and associated losses in the fossil fuel's conversion to electricity based on the heat rate. Heat rates vary widely within and across different types of fossil-based electricity generation plants such as combined cycle gas, combustion turbine gas, coal, and oil.[14] Table 2 shows EIA estimates of heat rates for different types of non-renewable generation resources.

Table 2. EIA Average Tested Heat Rates by Prime Mover and Energy Source, 2021, in Btu per kWh[15]

Prime Mover	Coal	Petroleum	Natural Gas	Nuclear
Steam Generator	10,002	10,347	10,365	10,429
Gas Turbine	--	13,227	11,068	--
Internal Combustion	--	10,461	8,821	--
Combined Cycle	--	9,208	7,580	--

[13] *See*, for example, Trupe, Luke, et al., *Spatio-Temporal Change Among Site-to-Source Conversion Factors for Building Energy Modeling, Energy and Buildings*, Volume 213, April 15 (2020).

[14] Heat rates within generation types can vary significantly based on factors such as age of the unit and capacity factors. For example, the most efficient new combined cycle gas plants may have average heat rates as low as 6,600 Btu per kWh.

[15] EIA's Electric Power Annual, *Table 8.2 Average Tested Heat Rates by Prime Mover and Energy Source, 2017-2021* https://www.eia.gov/electricity/annual/.

For renewable resources, such as solar, wind, and hydropower, the marginal source energy can be considered to be equivalent to the energy delivered to the grid, implying a heat rate of 3,412 Btu per kWh. There are multiple approaches in the literature used for imputed heat rates for renewable electricity generation. Since the purpose of using heat rates for BD analyses is to normalize site-to-source energy across fuels using a site-to-source conversion factor, site-to-source energy conversion factors for BD Programs should use a heat rate of 3,412 per kWh for renewable generation sources. As noted in the footnote, the forecast used for de-escalating emissions is not affected by this choice of heat rates.[16]

For the purposes of assessing the impacts of increased electricity generation associated with fuel switching from fossil fuels to electricity, source Btu per MWh of generation should be calculated based on the marginal generation of electricity for PJM, consistent with reported emissions values to be used in the NJCT.[17] The starting value for the 2022 heat rate is based on the mix of marginal generation units for PJM using heat rates by plant type from EIA (Table 2) and calculated using a weighted average based on PJM's reported share of each plant type associated with marginal generation. The weighted average heat value is calculated for 2022 using the heat rates from EIA weighted by the percent of each generator type for PJM as shown in Table 3.

Table 3. PJM Marginal Units by Fuel Type and Technology, 2022[18]

Unit Type	PJM % of Marginal Generation	Heat Rate in Btu per kWh
Gas CC	61%	7,580
Coal St	10%	10,002
Wind	11%	3,412
Gas CT	11%	11,068
Gas St	1%	10,365
Oil CT	2%	10,461
Ur	0%	10,429
All Other	2%	8,821
Weighted Average		**7,899**

[16] In reviewing the literature on use of heat rates for decarbonization analyses, Staff found that some analyses choose to use a heat rate of zero Btu per kWh of generation for renewable sources because they have zero emissions as compared to fossil-based resources. Other analyses have chosen to use the average heat rate of the entire generation mix and apply that average to renewables. Yet others have chosen to use 3,412 Btu per kWh for renewables, essentially a 100% efficiency. Since the purpose of using heat rates for BD analyses is to normalize site to source energy across disparate fuels using a site-to-source conversion factor, site-to-source energy conversion factors for BD Programs should use a heat rate of 3,412 per kWh for renewable generation sources. Thus, the minimum site-to-source conversion factor possible would be 1.0, rather than a value below 1.0, if zero was used as the heat rate for renewable generation. Note that the intention with respect to the heat rate is to calibrate to an initial CO_2 emissions value and then align the change in heat rates and concomitant site-to-source energy ratios over time with an emissions trajectory (see Table 6) rather than to use heat rates to estimate emissions.

[17] Within an hour, throughout a year, and across years, different generation resources may be on the margin. Differences in the source Btu of marginal electricity generation that may occur throughout a year, for example, by time of day, day of week, month, or season, can be addressed through use of time differentiated source Btu values. PJM shows little difference in its marginal emission rates for on-peak and off-peak for 2022; however, differences across the hours of a year are expected to increase as the mix of renewable resources increases over time.

[18] The weighted average heat value is calculated for 2022 using the heat rates from EIA weighted by the percent of each generator type from *PJM's 2018–2022 CO2, SO2 and NOX Emission Rates*, April 27, 2023, Table 1 for the year 2022. https://www.pjm.com/-/media/library/reports-notices/special-reports/2023/2022-emissions-report.ashx

Source Btu for electricity by year are based on an estimate of the heat rate per kWh for PJM, de- escalated to a value equivalent to a 50% reduction in CO_2 emissions by 2050, as compared to the initial PJM-based value, consistent with the rate of de-escalation of CO_2 emissions as specified in the NJCT.[19] The site-to-source conversion factor is calculated as the heat rate divided by [3,412 X (1 - T&D losses)]. The resulting heat rates and site-to-source Btu conversion factors by year are shown in Table 4. For electricity, conversion of site kWh to site Btu is first calculated based on 3,412 Btu per kWh and then converted to source Btu using the site-to-source conversion factors shown in Table 4. The site-to-source conversion values in the table include line losses, which are calculated using a statewide average of 5.8% multiplied by a marginal loss factor of 1.5, as per the NJCT. Note that the values in the table are to be used over each year of a BD measures useful life, in the same manner as avoided costs are interacted with impacts over each year of the measure life. For example, a measure with a 10-year life installed in 2024 would use each of the values in the table for each year of the measure life from 2024 to 2033.

Source Btu for direct combustion of fossil fuels at an end user's site shall be based on the latest EIA Btu conversion values, adjusted to account for losses [Source Btu = Site Btu/(1-T&D losses)].[20]

[19] To benchmark the marginal heat rate in 2050, we equate the 50% reduction in CO_2 per MWh in 2050 to a 50% decrease in the shares of fossil-based electricity generation for PJM in 2050 (as compared with 2022) with the reduced fossil generation sources replaced in the generation mix by renewable resources (and renewable-supplied storage).

[20] See, for example, https://www.eia.gov/energyexplained/units-and-calculators/british-thermal-units.php

Table 4. Electricity Heat Rates and Site-to-Source Conversion Factors

Year	Heat Rate (Btu per kWh)	Site-to-Source Conversion Factor (StS-CF)
2022	7,899	2.54
2023	7,819	2.51
2024	7,739	2.48
2025	7,659	2.46
2026	7,578	2.43
2027	7,498	2.41
2028	7,418	2.38
2029	7,338	2.36
2030	7,258	2.33
2031	7,178	2.30
2032	7,098	2.28
2033	7,018	2.25
2034	6,937	2.23
2035	6,857	2.20
2036	6,777	2.18
2037	6,697	2.15
2038	6,617	2.12
2039	6,537	2.10
2040	6,457	2.07
2041	6,377	2.05
2042	6,296	2.02
2043	6,216	2.00
2044	6,136	1.97
2045	6,056	1.94
2046	5,976	1.92
2047	5,896	1.89
2048	5,816	1.87
2049	5,736	1.84
2050	5,655	1.82
2051	5,575	1.79
2052	5,495	1.76
2053	5,415	1.74
2054	5,335	1.71
2055	5,255	1.69
2056	5,175	1.66
2057	5,095	1.64
2058	5,014	1.61
2059	4,934	1.58
2060	4,854	1.56

2. Emissions Impact

The net emissions due to fuel switching from a fossil fuel-based end use to an end use fueled by electricity is the difference between emissions from burning natural gas or delivered fuels on-site, and the grid emissions associated with the generation of electricity used by the replacement technology. To assess the net impact of fuel switching, the generation profile of the grid must be considered in addition to the on-site emissions. As with EE measures, many fuel-switching measures are expected to be relatively long-lived (e.g., 15–20 years for space heating equipment, 50 or more years for new construction infrastructure). Thus, emissions and benefit-cost analyses require a forecast of the electricity generation mix.

Staff considered a number of sources available related to forecasting emissions over time including EIA AEO,[21] NREL Cambium,[22] and the *2019 New Jersey Energy Master Plan: Pathway to 2050* study. In the case of EIA, the EIA AEO emissions reductions reviewed by Staff were not normalized per MWh and were available at too aggregated a geographic area (Middle Atlantic). NREL's Cambium tool includes forecasts of marginal emissions under several clean energy electricity generation scenarios. Cambium also provides significant time-differentiation of emissions, which can be important to address seasonal and time of day variation. The NREL Cambium dataset is a promising new source; however, Staff believes additional time is needed to review the study's methods and outputs, as well as which, if any, scenario fits best with New Jersey's policies. The NJ EMP study was also reviewed; however, Staff was unable to obtain marginal emissions per MWh from the reported results.

Considering the above and BPU's objectives for assessing BD Programs during Triennium 2, as well as New Jersey's long-term GHG reduction policy, and consistent with the approach for the Triennium 2 NJCT, the starting year (2022) quantity of avoided electric CO_2 emissions should be calculated in tons per MWh based upon the average of on-peak and off-peak marginal emissions in the most recent PJM Emissions rate report,[23] de-escalated to a value equivalent to a 50% reduction in CO_2 emissions by 2050, as compared to the initial 2022 PJM-based value. This 2050 value represents a significant decarbonization of marginal electricity generation and is similar to the rate of emissions reductions estimated in the 2023 EIA AEO for the Middle Atlantic region (reference case). The same approach should be used for SO_2 and NOx emissions, consistent with the Triennium 2 NJCT. The PJM 2022 values are shown in Table 5. The resulting emissions values by year, converted from pounds to tons per MWh are shown in Table 6.[24]

Table 5. PJM 2022 Marginal Emissions Values, *Pounds per MWh*

Period	CO_2	SO_2	NOx
Peak	1041	0.27	0.79
Off-Peak	976	0.29	0.54
Weighted Ave	1006	0.28	0.65

[21] For example, *see* https://www.eia.gov/outlooks/aeo/data/browser/#/?id=17-AEO2023&region=1-2&cases=ref2023&start=2021&end=2050&f=A&linechart=ref2023-d020623a.3-17-AEO2023.1-2&map=ref2023-d020623a.4-17-AEO2023.1-2&sourcekey=0

[22] https://www.nrel.gov/analysis/cambium.html

[23] Table 2 of the report, *PJM 2017–2021 CO2, SO2 and NOX Emission Rates*, April 18, 2022, https://pjm.com/-/media/library/reports-notices/special-reports/2021/2021-emissions-report.ashx

[24] Note again that the values in the table are to be used over each year of a BD measure's useful life, in the same manner as avoided costs are interacted with impacts over each year of the measure life. For example, a measure with a 10-year life installed in 2024 would use each of the values in Table 6 for each year of the measure life from 2024 to 2033.

Table 6. Electric Generation Emissions Rates by Year for 50% Reduction in 2050, CO_2, SO_2, NOx, Tons per MWh

Year	Emissions De-escalation Rate	CO_2	SO_2	NO_x
2022	1.00	0.50	0.000140	0.000327
2023	0.98	0.49	0.000138	0.000321
2024	0.96	0.48	0.000135	0.000315
2025	0.95	0.48	0.000133	0.000310
2026	0.93	0.47	0.000130	0.000304
2027	0.91	0.46	0.000128	0.000298
2028	0.89	0.45	0.000125	0.000292
2029	0.88	0.44	0.000123	0.000286
2030	0.86	0.43	0.000120	0.000280
2031	0.84	0.42	0.000118	0.000275
2032	0.82	0.41	0.000115	0.000269
2033	0.80	0.40	0.000113	0.000263
2034	0.79	0.40	0.000110	0.000257
2035	0.77	0.39	0.000108	0.000251
2036	0.75	0.38	0.000105	0.000245
2037	0.73	0.37	0.000103	0.000239
2038	0.71	0.36	0.000100	0.000234
2039	0.70	0.35	0.000098	0.000228
2040	0.68	0.34	0.000095	0.000222
2041	0.66	0.33	0.000093	0.000216
2042	0.64	0.32	0.000090	0.000210
2043	0.62	0.31	0.000088	0.000204
2044	0.61	0.31	0.000085	0.000199
2045	0.59	0.30	0.000083	0.000193
2046	0.57	0.29	0.000080	0.000187
2047	0.55	0.28	0.000078	0.000181
2048	0.54	0.27	0.000075	0.000175
2049	0.52	0.26	0.000073	0.000169
2050	0.50	0.25	0.000070	0.000164
2051	0.48	0.24	0.000068	0.000158
2052	0.46	0.23	0.000065	0.000152
2053	0.45	0.22	0.000063	0.000146
2054	0.43	0.22	0.000060	0.000140
2055	0.41	0.21	0.000058	0.000134
2056	0.39	0.20	0.000055	0.000128
2057	0.37	0.19	0.000053	0.000123
2058	0.36	0.18	0.000050	0.000117
2059	0.34	0.17	0.000048	0.000111
2060	0.32	0.16	0.000045	0.000105

The quantity of avoided natural gas and delivered fuels emissions should be calculated based upon the emissions values published by EIA un-escalated into the future.[25]

As noted throughout, Staff recognizes that there are a number of uncertainties and issues associated with forecasting emissions from generation and direct combustion sources over the next decades. As noted below, Staff recommends further study to develop time-differentiated emissions values that also align with avoided cost forecasts used for benefit-cost analysis.

3. Avoided Costs

BPU is considering conducting a New Jersey-specific, policy-compliant, avoided cost study to assess future average and marginal energy costs and emissions. This study would model energy supply and demand, on an hourly basis, for PJM and New Jersey in accordance with state policy goals for GHG reductions by 2035 and 2050. Policy-compliant, modeling-based approaches are being used in other leading states with aggressive GHG reduction policies because the expected change in policy-compliant energy resources is significant and is unlikely to be fully reflected in shorter-term, market-based forward price curves or other secondary analyses, particularly over the longer term. This avoided cost and emissions forecast study would not be conducted in time to support Triennium 2 planning but would be targeted at supporting Triennium 3 planning and analysis.

In the interim, BD Programs should use the same avoided costs as are required for EE Programs, based on the Board's approval of the NJCT requirements for Triennium 2.

4. Avoided Social Cost of Carbon

After determining the total emissions impacts, avoided CO_2 damage values can be calculated for electric and natural gas using the most current federal assessment of emissions damages per ton, such as from the Interagency Working Group on Social Cost of Greenhouse Gases or the EPA's Regulatory Impact Analysis. This should follow the approach described for the NJCT. The emissions scenario should be that which is mostly closely in line with the discount rate used in the NJCT. The NJCT for Triennium 2 also includes avoided cost values for SO_2 and NOx.

5. Transmission and Distribution Losses from Methane Leakage

Losses associated with the production and delivery of natural gas need to be considered. "Fugitive" energy loss factors between the end use and production have been estimated on one basis to be 2.8%.[26]

[25] EIA, *Carbon Dioxide Emissions Coefficients,* https://www.eia.gov/environment/emissions/co2_vol_mass.php

[26] Losses of 2.3% are from production and delivery to buildings per Alvarez, et al., *Assessment of Methane Emissions from the U.S. Oil and Gas Supply Chain (2018)*, *Science*, Vol. 361, Issue 6398, *available at* https://www.science.org/doi/10.1126/science.aar7204?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed. Losses of 0.5% occur within buildings, per Fischer et al., *An Estimate of Natural Gas Methane Emissions from California Homes* (2018), *available at* https://pubs.acs.org/doi/pdf/10.1021/acs.est.8b03217.

The greenhouse gas effects of methane leakage are much greater than the greenhouse gas effects of carbon dioxide released when burning the same amount of methane. Thus, from the perspective of emissions, a 1% natural gas line loss could mean the GHG-equivalent of burning up to 10% additional natural gas.[27] When determining if a fuel-substitution offering is carbon-positive, leakage must be considered.

7.0 Program Evaluation & Reporting

The EM&V governance for the BD Programs should follow the same governance structure as the EE Programs as described in the EE Program Board Order.[28] Because the BD Programs are the first such effort in New Jersey, EM&V efforts will be especially important and are central to the purpose of fielding the programs. The Statewide Evaluator ("SWE") shall oversee these evaluations and be involved in early design and oversight of the evaluation studies. Research in other states shows that many different baselines can come into play in fuel switching programs.[29] Market research and evaluation will be needed to determine the true baselines for the BD measures.

The BD Programs' evaluations and performance tracking will also be designed to support the estimation of energy savings and emissions. Utilities proposing BD Programs will provide estimates for the following metrics, which will be established by the Board prior to program launch. These estimates should align with EO 316 goals for residential dwelling units, commercial spaces, and LMI units.

- Number of program participants, overall, and for all key sectors and customer groups
- Number of LMI program participants
- Number of measures installed by type, overall, and for all key segments; this should include all measures included in a project scope (i.e., measures through EE program + BD program weatherization or other EE measures)
- Number of fossil-based units decommissioned and number of avoided new installations by type and fuel source, overall, and for all key segments
- Number of participants with any new end uses added, if any (e.g., participants adding air conditioning that did not previously have any air conditioning)
- Net-to-gross ratios for emissions and energy savings, overall and by end use (e.g., separately for heating and cooling, when applicable)
- Site and source energy impacts (MMBtu)
- Emissions impacts (CO_2e MT)
- Levelized cost per metric ton of CO_2e (costs levelized over the expected useful life ("EUL") or average useful life ("AUL"), as appropriate, of the measure or project divided by lifetime net CO_2e impacts)
- Participant bill impacts by fuel

[27] The 100-year global warming potential of methane is about 28 pounds of CO_2e per pound of methane leaked, https://www.epa.gov/ghgemissions/understanding-global-warming-potentials.

[28] In re the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, BPU Docket Nos. QO19010040, QO19060748, QO17091004 (Order dated June, 10, 2020).

[29] Example of research on fuel switching baselines: https://ma-eeac.org/wp-content/uploads/MA20R24-B-EOEval_Fuel-Displacement-Report_2021-10-13_Final.pdf

- Net lifetime participant bill impacts

Additionally, the EM&V Working Group should address research questions, not limited to the following:

- What are participants' actual baseline conditions?
- How many full load hours of heat do HPs provide?
- What are the principal factors motivating fuel switching and program participation? What are the key barriers to participation, and can they be mitigated?
- What degree of unintended cooling load building should be anticipated, and how should this be planned for?
- What is the actual heating performance of new HP systems in the coldest likely weather?
- How cost-effective are the programs? How can cost-effectiveness be improved?

Reporting requirements – In addition to the standard EM&V reporting requirements associated with EE EM&V, findings and recommendations will need to be developed for BD Programs throughout the program implementation process, on an ongoing basis, not solely ex post. Therefore, evaluations should include features of embedded evaluation and quasi-real time data collection and reporting. In consultation with the SWE, selected findings and study results should be developed and reported sub-annually.

Planning Prior to Triennium 2

Several planning efforts and research studies are needed prior to Triennium 2 (July 1, 2024) to inform the calculation of energy savings of fuel switching measures, cost effectiveness, and emissions, as well as marketing and workforce development.

- TRM
  - Additional measures should be added to the TRM along with fuel-switching specific algorithms for a range of fuel-switching measures for the residential sector (e.g., space heating, water heating, cooking), or existing measures should be modified to more explicitly accommodate fuel switching and the more complex baselines.
  - Calculations and factors for site and source emissions, including near- and long-term impacts
- Market Characterization
  - Industry standard practice and baseline practices study to understand the delivered and fossil fuels markets
  - Study of contractor readiness and training needs for fuel switching and electrification
  - Study of customer awareness, opportunities, and barriers for fuel switching and electrification
- Cost Effectiveness
  - Incremental measure costs – Develop fuel switching costs for a range of measures, baseline combinations, event types, and market segments
  - NJCT
    - Avoided costs, average and marginal emissions forecasts for fuel switching
    - Demand reduction induced price effects ("DRIPE") to address load increases and decreases and seasonality
- Evaluate equity, indoor air quality, and rate impacts, particularly on disadvantaged communities

The SWE shall lead and plan this effort, allocating responsibilities to the TRM and NJCT Committees as appropriate, and assigning studies to the Evaluation Study Team, Rutgers Center for Green Building, and other analytical vendors as appropriate.

Minimum Filing Requirements ("MFRs")

The general filing requirements for the BD Programs should follow the MFRs applicable to the EE program petitions for Triennium 2. As a pilot program, the BD Programs are not required to be cost-effective, but Staff will require benefit-cost analysis to be conducted during pilot execution and prior to approval of any future full-scale BD Programs.[30] Staff recommends applying Sections V, VI, and VII with the following modifications:

Section V – The benefit-cost analysis requirements are the same as for the EE program petitions, except for sub-section V(b), which is replaced with the following: The utility must calculate and track the results of the tests in Section V(a) to analyze and improve program design and performance with the goal of having BD Programs for Triennium 3 that achieve a benefit-to-cost ratio greater than or equal to 1.0 when using the NJCT.

Section VI – The utility shall describe the methodology, processes, and strategies for monitoring and improving program and portfolio performance related to developing a full program for Triennium 2. The utility shall confirm that these methodologies, processes, and strategies conform with the current New Jersey EM&V guidance documents and standards or propose modifications and additions as needed for BD Programs. The utility shall also provide an EM&V budget consistent with the current New Jersey EM&V guidance documents and standards.

Additionally, the utility shall provide information on data transparency.

1. To support any evaluation-related work,[31] data should be provided by the utility or State or their program administrator in full and within four weeks of the request. Time extensions may be approved by Staff if they are received more than a week before the data are due and if a meeting has been held with the Statewide Evaluator team requesting the data to identify if there are adequate substitutes (in the Statewide Evaluator's judgment) for the initially-requested data.
2. Data delivery must use appropriate secure delivery systems.
3. Staff will require regular (at least quarterly) reporting on data requests and their fulfilment status (timeliness, completeness, data quality, etc.)

[30] Staff suggests that it will be important to assess and track the cost-effectiveness of the BD Programs but that these start-up BD Programs should be excluded from assessment of the cost-effectiveness of the utilities' portfolio for purposes of compliance with the CEA.

[31] Evaluation-related work includes but is not limited to impact, process, net-to-gross, baseline, EUL/RUL, cost-effectiveness, TRM, full load hours, non-energy impacts, market research, surveys, and numerous other evaluation-related analyses.

Section VII - The utility shall file estimated values for each program year for the following metrics:

- Site and source energy savings by fuel (MMBtu)
- Site and source lifetime energy savings by fuel (MMBtu)
- Site and source annual emissions by fuel (CO_2e MT)
- Site and source lifetime emissions by fuel (CO_2e MT)
- Net annual peak demand savings by fuel (electricity and natural gas only) (peak MW or peak-day therm)
- CO_2 emissions impacts by fuel (CO_2e MT)
- Net CO_2 emissions impacts across fuels (CO_2e MT)
- Levelized cost per metric ton of CO_2e (costs levelized over the EUL or AUL, as appropriate, of the measure or project divided by lifetime net CO_2e impacts)
- Number of distributors and contractors engaged in the program
- Number of program participants and installations, overall and for LMI
- Number and geographic location of installations

The utility shall provide a description of how the proposed portfolio achieves the estimated outcomes.

Glossary

Site Energy - Site energy is the amount of energy consumed at a site and reflects end-use consumption across all fuel types as reflected in the customer bill.

Source Energy - Source energy refers to the total energy associated with energy consumption at a site and represents the total amount of raw fuel required to operate the building, including site energy and all energy associated with production, transmission, and delivery.[32]

Site Emissions - Site emissions are related to the combustion of fossil fuels used for space and water heating and cooling, and for appliances such as cooking stovetops and clothes dryers. The primary emissions of interest are GHG emissions (i.e., CO_2, methane, NOx, fluorinated gases), which can be expressed in CO_2e based on their global warming potential. In addition to GHG emissions, other site emissions (e.g., criteria air pollutants) may include carbon monoxide and particulate matter.

Source Emissions - Source emissions are associated with energy purchased from a utility, for example, emissions released from the generation of electricity in power plants.

Embodied Emissions - Embodied emissions refers to the total emissions associated with delivering an end-use or whole-building service inclusive of the emissions associated with producing and retiring the associated technologies and services (e.g., emissions from extracting, transporting, manufacturing, and installing materials on site, as well as the operational and end-of-life emissions associated with those materials), across affected fuels and materials.

Fuel Switching - Fuel switching refers to the replacement of one fuel with another within the context of serving a particular end-use service or entire facility.

Beneficial Electrification - Beneficial electrification in buildings refers to the replacement of fossil fuel-fired equipment with high- efficiency electric alternatives that results in net reductions in GHG and other emissions, as well as lower energy costs and better grid management.

Building Decarbonization - Building decarbonization refers to the process of reducing, minimizing, or eliminating greenhouse gas emissions associated with embodied energy, supplying energy, and end-use services in buildings. Currently, many states are addressing building decarbonization through policies aimed at replacing heating technologies that use delivered fuels (e.g., oil and propane) and natural gas with high-efficiency electric systems subject to the constraint that such conversions reduce source energy and GHG emissions.

[32] "ENERGY STAR: The Difference Between Source and Site Energy," https://www.energystar.gov/buildings/benchmark/understand_metrics/source_site_difference

Demand Response Program Framework

1.0 Introduction

Demand Response ("DR") capabilities offer an important mechanism for managing the reliability and economic optimization of the electric distribution system. Traditional "knife switch" manual load shedding of large concentrated commercial loads through dedicated and proprietary control networks is rapidly evolving toward including more sophisticated and precise coordination of smaller loads, managed alongside increasing amounts of distributed energy resources ("DER") at the grid edge. In parallel with this, the urgency of achieving maximum grid integration of clean energy at reasonable cost to ratepayers means that we must provide compensative incentive for participants to utilize all their cost-effective response mechanisms, including DR and DER, in as many ways as possible.

Triennium 2 (July 1, 2024–June 30, 2027) is a critical period for New Jersey to begin its "expansion" of energy efficiency ("EE") – otherwise known as *Permanent* Load Reduction – with the capabilities of DR, which can be similarly classified as *Temporary* Load Reduction. Unlike EE, however, which deploys dedicated, site-specific retrofits to energy consumer facilities, DR has a variable operating element for both when and how it is utilized, as well as who shares in the economic benefit of its use. DR services are ideally left to competitive market forces, with appropriate security and regulatory monitoring, which should be more fully available by the third Triennium (July 1, 2027–June 30, 2030). Nevertheless, in anticipation of these capabilities, we must proceed with current authorization for DR programs to maintain the maximum flexibility and modularity so that current investment will not be "stranded" and precluded from participation.

Recognizing these dynamics, the Staff of the New Jersey Board of Public Utilities ("Board") ("Staff") has attempted to frame the longer-term DR Guiding Principles in Appendix A to this document, which, although aspirational, should be considered informative and relevant to the criteria that will be applied for Board authorization of the programs submitted by the electric distribution companies ("EDCs") and gas distribution companies ("GDCs") for the second Triennium.

New DR service programs may be proposed by utilities, EDCs and GDCs alike, with the caveat that rules and standards for data, and full disclosure on system modeling methodology, reliability, and economic impact are provided. As part of their response consistent with minimum filing requirements ("MFRs"), each utility should provide a detailed evaluation and conceptual plan with clear milestones for how the envisioned DR Guiding Principles should be approached, and how their proposed Triennium 2 service programs, along with any specific pilots, align with the DR Guiding Principles.

2.0 Enabling Policy

The New Jersey Clean Energy Act of 2018 states that EE and peak demand reduction ("PDR") are paired programs to achieve the State's climate goals:

> For each electric public utility and gas public utility, which shall establish reasonably achievable targets for energy usage reductions and peak demand reductions and take into account the public utility's energy efficiency measures and other non-utility energy efficiency measures including measures to support the development and implementation of building code changes, appliance efficiency

> standards, the Clean Energy program, any other State-sponsored energy efficiency or peak reduction programs, and public utility energy efficiency programs.

As with the EE programs, the PDR programs "adopted by each public utility shall comply with quantitative performance indicators." Likewise, "[t]he energy efficiency and peak demand reduction programs shall have a benefit-to-cost ratio greater than or equal to 1.0 at the portfolio level." Staff interprets PDR to encompass the permanent (from EE measures) and temporary peak load reduction from DR measures.

The current Energy Master Plan further elaborates on PDR. Goal 3.2, entitled "Manage and Reduce Peak Demand", has two sub-goals that provide important guidance.

3.2.1 Support and incentivize new pilots and programs to manage and reduce peak demand

> Empowering customers with pricing and consumption data, control, and incentives will enable them to manage their energy demand and shift consumption habits to off-peak times. Advanced Metering Infrastructure ("AMI", or "smart meters") can provide granular data about energy use and costs to educate customers about their consumption and enable customers to manage their demand. Control over usage should include new rate designs such as Time of Use (TOU) rates to incentivize customers to reduce energy use during periods of peak energy demand. Other rate design tools, such as peak-time rebates that provide refunds to customers who adjust their energy consumption upon utility request, have also proven effective in other places.
>
> In addition to establishing peak demand reduction goals, NJBPU should explore the development of a Clean Peak Standard for meeting a percentage of New Jersey's peak demand needs through clean resources that reduce greenhouse gas emissions. A Clean Peak Standard is designed to set a minimum amount of clean generation resources that must be used to meet peak demand, in lieu of traditional peaker plants. These clean generation resources could include renewable energy, energy storage, and demand response strategies. In 2018, Massachusetts became the first state to establish a Clean Energy Standard, and other states are considering similar measures.
>
> The state must continue to advocate at PJM and federal levels for appropriate compensation of the full value stack that demand response, energy storage, and other forms of distributed energy resources (DER) contribute to the grid. Such tools are a necessary part of the energy efficiency landscape, and the state should encourage utilities, third-party providers, and customers to engage in pilot programs that incorporate demand response and other load shifting and load reduction programs.

