STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

In the Matter of 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 EE&C)	:	BPU Docket No. **VERIFIED PETITION**

TO THE HONORABLE BOARD OF PUBLIC UTILITIES:

Petitioner, Jersey Central Power & Light Company (the "Petitioner", the "Company" or "JCP&L"), an electric public utility company of the State of New Jersey, subject to the regulatory jurisdiction of the Board of Public Utilities (the "Board" or "BPU"), and maintaining principal offices at 300 Madison Avenue, Morristown, New Jersey 07962-1911, and 101 Crawfords Corner Road, Building 1, Suite 1-511, Holmdel, New Jersey 07733, respectfully submits this Verified Petition and states:

INTRODUCTION

1. JCP&L is a New Jersey electric public utility primarily engaged in the purchase, transmission, distribution, and sale of electric energy and related utility services to more than 1,000,000 residential, commercial and industrial customers located within 13 counties and 236 municipalities of the State of New Jersey.

2. JCP&L files this Petition to seek approval of its proposed Energy Efficiency and Conservation Plan that includes JCP&L's proposed energy efficiency ("EE") and peak demand reduction ("PDR") programs for the three year period starting July 1, 2021 and ending June 30, 2024 (the "JCP&L EE&C Plan," "EE&C Plan," or "Plan"), as well as approval of a cost recovery mechanism.

3. The JCP&L EE&C Plan consists of ten (10) EE programs and subprograms and one (1) PDR program to achieve the targeted annual energy savings for the first three program years commencing July 1, 2021 and ending June 30, 2024.

4. This Petition is filed in compliance with the Board's Order Directing the Utilities to Establish Energy Efficiency and Peak Demand Reduction Programs, Docket Nos. QO19010040; QO19060748 and QO17091004, dated June 10, 2020 ("June 10 Order"), which directed that each electric and gas utility submit program filings by September 25, 2020, compliant with Board approved minimum filing requirements as adopted in the June 10 Order and provided as Appendix B thereto ("MFRs"), for the first three program years commencing July 1, 2021 and ending June 30, 2024.

5. As described in the attached direct testimony of Edward C. Miller, the Company's proposed EE and PDR programs further the State's goals to implement EE measures and to provide access to such measures for low- and moderate-income communities. The testimony of Brendon J. Baatz, of Gabel Associates, Inc., describes the Benefit-Cost analyses, which demonstrates that the JCP&L EE&C Plan is cost effective on an overall portfolio basis. The testimonies of Edward C. Miller and Brendon J. Baatz, and attachments thereto, address all of the MFRs except the Company's proposed cost recovery mechanism for the EE&C Plan. The attached testimony of Carol A. Pittavino addresses the Company's proposed cost recovery mechanism and associated MFRs.

6. The Company is proposing a budget of $230.1 million consisting of $187.5 million in investment and $42.6 million in expenses for the JCP&L EE&C Plan over the three-year period covered by this filing.

7. The programs and subprograms in the proposed JCP&L EE&C Plan are designed to increase energy efficiency and reduce peak demand in all sectors of the economy. Savings

opportunities are offered to the Company's entire customer base of residential, multi-family, commercial and industrial customers, with specific opportunities for low and moderate income, multi-family, small business and local government customers.

BACKGROUND

8. On May 23, 2018, the Clean Energy Act of 2018 ("CEA") was signed into law by Governor Murphy. The CEA established aggressive energy reduction requirements, including the direction that each electric public utility achieve energy reductions by its customers.

9. EE is one of seven key strategies identified in New Jersey's 2020 Energy Master Plan ("EMP"), which adopted the goal of having New Jersey's energy customers utilizing 100% clean energy by 2050, in order to provide immediate and long term energy cost reductions and improve health and safety for all households.

10. Pursuant to the CEA, the Board authorized the Division of Clean Energy ("DCE") to enter into a contract for a study to develop the potential for EE and PDR for each utility and to develop preliminary energy savings targets and quantitative performance indicators ("QPIs") for electricity and natural gas usage ("EE Potential Study"). Following the EE Potential Study, numerous stakeholder meetings on many issues related to EE and PDR, and after receiving other public input, Board Staff developed the full Energy Efficiency Transition Straw Proposal ("Full Proposal") on March 20, 2020. There followed a public stakeholder meeting and written comments concerning the Full Proposal.

11. The June 10 Order adopted many of Staff's proposals, directed further stakeholder proceedings and required utility filings with the Board proposing their initial three-year EE and PDR programs on or before September 25, 2020.

12. The Company's proposed investments in the JCP&L EE&C Plan implement requirements of the CEA and comply with the MFRs adopted by the Board in the June 10 Order.

13. Appendix A attached to this petition and made a part hereof, identifies the location in this filing of all the information required in the Boards MFRs. A pre-filing meeting between the Company, Board Staff and Rate Counsel was held on August 21, 2020.

THE JCP&L EE&C Plan

14. The JCP&L EE&C Plan provides for significant investment in EE and PDR programs and subprograms over the first three program years from July 1, 2021 through June 30, 2024. The projected investment in each program and subprogram in that time frame is as follows:

JCP&L Summary of Program Costs		
Program	**Sub-Program**	**Total 2021-2023 Program Budget ($)**
Efficient Products	Efficient Products	$67,647,413
Existing Homes	Home Performance with Energy Star	$22,463,087
	Quick Home Energy Check-up	$7,271,529
	Moderate Income Weatherization	$13,709,728
Home Energy Education and Management	Behavioral	$4,146,482
Direct Install	Direct Install	$26,135,580
Energy Solutions for Business	Prescriptive / Custom	$64,609,040
	Energy Management	$4,281,446
	Engineered Solutions	$10,802,198
Multifamily	Multifamily	$5,755,006
Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	$3,321,963
	Total	**$230,143,473**

15. The JCP&L EE&C Plan will have a maximum cumulative bill impact over the entire three-year program period of approximately $2.05 or about 2.0% of the current average residential monthly bill.

16. The eleven (11) programs and subprograms which make-up the JCP&L EE&C Plan are summarized in the following table.

Table 3: JCP&L 2021-2023 Program Summary Description			
Program	**Subprogram**	**Program Type**	**Description**
Residential Programs			
Efficient Products	Efficient Products	Core Utility	Provides incentives for HVAC, lighting, appliances, appliance recycling, consumer electronics and other energy saving equipment through a variety of channels
Existing Homes	Home Performance with Energy Star	Core Utility	Provides a customer a whole home approach for direct install of efficient equipment and comprehensive retrofits
	Quick Home Energy Check-up	Additional Utility	Audits with direct installed measures provided at no additional cost to participants with education about the opportunities to save energy including other program opportunities
	Moderate Income Weatherization	Additional Utility	Audits with direct installed measures, weatherization services, and HVAC repair/replacement provided at no additional cost to participating income qualified customers
Home Energy Education and Management	Behavioral	Additional Utility	Provides education of energy usage through Home Energy Reports and on-line audits, with targeted customized messaging to promote energy savings and conservation opportunities
Commercial & Industrial Programs			
Direct Install	Direct Install	Core Utility	Audits with direct installed measures to small business customers including lighting, controls, HVAC upgrades and refrigeration
Energy Solutions for Business	Prescriptive / Custom	Core Utility	Provides incentives for HVAC, Lighting, Motors & Drives, Refrigeration, Water Heaters, Air Compressors, Food Service Equipment and other efficient equipment and projects
	Energy Management	Additional Utility	Customer engagement targeting efficient building operations through building tune-up, retro commissioning and customized energy management solutions.
	Engineered Solutions	Additional Utility	Provides consultative service throughout delivery, including comprehensive audits, detailed analysis and recommendations of energy efficiency measures and development of project specifications, to assist customers in identifying and undertaking large comprehensive energy-efficiency projects
Multifamily			
Multifamily	Multifamily	Core Utility	Provides audits, direct install measures, prescriptive and custom incentives as well as comprehensive projects for multifamily buildings
Other Programs			
Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Additional Utility	Provides control and/or optimization of connected devices (e.g. smart thermostats, smart home energy management systems) to target and achieve energy and peak demand savings

17. As presented in the above table, the EE&C Plan includes a comprehensive portfolio of EE and PDR programs and subprograms for the residential, commercial and industrial, and multifamily sectors, and other Company initiatives included as part of the "Other" sector of the Plan. The Plan incorporates both near-term and longer-term energy savings opportunities for customers including single and prescriptive measures, multiple prescriptive and custom measures, direct install, and comprehensive whole building solutions, in order to provide opportunities for all customer classes to participate in EE programs. The programs and subprograms were designed to address both educational and initial cost barriers and to tap a variety of delivery channels and vendors in order to support customer engagement, education, and participation. Included are direct or targeted programs that engage customers, including specific opportunities that ensure access for all customers, and serve as a portal for other program offerings by serving the dual purpose of

providing customers with energy efficiency education as well as information regarding other program services and opportunities upon which they can act. The programs and subprograms incorporate strategies to change behaviors and include incentives and access to financing in order to address initial cost barriers and to promote the participation of all customers. They also provide opportunities for customers interested in whole building/comprehensive solutions and encourages customers to consider a holistic approach to energy efficiency. Finally, these programs and subprograms support the State's vision for achieving 100% clean energy by 2050 by working to reduce customers' energy bills, create "green" jobs, and lower greenhouse gas emissions while improving the overall utility experience for customers.

18. More detailed descriptions of each proposed program are provided in Sections 4.0 and 5.0 of the EE&C Plan, which is Attachment B to the testimony of Edward C. Miller in support of this filing.

19. The projected energy savings for the JCP&L EE&C Plan for the three years covered by this filing are summarized in the table below:

Table 4: JCP&L 2021-2023 Summary of Portfolio Energy and Demand Savings [1,2]

Sector	Program Type	2021		2022		2023		Total	
		KWh Savings	kW Savings	KWh Savings	kW Savings	KWh Savings	kW Savings	KWh Savings	kW Savings
Residential	**Total**	**68,456,009**	**6,006**	**84,756,312**	**9,756**	**95,047,250**	**12,845**	**248,259,571**	**28,607**
	Core Utility	67,164,734	5,794	68,727,412	6,626	66,977,400	6,801	202,869,546	19,221
	Additional Utility	1,291,275	211	16,028,900	3,130	28,069,850	6,045	45,390,025	9,385
Commercial & Industrial	**Total**	**54,782,583**	**9,211**	**88,527,604**	**15,902**	**109,842,420**	**20,140**	**253,152,606**	**45,253**
	Core Utility	54,507,583	9,186	84,658,564	15,339	96,456,156	17,699	235,622,302	42,224
	Additional Utility	275,000	26	3,869,040	563	13,386,264	2,441	17,530,304	3,029
Multifamily	**Total**	**982,467**	**113**	**1,101,217**	**127**	**1,219,967**	**141**	**3,303,650**	**381**
	Core Utility	982,467	113	1,101,217	127	1,219,967	141	3,303,650	381
Other	**Total**	**0**	**0**	**0**	**0**	**2,738,574**	**13,200**	**2,738,574**	**13,200**
	Additional Utility	0	0	0	0	2,738,574	13,200	2,738,574	13,200
EE&C Plan Totals	**Total**	**124,221,059**	**15,330**	**174,385,132**	**25,784**	**208,848,211**	**46,326**	**507,454,402**	**87,441**
	Core Utility	122,654,784	15,093	154,487,193	22,092	164,653,523	24,641	441,795,499	61,826
	Additional Utility	1,566,275	237	19,897,940	3,692	44,194,688	21,686	65,658,903	25,615

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

[2] Does not include savings from the Co-Managed Comfort Partners program. Savings projections for the Co-Managed Comfort Partners program will be established as part of three-year program plans developed and filed jointly by Staff and the utilities as part of the State's annual budget process. Savings from the Co-Managed Comfort Partners program will be included in the Company's annual compliance filing assessing performance towards its OPIs.

Projections of participation and savings by program year, for each EE and PDR programs and subprogram are provided in Appendix D of the EE&C Plan.

20. The portfolio of programs and subprograms in the JCP&L EE&C Plan achieved a 3.5 benefit-to-cost ratio with the New Jersey Cost Test, which is in excess of the 1.0 minimum benefit-to-cost ratio required by the MFRs. In the other benefit-to-cost analyses required by the June 10 Order, the JCP&L EE&C Plan also achieved benefit-to-cost ratios exceeding the 1.0 minimum benefit-to-cost ratio. These analyses are described in detail in the testimony of Brendon J. Baatz.

21. The portfolio of programs and subprograms proposed for inclusion in the JCP&L EE&C Plan is expected to meet the targets established for the Company in each program year for the QPI values delineated in the MFRs. The metrics of the anticipated QPIs to be achieved by the portfolio of programs and subprograms is provided in Section 8.0 of the EE&C Plan.

22. A reporting plan for Quarterly Progress Reports, Annual Progress Reports and Triennial Reports is provided in the testimony of Edward C. Miller and Section 9.0 of the EE&C Plan.

COST RECOVERY

23. As detailed in the attached direct testimony of Carol Pittavino, the Company proposes to recover the revenue requirement associated with the costs of the JCP&L EE&C Plan. These include all costs related to EE&C Plan expenditures, including, but not limited to: Customer Incentives; Outside Services; Inspections and Quality Control; information technology ("IT") costs; and operation and maintenance costs, including related administrative costs and marketing evaluation expense. These costs would be offset by any revenue offsets from PJM Capacity Resources related to EE programs.

24. The proposed method of calculation of the Company's revenue requirement for the JCP&L EE&C Plan is set forth in detail in the attached direct testimony of Carol Pittavino and is consistent with the Board's June 10 Order. Schedule CP-3 to this testimony shows the calculation of the revenue requirements for the first three years of the JCP&L EE&C Plan.

25. Consistent with the June 10 Order, the amortization expense to recover the investment in the JCP&L EE&C Plan assets is based on a ten-year amortization of such investments.

26. The June 10 Order adopted Board Staff's recommendation that incentives and penalties will not be awarded or imposed until after the conclusion of Program Year 5. Accordingly, the Company has not included an adjustment for the three-year period covered by this filing for performance incentives and penalties.

27. The Company proposes to recover the revenue requirements associated with the JCP&L EE&C Plan through a separate surcharge clause of its tariff, Rider EE&C. The Company requests that the rates for the first year of the JCP&L EE&C Plan be approved in this proceeding. The Company proposes that in subsequent years, its annual rate filing for its JCP&L EE&C Plan be made by March 31 of each year with rates effective the following July 1. Each rate filing after this filing will true-up the prior period's actual expenditures and estimate the projected revenue requirement for the subsequent recovery period. The calculation of the estimated proposed rate adjustments for each of the first three years of the JCP&L EE&C Plan are shown on Schedule CP-5 of the direct testimony of Carol Pittavino.

28. The target schedule for the Company's annual rate filing is as follows:

JCP&L EE&C Plan Rate Filing Schedule				
Filing	**Filing (On or About)**	**Projected Spending Through**	**True-Up of Prior Period Actuals**	**Rates Effective**
0 (Initial Rate)	This Petition	June 30, 2022	N/A	July 1, 2021
1	March 31, 2022	June 30. 2023	July 1, 2021 through February 28, 2022	July 1, 2022
2	March 31, 2023	June 30, 2024	March 1, 2022 through	July 1, 2023

			February 28, 2023	

29. The Company will continue annual filings on the above schedule for so long as the JCP&L EE&C Plan remains in effect. Changes for the rates in Rider EE&C would occur once a year.

30. The projected revenue requirement for Program Year 1 is currently forecasted to be $18,695,588 million. *See* Direct Testimony of Carol Pittavino, Schedule CP-4.

31. The proposed rate design for all applicable rate changes to recover JCP&L EE&C Plan expenditures is described in the direct testimony of Carol Pittavino and detailed calculations supporting initial rates are shown in Schedule CP-4.

32. Based upon the forecasted rates, the bill impacts for a typical residential customer as well as rate class average customers for Program Years 1,2 and 3 are set forth in Schedule CP-5. The bill impact in the first year of the EE&C Plan for the typical residential customer using 768 kWh per month is an increase of 1.2% or approximately $1.25 per month. The maximum incremental bill impact on such a residential customer over the entire three-year Program period covered by this filing is an estimated increase of approximately $2.05 per month, or approximately 2.0% of the current monthly bill.

33. The Company proposes to recover lost revenues from reduced electricity sales associated with the JCP&L EE&C Plan by way of a reconcilable tariff clause, Rider LRAM. The rate for Rider LRAM will be set initially based upon forecasted energy efficiency sales loss targets, with rates effective July 1, 2021. The Company will reconcile the actual energy efficiency sales losses to the energy efficiency forecasted sales loss targets and include the (over)/under collection in the following year Rider LRAM rate calculation. The Company proposes to reconcile Rider LRAM on the same schedule as the proposed reconciliation schedule for Rider EE&C, as set forth

above, and anticipates making a joint filing annually for the reconciliation and update of rates for both riders.

PREFILED TESTIMONY, SCHEDULES, EXHIBITS AND APPENDICES

34. Attached hereto and made part of this Verified Petition are the following Exhibits, including pre-filed Direct Testimony (which further includes schedules and appendices thereto):

Witness	Exhibit No.	Topics
This petition	JC-1	EE&C Plan Overview, Minimum Filing Requirements Chart (Appendix A), Public Notice (Appendix B)
Edward C. Miller Direct Testimony	JC-2	EE&C Plan Description, Budgets, Reporting
Carol Pittavino Direct Testimony	JC-3	Cost Recovery Mechanism, Revenue Requirements, Rate Filings, Bill Impacts
Brendon J. Baatz Direct Testimony	JC-4	Benefit-Cost Analysis

PUBLIC HEARING, NOTICE AND SERVICE OF FILING

35. JCP&L proposes that two virtual public hearings be held in its service territory. Pursuant to MFR I.F., a draft form of public notice of the public hearing, setting forth the dates, times and places of the public hearings, the maximum dollar amount JCP&L seeks to recovery through its tariff Rider EE&C and the estimated overall impact on customers attributable to implementation of the Program, is attached as Appendix B to this Petition. JCP&L proposes that notice of this JCP&L EE&C Plan filing be combined with notice of the public hearing and be published in daily and weekly newspapers published and/or circulated in the Company's service areas, after the dates, times and places of all such public hearings thereon have been scheduled by

the Board or the Presiding Officer. The notice will also be served by mail upon the municipal clerks, the clerks of the Boards of Chosen Freeholders and, where appropriate, the County Executive Officers of all counties and municipalities located in the Company's service territory.

36. Copies of this Verified Petition and of all appendices, supporting testimony (including schedules and exhibits thereto) have been or will be duly served upon the Department of Law and Public Safety, 124 Halsey Street, P.O. Box 45029, Newark, New Jersey 07101, and upon the Director, Division and Rate Counsel, 140 East Front Street, 4th Floor, P.O. Box 003, Trenton, N.J. 08625-0003 in accordance with the Board's requirements.

REQUEST FOR DIRECT BOARD REVIEW

37. JCP&L EE&C Plan investment plans are based on a July 31, 2021 start date for the Plan. JCP&L requests that the Board retain jurisdiction of this filing, directly review it and designate a Commissioner as the Presiding Officer to oversee the proceeding. The Board's direct review will facilitate the expeditious resolution of the Petition and will ensure that the procedures utilized in the review of the filing are consistent with June 10 Order and MFRs therein approved.

38. Copies of all correspondence and other communications relating to this proceeding should be addressed to:

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CONCLUSION AND REQUEST FOR APPROVAL

WHEREFORE, the Petitioner, Jersey Central Power & Light Company, respectfully requests that the Board issue a final decision and order no later than at its June 2021 Agenda meeting.

(1) finding that the JCP&L EE&C Plan satisfies the requirements of the June 10 Order and the EE&C Plan MFRs approved therein,

(2) finding that the JCP&L EE&C Plan as described in this Petition is reasonable and prudent,

(3) authorizing JCP&L to implement the EE&C Plan (and included programs and subprograms) starting July 1, 2021 under the terms set forth in this Petition.

(4) determining that the cost recovery mechanism set forth in this Petition and the testimony of Ms. Pittavino (including Riders EE&C and LRAM) will provide for just and reasonable rates and is approved,

(5) authorizing JCP&L to recover EE&C Plan costs, on a full and timely basis, under the cost recovery mechanism set forth in this Petition and in the testimony of Ms. Pittavino; and

(6) granting such other and further relief as the Board shall deem just, lawful and proper.

Respectfully submitted,

Dated: September 25, 2020

RIKER DANZIG SCHERER HYLAND & PERRETTI, LLP
Attorneys for Petitioner,
Jersey Central Power & Light Company

By: */s/ James C. Meyer*

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CERTIFICATE OF SERVICE

I hereby certify that on the within date I caused this Verified Petition along with supporting testimony and attachments to be served by email upon those individuals listed on a service list attached to the cover letter including attorneys for the Division of Rate Counsel and Deputy Attorneys General representing Board Staff.