3.2.2 Pilot alternative rate design to manage electric vehicle charging and encourage customer-controlled demand flexibility

> . . . The state should pursue opportunities to encourage load shaping and load shifting, such as charging later at night, or during periods of lower load and higher solar output during the daytime. Peak demand reductions can be achieved by working with utilities to pilot alternative rate design to manage EV charging, thus limiting grid impact as EVs proliferate. . . . NJBPU should also work to advance new demand response and demand management technologies, such as vehicle-to-grid (V2G). . . . NJBPU can additionally develop programs for EV charging to be deployed in conjunction with storage or other

DER to reduce impact on peak demand. Commercial and industrial customers with solar facilities can reduce their load and energy bill while also providing flexibility to the system by absorbing excess solar output during the day and shifting EV charging away from peak periods.

3.0 Demand Response Context and Background

DR capabilities offer an important mechanism for managing the reliability and economic optimization of the electric distribution system. Traditional programs operated by utilities are depicted in Figure 1 below and convey the "dedicated use case" approach that use DR exclusively for peak load management. Figure 1 illustrates a centrally administered system that signals a need for reduced load at critical peak times, although DR programs could be implemented with signaling technology not being "in band" to the network (e.g., a phone call, text message, public service radio announcement, etc.). Measurement and verification ("M&V"), however, is always required for quantifying the achieved response.

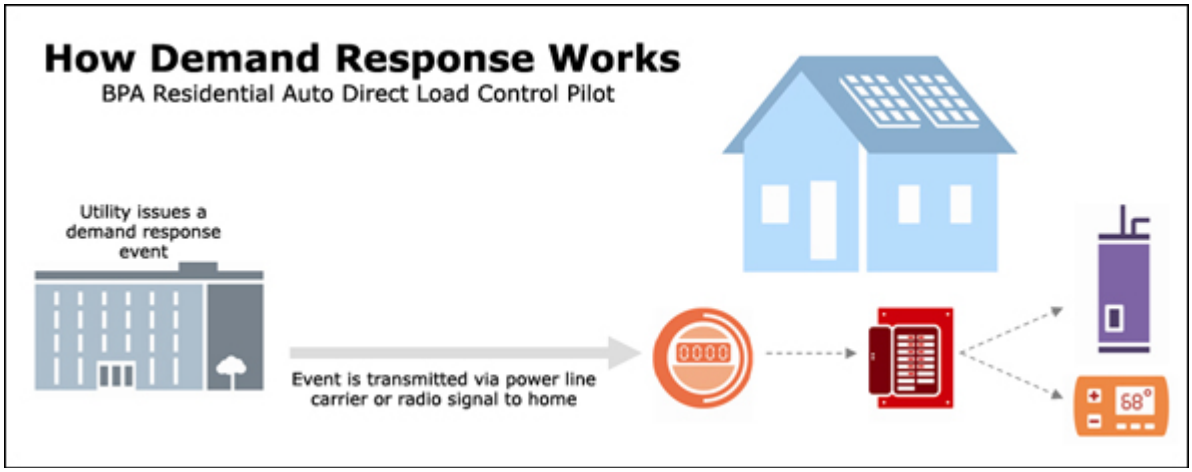


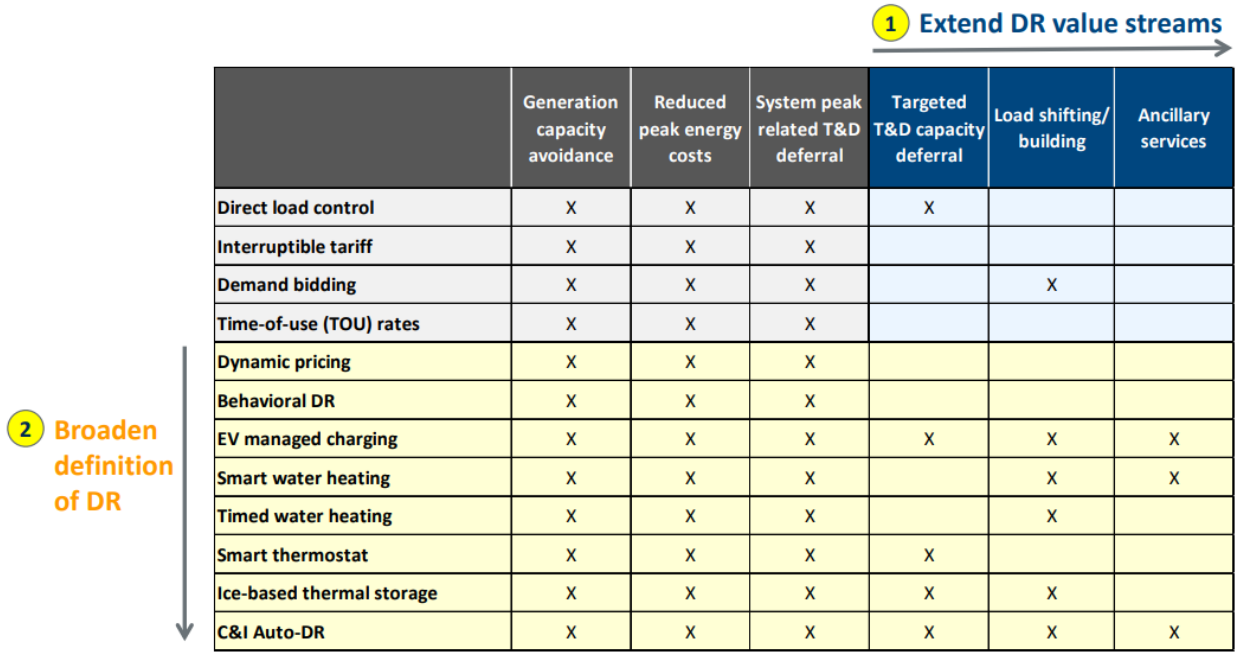
Figure 1 Traditional Demand Response Program

DR, where demand load is controlled, fits under the larger umbrella of DER (Table 1). The value of DER comes from the capacity, energy, and ancillary services that it provides to the grid. While BPU seeks to develop the market for DERs through solar programs, a storage program, and grid modernization and AMI proceedings, Staff recommends action during Triennium 2 of the EE programs to evolve the existing DR (load flexibility) programs.

Table 1: DER Types and Services they provide (Source: NY REV).

DER Type	Examples	Services		
		Capacity	Energy	Ancillary
Load Flexibility	- Large energy user demand curtailment - Bring your own device			
Dispatchable Net Generation	- Net metering of solar			
Dispatchable DER	- Net metering of Class 1 Renewable Generation with battery storage - Vehicle to grid			

In a recent study, Brattle classified the types of load flexibility programs and the services they provide.[1] As shown in Figure 2, they highlight innovative programs and the added value of new services these programs provide.



	Generation capacity avoidance	Reduced peak energy costs	System peak related T&D deferral	Targeted T&D capacity deferral	Load shifting/ building	Ancillary services
Direct load control	X	X	X	X		
Interruptible tariff	X	X	X			
Demand bidding	X	X	X		X	
Time-of-use (TOU) rates	X	X	X			
Dynamic pricing	X	X	X			
Behavioral DR	X	X	X			
EV managed charging	X	X	X	X	X	X
Smart water heating	X	X	X		X	X
Timed water heating	X	X	X		X	
Smart thermostat	X	X	X	X		
Ice-based thermal storage	X	X	X	X	X	
C&I Auto-DR	X	X	X	X	X	X

Figure 2. The broader range of DR programs types and the services/value streams they offer (Brattle). Appendix B provides program descriptions.

In New Jersey, the only DR programs currently offered by the utilities are interruptible tariff programs for large energy users and a pilot Bring Your Own Thermostat program by Rockland Electric Company. At the request of Staff, the consultant team at DNV Group ("DNV") surveyed DR programs across the country.[2] DNV described several pilot programs, where customers can participate without requiring utility-provided devices on the customer-side. The pilots include bring

[1] The Brattle Group, 2019, "The National Potential for Load Flexibility – Value and Market Potential Through 2030", The National Potential for Load Flexibility: Value and Market Potential Through 2030 (brattle.com).

[2] DNV, 2023, "DNV Advisory Support and Recommendations in Response to the NJBPU Demand Response Roadmap."

your own device ("BYOD") programs where smart thermostats and smart water heaters are incentivized and integrated with grid-interactive utility control, as well as non-BYOD pilots. Illinois, Nevada, and California have run pilot programs to test time-of-use ("TOU") tariffs. Given the accelerating growth of electric vehicles ("EVs"), storage, rooftop solar, smart inverters, and smart thermostats, New Jersey would be remiss not to recognize and realize the natural synergies of temporary load reduction by initiating more innovative and interoperable DR program designs, particularly those that do not require utility-provided devices.

4.0 DR Programs in Triennium 2

The DR activities for the Triennium 2 planning cycle include:

1. Demand Response Programs

a. **EDC Programs** – New DR service programs may be implemented by EDCs, where rules and standards for data, software, information technology ("IT") technologies, and pricing, such as TOU tariffs, should be forward-looking to reasonably align with the DR Guiding Principles depicted in Appendix A, where increasing presence of dispatchable DER offers are envisioned. These offer the potential for grid flexibility beyond the existing interruptible tariff DR programs. The programs should propose incentives and tariffs to encourage customers to purchase and install portable smart devices (i.e., devices using open, internationally recognized communication and IT standards). The DR services may only offer load management of non-generation assets. Although not specifically required, the utilities are encouraged to design their programs to leverage available AMI data, as programs that use AMI for providing the M&V at suitable granularity for future DR transaction clearing. Proposed program design should be cost-effective according to the New Jersey Cost Test and Participant Cost Test and must expressly include stranded asset cost that cannot transition to AMI Data validation or third party operational transfer prior to Triennium 3.

b. **GDC Programs** – GDCs may implement new DR service programs. Such programs should leverage smart thermostats or other communication technologies for load management of gas appliances. While the DR Guiding Principles depicted in Appendix A is not wholly applicable, the core principle of portability is applicable, in that GDC-run programs should not prevent customers from choosing or switching to third-party DR service providers but should give customers the rights to any data generated in connection to participation in GDC-run DR program.

With regard to maintaining an open market for DR Services, a utility-run DR program shall not implement technology or rules that preclude a third-party DR service provider from marketing and subscribing customers.

2. **Conduct DER Roadmap Study** – BPU shall conduct a statewide DER roadmap study. While the DR Guiding Principles, Appendix A, describes the mission, a roadmap will identify the tactics, such as the priorities, experimentation, milestones, and timing to achieve the mission. The study should include the involvement of a wide range of stakeholders (e.g., PJM, aggregators, manufacturers, the New Jersey Division of Rate Counsel, and the EDCs). The roadmap will be used to make a recommendation to the Board for specific actions and DER and DR programs for Triennium 3. Topics to be addressed in the study include:

    a. Compatibility with growing adoption of DER behind the meter (solar/storage/fuel cell, electric vehicle supply equipment) and aggregation thereof by third parties
    b. Enabling provision of critical system and performance data to customers' authorized third parties and anonymized, aggregated customer data to research firms
    c. Potential application of artificial intelligence/machine learning algorithms
    d. Advances in distribution system technologies such as distributed energy resource management system ("DERMS"), microgrid, reverse power flow, and smart inverters
    e. Establishment of customer data rights
    f. Utility standard tariffs for third party aggregators to offer DR services
    g. Standards and rules for qualifying third-party aggregators

3. **Pilot Programs** - The utilities may propose to identify, design, and execute pilot programs containing the following elements and objectives:

    - Technology application, particularly DERMS
    - Demonstration of M&V through emerging AMI data access
    - Market pricing and clearing mechanisms (including various TOU programs with possible critical peak pricing elements)
    - Market communication and aggregation frameworks that can effectively support commercial scaling of third party service providers

    The pilots may deploy non-generation, storage, and Class I generation assets, including, but not limited to, fuel cells, V2G, and solar. Approval of pilots will be predicated on their alignment with the DR Guiding Principles as described in Appendix A.

5.0 Minimum Filing Requirements for Demand Response Programs

The following filing requirements establish the guidelines and direction for EDC proposals on DR solutions that are suitable in Triennium 2. EDCs shall consider the mission and concepts described within Appendix A to this document and make every attempt to propose solutions that can evolve to an open, market-driven services paradigm envisioned for Triennium 3.

1) General Filing Requirements

    a) The utility shall provide a table of contents for each filing.
    b) The utility shall provide with all filings, information and data pertaining to the specific program proposed, as set forth in applicable sections of N.J.A.C. 14:1-5.11 and N.J.A.C. 14:1-5.12.
    c) All filings shall contain information and financial statements for the proposed program(s) in accordance with the applicable Uniform System of Accounts that is set forth in N.J.A.C. 14:1-5.12. The utility shall provide the accounts and account numbers

that will be utilized in booking the revenues, costs, expenses, and assets pertaining to each proposed program so that they can be properly separated and allocated from other regulated and/or other programs.

d) The utility shall provide supporting explanations, assumptions, calculations, and work papers as necessary for each proposed program and cost recovery mechanism petition filed under N.J.S.A. 48:3-98.1. The utility shall provide electronic copies of such supporting information, with all inputs and formulae intact, where applicable.
e) The filing shall include testimony supporting the petition, including all proposed programs.
f) For any proposed program, the utility shall be subject to the requirements in this and all subsequent Sections. If compliance with Section V and VI of these requirements would not be feasible for a particular program or sub-program, the utility may request an exemption but must demonstrate why such exemption should be granted. Examples of historical situations that have qualified for exemption include pilot programs, programs that had an educational or policy goal rather than resource acquisition focus, and programs that introduced novel ideas where documentation supporting estimated costs/benefits may not be easily produced.
g) If the utility is filing for an increase in rates, charges, etc. or for approval of a program that may increase rates/changes to ratepayers in the future, the utility shall include a draft public notice with the petition and proposed publication dates.

2) Program Description

a) EDC DR Programs
i) The utility shall provide a detailed description of each proposed program for which the utility seeks approval, including, if applicable:

(1) Program description/design, including:

(a) Program kW demand reduction goals and curtailment objective(s);
(b) If using, how AMI is employed to signal load demand flexibility and to track curtailment volume, including baseline volume;
(c) How portability, as defined in the DR Guiding Principles (Appendix A), will be determined and demonstrated, including release clauses for customers to discontinue program participation and migrating services to a third party provider;
(d) Customer and aggregator access to current and historical energy usage data from smart meters, including available data fields, access rules, and technology standards; and
(e) Detailed plan with timelines and planning priorities, addressing:

(i) How their proposed second Triennium DR service programs align with DR Guiding Principles;
(ii) How to facilitate DERMS deployment & interoperability requirements that can support engagement of and compensation to aggregated grid flexibility resources; and
(iii) How the utility plans to work with stakeholders involved in creating an open, portable grid flexibility service model.

(2) Target market segment(s) and their priorities – including:

(a) Eligible customers;
(b) Measures/services;
(c) Eligibility requirements and processes; and
(d) Methodology to prioritize the procurement of customers for DR program participation to minimize distribution system investments.

(3) Proposed incentives and/or tariffs

(a) Up-front enrollment incentive
(b) Performance or persistence based payments

(4) How demand reduction performance is measured, including data sources and methodology to calculate baseline, definition of turndown events, and capacity savings;

(5) Program design and measurement to minimize rebound effects after a turndown event;

(6) Incentives structure and ranges for demand reduction performance achieved, including incentive payment processes and timeframes;

(7) Any mutual exclusivity terms that may be needed for avoiding double counting in newly proposed DR programs.

(8) Qualified equipment supported by incentives, such as smart thermostats and smart inverters:

(a) Incentives structure and ranges for the equipment, including incentive payment processes and time frames; and
(b) A description of data and communication standards. If the standard is not an internationally recognized standard, give justification for why.

ii) Capital investments, such as IT hardware and infrastructure to support DR and DERMS. Such investments may be recovered through rate-basing, but must be justified in the benefit-cost analysis.

iii) Customer financing options, including:

(1) Monthly “on bill” charges directly from utility; and
(2) Financing through PACE programs if applicable
(3) Third Party service billing coordinated through utility.

iv) Contractor requirements and role: The utility shall provide a description of the extent to which the utility intends to utilize employees, contractors, or both to deliver the program(s). The utility shall also provide a description of contractor requirements, including common application elements and training/certification/recertification requirements.

v) Estimated program participants, by market segment each year.

vi) Projections for performance metrics for each program year relative to the program's targets or quantitative performance indicators as defined in Section VII.

vii) Program budget, by year.

viii) Program participant exit/transition financial impacts including:

(1) Administrative updates for documentation and database management;
(2) Reduced amortization from early termination;
(3) Asset purchase revenues from sold equipment; and
(4) Participant exit fees collected if any.

ix) Projected program costs, by year, broken down into the following categories, as applicable:

- capital cost;
- utility administration;
- marketing and outreach;
- outside services;
- incentives (including rebates and low- or no-interest loans);
- inspections and quality control; and
- evaluation.

To the extent that the Board directs New Jersey's Clean Energy Program ("NJCEP") to report additional categories, the utility shall provide additional categories, as applicable.

Any workforce development and job training costs, health and safety costs, and costs of outreach to community-based organizations shall be shown separately.

b) GDC DR Programs

i) The utility shall provide a detailed description of each proposed program for which the utility seeks approval, including, if applicable:

(1) Program description/design, including:

(a) Program therm demand reduction goals and curtailment objective(s);
(b) Demand response description, including hardware and software used, event triggers, maximum event count, and customer override rules; and
(c) Release clauses for customers to discontinue program participation.

(2) Target market segment(s) and their priorities – including:

(a) Eligible customers;
(b) Measures/services;
(c) Eligibility requirements and processes; and
(d) Methodology to prioritize the procurement customers for DR program participation over distribution system investments.

(3) Proposed incentives and/or tariffs

(a) How demand reduction performance is measured, including data sources and methodology to calculate baseline, definition of turndown events, and capacity savings;
(b) Program design and measurement to minimize rebound effects after a turndown event;
(c) Incentives structure and ranges for demand reduction performance achieved, including incentive payment processes and timeframes; and
(d) Any mutual exclusivity terms that may be needed for avoiding double counting in newly proposed DR programs.

(4) Qualified equipment supported by incentives, such as smart thermostats:

(a) Incentives structure and ranges for the equipment, including incentive payment processes and timeframes; and
(b) A description of data and communication standards. If the standard is not an internationally recognized standard, give justification for why.

(5) Capital investments, such as IT hardware and infrastructure to support DR. Such investments may be rate-based, but must be justified in the benefit-cost analysis.

(6) Customer financing options

(7) Contractor requirements and role: The utility shall provide a description of the extent to which the utility intends to utilize employees, contractors, or both to deliver the program(s). The utility shall also provide a description of contractor requirements, including common application elements and training/certification/recertification requirements.

(8) Estimated program participants, by market segment each year.

(9) Projections for performance metrics for each program year relative to the program's targets or quantitative performance indicators as defined in Section VII.

(10) Program budget, by year

(11) Projected program costs, by year, broken down into the following categories, as applicable:

- capital cost;
- utility administration;
- marketing and outreach;
- outside services;
- incentives (including rebates and low- or no-interest loans);
- inspections and quality control; and
- evaluation.

To the extent that the Board directs New Jersey's Clean Energy Program ("NJCEP") to report additional categories, the utility shall provide additional categories, as applicable.

ii) Any workforce development and job training costs, health and safety costs, and costs of outreach to community-based organizations shall be shown separately.

c) The utility shall provide the following information about the proposed Demand Response program(s):

i) Quality assurance and control standards and remediation policies: The utility shall provide a detailed description of the process(es) for ensuring the quality of the programs and resolving any customer complaints related to the program(s).

ii) Plan for workforce development and job training partnerships and pipelines for energy efficiency jobs, including for local, underrepresented, and disadvantaged workers. The utility will also provide a description of how the utility plans to engage with and support participation by minority-, women-, and veteran-owned and other underrepresented businesses to ensure equitable access to contracting opportunities under the proposed programs.

iii) Data Transparency

(1) To support any evaluation-related work[3], data should be provided by the utility or state or their program administrator in full and within four weeks of the request. Time extensions may be approved by Staff if they are received more than a week before the data are due and if a meeting has been held with the Statewide Evaluator team requesting the data to identify if there are adequate substitutes (in the Statewide Evaluator's judgment) for the initially-requested data.

(2) Data delivery must use appropriate secure delivery systems.

(3) Staff will require regular (at least quarterly) reporting on data requests and their fulfilment status (timeliness, completeness, data quality, etc.)

iv) Customer access to current and historic energy usage data from smart meters, including available data fields, access rules, and technology standards

v) Total budget summary, including an annual budget summary and joint budgets with partner utilities

vi) Benefit-cost analysis (as defined in Section V)

vii) The utility shall list its forecasted average cost to achieve each unit of capacity and energy savings in each program.

[3] Evaluation-related work includes but is not limited to impact, process, NTG, baseline, effective useful life/remaining useful life, cost-effectiveness, Technical Reference Manual, full load hours, non-energy impacts, market research, surveys and numerous other evaluation-related analyses.

viii) Marketing plan: The utility shall provide a description of where and how the proposed portfolio will be marketed or promoted to the sectors served by the utility's customer base, including coordinated customer outreach on core programs with other utilities. This shall include an explanation of how the specific services, along with prices, incentives, and energy bill savings for the proposed portfolio, will be conveyed to customers, where available and applicable. The marketing plan shall also include a description of any known market barriers that may impact implementation and strategies to address known market barriers.

ix) In areas where gas and electric service territories overlap, the utility shall provide a description of the program structure for coordinated, consistent delivery of programs between the utilities and estimated coordinated budgets and allocation of costs and capacity and energy savings between the utilities. The utility shall provide a description of how the utilities coordinated their program assumptions and other factors that could influence results for each coordinated program.

2) Additional Filing Information Applicable Only to DR programs that are integrated with Renewable Energy Projects

While it is anticipated that only non-generation assets will be enrolled for mainstream demand response programs, and that integrated renewable generation and non-generation will only be evaluated through pilot programs, there are still potential impacts that must be understood. Because of these potential impacts, the following shall be identified for these filings.

a) The utility shall propose the method for treatment of Renewable Energy Certificates ("RECs"), including solar incentives, or any other renewable energy incentive developed by the Board, including Greenhouse Gas Emissions Portfolio and Energy Efficiency Portfolio Standards including ownership and use of the certificate revenue stream(s). The utility shall also propose the method for treatment of any air emission credits and offsets, including Regional Greenhouse Gas Initiative carbon dioxide allowances and offsets, including ownership and use of the certificate revenue stream(s). For programs that are anticipated to reduce electricity sales in its service territory, the utility shall quantify the expected associated annual savings in REC, solar incentive, and any other renewable energy incentive costs.

b) The utility shall state how any Net Energy Metering billing treatment would be impacted when a demand response event is called to reduce load behind the meter, specifically for loads that will no longer exceed generation.

3) Cost Recovery Mechanism

a) The utility shall provide appropriate financial data for the proposed program(s), including estimated revenues, expenses, and capitalized investments for each of the first three years of operations and at the beginning and end of each year of the three-year period. The utility shall include pro forma income statements for the proposed program(s) for each of the first three years of operations and actual or estimated balance sheets at the beginning and end of each year of the three-year period.

b) The utility shall provide detailed spreadsheets of the accounting treatment of the proposed cost recovery, including describing how costs will be amortized, which accounts will be

debited or credited each month, and how the costs will flow through the proposed program cost recovery method.

c) The utility shall provide a detailed explanation, with all supporting documentation, of the recovery mechanism it proposes to utilize for cost recovery of the proposed program(s), including proposed recovery through the Societal Benefits Charge, a separate clause established for these programs, base rate revenue requirements, government funding reimbursement, retail margin, and/or other mechanisms.

d) The utility's petition for approval, including proposed tariff sheets and other required information, shall be verified as to its accuracy and shall be accompanied by a certification of service demonstrating that the petition was served on the New Jersey Division of Rate Counsel simultaneous to its submission to the Board.

e) The utility shall provide a rate impact summary by year for the proposed program(s) and a cumulative rate impact summary by year for all approved and proposed programs showing the impact of individual programs, based upon a revenue requirement analysis that identifies all estimated program costs and revenues for each proposed program on an annual basis. Such rate impacts shall be calculated for each customer class. The utility shall also provide an annual bill impact summary by year for each program, and an annual cumulative bill impact summary by year for all approved and proposed programs showing bill impacts on a typical customer for each class.

f) The utility shall provide, with supporting documentation, a detailed breakdown of the total costs for the proposed program(s), identified by cost segment, consistent with the program cost categories enumerated in Section II(a)(x). This shall also include a detailed analysis and breakdown and separation of the embedded and incremental costs that will be incurred to provide the services under the proposed program(s), with all supporting documentation. Embedded costs are costs that are provided for in the utility's base rates or through another rate mechanism. Incremental costs are costs associated with or created by the proposed program that are not provided for in base rates or another rate mechanism. Customer recovered costs is income received from customers or their agents upon exit from the program or conversion to third party operation.

g) The utility shall provide a detailed revenue requirement analysis that clearly identifies all estimated annual program costs and revenues for the proposed program(s), including effects upon rate base and pro forma income calculations.

h) The utility shall provide, with supporting documentation: (i) a calculation of its current capital structure, as well as its calculation of the capital structure approved by the Board in its most recent electric and/or gas base rate cases, and (ii) a statement as to its allowed overall rate of return approved by the Board in its most recent electric and/or gas base rate cases.

i) If the utility is seeking carrying costs for a proposed program, the filing shall include a description of the methodology, capital structure, and capital cost rates used by the utility. A utility seeking performance incentives shall provide all supporting justifications and rationales for the incentives, along with supporting documentation, assumptions, and calculations. Utilities that have approved rate mechanisms or incentive treatment from

previous cases and are not seeking a modification of such treatment through the current filing are not subject to this requirement.

4) Benefit-Cost Analysis

a) The utility shall conduct a benefit-cost analysis of the programs using the most recent New Jersey Cost Test, including its most recent avoided cost methodologies, as a primary test. In addition, the utility shall conduct benefit-cost analysis using the Participant Cost Test, Program Administrator Cost Test, Ratepayer Impact Measure Test, Total Resource Cost Test, and Societal Cost Test that assesses all program costs and benefits from a societal perspective i.e., that includes the combined financial costs and benefits realized by the utility and the customer as defined in the then-current version of the California Standard Practice Manual. The utility may also provide any additional benefit-cost analysis that it believes appropriate with supporting rationales and documentation.

b) The utility must demonstrate how the results of the tests in Section V(a) support Board approval of the proposed program(s), including how the programs are designed to achieve a benefit-to-cost ratio greater than or equal to 1.0 at the portfolio level when using the New Jersey Cost Test.

c) Renewable energy programs, workforce development and job training costs, health and safety measures, and outreach to community-based organizations shall not be subject to a benefit-cost test, but the utility must estimate all direct and indirect benefits resulting from such a proposed program as well as provide the projected costs.

d) The level of capacity and energy savings shall be calculated using the most recent Technical Reference Manual approved by the Board. To the extent that a protocol does not exist or an alternative protocol is proposed for a filed program, the utility must submit a savings methodology for the program or contemplated measure for approval by the Board.

e) For calculation of capacity and energy savings, as well as for cost effectiveness calculations, the utility shall report net impact by applying applicable NTG ratios (“NTG”) or some form of “direct to net” measurement. . To the extent that a NTG value does not exist or an alternative NTG value is proposed for a filed program, the utility must submit a NTG value for the program or contemplated measure for approval by the Board.

5) Evaluation, Measurement, and Verification (“EM&V”)

The utility shall describe the methodology, processes, and strategies for monitoring and improving program and portfolio performance related to the utility’s targets established pursuant to the Reporting Plan for Performance Metrics in Section VII. Demand Response program impact methodology shall clearly define the calculation of baseline consumption and demand reduction volumes. Net-to-gross evaluation methods shall be described if the proposed measurement approach is not inherently “direct-to-net,” such as measurement that uses a control group. The utility shall confirm that these methodologies, processes, and strategies conform with the current New Jersey EM&V guidance documents and standards. The utility shall also provide an EM&V budget consistent with the current New Jersey EM&V guidance documents and standards.

6) Reporting Plan for Performance Metrics

a) The utility shall file target values based on key performance metrics applicable to each program year of the three-year program filing cycle.
b) The utility shall provide a description of how the proposed portfolio achieves the targets established for each utility pursuant to the following performance metrics as applicable for each program year:

i) Dollars spent per customer enrolled per $ spent ($/participant) by segment for each proposed program;
ii) Dollars spent per capacity enrolled ($/kW) by each segment for each proposed program;
iii) Intensity impact (kWh or CO2 during peak event) for each proposed program. The utility shall, based on the program design, define the specific calculation to measure intensity impact;
iv) Ratio of number of customer responses to control requests over number of control requests.

Appendix A – New Jersey Demand Response Guiding Principles

Introduction and Portable DR Concept

To facilitate the transition to a cleaner, more efficient, and reliable electric grid, utilities and grid operators can utilize the emerging potential of DR, DERs, and associated grid-edge technology to provide a suite of grid flexibility services. Using DERs and DR assets coupled with advanced communication platforms allows utilities to provide greater temporal and locational control, achieve greater value from customer resources to enhance grid reliability, improve operational cost-effectiveness, and facilitate participation in wholesale markets.

The Demand Response Strategic Vision ("DR Strategy") is to develop programs (utility-led and state-led) that create modular, portable DR services which are sufficiently flexible to become elements of an integrated "grid flexibility services" portfolio. This will enable the broadest consumer participation in aggregations of DER under FERC Order 2222, which permits those without dispatchable assets (e.g., solar, batteries, and EVs) to participate.

Figure 3 illustrates the concept of "portable DR." A DR program could be a utility-run retail service or run by a third-party wholesale service aggregator. A customer would have the freedom and the data rights to choose any DR service provider. Programs rules covering data rights, communication protocols, dispatching protocols, M&V, and pricing mechanisms would have to be established to create this open DR market. At the same time, rules, regulations, and markets will be developed under the Grid Modernization program to enable service aggregators to buy and sell to the demand capacity PJM market, electric distribution companies ("EDCs"), or other aggregators.