/s/James C. Meyer
James C. Meyer

STATE OF NEW JERSEY
BOARD OF PUBLIC UTILITIES

In the Matter of 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 EE&C**)	:	BPU Docket No.

AFFIDAVIT
OF
VERIFICATION

Edward C. Miller, being duly sworn upon his oath, deposes and says:

1. I am Manager, Compliance & Development, in the Energy Efficiency Department for FirstEnergy Service Company, and I am duly authorized to make this Affidavit of Verification on behalf of Jersey Central Power & Light Company ("JCP&L"), the Petitioner named in the foregoing Verified Petition.

2. I have read the contents of the foregoing Verified Petition by JCP&L for approval of the proposed JCP&L EE&C Plan and cost recovery, and I hereby verify that the statements of fact and other information contained therein are true and correct to the best of my knowledge, information and belief.

Edward C. Miller

Sworn to and subscribed before me
this 25th day of September, 2020.

JAMES C. MEYER
(Notary Public)
ATTORNEY AT LAW
STATE OF NEW JERSEY

Minimum Filing Requirement for petitions under N.J.S.A. 48:3-98.1		Location in Filing
I. General Program Requirements		
a.	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.	Ex. JC-2 (Miller) and Att. B (Plan); Ex JC-3 (Pittavino): Ex. JC-4 (Baatz)
b.	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.	Ex. JC-3 (Pittavino); Sch. CP-3
c.	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.	Attachments to Ex. JC-2 (Miller), JC-3 (Pittavino) and JC-4 (Baatz)
d.	The filing shall include testimony supporting the petition, including all proposed programs.	Ex. JC-2 (Miller); Ex. JC-3 (Pittavino); Ex. JC-4 (Baatz)
e.	For any proposed program, the utility shall be subject to the requirements in this and all subsequent Sections. If compliance with Section V 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 programs that had an educational rather than equipment-based focus and programs that introduced novel ideas where documentation supporting estimated costs/benefits may not be easily produced.	N/A
f.	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.	Petition, App. B
II. Program Description		

a.	The utility shall provide a detailed description of each proposed program for which the utility seeks approval, including, if applicable:	Ex. JC-2 (Miller) and Att. B (Plan)
i.	Program description/design	Ex JC-2 (Miller) and Att. B, Sec. 3 (Plan)
ii.	Target market segment/efficiency – including eligible customers, properties, and measures/services – and eligibility requirements and processes	Ex. JC-2 (Miller) and Att. B, Sec. 4 and 5 (Plan)
iii.	Existing incentives	Ex JC-2 (Miller) and Att. B, Sec. 4 and 5 (Plan)
iv.	Proposed incentives, including incentive payment processes and timeframes	Ex. JC-2 (Miller) and Att. B, Sec. 4 and 5 and App. A (Plan)
v.	Program delivery method	Ex. JC-2 (Miller) and Att. B, Sec. 4 and 5 (Plan)
vi.	Customer financing options	Ex JC-2 (Miller) and Att. B, Sec. 4 and 5 and App. B (Plan)
vii.	Customer access to current and historic energy usage data	Ex. JC-2 (Miller) and Att. B, Sec. 4, 5 and 10 (Plan)
viii.	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) and, to the extent applicable, a description of contractor requirements, training, and procurement, including for minority-, women-, and veteran-owned businesses.	Ex. JC-2 (Miller) and Att. B, Section 6 (Plan)
ix.	Estimated program participants, by year	Ex. JC-2 (Miller) and Att. B, App. D (Plan)
x. •	Projected energy savings and associated calculations for each program year Net annual energy savings	Petition, Par. 19: Ex. JC-2 (Miller) and Att. B, App. D (Plan)

	• Net annual peak demand savings • Net lifetime energy savings • Net lifetime demand savings • Net lifetime energy savings derived from qualifying low-income customers • Net lifetime energy savings derived from qualifying small commercial customers	
xi.	Program budget, by year	Ex. JC-2 (Miller) and Att. B, App. E (Plan)
xii.	Projected program costs, by year, broken down into the following categories, as applicable: capital cost; utility administration; marketing; 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.	Ex. JC-2 (Miller) and Att. B, App. E (Plan)
xiii.	Implementation plan for all proposed programs	Ex. JC-2 (Miller) and Att. B, Sec. 6 (Plan)
xiv.	Marketing plan: The utility shall provide a description of where and how the proposed program(s)/project(s) will be marketed or promoted throughout the demographic segments of the utility's customer base and how it will be done in coordination with statewide marketing. This shall include an explanation of how the specific service, along with prices, incentives, and energy bill savings for each proposed program/project, 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 the program(s) and strategies to address known market barriers.	Ex. JC-2 (Miller) and Att. B, Sec. 4 and 5 and App. A and B (Plan)
b.	The utility shall provide the following information about the proposed portfolio:	
i.	Quality 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).	Ex. JC-2 (Miller) and Att. B, Sec. 7 (Plan)
ii.	Workforce development and job training partnerships and pipelines for energy efficiency jobs, including for local, underrepresented, and disadvantaged workers	Ex. JC-2 (Miller) and Att. B, Sec. 6.4 (Plan)
iii.	Total budget summary, including an annual budget summary	Ex. JC-2 (Miller) and Att. B, App. E (Plan)

iv.	Benefit-cost analysis (as defined in Section V)	Ex. JC-4 and Ex. BJB-2 to 7 (Baatz)
v.	EM&V strategies/plan (as defined in Section VI)	Ex. JC-2 (Miller) and Att. B, Sec. 2 and 3 (Plan)
vi.	Assessment of how the programs comprising the portfolio are designed to achieve the targets established pursuant to the utility's quantitative performance indicators (as defined in Section VII)	Ex. JC-2 (Miller) and Att. B, Sec. 8 (Plan)
vii.	Reporting plan (as defined in Section VIII)	Ex. JC-2 (Miller) and Att. B, Sec. 9 (Plan)
c.	In areas where gas and electric service territories overlap, the utility shall also provide a description of the program structure for coordinated, consistent delivery of programs among utilities and allocation of costs and energy savings among the utilities.	Ex JC-2, pp. 8-10 (Miller) and Att. B, Sec. 6.2 (Plan)
III. Additional Filing Information		
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 of Public Utilities ("BPU" or "Board"), including Greenhouse Gas Emissions Portfolio and Energy Efficiency Portfolio Standards including ownership and use of the certificate revenue stream(s).	N/A
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.	N/A for credits and offsets; for savings from reduced sales, Ex. JC-4, Table 1 (Baatz)
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.	Ex. JC-3, Sch. CP-3 and 9 (Pittavino); Ex. JC-2 (Miller), Att. B, App. E (Plan)

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.	Ex JC-3 and attached Schedules (Pittavino)
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.	Ex. JC-3 (Pittavino)
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.	Petition (Verification attached); simultaneous email service per BPU's Covid Order
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.	Petition, par. 32; Ex. JC-3, Sch. CP-2 to 4 (Pittavino); Ex. JC-2 (Miller), Att. B, Sec. 2, App. C, D and E and Table 5 (Plan)
f.	The utility shall provide, with supporting documentation, a detailed breakdown of the total costs for the proposed program(s), identified by cost segment (capitalized costs, operating expenses, administrative expenses, etc.). 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.	Ex. JC-3, Sch. CP-4 (Pittavino); Ex. JC-2 (Miller), Att. B., App. E and Table 5 (Plan)
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.	Ex. JC-3 and attached schedules (Pittavino)
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	Ex. JC-3 and Sch. CP-1 (Pittavino)

	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.	Ex. JC-3 (Pittavino)
j.	A utility seeking incentives shall provide all supporting justifications and rationales for 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.	N/A
V. Benefit-Cost Analysis		
a.	The utility shall conduct a benefit-cost analysis of the programs and portfolio using the New Jersey Cost Test, 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. The utility may also provide any additional benefit-cost analysis that it believes appropriate with supporting rationales and documentation.	Ex. JC-4 (Baatz)
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.	Ex. JC-4 (Baatz)
c.	Renewable energy programs shall not be subject to a benefit-cost test, but the utility must quantify all direct and indirect benefits resulting from such a proposed program as well as provide the projected costs.	N/A
d.	The level of energy and capacity savings utilized in these calculations shall be based upon the most recent Protocols to Measure Resource Savings approved by the Board to measure energy savings for NJCEP. To the extent that a protocol does not exist or an alternative protocol is proposed for a filed program, the utility must submit a measurement methodology for the program or contemplated measure for approval by the Board.	Ex. JC-4 (Baatz)
e.	For cost effectiveness calculations, the utility shall also estimate and reflect in the energy and capacity savings any free rider and spillover effects, i.e., savings associated with participating customers who would have implemented energy efficiency or renewable energy measures without N.J.S.A. 48:3-98.1 benefits or incentives.	Ex. JC-4 (Baatz)
VI. Evaluation, Measurement, and Verification		

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.	Ex. JC-2 (Miller), Att. B. Sec. 7 (Plan)
	VII. Quantitative Performance Indicators: Targets	
a.	The utility shall file quantitative performance indicator ("QPI") values based on the metrics applicable to each program year of the three-year program filing cycle.	Ex. JC-2 (Miller), Att. B, Sec. 8 and Tables 11 and 12 (Plan)
b.	The utility shall provide a description of how the proposed portfolio achieves the targets established for each utility pursuant to the following QPIs, as applicable for each program year:	Ex. JC-2 (Miller), Att. B, Sec. 8 and Tables 11 and 12 (Plan)
i.	Net annual energy savings	Ex. JC-2 (Miller), Att. B, Sec. 8 and Tables 11 and 12 (Plan)
ii.	Net annual peak demand savings	Ex. JC-2 (Miller), Att. B, Sec. 8 and Tables 11 and 12 (Plan)
iii.	Net lifetime energy savings	Ex. JC-2 (Miller), Att. B, Sec. 8 and Tables 11 and 12 (Plan).
iv.	Net lifetime demand savings	Ex. JC-2 (Miller), Att. B, Sec. 8 and Tables 11 and 12 (Plan)
v.	Net present value of net benefits as determined by the Utility Cost Test	Ex. JC-2 (Miller), Att. B, Sec. 8 and Tables 11 and 12 (Plan)
vi.	Net lifetime energy savings derived from qualifying low-income customers	Ex. JC-2 (Miller), Att. B, Sec. 8 and Tables 11 and 12 (Plan)

vii.	Net lifetime energy savings derived from qualifying small commercial customers	Ex. JC-2 (Miller), Att. B, Sec. 8 and Tables 11 and 12 (Plan()
VIII. Reporting Plan: The utility shall provide a plan to comply with the following reporting requirements:		
a.	Quarterly progress reports: No later than 60 days following the end of each quarter, the utility shall submit a user-friendly, public report, with accompanying spreadsheet(s), that includes an overview of program performance, a narrative about customer participation and incentives paid, and results on the following program-level parameters compared to program projections and goals:	Ex. JC-2, Sec. IV (Miller) and Att. B., Sec. 9 (Plan)
i.	Energy savings: gross and net savings	Ex. JC-2, Sec. IV (Miller) and Att. B., Sec. 9 (Plan)
ii.	Number of program participants: total, low-income, moderate-income, and small commercial	Ex. JC-2, Sec. IV (Miller) and Att. B, Sec. 9 (Plan)
iii.	Program expenditures	Ex. JC-2, Sec. IV (Miller) and Att. B, Sec. 9 (Plan)
b.	Annual progress reports: No later than 75 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 and accompanying progress/performance narratives as those that are included in the quarterly reports. The annual report will show overall progress and performance of programs that are seasonal or cyclical in nature. In addition, the annual report shall include the utility program administrator's initial and final benefit-cost test results for the programs and portfolio (as defined in Section V), assessment of the portfolio's compliance with the targets established pursuant to the QPIs (as defined in Section VII), and any proposed changes or additions for the next year or cycle.	Ex. JC-2, Sec. IV (Miller) and Att. B, Sec. 9 (Plan)
c.	Triennial reports:	Ex. JC-2, Sec. IV (Miller) and Att. B, Sec. 9 (Plan)
i.	Progress reports: No later than 90 days following the end of the third program year, 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.	Ex. JC-2, Sec. IV (Miller) and Att. B, Sec. 9 (Plan)

ii.	Evaluation studies: No later than 365 days following the end of the third program year, the utility shall submit the process and impact evaluations pursuant to requirements issued by the Board.	Ex. JC-2, Sec. IV (Miller) and Att.. B, Sec. 9 (Plan)“

APPENDIX B

NOTICE TO JERSEY CENTRAL POWER & LIGHT COMPANY CUSTOMERS

IN THE MATTER OF THE 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

Notice of a Filing And Notice of Public Hearings BPU Docket No. _____

TAKE NOTICE that, on September 25, 2020, Jersey Central Power & Light Company ("JCP&L" or "Company") filed a petition with the New Jersey Board of Public Utilities ("Board") seeking the Board's approval of the proposed JCP&L energy efficiency and peak demand reduction programs ("JCP&L EE&C Plan" or the "Plan"), including its associated cost recovery mechanism.

JCP&L seeks Board approval of its proposed JCP&L EE&C Plan for the three-year period starting July 1, 2021 and ending June 30, 2024. The Plan consists of 10 energy efficiency programs and subprograms and 1 peak demand reduction program which provide energy efficiency, reduce peak demand and promote access to such measures for low income communities. The Plan includes dedicated programs for residential, commercial and industrial, and multifamily customers. The Company is proposing up to $187.5 million in investment and up to $42.6 million in expenses for the JCP&L EE&C Plan over the three-year period covered by this filing. The Company submits that the JCP&L EE&C Plan will further the goal of achieving energy reduction as set forth in the Clean Energy Act of 2018 and the New Jersey's 2020 Energy Master Plan, and complies with the requirements of the Board's June 10, 2020 Order Directing the Utilities to Establish Energy Efficiency and Peak Demand Reduction Programs.

In conjunction with implementation of the Plan, JCP&L will seek Board approval to recover in rates via proposed Tariff Riders EE&C and LRAM for the revenue increases associated with the capital investment costs, operation and maintenance expense, and lost revenues associated with the JCP&L EE&C Plan. Although the Company is not seeking an increase at this time, JCP&L seeks authority to recover a return on and return of its investment through annual adjustments to these reconcilable clauses beginning on July 1, 2021. The Company estimates that rate changes for electric rates effective July 1, 2021 would increase rates by approximately $18,695,588 million in the first Plan Year. These rate changes are only current estimates and are subject to change.

The following illustrative chart shows the estimated monthly bill impacts (by cumulative dollars and percentages) to typical and class average customers based on a comparison of present and proposed rates at each rate adjustment date under JCP&L EE&C Plan and the approximate net effect on customers in various rate classes of the proposed increases in charges, although the actual effect on specific customers will vary according to the applicable rate schedule and level of the customer's usage.

STATEMENT OF THE MONTHLY EFFECT OF PROPOSED
INCREASE IN RIDER EE&C CHARGES AS COMPARED TO THE
RATES IN EFFECT AS OF September 1, 2020

Summary of Bill Impact				
		Proposed Cumulative Monthly Increase (Overall Class Average per Customer/Fixture)		
	Current			
	Monthly	**Year 1**	**Year 2**	**Year 3**
Effective Date:	**Bill**	**7/1/2021**	**7/1/2022**	**7/1/2023**
Rate Class				
Residential (RS)	$ 107.43	$ 1.25	$ 1.53	$ 2.06
Residential Time of Day (RT)	$ 138.75	$ 1.72	$ 2.09	$ 2.82
General Service - Secondary (GS)	$ 577.19	$ 4.40	$ 6.90	$ 10.23
General Service - Secondary Time of Day (GST)	$ 29,235.49	$ 167.20	$ 274.21	$ 528.36
General Service - Primary (GP)	$ 35,157.93	$ 214.85	$ 352.36	$ 678.94
General Service - Transmission (GT)	$ 94,847.86	$ 727.37	$ 1,192.89	$ 2,298.50
Lighting (Average Per Fixture)	$ 10.45	$ 0.04	$ 0.07	$ 0.10

		Proposed Cumulative Monthly Increase in %		
		Year 1	**Year 2**	**Year 3**
Effective Date:		**7/1/2021**	**7/1/2022**	**7/1/2023**
Rate Class				
Residential (RS)		1.17%	1.42%	1.90%
Residential Time of Day (RT)		1.24%	1.50%	2.02%
General Service - Secondary (GS)		0.76%	1.19%	1.76%
General Service - Secondary Time of Day (GST)		0.57%	0.94%	1.80%
General Service - Primary (GP)		0.62%	1.00%	1.92%
General Service - Transmission (GT)		0.77%	1.25%	2.41%
Lighting (Average Per Fixture)		0.43%	0.67%	1.00%

The percentage increases noted above are based on rates in effect at September 1, 2020, including applicable Basic Generation Service ("BGS") charges and assuming customers receive commodity service from JCP&L. They are also based on current projections that assume full implementation of the Plan as proposed. It is anticipated that the Company will make annual filings each year of the Plan to request the Board's approval to implement that Program Year's revenue requests. The Board's decision in this matter regarding JCP&L EE&C Plan and its decisions on those annual filings may increase or decrease the dollars and percentage impacts as shown above. Any assistance required by customers with regard to the bill impacts will be furnished by the Company upon request.

Any rate adjustments with resulting bill impacts found by the Board to be just and reasonable as a result of the Company's filing may be modified and/or allocated by the Board in accordance with the provisions of N.J.S.A. 48:2-21 and for other legally sufficient reasons to any class or classes of customers of the Company or any rate or schedule. Therefore, the described impacts may increase or decrease based upon the Board's decisions.

Subject to any applicable restrictions due to the COVID pandemic, copies of the petition and supporting documents will be made available for inspection at the Company's regional headquarters at 300 Madison Avenue, Morristown, New Jersey 07962; 101 Crawford Corner Road, Building 1, Suite 1-511, Holmdel, New Jersey 07733; each of the Company's local business offices; and the Board of Public Utilities, 44 South Clinton Avenue, 7th Floor, Box 350, Trenton, New Jersey 08625 during normal business hours 9:00 a.m. to 4:30 p.m. Monday through Friday. A copy of the filing is also available on the Company's website at: https://www. firstenergycorp.com/jersey_central_power_light/regulatory.html.

PLEASE TAKE NOTICE that public hearings on this matter have been scheduled at the following dates, times and places:

Public Hearing 1 _____
Time: 1:30 p.m.
Location: Freehold Township Municipal Building
One Municipal Plaza (Schanck Road at Stillwells Corner Road)
Freehold, New Jersey 07728

Public Hearing 2: _____
Time: 5:30 p.m.
Location: Morris County Administration & Records Building
Public Meeting Room, 5th Floor
10 Court Street
Morristown, New Jersey

[*Alternative language approved by Staff and Rate Counsel to be inserted in the event virtual public hearings are necessary at the time hearings are scheduled*]

Members of the public are invited to attend and present their views. Information provided at the public hearings will become part of the record of the case and will be considered by the Board in making its decision. To encourage full participation in this opportunity for public comments, please submit any requests for needed accommodations for disabled citizens to the Office of the Secretary of the Board at (609) 777-3300 at least 48 hours prior to the scheduled hearing so that appropriate arrangements can be made.

Customers may file written comments with the Secretary of the Board of Public Utilities at 44 South Clinton Avenue, 3rd Floor, Suite 314, PO Box 350, Trenton, New Jersey 08625-0350, ATTN: Aida Camacho-Welch, regardless of whether they attend the public hearings.

JERSEY CENTRAL POWER & LIGHT COMPANY

EXHIBIT JC-2

BEFORE THE
NEW JERSEY BOARD OF PUBLIC UTILITIES

In The Matter Of 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 EE&C)

BPU Docket No. _____

Direct Testimony
Of
Edward C. Miller

On Behalf Of
Jersey Central Power & Light Company

September 25, 2020

I. INTRODUCTION

Q. Please state your name and business address.

A. My name is Edward C. Miller and my business address is 800 Cabin Hill Drive, Greensburg, PA 15601.

Q. Please identify your employer and describe your current position.

A. I am employed by FirstEnergy Service Company as Manager, Compliance & Development in the Energy Efficiency Department. I am responsible for development and compliance activities related to energy efficiency ("EE") and peak demand reduction ("PDR") programs for the FirstEnergy utilities in Ohio, Maryland, New Jersey, Pennsylvania and West Virginia. This primarily involves the development of programs and filings to meet the FirstEnergy utilities' EE and/or PDR requirements and obligations in the various states. I report to the Director, Compliance and Reporting in FirstEnergy's Energy Efficiency Department ("EE Department").

Q. What is your educational and professional background?

A. My educational and professional background is set forth in Attachment A to this testimony.

Q. Have you previously testified in proceedings before the New Jersey Board of Public Utilities ("Board" or "BPU")?

A. No. However, I have provided testimony before the Pennsylvania Public Utility Commission, the West Virginia Public Service Commission, the Public Utilities Commission of Ohio and the Maryland Public Service Commission. I was involved in the development of EE and PDR programs and filings for the utilities formerly owned by Allegheny in Pennsylvania, Maryland and West Virginia. Since completion of the merger of Allegheny with FirstEnergy, I have been involved in the same activities for the

FirstEnergy utilities in West Virginia, Maryland, Ohio, Pennsylvania and New Jersey. I was responsible for the design of the programs included in the FirstEnergy Utilities' Pennsylvania Phase II and Phase III Energy Efficiency and Conservation ("EE&C") plans that were approved by the Commission in Docket Nos. M-2012-2334387/M-2015-2514767 (Metropolitan Edison Company), M-2012-2334392/M-2015-2514768 (Pennsylvania Electric Company), M-2012-2334395/M-2015-2514769 (Pennsylvania Power Company) and M-2012-2334398/M-2015-2514772 (West Penn Power Company), overseeing the team that designed and developed those plans. I had the same responsibilities related to the Maryland 2012-2014 plan cycle at Case No. 9153, the Maryland 2015-2017 plan cycle at Case No. 9153, the Maryland 2018-2020 plan cycle at Case No. 9153, the Maryland 2021-2023 plan cycle at Case No. 9648, the Ohio 2013-2015 Portfolio Plan at Case Nos. 12-2190-EL-POR/ (Ohio Edison Company), 12-2191-EL-POR/ (The Cleveland Electric Illuminating Company), 12-2192-EL-POR (The Toledo Edison Company), and the Ohio 2017-2019 Portfolio Plan at Case No. 16-0743-EL-POR.

II. SCOPE OF TESTIMONY

Q. What is the purpose of your direct testimony?

A. I am testifying in support of the Company's proposed EE and PDR programs and subprograms for the period starting July 1, 2021 and ending June 30, 2024 that are included in the Company's September 25, 2020 petition seeking approval of the three-year energy efficiency and conservation plan ("EE&C Plan" or "Plan") and associated cost recovery. The JCP&L EE&C Plan consists of 10 EE programs or subprograms and 1 PDR program, targeting the Company's entire customer base. These programs are described in detail in the EE&C Plan attached hereto as Attachment B. This testimony and the attached EE&C

Plan contains the information required by the Minimum Filing Requirements For Petitions Under N.J.S.A. 48:3-98.1, which the Board revised and adopted for the EE and PDR program filings of utilities ("MFRs"), other than regarding the Company's proposed cost recovery and benefit-cost analysis. The MFRs are attached as Appendix B to the Board's Order Directing the Utilities to Establish Energy Efficiency and Peak Demand Reduction Programs, Docket Nos. QO19010040, QO19060748 and QO17091004, dated June 10, 2020 ("June 10 Order"). My testimony will highlight significant aspects of the programs and subprograms proposed in the JCP&L EE&C Plan and will address directly or by reference to the EE&C Plan the elements required in the MFRs regarding their implementation. The calculations and results of the Benefit-Cost Analysis are provided in separate direct testimony by Brendon J. Baatz of Gabel Associates. The Company's proposed revenue requirements, cost recovery mechanism, and bill impacts are provided in separate direct testimony by Carol Pittavino.

Q. How is your testimony organized?

A. Following the Introduction (Section I) and this Scope of Testimony (Section II), my testimony (in Section III) provides an overview of the JCP&L EE&C Plan, including a description the 10 EE programs or subprograms and 1 PDR program. For each individual EE and PDR program or subprogram, information will be provided or referenced as to the implementation plan, its target markets, delivery method, incentives, customer financing options, customer access to current and historic energy usage data, contractor roles, estimated customer participants by year, projected energy savings by year and budgets by year. In Section IV, I discuss the Quantitative Performance Indicators for the Company

and their evaluation, measurement and verification. In Section V, I describe the Company's proposed reporting plan.

III. THE JCP&L EE&C PLAN

A. Overview

Q. Please describe the JCP&L EE&C Plan.

A. As shown in Table 5 in the Company's Plan, the Company is proposing a total budget of approximately $230.1 million over the three-year plan period covered by this filing. The JCP&L EE&C Plan consists of 11 programs or subprograms designed to achieve energy and demand savings in all customer sectors. Savings opportunities are offered to the Company's entire customer base of residential, multi-family, commercial and industrial customers, with specific opportunities afforded to low and moderate income ("LMI"), multi-family, small business, and local government customers. Sections 3.1 and 3.2 of the EE&C Plan describe how the FirstEnergy plan development team ("EE&C Team") designed the Company's Plan. The plan development process included the following main activities, with several activities encompassing the entire program development timeline and being performed concurrently. The EE&C Team reviewed the existing programs and measures offered by the Company's affiliates in other jurisdiction to assess implementation and performance. The EE&C Team also reviewed programs and measures offered by other utilities, as well as other industry information, to identify additional programs and measures for consideration. The EE&C Team also reviewed New Jersey ("NJ") specific information including the EE Potential in New Jersey study, the Straw Proposal for New Jersey's Energy Efficiency and Peak Demand Reduction Programs, the June 10 Order, the Utility Demographic and Firmographic Profile 2020 study, the NJ Clean Energy Program

and the NJ Protocols to Measure Resource Savings. Additionally, the EE&C Team participated in joint utility design meetings with the other NJ utilities to collaborate on program designs.

Q. How does the JCP&L EE&C Plan reflect the findings and recommendations of the Utility Demographic and Firmographic Profile 2020 prepared by DNV·GL dated April 30, 2020 ("Demographic Study")?

A. The Company considered the Demographic Study in the plan development process to design programs that strive to maximize access to and participation by all customers. As a result, the Company's Plan includes components that provide education and awareness, include low- to no-cost measures, include measures that target specific customer sectors and types (e.g. small business, LMI), include incentives and access to financing to overcome initial cost barriers, include offerings that rely on contractors and trade allies, and include a commitment to workforce development and consideration of local presence and the amount of business placed with minority, women, veteran and service-disabled veteran owned businesses ("MWVBEs") in the selection of third-party implementation contractors ("TPIC(s)"). The Company will seek to manage barriers to program success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, marketing/advertising, and improvement opportunities.

Q. How is the Company coordinating elements of its JCP&L EE&C Plan with other utilities?

A. Over the last several months, the EE&C Team has participated in numerous joint utility design meetings with the other NJ utilities to collaborate on program designs. This effort

has resulted in the development of core programs and certain additional initiatives that are consistent in design and delivery to those of other NJ utilities. More specifically, the Board's June 10 Order adopted Staff's recommendation that core programs of the utilities include coordinated and common program elements, and that the utilities should collaborate on the design of additional initiatives. The Company has been collaborating through participation in these design meetings, and plans to continue working with the other utilities to provide consistency in the following areas: common forms for use by customers and contractors; contractor requirements; open and competitive procurement protocols where feasible; customer and property eligibility requirements and processes; eligible measures; incentive ranges; incentive payment processes and timeframes; customer and contractor engagement platforms; data platforms and database sharing among program administrators, and quality control standards and remediation policies. In addition to these specific program elements, the Company has also been collaborating with the other utilities to provide access to financing options for qualified EE investments as well as the use of a Statewide Coordinator ("SWC") System in the delivery of programs that target both electric and gas savings opportunities for overlapping electric and gas utility customers.

Q. Describe how the Company has coordinated with the other utilities to provide consistency in the foregoing listed areas?

A. As envisioned by the Board's direction on coordinated program offerings, the utilities' programs are designed to minimize customer confusion, facilitate contractor participation and present consistent opportunities for customer participation with access to both electric and gas measures simultaneously, where appropriate. I believe that the utilities recognize

that programs will evolve after initial launch and anticipate ongoing collaborative processes to continue program alignment. Central to both initial launch and ongoing efforts will be an effort to standardize when appropriate:

- Common Forms: The utilities plan to collaborate and work with their TPICs to design and produce common forms such as rebate applications or online rebate forms.
- Contractor Requirements: The utilities have discussed contractor requirements for certain programs and plan to work in partnership with their TPICs to establish consistent contractor requirements for such programs where applicable.
- Customer and Property Eligibility Requirements and Processes: The utilities have collaborated to establish consistent customer eligibility requirements for each program.
- Eligible Measures: The Company established measure eligibility in coordination with the other NJ utilities, and in consideration of industry ratings such as ENERGY STAR, and the Consortium for Energy Efficiency ("CEE").
- Incentive Ranges: The Company established consistent incentive ranges in coordination with the other NJ utilities and plans to continue to collaborate and work with their TPICs to align incentive offerings and ranges.
- Incentive payment processes and timeframes: To encourage contractor participation, the utilities have coordinated to establish timely contractor payments, which provide a significant benefit to contractor working capital. The utilities and/or TPICs plan to complete contractor payments within 60 days following the

submission of complete and required paperwork and completion of program requirements such as necessary field inspections (if required).

- Customer and contractor engagement platforms: The utilities continue to work through coordination efforts regarding customer and contractor engagement platforms. The Company plans to continue to pursue establishing common platforms with the other utilities and its TPICs to ease participation of customers and contractors in programs where applicable.
- Data platforms and database sharing: The Company or its third-party vendor will identify and implement appropriate IT systems to track and report program participation and other information ("T&R System"). The T&R System will exchange data with TPIC databases wherever necessary to gather data to upload key program metrics on a routine basis, and will transmit data feeds with the Statewide Coordinator system to facilitate data sharing between utilities for programs that include coordinated delivery of efficiency measures and the allocation of costs and energy savings among the utilities.

Q. What is JCP&L's approach to providing programs within the JCP&L EE&C Plan in overlapping service territories?

A. JCP&L will leverage in conjunction with the other New Jersey utilities a SWC System in the delivery of programs that target both electric and gas savings opportunities for overlapping electric and gas utility customers. The SWC System will:

- Interconnect utility systems and allocate energy savings and costs by fuel type. The rebates/incentives will be shared between the electric and gas utility in the service

territory based on the allocation of electric and gas savings as captured in the SWC System.

- Benefit customers, contractors and other program allies through:
  - Reduced program applications and data requirements;
  - Simplified streamlined incentive/rebate processes; and
  - Screening for certain program pre-requisites and completed or in-process applications.

The utilities have issued a Request for Information ("RFI") for the SWC System to learn more about systems capabilities and costs to perform this new function and plan to issue a Request for Proposal ("RFP") in the near future for development and implementation of this system in time to support delivery of coordinated programs as soon as July 1, 2021.

Q. Is Comfort Partners part of this filing?

A. No. The Board's June 10 Order, at p. 39, adopted Staff's recommendation that the utilities and State continue to co-manage low-income program offerings through the Comfort Partners program and that the Staff and the utilities are to develop three-year program plans and submit joint filings with the Board as part of the State's annual budget process.

B. EE and PDR Programs within the JCP&L EE&C Plan

Q. Please describe the EE programs proposed to be part of the JCP&L EE&C Plan.

A. Table 3 from the Company's EE&C Plan, as included below, provides an overview of the programs included in the EE&C Plan. It lists the proposed programs and subprograms by sector, identifies the program type, and provides summary program descriptions:

Table 3: JCP&L 2021-2023 Program Summary Description			
Program	**Subprogram**	**Program Type**	**Description**
Residential Programs			
Efficient Products	Efficient Products	Core Utility	Provides incentives for HVAC, lighting, appliances, appliance recycling, consumer electronics and other energy saving equipment through a variety of channels
Existing Homes	Home Performance with Energy Star	Core Utility	Provides a customer a whole home approach for direct install of efficient equipment and comprehensive retrofits
	Quick Home Energy Check-up	Additional Utility	Audits with direct installed measures provided at no additional cost to participants with education about the opportunities to save energy including other program opportunities
	Moderate Income Weatherization	Additional Utility	Audits with direct installed measures, weatherization services, and HVAC repair/replacement provided at no additional cost to participating income qualified customers
Home Energy Education and Management	Behavioral	Additional Utility	Provides education of energy usage through Home Energy Reports and on-line audits, with targeted customized messaging to promote energy savings and conservation opportunities
Commercial & Industrial Programs			
Direct Install	Direct Install	Core Utility	Audits with direct installed measures to small business customers including lighting, controls, HVAC upgrades and refrigeration
Energy Solutions for Business	Prescriptive / Custom	Core Utility	Provides incentives for HVAC, Lighting, Motors & Drives, Refrigeration, Water Heaters, Air Compressors, Food Service Equipment and other efficient equipment and projects
	Energy Management	Additional Utility	Customer engagement targeting efficient building operations through building tune-up, retro commissioning and customized energy management solutions.
	Engineered Solutions	Additional Utility	Provides consultative service throughout delivery, including comprehensive audits, detailed analysis and recommendations of energy efficiency measures and development of project specifications, to assist customers in identifying and undertaking large comprehensive energy-efficiency projects
Multifamily			
Multifamily	Multifamily	Core Utility	Provides audits, direct install measures, prescriptive and custom incentives as well as comprehensive projects for multifamily buildings
Other Programs			
Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Additional Utility	Provides control and/or optimization of connected devices (e.g. smart thermostats, smart home energy management systems) to target and achieve energy and peak demand savings

Program descriptions including information about each program required by MFR IIa (i) to (xiv) are included in the EE&C Plan. Core programs and subprograms are described in Section 4.0 and Additional JCP&L programs and subprograms are described in Section 5.0 of the EE&C Plan. Residential programs and subprograms are described in Sections 4.1 and 5.1, Commercial and Industrial programs and subprograms are described in Sections 4.2 and 5.2, the Multifamily program is described in Section 4.3 and Other programs are described in Section 5.3 of the EE&C Plan.

Q. Please describe the PDR program proposed to be part of the JCP&L EE&C Plan.

A. The Company proposes a Home Optimization & PDR program to be implemented in PY3 that manages customer energy usage year-round and in peak periods through connected devices initially targeting smart thermostats. This program is planned to be implemented in PY3 to establish program processes, systems and begin to ramp-up program operations in advance of PY4 recognizing the Board's June 10 Order sets forth expectations for PDR program requirements beginning in PY4. This program is described in more detail in Section 5.3 of the EE&C Plan.

Q. Please describe any pilot programs proposed to be part of the JCP&L EE&C Plan.

A. JCP&L does not propose any pilot programs during PY1-PY3. However, the Company plans to participate in the initiatives led by Staff on EE technology research and development initiatives. The Company will also collaborate with the other utilities, Staff, the Electric Power Research Institute ("EPRI") and may participate in research projects or demonstrations on technological advancements in efficient measures to assess emerging technologies to determine if further investigation is warranted for inclusion in the Plan or possibly in future plan cycles. The Company will also continue to monitor technologies not incorporated into the EE&C Plan, considering the potential for such technologies to be incorporated in future initiatives with the other utilities and Staff as appropriate. The Company anticipates that these collective research and development initiatives could lead to pilot program offerings by the Company and other utilities throughout the duration of the EE&C Plan, or to modifying program measures and measure eligibility to include emerging technology that shows the potential to produce cost effective savings.

Q. Please describe the projected energy savings for each program year from the JCP&L EE&C Plan.

A. Table 4 from the Company's EE&C Plan, as included below, provides the energy and peak demand reduction savings projected under the Plan, by Sector, Program Type, Year and in Total:

Table 4: JCP&L 2021-2023 Summary of Portfolio Energy and Demand Savings [1,2]

Sector	Program Type	2021		2022		2023		Total	
		KWh Savings	kW Savings	KWh Savings	kW Savings	KWh Savings	kW Savings	KWh Savings	kW Savings
Residential	**Total**	**68,456,009**	**6,006**	**84,756,312**	**9,756**	**95,047,250**	**12,845**	**248,259,571**	**28,607**
	Core Utility	67,164,734	5,794	68,727,412	6,626	66,977,400	6,801	202,869,546	19,221
	Additional Utility	1,291,275	211	16,028,900	3,130	28,069,850	6,045	45,390,025	9,385
Commercial & Industrial	**Total**	**54,782,583**	**9,211**	**88,527,604**	**15,902**	**109,842,420**	**20,140**	**253,152,606**	**45,253**
	Core Utility	54,507,583	9,186	84,658,564	15,339	96,456,156	17,699	235,622,302	42,224
	Additional Utility	275,000	26	3,869,040	563	13,386,264	2,441	17,530,304	3,029
Multifamily	**Total**	**982,467**	**113**	**1,101,217**	**127**	**1,219,967**	**141**	**3,303,650**	**381**
	Core Utility	982,467	113	1,101,217	127	1,219,967	141	3,303,650	381
Other	**Total**	**0**	**0**	**0**	**0**	**2,738,574**	**13,200**	**2,738,574**	**13,200**
	Additional Utility	0	0	0	0	2,738,574	13,200	2,738,574	13,200
EE&C Plan Totals	**Total**	**124,221,059**	**15,330**	**174,385,132**	**25,784**	**208,848,211**	**46,326**	**507,454,402**	**87,441**
	Core Utility	122,654,784	15,093	154,487,193	22,092	164,653,523	24,641	441,795,499	61,826
	Additional Utility	1,566,275	237	19,897,940	3,692	44,194,688	21,686	65,658,903	25,615

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.
[2] Does not include savings from the Co-Managed Comfort Partners program. Savings projections for the Co-Managed Comfort Partners program will be established as part of three-year program plans developed and filed jointly by Staff and the utilities as part of the State's annual budget process. Savings from the Co-Managed Comfort Partners program will be included in the Company's annual compliance filing assessing performance towards its QPIs.

Appendix D of the EE&C Plan provides the projected participation and energy savings by Sector, Program Type, Program and Subprogram and in Total.

Q. What is the budget each year for the JCP&L EE&C Plan?

A. Table 5 from the EE&C Plan, as included below, provides the budgets by Sector, Program Type, Year and in Total:

Table 5: JCP&L 2021-2023 Summary of Portfolio Costs [1]

Sector	Program Type	2021		2022		2023		Total	
		Portfolio Budget ($)	% of Portfolio Budget	Portfolio Budget ($)	% of Portfolio Budget	Portfolio Budget ($)	% of Portfolio Budget	Portfolio Budget ($)	% of Portfolio Budget
Residential	**Residential Total**	**$ 31,084,742**	**56%**	**$ 39,767,819**	**51%**	**$ 44,385,678**	**46%**	**$115,238,239**	**50%**
	Core Utility	*$ 24,895,940*	*45%*	*$ 31,022,959*	*48%*	*$ 34,191,601*	*47%*	*$ 90,110,500*	*48%*
	Additional Utility	*$ 6,188,802*	*11%*	*$ 8,744,860*	*65%*	*$ 10,194,077*	*44%*	*$ 25,127,739*	*58%*
Commercial & Industrial	**C&I Total**	**$ 22,937,862**	**41%**	**$ 36,515,417**	**46%**	**$ 46,374,986**	**48%**	**$105,828,265**	**46%**
	Core Utility	*$ 22,266,134*	*45%*	*$ 32,211,834*	*49%*	*$ 36,266,654*	*50%*	*$ 90,744,621*	*49%*
	Additional Utility	*$ 671,728*	*10%*	*$ 4,303,583*	*32%*	*$ 10,108,333*	*44%*	*$ 15,083,644*	*35%*
Multifamily	**Multifamily Total**	**$ 1,802,530**	**3%**	**$ 1,877,174**	**2%**	**$ 2,075,301**	**2%**	**$ 5,755,006**	**3%**
	Core Utility	*$ 1,802,530*	*4%*	*$ 1,877,174*	*3%*	*$ 2,075,301*	*3%*	*$ 5,755,006*	*3%*
Other	**Other Total**	**$ -**	**0%**	**$ 454,156**	**1%**	**$ 2,867,807**	**3%**	**$ 3,321,963**	**1%**
	Additional Utility	*$ -*	*0%*	*$ 454,156*	*3%*	*$ 2,867,807*	*12%*	*$ 3,321,963*	*8%*
Plan Total	**Plan Total**	**$ 55,825,134**	**100%**	**$ 78,614,566**	**100%**	**$ 95,703,773**	**100%**	**$230,143,473**	**100%**
	Core Utility Total	$ 48,964,604	88%	$ 65,111,967	83%	$ 72,533,556	76%	$ 186,610,127	81%
	Additional Utility Total	$ 6,860,530	12%	$ 13,502,599	17%	$ 23,170,217	24%	$ 43,533,346	19%

[1] Does not include budget for the Co-Managed Comfort Partners program. The budget for the Co-Managed Comfort Partners program will be established as part of three-year program plans developed and filed jointly by Staff and the utilities as part of the State's annual budget process.

Appendix E of the EE&C Plan provides the projected budgets by Cost Category, by Sector, Program Type, Program and Subprogram and in Total.