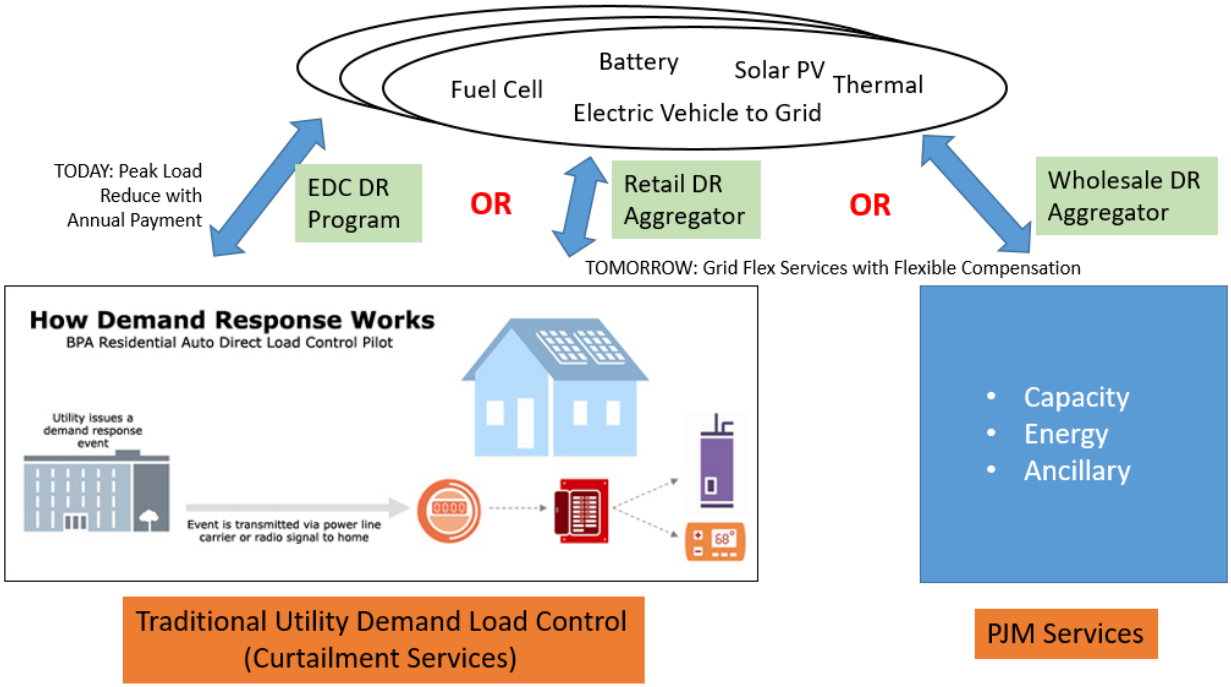


Figure 3 - Alternative Implementations of DR - Conceptual Diagram. Dedicated (e.g., all hardware, software, and program operating costs are rate-recovered, which is an inefficient and inflexible single purpose use case) or Bundled (e.g., DR can be combined in a flexible DER aggregation portfolio providing multiple grid services). NOTE: V2G is fully responsive electric vehicle to grid "smart" charging and storage.

Distributed Energy Resources and Demand Response

While the Clean Energy Act provides the impetus to develop DR programs, DR program development is complicated by the conflation of DR with EE programs against the existence of separate programs for clean generation DER, such as solar, storage and electric vehicles operating in grid integrated modes. As described in the Introduction section, EE – referred to as *Permanent* Load Reduction – contrasts with the capabilities of DR as *Temporary* Load Reduction. EE measures are non-generating assets such as controlled load for water heaters, building envelopes, heat pumps, or even battery charging power levels. DR programs are inherently different because the equipment upgrades are simply incentivizing smart devices and since DR has a variable operating element for both **when** and **how** it is utilized, as well as **who** shares in the economic benefit of its use, this resource can be better optimized through competitive markets. The primary offering is a market for customers to choose an affordable subscription from a variety of demand response services. The utilities may offer DR programs alongside the EE programs, but to achieve an open market and maximum innovation and asset utilization, service aggregators must also offer compatible DR programs where customer choice is enabled.

The types of DERs and their services are shown in Table 1.

Table 2: DER Types and Services they provide (Source: NY REV).

DER Type	Examples	Services		
		Capacity	Energy	Ancillary
Load flexibility	- Large energy user demand curtailment - Bring your own device			
Dispatchable Net Generation	- Net metering of solar			
Dispatchable DER	- Net metering of Class 1 Renewable Generation with battery storage - Vehicle to grid			

Given that EE programs focus on behind the meter energy equipment and put the utilities front and center to promote and implement such programs, the Triennium 2 proposal focuses on the first row of Table 1. NJBPU has solar, EV, and storage programs to develop the DER assets represented by the second and third rows of the table.

DR is essentially the modification of energy use (or load profile) to control demand loads behind the meter in direct response to a signal sent by the utility. Putting aside generation and storage, demand response of space heating and cooling, and water heating is a curtailment service (the "load flexibility" DER type in the table). Signaling to large energy users to curtail demand is a capacity service, while emergency shut-downs is an energy service when network integrity is threatened. Batteries (including EV charging), back-up generators, and more broadly thermal storage, even when non-dispatchable, offer greater curtailment control and therefore more value can be obtained. Deployment of these solutions during Triennium 2 should focus on minimizing large fixed cost "sunk" investments while ensuring that any investments authorized incent private adoption of these capabilities and prove portable.

DERs provide three (3) key services that have defined value streams that should ideally be optimally utilized through market-based compensation. First is peak shaving or load shaping for the PJM capacity market. Second is the reduced consumption of energy, which may be EE or

resilience achieved by judicial use of limited emergency power. Third is ancillary services which include voltage regulation at the distribution (EDC) level and frequency control from the transmission (PJM) level. Coordinating their dispatch and setting up markets across these services are central to future success of grid flexibility services. While not a service, the avoided cost of T&D upgrades is a benefit that Brattle found to be greater than the value of energy and ancillary services.[4]

Traditional curtailment services implemented as single-use utility-deployed DR programs to be operated *exclusively* for emergency peak load reduction represent an extremely cost-inefficient deployment of this highly flexible resource. This DR vision seeks to move these traditional programs toward grid flexibility services, as well as introduce new programs that offer the other services. This will require the EDCs to be transparent with their curtailment decision rules and technology standards and to give access to consumer data to the consumer and third-party service providers within imposed security and privacy guidelines.

The Grid Flexibility Services construct will be developed in conjunction with the Grid-Modernization proceeding (Docket #QO21010085) through a formal working group charged with developing appropriate tariff structures that properly and fully value the DER. Part of the working group focus will be to define the needed standardization and modularity for how disparate DER elements shown in Figure 1 can effectively integrate and interoperate through communication and data standards. Technological advancements of "smart grid edge" systems using edge-compute, high speed networks, advanced AMI measurement, and low friction "apps" are sufficiently developed to enable a highly flexible and dependable aggregation of DER with maximum customer participation. Any DR solution must be "open" to portability for competitive operation and "standardized" to allow for integration as a "module" within a broader DER aggregation management.

Based on the experience in other jurisdictions, the market for modular demand response services requires time to develop standards and rules. DR service aggregators need standards to access price signals from PJM and clear transactions for event participation through utility AMI. Proceedings for time-of-use rates will need to be conducted. Rules for M&V of claimed peak demand savings by DR service aggregators need to be established and would ideally be served by the data from AMI meters currently being universally deployed in New Jersey, along with an emerging class of power electronics collectively referred to as "meter collars" which can disaggregate behind the meter resources. A universal challenge for doing M&V with AMI for any EE or DR program is to establish algorithms to establish baseline consumption. Traditional DR establishes this "baseline" demand, which ideally is *continually* lowered, permanently and **absolutely** through energy efficiency, while any temporary "reduction" should be the **relative** drop of instantaneous load that is presented and measured at the meter interface during times of high reliability or economic value.

[4] The Brattle Group 2018, "Real Reliability – The Value of Virtual Power", https://www.brattle.com/wp-content/uploads/2023/04/Real-Reliability-The-Value-of-Virtual-Power_5.3.2023.pdf.

Existing DR Programs in New Jersey

Curtailment Programs

Both EDCs and GDCs offer curtailment services, or intermittent tariffs. EDCs may curtail service without remuneration for emergencies where the integrity of the distribution network is threatened. Public Service Electric and Gas Company ("PSE&G") has a curtailment service, where subscribers for a fixed kWh rate may voluntarily curtail demand upon receiving a signal from the utility. The amount of curtailment is the difference in a customer-specific hourly load curve and the measured kWh during the curtailment period. The curtailment period may start any time during the day and must end by 8:00 P.M.

GDCs intermittent tariff programs differ. Because natural gas supply absolutely cannot fail, non-compliance results in severe penalties. In exchange for a lower tariff, customers must curtail usage otherwise they will lose the intermittent tariff and go on a fix tariff before they may re-apply for an intermittent tariff.

RECO Bring Your Own Thermostat Program

Rockland Electric Company ("RECO") customers may enroll in a program that allows the company to make brief, limited adjustments to central air-conditioner settings on peak days when energy consumption is high in the summer. The company mails an $85 rebate check to the customer. The company may make up to 10 adjustments to the smart thermostat per summer with no adjustment lasting more than four hours. The customer can override the adjustment.

The RECO program is a step in the right direction in that the curtailment service is signaled through AMI. The next step would be for the value for all possible DR services through time-of-use or other pricing structures rather than through a flat subscription rate. The subsequent step would be to make the service implementable for third-party aggregators

Grid-Modernization Proceeding

The Grid Modernization Proceeding developed a roadmap to develop the distribution network and market for DER. The roadmap includes the following tasks:

- NJBPU will convene a technical working group to adopt and develop into N.J.A.C.14:8-5 current specific industry guidance, such as from IREC, California Rule 21, IEEE 1547, and similar sources.
- New Jersey EDCs should implement a uniform streamlined flexible queue process across EDCs that would prioritize a "first ready, first through" approach to support viable projects.
- NJBPU should define a mechanism to establish numerical cost and capacity thresholds above which grid modernization costs could be spread over a broader set of beneficiaries
- EDCs should submit integrated DER and integrated distribution plans that will allow New Jersey to meet the EMP goals.
- NJBPU should consider allowing non-renewable fuel sources, such as CHP, to play in the net metering market at a reduced rate.

While grid modernization and creating the market for grid flexibility services will take place over several years, DR with behind the meter non-generating resource (i.e., load flexibility) can happen without improvements to the interconnection process and distribution networks. These resources

include, but are not limited to, smart thermostats, smart controls on water heaters, and smart EV chargers (but not V2G). Implementing non-generating resources have a clear advantage to reduce capacity because there is no need for interconnection applications nor for local distribution network upgrades.

Developing DR as a Grid Flexibility Service

There are opportunities to develop DR services that align and evolve with the broader Grid Modernization effort as it progresses. To expand the market from simple fixed-price curtailment services to a modular, portable marketplace for grid flexible DR services, the following guiding principles could be developed and iterated on throughout Triennium 2:

- Standards and Technology Integration - Communication and technology integration relies on open standards that would need to be developed. The integration of AMI, DERMS, and other technology would need to accurately measure value of services provided by smart controls for all services.
- Data Transparency and Security – The Grid Modernization Proceeding is developing rules and regulations to give customer data rights, which would enable aggregators to offer DR services. Data security protocols and standards are also being addressed.
- Efficient Price Mechanisms – Retail time-of-use price mechanisms need to accurately represent capacity, energy, and ancillary services, while accounting for locational values. The tariffs could be flexible or dynamic (e.g., “Tariffs based on real-time use, setting specific thresholds or alerts as to not go beyond power limits, and moving apparatuses towards different and more convenient price shifts.”).
- Aggregators – Aggregators may offer services to retail, wholesale, or both (known as dual aggregators). Rules must be established for qualifying third party aggregators to engage with AMI and distributed energy resource management systems (“DERMS”) at the retail-level. Meanwhile, grid modernization will establish rules for aggregators to offer wholesale power to PJM. Rules should preclude double-counting for aggregators who participate in both markets.
- Measurement & Verification – M&V rules would need to be developed that fairly and accurately measure and communicate savings for capacity, energy and ancillary services. One challenge is to develop methodologies to establish baseline consumption for all possible services.
-

DR Program Design for Triennium 2

Given the complexity of the development path for DER and grid flexibility services, and the need to avoid stranded or underutilized assets that cannot fully interoperate with rapidly growing DER technologies, Staff acknowledges that for Triennium 2, the environment to achieve commercial scale deployment of this integrative “flexibility services” concept does not currently exist. Staff, however, does recommend to the greatest extent possible that EDC investments in Triennium 2 should be made “future proof” to evolve with the DR Strategy. Therefore, any proposed Triennium 2 DR programs should demonstrate the following attributes:

- New demand response service programs may be implemented by utilities, EDCs and GDCs alike, with the constraint that rules and standards for data, IT technologies, and pricing should be forward-looking to the future modular, portable grid flexibility services that are envisioned as mainstream for the third Triennium.
- Such programs would leverage smart devices and advanced customer information channels to enable intelligent energy management without necessarily requiring a direct

control mechanism, but rather for customers to be motivated/compensated through utility payments or other market mechanisms.
- Programs should propose incentives to encourage customers to purchase and install non-proprietary smart devices (e.g., Open Systems) that offer "portability" for their enabled DR function to be invoked by alternative "operators and offers."
- Programs should leverage AMI data for providing the M&V at suitable granularity for future DR transaction clearing, unless there are compelling reasons to defer. The AMI Data Access proceeding (Docket #EO20110716) is establishing utility rules on data access, which should enable this M&V capability.
-

Demand Response Roadmap Study

NJBPU will engage a consultant to develop a DR Roadmap. The DR Roadmap would be a work stream that fits within the BPU's broader Grid-Modernization proceeding and would flow logically into the next updated Energy Master Plan ("EMP"). Milestones within the DR roadmap would need to be synchronized with milestones in the Grid-Modernization proceeding.

To inform the scope of the DR Roadmap, Staff requested DNV to provide technical guidance and identified best practices from other jurisdictions. DNV produced a memo that covers DR market potential, long-term barriers, best practices in DER integration, and key principles for DER deployment and DR grid flexibility.[5]

Based on this memo, Staff recommends that the DR Roadmap should establish priorities and timing of the following:

- Definition of first principles and goals of DR programs.
- Conduct of a market potential study to analyze:
    - Where are (and will be) DER and DR-enabling technologies are interconnected.
    - Capacity map (initial map and procedures to update) particularly for areas which are strongly tied to the Grid Modernization proceeding.
    - Cost-effectiveness of comparative load reduction alternatives
    - Customer perspectives, including outreach/education effectiveness and response quality measured by behavior change.
    - An identification of technical, policy, and financial barriers preventing modular demand response services that support multiple use cases beyond peak load control ("PLC"). What are the barriers to adoption?
    - Prioritization of key research and development questions, in coordination with evolving Grid Modernization forum workgroups, aimed at reducing barriers where possible.
- Pilot Programs - The roadmap shall recommend the design and administration of a portfolio of pilot programs aimed at rapid evaluation of solution effectiveness or barrier reduction potential.

Staff recommends that the study team communicate and involve stakeholders, such as of utilities, PJM, aggregators, and customer representatives, during the development of the roadmap.

[5] "DNV Advisory Support and Recommendations in Response to the NJBPU Demand Response Roadmap".

Appendix B - Description of load flexibility programs

Source: Brattle, 2023 The National Potential for Load Flexibility: Value and Market Potential Through 2030 (brattle.com).

Direct load control (DLC): Participant's equipment with a controllable motor, such as water pumps, compressors, air handlers, air conditioners, is remotely cycled using a switch on the compressor.

Smart thermostats: An alternative to conventional DLC, smart thermostats allow the temperature setpoint to be remotely controlled to reduce A/C usage during peak times. Customers could provide their own thermostat, or purchase one from the utility.

Interruptible rates: Participants agree to reduce demand to a pre-specified level and receive an incentive payment in the form of a discounted rate. Alternatively, the participant receives an offset for $/kWh energy charge for the amount of demand reduction.

Demand bidding: Participants submit hourly curtailment schedules on a daily basis and, if the bids are accepted, must curtail the bid load amount to receive the bid incentive payment or may be subject to a non-compliance penalty.

Time-of-use (TOU) rate: Static price signal with higher price during peak hours (assumed 5-hour period aligned with system peak) on non-holiday weekdays. Modeled for all customers as well as for EV charging.

Critical peak pricing (CPP) rate: Provides customers with a discounted rate during most hours of the year, and a much higher rate (typically between 50 cents/kWh and $1/kWh) during peak hours on 10 to 15 days per year.

Behavioral DR: Customers are informed of the need for load reductions during peak times without being provided an accompanying financial incentive. Customers are typically informed of the need for load reductions on a day- ahead basis and events are called somewhat sparingly throughout the year. Behavioral DR programs have been piloted by several utilities, including Consumers Energy, Green Mountain Power, the City of Glendale, Baltimore Gas & Electric, and four Minnesota cooperatives.

EV managed charging: Using communications-enabled smart chargers allows the utility to shift charging load of individual EVs plugged-in at home from on-peak to off-peak hours. Customers who do not opt-out of an event receive a financial incentive.

Timed water heating: The heating element of electric resistance water heaters can be set to heat water during off-peak hours of the day. The thermal storage capabilities of the water tank provide sufficient hot water during peak hours without needing to activate the heating element.

Smart water heating: Offers improved flexibility and functionality in the control of the heating element in the water heater. Multiple load control strategies are possible, such as peak shaving, energy price arbitrage through day/night thermal storage, or the provision of ancillary services such as frequency regulation. Modeled for electric resistance water heaters, as these represent the vast majority of electric water heaters and are currently the most attractive candidates for a range of advanced load control strategies.

Ice-based thermal storage: Commercial customers shift peak cooling demand to off-peak hours using ice- based storage systems. The thermal storage unit acts as a battery for the customer's A/C unit, charging at night (freezing water) and discharging (allowing ice to thaw to provide cooling) during the day.

C&I Auto-DR: Auto-DR technology automates the control of various C&I end-uses. Features of the technology allow for deep curtailment during peak events, moderate load shifting on a daily basis, and load increases and decreases to provide ancillary services. Modeled end-uses include HVAC and lighting (both luminaire and zonal lighting options).

In the Matter of the Implementation of P.L. 2018, c. 17, the New Jersey Clean Energy Act of 2018, Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, Docket No. QO19010040

In the Matter of the Implementation of P.L. 2018, c. 17, the New Jersey Clean Energy Act of 2018, Regarding the Second Triennium of Energy Efficiency and Peak Demand Reduction Programs, Docket No. QO23030150

In the Matter of Electric Public Utilities and Gas Public Utilities Offering Energy Efficiency and Conservation Programs, Investing in Class I Renewable Energy Resources and Offering Class I Renewable Energy Programs in Their Respective Service Territories on a Regulated Basis Pursuant to N.J.S.A. 48:3-98.1 and N.J.S.A. 48:3-87.9 – Minimum Filing Requirements, Docket No. QO17091004

STAFF RESPONSES TO STAKEHOLDER COMMENTS ON THE EE3 STRAW PROPOSAL

LIST OF COMMENTERS

Advanced Energy United ("United")
Atlantic City Electric Company ("ACE")
Energy Efficiency Alliance of New Jersey ("EEA-NJ")[1]
Franklin Energy ("Franklin")
New Jersey Division of Rate Counsel ("Rate Counsel")
New Jersey Large Energy Users Coalition ("NJLEUC")
New Jersey Natural Gas Company ("NJNG")
New Jersey Utilities Association ("NJUA")
Northeast Energy Efficiency Partnerships ("NEEP")
Oracle Opower ("Opower")
Public Service Electric & Gas Company ("PSE&G")
Recurve[2]
Rockland Electric Company ("RECO")
South Jersey Industries Utilities ("SJIU")

[1] In addition to comments summarized herein, EEA-NJ expressed support for federal incentives and rebates available through the Inflation Reduction Act during Triennium 2 to be additive to existing utility rebates, as well as for utilities to play an important role in using their existing customer relationships to promote those rebates. Staff thanks EEA-NJ for their comments and notes that the Board addressed the topic of program funding as part of its May 24, 2023 order. Staff and utility and State program administrators will propose for feedback from public stakeholders how to most efficiently and effectively leverage additional funding to maximize the benefits of existing programs.

[2] Recurve submitted comments under the heading of the EE3 straw proposal but since they pertain to distributed energy resources ("DER"), they are addressed in the comment summaries and responses to the EE5 straw proposal in Attachment F.

TABLE OF CONTENTS

GOALS - STAKEHOLDER ENGAGEMENT 2
GOALS – GOAL STUDY 4
GOALS – GOAL STUDY – PROJECTIONS OF PROGRAM BUDGETS 4
GOALS – ENERGY SAVINGS ACCOUNTING 7
QUANTITATIVE PERFORMANCE INDICATORS 9
PERFORMANCE INCENTIVE MECHANISM ("PIM") 14
ENERGY SAVINGS CARRYOVER 17

GOALS - STAKEHOLDER ENGAGEMENT

Comments:

Rate Counsel expressed concern that, given the magnitude of the projected cost of the energy efficiency ("EE") programs in Triennium 2, the public process associated with the goals straw proposal ("EE3") provided insufficient time for parties to be fully heard on issues that require further study and a solution to be properly vetted. Rate Counsel suggested that Staff hold additional stakeholder proceedings after receiving written comments on EE3.

NJLEUC stated that the Board must initiate direct and active communications with stakeholders through meaningful and ongoing stakeholder processes to secure their input regarding and acceptance of Board and utility clean energy and EE programs and straw proposals and be sensitive to feedback that may challenge the Board's assumptions or information that provided the basis for its proposals. NJLEUC asserted that this stakeholder engagement has not occurred in the development of the straw proposals, that ratepayers have not been afforded an opportunity to actively participate in the formulation and development of these and other programs, and that the proceeding should be expanded to include direct ratepayer/consumer feedback. NJLEUC argued that ratepayer input should not occur on a one-time basis at the end of a process dominated by regulators and think tanks who lack actual experience with the markets targeted by the proposals. NJLEUC stated that large users are viewed as the low hanging fruit for EE and are therefore targeted as primary beneficiaries of the straw proposal's EE initiative, will assume a disproportionate share of the initiative's usage-based costs, and should be engaged through NJLEUC regarding their needs, remaining opportunities for energy and peak reduction, and how to structure programs and incentives to effectively address those needs.

Response:

It has been Staff's intent to offer a meaningful stakeholder engagement process on the Triennium 2 EE straw proposals. Since the beginning of Triennium 1 in July 2021, Rate Counsel has participated in ongoing meetings with Staff and the utilities as part of a working group dedicated to collaborating on the planning and implementation of New Jersey EE programs, including regarding Triennium 2 planning. In keeping with the Board's traditional stakeholder engagement process, Staff worked diligently to develop the most recent straw proposals for Triennium 2 (including EE3) and released the straw proposals for stakeholder comment and feedback, inviting oral comments at two virtual public stakeholder meetings and providing a three-week comment

period for written comments. Rate Counsel, NJLEUC, and all stakeholders were welcome to provide comments and suggestions during the stakeholder meetings hosted by Staff about the substance of the proposals and the associated stakeholder engagement process.

Staff welcomes additional, ongoing engagement with NJLEUC regarding their needs and input into programs and incentives.

Regarding NJLEUC's comments about regulators and think tanks who lack actual experience with the markets, Staff has worked collaboratively with consultants to develop the straw proposals. The Statewide Evaluator Team combined has decades of experience assisting states in developing market-based goals for programs and is highly qualified to oversee the goal-setting study, along with the Rutgers Center for Green Building with its deep experience in research and evaluation of New Jersey's buildings and related initiatives. Cadmus also has a deep portfolio of market-based evaluation work that it brought to bear in conducting New Jersey's goal-setting study.

Comment:

NJLEUC suggested that Staff and appropriate consultants should rigorously evaluate the EE and other programs proposed in the straws, including with expansive market research, customer outreach, and stringent cost-benefit analysis.

Response:

Staff intends to closely evaluate utility programs and budgets when proposed by the utilities in October 2023 (which includes benefit-cost estimates) and looks forward to further stakeholder engagement on program design and incentives, cost-effectiveness, and budgets, including through the public hearings offered by all of the utilities regarding their proposed programs. Staff will also follow-up on NJLEUC's suggestion for additional market research and customer outreach.

Comments:

NJLEUC expressed dismay that, according to Cadmus, the communications regarding the straw proposals have largely occurred between Cadmus, Staff, Rutgers University, and the Statewide Evaluator, with some input from unidentified experts, and that Rate Counsel was excluded from these communications.

Response:

Cadmus, Staff, Rutgers, and the Statewide Evaluator had regular communications regarding the development of the goal-setting study because Rutgers subcontracted Cadmus and the Statewide Evaluator provided technical oversight. At the same time, as the goal-setting study was underway over the past year, Cadmus provided multiple updates and was available for questions, feedback, and requests from the Evaluation, Measurement, and Verification Working Group, which includes Rate Counsel and the utilities. The goal-setting study was then included as part of the EE3 straw proposal for comments and feedback from public stakeholders.

GOALS – GOAL STUDY

Comments:

ACE asserted that the detailed Triennium 2 electric goals for ACE provided in the study for the full compliance scenario are misaligned with ACE's approved Program Year 3 ("PY3") energy savings goal and budget and therefore result in a projected ramp rate between PY3 and PY4 that is not reasonable or attainable. ACE suggested using the research and analysis in the study to guide more reasonable targets for ACE's Triennium 2 programs, which could be achieved by scaling the goals contained in the study to the Company's actual approved PY3 goal.

Response:

Staff notes that the goal-setting study's PY3 statewide energy reduction goals aligned with the statewide energy reduction goals in the 2019 market potential study. However, Staff understands that the alignment may not have carried through at the utility-level for all utilities. Staff suggests that ACE and any other similarly-situated utility use the net savings goals provided in the goal-setting study as a starting point when filing proposed annual energy reduction goals and provide justification if proposed goals differ from those in the study.

Comments:

For Triennium 2, United expressed belief that 0.75% per year for natural gas and 2% per year for electricity are modest goals, that targeting those levels of achievement in 2026 and 2027 will leave cost-effective EE "on the table," and that more aggressive goals in 2027 (and possibly 2026) would be appropriate. United recommended a careful evaluation of the CEA targets and EE potential.

Response:

Staff believes that the goals included in the Triennium 2 straw proposal are consistent with CEA goals. Staff considered the level appropriate and also participated in discussions with the utilities and the Statewide Evaluator, among others, regarding whether the goals are more aggressive than what other states have been able to achieve. Staff, the Statewide Evaluator, and others will watch and review performance toward goals as the triennium progresses. Staff appreciates the feedback and concern.

GOALS – GOAL STUDY – PROJECTIONS OF PROGRAM BUDGETS

Comments:

Rate Counsel expressed concern about the projected utility program budgets in Triennium 2 and pointed out that a corresponding ratepayer impact study would provide a clearer picture regarding whether the budgets represent reasonable cost increases to ratepayers.

Rate Counsel provided an analysis of the full compliance and high adoption scenarios that concluded that these scenarios would result in a monthly increase of $26 under the full compliance

scenario and $62 under the high adoption scenario if each ratepayer who pays gas and electric bills shared the burden equally of the goal-setting study's estimates of potential energy savings and program budgets for these scenarios.

NJLEUC expressed concern about potential increases in program costs over current levels, and the associated impacts on ratepayers. NJLEUC argued that rate impacts and affordability should be of primary concern to the Board. NJLEUC suggested that Cadmus assumed that simply spending more on incentives would result in greater customer participation in the programs and asserted that the Board should ask customers directly about their preferences and needs regarding new or repackaged initiatives and incentives. More specifically, NJLEUC suggested that trade allies engaging with customers have observed that most customers with operating appliances will not be induced to upgrade to more efficient appliances through enhanced financial incentives.

Response:

In addition to cost-effectiveness, overall rate impacts and affordability are consistently of primary concern to Staff and the Board. In the EE field, Staff has sought to achieve CEA goals while being mindful of rate impacts and affordability. The CEA calls for programs that reduce energy usage up to the full economic, cost-effective potential in each utility service territory in the state. State and utility programs must at least meet energy savings goals within five (5) years of implementation of those programs, with the fifth program year occurring during Triennium 2. Regarding NJLEUC's comment about program budgets and customer participation, Staff suggests that it is inaccurate to say that Board's or Cadmus's approach is to throw more money at EE programs to increase participation in programs and achieve compliance with CEA goals. Following the transition of EE programs to utilities during Triennium 1, those programs have been slowly but steadily ramping up in terms of participation and energy savings. As the programs continue to expand during Triennium 2, participation, energy savings, and budgets are expected to steadily increase to meet CEA goals by the fifth program year.

The goal-setting study analyzed three (3) scenarios – including business as usual, full compliance, and high adoption – and provided "estimates of potential energy savings and [program] budgets" for each scenario. Notably, the full compliance scenario was based on identification of achievable, cost-effective energy savings measures and outlined the progression of energy savings needed during Triennium 2 to meet CEA goals. Starting with the $1.1 billion expected EE program budgets statewide in Program Year 3, the goal-setting study provided the following estimated budgets for EE incentive programs statewide in Triennium 2 under the full compliance scenario: $1.4 billion in Program Year 4, $1.6 billion in Program Year 5, and $1.8 billion in Program Year 6.