Q. How does the Company intend to implement the JCP&L EE&C Plan?

A. The Company intends to provide overall administration and oversight of the Plan and utilize TPICs to perform various program implementation and support duties. Specific activities that the Company will oversee include monitoring program performance, the execution of marketing campaigns, Quality Assurance/Quality Control activities and tracking and reporting activities. The Company will use TPICs to provide many program implementation services, including program delivery and fulfillment, marketing, outreach, rebate processing, EM&V and the support, maintenance and software hosting of the tracking and reporting system. More specifically, the Company's implementation strategy will rely on a number of TPICs, program and trade allies and other entities engaged in energy efficiency to promote, deliver, and support effective deployment of the EE and PDR programs. Some TPICs will operate as turnkey program delivery contractors while others will provide specific functions across multiple programs. The Company plans to issue a request(s) for proposals in the 1st quarter of 2021 for TCIPs who will be responsible for program implementation and delivery activities, including such aspects as program marketing, customer enrollment, program and trade ally engagement, application and rebate processing, documentation and tracking and reporting activities. JCP&L plans to select the TCIPs in a timeframe that supports timely program implementation upon Board approval of the Plan or during the period of the EE&C Plan.

Q. Please describe the marketing plan for the JCP&L EE&C Plan.

A. Marketing strategies vary by customer sector and program offerings. Detailed descriptions of the marketing plan for each program offering are available in each Program Description in the EE&C Plan under the title “Marketing Plan”.

The Company will implement a multi-pronged direct and indirect marketing campaign to promote the Residential programs. Customers will be exposed to broad-based energy efficiency awareness campaigns, web-based engagement and information, digital advertising, social media and hard-copy materials to promote awareness, as well as tie-ins with other programs. Retailers, wholesalers, distributors, manufacturers and trade allies will be contacted directly and/or through trade associations to develop networks and promote involvement in the program where applicable.

Marketing may include activities such as:

- Point of purchase displays and materials, joint advertising, coupons, and special “instant sales events.”
- Public relations and public awareness materials.
- Brochures that describe the benefits and features of the program including application forms and processes. The brochures will be available for various public awareness events (community events, presentations, seminars etc.)
- Bill inserts, bill messages, email, Facebook, Twitter and other social media platforms, pop-up stores.
- Company website content providing program information resources, contact information, online application forms, online retail store and links to other relevant service and information resources.
- Customer representatives trained to promote the program to customers.

- Presence at conferences and public events used to increase general awareness of the program and distribute program promotional materials.

Marketing activities for commercial and industrial programs will target eligible customers and program allies to inform them of the programs, their components, and the associated benefits through channels including, but not limited to direct mail, website, trade shows, the business customer newsletter, and the Company's account managers. JCP&L will also work with distributors and contractors to market eligible higher efficiency equipment. The Company will regularly communicate with its program allies and participating contractors and provide educational type seminars describing eligibility, incentives, and other program details to promote and market the program to customers.

The marketing strategy for Multifamily programs will focus on informing property owners, managers, associations, tenant groups, municipalities, and community organizations about the availability and benefits of the program and how to participate. Marketing activities will also target the low- and moderate-income multi-family sector. Key elements of the marketing strategy may include:

- Targeted outreach through direct mailings and presentations to inform property owners, managers, apartment associations, tenant groups, municipalities, and community organizations about the benefits of the program and participation processes.
- Brochures highlighting the benefits and features of the program as well as the enrollment and participation processes.
- Website content providing program information resources and contact information.
- In-person visits by program representatives.

- Energy assessments of properties may include the direct installation of standard energy savings measures to engage, educate and promote the participation of building owners or facility managers in the other program offerings targeting greater savings.

The Company also plans to participate in the Marketing and Equity Working Groups and will collaborate with Staff and the other utilities to promote the programs and the overall statewide brand in a cohesive and effective manner while marketing the specific programs and initiatives to all customers. To broaden outreach and address language barriers, the Company plans to provide materials in Spanish and to explore developing materials in a broader range of languages as part of its participation in these Working Groups.

Q. Please describe the financing plan for the programs within the JCP&L EE&C Plan.

A. To address the requirement of the June 10 Order to offer customers flexible financing options, the Company plans to leverage third-party financing options for qualified EE investments in utility programs. JCP&L will make arrangements with third-party loan providers to finance customer loans, and has incorporated the estimated costs associated with buying down the interest, fees, and default costs associated with such third-party loans within its budget to be able to provide low- to no-interest loan opportunities to its participating customers with similar terms and arrangements offered by the other NJ utilities. Default costs have been included in the budgeted amounts to address default risk for the third-party lenders. This will in turn reduce the interest buy-down costs associated with customer loans and facilitate EE financing opportunities.

Q. What quality control standards and remediation policies will be instituted by the Company to ensure the quality of the programs offered in the JCP&L EE&C Plan?

A. The Company will leverage the experience of its affiliates with implementing EE programs in other States since 2009 and will deploy quality assurance and quality control measures to ensure its internal and vendor processes are meeting the goals, requirements and objectives of the program. Such measures may include routine program performance reviews, vendor meetings, customer participation surveys, and project inspections. Additionally, any Trade Ally or Participating Contractor will undergo a thorough onboarding review and assessment to ensure that participating contractors are licensed, insured, and that they fully understand program requirements before performing any work on behalf of the Company for a program. Further, routine reviews and assessments will be completed throughout implementation of the programs to ensure consistent program deployment and execution by vendors that meet program requirements and objectives. The Company will take corrective actions for non-compliance by vendors with program requirements, objectives or Company standards.

Q. Please describe the workforce development and job-training pipelines proposed by the Company for energy efficiency jobs?

A. The Company has included an annual budget of $400,000 for workforce development as a component of its Utility Administration budget for its EE&C Plan for 2021-2023. This budget was developed in collaboration and is consistent with the budget of other NJ utilities on a dollar-per-customer basis. The Company plans to participate in the Workforce Development Working Group to share anticipated program hiring needs and to develop workforce development and job training partnerships and pipelines in collaboration with the State and the Workforce Development Working Group and Equity Working Group. In addition, the Company plans to prioritize criteria including, but not limited to, local

presence and the amount of business placed with MWVBEs when evaluating contract proposals from TPICs and participating trade allies to support the program offerings to ensure the Plan includes opportunities for local, underrepresented and disadvantaged workers.

Q. Please describe the Company's proposal for offering the EE programs in the PJM Base Residual Auction ("BRA").

A. The Board Order requires participation of EE Resources beginning with PY2 in the PJM 2024/25 Base Residual Auctions ("PJM BRA Auctions"). The Company plans to leverage the experience of its affiliates in other States with PJM capacity market participation to develop its EE offers for the PJM BRA Auctions. Consistent with the joint-utility process proposed to Board staff, the Company will identify and quantify all EE resources for each auction taking into account PJM EE eligibility, capacity resource ownership rights, estimation of PJM Capacity Performance kW amounts and applicable PJM rules. The preliminary estimated PJM MW Potential by installation period and PJM delivery year are provided in Appendix F, Table F-1 of the EE&C Plan. Section 10.1 of the EE&C Plan provides more information on how the Company proposes to address EE as a Resource and its participation in the PJM BRA Auctions. The Company will consider its EE sell offer and buy bid values confidential as they are considered market sensitive information; however, they can be provided to Board Staff via confidential submissions and after the applicable auction results are available.

IV. QUANTITATIVE PERFORMANCE INDICATORS AND THEIR EVALUATION, MEASUREMENT AND VERIFICATION

Q. Has the Company included quantitative performance indicator ("QPI") values based on the metrics applicable to each program year of the three-year program covered by this filing?

A. The Board adopted QPI for both annual and lifetime energy savings for PY1 through PY3. Table 11 from the Company's EE&C Plan, as included below, provides the values for these QPIs.

Table 11: JCP&L 2021-2023 Quantitative Performance Indicators (QPIs)			
Metric (MWh)	**2021**	**2022**	**2023**
Net Annual Energy Savings[1]	124,221	174,385	208,848
Net Lifetime Energy Savings[1]	1,752,890	2,264,413	2,530,829

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

Additionally, although not required until PY4 and PY5, JCP&L will track and report the additional future QPI metrics identified in the Board Order beginning in PY1. These additional future QPIs include:

- Net annual peak demand savings.
- Net lifetime demand savings.
- Net present value of net benefits as determined by the Utility Cost Test.
- Net lifetime energy savings derived from qualifying low-income customers.
- Net lifetime energy savings derived from qualifying small commercial customers.

Table 12 from the Company's EE&C Plan, as included below for informational purposes for this three-year Plan cycle, provides what the Plan estimates would result for these additional future QPIs during each year of the Plan.

Table 12: JCPL Future Quantitative Performance Indicators (QPIs)			
Metric	**2021**	**2022**	**2023**
Net Annual Peak Demand Savings (MW)[1]	15	26	46
Net Lifetime Peak Demand Savings (MW)[1]	209	318	390
Net Present Value of Net Benefits by UCT	$131,242,986	$157,534,160	$164,291,642
Net Lifetime Energy Savings from Qualifying Low Income Customers (MWh)[1]	14,740	21,287	24,996
Net Lifetime Energy Savings from Qualifying Small Commerical Customers (MWh)[1]	60,967	274,350	304,833

1 Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

Q. Please describe the methodology, processes and strategies proposed to be used for monitoring and improving portfolio performance of JCP&L's EE and PDR programs related to the Company's targets established pursuant to the QPI's for the JCP&L EE&C Plan.

A. The EE Department is entrusted with ensuring that the Company complies with all EE and PDR requirements and that the approved programs are successfully implemented. To support this, the Company will develop and leverage its tracking and reporting processes to monitor the portfolio of programs and subprograms towards its overall target as well as progress of each program toward its goals and budgets, identifying performance issues, gaps and opportunities for improvement. Review meetings are performed at least monthly. In addition, while implementing the approved EE&C Plan, the Company will gain direct input from various sources and customers will be surveyed to measure satisfaction with the programs and related services. Evaluation activities, including program assessments, will also inform how well the programs and subprograms are moving toward the achievement of goals and will inform recommendations for program improvement.

V. REPORTING PLAN

Q. The MFR requires Quarterly Progress Reports, Annual Progress Reports and Triennial Reports. Please provide the Company's plan to comply with these requirements.

A. As discussed above, the EE Department is entrusted with ensuring that the Company complies with all EE and PDR requirements including all regulatory reporting activities. This department has a dedicated reporting team that will be responsible to comply with the Board's reporting requirements, including working on: i) quarterly progress reports; ii) annual progress reports; and iii) triennial reports.

To support its compliance reporting requirements among other things, the EE Department has developed an enterprise-wide EE&C T&R System in partnership with a third-party vendor to complete regulatory required EE&C reports across any jurisdiction in FirstEnergy's footprint. This T&R System is used by the Company's affiliated utilities in other jurisdictions to meet its regulatory reporting requirements. The Company will enhance the system to integrate new JCP&L EE&C Plan offerings and generate reports with format and content consistent with that defined by the Board. In addition, the Company will utilize SAP enterprise software for financial management and reporting of program costs.

Section 9 of the JCP&L EE&C Plan provides additional details regarding the reporting process.

VI. CONCLUSION

Q. Please briefly summarize of your direct testimony.

A. The JCP&L EE&C Plan is a comprehensive effort to implement EE and PDR programs and subprograms in an organized and cost-effective manner to meet the requirements of the Board's June 10 Order. The Company looks forward to further collaboration with stakeholders and the Board and to successful implementation of its proposed JCP&L EE&C Plan.

Q. Does this conclude your direct testimony at this time?

A. Yes, although I reserve the right to supplement this testimony should further information arise. I note that the Plan workpapers are being provided as set forth in Attachment C.

Attachment A

EXPERIENCE AND QUALIFICATIONS

My name is Edward C. Miller. I am currently employed by FirstEnergy Service Company as Manager, Compliance & Development in the Energy Efficiency Department. I am responsible for compliance and development activities related to energy efficiency ("EE") and peak demand reduction ("PDR") programs for the FirstEnergy utilities in Ohio, Maryland, New Jersey, Pennsylvania and West Virginia. This primarily involves the development of programs and filings to meet the FirstEnergy utilities' EE and/or PDR requirements and obligations in the various states. I report to the Director, Compliance and Reporting in FirstEnergy's Energy Efficiency Department.

I hold a Bachelor of Science degree in Electrical Engineering from the University of Pittsburgh. For over seventeen years, I was employed by Allegheny Energy Service Corporation, the service company for Allegheny Energy Inc. ("Allegheny"), which merged in 2011 with FirstEnergy Corp. ("FirstEnergy"). While with Allegheny, I held various engineering, customer service and management positions in Customer Services, Sales & Marketing, Customer Management and Energy Efficiency departments. After FirstEnergy and Allegheny merged, I was assigned my current position as Manager, Compliance & Development.

I have provided testimony before the Pennsylvania Public Utility Commission, the West Virginia Public Service Commission, the Public Utilities Commission of Ohio and the Maryland Public Service Commission relating to EE and PDR Programs which I helped to develop.

ATTACHMENT B

JERSEY CENTRAL POWER & LIGHT COMPANY

Energy Efficiency and Peak Demand Reduction Programs

(For the period July 1, 2021 through June 30, 2024)

Docket Nos. QO19010040; QO19060748 and QO17091004

September 25, 2020

1.0 TABLE OF CONTENTS & LIST OF ACRONYMS

Table of Contents

LIST OF ACRONYMS

A/C	Air Conditioner
AHU	Air Handling Units
AMI	Advanced Metering Infrastructure
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
BOC	Building Operations Certification
BPI	Building Performance Institute
BPU	Board of Public Utilities
BRA	Base Residual Auction
C&I	Commercial and Industrial
CEA	Clean Energy Act of 2018
CEE	Consortium for Energy Efficiency
DI	Direct Install
DLC	Design Lights Consortium
DSM	Demand Side Management
EDC	Electric Distribution Company
EE	Energy Efficiency
EE&C	Energy Efficiency and Conservation
EM&V	Evaluation, Measurement and Verification
EPRI	Electric Power Research Institute
FRR	Fixed Resource Requirement
HE	High Efficiency
HES	Home Energy Score
HP	Horsepower
HPwES	Home Performance with ENERGY STAR
HVAC	Heating Ventilation and Air Conditioning
IA	Incremental Auction
ICAP	Installed Capacity
IT	Information Technology
JCP&L	Jersey Central Power and Light
kW	Kilowatt
kWh	Kilowatt-hour
LED	Light-Emitting Diode
LMI	Low-to-Moderate income
M&V	Measurement & Verification
MFR	Minimum Filing Requirements
MI	Moderate Income
MOPR	Minimum Offer Price Rules
MUSH	Municipalities, Universities, Schools, Hospitals
MW	Megawatt
MWh	Megawatt-hour

MWVBEs	Minority, Women, Veteran and Service Disabled Veteran Owned Businesses
NJ	New Jersey
NJACCA	New Jersey Air Conditioning Contractors Association
NJAEE	New Jersey Association of Energy Engineers
NJBPU	New Jersey Board of Public Utilities
NJCEP	New Jersey's Clean Energy Program
NJCT	New Jersey Cost Test
NJPHCC	New Jersey Association of Plumbing, Heating, and Cooling Contractors
OBRP	On-Bill Repayment Program
PDR	Peak Demand Reduction
PJM	Pennsylvania, Jersey, Maryland Power Pool/PJM Interconnection, L.L.C.
POS	Point of Sales
PTAC	Packaged Terminal Air Conditioner
PTHP	Packaged Terminal Heat Pump
PY	Plan Year
QA/QC	Quality Assurance/Quality Control
QHEC	Quick Home Energy Check-up
QPIs	Quantitative Performance Indicators
RCx	Retro-Commissioning
RTU	Roof Top Units
SEE Action	State and Local Energy Efficiency Action Network
SEM	Strategic Energy Management
SEMP	Strategic Energy Management Plan
SHEMS	Smart Home Energy Management Systems
SWC	Statewide Coordinator
T&D	Transmission and Distribution
T&R System	Tracking and Reporting System
TPICs	Third-Party Implementation Contractors
TRM	Technical Reference Manual
TVs	Televisions
UCAP	Unforced Capacity
UCT	Utility Cost Test
UEZ	Urban Enterprise Zones
UPS	Uninterruptable Power Supply
VCx	Virtual Commissioning
VFDs	Variable Frequency Drive

2.0 EXECUTIVE SUMMARY

2.1 Summary of Proposal

In response to the Board of Public Utilities ("BPU" or "Board") Order of June 10, 2020 that directs each electric public utility and gas public utility in the State of New Jersey ("NJ") to establish energy efficiency ("EE") and peak demand reduction ("PDR") programs pursuant to the EE provisions of the Clean Energy Act of 2018 ("CEA" or the "Act"), Jersey Central Power and Light ("JCP&L" or "Company") submits, for review and approval by the BPU, this Energy Efficiency and Conservation ("EE&C") Plan ("EE&C Plan" or "Plan") that includes a portfolio of programs for the period July 1, 2021 through June 30, 2024.

The Act directs the BPU to require each electric company to procure or provide cost-effective programs and services with projected verifiable electricity savings that are designed on a trajectory to achieve 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. The June 10, 2020 Board Order at Docket Nos. QO19010040, QO19060748 and QO17091004 ("Board Order") provides guidance for energy efficiency and peak demand reduction programs pursuant to the Act, outlines a framework for cost-effectiveness screening and establishes a methodology for determining electric energy efficiency goals.

The Board Order established energy use reduction targets including target percentages for the "Utility Program Annual Energy Savings Target" for Plan Year ("PY") 2 and PY3. Based on these target percentages and the Company's actual retail sales for the period July 1, 2018 through June 30, 2020, and its forecasted retail sales for the period July 1, 2020 through June 30, 2023, the Company's planning targets for PY1-PY3 are shown in the following table:

Table 1: JCP&L 2021-2023 Planning Targets

Year	Energy Efficiency Baseline MWh[1]	Utility Program Annual Energy Savings Target[2]	Required Energy Efficiency Savings MWh
2021	20,095,384	0.50%	100,477
2022	19,595,537	0.74%	145,007
2023	19,451,028	0.97%	188,675

[1] Based on actual and forecasted retail sales, excluding wholesale sales, for the prior three-year period for each year (e.g. 2021 based on average of actual retail sales for 2018 and 2019, and forecasted retail sales for 2020).

[2] 2021 for planning purposes only, 2022 and 2023 targets pursuant June 10, 2020 Board Order.

The figures in Table 1 represents the Company's planning targets as required by the Board Order. The three-year rolling average energy efficiency baselines upon which the energy

efficiency benchmarks are based, are also shown in Table 1. These energy savings reduction targets have been established for planning purposes.

The programs outlined in the Company's EE&C Plan were designed based on the Company's three primary goals:

- Comply with CEA and Board Order requirements and directives;
- Establish a program framework that is adaptable and scalable to meet the aggressive and increasing energy savings targets over time; and
- Implement programs to establish systems and processes, customer awareness, program and trade ally participation, and experience and momentum for the future.

The EE&C Plan includes a comprehensive portfolio of EE&C programs for the residential, commercial and industrial, and multifamily sectors, and other Company initiatives included as part of the "Other" sector of the Plan. The Plan incorporates Core Utility Programs and Additional Utility Programs based on enhancements to existing NJ programs and successful programs in other jurisdictions. The Core Programs and Additional Company Initiatives are based on extensive collaboration with other NJ utilities to promote coordinated program designs and delivery. The Plan incorporates both near-term and longer-term energy saving opportunities for customers including single and prescriptive measures, multiple prescriptive and custom measures, direct install, and comprehensive whole building solutions. It provides opportunities for all customer classes to participate in EE programs. The Plan includes a commitment to workforce development and job training through participation in the Workforce Development Working Group as well as consideration of the amount of business placed with minority, women, veteran and service disabled veteran owned businesses ("MWVBEs") when evaluating contract proposals from vendors and contractors to support the program offerings. The Plan relies on experienced outsourced Third-Party Implementation Contractors ("TPICs"), and leverages prior experiences, volume cost efficiencies, and a variety of delivery channels that will support successful and efficient program operations and customer participation. The table below provides an overview of the Company's Plan including the proposed programs and subprograms by sector and identification of program type:

Table 2: JCP&L 2021-2023 Program Portfolio Plan		
Program	**Subprogram**	**Program Type**
Residential Programs		
Efficient Products	Efficient Products	Core Utility
Existing Homes	Home Performance with Energy Star	Core Utility
	Quick Home Energy Check-up	Additional Utility
	Moderate Income Weatherization	Additional Utility
Home Energy Education and Management	Behavioral	Additional Utility
Commercial & Industrial Programs		
Direct Install	Direct Install	Core Utility
Energy Solutions for Business	Prescriptive / Custom	Core Utility
	Energy Management	Additional Utility
	Engineered Solutions	Additional Utility
Multifamily		
Multifamily	Multifamily	Core Utility
Other Programs		
Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Additional Utility

Residential Sector Programs – Residential programs were designed to address both educational and initial cost barriers and to tap a variety of delivery channels and vendors to support customer engagement, education, and participation. The residential programs include direct or targeted programs that engage customers and serve as a portal for other program offerings because they serve a dual purpose of providing customers with energy efficiency education as well as information regarding other program services and opportunities upon which they can act. The residential programs incorporate strategies to change behaviors and include incentives and access to financing to address the initial cost barrier to promote the participation of all residential customers. The programs provide opportunities for prescriptive equipment and direct install, so that customers who are unable or unwilling to undertake whole home/comprehensive solutions are still able to increase efficiency, and the programs also provide opportunities for customers interested in whole home/comprehensive solutions that encourage customers to consider a holistic approach to EE.