Staff notes that Rate Counsel's bill impacts analysis appears to be based on a three-year amortization period with the program budgets increasing by at least by the amount estimated in the full compliance scenario of the goal-setting study. The Triennium 1 program budgets were amortized over a 10-year period to moderate bill impacts on New Jersey ratepayers. This approach will continue for Triennium 2 programs, based on Board approval on May 24, 2023 of an amortization of program investments that aligns with the weighted average useful life of each utility's proposed portfolio but not to exceed 10 years. Therefore, Staff acknowledges that

ratepayer bills will increase but that there will be not as severe of a bill impact for ratepayers, including EE customers who do not participate in incentive programs, as Rate Counsel suggests. The utilities will provide estimated rate impacts as part of their program proposals.

Staff appreciates NJLEUC's insight into customer priorities and choices regarding operating appliances and suggests that, in addition to financial incentives to improve the efficiency of building shells, Staff's understanding is that incentives are less effective in inducing customers to replace currently operating equipment and more effective in swaying customers to choose higher efficiency appliances when their appliances are approaching or at the end of their useful lives.

Comments:

NJNG pointed out that the estimated $5.3 billion cost for the full compliance scenario does not include financing options, demand response, and building decarbonization start-up programs ("BD Programs").

Rate Counsel expressed deep concern that Cadmus' forecasted program budgets will undercut the process of reviewing utility proposals, suggesting that the forecasts walk a fine line between agency guidance and the tribunal directing the results of a not yet filed legal proceeding.

NJUA expressed understanding and appreciation of the complexity of, and effort in, undertaking the goal-setting study and its associated limits based on reliance on the 2019 market potential study. NJUA also asserted that the study should not be used as a basis to evaluate filed utility program plans and budgets due to various shortcomings, including insufficient utility- and measure-specific data detail and methodological concerns. SJIU agreed with NJUA and noted that SJIU will proceed to build plans for achieving savings targets based on the knowledge and experience of the first program cycle, utilizing savings estimates based on the comprehensive Technical Reference Manual and budget estimates based on known incentive levels and costs.

Response:

As noted in the straw proposal and the goal-setting study, the study should be viewed in light of several key assumptions and limitations of the study. These include assumptions and limitations that could both lower or raise estimated costs of the programs. For example, the fact that the study did not include financing options would raise estimated costs, while the assumption that incentive levels will match 100% of incremental measure costs results in estimated costs that will be higher than actual costs. All told, Staff's position is that the study's estimates of program budgets for each scenario will be useful information and starting point, rather than pre-determinative or conclusive, for development and during evaluation of utility programs and budgets.

Staff maintains that Cadmus' estimated program budgets will support, rather than undercut, the process of reviewing utility proposals. In response to Rate Counsel and NJUA, Staff's position is that the estimates of program budgets for each scenario will be useful information, rather than pre-determinative or conclusive, during evaluation of utility programs and budgets, which will be proposed in October 2023 and include benefit-cost estimates. In response to Rate Counsel's comments on ratepayer impacts, Staff notes that the utility program proposals will include

assessment of estimated ratepayer impacts by utility service territory, which will also help to support discussions about what levels of program budgets are reasonable.

Comments:

NJUA provided specific examples regarding questions of accuracy and estimates of market potential in the goal-setting study. First, NJUA stated that the large level of contribution of appliance recycling in the study is inconsistent with current participation patterns in the programs thus far. Second, NJUA questioned the apparent single measure category for the Direct Install program. Third, NJUA questioned the assumption that air source heat pumps ("ASHPs") will constitute 70% of electric savings in the existing homes program, with 50% coming from converting electrically-heated homes because electrically-heated homes represent 10% of heating in the state and the projected cooling and heating savings from ASHPs are comparable but NJUA expected heating savings would be much higher since the efficiency upgrade is much greater. Fourth, NJUA noted that the study's projected significant contributions from the behavioral program and residential smart thermostats do not appear aligned with recent results in the state.

Response:

Cadmus reviewed the utilities' feedback and noted that Cadmus did not have access to data from the utilities as the study was underway about program measures and participants that would have enabled Cadmus to provide more granular assessments of how measures would be shared or split between programs. So, Cadmus developed estimates based on statewide data.

GOALS – ENERGY SAVINGS ACCOUNTING

Comments:

Rate Counsel expressed support for the use of net energy savings for State and utility incentive programs because net savings take into account factors such as free ridership and spillover whereas gross savings does not.

Rate Counsel also expressed interest in measuring both net energy savings from State and utility incentive programs and energy savings from all other sources to meet the CEA's annual savings goals while attempting to reduce utility program budgets and impacts on ratepayers.

United supported Staff's proposal to use net savings as the basis for measuring the performance of state and utility programs, using the net-to-gross ("NTG") assumptions cited by Staff in the straw proposal. United expressed that this approach seemed reasonable and will focus the measurement of program performance tied to the actions taken.

NJUA argued that the State should use gross energy savings for determination of goal compliance in lieu of net savings to ensure capture of all EE savings and reduce compliance costs. In the alternative, NJUA suggested that utility and State savings targets be reduced to recognize market transformation savings separately so as to reduce costs to ratepayers.

NJLEUC expressed agreement with the NJUA's position that the Technical Reference Manual's net-to-gross ratios should not be incorporated into CEA savings calculations and thereby (1) reduce the energy savings that could be applied toward statewide CEA goals and (2) increase

the size of the programs and budgets required by the utilities to achieve CEA goals through their programs.

NJNG, PSE&G, and SJIU also echoed support for using gross savings for compliance and for the alternative approach offered by NJUA. RECO recommended a measurement similar to verified gross savings ("VGS") as the basis for measuring compliance, as included in New York State evaluation guidance, and explained that VGS takes into account the results of utilities' annual impact evaluations and specifically applies any determined realization rate adjustments to a program's gross savings.

Response:

For Triennium 2, Staff recommends the use of net energy savings to support program planning and review of State and utility incentive programs, including for compliance and cost-effectiveness analysis, with the goal of being as accurate as possible in assessing and providing credit for the energy savings caused by the programs. Staff's view is that using net savings as the basis for tracking achievements and progress is a core tenet of defensibly evaluating progress. NTG factors and adjustments for proper baselines and market factors are vital pieces of the computation of defensible net savings. The U.S. Environmental Protection Agency, the market, actions by manufacturers and contractors, and many other effects – in addition to New Jersey incentive programs – affect the choices of energy measures by households and businesses in the state. Without the required use of NTG factors and consideration of market progress, the incentive programs could take credit for and spend ratepayer money to achieve savings that would have occurred without the programs. A prime example is light-emitting diode ("LED") lighting. Due to international market changes and the planned implementation of U.S. legislation, the market sells very little lighting that is not high-efficiency LED. Without netting out the effects of natural market adoption and market changes, incentive programs would be able to report energy savings and justify program expenditures that were not due to the programs' efforts or expenditures. This example underscores the importance of using the industry standard of NTG, baselines, and consideration of market progress in the reporting of program savings and achievements.

Staff thanks RECO for recommending consideration of VGS and suggests that the EM&V Working Group discuss the approach during Triennium 2.

Comments:

Rate Counsel requested clarification on whether energy savings not accounted for by the goal-setting study will be considered as part of the State's portion of the CEA energy savings goals.

Response:

Staff recommends that the Board apply the net energy savings achieved through New Jersey's building codes and efficiency standards and State-run programs by other State agencies toward the State's portion of the CEA energy savings goals.

Comments:

United agreed with Staff's stated assumption to exclude energy savings expected from the state's codes and standards because these savings are largely unrelated to utility performance or program design, and the goals should target utility programs.

Response:

Staff notes that CEA's EE end goal is to realize full economic, cost-effective potential for electricity and natural gas usage reduction throughout the state. Staff is mindful of the benefits of pursuing cost-effective EE opportunities in Triennium 2 in order to support early participation and accelerate the adoption of State goals and benefits (including the CEA annual and end goals and New Jersey's goal of 100% clean energy by 2035). At the same time, Staff remains mindful of impacts on affordability and ratepayer costs as a result of EE program expenditures. Staff therefore recommends that, if assessment of energy savings from building codes, efficiency standards, and other State programs supports increasing the State's relative share of annual net energy reduction goals in Triennium 2, it may be advisable to lower utility annual net energy goals (compared to the goals provided in the goal-setting study) through the Board's review process of utility filings and thereby reduce incentive program budgets and ratepayer costs.

Comments:

NJUA also requested clarity on the contribution of the BPU's Large Energy Users Program ("LEUP") to the State's portion of electric and gas savings goals since this program overlaps with the utility programs.

Response:

Staff suggests that NJCEP propose more specific goals for programs administered by NJCEP, including new construction and LEUP, when they file NJCEP program plans. As approved by the Board, Staff looks forward to working with NJCEP's program administrator to develop three-year NJCEP program plans in coordination with utility program administrators and stakeholders.

QUANTITATIVE PERFORMANCE INDICATORS

Comments:

Recurve supported using MMBtus as a unifying energy unit to analyze impacts across fuel types more holistically.

United supported the use of source MMBtu for setting quantitative performance indicators ("QPIs"), as this does not discourage fuel switching, which is important for promoting building decarbonization, as well as driving overall reductions in statewide energy use (and by association, greenhouse gas emissions), regardless of the fuel type.

NJNG expressed support for the use of source energy for the QPIs, arguing that source energy is the most indicative measure of whether these programs are improving emissions and that using site energy would create the false appearance of reduction in localized, site-specific emissions that may in actuality only be a shift of emissions from site to source point, i.e., a site reduction in fossil fuel consumption causing an aggregate increase in emissions because of an increased use of fossil fuel to generate electricity and attendant line losses in the delivery of that electricity from generation to end use.

EEA-NJ expressed support for the shift to using a common energy unit to analyze and combine impacts across fuels. EEA-NJ also acknowledged that using source MMBtu units as a unifying

measure does present challenges, as it is more difficult to measure regarding specific homes and could penalize homes with rooftop solar or other self-generation.

Rate Counsel expressed recognition of the appeal of using source energy savings for QPI calculation because it would focus more directly on avoided BTU on the generation system, which is more tightly tied to carbon and other emissions that simple electricity kWh savings. Rate Counsel, however, concluded that the appeal of the approach is outweighed by the drawbacks that (1) calculating source emissions is more complicated and uncertain than simply calculating kWh savings; (2) calculating source emissions is inconsistent with the CEA's focus on kWh savings in the electricity sector and the utility kWh energy savings goals; and (3) it is unclear that the marginal emissions factor, as opposed to average or even baseload factor, is appropriate for calculating the emissions impact of measures that produce savings over several years.

Response:

Staff acknowledges that calculating source emission depends on some key assumptions that are difficult to measure and forecast. Staff, however, asserts that the methodology is transparent and the assumptions are reasonable and based on readily available public data. As Rate Counsel has pointed out, the two (2) key assumptions are marginal emissions rate and forecasting emissions. The assumption for marginal emissions rate is discussed below. For forecasting emissions, Staff recommends a 50% reduction in emissions by 2050 as a balance between EIA's forecast for PJM emissions (~24% in 2050) and the Global Warming Response Act's stated target of 80% emissions reduction in 2050.

Regarding Rate Counsel's other point, Staff proposed source MMBtu units to capture energy savings from fuel switching measures, as contemplated in the proposed BD Programs straw proposal, by using a common energy unit to analyze and combine impacts of incentive programs across fuels.

Staff maintains that marginal emissions best represent the emissions avoided from a fuel-switching measure. At the individual measure-level, a measure that operates during peak, such as space heating, impacts marginal emissions. Meanwhile a measure with a steady demand load, such as a water heater, impacts base load emissions. The resulting portfolio-level emissions are then a mix of marginal and base load emissions depending on the mix of space heating and water heating measures. Staff assumes that savings from space heating measures will be most of the BD savings, and therefore the average portfolio emissions factor should lean toward marginal emissions. The proposed methodology of taking the average of peak and baseload marginal emissions, while it perhaps leans more toward the marginal emissions, is balanced by the fact that the data is public and readily available from PJM.

Comments:

Rate Counsel argued that utilities should not be allowed to include energy savings from BD programs in QPI calculations that support utility incentives.

Response:

Staff recommends capping the amount that utilities are allowed to increase an energy-related QPI in Triennium 2 due to the inclusion of anticipated source MMBtu savings from BD Programs at 10%. This approach acknowledges the start-up approach to integrating core EE with the BD Programs.

Comments:

Rate Counsel asserted that the three-year average retail sales baseline and the verified deemed savings used to calculate compliance are both predicated on site energy usage (e.g., kWh rather than source MMBtu) and that QPIs should therefore be as well.

RECO requested clarity that the compliance percentage of retail sales goal in Table 1 will be measured in units of source MMBtu as are QPIs in Table 2.

Response:

Staff acknowledges that the CEA establishes energy reduction goals in terms of electricity (kWh) and natural gas (therms), as presented in Table 1. On the other hand, Staff recommends using source MMBtu, a fuel-neutral metric, for the QPIs. Staff believes that it is appropriate to use source MMBtu to calculate QPIs and in turn apply the performance incentive mechanism to support and reflect the impacts on energy consumption that result from fuel switching and electrification.

Comments:

NJUA stated that QPI guidance should be less prescriptive to allow for variation specific to each utility as presented in filed plans. Specifically, NJUA recommended that the Board not establish targets for small business lifetime savings and low- and moderate-income and overburdened community ("LMI/OBC") customer lifetime savings that are proportional to each group's respective contribution to retail sales because the utilities do not have definitive information on the LMI customer population in their territories and because NJUA maintains that more discussions and research should occur on the policy rationale and potential program cost impacts of these targets. NJUA recommended that the Board accept the proposed values from each utility and work over the next triennium to research the policy and cost implications of a targeted percentage of savings coming from specific market segments.

Response:

Staff appreciates NJUA's comments that small business and LMI/OBC lifetime savings targets may be more complicated than initially expected. Staff recommends that the utilities propose targets for these QPIs and provide each group's respective contribution to retail sales but also that the utilities should be permitted to provide rationale for proposed targets if they are different from the groups' relative contribution to retail sales or to explain if the information is unavailable. Staff also concurs that this topic merits more discussions and research in advance of Triennium 3.

Comments:

NJUA also recommended that the Board not establish pre-determined ratios for lifetime savings to annual savings for Triennium 2, citing concerns that the goal-setting study not be used to establish these ratios because it is unclear to what extent dual measure life calculations required in Triennium 2 will impact overall lifetime savings results and to what extent this was factored into the goal-setting study. NJUA recommended that the values submitted by the utilities be used as their respective targets, with additional research and discussion during Triennium 2 to assess whether fuel- and utility-specific ratios are practical for future triennia.

EEA-NJ cautioned against setting a minimum ratio of lifetime to first year energy savings or setting a specific target for a weighted average expected useful life of EE measures at the portfolio level, arguing that assigning weighted values or a portfolio estimated useful life target would artificially incentivize one (1) type of measure over another and could unintentionally disincentivize either measure, despite both types having benefits for consumers and for EE portfolios.

Opower supported the QPI structure as proposed and did not recommend setting a minimum ratio of lifetime to first year energy savings, or setting a specific target for a weighted average expected useful life of EE measures at the portfolio level.

United did not recommend setting a minimum ratio of lifetime to first year energy savings or setting a specific target for a weighted average expected useful life of EE measures at the portfolio level. United asserted that assigning weighted values or a portfolio effective useful life target would artificially incentivize one type of measure over another despite both types having benefits for consumers and for EE portfolios. United also noted that early savings are more valuable than those in the future, as the electric grid is expected to get cleaner over time.

Rate Counsel recommended that Staff, with the support of the Statewide Evaluator, provide guidance on what the utility goals should look like specifically with respect to the ratio of lifetime to annual energy savings, and then the burden should be on each utility to show why a different goal is more appropriate if the utility diverges from this guidance in their program filings.

Response:

Staff notes that the QPIs for annual energy savings and lifetime energy savings are balanced against each other. In other words, while the utility has to set a target for both, which implies that they are setting a target for the ratio of lifetime to first year savings, it is not a minimum ratio. The utility may choose to emphasize one over the other and still achieve a higher overall QPI.

Staff shall derive the ratio of lifetime savings to annual savings, the so-called portfolio weighted average expected useful life, from the goal-setting study results. This value will serve as a starting or reference point for Staff to evaluate the QPI targets proposed by the utilities in their filings.

Comments:

PSE&G expressed appreciation for the Board's attention to detail in addressing PSE&G's need, as a dual-fuel utility, for unique guidance on QPI performance. PS&EG noted their belief that this unique guidance is only needed for QPI #2, Annual Demand Savings, because that is the only QPI that has different units of measure between electricity (MW) and natural gas (peak day therm) while the other QPIs already have source MMBtu as the unit of measure. PSE&G suggested a formula in which the results for QPI #2, in MW and peak day therm, would be pro-rated by the percentage of each fuel's retail sales to the total of baseline retail sales, as measured in source MMBtu.

Response:

Staff appreciates the clarification from PSE&G and views the formula as a sensible approach to calculating QPI #2.

Comments:

Franklin stated that goals should be clearly defined and easily quantified, interpreted, and verified. Franklin stated its belief that the 6 QPIs add too much complexity and may cause a technical dispute between parties in the PIM and return on equity ("ROE") calculations. Franklin recommended only 3 to 4 QPIs.

Franklin opined that the "Cost to Achieve" QPI is redundant to the Cost Effectiveness calculations required for the portfolio.

Franklin asserted that weighing the Annual Energy Savings QPI at 30% is a bit high; lowering it to 20% will put a greater emphasis on lifetime savings, which is more consistent with the deeper retrofits desired in homes and businesses.

Response:

Staff spent considerable time discussing options for how to structure the QPIs. In its proposal, Staff strived to balance the desire for simplicity with the desire to incorporate (and then appropriately and reasonably weight) annual energy savings, lifetime energy savings (including for specific target groups), annual demand savings, and cost to achieve. Staff does not view the cost to achieve QPI as redundant with cost-effectiveness requirements because Staff anticipates that the cost to achieve metric will serve to compare the costs to achieve of EE versus other clean energy initiatives.

Comments:

NEEP stated that, for future years, the State can consider QPIs that are directly related to actions taken by program implementers. NEEP suggested that QPIs can help to align the utility business model with state equity and climate policy. For example, NEEP cited LMI performance metrics in Hawaii that measure the delivery of energy savings to LMI customers and participation by LMI customers, as well as QPIs in Massachusetts that are designed to incentivize utilities to weatherize a home within six (6) months of installing heat pumps. NEEP offered its *Centering Metrics with Equity Report* as a resource regarding QPI that could be used in lieu of savings metrics.

Response:

Staff acknowledges that, with the exception of the cost to achieve metric (QPI #6), the other recommended QPIs pertain to lifetime and annual energy savings. Staff appreciates NEEP's comments and looks forward to discussing further QPI options for Triennium 3.-

PERFORMANCE INCENTIVE MECHANISM ("PIM")

Comments:

United supported the overall structure of the proposed PIM, with the deadband of 80–120% and both minimum and maximum values for the adjustments to ROE (i.e., the penalty or reward). United supported the asymmetric design of the incentives versus penalties, where the upside is limited to +50 basis points ("bps"), while the downside is limited to –400 bps, noting that they see limited downside risk associated with this structure based on current targets.

Rate Counsel and NJLEUC argued that the awarding of any performance incentives to the utilities on top of the already generous cost recovery regime permitted by New Jersey law should occur sparingly and be limited to the most exemplary accomplishments.

United argued that performance incentives should reward truly exceptional behavior and stretch goals. United recommended that Staff carefully monitor and track the programs to ensure that implementation does not lead to lower EE achievement than is possible. United stated that, if utilities routinely overachieve on QPIs, this suggests that the targets are too modest and should be adjusted to reward utilities for truly going above and beyond.

Response:

Staff believes that the proposal that utilities start being eligible for a performance incentive above 120% achievement of their performance targets, with an adjustment to ROE increasing linearly up to +50 basis points at 150% achievement, is a reasonable and fair structure for performance incentives.

Staff agrees that stretch goals should have strong incentives but at this point believes that the stated goals are relatively aggressive. Again, performance toward goals will be tracked as the triennium progresses; if goals are achieved routinely, then Staff may reconsider incentives to encourage stronger performance, as Staff believes that early achievements are valuable and needed to attain the objectives outlined by the CEA.

Comments:

NJUA expressed appreciation for review of the PIM and certain aspects but argued that the Board should adopt a more balanced mechanism that does not weight penalties eight (8) times more than incentives and scales at the same rate on both the penalty and incentive sides. SJIU echoed support for this position. NJUA also asserted that it would be inappropriate to consider Rate Counsel's suggestion for a maximum penalty of 0% ROE rather than maintain a floor of -400 basis points given the CEA's clear guidance at N.J.S.A. 48:3-87.9(e)(1) that utilities shall file annual petitions to recover all reasonable and prudent costs incurred as a result of EE and PDR programs required by the CEA, including but not limited to recovery of and on capital investment, and the revenue impact of sales losses resulting from implementation of the programs.

Franklin recommended that Staff and the Board reconsider how financial penalties are levied on utilities under the PIM structure posed in the Straw Proposal. Franklin asserted that the curve of negative ROE adjustments for underachievement is severe and recommended a more gradual downward slope in ROE for performance below 80% QPI.

Rate Counsel stated that, as proposed, utilities would still recover their full investment, plus a return on equity of over 6%, even if they achieve zero savings and make no progress toward any of the other QPI goals, which does not constitute a true penalty for extremely poor performance. Rate Counsel argued that the penalty graph line should continue on the same trajectory as currently proposed to ultimately reach the level of 0% ROE when a utility's performance falls below 20% of the QPI based on the reasoning that a utility should not be allowed to fully recover its investment if the investments in EE are not "used and useful," that less than 20% achievement is highly unlikely and would reflect extremely poor planning and management by a utility, and that even guaranteeing 0% ROE for this level of performance would be generous compared to disallowance of cost recovery.

Response:

Regarding performance penalties, Staff understands and acknowledges the various stakeholders' positions but does not recommend further changes to the PIM as proposed. Staff has attempted to strike a reasonable balance between offering sufficient incentives for high performance while keeping ratepayer impacts in mind, on the one hand, and reasonable penalties for poor performance while keeping in mind the impacts on the utilities of the risk of penalties, on the other hand, along with a wider and evenly applied deadband where no incentive or penalty is applied. The proposed penalty graph line is steeper (and bottoms out more slowly) than the incentive graph line, which is less steep (and caps more quickly). Staff also agrees with Rate Counsel that less than 20% performance is highly unlikely.

Comments:

In the alternative, Rate Counsel recommended that, in the unlikely event that a utility's QPI performance falls below 40%, the utility should make a filing with the Board demonstrating that this poor level of performance was due to circumstances beyond its control and why it should receive recovery of or on its EE investments from ratepayers.

Response:

Staff notes that each utility's annual cost recovery filing will include calculation of any performance incentives that the utility has earned or any penalties that are applicable to the utility, consistent with the performance incentive mechanism adopted by the Board.

Comments:

NJUA and SJIU also argued that utilities should not be penalized in compliance calculations for negative savings generated due to the interactive effects of LED lighting on heating load. The utilities requested that BPU provide clear guidance on this topic.

Response:

Staff suggests that the EM&V Working Group work to resolve this question and discuss reductions in baselines for the gas utilities as a possible solution to this issue.

Comments:

NJUA requested that the term "deemed" savings be removed from Table 2 and replaced with "reported" savings so as to remove any confusion that the savings referenced in the table are different than the savings reported by the utilities.

EEA-NJ noted that the word "deemed" appeared several times throughout the EE3 straw, pointed out that measured, or verified, savings are available for some programs, and suggested that utilities should only get credit for actual rather than deemed savings.

Recurve recommended that the Board consider a transition goal of quantifying each QPI "at the meter" in addition to the deemed results, stating that this will provide valuable information about the actual performance outcomes and more closely align with the CEA.

Response:

Staff appreciates the comments from NJUA, EEA-NJ, and Recurve regarding deemed savings and has made adjustments in its recommendations to the Board to reference verified savings.

Comments:

NJLEUC agreed that incentives should be coupled with appropriate disincentives, with both tied to the utilities' performance in achieving CEA goals. NJLEUC stated that it is unclear why the CEA's electric reduction targets are not being achieved but if the failure is attributable to the nonperformance or underperformance of one or more of the utilities, they should be subject to a meaningful penalty, up to and including forfeiture of a return on their investments and any other relief deemed appropriate by the Board.

Response:

As noted above, State and utility programs must at least meet energy savings goals within five (5) years of implementation, with the fifth program year occurring during Triennium 2. Following the transition of EE programs to the utilities during Triennium 1, those programs have been slowly but steadily ramping up in terms of participation and energy savings. As the programs continue to expand during Triennium 2, Staff anticipates that participation, energy savings, and budgets will likewise steadily increase to meet CEA goals by the fifth program year. The EE3 straw proposes that utilities' return on equity be adjusted linearly between 80% and 20% achievement of their performance targets, down to -400 basis points at 20% or lower achievement.

Comments:

Regarding the ability of the Board to "exercise flexibility" in levying penalties, NJUA supported the proposal. United did not disagree in principle with this proposal but recommended that the Board better define circumstances under which this flexibility may be applied.

Response:

For the purpose of providing additional context, Staff notes that, in Triennium 1, the Board approved similar language that included reference to COVID-19. The language recommended for Triennium 2 is informed by experiences gained through COVID-19 but now refers to

circumstances outside of utility control, such as unforeseeable catastrophic circumstances that constitute force majeure events.

Comments:

NJLEUC reiterated its continuing opposition to rate decoupling that, in its words, would guarantee a utility's earnings at a pre-determined level by automatically adjusting customer rates to immunize utility earnings from fluctuations in sales, whether caused by its EE efforts or otherwise. NJLEUC stated that it was unaware whether rate decoupling has been addressed in connection with the straw proposals in meetings to which NJLEUC was not invited.

Response:

Staff notes that earlier Triennium 2 straw proposals (released March 31 and discussed with stakeholders in April) addressed cost and lost revenue recovery and proposed no change in the Lost Revenue Adjustment Mechanism and Conservation Incentive Program through which utilities may file for recovery of the revenue impact of sales losses resulting from implementation of their EE programs. The Board approved Staff's recommendation to make no change to the Triennium 1 lost revenue treatment approach in Triennium 2.

ENERGY SAVINGS CARRYOVER

Comments:

Rate Counsel recommended that carryovers be allowed in a manner similar to that used for carryovers from Program Year 2024 to Program Year 2025 – that is, carryovers should only be permitted from the immediately preceding program year. Rate Counsel asserted that the language of the CEA does not support cumulative carryovers and Rate Counsel opposed cumulative carryovers since it would create unexpected increases for ratepayers, create unnecessary financial gain for utilities, and sidestep the "carrot" effect of the incentive process as intended under the CEA.

Rate Counsel argued that carryovers should not be permitted to allow utilities extra opportunities to earn incentives but only to offset particularly poor performance where a penalty would otherwise result. EEA-NJ also supported this approach.

Rate Counsel argued that a utility should only have the opportunity at the end of a program year to elect to carry over any savings achieved in excess of 120% of the QPI and present that decision in its annual true-up filing for the relevant program year. Rate Counsel asserted that changes in the company's selection after that time would cause additional administrative burden and confusion with regard to the company's filings and rates.

Rate Counsel argued that a utility should not be permitted to utilize its entire budget in the first two (2) years in order to accumulate credits and then seek additional budget for the third year.

NJUA asserted that it is critical for the Triennium 2 framework to include a carryover savings mechanism and expressed support for the general proposed mechanism because it encourages continuity and availability of EE programs, addresses complexities of coordinated program requirements, and provides the State with a tool to encourage early participation and accelerated adoption of EE benefits. NJUA did not support limiting carryover savings to only be applicable to

penalties and did not object that election of banked savings would not be reversible in subsequent years.

United did not support the banking and carrying over of portfolio savings achievements from one year into the next year because, they argued, it could result in business uncertainty while reducing the incentive that the utilities otherwise have to meet achievable annual savings goals, and works at cross purposes with the PIM and allows for gaming the system. United appreciated Staff's question of whether or not banking should only apply to reducing penalties and argued that, if carryover is allowed, it should only apply to reducing penalties and not to enhancing rewards.

For additional research to inform the BPU's process, United recommended a report from the Analysis Group entitled "Utility Energy Efficiency Program Performance from a Climate Change Perspective." United explained that the authors of this report make the case for why we need to value immediate and early emissions reductions over those that would occur in the future, explaining (and modeling) that a megawatt-hour avoided today contributes significantly more to emission reductions than a megawatt-hour avoided in 10–20 years when the grid is much cleaner. United suggested that this research supports placing shorter-lived measures on an equal footing with longer-lived ones, given the significant benefits that both add to EE portfolios.

Response:

Staff supports energy and demand savings carryovers for the reasons and benefits articulated by the utilities, agrees with Rate Counsel and thanks United for comments pertaining to limitations on carryovers, as well as for the report recommended by United. Specifically, Staff recommends that carryovers be limited to the subsequent program year within the triennium and limited to avoidance of penalties (which may help to mitigate the fact that penalties are more heavily weighted than incentives). Staff also recommends that utilities be allowed to elect to carry over any savings achieved in excess of 100% of the QPI, so as to base carryover on exceedance of their actual QPI rather than 120% of the QPI, as part of their annual true-up filings for the relevant program year and that that election not be reversible.

Comments:

RECO pointed out that, according to the Triennium 1 carryover savings mechanism, carryover savings applied to Program Year 2025 ("PY2025") is limited to no more than 10% of a utility's PY2025 annual compliance goal based on the savings calculation using the primary metric for PY2025. RECO recommended that the 10% limit should not include energy savings achieved by a utility's partner acting as the lead utility on projects and that the Board set no formal limit on the amount of lead utility project savings that a partner utility can carryover from one year to the next.

Response:

For Triennium 2, Staff recommends a 10% carryover threshold comparable to the approach approved in Triennium 1. Staff also suggests that the EM&V Working Group discuss and resolve how to address carryover savings that are shared by overlapping utilities.