Throughout implementation of the Plan, the Company will strive to identify and promote participation by low- to moderate-income customers in the Company's program offerings including the Co-Managed Comfort Partners program[1]. The Company has also designed certain residential programs to coordinate with its overlapping gas companies. The coordinated programs will provide shared customers of the Company and the overlapping gas companies with access to both gas and electric measures to target greater energy savings opportunities through coordinated program delivery.

[1] The Co-Managed Comfort Partners program is not included in the Company's Plan. Board Order at pages 15 and 24 establishes that Staff and the utilities will collaborate to develop three-year program plans for any co-managed program and to file joint program filings with the Board as part of the State's annual budget process.

Commercial and Industrial Sector Programs – The Commercial and Industrial Programs were designed to provide customer engagement and education, incorporate energy controls and strategies to change behaviors, include incentives to address the initial cost barrier, and tap a variety of delivery channels and vendors that promote the participation of all customers. Commercial businesses and industrial customers are also addressed through programs that provide opportunities including prescriptive rebates, custom measures, direct install, and whole building/comprehensive solutions. The programs include specific opportunities that ensure access for small customers, provide opportunities for single or multiple prescriptive and/or custom measures, so that customers who are unable or unwilling to undertake whole building/comprehensive solutions are still able to increase efficiency. And the programs include opportunities that encourage customers to consider a holistic approach to EE for customers interested and able to participate in whole building/comprehensive solutions.

The Company has also designed certain Commercial & Industrial programs to coordinate with its overlapping gas companies. The coordinated programs will provide shared customers of the Company and the overlapping gas companies with access to both gas and electric measures to target greater energy savings opportunities through coordinated program delivery.

Multifamily Sector Programs – Similarly to the Residential and Commercial & Industrial Sector programs, the Multifamily Sector program is designed to address both educational and initial cost barriers to support customer engagement, education, and participation. The program will be targeted to engage customers, provide energy efficiency education as well as information regarding program services and opportunities upon which they can act. The program incorporates strategies to change behaviors and includes incentives and access to financing to address the initial cost barrier to promote the participation of all customers. The program provides opportunities for direct install and prescriptive equipment, so that customers who are unable or unwilling to undertake whole building/comprehensive solutions are still able to increase efficiency, and the program also provides opportunities for customers interested in whole building/comprehensive solutions that encourages customers to consider a holistic approach to energy efficiency.

The Company has also designed the Multifamily Program to coordinate with its overlapping gas companies. The coordinated programs will provide shared customers of the Company and the overlapping gas companies with access to both gas and electric measures to target greater energy savings opportunities through coordinated program delivery.

Other Sector Programs – The Company has included an "Other" sector as part of its plan for other Company initiatives in addition to the Core and Additional Utility Programs in the Residential, C&I and Multi-family sectors. More specifically, the Company proposes a Home Optimization & Peak Demand Reduction program to be implemented in PY3 that manages customer energy usage year-round and in peak periods through connected devices initially targeting smart thermostats. This program is planned in PY3 to establish program processes, systems and begin to ramp up program

operations in advance of PY4 recognizing the Board Order sets forth expectations for peak demand reduction program requirements beginning in PY4.

As discussed above, the plans provide access to financing to address the initial cost barrier to promote the participation of all customers. To offer customers financing options, the Company plans to leverage third-party financing options for qualified EE investments in utility programs. JCP&L will make arrangements with third-party loan providers to finance customer loans, and has incorporated the estimated costs associated with buying down the interest, fees, and default costs associated with such third-party loans within its budget to be able to provide low- to no-interest loan opportunities to its participating customers.

Collectively, the proposed programs and subprograms across all sectors cover all the major energy-consuming devices in the home, building or business, thus increasing the opportunity for more customers to participate and benefit from one or more programs. Furthermore, the proposed programs promote and support comprehensive whole home/whole building/comprehensive solutions as called for under the Board Order. The table below provides the Company's programs and subprograms along with summary program descriptions as proposed in the Plan:

Table 3: JCP&L 2021-2023 Program Summary Description

Program	Subprogram	Program Type	Description
Residential Programs			
Efficient Products	Efficient Products	Core Utility	Provides incentives for HVAC, lighting, appliances, appliance recycling, consumer electronics and other energy saving equipment through a variety of channels
Existing Homes	Home Performance with Energy Star	Core Utility	Provides a customer a whole home approach for direct install of efficient equipment and comprehensive retrofits
	Quick Home Energy Check-up	Additional Utility	Audits with direct installed measures provided at no additional cost to participants with education about the opportunities to save energy including other program opportunities
	Moderate Income Weatherization	Additional Utility	Audits with direct installed measures, weatherization services, and HVAC repair/replacement provided at no additional cost to participating income qualified customers
Home Energy Education and Management	Behavioral	Additional Utility	Provides education of energy usage through Home Energy Reports and on-line audits, with targeted customized messaging to promote energy savings and conservation opportunities
Commercial & Industrial Programs			
Direct Install	Direct Install	Core Utility	Audits with direct installed measures to small business customers including lighting, controls, HVAC upgrades and refrigeration
Energy Solutions for Business	Prescriptive / Custom	Core Utility	Provides incentives for HVAC, Lighting, Motors & Drives, Refrigeration, Water Heaters, Air Compressors, Food Service Equipment and other efficient equipment and projects
	Energy Management	Additional Utility	Customer engagement targeting efficient building operations through building tune-up, retro commissioning and customized energy management solutions.
	Engineered Solutions	Additional Utility	Provides consultative service throughout delivery, including comprehensive audits, detailed analysis and recommendations of energy efficiency measures and development of project specifications, to assist customers in identifying and undertaking large comprehensive energy-efficiency projects
Multifamily			
Multifamily	Multifamily	Core Utility	Provides audits, direct install measures, prescriptive and custom incentives as well as comprehensive projects for multifamily buildings
Other Programs			
Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Additional Utility	Provides control and/or optimization of connected devices (e.g. smart thermostats, smart home energy management systems) to target and achieve energy and peak demand savings

2.2 Overall results for the plan including MWh, MW, costs and forecasted cost-effectiveness

The following chart illustrates the energy and demand savings results projected under the Plan, by sector, program type, year and in total:

Table 4: JCP&L 2021-2023 Summary of Portfolio Energy and Demand Savings [1,2]

Sector	Program Type	2021		2022		2023		Total	
		KWh Savings	kW Savings	KWh Savings	kW Savings	KWh Savings	kW Savings	KWh Savings	kW Savings
Residential	**Total**	**68,456,009**	**6,006**	**84,756,312**	**9,756**	**95,047,250**	**12,845**	**248,259,571**	**28,607**
	Core Utility	67,164,734	5,794	68,727,412	6,626	66,977,400	6,801	202,869,546	19,221
	Additional Utility	1,291,275	211	16,028,900	3,130	28,069,850	6,045	45,390,025	9,385
Commercial & Industrial	**Total**	**54,782,583**	**9,211**	**88,527,604**	**15,902**	**109,842,420**	**20,140**	**253,152,606**	**45,253**
	Core Utility	54,507,583	9,186	84,658,564	15,339	96,456,156	17,699	235,622,302	42,224
	Additional Utility	275,000	26	3,869,040	563	13,386,264	2,441	17,530,304	3,029
Multifamily	**Total**	**982,467**	**113**	**1,101,217**	**127**	**1,219,967**	**141**	**3,303,650**	**381**
	Core Utility	982,467	113	1,101,217	127	1,219,967	141	3,303,650	381
Other	**Total**	**0**	**0**	**0**	**0**	**2,738,574**	**13,200**	**2,738,574**	**13,200**
	Additional Utility	0	0	0	0	2,738,574	13,200	2,738,574	13,200
EE&C Plan Totals	**Total**	**124,221,059**	**15,330**	**174,385,132**	**25,784**	**208,848,211**	**46,326**	**507,454,402**	**87,441**
	Core Utility	122,654,784	15,093	154,487,193	22,092	164,653,523	24,641	441,795,499	61,826
	Additional Utility	1,566,275	237	19,897,940	3,692	44,194,688	21,686	65,658,903	25,615

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.
[2] Does not include savings from the Co-Managed Comfort Partners program. Savings projections for the Co-Managed Comfort Partners program will be established as part of three-year program plans developed and filed jointly by Staff and the utilities as part of the State's annual budget process. Savings from the Co-Managed Comfort Partners program will be included in the Company's annual compliance filing assessing performance towards its QPIs.

The Company projects the total Plan costs to average nearly $77 million per year for the 2021-2023 period. The chart below provides the summary of portfolio cost by sector, program type, year and in total:

Table 5: JCP&L 2021-2023 Summary of Portfolio Costs [1]

Sector	Program Type	2021		2022		2023		Total	
		Portfolio Budget ($)	% of Portfolio Budget	Portfolio Budget ($)	% of Portfolio Budget	Portfolio Budget ($)	% of Portfolio Budget	Portfolio Budget ($)	% of Portfolio Budget
Residential	**Residential Total**	**$ 31,084,742**	**56%**	**$ 39,767,819**	**51%**	**$ 44,385,678**	**46%**	**$ 115,238,239**	**50%**
	Core Utility	*$ 24,895,940*	*45%*	*$ 31,022,959*	*48%*	*$ 34,191,601*	*47%*	*$ 90,110,500*	*48%*
	Additional Utility	*$ 6,188,802*	*11%*	*$ 8,744,860*	*65%*	*$ 10,194,077*	*44%*	*$ 25,127,739*	*58%*
Commercial & Industrial	**C&I Total**	**$ 22,937,862**	**41%**	**$ 36,515,417**	**46%**	**$ 46,374,986**	**48%**	**$ 105,828,265**	**46%**
	Core Utility	*$ 22,266,134*	*45%*	*$ 32,211,834*	*49%*	*$ 36,266,654*	*50%*	*$ 90,744,621*	*49%*
	Additional Utility	*$ 671,728*	*10%*	*$ 4,303,583*	*32%*	*$ 10,108,333*	*44%*	*$ 15,083,644*	*35%*
Multifamily	**Multifamily Total**	**$ 1,802,530**	**3%**	**$ 1,877,174**	**2%**	**$ 2,075,301**	**2%**	**$ 5,755,006**	**3%**
	Core Utility	*$ 1,802,530*	*4%*	*$ 1,877,174*	*3%*	*$ 2,075,301*	*3%*	*$ 5,755,006*	*3%*
Other	**Other Total**	**$ -**	**0%**	**$ 454,156**	**1%**	**$ 2,867,807**	**3%**	**$ 3,321,963**	**1%**
	Additional Utility	*$ -*	*0%*	*$ 454,156*	*3%*	*$ 2,867,807*	*12%*	*$ 3,321,963*	*8%*
Plan Total	**Plan Total**	**$ 55,825,134**	**100%**	**$ 78,614,566**	**100%**	**$ 95,703,773**	**100%**	**$ 230,143,473**	**100%**
	Core Utility Total	$ 48,964,604	88%	$ 65,111,967	83%	$ 72,533,556	76%	$ 186,610,127	81%
	Additional Utility Total	$ 6,860,530	12%	$ 13,502,599	17%	$ 23,170,217	24%	$ 43,533,346	19%

[1] Does not include budget for the Co-Managed Comfort Partners program. The budget for the Co-Managed Comfort Partners program will be established as part of three-year program plans developed and filed jointly by Staff and the utilities as part of the State's annual budget process.

The successful implementation of the Plan is projected to be cost-effective at the portfolio and sector level under the New Jersey Cost Test ("NJCT"), having benefit-cost ratios greater than 1.0, as shown in the table below. Note that the Company is providing the benefit-cost ratios under other tests in this table for informational purposes.

Table 6: Portfolio Summary of Cost-Effectiveness Results						
Sector	Cost - Benefit Ratio (NJ Cost Test)	Cost - Benefit Ratio (Participant Cost Test)	Cost - Benefit Ratio (Program Administrator Cost Test)	Cost - Benefit Ratio (Ratepayer Impact Measure Test)	Cost - Benefit Ratio (Total Resource Cost Test)	Cost - Benefit Ratio (Societal Cost Test)
Residential	4.2	n/a	3.0	1.3	2.9	8.9
Commercial & Industrial	3.1	n/a	4.1	1.7	2.2	7.0
Multifamily	1.9	5.6	1.2	0.8	1.3	4.1
Other	1.0	2.1	0.9	0.8	0.9	2.3
Total Portfolio	**3.5**	**4.1**	**3.4**	**1.5**	**2.4**	**7.6**

The Company refers the Board to the testimony of Brendon J. Baatz from Gabel Associates, Inc. for the detailed information regarding the cost-effectiveness of the Company's Plan and programs.

3.0 PORTFOLIO ANALYSIS AND PROGRAM DESIGN

3.1 Describe Plan design objectives and approaches (MFR a 1)

As discussed earlier, the programs outlined in the Company's EE&C Plan were designed based on the Company's three primary goals:

- Comply with CEA and Board Order requirements and directives;
- Establish a program framework that is adaptable and scalable to meet the aggressive and increasing energy savings targets over time; and
- Implement programs to establish and develop systems and processes, program and trade ally participation, customer awareness, and experience and momentum for the future.

In setting out to achieve these goals, the Company pursued the following themes:

- Leverage the program offerings of the Company's affiliates in other jurisdictions that have proven to be successful
- Align and coordinate program designs, measures, and services with other New Jersey utilities as well as with its affiliates where appropriate
- Incorporate additional programs or measures identified as successful from other peer utilities or based on the expertise and input from other NJ utilities, or the Company's or Company affiliate's consultants, vendors, and stakeholders
- Incorporate new programs or measures that are considered promising to target new customer segments or end uses, increase savings, or promote new innovative program concepts

The Company strived to develop a program framework that not only would meet its targets and requirements for PY1 to PY3 but would work long term to avoid potential market disruption or confusion from unnecessary changing program structures between plan cycles. The Company sought to leverage the experience and successes of its affiliates in other jurisdictions, while seeking opportunities to improve and expand program offerings. The Company strived to design a portfolio of programs that will be flexible enough to meet an assortment of customer needs to drive customer participation and to provide the opportunity for all customers to participate in the programs. The Company also strived to develop coordinated and/or consistent program offerings both among NJ utilities following the requirements and directives of the Board Order to ease participation by contractors and customers and with its affiliates in other states to leverage economies of scale and target cost savings for its customers.

3.2 Describe how the Plan and programs were developed (MFR II a 2)

In developing the Plan, the Company's EE&C program design team reviewed the existing NJ Clean Energy Programs as well as existing or proposed programs at other NJ utilities, its affiliates or peers in other states. The program design team extensively participated in weekly program design meetings with the NJ utilities to discuss at length and develop consistent core programs and additional utility initiatives, and also considered input that it received from consultants, vendors and stakeholders both in NJ and in other states. The program design team also coordinated program design with its plan development activities in both Maryland and Pennsylvania and reviewed both existing and potential new programs and measures to develop a broad and comprehensive program portfolio. As a result, the program design team created a portfolio of potential programs and measures that draws upon the programs and measures offered through the EE&C plans of the Company's affiliates and other New Jersey, Pennsylvania and Maryland utilities, other NJ or industry programs and measures and incorporates stakeholder, consultant and vendor input. Once the proposed program portfolio was developed, the program development team created measure level participation projections and plan and program budgetary inputs and performed preliminary modeling to determine plan and program level projections. The Company finalized the plan, program and measure projections based on its experience, collaboration with other NJ utilities, performance of the existing Clean Energy Programs, and consultation with the Company's implementation team and consultant.

The Company's approach to developing the Plan balanced and considered several key sources of information, including:

- New Jersey specific information including the EE Potential in New Jersey study, the Straw Proposal for New Jersey's Energy Efficiency and Peak Demand Reduction Programs and the Board Order, the Utility Demographic and Firmographic Profile 2020 study ("Demographics Study"), the NJ Clean Energy Program and the NJ Protocols to Measure Resource Savings
- TPICs' expertise in delivering programs and program performance
- Industry experience from market potential studies, consultants, verification results and Technical Reference Manuals from other states
- NJ Utility, external stakeholder and vendor experience and opinions captured in meetings and other discussions
- Customer attitudes and preferences based on program performance in other jurisdictions

The Company utilized a comprehensive bottom-up approach in designing the programs and selecting measures for inclusion in the Plan. Under this approach, the Company identified potential measures from extensive sources including but not limited to the Electric Power Research Institute ("EPRI"), ENERGY STAR, ESource, other utilities, other jurisdictions, and input from vendors, the Company's EE&C consultant, TPICs and stakeholders. The Company established measure

eligibility in coordination with the other NJ utilities, and in consideration of industry ratings such as ENERGY STAR, the Consortium for Energy Efficiency ("CEE") and other efficiency ratings.

The Company primarily utilized the Protocols developed for New Jersey and the Mid-Atlantic Technical Reference Manual ("TRM") developed for Maryland and other jurisdictions to quantify the energy and demand savings, the "measure life" and other assumptions of the measures included in the Plan. The Mid-Atlantic TRM has been developed and frequently updated based on actual data when available, and with input of stakeholders with extensive experience in EE&C programs. In limited cases where the Protocols or TRMs did not cover a proposed measure, the Company utilized estimates based on other sources as listed in Appendix C, Table C-2. The Company also utilized the Protocols, TRM, or Company calculation, as the source of the incremental costs of measures included in the Plan. The incentive values for common measures included in the Plan are also based on coordination with the NJ utilities or, in cases where the measures are different, are based on targeting a portion of the incremental cost of the energy efficient equipment versus equipment meeting current standards, with consideration of similar programs offered in other jurisdictions and of customer payback. For program modeling, the Company incorporated the most recent realization rates established by evaluation for similar program offerings in other jurisdictions.

One of the primary objectives was to make certain that participation would be straightforward for customers, contractors, and trade allies. The Company established projected participation rates for the proposed programs portfolio and measures through a multiple-step process leveraging industry experience. First, the Company established participation rates based on the performance of the existing programs and measures operating in the Company's affiliates in other jurisdictions, the NJCEP or other New Jersey utilities, and the Market Potential Studies completed in New Jersey and other jurisdictions. The review of projected results for each program and measure included assessing the reasonableness of the projected results based on customer participation, estimated costs, and potential savings. Checks are then made between the results from the "bottom-up" analysis and selected data points (such as number of customers by customer segments and number of kWh sales by class, energy savings potential by major end use) to see how proportional the savings are to these figures. Logical and intuitive feasibility about the program assumptions were examined next, and adjustments were made as necessary, rebalancing the portfolio as appropriate. The Company then solicited input from the Company's implementation team and finalized its program projections.

The program development process included the following activities, with several activities encompassing the program development timeline and being performed coincidently or iteratively:

- The Company's EE&C program design team consulted the documents and stakeholders discussed above.
- Technologies were grouped by: (i) sectors, such as residential and C&I; (ii) program/subprogram types, such as Efficient Products and Energy Solutions for Business - Prescriptive/Custom; and (iii) end uses, such as HVAC, Appliances and Lighting.

- The potential programs and measures were considered by the program design team, which included, among other things, coordination with the other NJ utilities or Company affiliates, assessment of the market availability, and anticipated participation and savings impacts.
- Program cost characteristics were developed at the program component or technology level, including, for example, incentive levels; incremental measure costs; the availability of other benefits; and TPIC marketing or delivery costs. The value of benefits was developed from savings estimates or formulas that were included in the Protocols for those measures covered, and for measures not covered by the Protocols, from other industry sources including the Mid-Atlantic TRM and other sources.
- Program modeling was completed on an iterative basis and participation, savings, and costs were determined for each program.
- The results from the New Jersey and other recent industry Market Potential Studies were reviewed to confirm the final program designs and assumptions where applicable are reasonable for the PY1 – PY3 programs.
- Economic modelling was completed by Gabel Associates to assess and review program cost-effectiveness results.

The preliminary Plan and results were reviewed with the Company's implementation team and energy efficiency consultants, incorporating (when appropriate) suggestions for refinement from these groups. The Company also utilized the resources of Gable Associates to review the Plan's participation, energy savings, measure assumptions, incremental costs and incentive levels.