In the Matter of the Implementation of P.L. 2018, c. 17, the New Jersey Clean Energy Act of 2018, Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, Docket No. QO19010040

In the Matter of the Implementation of P.L. 2018, c. 17, the New Jersey Clean Energy Act of 2018, Regarding the Second Triennium of Energy Efficiency and Peak Demand Reduction Programs, Docket No. QO23030150

In the Matter of Electric Public Utilities and Gas Public Utilities Offering Energy Efficiency and Conservation Programs, Investing in Class I Renewable Energy Resources and Offering Class I Renewable Energy Programs in Their Respective Service Territories on a Regulated Basis Pursuant to N.J.S.A. 48:3-98.1 and N.J.S.A. 48:3-87.9 – Minimum Filing Requirements, Docket No. QO17091004

LIST OF COMMENTERS

Advanced Energy United ("United")
Aeroseal
CMC Energy Services ("CMC")
Dandelion
Diversified Energy Specialists on behalf of Fuel Merchants Association of New Jersey and New Jersey Propane Gas Association ("FMANJ/NJPGA")
DNV
Energy Efficiency Alliance of New Jersey ("EEA-NJ")
Environment New Jersey ("Environment NJ")
Eric DeGesero on behalf of Fuel Merchants Association of New Jersey ("FMANJ")
FuelCell Energy ("FuelCell")
ICF
Jeffrey Grant ("Mr. Grant")
MaGrann Associates ("MaGrann")
Michael Winka ("Mr. Winka")
Mitsubishi Electric Trane HVAC US ("METUS")
Natural Resources Defense Council ("NRDC")
Natural Resources Defense Council, Environment New Jersey, New Jersey Conservation Foundation, Environmental Defense Fund, New Jersey League of Conservation Voters ("NGO Commenters")
New Jersey 50x30 Building Electrification Team ("BET")
New Jersey Air Conditioning Contractors Association ("NJACCA")[1]
New Jersey Business & Industry Association ("NJBIA")
New Jersey Division of Rate Counsel ("Rate Counsel")
New Jersey Large Energy Users Coalition ("NJLEUC")
New Jersey League of Conservation Voters ("NJLCV")
New Jersey Natural Gas Company ("NJNG")
New Jersey Utilities Association ("NJUA")
Northeast Energy Efficiency Partnerships ("NEEP")
Princeton Air Conditioning Inc. ("Princeton Air")
Public Service Electric and Gas Company ("PSE&G")

[1] Bovio Rubino Service submitted comments identical to those of NJACCA, so these are treated as one set of comments from NJACCA.

Recurve
Rewiring America
Rockland Electric Company (“RECO”)
SJI Utilities (“SJIU”)
Steve & Pat Miller (“The Millers”)
TRC[2]
Uplight
WaterFurnace International (“WaterFurnace”)

[2] Staff’s understanding is that TRC commented in its role as program implementer for PSE&G.

GENERAL COMMENTS 4
LEGISLATIVE AUTHORITY 5
TIMELINE 8
ELECTRIC GRID IMPACTS 9
BUDGET 12
TARGETS 14
PROGRAM DESIGN 15
ALIGNMENT OF BD PROGRAMS WITH EE PROGRAMS AND FEDERAL REBATES 17
SECTOR PRIORITIES 18
AFFORDABILITY 20
BILL SAVINGS/ IMPACTS REQUIREMENT 22
CUSTOMER EDUCATION 22
NATURAL GAS EQUIPMENT INCENTIVES 23
HYBRID SYSTEMS/PARTIAL VS. FULL LOAD 23
TECHNOLOGIES 26
NATURAL GAS TO ELECTRIC HEAT PUMP CONVERSIONS 26
GEOTHERMAL 27
ENERGY SAVINGS ACCOUNTING 27
SITE TO SOURCE ENERGY 28
COST TEST 30
WEATHERIZATION 32
REPORTING 32
NATURAL GAS DISTRIBUTION AND LEAKAGE 33
RESEARCH AREAS 33
STAKEHOLDER ENGAGEMENT 34
MISCELLANEOUS 35

GENERAL COMMENTS

Comments:

Aeroseal, NJLCV, NRDC, TRC, United, and Uplight supported the Building Decarbonization Start-up programs ("BD Programs") overall. For example, Aeroseal supported proposals to launch BD Programs aimed at market transformation of building electrification, and United expressed support for the goals articulated in the BD Programs, commenting that the list is comprehensive and achievement across the range of goals would represent important progress.

NJBIA asserted that the straw proposal failed to adequately address the issue of cost and requested a comprehensive cost impact assessment of the proposed clean energy and BD Programs proposed by the BPU.

NJNG cautioned that importing policies, programs, and insights from other states may not be in the best interest of New Jersey and utility customers without reflecting New Jersey's unique characteristics. NJNG emphasized the importance of understanding significant differences in underlying circumstances among the states in order to make sound policy decisions, including the number of customers currently served by each fuel type, the difference in cost profiles between those fuels, the state of the natural gas infrastructure, the readiness of the electric grid and their local electric distribution systems, the emissions profile of energy grids, whether there are constrained energy markets, and customer and contractor interest.

FMANJ/NJPGA asserted that "'Electrify everything only' is not customer choice," characterized the BD Programs as "Gov. Murphy's unilateral decree taking away gas stoves and all furnaces," and argued that the BD Programs are a "mandate" to "give the monopoly electric company carte blanche to take our gas stoves and furnaces, kill free-market entrepreneurs, and take away choice from 9.2 million residents." FMANJ/NJPGA also noted that the case of *California Restaurant Association v. City of Berkeley* prohibits this type of regulation of fossil fuels.

FMANJ also questioned the BD Programs straw proposal's statement that space heating equipment lasts between 15–20 years, noting that many field studies of cold climate air source heat pumps have shown that they have lifetimes of 8–10 years.

Mr. Grant made a comment on how benchmarking would achieve BD goals.

CMC submitted comments in support of allowing the utilities to administer the Comfort Partners program, citing benefits of enhancing program efficiency, enabling customers to maximize energy savings, avoiding market confusion, promoting coordination among energy efficiency ("EE") offerings, and stretching available funding to serve more customers in need.

Response:

Staff appreciates all comments submitted. Staff agrees with NJNG that what other states have done or are doing may not be directly and wholly applicable to New Jersey's unique circumstances but believes that there is merit in seeking to understand best practices and lessons learned in other jurisdictions that will benefit New Jersey. In response to NJBIA's comment, Staff suggests that Staff's more specific responses on the topics of electric grid impacts and affordability below may address part of the question. In addition to cost-effectiveness considerations, Staff also notes the importance of considering net benefits along with net costs in evaluating the impacts of programs.

Staff disagrees with FMANJ/NJPGA that the recommended BD Programs amount to a mandate to take gas stoves and furnaces from New Jersey residents. Quite to the contrary, the BD Programs include no mandates of any kind; the utilities would only offer programs to which New Jersey residents could apply to receive financial incentives if they are interested in voluntarily switching from fossil-fueled equipment to electric equipment. In contrast to the cited court case, which pertained to a local ordinance that required all-electric construction of new buildings, the BD Programs include no bans or requirements for all-electric measures; again, the BD Programs would only encourage electric measures through incentives.

In terms of air source heat pump lifespans, Staff notes, for example, that the U.S. Department of Energy indicates that the average residential air source heat pump life span is 15 years.[3]

Staff thanks CMC for their comments on Comfort Partners and notes that the Board provided guidance for utility proposals regarding Comfort Partners as part of its May 24, 2023 order.

LEGISLATIVE AUTHORITY

Comments:

PSE&G expressed their alignment with Staff's recommendation to include the BD Programs within the larger EE framework. PSE&G asserted that decarbonization is simply a different framing of EE, taking into account the emission reduction benefits of lower energy use, so it makes sense to include it in the EE framework, and PSE&G believes it is consistent with the intent and goals of the New Jersey Clean Energy Act of 2018 ("CEA").

NJBIA stated that, although the BPU may wish to use its authority under the CEA to compel EE, it does not have the authority to compel utilities to design rate structures and incentive programs in the implementation of an electrification program. NJBIA asserted that the Global Warming Response Act ("GWRA"), New Jersey Energy Master Plan ("EMP"), and the Governor's Executive Orders do not create or expand the BPU's authority. NJLEUC also argued that the BPU lacks the legislative authorization to implement the BD Programs and that the CEA, Regional Greenhouse Gas Initiative Act ("RGGI Act"), GWRA, EMP, and the Governor's Executive Orders do not afford the Board the necessary authority or expand its jurisdiction to accommodate environmental initiative. FMANJ/NJPGA also questioned BPU's legislative authority for the BD Programs.

Similarly, Rate Counsel argued that the Board's authority, granted by New Jersey statute, does not reach the regulation of CO_2 emissions and that the programs proposed in the BD Programs straw proposal are in direct contravention to the CEA because of potential increased electricity usage, which would increase electric load and may require future upgrades to the electric grid infrastructure. Rate Counsel also argued that the RGGI Act does not address emissions and limits BPU's authority to energy use reduction. Rate Counsel posited that the Board's authority concerning GHG emissions is limited to the context of setting specific portfolio standards for electric distribution companies ("EDCs"). Rate Counsel stated that the cost of emissions reduction should not be borne by utility ratepayers.

[3] See U.S. Department of Energy, "Purchasing Energy-Efficient Residential Air-Source Heat Pumps," https://www.energy.gov/femp/purchasing-energy-efficient-residential-air-source-heat-pumps

Rate Counsel asserted that the Legislature explicitly grants jurisdiction over the reduction of CO_2 emissions to the New Jersey Department of Environmental Protection ("DEP") and noted that the BD Programs straw proposal did not state that it was developed in consultation with DEP.

Response:

The BD Programs will track GHG emissions to evaluate program impacts, but the programs will not be setting any express GHG emission reduction targets or objectives. The statutory authorities noted below allow the Board the ability to measure environmental benefits of conservation programs so long as the program is aimed at the conservation of energy.

Starting with the opening section of the CEA that requires the establishment of EE and PDR programs to reduce energy usage, the statute calls for "each electric public utility and gas public utility to reduce the use of electricity, or natural gas, as appropriate, within its territory, by its customers, below what would have otherwise been used." N.J.S.A. 48:3-87.9(a). Further, the CEA explains that the quantitative performance indicators ("QPIs") "shall establish reasonably achievable targets for energy usage reductions and peak demand reductions and take into account the public utility's energy efficiency measures and other non-utility energy efficiency measures including measures to support the development and implementation of building code changes, appliance efficiency standards, the Clean Energy program, and any other State-sponsored energy efficiency or peak reduction programs." N.J.S.A. 48:3-87.9(c). Staff believes that this language in the CEA contemplates that an EE program can have the purpose of conserving energy as well as making the use of electricity and gas more efficient.

Similar to the CEA, the RGGI Act also provides authority for the Board's regulation of utility efficiency and conservation programs. The RGGI Act states that "an electric public utility or a gas public utility may provide and invest in energy efficiency and conservation programs in its respective service territory on a regulated basis pursuant to this section" and defines EE and conservation programs as "any regulated program, including customer and community education and outreach, approved by the board pursuant to this section for the purpose of conserving energy or making the use of electricity or natural gas more efficient by New Jersey consumers." N.J.S.A. 48:3-98.1(d).

Finally, N.J.S.A. 52:27F-11 provides the BPU with various authorities, including the "authority to conduct and supervise research projects and programs for the purpose of increasing the efficiency of energy use, developing new sources of energy, evaluating energy conservation measures, and meeting other goals consistent with the intent of this act." N.J.S.A. 52:27F-11(j).

With respect to environmental considerations, the CEA additionally states, "The energy efficiency programs and peak demand reduction programs shall have a benefit-to-cost ratio greater than or equal to 1.0 at the portfolio level, considering both economic and environmental factors, and shall be subject to review during the stakeholder process established by the board pursuant to subsection f. of this section." The RGGI Act also states that the Board can consider a utility program's "environmental benefits" when a petition for cost recovery is made. N.J.S.A. 48:3-98.1(b). Staff thus maintains that the CEA and RGGI Act provide the authority to the BPU to *account* for the environmental costs and benefits of the EE programs, and the New Jersey Cost Test ("NJCT") accounts for the benefits of reduced carbon and other GHG emissions that result from the programs.

Staff believes that it is within the BPU's authority – based on the CEA, RGGI Act, and N.J.S.A. 52:27F-11 – to establish BD Programs whose primary objectives are efficiency and conservation,

with conservation constituting reductions in overall electricity or natural gas usage below what would have otherwise been used. Staff believes that the BD Programs as recommended are consistent with the overall purpose and intent of the CEA, which is to reduce energy consumption throughout the state; consistent with the purpose and intent of the RGGI Act, which is to conserve energy or make the use of electricity or natural gas more efficient by New Jersey consumers; and consistent with N.J.S.A. 52:27F-11.

Regarding efficiency, the BD Programs would offer financial incentives (not mandates) for New Jersey consumers currently using fossil-fueled equipment to voluntarily adopt more efficient electric equipment. The BD Programs would prioritize customer incentives for electric space and water heating equipment; electric heat pumps are 200–400% efficient (meaning that they deliver two to four times as much energy in the form of heat than the electrical energy that they consume), while fossil-fueled furnaces and boilers have maximum efficiencies below 100%.[4] The BD Programs may also offer incentives for highly efficient electric heat pump technology that is available for cooling and clothes drying, as well as electric induction technology, which is an alternative to cook tops that uses dramatically less energy.

Regarding conservation, the BD Programs would be designed to ensure that all projects result in net source energy savings on a fuel-neutral MMBtu basis and would track and evaluate projects and measures for net source energy savings on an MMBtu basis by fuel type.[5] Moreover, Staff notes that, as with EE Programs, energy savings from BD Programs will increase over time as the electric grid gets cleaner and electricity production becomes more efficient. In addition, the BD Programs would focus on supporting participation by low- and moderate-income ("LMI") and multifamily customers who are not eligible for Comfort Partners, and energy savings will have a relatively more significant beneficial impact on reducing these customers' energy burdens compared to higher income customers.

Regarding New Jersey consumers currently using fossil-fueled equipment who voluntarily choose to convert to electric equipment, Staff notes that the BD Programs would offer financial incentives to these consumers – as existing electric public utility customers – to adopt more efficient equipment and use less energy than what they otherwise would have used as part of this fuel-switching. Staff therefore asserts that the BD Programs are consistent with the Board's statutory authority and its call to conserve energy and make the use of electricity or natural gas by utility customers more efficient below what would have otherwise been used. When consumers currently using fossil-fueled equipment voluntarily choose to convert to electric equipment, their energy consumption on an electricity-only basis will increase but their overall energy consumption across fuels will decrease. Staff believes that it is within the BPU's authority to establish BD Programs that will reduce overall energy usage by New Jersey consumers. Staff also anticipates that fuel switching delivered fuels customers to electricity, in particular, will result in cost savings to these customers based on current fuel costs and the efficiency of measures incentivized by the BD Programs.

---

[4] See, for example, U.S. Department of Energy, "Energy Saver 101 Infographic: Home Heating" (Mar. 2, 2023), energy.gov/energysaver/articles/energy-saver-101-infographic-home-heating; and MIT Technology Review, MIT Technology Review Explains, "Everything you need to know about the wild world of heat pumps" (Feb. 14, 2023), https://www.technologyreview.com/2023/02/14/1068582/everything-you-need-to-know-about-heat-pumps/

[5] Initial analysis performed by DNV, one of BPU's consultants, illustrates that electric HPs represent a credible source energy reduction technology compared to fossil fuel heating technologies. Staff will plan to review and discuss this analysis with the Evaluation, Measurement, and Verification ("EM&V") Working Group and then share it with public stakeholders through upcoming monthly EE stakeholder meetings.

Staff also notes that, in calling for the Board to establish QPIs that ensure that public utilities' incentives or penalties are based upon performance, the CEA takes into account the growth in the use of electric vehicles ("EVs"), microgrids, and distributed energy resources ("DER"). Staff suggests that building electrification, especially strategic or beneficial electrification, is analogous to EVs, microgrids, and DER as clean energy policy initiatives that increase electricity consumption to achieve net economic, environmental, and social benefits.

Regarding GHG emissions, Staff posits that, while not all decarbonization is based on efficiency or conservation, advancing efficiency and conservation through the BD Programs will also reduce emissions. BPU would not regulate emissions through the BD Programs; the BD Programs would not set any targets or objectives for emissions. In addition to tracking and evaluating projects and measures for net source energy usage reductions by fuel type, the BD Programs would also track and evaluate projects and measures for net source carbon dioxide equivalent ("CO_2e") reductions by fuel type. In other words, the BD Programs would use both source energy and source CO_2e emissions as "metrics" that provide data about outcomes of the start-up programs that Staff believes will be helpful in designing full-fledged BD Programs in Triennium 3. Staff believes that the CEA and the RGGI Act provide sufficient authority for the Board to use emissions reductions as a program metric, so long as the BD Programs are primarily aimed at efficiency and conservation. Staff asserts that they are not recommending metrics equivalent to either performance targets with consequences for achievement/non-achievement or requirements related to emissions that would constitute regulation of emissions.

As with other clean energy initiatives, the BD Programs are designed to offer financial incentives that drive transformation of markets as part of the transition to a self-sustaining, inclusive clean energy economy. Transformation of the built environment is a multi-agency effort. The BPU is leading this effort and is part of the multiagency Clean Buildings Working Group that is coordinating among State agencies, including the DEP, to develop a statewide roadmap.

TIMELINE

Comments:

Dandelion cited inconsistent projections between the proposed electric grid decarbonization timeline and New Jersey's energy policy (100% clean energy by 2035 established by EO 315). Dandelion noted that the NJCT and BD Programs straw proposal use projections which only achieve a 50% reduction by 2050. Dandelion suggested that the BPU update the emission reduction profile to match New Jersey's energy policy.

Response:

100% clean energy by 2035 is a recent target set by EO 315 in February 2023. As incorporated into the Triennium 2 NJCT, emissions reductions from electricity generation of 50% by 2050 aligns with the rate of CO_2 reductions estimated in the 2023 U.S. Energy Information Agency ("EIA") Annual Energy Outlook for the mid-Atlantic region. Staff also provides more detailed responses related to this topic in the "Site to Source Energy" section below.

ELECTRIC GRID IMPACTS

Comments:

NJBIA expressed hesitation about the plan for 100% building electrification on the basis of inadequate electricity transmission and generation systems, the existence of other less costly and potentially more efficient options, and that electrification may result in more carbon emissions in the short term.

Regarding electric grid capacity and costs, NJNG asserted that it is critical for the State to understand the full impacts of the increased load on the electric distribution system, including the need for significant investment in local distribution systems' infrastructure to meet increased load from electric vehicles and a new winter peak. FMANJ similarly stated that BPU should consider the added grid load when making assumptions about the carbon intensity of electricity over time and the effects of conversions to cold climate air source heat pumps on added winter peak demand. NJLEUC also expressed concern that electrification will significantly increase the state's electric load and shift current summer peak loads to winter months. MaGrann urged the BPU to consider the implications of heating cost shifts. As noted above, in connection with its comments on legal authority, Rate Counsel similarly noted that increased electricity consumption could increase the need for electric grid development, including associated costs.

NJNG questioned studies, including the New Jersey Energy Master Plan Ratepayer Impact Study, that start with an aggressive assumption about customer interest in migrating away from the use of the natural gas system and thereby lead to unrealistic projections about natural gas costs without appearing to consider the necessity of additional electric distribution system infrastructure and its estimated costs due to increasing load. Similarly, SJIU asserted that changes in future electric and natural gas costs be considered, with electricity prices projected to increase at more than twice the pace of natural gas prices in the Mid-Atlantic region.

NJNG stated that New Jersey must consider the need for where such infrastructure could and would be sited and the reasonable pace at which these investments could be made alongside the State's goals for increased electric load vis-à-vis electric vehicles and electric heat pumps ("HPs").

Regarding emissions, SJIU suggested that electrification stands to increase overall emissions due to continued use of fossil-fueled generation. NJNG similarly emphasized that electrification does not mean emissions free or emission reduction because fossil fuels currently generate energy used for current electric load and will be relied on for years to come to meet increasing needs for electric capacity, including imported energy that increases regional airshed emissions. FMANJ/NJPGA also suggested that it is a dream to have an electric generation mix that is primarily renewable because PJM Interconnection, L.L.C. ("PJM") is currently 48% gas, 32% nuclear, 12% coal, 3% wind, and 2% solar.

Response:

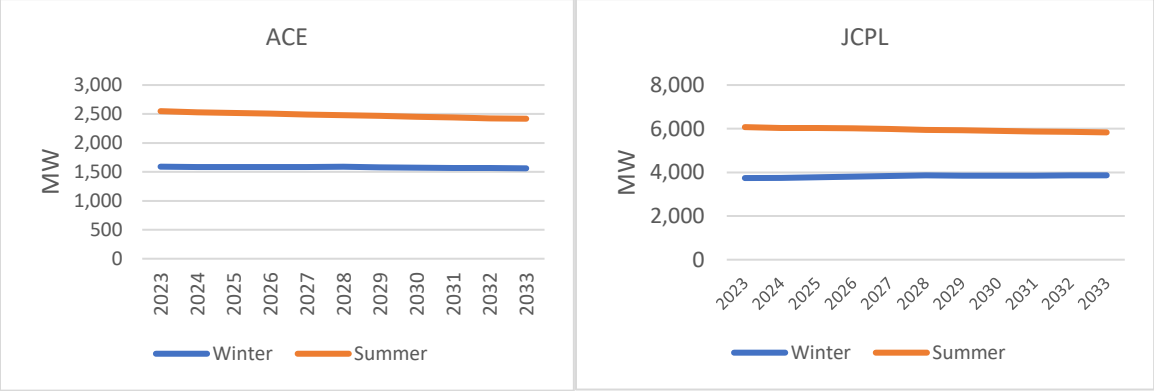
Staff appreciates stakeholders' comments and agrees that impacts on the electric grid, including needs for and costs of infrastructure upgrades, are important considerations as New Jersey charts its transition to 100% clean energy by 2035 and 80% reductions in emissions below 2006 levels by 2050. Staff's suggests that the recommended approach to BD start-up programs recognizes the need to ramp up deployment of electrification readiness and electrification measures between

2024 and 2027 gradually enough to not suddenly overload the grid but also steadily enough to position New Jersey to achieve Executive Order No. 316 ("EO 316") goals.[6]

Staff also provides the following information that pertains to impacts on the grid from increasing electricity demand. The January 2023 PJM Load Forecast Report includes the following estimates for the PJM Regional Transmission Organization ("RTO"):[7]

Year	Summer Peak	Winter Peak	PJM RTO Total Energy
2023	149,059 MW	130,812 MW	788,050 GWh
2033	160,971 MW	144,992 MW	909,622 GWh
2038	167,567 MW	150,555 MW	960,428 GWh

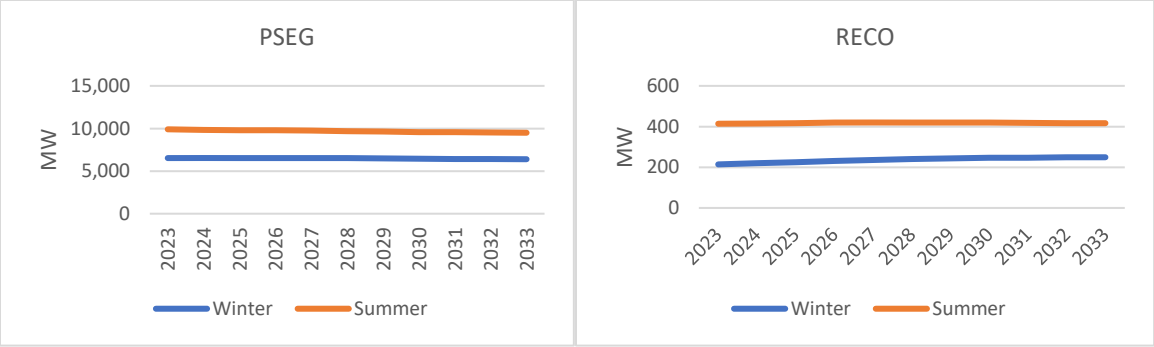
PJM's MW values of summer peak load (June through August) and winter peak load (December through February) between 2023 – 2033 for each PJM Mid-Atlantic utility forecast that summer peak loads are predicted to remain higher than winter peak loads for all New Jersey EDCs between 2023 and 2033, as depicted in these graphs.[8]



[6] Exec. Order No. 316 (Feb. 15, 2023), 55 N.J.R. 510(a) (Mar. 20, 2023), ¶ 17, available at https://nj.gov/infobank/eo/056murphy/pdf/EO-316.pdf.

[7] "2023 Long-Term Load Forecast Predicts Growth Fueled by Data Centers," https://insidelines.pjm.com/2023-long-term-load-forecast-predicts-growth-fueled-by-data-centers/#:~:text=PJM%E2%80%99s%20long-term%20load%20forecast%20predicts%20estimated%20load%20growth,a%20chief%20driver%20of%20this%20increased%20energy%20use.

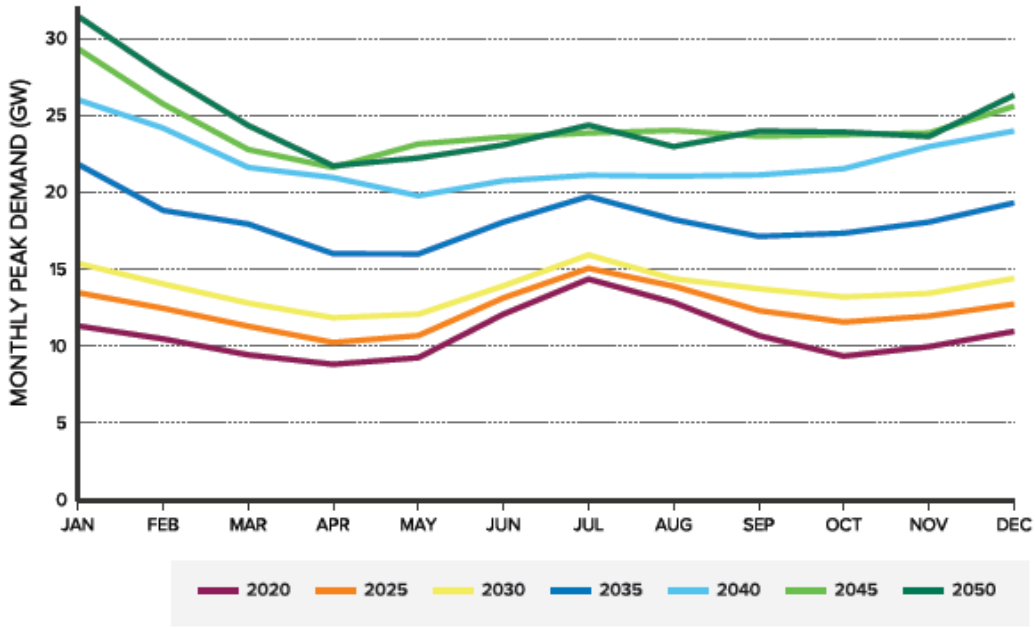
[8] PJM Load Forecast Report (Jan. 2023), https://www.pjm.com/-/media/library/reports-notices/load-forecast/2023-load-report.ashx, Table B-1 at 33 and Table B-2 at 37.



As a point of comparison, energy system modeling of cost-effective achievement of 100% clean energy by 2050 in New Jersey that was conducted for the EMP estimated that, in the Least Cost Scenario, between 2020 and 2050, total energy demand will decrease due to efficiency and electrification, while electrification of the building and transportation sectors will increase total electricity demand and shift peak demand to winter months.[9] As depicted in the figure below from the EMP, the modeling forecasted that the shift to a higher winter peak relative to the summer peak would begin after 2030.[10]

FIGURE I.

Changes to monthly electricity demand in the Least Cost scenario



Staff suggests that this modeling is relevant because, even though New Jersey has since set the 100% clean energy goal to 2035 rather than 2050, the Least Cost Scenario assumes ambitious

[9] EMP, Integrated Energy Plan, at 260–261, available at https://nj.gov/emp/docs/pdf/2020_NJBPU_EMP.pdf.

[10] Id., Figure I, at 261.

levels of building electrification (e.g., 76% electrification of commercial space heating and 79% electrification of residential space heating by 2030) compared to current goals for 2030.[11]

Under either of these scenarios – one (1) at the PJM RTO level that estimates that summer peak loads will remain higher than winter peak loads for the duration of 2023 – 2033, as well as one at the New Jersey level that accounts for the state's clean energy policy goals – winter peak loads will not exceed summer peak loads until after 2030. Staff thus believes that it is reasonable to anticipate that the BD Programs will not impact the grid's ability to meet peak loads in the near term, especially if increased winter peak loads do not exceed summer peak loads within Triennium 2.

Regarding questions about realistic projections of fuel costs, Staff notes that the assumptions about future fuel costs in the New Jersey Energy Master Plan Ratepayer Impact Study included several adoption scenarios related to New Jersey's then-100% clean future by 2050 timeline, and necessarily built off of that timeline. Staff also notes that New Jersey's plan to have 100% of New Jersey's energy demand supplied by clean energy by 2035, if successful, will include advancing EE to reduce the amount of clean energy that is needed, thereby lowering costs and ensuring that there is enough to power all of our needs, while the electric grid is powered by increasingly cleaner sources of energy.

The start-up nature of the BD Programs allows for observing data across seasonal cycles to determine summer and winter peak loads, to inform the full-fledged BD Programs in the next Triennium.

BUDGET

Comments:

DNV questioned if $50 million per year was aligned with the EO 316 targets. BET highlighted that the budget of $150 million seemed low. Dandelion asserted that the BD budget should be a larger proportion of overall EE portfolio budgets and noted that New York's BD budget is $450 million per year and an equivalent BD budget in New Jersey would be $200 million per year. RECO suggested that the BD Program budgets would need to be increased from $50 million per year if utilities include offerings for large campus-style beneficial electrification projects. NRDC in their oral comments recommended that BD Programs budgets should be higher than proposed in order to achieve the State's 2030 electrification goals and that the Board should consider a more robust mid-program review to adjust the BD Programs mid-cycle.

PSE&G estimated that, within a $150 million budget over the three (3) years of Triennium 2, if the utilities provided $10,000 per home to electrify, 5,000 conversions would occur in each of those three (3) years. According to PSE&G, to achieve the 400,000 dwelling units targeted in EO 316 would require 120,000 conversions per year in Triennium 3. PSE&G argued that this step function in conversions is not a reasonable expectation and does not set a sound foundation toward achieving the 2030 goal. PSE&G also argued that, for each missed opportunity in the first three (3) years of the BD Programs in which customers replacing their heating, ventilation, and air conditioning equipment choose the status quo, there will be another approximately 15 years

[11] New Jersey 2019 Integrated Energy Plan Technical Appendix (2019), Table 5 at 33, 38, *available at* https://www.nj.gov/emp/pdf/New_Jersey_2019_IEP_Technical_Appendix.pdf. By comparison, Staff's understanding is that EO 316's targets for electric space heating, cooling, and water heating in residential and commercial buildings represent about 10% of those sectors.

before that equipment comes due again for replacement. In conclusion, PSE&G recommended that the Board consider a much larger BD Programs budget in Triennium 2 so that the utilities can more appropriately ramp up their programs.

PSE&G also requested clarity from the Board on what the BD Programs budget should represent and recommended that it should cover incentives only and that utilities should be allowed to supplement that budget with on-bill or third-party financing to cover the portion of the cost borne by the customer.

Rewiring America also offered a detailed analysis to support their recommendation to fund the BD Programs at $150 million a year to match the pace needed to achieve EO 316 goals. Rewiring America estimated that achievement of EO 316 goals equates to 300,000 households heating with heat pumps and 80,000 heat pump sales by 2025, 1 million households heating with electric HPs and 200,000 heat pump sales by 2030, 100% of space heating sales being electric HPs by 2035, and 100% electrified space heating by 2050. In terms of Triennium 2, Rewiring America estimated that, compared to the estimated 10,000 heat pump sales in 2020, there should be an average of 57,000 heat pump sales every year between 2024 and 2030 [about six (6) times higher than 2020], or around 171,000 sales in 2027 at the end of Triennium 2. As part of its analysis, Rewiring America concluded that the BD Programs would have a sliding scale of programs that advance equitable electrification if middle-income households leverage the Inflation Reduction Act ("IRA") tax credit and low-income households leverage IRA rebates. Rewiring America estimated that investing $150 million per year through the BD Programs would result in an additional 18,400 LMI New Jersey households on delivered fuels being able to adopt electrified space heating by 2030, putting New Jersey on track to achieve 100% electric space heating by 2050.

Rate Counsel stated that the Board has not indicated how the proposed budget would be allocated across utilities.

Response:

Given that the goal-setting study projected utility EE budgets of approximately $1.2 billion, $1.5 billion, and $1.6 billion for Program Year 4 ("PY4") (2024–2025), Program Year 5 ("PY5") (2025–2026), and Program Year 6 ("PY6") (2026–2027), respectively, statewide (not including State programs) in the full compliance scenario, the originally proposed BD Programs budget of $150 million statewide over three (3) years would represent approximately 4.2%, 3.3%, and 3.1% for PY4, PY, and PY6, respectively.

Staff appreciates all of the comments, including the detailed New Jersey-specific analysis from Rewiring America and PSE&G's comments recommending a reasonable ramp-up of programs between Triennium 2 and Triennium 3. In light of stakeholders' comments concerning the ability to achieve EO 316 goals, Staff recommends a more robust budget for BD Programs statewide that increases annually and reaches approximately $144 million in the third year of Triennium 2 to better align with achievement of EO 316 goals while also taking into account the effects of complementary IRA tax credits and rebates. Staff therefore recommends that each EDC should – and each GDC may – propose its BD Program to scale to EO 316 goals with a budget maximum of approximately 7%, 8%, and 9% of the utility's EE budgets for PY4, PY5, and PY6, respectively. If based on the estimated utility EE budgets in the goal-setting study, BD Program budgets statewide would be approximately $84 million, $120 million, and $144 million, respectively. Staff also notes, however, that these are estimated budgets and the utilities will propose overall EE budgets, including BD Program budgets, for consideration by the Board.

In response to PSE&G's request for additional guidance on BD Program budgets, Staff believes that BD Programs budgets should include all projected program expenditures for the program, consistent with Board-approved Triennium 1 plans, but recommends that the utilities be allowed to propose BD Programs and budgets designed to scale to achieve EO 316 goals with program budgets up to approximately 7%, 8%, and 9% of EE portfolio budgets in the three years of Triennium 2. Staff also notes that IRA electrification rebates should stack with utility incentives and thereby moderate customer demand for financing.

TARGETS

Comments:

NGO Commenters disagreed with Staff's decision to not propose electrification or GHG reduction targets for the Triennium 2 programs and recommended that the Board set market transformation goals for the BD Programs. NGO Commenters also recommended that the Board set GHG reduction cumulative targets and electrification conversion targets for each unregulated utility, considering the six-year time frame to meet the State's climate goals.

BET suggested the immediate establishment of a goal to convert number of dwellings per year starting in 2024 by installing cold climate HPs towards 2030 goals and stronger incentives for New Jersey building electrification inclusive of cold climate HP and building weatherization. BET also suggested establishing a Building Electrification Roadmap with specific timelines and annual objectives, a zero-energy building code collaborative, and alignment of the proposal with 100% clean energy by 2035 required by EO 315.

Mr. Winka suggested that the BD Programs set an annual goal of electrifying 57,000 residential dwellings, of which 5,700 should be low-income customers and 2,900 be commercial spaces/public facilities, adding that the Comfort Partners program should have a goal of 100% building electrification.

Rate Counsel noted that the BD straw proposal did not specify what percent of the program will be targeted for LMI participants.

NEEP suggested that BPU establish market transformation goals for the program, which would include different metrics for goals than energy savings. NEEP used California's recent segmentation of its EE portfolio as an example.

Response:

As start-up programs, the intent of the BD Programs is to seek program proposals from utilities which will include estimated outcomes for the multiple metrics articulated in the BD framework that align with EO 316 goals. Staff also notes that multiple stakeholders provided analyses of annual HP adoption needed to achieve EO 316 goals that may be informative to the utilities as they develop their estimated outcomes and to Staff and stakeholders as part of the review of the filings. These estimates will be reviewed by the Board prior to launch of the BD Programs and may include but not be limited to estimates of cold climate HPs installed and dwellings electrified or made electrification-ready. As noted above, Staff intends for these metrics to provide data about outcomes of the start-up programs. Staff expects that the experience gained from the Triennium 2 BD Programs' metrics will inform development of full-fledged BD Programs in the next triennium that, Staff believes, will spur higher adoption of BD measures.

PROGRAM DESIGN

Comments:

ICF asserted that the utilities are best positioned to incorporate BD programs in their portfolios, citing advantages such as established contractor and marketing networks, and the same contractors doing both EE and BD jobs.

NGO Commenters suggested that the BD Programs provide an energy audit as a free or nominally priced first step of the program. NGO Commenters also noted that, while bill-impacts are not required for market-rate participation in the program, it will be important to collect, publicly report, and model bill savings by utility territory.

NEEP suggested a program design that includes a free energy audit, as part of NEEP's larger recommendation for BPU to encourage customers to fully replace their systems and weatherize their homes without mandates.

United noted that, at a minimum, energy assessments to identify EE improvements should be required prior to eligibility for BD incentives but also suggested that care should be taken to ensure that this does not erect barriers, particularly for low-income individuals and building owners, to participating in BD Programs.

Rewiring America recommended the following as part of an alignment of BD Programs with EE Programs: 1) offering a simple equipment swap-out pathway and a more comprehensive pathway that includes weatherization; 2) offering incentives to reduce energy consumption by fuel (e.g., weatherization measures, appliance incentives for converting from electric resistance to electric HPs) through EE Programs in a way that is clear and simple for contractors and customers to navigate; 3) offering a single intake with simplified application requirements; 4) utility criteria to determine whether customers are good candidates for electrification (e.g., age of equipment, decision event, health and safety, envelope efficiency) and process for marketing and coordinating BD incentives if so; and configuration of utility programs to record customer data for future marketing efforts for electrification and help customers plan their electrification journey; and 5) requiring training for contractors to ensure that they have the tools and training to effectively promote the BD Programs and to effectively size and install BD measures.

Regarding program pathways, RECO recommended that BD Programs design include prescriptive and custom pathways. The prescriptive pathway would have a faster turnaround time by not requiring pre-approval, use a standard savings calculation algorithm to be featured in the Technical Reference Manual ("TRM"), and feature enhanced incentives when opting to decommission an existing fossil-fuel heating system or install integrated controls. The custom pathway would apply to comprehensive projects that are also performing weatherization upgrades or to commercial projects installing larger systems. These projects would require pre-approval and feature a $/MMBtu incentive that may be based on a customized savings calculation algorithm and supported by measurement and verification.

With respect to program measures and incentives, the Millers suggested that incentives for electrification be set to the level of surrounding states with successful electrification programs. WaterFurnace suggested that BPU should heavily promote HPs in all programs to achieve State goals, with more generous incentives for new construction and retrofit and incentives should be per capacity rather than per unit. Mr. Winka supported incentivizing electric boilers. METUS

asserted that HPs that use variable capacity compressor technology should serve as a main feature of the BD Programs to deliver superior energy cost savings for consumers and enable significantly reduced carbon emissions. METUS recommended that the Board encourage efficient deployment of technologies to optimize emissions and household cost savings by keeping with the program specification of requiring ENERGY STAR products. Rewiring America recommended that the Board adopt the mid-tier ENERGY STAR cold climate certification for HPs as the minimum equipment performance specification for the BD Programs. Rewiring America noted that the highest-tier Consortium for Energy Efficiency ("CEE") standard is required to qualify for the IRA 25C tax credit for heat pumps and heat pump water heaters, so contractors should direct households with sufficient tax liability to qualify for the 25C tax credit to heat pumps that meet the CEE certification.

Regarding a single intake, METUS provided multiple specific recommendations in support of maximizing easy, streamlined processes for all key stakeholders, including through a robust but simple rebate structure and system that is easily understood and used by contractors and customers alike. Environment NJ also stated that is important to have a one-stop shop for residential customers. NGO Commenters suggested that the BD Programs require a single program entry point. United supported Staff's position that integrating the BD Programs into the EE Programs needs to be simple and coordinated, with a single intake, and that customers choosing to do EE and electrification should not have to apply separately to the EE and BD Programs.

With respect to identifying candidates for electrification, NJUA asserted that it is premature to put emphasis on determining statewide criteria for target customers for electrification, due to market uncertainty, lack of customer and contractor data, and program approaches implemented by different utilities.

NEEP also suggested that the BD Programs include education for contractors on HP installation and operation.

METUS recommended that the Board encourage efficient deployment of technologies to optimize emissions and household cost savings by: promoting the deployment of zoned solutions to greatly reduce or eliminate the use of a backup heating source; partnering with established manufacturers with proven distribution networks that can provide extensive training to help contractors, and thus consumers, access the rebate programs; and discontinuing rebates for fossil fuel technologies in order to drive the market toward adoption of HP solutions.

To meet people where they are, METUS first suggested allowing for displacement as opposed to total replacement of incumbent equipment when a HP is a new equipment type purchase for a household. METUS explained that, in a displacement model, a HP can be capable of meeting or exceeding the home's load for the majority of the heating season even if the HP is only a fraction of the home's total design heat load. Second, METUS argued that forcing the BD Program to only support a whole-home electrification approach significantly limits the opportunity for emissions reductions as it forces the consumer to make a significant financial decision, potentially under duress if the existing system has failed, and the opportunity is lost if the customer declines to pursue whole-home electrification. Third, METUS suggested that the BD Programs consider encouraging early retirement by offering an additional incentive to decommission existing fossil fuel systems in favor of a fully electric solution.

NJACCA suggested that midstream incentives (for distributors) can add administrative burden and lack consistency across territories. TRC did not support the inclusion of midstream incentives

in both EE and BD Programs. On the other hand, NGO Commenters suggested that the Board explicitly mandate or encourage midstream programs. RECO recommended that the BD Programs include a midstream approach with an emphasis on workforce development through which qualifying participating trade allies receive the appropriate training and provide all calculations for each participating customer, including existing equipment and fuel type, in order to obtain rebates.

Response:

Staff appreciates the comprehensive recommendations for a streamlined intake process, program measures and incentives, program pathways, and meeting people where they are. Staff agrees that the BD Programs should aim to establish streamlined processes for customers and contractors; include robust incentives for the most efficient, effective, and cost-effective electric measures; offer multiple program pathways, including but not limited to whole-home electrification; efficiently deploy technologies to optimize emissions and household cost savings; and educate contractors on HP installation and operation. Staff believes that the commenters' specific analysis and suggestions will serve as a useful resource to the utilities as they develop their filings and to Staff in their review of utility filings.

Regarding identifying candidates for electrification, Staff views Rewiring America's comments as consistent with Staff's recommendations and encourages the utilities to consider Staff's guidance in the BD Programs Framework to jointly develop proposed factors that would be relevant in all service territories.

Regarding midstream incentives, Staff would like to offer clarification that Staff recommends that the BD Programs offer incentives to contractors for installation of BD Program measures by customers but does not recommend incentives to distributors.

ALIGNMENT OF BD PROGRAMS WITH EE PROGRAMS AND FEDERAL REBATES

Comments:

Aeroseal supported proposals to launch BD Programs aimed at market transformation of building electrification and Staff's recommendation of accessing BD and EE incentives. MaGrann, TRC, and EEA-NJ also supported efforts to ensure consistent implementation of the BD Programs in coordination with EE Programs.

PSE&G stated that it makes sense to integrate BD Program measures into existing EE programs as much as possible to make the adoption of clean energy technologies a seamless and transparent experience for customers. PSE&G asserted that dividing the BD Program into a separate, stand-alone filing and unique program would confuse customers and hinder participation. At the same time, PSE&G noted that differences between gas and electric utilities should be taken into account when requiring the utilities to have common elements in their BD Programs. Similarly, Opower supported strong coordination with existing EE programs to avoid duplication of efforts and potential confusion among customers. DNV also suggested that BD Programs should be integrated with EE programs, asserting that incentives from IRA gives the opportunity to rapidly scale BD and should be integrated into existing programs; DNV argued that separate programs create confusion for customers. Rewiring America recommended alignment between BD and EE in current and future programs, with IRA rebates directed to low-income households and federal tax credits going to middle-income households and BD Program recipients.

With respect to IRA rebates, NGO Commenters recommended robust incentive stacking of incentives across the EE, BD, DR, and IRA rebate and tax credit programs. United expressed its appreciation for Staff's recognition of the IRA and recommended review of United's IRA and Infrastructure Investment and Jobs Act toolkits. EEA-NJ and Environment NJ encouraged BPU to provide guidance about how the IRA works and to allow utilities to stack incentives. EEA-NJ also recommended that New Jersey specifically focus on the Home Energy Rebates programs, including Home Efficiency Rebates and Home Electrification & Appliance Rebates, which were absent from the straw proposal. Rate Counsel stated that it is unclear whether a BD project would be eligible for both IRA tax credits and state rebates.

RECO recommended that BD Programs be designed as standalone programs with distinct budgets and offered in concert with core EE Programs where whole home upgrades present the opportunity for electrification of space heating and cooling at the same time as weatherizing the building envelope. RECO also recommended that all HP equipment eligible for the BD Programs for the purpose of space heating and cooling end use be listed on the NEEP cold-climate Air Source Heat Pump Product List. NJNG opposed realignment or disruption of EE incentive levels to make BD Programs look more favorable. NJBIA expressed concern regarding the merging of the EE program and the building electrification policy. NJBIA stated that it believes that such a merger would hide the risks, costs, and benefits of each program and result in a lack of transparency to the public.

Response:

As part of Staff's recommendation to align BD Programs with core EE Programs, Staff envisions that utilities will propose dedicated budgets for the BD Programs and continue to offer incentives for customers and contractors through EE programs, making it simple for contractors and customers to navigate. The BD Programs would offer fuel switching and electrification-readiness incentives in a way that layers in these measures with existing offerings to avoid duplicative or competing program offerings. Staff views RECO's example of weatherizing a home through the EE Program and layering in electrification of space heating and cooling through the BD Program as an illustrative example how the EE and BD Programs could be synergistic in terms of effectiveness and benefits.

As noted in the straw proposal, Staff believes that it is important for BD Programs to be designed in alignment with the EE Programs and the IRA EE rebates that those programs will leverage. More specifically, Staff believes that BD Programs should be designed to promote targeted complementary measures that support and enhance BD through coordination with EE Programs. Staff agrees with commenters who asserted that lack of alignment and coordination would lead to inefficiencies and confusion, especially for customers and contractors. As approved by the Board on May 24, 2023, Staff and utility and State program administrators will work with Rate Counsel and other stakeholders to propose for feedback from public stakeholders how to most efficiently and effectively leverage additional funding from the U.S. Department of Energy, including IRA efficiency and electrification rebates, to maximize the benefits of existing programs. Staff looks forward to working with stakeholders about how to build on existing programs and rebates in a way that facilitates customers taking advantage of federal rebates and tax credits.

SECTOR PRIORITIES

Comments:

Rewiring America recommended that the Board continue to prioritize BD of delivered fuels households, noting that approximately 295,900 New Jersey households use delivered fuels, including fuel oil and propane furnaces and water heaters, and asserting that switching from delivered fuels to electric HPs is perhaps the highest-impact residential decarbonization action that New Jersey can take. NGO Commenters supported a program with measures that electrify end-use and supported a primary focus on residential, LMI, and delivered fuel customers, but urged the Board to require electrification programs for all customer classes and fossil-fuel types. NRDC recommended that the Board require EDCs to submit BD Programs for a broad array of customers, including industrial. RECO recommended that BD Programs be inclusive of large customer offerings, which would avoid the need for a separate program offering through the Large Energy Users Program ("LEUP"). Mr. Winka supported including large users, colleges, and universities.

MaGrann supported inclusion of the commercial sector with multifamily being eligible under "core" funding regardless of meter configuration. Rewiring America recommended a 20% set aside for multifamily decarbonization by the BD Programs and New Jersey's implementation of IRA efficiency and electrification rebates. Rewiring America also noted that the BPU and other State agencies should encourage privately-owned affordable multifamily housing to apply for the Green and Resilient Retrofit Program offered by the U.S. Department of Housing and Urban Development, which can support electrification, EE, and climate resilience.

PSE&G expressed concern about excluding customers who are currently eligible for Comfort Partners from the BD Programs given the uncertainty over whether IRA tax credits and rebates will be used to serve these customers. PSE&G noted that they will seek to leverage IRA tax credits and rebates to the greatest extent allowed but cannot guarantee that will eliminate the need to use utility program funds. NGO Commenters also recommended that more guidance be provided on how to prioritize LMI customers.
PSE&G also requested that no limit be placed on spending to serve the commercial sector due to the unique opportunities with many businesses and multi-building solutions.

Mr. Winka flagged the language of the straw proposal stating that the BD start-up program "may" also serve commercial customers, citing the language in EO 316 and asserting that the BD start-up program "must" also serve commercial customers.

EEA-NJ noted that the focus on delivered fuel customers presented the best opportunities to deploy BD, and coordination between existing programs such as Comfort Partners would be vital for ensuring equitable access to these programs.

Response:

Staff appreciates the comments about which sectors to target. Staff does not recommend prioritizing any specific sectors within the BD Programs beyond the guidance provided in the straw proposal. Staff agrees with the commenters who recommended that utilities be allowed to serve a broad array of customers and recommends that utilities be allowed to propose such programs. At the same time, Staff notes that the Board has authorized New Jersey's Clean Energy Program ("NJCEP") to continue to offer the LEUP, so the utilities should consider how to serve large users in a way that is complementary to and not competitive with the LEUP.

While Staff did not propose a specific set-aside for multifamily customers and projects, Staff proposed and continues to recommend that the utilities structure their BD Program budgets to serve residential and multifamily customers using at least 70% of the budget and that utilities may

propose up to 30% of the BD Programs budget to serve other sectors. Staff believes that this proportion is reasonably aligned with EO 316's goals for 400,000 residential units and 20,000 commercial and public spaces, as well as the focus of IRA rebates on residential units.

In response to PSE&G's concerns about excluding Comfort Partners customers, Staff first notes its understanding that low-income customers will likely not be eligible for IRA tax credits based on lack of tax liability. Therefore, Staff anticipates that Comfort Partners should seek to leverage IRA efficiency and electrification rebates to maximize opportunities and benefits for Comfort Partners participants. Staff's intent in proposing that the BD Programs not serve residents who are eligible for Comfort Partners is to respect the role that Comfort Partners plays in serving low-income customers and to avoid confusion among programs. Staff's goal is not to preclude low-income customers from being able to take advantage of BD opportunities, including with the additional IRA funding that Staff fully intends to ensure that Comfort Partners participants receive.

Regarding how to prioritize LMI customers who are not eligible for the low-income Comfort Partners, Staff's intent is that the utilities make it a priority of the BD Programs to support participation by these customers, determine if they are good candidates for electrification readiness or electrification, ensure that they are fully informed about program options and estimated outcomes, and address any barriers along the way that would prevent these customers from successfully participating in and receiving the benefits of the programs.

Staff concurs with Mr. Winka's comment regarding requiring the BD programs to serve commercial customers and recommends that the EDCs should and GDCs may propose BD Programs to serve commercial customers.

AFFORDABILITY

Comments:

Rate Counsel expressed concerned about whether ratepayers will experience a reduction in energy bills after completion of a BD project.

NJLEUC urged that rate impacts and affordability be key considerations in guiding the development and approval of the BD proposal.

NJACCA suggested that BD projects will be at a higher cost even with incentives due to upfront costs and operational costs. SJIU similarly highlighted that electrification will add costs for residents and businesses. FMANJ/NJPGA asked how much it costs to decarbonize a building, what goes into that cost, and how much it costs to run a building on all-electric. FMANJ asserted that low-income homeowners will not be able to afford the large capital investment required to install an air source heat pump system and asked whether BPU will consider installation costs in the analysis of whether electrification from delivered fuels is cost-effective for customers.

NJNG supported the concept of ensuring that LMI customers aren't left out of the long-term energy transition. NJNG suggested that policies should not increase energy burden for customers who are struggling to meet basic needs and that New Jersey should focus on making such customers' energy bills as low as possible now instead of relying on hypothetical future changes in energy prices. NJNG questioned a recent study referenced by some stakeholders that suggested significant immediate savings for customers who switch from natural gas heating to electricity, calling for demonstration of underlying support for such claims. NJNG also stated that efforts to

create a new lower electric rate for electrification would shift recovery of electric distribution fixed costs to other customer classes.

Rewiring America asserted that electrification is the future of our energy sector and posited that electrification simply means that consumers choose to power their lives with efficient electric machines instead of fossil fuel machines. Rewiring America stated that the proportion of all-electric homes is increasing in every part of the U.S. and that, last year, HPs outsold gas furnaces for the first time ever. Rewiring America also posited that, when consumers choose to electrify, particularly their homes, the benefits are immense. Rewiring America estimated that there are approximately 295,900 New Jersey households using delivered fuels and asserted that electrifying households currently using delivered fuels will yield significant economic, health, and environmental benefits. Rewiring America estimated that 99.9% of New Jersey households on delivered fuels would save on their annual energy bill by electrifying (and this figure would be even greater if heat pump water heaters, weatherization, and other electrification and EE measures are included); the average delivered fuel household would save $1,480 per year by electrifying, representing $438 million in potential savings per year across all New Jersey households on delivered fuels. Doing so would also eliminate 79% more carbon pollution as New Jersey could eliminate by electrifying the same number of gas furnaces.

Rewiring America estimated that New Jersey residents would save an average of $341 a year by electrifying their space and water heating. Rewiring America also cited a meta-analysis of the effects of indoor nitrogen dioxide and gas cooking on asthma and wheeze in children. Moreover, Rewiring America argued that households that use clean, electric technologies are more insulated from price hikes. According to Rewiring America's analysis, households in New Jersey using inefficient fossil fuel appliances in the winter should expect to see costs rise by more than $600 for propane, $524 for fuel oil, $128 for natural gas, $95 for electric resistance, and $31 for efficient electric HPs.

Response:

Staff thanks the stakeholders for comments that address affordability. Staff first notes that, out of respect for the role that Comfort Partners plays in serving low-income customers and in seeking to avoid creating confusion among programs, Staff recommends that the BD Programs be designed to serve residents who not are eligible for Comfort Partners. Staff anticipates that Comfort Partners will continue to offer no-cost efficiency and conservation measures to low-income customers and leverage IRA efficiency and electrification rebates to maximize additional opportunities and benefits for Comfort Partners participants.

Aside from low-income customers served by Comfort Partners, Staff recognizes that there are costs associated with making improvements to buildings to reduce energy consumption – including through weatherization, upgrades to more efficient EE appliances, and switching to electric. Many BPU programs offer financial incentives to support upfront costs for customers who want to make cleaner energy choices but might not be able to afford doing so (e.g., EE, EVs, solar, etc.). BD Programs are similar in that they would offer financial incentives to offset upfront costs while also providing information to customers about the expected bill impacts of their choices so that they can make well-informed choices. Generally speaking, the cost of implementing electric measures for space heating, cooling, and other building end-uses will be a significant factor as the BD Programs are developed and rolled out. Staff will continue working with stakeholders to improve understanding of potential impacts and innovative approaches that support BD and savings for customers.

Staff anticipates that fuel switching delivered fuels customers to electricity, in particular, will be cost-effective and will result in cost savings to these customers based on current fuel costs and the efficiency of measures incentivized by the BD Programs. Staff appreciates Rewiring America's New Jersey-specific analysis, including of energy bill savings by delivered fuel customers. As noted in the straw proposal, in cases where there is not an anticipated net bill savings, some early adopters may still want to adopt BD measures.

BILL SAVINGS/ IMPACTS REQUIREMENT

Comments:

Rewiring America supported the exclusion of a net bill savings requirement through Triennium 2 and the prioritization of delivered fuel households.

Recurve noted that it is imperative to consider the negative bill impacts that can be associated with electrification measures, especially in disadvantaged communities and LMI individuals. Recurve found that meter-based targeting helps mitigate the risk of creating an increased energy burden from electrification by quantifying actual bill impacts as part of the program design and implementation.

Response:

While Staff recommends that net bill savings should not be a requirement applicable to all BD Program projects, Staff also agrees that the BD Programs should use consideration of negative bill impacts, especially for moderate-income customers, to determine whether customers are good candidates for electrification or electrification-readiness. For example, a moderate-income customer may be a good candidate for electrification if a utility BD Program determines that a combination of weatherization and other EE upgrades combined with electrification measures will result in neutral or positive bill impacts. If not, this customer may be a good candidate for electrification readiness.

CUSTOMER EDUCATION

Comments:

Rate Counsel emphasized that, if the Board proceeds with BD under the EE umbrella, customer education on the resulting utility bill impacts, especially for less sophisticated, vulnerable customers will be critical. Rate Counsel stated that consumer education on this topic must be provided by a neutral third party so that the customer understands that the BD project may not necessarily result in EE and that the BD project may not result in a lower energy bill. Rate Counsel cautioned about the possibility of unscrupulous or predatory behavior by contractors in providing information about predicted bill impact and energy use and argued that the information must be accurate. NJNG similarly asserted that it is essential that any program include transparency regarding reasonably estimated short-term price impacts and should avoid relying on highly variable long-term forecasts, especially if a significant component of costs, like electric distribution system investments, aren't included.

NEEP suggested that the BD Programs include education for customers on HP installation and operation. METUS recommended dedicating resources to robust education and marketing campaigns to reach key stakeholders, including senior citizens.

Mr. Winka suggested that BPU establish an independent Heat Pump Tech Center to provide independent and unbiased information on all heating and thermal processing options including costs and benefits. Mr. Winka also said that BPU should manage the BD outreach and education program rather than have each EDC/GDC manage its own marketing program.

EEA-NJ suggested that BPU provide outreach and education for the BD Programs, potentially via partnerships with state colleges.

Response:

Staff agrees that customer education is critical so that customers are able to make well-informed choices when participating in incentive programs and also be educated about the installations performed through the programs. Staff also agrees that the information provided about estimated bill impact and energy use should be defensible and based on a consistent approach across utility programs.

NATURAL GAS EQUIPMENT INCENTIVES

Comments:

NJACCA suggested that incentives for high-efficiency gas equipment are important.

The Millers recommended moving away from incentives for piped gas-sourced appliances immediately and delivered fuel-sourced appliances. The Millers also requested that any subsidies for gas appliances be eliminated, either immediately or by the end of Triennium 2. NJCLV, BET, and METUS either did not support incentivizing or installing new fossil-fuel equipment or recommended discontinuing rebates for fossil-fuel technologies.

NGO Commenters urged the Board to disallow new construction of fossil fuel distribution systems and any actions that may increase subsidies for new fossil fuel equipment, and explicitly reject non-electric alternatives.

Response:

Staff recommends, as proposed in the BD Programs straw proposal, that BD Programs do not include incentives for new natural gas equipment.

Staff anticipates that utilities will propose to continue to offer natural gas furnace and boiler incentives in Triennium 2 EE Programs but Staff will evaluate whether incentive levels should be lower than in Triennium 1 as part of gradually reducing natural gas incentives as part of the transition to 100% clean energy by 2035.

HYBRID SYSTEMS/PARTIAL VS. FULL LOAD

Comments:

METUS recommended instituting a displacement model rather than total equipment replacement, where a HP can meet or exceed the home's load for most of the season despite only being a fraction of the home's total design heat load.