3.3 Pilot and Emerging Technologies and Approaches (MFR I e)

While the EE&C Plan primarily focuses on encouraging the adoption of commercially available and proven technologies for achieving the energy efficiency requirements in a cost-effective manner, the Company plans to participate in the initiatives led by Staff on EE technology research and development initiatives. The Company will also collaborate with the other utilities, Staff, EPRI and may participate in research projects or demonstrations on technological advancements in efficient measures to assess emerging technologies to determine if further investigation is warranted for inclusion in the Plan or possibly future plan cycles. The Company will continue to monitor technologies not incorporated into these Plans throughout the Plan Period, discussing potential for such technologies to be incorporated into the Plans with the other utilities and Staff as appropriate. The Company anticipates that these research and development initiatives could lead to pilot program offerings by the Company and other utilities throughout the duration of the Plan, or to modifying program measures and measure eligibility to include emerging technology that shows the potential to produce cost effective savings.

In addition, in response to an Order of the Board dated February 19, 2020 in Docket No. ER16060524, on August 27, 2020 JCP&L filed a petition with the Board for approval of an Advanced Metering Infrastructure (AMI) Program to install advanced meters and other advanced metering infrastructure throughout its service territory over an accelerated multi-year period. .

Affiliates of the Company in Pennsylvania have noted additional benefits by leveraging AMI with Energy Efficiency. Examples include:

- Home Energy Reports include more granular information to better educate customers regarding their usage and target improved tips and recommendations.
- Peak demand reduction program offerings are reaching residential and smaller commercial and industrial customers who did not previously have interval metering without the installation of program infrastructure.
- AMI data is used to support program or custom project evaluation, measurement, and verification activities.

Should the Board approve the Company's AMI filing, the Company would expect to find similar opportunities to leverage AMI for Energy Efficiency and further anticipates that program offerings and/or potential pilot offerings involving Demand Response and Energy Efficiency and will evolve as AMI is deployed, thereby further supporting the Company's efforts to meet its goals under the CEA.

4.0 CORE PROGRAMS

The Utilities will administer the following core programs to engage customers and encourage the pursuit of energy efficient solutions from single transactions to comprehensive upgrades. The Utilities will strive to provide customized guidance wherever possible and provide supporting resources to make energy-efficient retrofits more accessible for all customers.

The table below provides a listing and description of the Core programs and subprograms included in the Plan:

Table 7: JCP&L 2021-2023 Core Program Names & Descriptions		
Program	**Subprogram**	**Description**
Residential Programs		
Efficient Products	Efficient Products	Provides incentives for HVAC, lighting, appliances, appliance recycling, consumer electronics and other energy saving equipment through a variety of channels
Existing Homes	Home Performance with Energy Star	Provides a customer a whole home approach for direct install of efficient equipment and comprehensive retrofits
Commercial & Industrial Programs		
Direct Install	Direct Install	Audits with direct installed measures to small business customers including lighting, controls, HVAC upgrades and refrigeration
Energy Solutions for Business	Prescriptive / Custom	Provides incentives for HVAC, Lighting, Motors & Drives, Refrigeration, Water Heaters, Air Compressors, Food Service Equipment and other efficient equipment and projects
Multifamily Programs		
Multifamily	Multifamily	Provides audits, direct install measures, prescriptive and custom incentives as well as comprehensive projects for multifamily buildings

Note: Comfort Partners, the comprehensive energy efficiency solution for low income customers in New Jersey, is not addressed within this filing since it is intended to be run as a Co-Managed Program under Societal Benefits Clause funding and will be addressed in a separate filing and proceeding in accordance with the Board Order.

The table below provides a listing of the measures that are offered in the Core programs and subprograms included in the Plan:

Table 8: JCP&L 2021-2023 Core Program Portfolio		
Program	**Subprogram**	**Measure**
Residential Programs		
Efficient Products	Efficient Products	Freezer Recycling
		Refrigerator Recycling
		Room Air Conditioner Recycling
		Dehumidifier Recycling
		Clothes Washer
		Refrigerators
		Room Air Conditioner
		Freezers
		Clothes Dryer
		Air Purifier / Cleaner
		Dehumidifiers
		Water Heater - Heat Pump
		Pool Pump Variable Speed
		Dishwashers
		Water Coolers
		Elec Vehicle Chargers - Res
		Monitors
		Computers
		Imaging
		Smart Strip Plug Outlets
		TVs
		Sound Bars
		Smart Home
		LED Lamps (Speciality)
		LED Lamps
		LED Fixtures Internal
		LED Fixtures External
		Residential Occupancy Sensors
		LED Holiday Lights
		Ceiling Fans
		LED Table/Desk Lamps
		Air Source Heat Pumps
		Central Air Conditioners
		Ductless Mini-Split Heat Pump
		Ductless Mini-Split A/C
		PTAC
		PTHP
		Heat Pump - Water & Geothermal
		Furnace Fans
		Smart Thermostat
		HVAC - Custom
		Circulating Pump
		HE Bathroom Fans
		HVAC Quality Install
		EE Kits
Existing Homes	Home Performance with Energy Star	Home Performance with Energy Star

Table 8: JCP&L 2021-2023 Core Program Portfolio		
Program	**Subprogram**	**Measure**
Commercial & Industrial Programs		
Direct Install	Direct Install	Audits w DI - CI - Tier 1
		Audits w DI - CI - Tier 2
Energy Solutions for Business	Prescriptive / Custom	Auto Milker Takeoff
		Custom - Agricultural
		Dairy Refrigeration Tune-Up
		Dairy Scroll Compressor
		Dairy Vac Pump VSD Controls
		Engine Block Heater Timer
		HE Ventilation Fans
		Heat Reclaimers
		High Volume Low Speed Fans
		Livestock Waterer
		Low Pressure Irrigation
		Process Lighting - Agricultural
		Clothes Dryer - C&I
		Clothes Washer- C&I
		Dehumidifier - C&I
		Elec Vehicle Chargers - C&I
		Freezer - C&I
		Pre-Rinse Sprayers
		Refrigerators - C&I
		Water Cooler C&I
		Water Heater - Heat Pump - C&I
		Dehumidifier Recycling - C&I
		Freezer Recycling - C&I
		Refrigerator Recycling - C&I
		Room Air Conditioner Recycling - C&I
		Advanced Pwr Strips- C&I
		Computers - C&I
		Imaging - C&I
		Monitors - C&I
		Small Network
		Uninterruptible Power Supply (UPS)
		Custom - Compressed Air
		Custom - HVAC/Chlrs/Cntrls
		Custom - Process Improvement
		Custom - Refrigeration
		Custom - Equipment/Servers
		Custom - Motors - Three Phase
		Custom - VFDs < 10HP
		Custom - VFDs > 10 HP
		Custom - Audit & Education
		Custom - Bldg Improvements
		Anti Sweat Heater Controls
		Beverage Vending Machine - Controls
		Beverage Vending Machine - Energy Star
		Coffee Brewers
		Combination Oven
		Convection Oven
		Dishwasher - C&I
		ECM Evap Fan Motor
		Evap Fan Controls
		Refrigerators - Reach In
		Freezers - Reach In
		Fryers
		Griddles
		Hot Food Holding Cabinet
		Ice Machines
		Induction Warmer/Rethermalizer Well
		Refrigerated Case Cover
		Steam Cookers
		Strip Curtains

Table 8: JCP&L 2021-2023 Core Program Portfolio		
Program	**Subprogram**	**Measure**
Commercial & Industrial Programs Cont'd		
Energy Solutions for Business	Prescriptive / Custom	Air Conditioning (>5.4 < 20 Ton) - C&I
		Air Conditioning (<=5.4 Ton) - C&I
		Air Conditioning (>=20 Ton) - C&I
		Circulating Pump - C&I
		Ductless Mini-Split Heat Pump - C&I
		Ductless Mini-Split A/C - C&I
		Furnace Fans - C&I
		Heat Pump (<=5.4 Ton) - C&I
		Heat Pumps - Wtr & GeoT - C&I
		HVAC - Custom C&I
		HVAC - Maintenance - C&I
		PTAC - C&I
		PTHP - C&I
		Room Air Conditioner - C&I
		Smart Thermostat - C&I
		Exit Signs
		LED Channel Signage
		LED Fixture External
		LED Fixture Internal
		LED Lamps - C&I
		LED Linear
		LED Reach in Refrigerator / Freezer Lights
		Lighting - Custom
		Lighting - Other
		Lighting Controls (Daylight & Occupancy)
		Lighting Controls (Network)
		Linear Fluorescent
		Linear Lamps - Mnt-C&I
		High/Low Bays Lamps - Mnt-C&I
		LED Fixture - Mnt-C&I
		Street & Area Lighting
Multifamily Programs		
Multifamily	Multifamily	MF - Tenant - DI
		MF - Tenant - Prescriptive
		MF - Tenant - Custom
		MF - Common - DI
		MF - Common - Prescriptive
		MF - Common - Custom
		MF - Engineered Solutions

4.1 Residential

4.1.1 EFFICIENT PRODUCTS

This program provides incentives for Efficient Products, including retail products, appliance rebates, HVAC equipment, and appliance recycling.

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

This program will promote the installation of ENERGY STAR and other high-efficiency electric and natural gas equipment by residential customers by offering a broad range of energy efficient equipment and appliances through a variety of channels, including an online marketplace, downstream rebates to customers (including but not limited to in-store or online), up-front rebates, reduced point of sale costs, a midstream or upstream component and a network of trade allies and in collaboration with local foodbank and non-profit organizations serving customers in need. The program will provide incentives for energy efficient lighting, appliances, electronics, and heating and cooling equipment, as well as other energy efficiency products (e.g. smart thermostats, water saving measures, weatherization items, and prepackaged kits). Measures range in type and price but include both electric and natural gas technologies that improve energy efficiency in the home. The program may include customer opportunities at no up-front cost to engage and introduce customers to energy savings opportunities and achieve energy savings. Up-front rebates will also be offered to reduce initial costs on some purchases, and on-bill repayment or access to financing with similar terms will be available to further reduce first cost barriers for select products. The program is designed to provide easy and cost-effective access to energy efficient measures through customers' preferred channels and also provide a means to encourage customers to take the first steps toward energy-efficiency.

The program is designed to:

- Provide incentives for products that reduce energy use in the home and information about other programs that encourage the installation of high efficiency equipment, such as lighting, HVAC units, other heating and cooling equipment, electronics and appliances.
- Provide midstream incentives to retailers and/or distributors to increase sales of ENERGY STAR or other energy efficient products.
- Continue to support and/or provide downstream approaches for certain measures to ensure market is properly supported.
- Provide a marketing mechanism for retailer and high efficiency product suppliers to promote energy efficient equipment and products to end users.
- Ensure the participation process is clear, easy to understand and simple for the customer and contractor.

- Provide online or other channels for customers that include but are not limited to online and in-store eligibility options to acquire select ENERGY STAR products, as well as low and moderately priced energy-saving products.
- Recognize unique barriers that low- and moderate-income customers face and employ strategies to address those barriers, including no cost measures and/or enhanced incentives where appropriate.
- Utilize energy efficiency kits to introduce and promote energy efficiency technologies that can be easily installed in the home. The kits will serve as a gateway to other programs by including energy efficiency and conservation educational materials and promotional materials for other program opportunities, including the Company's, Comfort Partners and NJCEP programs.
- Provide energy efficiency kits to local foodbank and non-profit organizations and at energy assistance outreach events to reach low- to moderate-income customers, with schools to promote energy efficiency education in classrooms, to new movers, to customers upon request, and within utility marketplaces to support customer engagement.

This program will increase utilization of energy efficient equipment and products by harnessing the unique utility customer relationship to positively impact the entire sales process surrounding efficient equipment, from education and awareness of customers, engagement with trade ally contractors and equipment distributors and retailers, to on-bill repayment or access to financing with similar terms for select products.

The utilities will use their brand and customer outreach infrastructure to increase the availability, awareness, and customer uptake of energy efficient products. On-bill repayments or access to financing with similar terms will be available to customers to cover the remaining cost (after applying the rebate discount) for the balance of the efficient product cost for select products and services.

The Company and/or a third-party implementation contractor(s) will assist with the administration, oversight, and delivery of the program. Activities will include in the launch of a statewide online marketplace with utility-specific interfaces, efforts to raise awareness of the program, on-going refinements to the list of eligible measures, validating customer eligibility and processing incentives and conducting outreach to and securing partnerships with retailers, wholesalers, distributors, manufacturers and trade allies to assure all customers are able to easily purchase energy efficient products and equipment through the program. Customer engagement and sales channels may include:

- **Post Purchase (Downstream) Rebates:** Rebates will be made available to customers after they have made their purchase. Applications may be available online or in stores to submit either electronically or in hard copy with proof-of-purchase.
- **Online Marketplace:** This online marketplace is an easy to use source for the online purchase of efficient products and services. Participants will be able to browse energy efficient equipment and appliances and purchase through the marketplace which will offer instant rebates and may offer the option for on-bill repayments or access to financing with similar terms for select products.

- **Point of Sale Rebates:** Prescriptive rebates will be made available at the point of sale for selected products. The utilities will also explore the viability of using a digital, smartphone-based application platform, to enable customers to purchase efficient equipment at traditional consumer retail outlets and instantly redeem rebates at point-of-sale in both physical stores and online. Allowing easy access to rebates encourages customers to purchase qualifying efficient products.
- **Appliance Recycling:** Rebates will be provided to customers for recycling qualifying, inefficient, operating appliances. Offering an incentive for the drop off or pick-up and removal of an appliance prevents the appliance from being maintained as a second unit or being transferred to another customer.
- **Midstream or Upstream Rebates:** The utilities will pursue a midstream or upstream rebate component to encourage purchase of certain efficient equipment. The utilities will work with retail partners (such as Home Depot, Lowes, etc.), distributors or manufacturers to assure that measures are available throughout the state. Midstream or upstream rebates encourage market transformation and wider availability of efficient equipment. Efficient products that are rebated via a midstream or upstream approach may be passed on or discounted to the customer at the retail level. Utilities may also offer downstream rebate programs to ensure customers and trade allies are properly supported.
- **Trade Allies:** The utilities will establish a network of trade allies to promote certain components of the program with a consistent experience to the customer where applicable. The trade ally network will consist of qualified installation contractors, plumbers, electricians, and other trade service professionals who meet all applicable statewide requirements for performing the respective service (E.g. HVAC license, insurance requirements). Trade allies will be able to leverage the program and offer customers rebates through their normal course of business.
- **Community Partners:** The utilities will partner with foodbanks and other community organizations serving customers in need to help reduce the energy burden of those customers with no-cost energy efficient products and to raise the awareness of other energy efficiency and energy assistance programs available to help.

By developing relationships with both program and trade allies, the program will develop a broad reach across the marketplace and also solicit feedback from the marketplace to ensure incentives and measures are impacting the market as designed. Targeted program and trade allies may include:

- Efficient equipment retailers, distributors and manufacturers
- HVAC & appliance contractors
- General contractors, plumbers, electricians, and other trade service professionals

Regardless of the delivery mechanism, the utilities will take steps to ensure customers are made aware of utility engagement in helping to off-set up-front costs of the efficient products.

TARGET MARKET OR SEGMENT (MFR II.A.II)

The target market for this program will be all electric and/or natural gas customers served by at least one investor-owned utility in New Jersey. The program is focused on promoting the sale and installation of efficient electric and natural gas equipment across all major residential end-use categories, and can be promoted to program allies, trade allies and customers via straightforward prescriptive rebates. Technologies incentivized through this program include lighting, HVAC, other heating/cooling equipment, electronics, appliances, smart thermostats, water saving measures, weatherization items, pre-packaged kits, and other efficient products. The program will also promote the retirement, recycling, and replacement of old refrigerators, freezers, and other inefficient appliances.

The utilities may offer enhanced incentives for Low-to-Moderate income (LMI) customers (up to 400% of federal poverty level) for certain products to assure that the program reaches all customer types. Eligibility for these enhanced incentives can be determined based on screening an individual customer. However, the utilities will also explore implementing automatic eligibility for enhanced incentives based upon a physical location (e.g. census tract, environmental justice community, Urban Enterprise Zone) to encourage more activity in LMI communities.

MARKETING PLAN (MFR II.A.XIV)

The utilities will implement both multi-pronged direct and indirect marketing campaigns to promote this program. Customers will be exposed to broad-based energy efficiency awareness campaigns, web-based engagement and information, digital advertising, social media and hard-copy materials to promote awareness, as well as tie-ins with other programs. Retailers, wholesalers, distributors, manufacturers and trade allies will be contacted directly and/or through trade associations to develop networks and promote involvement in the program where applicable. The utilities will also look to leverage the behavior program for 'warm leads' into the program through both the home energy reports and online audit tool. In addition, the kits provided through this Program will include pamphlets and literature recommending customers visit utilities online portals and marketplace, further increasing engagement.

Targeting and promotion within this program will be enabled through intelligence gained through other residential programs or offerings, primarily Behavioral Home Energy Reports, Existing Homes, and other activity in the Efficient Products program. The utilities will explore opportunities to provide customized information to customers with prioritized action items, to maximize availability and uptake.

A combination of strategies will be used to train and support retailers, distributors and other program allies, including media advertising, outreach community forums, events, and direct outreach to customers. Consistent with current New Jersey CEP practices, the utilities may also offer Cooperative Marketing funding to encourage HVAC contactors to promote the program. Marketing activities may include:

- Point of purchase displays and materials, joint advertising, coupons, and special "instant sales events"
- Public relations materials
- Brochures that describe the benefits and features of the program including application forms and processes. The brochures will be available for various public awareness events (community events, presentations, seminars etc.)
- Bill inserts, bill messages, email, Facebook, Twitter and other social media platforms, pop-up stores.
- Company website content providing program information resources, contact information, online application forms, online retail store and links to other relevant service and information resources
- Customer representatives trained to promote the program to their customers
- Presence at conferences and public events used to increase general awareness of the program and distribute program promotional materials

The primary market barriers that impact this program include:

- **Initial Cost of Efficient Equipment:** Relative to the market baseline, efficient equipment often carries a higher upfront cost but a lower lifetime operating cost. Customers often may not fully value the lifetime operating cost advantage of efficient equipment and, as a result, higher upfront cost is a barrier to purchasing efficient equipment. To address this barrier, incentives are provided to the customer to reduce the initial cost. On-bill repayment or access to financing with similar terms will also help mitigate the up-front cost barrier.
- **Customer Awareness and Engagement:** Residential customers may not be aware of the benefits of installing efficient equipment and/or lack the time and resources to pursue efficient equipment when replacing existing equipment. To address this barrier, the utilities will educate customers on the benefits of installing efficient equipment through targeted marketing, ensure that incentives are easily accessible, and encourage market transformation and stocking of efficient equipment through midstream incentives. Through outreach efforts, the utilities will seek to partner with retail and wholesale entities to promote program offerings, and also focus marketing, education, and outreach efforts on the trade ally community to ensure that trade allies are aware of available incentives and prepared to serve customers. To increase awareness among customers with English as a second language, utilities will develop and provide outreach materials in Spanish. The utilities intend to be active participation in both the Equity or Marketing Working groups and expect to address the need and cost for developing materials in a broader range of languages as part of those discussions.
- **Landlord/Tenant Arrangements:** Split incentives between landlord/tenants with respect to who pays for energy use vs. who owns the energy-using equipment challenge investment decisions. To address this barrier, the program will be marketed to both landlords and tenants to assure that those exposed to energy costs are able to participate in the program. Utilities may also provide technical and outreach assistance to property owners and managers in developing and marketing green properties to attract tenants.
- **Sufficient Stocking and Availability of Efficient Products:** The utilities will look for opportunities to develop and promote a midstream component for specific equipment to

encourage high levels of participation via incenting midstream market actors and/or directly discounting the cost of the efficient equipment at the point of sale.

The Company will seek to manage barriers to program success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, and marketing/advertising, and improvement opportunities. The utilities' established customer communication channels, data, and brand in the marketplace will all be leveraged to deliver best-practice programs that identify and confront market barriers on an ongoing basis. To the extent possible, the utilities will cross-promote programs to spread awareness of the range of efficiency opportunities proposed in this plan.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR.II.C)

The utilities and/or third-party implementation contractors will be responsible for identifying and engaging retail and wholesale entities dealing in energy efficient equipment to on-board them with the program vision, eligible efficient products, rebates, and ways to participate. Additionally, the Company and/or third-party implementation contractors will engage trade allies, including local HVAC, electrical, plumbing, and other contractors to educate them on program benefits and build a trade ally network which will reliably install energy efficient equipment for participating customers. The Company and/or third-party implementation contractors will also monitor participation to assess the effectiveness of outreach efforts, incentive levels, delivery methods, and both program ally and trade ally availability to provide suggestions to assure that the program is continually providing customers with their needs. The Company and/or a third-party implementation contractor will be responsible for the management of the online marketplace. The utilities will oversee the build-out of the online marketplace as well as the retail and Trade Ally network, which may be administered by third-party implementation contractors. The Company and/or third-party implementation contractors will also process the online instant rebates, verify eligibility of customers and manage the delivery of items purchased on the website.