PSE&G, NJNG, and SJIU supported the inclusion of hybrid equipment options in the BD Programs in which the fossil-fueled equipment remains as a back-up to the electric HP. PSE&G pointed out that this approach provides options to customers who may want to maintain their traditional heating systems for use on the coldest days while serving to introduce electric HPs and their benefits. PSE&G also stated that this approach can help to lower upfront costs for customers and play an important role in slowing the expected growth in winter electric peak demand due to HPs since natural gas will continue to be used on the coldest days.

NJNG suggested that not allowing new high-efficiency natural gas equipment to be installed as part of the hybrid heating solution will likely significantly reduce customer interest, whereas including such new equipment will reduce operating expenses for customers, reduce emissions, and place a lower incremental load on the electric distribution system. Dandelion argued that the BD Program should not support incentives for the installation of new fossil fuel equipment as part of a dual-fuel (i.e., hybrid) setup, asserting that dual-fuel systems are not necessary in New Jersey's climate and should only be available as an option for existing gas customers.

NGO Commenters supported sizing HPs to handle the full heating demand load and strongly supported leaving the existing fossil system in place, rather than installing a new furnace as part of this program. In contrast, NJACCA suggested that there are many concerns with sizing an AC replacement HP for full heating load, primarily, comfort and humidity control, and the fact that larger capacity is less efficient. Besides, the sizing requirement would require electrical system upgrades, bringing in additional cost to the customer. An alternative is to incentivize hybrid with HP sized to the AC load that is paired with an existing furnace but not with a new hybrid high-efficiency furnace. NJNG recommended that all guidance regarding sizing should revert to the technical guidance provided by Air Conditioning Contractors Association Manual J and Manual S.

NJLCV did not support incentivizing or installing new fossil-fuel equipment but expressed understanding that some customers may retain natural gas heating, particularly if it's not at the end of its life.

PSE&G suggested differing incentives for partial and full load replacements. NEEP supported a mandate requiring of cold climate certified HPs and incentives that encourage full displacement of systems.

FMANJ/NJPGA asked why it is not acceptable to include renewable propane furnaces in hybrid systems in the same way that the hybrid systems contemplated in the proposed BD Programs include natural gas furnaces.

Response:

The main purpose of including hybrid systems as possible BD Program measures is to prevent the replacement of newer gas furnaces and air conditioners and instead allow them to run through the end of their life. However, Staff does not recommend that BD Programs offer an incentive for the installation of a new gas furnace or boiler to replace an existing delivered fuel or gas furnace or boiler.

Staff recommends differing incentives for partial and full load replacements by electric HPs, as proposed by PSE&G, with moderate incentives for partial load and higher incentives for full load, as well as incentives for electrical system upgrades. From the perspective of an individual customer, full load replacement would be the most cost-effective approach in the long run while also achieving the most emissions savings. On the other hand, from a market-wide perspective,

market uptake may be hampered if only full load replacements were allowed. Customers and contractors may not trust an all-electric system to meet peak heating demand. In addition, a partial load system may have lower operating costs for the consumer when viewed in the short-term versus the lifetime of the dual-hybrid system. As the electric HP market share grows, Staff recommends re-examining the incentive structure to move the market toward full-load replacements.

Regarding the inclusion of renewable propane in hybrid systems, Staff views incentives for propane/renewable propane as outside BPU's purview.

TECHNOLOGIES

Comments:

FuelCell advocated for solutions that are technology-independent to prevent creating barriers for emerging technologies. NJNG also supported broader opportunities for cost-effective decarbonization technologies beyond electrification, citing hydrogen and gas HPs as examples. SJIU suggested that the BPU should use a broader set of technology [green hydrogen, renewable natural gas ("RNG")] in the effort to decarbonize the building sector. NJBIA recommended using the extensive network of gas infrastructure that can be utilized by converting to less carbon intensive fuels such as RNG and hydrogen. FMANJ and FMANJ/NJPGA suggested that there is more than one pathway to decarbonize the building sector and asked why the proposed BD Programs did not consider biodiesel/renewable diesel and RNG and hydrogen.

Response:

Staff appreciates the broader perspectives on approaches to decarbonize the building sector and also notes that it considers the BD Programs as a first step to set the State on a path to net zero emissions. Staff envisions that the initial BD Programs will leverage the electric HP market as well as the federal funds to meet the State's EE and emissions reductions goals and improve indoor air quality and public health. Staff also views incentives for diesel/biodiesel/renewable diesel as outside BPU's purview. Staff anticipates that BPU's upcoming proceeding on the future of natural gas is the appropriate forum to discuss and evaluate the role that supply-side technologies such as green hydrogen and RNG will play in New Jersey's clean energy future.

NATURAL GAS TO ELECTRIC HEAT PUMP CONVERSIONS

Comments:

Dandelion recommended revision of BD Programs guidelines to allow for switching from gas furnaces to electric HPs. Dandelion stated that, since gas furnaces need to be replaced every 15 to 20 years, 5–7% of all natural gas-heated homes will replace their existing furnace every year, and is critical that there are incentives in place to encourage these households to switch to electric HP systems at that time. Dandelion asserted that the BD Programs straw proposal prioritized fuel switching for delivered fuel customers and deprioritized fuel switching for methane gas customers.

NRDC recommended that high priority also be placed on converting gas customers to electricity.

Response:

If Staff's assumption is correct that Dandelion used the terms "natural gas" and "methane gas" interchangeably, Staff notes in response to both commenters that the proposed BD Programs guidelines place a high priority on encouraging participation by delivered fuels customers while also allowing for switching from gas furnaces to electric HPs. Staff agrees that the BD Programs should offer incentives to encourage households to switch to electric HP systems when their existing gas furnaces need to be replaced.

GEOTHERMAL

Comments:

Environment NJ strongly supported ground source/geothermal heat pumps ("GSHPs") and stated that it is important to incorporate them in the BD Programs. WaterFurnace supported higher incentives for GSHPs based on capacity rather than per unit. Dandelion recommended that GSHP rebates should be valued at $15,000–$20,000 for "whole-home" customers fully electrifying their homes or $2,000 per-heating-ton for rebates that scale with the size of the system. Dandelion also supported providing a single, fuel-agnostic, and consistent rebate to all residential geothermal customers, including new and existing construction. Princeton Air mentioned that New York State has an additional tax credit for GSHPs on top of the federal tax credit.

WaterFurnace suggested that BPU should promote networked geothermal projects by giving utilities the opportunity to create thermal networks. NJNG appreciated the reference to district geothermal heating as a potential pathway for gas companies and stated its intention to give this direction serious consideration as part of the company's filing.

Response:

Staff concurs that EE and BD Programs should offer incentives for GSHPs and appreciates the suggestions about how to structure these incentives. While the BD Programs Framework does not address specific incentive levels or approaches, Staff suggests that these comments by stakeholders will help inform the utilities' proposals for GSHP incentives and also serve as useful information as Staff reviews the proposals.

ENERGY SAVINGS ACCOUNTING

Comments:

SJIU and NJNG suggested that the proposed approach allowing the source energy savings and emissions impacts to be claimed by the implementing utility is inconsistent with the existing allocation methodology in EE. SJIU and NJNG strongly supported maintaining a collaborative environment for claiming energy savings and suggested that natural gas savings should belong to the natural gas utilities and electric savings should belong to the electric utilities under the BD Program. Dandelion stated that the Board should authorize gas utilities to provide rebates to their customers who switch from gas to electric HPs and account for the energy savings from these conversions in meeting their EE targets. Rewiring America also recommended that the Board allow gas utilities to get some credit, in terms of emissions and energy reductions, for encouraging their customers to electrify and thereby create a greater incentive for gas companies to propose strong BD Programs that transition end-use appliances to efficient electric versions.

PSE&G requested clarification on accounting for energy savings by the utility that implements the project, noting that it is unclear what the accounting should be when applying net source MMBtu savings to energy savings targets measured in kWh or therms. For example, PSE&G asked whether the guidance is to convert the source MMbtu savings value into either kWh or therms through a simple energy translation (e.g., 1 MMBtu = 10 therms or 293 kWh).

TRC suggested that utilities should report fuel type, gross MMBtu savings on site, MMBtu savings at source (net), and resulting CO_2 impacts. Aeroseal supported the recommendation to track and analyze both net energy and CO_2e savings in the BD Programs.

Response:

First, Staff notes the difference between the existing allocation methodology in Triennium 1 EE programs and the proposed allocation methodology for Triennium 2 BD Programs. Triennium 1 EE programs allocate kWh and therms savings among EDCs and GDCs, while the BD Programs will report on energy savings on a net source MMBtu basis and also may result in energy savings from delivered fuels. Staff's rationale in proposing that the utility that implements the BD project be allowed to apply source Btu impacts to their EE savings goals and QPIs was to simplify the energy savings accounting. Staff also acknowledges the complexity of the topic and the benefits of allocating energy savings between EDCs and GDCs. Staff recommends that Staff provide corrections, adjustments, and clarifications on the approach, if needed, in consultation with the EM&V Working Group.

SITE TO SOURCE ENERGY

Comments:

United suggested two (2) options for including upstream emissions: 1) full lifecycle analysis for both electricity generation; and 2) direct use of natural gas, which ensures the most complete assessment of the impact of building electrification but adds complexity; and ensuring that the elements included for the natural gas fuel chain vs. electrification are comparable.

SJIU supported the use source energy savings, as opposed to site energy savings. PSE&G generally agreed with the methodology presented in determining the source energy ratio for electricity and asserted that using the overall average of generation technologies on the margin within PJM is a sound method to assess site/source ratios. PSE&G also supported the method presented for adjusting this ratio over time and opined that it is reasonable given the large amount of uncertainty given the generation supply mix over a 25-year time horizon. PSE&G agreed that the TRM must be updated to provide guidance on calculation methods for fuel switching and site-to-source conversions. PSE&G suggested that guidance on switching from fuel oil to natural gas also be included in the TRM. PSE&G suggested that any work to update the NJCT or elements of it be used solely for updates to future filings, not the filings the Board will have before them later this year.

NRDC argued that site energy is the more common practice, is consistent with EE, and does not have the methodological issues that source energy does. Dandelion also supported retaining the current energy savings methodologies in EE programs, arguing that using source emissions would negatively affect electric HP energy savings by significantly increasing the energy usage for HPs (by approximately 2.5 times) without changing the energy usage for the fossil fuel systems that they replace. Dandelion argued that its recommended approach would appropriately leave the accounting for the inefficiency of fossil-fuel electricity generation outside the scope of the BD Program and within the purview of electric sector planning and design. Dandelion also noted that the BD Programs straw proposal did not describe the process to calculate the emissions values for HPs based on the changing emissions profile over time. Dandelion stated that the Board should ensure that the calculation of emissions is based on a time-adjusted average of the emissions over the life of a HP rather than the emissions value in the year of installation. Dandelion asserted that using a time-adjusted methodology will provide greater accuracy in estimating lifecycle emissions from HPs.

Dandelion called for the Board to accelerate the New Jersey-specific avoided cost study that is assessing future average and marginal energy costs and emissions for Triennium 3 so that the study can help inform ongoing implementation during Triennium 2.

Rewiring America provided a detailed explanation of its recommendations for (1) using a "levelized" site-to-source conversion factor that averages site-to-source conversion factors for end-use electric appliances to take into account the efficiency of electricity generation over the lifetime of the electric appliances; (2) using the long-run marginal emissions factor in the National Renewable Energy Laboratory's Cambium power sector data set, which takes into account the increased decarbonization of the grid, to reduce the site-to-source conversion factors in accordance with EO 315 and get to a closer representation of the true efficiency value of end-use electric appliances; and (3) using site energy savings as the metric for delivered fuels households. Regarding the first two (2) recommendations, Rewiring America asserted that the assumptions proposed in the BD Programs straw proposal underestimate the value of efficient electric appliances and that Rewiring America's recommendations would mean that a newly installed HP would not face the same source energy conversion factor each year of its useful life as the complexion of the grid changes (with more renewables and higher efficiency electricity generation). Regarding the third recommendation, Rewiring America asserted that using source energy to measure savings would seriously disadvantage delivered fuel customers from receiving IRA rebates.

Dandelion suggested that using a marginal emissions value to calculate the added emissions of electric HPs, as proposed in the BD Programs proposal and the NJCT, would overstate actual emissions impacts of EE and beneficial electrification programs. Dandelion further suggested using a forward-looking average emissions value that accounts for future generation mixes.

Dandelion questioned whether the heat rate and source energy approaches are consistent with EE Programs and, if not, if there is there a justification why. United noted that, of the three (3) options described by Staff, the one that makes the least sense is using the average heat rate of the entire electricity system as a proxy. Mr. Winka suggested using a state-specific heat rate. PSE&G requested that the heat rate for nuclear facilities contained in Table 3 be changed to 3,412 consistent with other clean technologies and the concept that clean technologies should all trend the site/source ratio toward 1.0.

PSE&G requested provision of site to source ratios for oil and propane, noting that EPA sources generally put that value around 1.01.

TRC supported reporting energy savings on an MMBtu basis and CO_2 with site and source level impacts. TRC suggested that gross site and source energy impacts should be reported by the utility but that the utilities should track only gross savings against their goals.

NGO Commenters supported New Jersey-specific marginal emission, heat rates, and generation forecasts, inclusive of New Jersey state policy.

Response:

Staff maintains that source energy instead of site energy is the best approach to evaluate fuel-switching measures with a common performance metric and that this approach is a common and well-vetted policy approach. Staff appreciates the diversity of comments given the complexity of constructing site to source conversion rates. Staff sought a balance of best representing emissions savings from fuel-switching measures and using a transparent approach for Triennium

2 while recommending a full study customized to New Jersey's policy environment to forecast time-differentiated emissions and avoided costs that would be conducted during Triennium 2 to support Triennium 3.

Staff further clarifies its intention with respect to use of the tables for site-to-source and emissions factors, provided for the years 2022 to 2060. Note that the values in the table are to be used over each year of a BD measure's useful life, in the same manner as avoided costs are interacted with impacts over each year of the measure life. For example, a measure with a ten-year life installed in 2024, would use each of the values in the table for each year of the measure life from 2024 to 2033. These values are then cumulated to arrive at the total source energy and emissions over the life of the measure.

Staff acknowledges the difficulty in forecasting marginal and average emissions to 2050 and beyond. There are numerous uncertainties involved in forecasting the mix of electric generation resources and their dispatching order in response to significantly changing load levels and load shapes that far into the future. Staff recommended a policy position in assuming that marginal emissions would decrease by 50% by 2050. 50% is a balance between PJM forecasts, which are lower, and GWRA goals, which are 80%. Staff also intends to investigate the sensitivity of source energy and emissions results under alternative trajectories and scenarios within the context of several currently planned electrification impact and cost-effectiveness studies.

In response to Rewiring America's concerns over the use of source energy equivalency for analysis of delivered fuels, Staff notes that the policy intent of using source energy to assess the total energy and emissions impacts of alternative methods of serving end uses, in an internally consistent manner aligned, remains the same across all affected fuels. Staff also does not believe that this approach, which does not have a minimum source energy savings target or requirement for Triennium 2, is in conflict with the IRA tax credits or any U.S. Department of Energy ("DOE") rules or guidance about how to assess IRA-related savings.

Staff recommends using a heat rate of 10,429 for nuclear as used by the EIA for comparing primary energy production. EIA recommends 3,412 for non-combustible renewable energy sources. Staff notes that this approach is consistent with the captured energy approach recommended by DOE in *Accounting Methodology for Source Energy of Non-Combustible Renewable Electricity Generation (October 2016),* available at accounting-methodology-source-energy-non-combustible-renewable-electricity. If further discussion on this is needed, Staff will consult with the EM&V Working Group and resolve the issue as part of providing adjustments to and clarifications on site-to-source conversions.

Staff recommends that Staff consult with the EM&V Working Group and provide site-to-source ratios for oil and propane.

COST TEST

Comments:

SJIU suggested that, for increased understanding of the benefits and costs, the start-up approach should allow for stakeholders and decision makers to learn from and evaluate BD measures. PSE&G concurred with Staff's proposal that BD Programs not be required to achieve a NJCT result of 1.0 or greater during Triennium 2 and asserted that it is a sound assessment that this period is needed to build the necessary capacity and skills to deliver emissions reduction. PSE&G also urged caution in using the Participant Cost Test ("PCT"), noting that there will likely be cases

in which HPs are combined with building envelope measures that result in an overall benefit to the participant but that these benefits will not be reflected in the PCT since it will focus only on BD measures. MaGrann strongly supported the Staff's proposal to not require that the BD programs achieve a cost-effectiveness ratio greater than or equal to 1.0 during Triennium 2 because the current NJCT will result in many electrification projects not achieving that result. Rewiring America also supported the absence of a cost-effectiveness requirement.

Rate Counsel argued that BD Programs should be required to demonstrate a benefit-to-cost ratio of at least 1.0 because the CEA's allowance for an exemption at a program level for EE programs "benefitting low-income customers or promoting emerging technology" does not apply to the BD Programs. FMANJ also stated that the Board should require BD Programs in Triennium 2 to achieve a cost-effectiveness ratio greater than or equal to 1.0 and, if the requirement is too large of a barrier to the program, should consider more cost-effective alternatives to electrification, including alternative fuels.

FMANJ asked for the average efficiency rating of cold climate air source heat pumps that BPU used in its cost-benefit analysis.

Mr. Winka suggested that the BPU directly manage the start-up of the BD Programs because the BPU is not restricted in the benefit to cost ratio of greater than 1 as set forth in the CEA as is set for the utilities' EE Programs.

NEEP suggested that the NJCT does quantify the cost of carbon and non-energy benefits of programs but that these inputs are lower than in other states with similar program and policy goals. EEA-NJ stated that the existing NJCT will not adequately measure the results of the BD Program. EEA-NJ suggested a more comprehensive calculation to track emissions as well as assessing the non-energy benefits of the measures and consulting the National Standard Practice Manual for guidance for developing a primary Jurisdiction Specific Test ("JST").

Response:

Staff recommends using the NJCT to evaluate all BD Program proposals and outcomes but continues to recommend that BD Programs not have to meet a requirement to meet or exceed a benefit-cost ratio of 1.0 in Triennium 2. Rate Counsel provides an incomplete reference to the CEA's cost-effectiveness requirement because the CEA states that a program may have a benefit-to-cost ratio of less than 1.0 if implementation of the program is in the public interest, and programs benefitting low-income customers or promoting EE technologies are included as examples but are not all-inclusive of programs that are in the public interest. Staff's position is that BD Programs as recommended by Staff are in the public interest and that it is reasonable to not require BD Programs to pass a cost-effectiveness test because these are intended to be limited start-up programs that provide valuable information and are a learning experience about how to design full-fledged BD Programs in the longer-term. As articulated in the BD Programs Framework, the rationale for aiming for but not requiring an NJCT result of 1.0 or greater is that the goals of the BD Programs in Triennium 2 include building the necessary capacity and skills for delivering meaningful GHG emissions reductions while also producing the empirical data needed to fully assess impacts and cost-effectiveness; also, there may be a greater expectation for BD Programs to pass the NJCT in Triennium 3.

In Triennium 2, the NJCT shall be used to prioritize and serve as a guide to evaluate program proposals and outcomes. A BD Program may be approved if its NJCT result is less than 1.0 but

a program with a NJCT result of 0.8 may be considered more favorably than another program with an NJCT result of 0.3.

Staff also notes that BD Programs proposals developed by the utilities will include program details such as efficiency ratings of equipment. Staff will review and evaluate all aspects of the program proposals for reasonableness.

With regard to Mr. Winka's statement that the CEA only sets a cost-effectiveness requirement for the utilities' EE programs, Staff believes that the CEA's requirement applies equally to State-run EE programs.

Staff appreciates the recommendations from EEA-NJ and NEEP to re-evaluate avoided cost components as they pertain to BD. Staff will continue to research and re-evaluate the avoided cost components of the NJCT as a task of the NJCT Committee of the EM&V Working Group. The committee shall make recommendations for avoided cost components prior to Triennium 3 filings.

WEATHERIZATION

Comments:

Aeroseal agreed with the pairing of electrification, EE, and weatherization and strongly recommended that BPU and the utilities pay careful attention to the types of weatherization measures being incentivized.

MaGrann highlighted that there could be potential consequences of installing high-efficiency HPs without addressing weatherization.

Mr. Winka suggested that the BD Programs need to develop and advance highly efficient building shell measures like those proposed in the New Homes Construction program aligned with Passive Home Institute standards.

NEEP recommended considering an energy audit as a free first step towards weatherization and full replacement.

Response:

Staff appreciates the comments on incorporating weatherization into the BD Programs. Staff will work to ensure that the concerns about moving forward with BD and electrification efforts without capitalizing on weatherization opportunities are addressed in program design.

Staff recommends that BD Programs offer co-incentives for weatherization along with BD measures to ensure that BD is effective and provides maximum heating and cooling efficiencies.

REPORTING

Comments:

Dandelion suggested reporting and tracking of the number of HPs (both air source and ground source) deployed each quarter.

EEA-NJ suggested reporting on a determined frequency, including key performance indicators to increase transparency and stakeholder involvement.

NJUA suggested that "metrics which must be submitted in planning be described in the minimum filing requirements ("MFR") section only, while any additional metrics that are valuable to report during the program cycle but difficult to plan be contained in the reporting section."

SJIU recommended revising the BD reporting requirement and MFR sections to provide clarity on which items are to be included in the MFRs and reporting and evaluation.

EEA-NJ suggested that BPU require EDCs to provide reports on the progress of the BD and EE Programs, including key performance indicators, during the monthly BPU EE stakeholder meetings.

The Millers requested a detailed roadmap for meeting emissions goals and that utilities regularly report their progress in meeting these goals.

Response:

Staff acknowledges the comments received regarding the reporting requirement and will review the MFRs and reporting sections to determine if clarification is warranted. Staff recommends quarterly reporting on performance metrics to align with the EE Programs' reporting frequency.

NATURAL GAS DISTRIBUTION AND LEAKAGE

Comments:

Rewiring America recommended incorporating methane leakage from natural gas into the analysis of emissions impacts by examining CO_2e and CH_4 as well.

PSE&G requested additional clarity on the manner in which utilities should account for methane leakage from natural gas for assessing the emissions of greenhouse gases in terms of equivalent CO_2. PSE&G noted their general agreement that emission of methane has a greater GHG impact than an equivalent amount of CO_2, particularly in the short term, but requested clarity on the exact factor to use in calculating emissions reductions from lower use of natural gas.

Response:

Staff recommends that the EM&V Working Group consult with the DEP and work to resolve how best to calculate reductions in methane leakage resulting from lower use of natural gas, which may involve using lost and unaccounted for gas data collected for each of the GDCs by the U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration.

RESEARCH AREAS

Comments:

NJNG suggested adding the following items to the list of research areas for BD Programs:

- Are proper installation practices being followed?
- What is the impact of accidental release of refrigerants from improper installation?

- What are the emissions impacts from the unintended incremental cooling load?
- How many customers are pairing the installation with weatherization measures?
- Regarding estimated bill impacts, any analysis should attempt to isolate changes for the system switch only.
- How satisfied are customers after the installation?
- Are customers using other sources of supplemental heat (e.g., wood burning stoves)? If so, is it possible to estimate that, and what are those emissions implications?
- What is the actual coefficient of performance measurement of HPs across the diversity of New Jersey building types? How does this compare to manufacturer specifications?
- How many HPs are for partial vs. whole house space heating? If partial, how are HPs used for heating vs. other building heating sources?

Response:

Staff appreciates NJNG's recommended additions to the research list and suggests that the EM&V Working Group collaborate to discuss and finalize the list consistent with the BD Programs Framework.

STAKEHOLDER ENGAGEMENT

Comments:

Rate Counsel asserted that the BD Program proposal was not properly and publically vetted. More specifically, Rate Counsel stated that the concept of BD was not previously identified as part of any EE program. Rate Counsel also stated that the virtual public meetings on June 20, 2023 at which stakeholders were invited to provide oral comments, as well as the public comment period provided for written comments, were the only opportunity afforded to the public on a new program that will inevitably have costs beyond the initial $150 million proposed in the straw proposal.

NGO Commenters supported improved stakeholder engagement by providing more targeted meetings and opportunities for engagement, changing the format and content of meetings, and providing educational materials or a presentation.

Response:

Staff notes that, as part of the development of the overall Triennium 2 framework, Staff worked closely with Rate Counsel and the utilities to discuss ideas for the components of this framework, including through weekly or bi-weekly Utility Working Group and EM&V Working Group meetings. To be more specific, Staff's records show that Staff hosted 16 meetings – with 2 – 4 meetings per month and an average of more than 3 meetings per month, on development of the BD programs straw proposal – that included Rate Counsel and the utilities between January and May before release of the straw for public comment in June. In addition, Staff issued a notice on March 23, 2023 with straw proposals that indicated that Staff anticipated that BD programs would be included as additional utility initiatives. Stakeholders subsequently offered initial oral and written comments on BD programs as part of the virtual public meeting held on April 6, 2023 and the comment period that remained open through April 28, 2023. Staff then provided a full straw proposal on BD programs on June 7, 2023 with virtual public meetings on June 20, 2023 and a three-week comment period through June 27, 2023.

Staff will work with stakeholders to improve communication and engagement as the program is implemented to share lessons learned and seek feedback.

MISCELLANEOUS

Comment:

MaGrann suggested incorporating the HERS Carbon Index into the Residential New Construction program for the purposes of quantifying and incentivizing carbon emission reduction.

Response:

Staff thanks MaGrann for the suggestion and would welcome comments from MaGrann and other stakeholders on the forthcoming revised New Construction program proposal that will be released for public comments by NJCEP.

In the Matter of the Implementation of P.L. 2018, c. 17, the New Jersey Clean Energy Act of 2018, Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs, Docket No. QO19010040

In the Matter of the Implementation of P.L. 2018, c. 17, the New Jersey Clean Energy Act of 2018, Regarding the Second Triennium of Energy Efficiency and Peak Demand Reduction Programs, Docket No. QO23030150

In the Matter of Electric Public Utilities and Gas Public Utilities Offering Energy Efficiency and Conservation Programs, Investing in Class I Renewable Energy Resources and Offering Class I Renewable Energy Programs in Their Respective Service Territories on a Regulated Basis Pursuant to N.J.S.A. 48:3-98.1 and N.J.S.A. 48:3-87.9 – Minimum Filing Requirements, Docket No. QO17091004

STAFF RESPONSES TO STAKEHOLDER COMMENTS ON THE EE5 DEMAND RESPONSE STRAW PROPOSAL

LIST OF COMMENTERS

Advanced Energy United ("United")
NRG Energy, Inc., ENGIE Resources, Vistra Corp., and Constellation Energy, ("Competitive Suppliers")
Copper Labs ("Copper")
Energy Efficiency Alliance of New Jersey ("EEA-NJ")
Franklin Energy ("Franklin")
FuelCell Energy ("FuelCell")
Google LLC ("Google Nest")
Meltek
Michael Winka ("Mr. Winka")
New Jersey Natural Gas Company ("NJNG")
New Jersey Utilities Association ("NJUA")
Natural Resources Defense Council, Environment New Jersey, New Jersey Conservation Foundation, Environmental Defense Fund, and New Jersey League of Conservation Voters ("NGO Commenters")
Northeast Energy Efficiency Partnerships ("NEEP")
Public Service Electric & Gas Company ("PSE&G")
Recurve
South Jersey Industries Utilities ("SJIU")
Span, Inc. ("SPAN")
Uplight

GENERAL COMMENTS 3
OPEN, FLEXIBLE, PORTABLE DR MARKET 5
ELECTRIC DISTRIBUTION COMPANIES' DR PROGRAMS 8
I. Should AMI Be Required? 10
II. Generation Assets in DR Programs 11
GDCs' PROGRAMS 11
ROADMAP STUDY 12
PILOT PROJECTS 13
PERFORMANCE METRICS 14
COST TEST 15
MINIMUM FILING REQUIREMENTS 15
OTHER 16

GENERAL COMMENTS

Comments:

Competitive Suppliers urged inclusion of retail energy suppliers in demand response ("DR") plans rather than limiting the DR programs to utilities and third-party distributed energy resources ("DER") aggregators.

EEA-NJ recommended incorporating both bring your own device ("BYOD") and control systems approach to DR programs and that BPU allow for pre-enrollment in DR programs when customers purchase devices.

FuelCell advocated for solutions that are technology-independent, to prevent creating barriers for emerging technologies. FuelCell expressed hope that consideration would be given to technologies like fuel cells, even though the proposal was limited to non-generating assets, because of their capacity to store energy and provide live demand response.

Google Nest asserted that there is tremendous untapped potential to enroll hundreds of thousands of New Jersey residents with smart thermostats in paid DR programs and allow them to contribute meaningfully to reducing peak demand during Triennium 2. Google Nest offered comments focused on how the Board can lower barriers to participation and drive enrollment in DR programs while retaining existing energy efficiency ("EE") incentives to ensure that efficiency benefits are also captured. First, Google Nest argued that the wide deployment of smart thermostats is critical because they are an affordable solution for millions of households to save energy that otherwise would not have the means to finance and install more expensive distributed energy resources. Second, Google Nest argued that, with the right incentives and program design, smart thermostats could quickly serve as a critical new tool to manage peak demand and reward households for participation. Third, Google Nest recommended that the Board include smart thermostat DR programs, including specific minimum filing requirements ("MFRs") for utilities' DR programs, as part of utility core programs rather than as additional utility-led initiatives so as to provide consistency in design and ensure quick and successful scaling-up across the state.

NEEP made six (6) recommendations on DR Program design:

1) Offer residential appliance-based programs that allow customers to be a part of the grid
2) Encourage the use of opt-out instead of opt-in policies with robust customer education
3) Offer DR programs alongside installation of EE and electrification products
4) Identify changes to current regulatory structures to properly value distributed energy resource programs
5) Incentivize the equitable adoption of smart technologies
6) Utilize Market Transformation Performance Metrics, such as number of active devices enrolled, number of participants in demand response events

NGO Commenters highlighted the importance of integrating this docket with others identified by the Board, including the grid modernization proceeding and advanced metering infrastructure ("AMI") data access proceeding.