To select qualified third-party implementation contractors, the utilities will prioritize criteria including, but not limited to:

- Experience delivering similar programs or initiatives
- Resources and marketing strength
- Cost
- The amount of business placed with MWVBEs.
- By allowing participants to select a trade ally they are comfortable with for select products, the program reduces barriers to entry related to knowledge of energy efficiency, confidence in assessments, and measure installation. The utilities will perform customer satisfaction and other quality assurance and quality control activities to monitor, ensure program and verify quality standards are met.

The Company plans to issue a request for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program

and trade alley engagement, application and rebate processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III, MFR II.A.IV)

Refer to Appendix A, Table A-1 for the Proposed Incentive Ranges for this program.

The utilities propose to provide a range of incentives depending on the measure type, subject to changes based upon customer response and marketplace changes over the plan period. Incentives will vary depending on the specific product, the incremental cost of the high-efficiency technology, and the product maturity in the marketplace.

Incentives will be available in several ways and are adapted to the retail partner needs and market response. Strategies may include:

- Mail-in applications available from the retailer and the program website or directly from contractors
- Online rebate forms
- Point of Sale or In-store "Instant Reward" coupons that are redeemed in-store at the time of purchase.
- Special sale events in retail stores
- Manufacturer buy down to Retailer
- Midstream or Upstream incentives to retailers, distributors or manufacturers to encourage them to stock and promote efficient products or to provide product incentives at time of purchase
- Partnerships with community groups, schools, and/or non-profit organizations

The Company may change incentives with Staff notice or approval following the June 10, 2020 Board Order.[2] Incentives may change based on market prices, as well as manufacturer and distributor co-funding. Other incentive alternatives may be used as the market evolves and new and innovative customer, program ally and trade ally engagement opportunities become apparent.

In instances where incentives are not immediate, the utilities will complete consumer or contractor payments within 60 days following completion of contractor work, submission of complete and

[2] June 10, 2020 Board Order page 13 states "the utilities shall propose incentive ranges as common elements for core programs within which they can adjust incentives as needed with Staff notice; any adjustments outside the established range requires Staff approval… Utilities can decrease incentives for additional

utility-led initiatives with Staff notification; increase incentives up to 50% of the originally-approved incentive amount with Staff notification; and increase incentives over 50% of the originally-approved incentive amount with Staff approval."

required paperwork, and completion of program requirements such as necessary field inspections (if required).

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

Refer to Appendix B Table B-1 for the summary of Proposed Financing for this program.

CUSTOMER ACESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-10 for the projected participants and energy savings for this program. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

For customers in areas where gas and electric service territories overlap, the utilities will use the Statewide Coordinator to allocate costs and energy savings for shared measures. Refer to Section 6.3 for a description of the role of the Statewide Coordinator.

PROGRAM BUDGET (MFR II A.XI, MFR II.A.XII)

Refer to Appendix E, Table E-10 for the projected program expenditures for the program.

4.1.2 EXISTING HOMES-HOME PERFORMANCE WITH ENERGY STAR

This sub-program provides incentives to encourage customers to pursue comprehensive upgrades to their home.

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

Home Performance with ENERGY STAR will provide a holistic approach for customers to explore and invest in the efficiency and comfort of their homes. All participants in this subprogram must have an initial energy audit performed directly by a qualified Home Performance with ENERGY STAR contractor or auditor. That audit will develop an energy efficiency action-plan that includes recommendations for upgrades and available incentives. To ensure the upgrades are accessible to customers, there will be financing available through either an On-Bill Repayment Program ("OBRP") or access to financing with similar terms.

This subprogram is designed to review the entire status of a home, including equipment and envelope to achieve deeper energy savings. The program will follow guidelines and qualifying criteria associated with the U.S. Environmental Protection Agency Home Performance with ENERGY STAR (HPwES) program subject to as-needed enhancements to maximize participation and cost-effective energy savings opportunities. The utilities will also seek to increase the number of contractors certified to offer customers the U.S. Department of Energy Home Energy Score (HES) to help customers understand how Home Performance with ENERGY STAR improvements can improve the efficiency and comfort of their home.

TARGET MARKET OR SEGMENT (MFR II.A.II)

Home Performance with ENERGY STAR will be available to all single-family and single-family attached (1 to 4 unit properties) electric and/or natural gas customers served by at least one of the investor owned utilities in New Jersey.

As noted, all customers will start with a comprehensive energy audit or through upgrading from a Quick Home Energy Check-up (QHEC). Potential measures incentivized through this program include but are not limited to insulation, air sealing, smart thermostats, and HVAC. All HPwES projects must include air sealing and insulation.

MARKETING PLAN (MFR II.A.XIV)

The utilities will utilize many marketing avenues to assure subprogram awareness and participation is maximized. These include traditional marketing avenues, such as web-based engagement and information, digital advertising, media advertising, and hard-copy materials to

promote awareness among trade allies and customers. The utilities will also cross promote this subprogram to participants in other energy efficiency program offerings. Information garnered from other programs, such as the Residential Behavioral and Residential Efficient Products could also be used to identify prime candidates for participation in this HPwES subprogram. For example, a review of usage data contained in Home Energy Reports from the Residential Behavioral Subprogram could allow the utilities to identify customers who are particularly susceptible to changes in weather and would be ideal candidates for an audit. Likewise, the Residential Efficient Products program could provide leads to customers interested in energy efficiency. Most importantly, the QHEC subprogram was specifically designed to educate, engage and provide immediate energy savings to customers and identify strong leads for candidates that would benefit from participating in this HPwES program. Consistent with current New Jersey CEP practices, the utilities may also offer Cooperative Marketing funding to encourage HPwES contactors to promote the subprogram.

The primary market barriers that impact this subprogram include:

- **Initial Cost of Comprehensive Home Retrofits:** Home retrofits are more expensive and involved than purchasing efficient equipment and therefore, require more participant investment and commitment. Customers must be willing and able to invest in more expensive energy-efficiency projects. The utilities address this barrier by offering incentives and On-Bill Repayment Programs or access to financing with similar terms.
- **Traditional Credit Screening:** Many customers interested in pursuing comprehensive projects may not be able to pass traditional credit screening (e.g. requirements for debt to equity ratio) despite having a proven track record for paying their utility bills on time. The utilities will explore solutions to help more customers access this incentive through either an OBRP approach or access to financing with similar terms that relies on a review of utility payment history and bankruptcy check to ensure customers who have a proven track record have the opportunity to participate or through innovative approaches.
- **Customer Awareness and Engagement:** Many customers are unaware of the "whole house" approach to energy-efficiency or the fact that building science exists. The utilities will work to address this by:
    - continuing to educate customers about the HPwES subprogram and how both the structure and equipment work together
    - highlighting the extra training that participating contractors must have
    - identifying how the shell measure improvements can improve their comfort within the home
    - noting that an audit includes health and safety testing
    - reinforcing that the investments in equipment and shell measures may increase the value of their home.
- **Trade Ally Awareness and Training:** To meet the participation goals, sufficient HPwES contractors must be available to undertake the work. The utilities will address this barrier by trying to recruit more HVAC contractors to secure the additional certification necessary to participate in this program, including pursuing initiatives that align with the Workforce Development Working Group strategies to include more local, underrepresented and disadvantaged workers.

The Company will seek to manage barriers to program success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, and marketing/advertising, and improvement opportunities. The utilities established customer communication channels, data, and brand in the marketplace will all be leveraged to deliver best-practice programs that identify and confront market barriers on an ongoing basis.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR.II.C)

The utilities will administer this HPwES subprogram and may also choose to select a third-party implementation contractors to manage delivery of this subprogram.

The Company and/or third-party implementation contractors will oversee all aspects of the subprogram, including training and engagement, Quality Assurance/Quality Control (QA/QC), and rebate processing. There will be a significant focus on developing, training, and growing a qualified trade ally network. This will include trade ally training sessions, workshops, and market development events to grow and develop the trade ally network, with a priority placed on encouraging them to integrate home efficiency performance into their business and become Building Performance Institute (BPI) certified contractors. The Company and/or third-party implementation contractors will maintain a close relationship with trade allies to ensure consistent subprogram delivery experience and high customer satisfaction. The Company and/or third-party implementation contractors will also take on the responsibility of providing an additional layer of customer support as needed and conducting selective verification of trade ally installation work.

Trade allies will consist of companies employing BPI-certified professionals to complete HPwES audits and energy-saving projects. In order to facilitate trade ally access to participants, utilities or the third-party implementation contractor will maintain a list of companies and professional services where customers can find local trade allies based on geography and other criteria.

Selection of third-party implementation contractors will prioritize criteria including but not limited to:

- Experience delivering similar subprograms or initiatives
- Knowledge of the current marketplace
- Ability to educate and train contractors
- Local presence
- Cost
- The amount of business placed with MWVBEs.

The utilities will encourage all participating contractors to also look for opportunities to promote measures from the Residential Efficient Products Subprogram, such as home appliances (e.g. clothes washers) to increase energy savings and leverage those incentives.

The Company plans to issue a request for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program and trade alley engagement, application and rebate processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III, MFR II.A.IV)

Refer to Appendix A, Table A-1 for the Proposed Incentive Ranges for this subprogram.

The utilities will provide incentives to encourage customers to implement the measures recommended during their audit. Incentives will be calculated based on modeled savings through a sliding scale up to an overall project cap. Modeled savings will be based upon software that will use consistent calculations across territories. As the utilities work to launch midstream incentives for HVAC measures through the EE Products program, there is a recognition that a baseline incentive may be provided when a participating contractor secures the equipment from a participating distributor or retailer. The utilities intend to adjust the calculation of the incentive when an incentive has already been provided through a midstream path. However, the utilities have a shared intention to have the value of an HVAC measure being installed through this program be higher than a standalone HVAC equipment installation to ensure that customers are encouraged to pursue comprehensive upgrades and to recognize additional energy savings associated with improving the building shell.

Consistent with current practices for the New Jersey HPwES program, the utilities are proposing an incentive range for a Contractor Production incentive and separate scale for incentives for multi-family properties.

The utilities and/or third-party implementation contractors will complete consumer or contractor payments within 60 days following completion of contractor work, submission of complete and required paperwork, and completion of program requirements such as necessary field inspections (if required).

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

Refer to Appendix B Table B-1 for the summary of Proposed Financing for this subprogram.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-11 for the projected participants and energy savings for this subprogram. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

For customers in areas where gas and electric service territories overlap, the utilities will use the Statewide Coordinator to allocate costs and energy savings for shared measures. Refer to Section 6.3 for a description of the role of the Statewide Coordinator.

PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-11 for the projected program expenditures for the subprogram.

4.2 Commercial & Industrial

4.2.1 BUSINESS DIRECT INSTALL

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

The C&I Direct Install Program is focused on installation of efficiency measures for small businesses, non-profit organizations, municipalities, schools and faith-based organizations ("eligible customers") that typically lack the time, knowledge, or financial resources necessary to investigate and pursue energy efficiency. The program is designed to provide eligible customers with easy investment decisions for the direct installation of energy efficiency projects. The program will pay a percentage of the up-front cost to install the recommended energy efficiency measures, with the participating customer contributing the balance of the project cost not covered by the incentive. The program will also provide a repayment option to the customer to pay their required contribution over time. The no-cost energy assessment mitigates the time constraints and knowledge barriers while the reduced overall costs and repayment options mitigate up-front cost barriers and assist participants in making decisions, which otherwise would be time-consuming and difficult to justify. The C&I Direct Install program plays an important role in the marketplace because private providers of energy efficiency services typically do not target smaller customers due to the lower overall profit for their services when compared with larger non-residential customers. For these reasons, small businesses, non-profit organizations, municipalities, schools, and faith-based organizations are often hard to reach, and the program fills an important gap by targeting, promoting, and delivering efficiency services to these customers directly.

The energy assessment will be provided to customers free of charge and will offer recommendations on energy efficiency measures to reduce energy usage and costs. Standard basic energy savings measures may also be provided or installed at no cost at the time of the energy assessment to support customer engagement, participation, and energy savings.

The program will also focus on the smallest customers within the eligible customer segment. The Company anticipates portions of the program to be directed at restaurants, small offices, convenience stores and other small independent businesses that often are left behind in less-comprehensive energy efficiency programs. Through a number of delivery mechanisms, the Company will assure that all eligible business types are able to participate in this program.

TARGET MARKET OR SEGMENT (MFR II.A.II)

The program seeks to address the most cost-effective measures (e.g. LED lighting retrofits) but will also address all measure retrofits that would comprise a cost-effective project. Examples of end-use categories covered by the program include lighting, HVAC, controls, refrigeration, food service, motors, low-flow devices, pipe wrap and domestic hot water equipment.

The program will be divided into two tiers of eligibility, determined by the customer's individual facility peak electrical demand over the last 12 months. Tier 1 will serve the smallest of the eligible customer base, specifically focusing on customers with an average individual facility peak electrical demand of up to 100 kW. Tier 1 will also include customers up to 200 kW owned or operated by a local government, and K-12 public schools. Additionally, customers with an average peak demand from 101 – 200 kW that are located within designated opportunity zones or Urban Enterprise Zones ("UEZ") may also qualify for Tier 1 status. Tier 2 will serve the larger segment of small non-residential customers, with an average individual facility peak electrical demand of 101 - 200 kW. This figure may be increased by the Company to ensure the program is properly addressing the market in the Company's service territory.

MARKETING PLAN (MFR II.A.XIV)

The C&I Direct Install Program will be marketed to customers through a combination of direct outreach by program staff, and/or the third-party implementation contractor, web-based engagement and customer information analytics, digital advertising, and hard-copy materials to promote awareness among trade allies and customers. Direct outreach may include visits to customer premises to distribute hard-copy program materials, inform customers about the program directly, and solicit participation. Additionally, the Company may engage community partners, including chambers of commerce and other local organizations including those comprised of underrepresented and socially or economically disadvantaged individuals. The Company will also consider the potential to utilize customer information analytics or other targeted energy education outreach to identify and target customers best suited for participation in the program. The collective marketing plan strategy is useful for enrolling eligible customers that may be interested in participating but have not heard of the program and do not have the time or resources to prioritize investigating energy efficiency opportunities or reaching out to the Company.

The primary market barriers that impact this program include:

- **Customer Awareness and Engagement:** Small businesses, non-profit organizations, schools and faith-based organizations typically have limited resources and time to consider or prioritize energy efficiency and may have efficiency needs not well aligned with traditional commercial demand side management (DSM) programs targeted at larger customers. This program is intended to confront these market barriers by providing turnkey, direct installation of efficiency measures tailored to these eligible customers at no cost, while identifying additional efficiency opportunities directly on-site, and through directly soliciting eligible customers for participation. This personalized approach builds trust and achieves results while increasing the likelihood of further participation referrals. To increase participation rates among a diverse demographic, utilities may include focused outreach efforts to reach minority- and women-owned small businesses, and start-ups by engaging with business groups and organizations that support these customers. Partner business groups might include the Chamber of Commerce, and the Small Business

Administration. Utilities may also explore providing outreach materials in Spanish to reach Spanish-speaking business owners.

- **Initial Cost of Efficiency Investments:** Recommended energy efficiency projects that go beyond direct-install measures will require more participant investment and commitment. This barrier will be addressed through offering incentives and a repayment option, as well as through operating a program that is flexible and easy for small business customers to utilize.
- **Landlord/Tenant Arrangements:** Split incentives between landlord/tenants with respect to who pays for energy use versus who owns the energy-using equipment presents a unique challenge because the investor in the equipment does not experience an immediate benefit. The subprogram will employ strategies to help the landlord understand the long-term benefits of participating. This subprogram will be marketed to both landlords and tenants to assure that those exposed to energy costs and investments are able to participate in the program. Utilities may also provide technical and outreach assistance to property owners and managers in developing and marketing green properties.

The Company will seek to manage barriers to program success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, and marketing/advertising, and improvement opportunities. The Company's established customer communication channels, data, and brand in the marketplace will all be leveraged to deliver best-practice programs that identify and confront market barriers on an ongoing basis. To the extent possible, the Company will cross-promote program offerings to spread awareness of the range of efficiency opportunities proposed in this plan.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR II.C)

The C&I Direct Install Program interfaces with customers via either direct solicitation or upon customer request. All participants receive a site visit, including a free on-site energy assessment to identify energy efficiency retrofit opportunities. Standard basic energy savings measures may also be provided at no cost at the time of the energy assessment for eligible Tier 1 customers, to support customer engagement, participation, and energy savings. Following the energy assessment, participants are provided with a report assessing the site and recommending investments that could further improve the energy efficiency of the facility.

Based on the results of the energy assessment report, the program will offer to initially pay a percentage of the project cost to install the recommended energy efficiency measures with the participating customer (and/or landlord). The program will also provide a payment option to the customer (and/or landlord) for their portion of the project cost. The Company will provide for the installation of all work and assure it is completed on time and to specifications. This approach frees up the participant, who may not have the time or resources to dedicate to project implementation. The distinction between Tier 1 and Tier 2 eligibility criteria will ensure that eligible customers, even those that are the smallest and often overlooked, receive ample focus. The

simple, turnkey solution provides eligible customers with the initial site visit, energy assessment, and installation of recommended efficiency measures at no initial cost to participants.

The Company will administer and manage the program with the support of third-party implementation contractor(s) and/or Company staff. The third-party implementation contractor or the Company will have responsibility for most delivery tasks and customer outreach on behalf of the Company. The third-party implementation contractor will work closely with the Company to optimize the program offering, including, but not limited to:

- Initial participant recruitment, energy assessment, and equipment installation
- Program data tracking
- Direct customer outreach/program delivery strategy
- Development of measure mix
- Marketing
- Promotion of emerging technology
- Customer satisfaction

The third-party implementation contractor or the Company will take on the responsibility of implementing the program, directing the qualification and enrollment of participating contractors, and will work to assure that ample participating contractors are available to complete all work derived from the program. The participating contractors will perform the energy assessments and installations, working with the Company and/or the third-party implementation contractor's oversight to undertake all construction and installation work identified in the energy assessment process.

The Company plans to issue a request for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program and trade alley engagement, application and rebate processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III) (MFR II.A.IV)

Refer to Appendix A, Table A-2 for the Proposed Incentive Ranges for this program.

Both tiers of the program will encompass many of the same benefits, including a simple, turnkey solution for eligible customers, which requires no up-front investment. The initial site visit, energy assessment, and installation of recommended energy efficiency measures are provided at no initial cost to participants. The utilities propose to provide an incentive level of up to 70-80% of the project costs, and to continue discussions to determine the appropriate level and at what level the incentive is applied to best promote the completion of comprehensive projects while maintaining

overall program cost effectiveness. Additionally, the utilities plan to coordinate on the methodologies and calculations used to determine energy savings and program incentives.

For Tier 1 customers, standard basic energy savings measures may be installed at no cost during the time of the energy assessment. The program will offer to pay up to 80% of the project cost to install the recommended energy efficiency measures with the participating customer (and/or landlord) repaying the balance not covered through the incentive either in a lump sum or through an available repayment option. Customers located in an Urban Enterprise Zone, Opportunity Zone, owned or operated by a local government, or K-12 public schools. may also qualify for Tier 1 status, up to an average individual facility peak electrical demand of 200 kW.

Tier 2 will serve the larger segment of eligible customers, with an average individual facility peak electrical demand of 101 - 200 kW over the past 12 months. Incentives up to 70% of the total project cost will be offered.

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

Refer to Appendix B Table B-1 for the summary of Proposed Financing for this program.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-15 for the projected participants and energy savings for this program. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

For customers in areas where gas and electric service territories overlap, the utilities will use the Statewide Coordinator to allocate costs and energy savings for shared measures. Refer to Section 6.3 for a description of the role of the Statewide Coordinator.

PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-15 for the projected program expenditures for the program.

4.2.2 ENERGY SOLUTIONS FOR BUSINESS-PRESCRIPTIVE / CUSTOM

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

The C&I Prescriptive and Custom Measure subprogram will promote the installation of high-efficiency electric and/or natural gas equipment by the Company's C&I customers, either via the installation of prescriptive or custom measures or projects. The subprogram provides prescriptive-based incentives to commercial and industrial customers to purchase and install energy efficient products. The subprogram will continue to support and/or provide downstream approaches to ensure the market is properly supported. The subprogram may also provide midstream or upstream incentives or buydowns and support to manufacturers, distributors, contractors, and retailers that sell select energy efficient products. These measures will incent energy efficient lighting, appliances, heating and cooling equipment, and food service equipment, among other efficiency measures. Type and value of incentive provided will range and will include electric and/or natural gas technologies that improve energy efficiency. Up-front rebates will be offered to reduce initial costs and some purchases may qualify for low to no-interest financing to further reduce first cost barriers. Prescriptive measures are designed to provide easy and cost-effective access to energy efficient measures through customers' preferred channels.