PSE&G expressed general support for the proposal and the flexibility it encourages.

Rate Counsel recommended targeting low- and moderate-income ("LMI") customers as DR programs traditionally target large commercial energy users.

Recurve encouraged inclusion of the residential market in addition to the traditional medium and large commercial market.

SPAN supported the proposal to include DR as part of utility initiatives. SPAN noted that, as buildings electrify and further define and accentuate the load peak, DR will become an increasingly important resource to manage peaks, including through facilitation by intelligent, individual circuit control of a smart panel to avoid overloads of the panel and the grid.

United supported the idea of "future proofing" what utilities will undertake in Triennium 2 but suggested that care should be taken such that utilities are not making large investments that may prove redundant in the future, for example, by investing in functionality that the competitive market can provide or that may become unnecessary or stranded as technology changes. United suggested that New Jersey consider a more holistic planning regime that fully considers how grid functionality and capability will need to evolve to support a high level of DER penetration and maximize the use of DER to provide grid services. United agreed with Staff that direct load control should be de-emphasized in favor of more automation and development of market mechanisms to drive customer adoption and beneficial use of DER. For example, utilities could create a standard tariff-based offering available to all customers that are designed to work in conjunction with the PJM Interconnection, L.L.C. ("PJM") programs. United noted that there are several programs already established that accomplish this.

Uplight expressed support for the DR vision and the goal to future-proof the program. Uplight appreciated the inclusion of utility DR programs in the straw proposal, stating that DR programs represent a large, cost-effective opportunity for generating avoided costs that will save ratepayers money on their bills. Uplight suggested that the Board encourage the utilities to coordinate DR plans so as to allow for two (2) outcomes from one (1) resource (e.g., DR resource can be used for both summer peak electric reduction and peak gas reduction in the winter).

Response:

Staff thanks the commenters for the general support of DR framework and the importance of DR as a cost-effective tool to lower customer bills and to meet capacity demand. The DR framework seeks to establish strong DR programs that will develop synergistically with the NJ Grid Modernization program, while developing the infrastructure (technological and procedural) to create an open, portable, and flexible grid service market that extracts the full value of DR services while fairly compensating participants for that value.[1] Commenters provided support for the framework being technology-agnostic or to request inclusion of emerging or specific technologies. To the extent possible, Staff intends for the framework to be technology-agnostic and performance-driven. The broader effort of creating a DER market to grow generation assets is outside the scope of this proceeding. Similarly, Staff intends for the framework to enable multiple participation models, including participation by third-party energy suppliers ("TPSs").

While Staff recognizes the increased value that can be achieved from open, portable, grid flexibility services, much of the needed infrastructure [near-real time of use ("TOU") or dynamic

[1] For more information about the Board's Grid Modernization initiative and activities to date, see https://www.njcleanenergy.com/gridmod

TOU tariffs, advanced communication technologies and protocols] is new to New Jersey. Utilities are in full swing rolling out AMI systems and learning how to best utilize this data collection. Additionally, the PJM tariff for compliance with Federal Energy Regulatory Commission ("FERC") Order 2222 will not be implemented until the 2026–2027 timeframe. As such, Staff recommends pilots to develop optimal DR approaches in conjunction with evolution in these technologies and regulations.

With regard to Uplight's suggestion to coordinate programs across utilities, Staff agrees that electric distribution companies ("EDCs") and ("GDCs") that share territories should coordinate programs. Moreover, Staff encourages the utilities to coordinate on DR program design such that the state has uniform DR programs.

In the straw proposal, Staff sought to keep program design simple and isolated from other proceedings by limiting the DR programs to non-generating assets. Staff supports BYOD program designs as a foundational approach to grow the DR market. Staff is open to pre-enrollment in DR programs when smart devices are purchased. Given the importance of storage and Class I generation assets for grid flexibility services, as suggested by FuelCell and PSE&G, Staff supports the use of storage or Class I generation assets in pilot programs as long as program design aligns with the DR Guiding Principles (Appendix A to Attachment C: Demand Response Programs Framework).

Staff appreciates NEEP's specific recommendations on program design and will consider them when reviewing program design. However, to not overly constrain program design approaches, Staff does not recommend imposing specific requirements during Triennium 2. Those recommendations dealing with process efficiency and ensuring equitable deployment do, however, have merit and will be considered for Triennium 2 programs.

Staff concurs with the comments to encourage DR programs for the residential and LMI markets. DR is a low cost and cost-effective measure to help LMI households to reduce their energy burden. Staff encourages the utilities to target LMI in their program marketing plans.

Regarding program design concepts such as outreach plans, Staff appreciates the recommendations and will retain them for future consideration and distribution. At this time, however, Staff does not believe that such concepts should be introduced to the framework as requirements.

OPEN, FLEXIBLE, PORTABLE DR MARKET

Comments:

United expressed support for competitive markets, portable customer participation, and innovation beyond utility direct load control and interruptible rate-based programs, such as BYOD thermostat and storage programs, EV managed charging plans with corresponding rates, and other automation.

United expressed general support for a creative and flexible market that based on innovative technologies and monetization of the "full value stack" of DR. United proposed providing customers with the option to retain and monetize the EE capacity credits resulting from EE technology installations (directly or through a PJM Curtailment Service Provider) into the PJM EE

program. United suggested that allowing the individual customer to retain their own capacity rights would allow the PJM capacity revenue to be re-invested directly into the EE installation.

While United agreed that utilities will need more visibility and control related to DERs and that pilots should explore this, United cautioned against moving towards a system where only the utility controls DER with a DER management system ("DERMS"). United agreed with Staff's vision of a competitive DR market, where at least some of the functionality of a DERMS can be better provided by the competitive market. United argued that any decisions to invest in DERMS should be predicated on a well-developed business case and a full exploration of the alternatives.

EEA-NJ commented that there is a clear distinction between third-party DR aggregators and entities providing services on behalf of the utility. EEA-NJ argued that, while the utility will rigorously vet all implementers, the BPU should establish a standard for third-party DR aggregators to have timely, secure access to customer data with customer consent. EEA-NJ noted that, to create an open market, customer data usage and demand requirements should be made available in near real-time to third-party DR aggregators. In addition, EEA-NJ recommended that anonymized customer data be made available for market assessment and research.

Google supported minimizing large fixed-cost investments while incenting private adoption with BYOD-based programs such as those based on smart thermostats, especially those for which there also are EE incentives. Google noted that Rockland Electric Company is already is doing so. Google provided smart thermostat program design recommendations, which are not repeated here.

Recurve commented on the benefits of an open market and the importance of data rights and access. Recurve stated that an open market is cost-effective in that payments are capped at or below the designed value of DR services benefits; an open market that allows third-party DR services providers to participate with low barriers of entry helps to accelerate existing DR business models and grow customer reach; and an open market can synergize funding from multiple sources to drive investment.

Like Google, Meltek argued for low-capital, cost-based DR approaches, such as software-only, and expressed concern that the straw proposal put too much emphasis on capital-intensive hardware. Rather, Meltek argued, the DR framework should emphasize that the listed concepts are not limiting and illustrative only. Meltek, along with Recurve, advocated that payments should be for DR performance enabled by software-only programs and not to subsidize hardware purchases.

With regard to data rights and access, Recurve stated that an important consideration that is needed to enable full utilization of the AMI deployed in the state is data access and sharing practices for both the utilities and third parties. Recurve asserted that the current guidelines around data access have required standardization across the utilities and that the guidelines should allow third parties to have timely and secure access to customer data with customer approval.

Rate Counsel stated that all available data should be used to assess baselines.

Competitive Suppliers strongly urged the Board to include retail energy suppliers in their DR plans rather than limiting the DR programs to utilities and third-party DER aggregators.

Response:

Staff envisions a low friction process for customer adoption and integration of DER behind the meter. Ideally, the DER assets will serve multiple needs of customers while coincidentally aligning with the functional needs of the utility for distribution system balancing and reliability.

Some examples of these coincident benefits are offered which highlight these aligned interests:

- Smart thermostats enable both permanent EE gains while offering temporary load reduction.
- Energy storage (with or without solar photovoltaic energy production) or electrolyzer/fuel cell offers emergency backup generation, optimal use of local clean generation, and scalable resource for grid voltage stability.
- Smart inverters and meter collars enable home automation and broader DER adoption, while allowing for innovative grid flexibility services such as reactive power and hybrid net metering applications.
- Electric vehicles ("EVs") offer fundamentally clean transportation as well as powerful load management opportunity through smart charging. For home powering flexibility, vehicle-to-home offers a compelling application for energy storage. As bidirectional power flow becomes extended to EDC circuits as part of grid modernization, a vehicle-to-grid application can offer even more customer participation as a DR resource.

Staff welcomes utility proposals for pilot studies on DERMS. Staff concurs with Rate Counsel's concern that if DERMS costs are rate-based, then DERMS implementation must support an open, portable, and flexible market for third-party DR services to participate. Staff recommends that the Board evaluate such studies according to the open, flexible, portable paradigm described in the DR Guiding Principles. As part of the grid modernization proceeding, Staff recommends a stakeholder process to develop DERMS rules that promote open, portable, and flexible programs.

Staff supports the participation of third-party aggregators, who are best positioned to capture the most of these coincident value stack and share financial benefits with participating customers, while minimizing the impact to non-participating ratepayers. Staff also supports DR service aggregators who offer software-only solutions as an approach to avoid capital-intensive, rate-based solutions.

As noted by EEA-NJ and Recurve, Staff views data rights and near real-time data access as foundational to a cost-effective, open market for grid flexibility services. Staff supports EEA-NJ's suggestion to make anonymized customer data available for market research and market assessment purposes.

Staff agrees that baseline calculations are key to properly remunerating program participants for their capacity savings. Staff recommends that the MFRs require disclosure of the methodology to calculate baselines.

Staff agrees with the comments concerning large fixed cost investments that would be borne by ratepayers. The MFRs require capital investments to be justified and accounted for in the benefit-cost analysis and directly compared with equivalent solutions employing less rate-based capital.

ELECTRIC DISTRIBUTION COMPANIES' DR PROGRAMS

Comments:

United recommended utility-led distribution load management programs based on those implemented in New York State to defer transmission and distribution ("T&D") costs and relieve targeted load during stress periods.

Competitive Suppliers expressed their belief that competitive TPSs are the entities best suited to deliver the types of value-added products and services to consumers made possible by AMI meters, including DR programs, that DR is arguably outside of EDCs' core functions, and that utilities should be not be allowed to use ratepayer funds or their monopoly position to gain an unfair advantage over other entities. Competitive Suppliers further contended that utility use cases that are outside of the utilities' core functions should not be allowed, including: DR, enhanced customer engagement and communications; rate analyzer and comparator; usage and bill alerts, saving tips; interactive energy demand and bill management; customer segmentation and behavioral analysis; customer efficiency programs (smart thermostats); customer DER/solar/EV; customer pre-paid billing options; innovative rate development, customer smart devices; smart city; microgrids; customer gamification and loyalty programs; energy storage; and real-time pricing.

Franklin noted that successful programs are customer centered, have simple enrollment processes, and have customer education campaigns. Franklin also suggested that DR programs should focus on disadvantaged communities and customers not otherwise participating in EE or decarbonization programs.

Google Nest offered specific recommendations for a successful DR program: offer a one-time enrollment payment to customers as well as a smaller, recurring payment for customer retention; encourage pre-enrollment in DR programs at point of sale of smart thermostats; enable stacking of EE and DR incentives; and launch smart thermostat DR programs without waiting for AMI deployment because smart thermostats can independently measure runtime data.

Meltek requested that BPU mandate that any enrollment by a utility customer in one (1) type of program (such as a pre-AMI BYOD thermostat) should not prohibit such customers later from enrolling in another system (such as an AMI-based comprehensive controls-based system).

PSE&G expressed concern that Staff did not propose including energy storage as an optional demand management resource and argued that the Board should allow the utilities to integrate energy conservation technologies – specifically, energy storage – and thereby provide more holistic solutions that increase the overall uptake of EE and renewable energy technologies.

FuelCell requested that BPU consider emerging technologies in the DR programs and roadmap study. Furthermore, FuelCell recommended including fuel cells and microgrids in the pilot programs.

EEA-NJ and SPAN suggested pre-enrollment in a DR program when a customer makes a purchase of a smart device.

Response:

While United recommends utility-led load management programs, Competitive Suppliers expressed their belief that EDCs should not be allowed to provide services beyond what they define as "core services," which do not include DR. Since the EDCs manage the retail market through the distribution system, Staff acknowledges that only the EDCs can provide the "core service" of sending retail market signals for dependable activation of DR services.

On the other hand, Staff strongly believes that the provision of DR services should be open to third-party providers. EDCs may provide DR services, but not at the exclusion of third-party providers. As such, Staff defined the following guidelines in the DR Guiding Principles document (Appendix A):

- Attempting to minimize capital intensive solutions that would sink investment into a large rate recovered asset base.
- Requiring utility investment to be directed to "open" and "portable" solutions that can migrate to more competitive providers without unreasonable exit cost.
- Requiring active and persistent engagement by EDCs in working groups and pilots aimed at advancing the Triennium 3 capabilities that will open DR for broad market competition and innovation as a more generic "grid flexibility service."
-

With regard to Competitive Suppliers' comment about the types of services and who shall offer them, Staff sees a distinction between economic and emergency response. Staff views emergency response service (e.g., preventing imminent failure of a substation) as solely in the interest of the EDC, and as a result, only EDCs may offer DR programs that respond to emergency response.

On the other hand, DR programs that are based on price signals should remain open, portable, and flexible to keep the market competitive.

Regarding electric DR programs in particular, Staff agrees with United's point that accounting must not allow double-counting of impact to the capacity (or other) markets. This was one of the areas carefully examined by the PJM Working Group in developing a FERC Order 2222 compliance filing for DER aggregation.

Although Staff generally agrees with Google's recommendations for program design, Staff does not want to impose these specific design elements in order to keep the market open to innovative program designs. Staff recommends imposing one (1) design element for the sake of portability, which is that customers should have a convenient release clause to make it easy to switch service providers.

Staff appreciates Franklin's suggestion to focus on disadvantaged communities. Given the low cost benefits that could accrue to disadvantaged communities, Staff encourages utilities to target disadvantaged communities.

Staff recognizes the validity of Meltek's concern that participation in one (1) DR program should not prohibit participation in another. In an open market, participation in more than one (1) program should be allowed. Staff recommends that, as part of the DR Roadmap Study, potential rules and regulations be explored to ensure that no double-counting of DR occurs.

With regard to EEA-NJ's suggestion about pre-enrollment, Staff encourages, but does not recommend prescribing, that pre-enrollment be a component of program design.

I. Should AMI Be Required?

Comments:

Several commenters (Copper, EEA-NJ, Franklin, Google, NGO Commenters, United) noted that DR programs do not require AMI. United recommended that non-AMI DR Programs be prioritized for early launch. Copper Labs contended that natural gas AMI data is not needed to gather near-real-time consumption data and that their technology has the ability to scale quickly to serve gas customers across the state during Triennium 2. NGO Commenters noted that AMI data is important but is not always a necessary component of DR programs, thanks in particular to Internet of Things ("IOT") developments, and should not be used as a reason for delay, especially in the gas market.

Franklin noted that the DR straw proposal put a great deal of emphasis on the deployment of AMI to enable DR programs and events.

In contrast, Meltek encouraged program design around utility AMI and recommended that TPSs should not be locked out to access to AMI-generated data. Meltek advised slightly expanding Section 5.01(II)(b)(iii) to read "Customer and aggregator access to current and historical energy usage data from smart meters, including available data fields, access rules, and technology standards."

United noted that third-party access to utility data is critical. United argued that a DR program should create a data-rich environment in which customers and their designated third parties have timely access to individual customer data. United also argued for improved access to electricity system data by third parties, as well as anonymized, aggregated customer data. United added that the MFRs should include a description of how the DR program would leverage the competitive market and third-party DR providers/aggregators, including how the utility plans to work with stakeholders to create an open, portable, and flexible grid.

Competitive Suppliers stated that the Board has already significantly delayed the completion of the development of AMI data access standards, which has been stalled at the BPU since September 2022. Competitive Suppliers asserted that such standards are critical for timely and efficient access to near real-time interval usage data and that, the older the data, the less valuable and useful it is to motivate customers to act.

Competitive Suppliers contended that EDCs must be required to settle all load at PJM and calculate individual customer programmable logic controllers based on the interval data collected by its new AMI meters to enable customers to realize the value of their AMI investment.

Recurve emphasized the importance of, and expressed optimism about, New Jersey standardization of AMI data and policy guiding access and sharing. Recurve also supported Staff's recommendations encouraging utilities to leverage the investments in AMI to the fullest extent, noting that AMI is essential to enable consistent and transparent calculation and adjudication of performance payments.

Response:

Staff agrees with multiple commenters that DR need not wait for expansion of AMI infrastructure to launch either electric or natural gas programs. Staff recommends that utilities be allowed to propose DR programs without the use of AMI; however, the costs associated with potentially duplicative network systems and operational software must be clearly delineated and rationalized. Staff encourages the use of AMI to extract the full stack value and advance the opportunity for DR to become more tightly integrated with other grid flexibility services. A non-AMI program should not lead to excessive stranded assets (such as communication information technology that would be replaced or duplicated by AMI) when transitioning to AMI.

Staff also agrees that AMI data, once collected, should be made available to third parties, in a secure manner, once approved by customers.

Staff understands the relevance of the AMI data access standards development process and appreciates the input provided on urgency, but will not further address that matter in the recommended DR framework.

II. Generation Assets in DR Programs

Comment:

FuelCell contended that net AMI metering-based designs should be able to include fuel cells, regardless of whether they use Class I renewables as fuel.

Response:

Staff does not recommend that generation assets be included in the DR Programs until Triennium 3, during which time DR Programs will be more closely aligned with the Grid Modernization initiative. On the other hand, Staff recommends that DR services based on generation assets may be proposed as part of a pilot program. The DR Program, as part of the EE proceeding, is focused on load management. The services based on generation assets require coordination across proceedings, including AMI, storage, and grid modernization, which is beyond the scope of this Triennium 2 Board Order.

GDCs' PROGRAMS

Comments:

United supported the inclusion of natural gas as part of the Triennium 2 roll-out of DR.

Mr. Winka asserted that the GDCs should be required to develop a large/institutional/combined heat and power ("CHP")-operating, customer-focused hot water and phase change materials-based thermal energy storage ("TES") program with their own tariffs to assist these customers in transitioning to heat pump technologies with thermal storage.

NJNG noted that GDCs currently do not have AMI and therefore, as a practical matter, are not in a position to implement gas DR without a change in policy on AMI.

Copper Labs and Meltek asserted that communication and IOT technology enable gas load management without the need of AMI.

United fully supported the inclusion and strategic consideration of natural gas DR and asserted that a multipronged approach to implementing successful natural gas DR strategies in this proceeding will ensure the stated goal of reducing natural gas usage and peak demand. United recommended that the Board examine Consolidated Edison's "Smart Solutions" program that targeted a combination of gas efficiency and peak usage reductions.

Response:

Staff acknowledges that GDC DR programs are clearly different than EDC DR programs in that they do not rely on AMI and grid flexibility. GDC DR programs for load management are encouraged, particularly expanding into the residential sector and evolving in the commercial sector from traditional curtailment services.

While Staff recognizes the potential gas DR in the markets noted by Mr. Winka and will retain such recommendations for future detailed program design consideration, this framework will not specify required program intervention technologies or target markets.

ROADMAP STUDY

Comments:

FuelCell contended that the roadmap would be best served by specifically allowing and considering emerging technologies.

United stated that the need for improved access to electricity system data by third parties, as well as anonymized, aggregated customer data.

Mr. Winka proposed combining a Building Decarbonization Roadmap with the proposed DR Roadmap Study.

Response:

The roadmap study shall identify tasks and milestones, create prototypes for this market-driven model, and give interested parties a referential construct for long-term planning in developing innovative business models for recruiting, integrating, and managing DR resources in New Jersey. Staff thanks Mr. Winka for his suggestion on combining a roadmap study for both BD and DR. However, given the need to integrate DR strategy as a flexible load reduction tool, and the desire to keep this service development closely aligned with the adjacent proceedings for solar, storage, AMI, and grid modernization, Staff recommends keeping separate roadmap studies for BD independent of DR.

While Staff does not recommend overly constraining allowable solution design approaches during Triennium 2, it also recognizes that practical and cost-effective solutions involving emerging technologies may be a bit premature.

In focusing on advancing the Roadmap Framework for Triennium 3, however, Staff envisions that several of these rapidly advancing technologies will be ready for broader adoption. Programs

submitted for instant (e.g., Triennium 2) consideration should therefore explicitly state the intended evolution path into these technologies, including but not limited to:

- Compatibility with growing adoption of DER behind the meter (solar/storage/fuel cell, EVSE) and aggregation thereof by third parties
- Enabling access to critical system and performance data by customers' authorized third parties and also anonymized, aggregated customer data to authorized research firms
- Potential application of artificial intelligence/machine learning algorithms
- Advances in distribution system technologies such as DERMS, microgrid, reverse power flow, and smart inverters
- Establishing customer data rights and settlement rules
- Utility standard tariffs for third party aggregators to offer DR services
- Standards and rules for qualifying third-party aggregators

PILOT PROJECTS

Comments:

FuelCell supported flexible pilots that include generation assets. Likewise, PSE&G suggested that energy storage should play a role in the pilots.

United urged prompt DR program launches in Triennium 2. Concerning DERMS, while United agreed that utilities will need more visibility and control related to DERs, and pilots should explore this, they cautioned against moving towards a system where only the utility controls DERs with a DERMS.

Franklin advocated for BYOD-based programs.

Response:

Staff observes broad support expressed for pilot programs and will advance these evaluations as short-term, tactical demonstrations that stay tightly integrated with the Grid Modernization Forum workgroup activities. The pilots should focus on paths toward achievement of the open, flexible, and portable attributes described in the previous section and utilize some of the example elements. As previously stated in the straw proposal, Staff recommends pilots in these areas:

- Technology application, particularly DERMS
- Demonstration of measurement and verification ("M&V") through emerging AMI data access
- Market pricing and clearing mechanisms (including various TOU programs)
- Market communication and aggregation frameworks

The pilots will gather quantifiable data in the following areas:

- Barriers to enrollment/participation/portability.
- Efficiencies for key business processes, including outreach, enrollment, activation, M&V, billing integration, complaint resolution
- Flexibility/modularity/standardization of resource integration and operation
- Modes and levels of compensation required for participants
- Comparative level of capital intensive investment required at scale

In some cases, the pilots will be tightly connected with validation efforts for underlying modeling and simulation work.

PERFORMANCE METRICS

Comments:

PSE&G and the NJUA sought clarity that DR program demand reductions are not to be added to the EE program demand reduction to provide an overall demand reduction quantitative performance indicator ("QPI") value.

PSE&G sought clarity on what should be included in the $/participant and $/kW enrolled. PSE&G recommended that the calculation of $/participant and $/kW be based specifically on the incentive dollars given to a participant and not include other costs.

PSE&G requested clarity that net-to-gross ("NTG") corrections not be applied in Triennium 2 and that subsequent NTG research findings be applied in Triennium 3.

NEEP offered a set of metrics for consideration:

- Number of active demand devices enrolled
- Number of participants in DR events
- Engagement on app platforms
- Consumer bill savings

NEEP further recommended the following equity-focused metrics:

- Income level of homes served
- Number of participants
- Single- or multi-family homes
- Energy burden of customers served before and after enrollment

Response:

Staff disagrees that DR demand savings should be added to EE program demand savings QPI. Given that DR programs do not have a performance incentive mechanism ("PIM"), that the DR budget is separate from the EE budget, and that DR represents a *temporary* load reduction that in many cases has a substantial springback recovery load *increase*, Staff does not support this suggestion.

While Staff recommends a set of QPIs to track DR program performance, Staff anticipates that the QPIs will not drive an incentive mechanism until Triennium 3. The set of QPIs include: i) Capacity (kW) savings, ii) participant counts, iii) $/kW, iv) overburdened community ("OBC") ratio of participants to population. As with the EE QPIs, the DR QPIs are the ratio of achievement divided by the target value in a utility's filing.

Staff thanks NEEP for its recommendations on performance metrics. Given that DR is a new program area for New Jersey, Staff views these metrics as important to track and shall take them

under consideration for performance tracking reports. Staff also recommends that the metrics be reported by OBCs and non-OBCs.

Staff agrees with PSE&G's suggestion to assume NTG equals one for Triennium 2. No capacity savings are achieved in the absence of program participation.

Staff does not agree with PSE&G's suggestion to not include costs outside of customer incentives. The full cost of all utility proposed recovery must be included to properly evaluate program performance. Excluding outreach, billing software update and proprietary network services, for example, and only including the DR hardware devices would not be a suitable accounting for cost-benefit analysis.

COST TEST

Comments:

PSE&G requested that the Participant Cost Test ("PCT") not be used as a metric for cost effectiveness testing due to the difficulty in quantifying bill reduction benefits and customer costs such as reduced comfort, and suggested new research for cost tests appropriate to DR. PSE&G asserted that participant benefits from DR are difficult to evaluate and quantify.

NEEP and Recurve recommended use of the total systems benefit ("TSB") metric. NEEP stated that this metric accounts for when and how customers use energy by assigning a per hour value for energy generation and can calculate real time energy cost and provide more level footing for DER compared to traditional energy sources. Recurve stated that a TSB metric solves the problems of siloing, accurate carbon accounting, and grid impacts through time valuation and captures the complete value stack of a DER.

Response:

While Staff recognizes the difficulty in quantifying the non-energy participant benefits of DR as described by PSE&G, Staff maintains that the PCT is a needed test to ensure that benefits accrue to the participant. In particular, any discounts, rebates, or credits given to participants should be reasonably proportional to the market value generated by a DR service. Staff recommends that the New Jersey Cost Test Committee of the Evaluation, Measurement, and Verification Working Group ("EM&V WG") take up research on non-energy participant benefits during Triennium 2, with findings informing the Triennium 3 implementation.

Staff strongly supports a pilot project that would employ a TSB metric as suggested by NEEP and Recurve.

MINIMUM FILING REQUIREMENTS

Comments:

PSE&G and NJUA urged amending existing EE MFRs to include DR and just highlighting DR-specific requirements. They argued that separate DR program MFRs are not necessary.

PSE&G requested clarification regarding whether the MFRs include the GDCs and, if both, which MFRs apply to EDCs and GDCs.

SJIU requested that MFRs be updated to include gas utilities and to remove and/or revise the requirements that exclusively mention or apply to the EDCs only, such as reference to TOU rates and peak hours.

United recommended that MFRs require the utility to describe how the DR program would leverage the competitive market and third-party DR providers/aggregators, including how the utility plans to work with stakeholders to create an open, portable, and flexible grid.

Mr. Winka noted that he has observed a lack of utility transparency historically and recommended that data transparency needs be part of the MFRs for both the BD start-up programs and the DR programs.

Response:

Staff acknowledges the need to write separate MFRs for EDC and GDC DR Programs – in particular, to remove references to AMI and TOU for GDC DR Programs – and has revised recommended MFRs to this end.

Per United's recommendation, Staff agrees that the MFRs require how a DR program would encourage a competitive market and third-party aggregators.

Staff thanks Mr. Winka for pointing out the perceived historic lack of data transparency. Staff recommends that the MFRs include the following specific data transparency requirements:

- To support any evaluation-related work, data should be provided by the utility or state or their program administrator in full and within four weeks of the request.[2] Time extensions may be approved by Staff if they are received more than a week before the data are due and if a meeting has been held with the Statewide Evaluator team requesting the data to identify if there are adequate substitutes (in the Statewide Evaluator's judgment) for the initially-requested data.
- Data delivery must use appropriate secure delivery systems.
- Staff will require regular (at least quarterly) reporting on data requests and their fulfilment status (timeliness, completeness, data quality, etc.).

OTHER

Comments:

NGO Commenters recommended that the Board place a greater emphasis on time varying rates ("TVRs") and technology-based rate programming for all utility service territories and customer classes, including not just TOU but also critical peak pricing and peak time rebates as well as EV charging tariffs and electrification tariffs, as grid load profiles are changing rapidly.

With regard to the DR Guiding Principles, United fully supported Staff's vision of creating a market for "grid flexibility services" where customers have access to a range of options from the

[2] Evaluation-related work includes, but is not limited to, impact, process, NTG, baseline, effective useful life/remaining useful life, cost-effectiveness, Technical Reference Manual, full load hours, non-energy impacts, market research, surveys, and numerous other evaluation-related analyses.

competitive market. United noted that it sees an important distinction between EE and the use of emergency power and asserted that, depending on the reasons for articulating and describing these services, they should potentially be treated separately. United agreed that avoided T&D upgrades is a major benefit but argued that capacity relief, which can defer or avoid new T&D investment, is indeed a "service" that DR (and DERs more generally) can provide and that there can therefore be a "market" for it, structured programs, or targeted procurements, such as non-wired solutions. United stated that they do not see a reason to think of these benefits separately from other grid flexibility services.

Mr. Winka stated that the EDCs should provide a managed EV charging program that provides an optimal timeframe for charging EVs and a TOU off-peak rate, at a minimum. He also stated that the EDCs should develop a rate structure that benefits small and medium-sized non-residential electric customers to install battery storage in facilities that have or will install on-site distributive solar systems.

Response:

With regard to the comments by both NGO Commenters and Mr. Winka, Staff encourages pilots to explore TVR and EVs, while also developing these areas as part of the larger Grid-Modernization and AMI Data Access proceedings.

Staff thanks United for its support of the DR Strategic Plan (now entitled DR Guiding Principles). Staff will take into consideration accounting for avoided T&D upgrades as it develops a Cost Test for DR for Triennium 2.