Prescriptive rebates are designed to:

- Provide incentives to facility owners and operators for the installation of high efficiency equipment and controls
- Promote the marketing of high efficiency measures by trade allies such as electrical contractors, mechanical contractors, and their distributors to increase market demand.
- Ensure the participation process is clear and simple

Prescriptive incentives will increase adoption of energy efficient equipment by harnessing the Company's unique customer relationships to positively impact the entire sales process surrounding efficient equipment, from education and awareness with customers, engagement with trade ally contractors and equipment distributors, to financing opportunities for the high efficiency equipment.

The subprogram also includes custom measures that provide calculated or performance-based incentives for electric and/or natural gas efficiency opportunities for commercial, industrial, and other non-residential customers that are non-standard and not captured by prescriptive equipment. Calculated or performance-based incentives are designed to reduce the customer's capital investment for qualifying energy efficient equipment, to retrofit specialized processes and applications and/or to implement qualifying high efficiency building shell or systems improvements. Typical custom measures that are eligible for incentives are either less common measures or efficiency opportunities in specialized applications that may include manufacturing or industry-specific processes, or non-traditional use cases. In many cases, custom efficiency projects are more complex than prescriptive equipment replacement.

Potential participants are required to submit an application for pre-approval to confirm project eligibility and reserve funding. The Company and/or implementation contractors will develop electronic rebate application forms that will guide applicants through eligibility guidelines, subprogram requirements, terms and conditions, and general information. In addition, the Company and/or implementation contractors will provide applications in web ready formats to ensure participants have easy access to the forms. The pre-approval process provides for the review of the customer's proposed project to confirm measure eligibility and incentive budget availability. This also supports the Company's subprogram management because it communicates projects that are in the pipeline. If accepted and pre-approved by the Company, a timeline is established for project completion to qualify for a rebate. The typical lead time for completing a custom project is 90 to 120 days but can be longer depending on the complexity of the project. Large projects, or subsets of projects, may be required to undergo pre-and post-inspection to validate project energy savings. Approved projects may also be eligible for low to no cost financing to further reduce first-cost barriers.

TARGET MARKET OR SEGMENT (MFR II.A.II)

The C&I Prescriptive and Custom Measures subprogram will be available to all commercial, industrial, and other non-residential customers located within the Company's service territory. This subprogram is focused on promoting the sale and installation of efficient electric and/or natural gas equipment across all major end-use categories and can be easily promoted to trade allies and customers via straightforward prescriptive rebates, or more complex custom rebates. Potential technologies incentivized through prescriptive measures include energy efficient lighting, appliances, heating and cooling equipment, and food service equipment, among other efficiency measures. Customers pursuing custom incentives will generally be customers with more complex needs and non-standard efficiency opportunities. and typically include building types such as light/heavy industrial, manufacturing, data centers, and distribution centers, among others.

Additionally, JCP&L proposes to target customers on the Company's streetlighting tariffs to promote the replacement of existing Company-owned streetlighting with efficient LED streetlighting equipment.

MARKETING PLAN (MFR II.A.XIV)

The C&I Prescriptive and Custom Measures subprogram will engage with customers and trade allies at multiple levels, including broad-based energy efficiency awareness campaigns, direct outreach by subprogram staff and representatives, web-based engagement and information, digital advertising, and hard-copy materials to promote awareness among trade allies and customers. In some cases, subprogram staff and representatives will reach out directly to large customers. Use of appropriate types of media are anticipated to be included in the marketing plan, such as direct mail, email, print, and digital media. Engagement with trade associations (e.g. builders, architects, engineers, equipment distributors, professional and contractor associations, etc.) will also be

important venues for the Company to present information about the subprogram, raise awareness and encourage participation.

Marketing will be used to target specific customer sectors to ensure awareness in the subprogram and enhance participation. The Company and/or implementation contractor will target various market sectors (i.e. education, medical/health care, manufacturing, retail, food service) to enhance participation and promote a cross-section of measures applicable to each market. Since prescriptive retrofits are generally one-for-one replacements, measure-specific collateral pieces will be developed for new measures or enhanced for continuing measures. These will be delivered to sectors most likely to utilize the specific technology. Fact sheets, mailings, post cards, e-blasts, and on-location seminars will also be used to promote specific measures. Custom marketing efforts require a consistent and directed outreach to trade allies and associations, The Company and/or implementation contractors will be required to develop and implement a marketing plan to identify and target customers to connect them to appropriate measures using e-blasts, webinars, on-site seminars, and large customer publications, among other marketing and outreach initiatives. Further, in order to attract multiple measure participation, the Company and/or implementation contractor will outreach via sectors, as well as to trade allies and associations such as architects, engineers and professional associations. Targeted advertisements in industry/trade publications will also be required to bring awareness to the opportunities and savings available through the Custom offering.

The primary market barriers that impact this subprogram include:

- **Initial Cost of Efficient Equipment**: Relative to the market baseline, efficient equipment often carries a higher upfront premium but a lower lifetime operating cost. Purchasers often may not fully value the lifetime operating cost advantage of efficient equipment and as a result, higher upfront cost is a barrier to purchasing efficient equipment. To address this barrier, incentives are provided to the customer to reduce the initial cost through a variety of channels including at midstream and downstream points. Access to financing for certain measures will also help address this barrier.
- **Customer Awareness and Engagement**: Commercial and Industrial customers may not be aware of the benefits of installing efficient equipment and/or lack the time and resources to pursue efficient equipment when replacing existing equipment. To address this barrier, the Company will educate customers on the benefits of installing efficient equipment through targeted marketing, ensure that incentives are easily accessible, and encourage market transformation and stocking of efficient equipment through midstream incentives. Through outreach efforts, the Company will seek to partner with retail and wholesale entities to promote program offerings, and also focus marketing, education, and outreach efforts on the trade ally community to ensure that trade allies are aware of available incentives and prepared to serve customers. To increase participation rates among a diverse demographic, utilities may include focused outreach efforts to reach minority- and women-owned small businesses, and start-ups by engaging with business groups and organizations that support these customers. Partner business groups might include the Chamber of Commerce, and the Small Business Administration. Utilities may also explore providing outreach materials in Spanish to reach Spanish-speaking business owners.

- **Landlord/Tenant Arrangements**: Split incentives between landlords, who own the energy-using equipment, and tenants, who pay for energy use, present a unique challenge because the investor in the equipment does not experience an immediate benefit. The subprogram will employ strategies to help the landlord understand the long-term benefits of participating. This subprogram will be marketed to both landlords and tenants to assure those exposed to energy costs are able to participate in program. Utilities may also provide technical and outreach assistance to property owners and managers in developing and marketing green properties.

- **Sufficient Stocking and Availability of Efficient Products**: To support a robust marketplace for efficient equipment, the Company may promote midstream incentives for specific equipment types to encourage participation via incentives for distributors or retailers to stock and promote the purchase of or for directly marking down the cost of the efficient equipment at the point of sale

The Company will seek to manage barriers to subprogram success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, and marketing/advertising, and improvement opportunities. The Company's established customer communication channels, data, and brand in the marketplace will all be leveraged to deliver best-practice programs that identify and confront market barriers on an ongoing basis. The Company will cross-promote programs and subprograms to spread awareness of the range of efficiency opportunities proposed in this plan.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR II.C)

The Company may outsource some, or all, of the implementation of this subprogram to an implementation contractor who would be responsible for defined functions, which could include administration, marketing, application processing and documentation regarding purchased products and processing incentives and rebates. The Company will perform overall administration and oversight of the subprogram. To maximize customer participation and streamline the customer experience, the Company will use its strong customer and marketplace relationships to support multiple implementation strategies to achieve subprogram goals.

- **Trade Allies**: The Company and/or the implementation contractor will target trade allies (e.g. electricians, HVAC contractors, lighting retailers and distributors, building energy managers, etc.) to promote the efficiency opportunities and incentives to their clients. Preserving this downstream approach will ensure that customers and trade allies are properly supported. Trade allies will be able to leverage the subprogram and offer customers rebates through their normal course of business. By developing relationships with trade allies, the subprogram will develop a broad reach across the marketplace and solicit feedback to ensure incentives and measures are impacting the market as designed. Examples of targeted trade ally firms include:
    - Design, engineering, and controls firms
    - HVAC distributors, contractors, and retail providers

    - Food service retailers and service providers
    - Commercial lighting distributors and wholesalers
- **Retail**: The Company's subprogram staff, the implementation contractor, and/or field representatives will work with retailers and distributors that directly target C&I customers to inform them of the participation process and available equipment incentives. The Company and/or implementation contractor will also provide support and assistance to retailers or distributors to support identification and promotion of qualifying energy efficient products. This will also include training and instruction to participating retailers and distributors about the application forms.
- **Midstream:** The Company and/or the implementation contractor may promote a midstream component for specific equipment types to encourage purchase of efficient equipment via directly marking down the cost of the efficient equipment at the point of sale. Midstream rebates encourage market transformation and wider availability of efficient equipment. The Company anticipates offering midstream point of sale discounts across numerous equipment types, including, but not limited to: LED lighting, HVAC, and food service equipment. Efficient products that are rebated via a midstream approach will not be eligible for rebates in any other Company rebate program. The Company and/or implementation contractor will also provide support and assistance to distributors to support identification and promotion of qualifying energy efficient products. This will also include training and instruction to participating distributors as well as enrollment of distributors to participate in midstream subprogram offerings
- **Digital**: The subprogram will be marketed directly to C&I customers on the Company's website, where customers will have easy access to information regarding eligible equipment and savings opportunities, how to participate, and incentives across all efficient equipment types and end-uses.
- **Targeted Customer Outreach**: Company staff may choose to reach out directly to large business and commercial customers to develop relationships with energy and facilities managers, operations staff, and procurement personnel. Subprogram staff can help facilitate completion of rebate applications and serve as a direct resource to these customers, providing technical support and helping to assist customers in identifying efficiency opportunities.
- **Technical Customer Assistance**: An important element of the C&I Prescriptive and Custom Measures subprogram is the availability of technical support. The Company and/or implementation contractor will provide technical support to customers on the application of the energy efficiency measures and technologies included in this subprogram, including supporting project identification, developing energy savings calculations, and assessing project economics as required.

Measurement & Verification (M&V) for projects that do not have reliable information to accurately forecast energy savings may require energy monitoring before and after project implementation to determine savings and incentive amounts.

It is anticipated that any third-party implementation contractor will work closely with the Company to optimize the subprogram's strategic direction, including, but not limited to, the following activities:

- Offered incentive levels and strategies
- Customer satisfaction
- Measurement and verification during on-site visits
- Subprogram data tracking
- Rebate payments

The Company may select a qualified third-party implementation contractor (or contractors) based on, but not limited to, the following factors:

- Technical Approach
- Organizational and Management Capability
- Experience
- Cost
- The amount of business placed with MWVBEs.

A comprehensive contractor agreement, containing information about equipment certification (such as DLC lighting, etc.), licensing, insurance requirements and more, will be developed and provided to all participating contractors.

The Company plans to issue a request for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program and trade alley engagement, application and rebate processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III) (MFR II.A.IV)

Refer to Appendix A, Table A-2 for the Proposed Incentive Ranges for this subprogram.

The utilities propose to provide a range of incentives depending on the measure type, subject to changes based upon customer response and market conditions over the plan period. Incentives will vary depending on factors including but not limited to the specific product, the incremental cost of the high-efficiency technology, and the product maturity in the marketplace.

In instances where incentives are not immediate, the utilities will complete consumer or contractor payments within 60 days following completion of contractor work, submission of complete and required paperwork, and completion of program requirements such as necessary field inspections (if required).

Additionally, the Company has designed this subprogram to provide prescriptive-based incentives to customers participating on its streetlighting tariffs to offset the customer's one-time or monthly

cost and promote the replacement of Company-owned streetlighting with LED streetlighting equipment.

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

Refer to Appendix B Table B-1 for the Summary of Proposed Financing for this subprogram.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-16 for the projected participants and energy savings for this program. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

For customers in areas where gas and electric service territories overlap, the utilities will use the Statewide Coordinator to allocate costs and energy savings for shared measures. Refer to Section 6.3 for a description of the role of the Statewide Coordinator.

PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-16 for the projected program expenditures for the subprogram.

4.3 Multifamily

4.3.1 MULTIFAMILY

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

This Program addresses multifamily structures with three or more units. As such, there can be significant variation in the types of structures served under this Program ranging from residential type dwelling with three units to large garden apartment complexes to multi-story high rise buildings. In order to meet the specific needs of each customer, the Multi-Family Program will provide, in conjunction with the customer, a structured screening review to identify and develop the project plan for the customer. Potential program services include customer engagement with energy efficiency education through energy assessments, installation of standard energy savings measures, comprehensive energy savings opportunities including prescriptive equipment replacement, custom retrofit projects and engineered solutions and emergency equipment replacement. In addition, the Multifamily Program will provide On-Bill Repayment or access to financing with similar terms and enhanced incentives for low income/affordable housing properties

The Multi-Family Program will seek to work with each customer to determine and package the best energy savings opportunities based on the Company's current program offerings (e.g. direct installation of standard energy savings measures, prescriptive equipment replacement, custom retrofit or engineered solutions), with an emphasis to encourage more comprehensive projects wherever possible. Customers will begin participation in the Multi-Family Program with a screening to identify and develop a project plan. The initial screening may include an energy assessment and installation of standard energy savings measures to help encourage program participation. The assessment will also identify additional energy savings opportunities and develop the project plan that is the best fit for each specific customer and building.

Applications to this program will be reviewed to determine the project plan depending on the type of housing stock and ownership structure. The screening process will consider various factors to create a project plan that will deliver a high level of energy savings in the most cost-effective manner. Examples of these factors include, but are not limited to:

- Building size
- Number of units
- If the facility is being served by a central plant
- If there are individual heating and cooling units
- If there are building envelope/weatherization opportunities
- Application review with a potential virtual site inspection
- Application review with potential telephone interview with Property Management
- An on-site pre-scoping audit may be performed

Depending upon the screening results and the customer's interests, a customer's project plan could include direct installation of standard energy savings measures, incentives for prescriptive equipment replacement, custom retrofit opportunities, or a Comprehensive Engineered Solutions project. The measures within the project plan will be consistent with the terms and conditions of the Company's applicable residential and/or commercial & industrial program offerings (e.g. Existing Homes, Efficient Products, Energy Solutions for Business). Therefore, the project plan can include prescriptive measures with set energy-savings and/or custom projects with savings on a project basis. Please refer to these program descriptions for more information on these program offerings and the associated terms and conditions, including delivery methods and contractor roles.

TARGET MARKET OR SEGMENT (MFR II.A.II)

All multi-family buildings with three or more units that are served by at least one investor owned utility are eligible to participate. The Program targets multi-family property owners, property managers, and residents, who, because of the building owner – tenant relationship, have always had difficulty investing in energy efficiency equipment. The utilities will also target outreach to economically-qualified occupants and owners of multifamily buildings who may be eligible for enhanced incentives. Eligibility for these enhanced incentives can be automatic based upon the type of property that has a low- or moderate-income designation (e.g. New Jersey Housing and Mortgage Financing Agency qualified, Housing Authorities) or by a physical location (e.g. census tract, environmental justice community, Urban Enterprise Zone). The program may refer prospective customers to Comfort Partners as appropriate.

MARKETING PLAN (MFR II.A.XIV)

The marketing strategy will focus on informing property owners, managers, associations, tenant groups, municipalities, and community organizations about the availability and benefits of the program and how to participate. Marketing activities will also target low- and moderate-income multi-family sector. Key elements of the marketing strategy may include:

- Targeted outreach through direct mailings and presentations to inform property owners, property managers, apartment associations, tenant groups, municipalities and community organizations about the benefits of the program and participation processes
- Printed collateral highlighting the benefits and features of the program as well as the enrollment and participation processes
- Website content providing program information resources and contact information
- In-person visits by program representatives to properties with three or more units
- Energy assessments of properties may include the direct installation of standard energy savings measures to engage, educate and promote the building owners or facility managers to participate in the other program offerings targeting deeper savings.

The primary market barriers that impact this program include:

- **Business/Operational Constraints:** Multi-family properties often have unique operational and time constraints that act as a barrier to implement energy-efficiency projects. This barrier will be addressed by ensuring the program operates cooperatively with participants, provides program participation and technical assistance, and offers timely incentives and financing support.
- **Customer Awareness and Engagement:** Eligible participants may be unaware of energy-efficiency opportunities and programs because the segment has historically not been well served by traditional energy-efficiency programs. To address this barrier, this program was designed specifically to support the multi-family segment. The utilities will execute targeted outreach strategies to ensure that relevant customers are aware of program opportunities and consider energy efficiency in equipment investments and long-term planning. The program will also prepare and distribute successful case studies of prior participants and their experiences and energy savings. To increase awareness among customers with English as a second language, utilities will develop and provide outreach materials in Spanish. The utilities intend to be active participation in both the Equity or Marketing Working groups and expect to address the need and cost for developing materials in a broader range of languages as part of those discussions.
- **Cost Effectiveness:** Efficiency upgrades require an initial investment that is recovered by lower long-run operating costs and non-energy benefits. Multi-family projects may carry longer payback periods than traditional energy-efficiency projects due to the unique needs of the segment. To address this barrier, incentives and access to OBRP or similar financing options will be provided to the customer to reduce the initial cost. The utilities will also communicate the non-energy benefits offered by many efficiency upgrades that may not be captured in the cost/benefit analysis to further promote efficiency upgrades to customers.

Additionally, the utilities considered the following market barriers identified in the Utility Demographic and Firmographic Profile 2020 Study[3]:

- **Split incentives:** Multi-family properties can face challenges for energy efficiency improvements since the owner generally does not pay the utility bills and may not reap the full benefit of any energy efficiency investment. To address this barrier, the utilities will market to both landlords and tenants to assure that those exposed to energy costs are able to participate in the program, provide low- and no-cost measures at no cost to the tenant or the landlord, and offer comprehensive approaches for multi-family, including application, technical and engineering support to design cost-effective projects with benefits for owners and renters. Utilities may also provide technical and outreach assistance to property owners and managers in developing and marketing green properties.
- **Complex buying process:** There can be a broad range of potential energy efficiency investments and it can be challenging to identify which strategies may be the most

[3] The purpose of this study was to examine the demographics and firmographics of all customers in the service territories of each of the electric and gas public utilities in New Jersey. This is to comply the CEA, as well as in response to the New Jersey Board of Public Utilities (NJBPU) Order Docket Nos. QO19010040 and QO19060748 (dated October 7, 2019), which directed the utilities to complete a demographic analysis pursuant to the CEA. The study was released on April 30, 2020 and can be found https://www.njcleanenergy.com/files/file/Library/New%20Jersey%20Demographics%20Report.pdf

beneficial for owners and/or tenants. To address this barrier, the program will provide customized screening and on-going support to help find the best solution for the customer and include incentives to encourage the customer to implement the recommended solutions.

The Company will seek to manage barriers to program success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, and marketing/advertising, and improvement opportunities. The utilities will leverage their established customer relationships, communication channels, data, and brand in the marketplace to identify and confront market barriers on an ongoing basis.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MRF II.C)

The Multi-Family Program will be delivered in coordination between both the Lead Utility and the Partner Utility (where applicable) and/or qualified third-party implementation contractor(s) with experience delivering similar programs. Because of the unique and varied nature of the multi-family market Program representatives will build relationships with property management companies, owners, associations and their members to recruit participation in the Program. The Program will assist customers to coordinate scheduling of the Energy Assessment and direct installations and will provide program and technical support to complete program and rebate application requirements.

Delivery of energy-saving measures will be dependent on the project plan and may include direct install of standard energy savings measures, installation of prescriptive measures, or custom projects. It may be necessary to schedule appointments for the installation of energy saving measures in the individual living units and common areas. In-unit HVAC tune-ups may also be offered to the property owner or tenant. The installation crews are trained on the technical and educational aspects of the energy saving devices installed and leave educational materials in each unit describing the work performed and explaining the energy-saving benefits.

The Company plans to issue a request for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program and trade alley engagement, application and rebate processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III) (MFR II.A.IV)

Refer to Appendix A, Table A-3 for the Proposed Incentive Ranges for this program.

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

Refer to Appendix B Table B-1 for the summary of Proposed Financing for this program.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-19 for the projected participants and energy savings for this program. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

For customers in areas where gas and electric service territories overlap, the utilities will use the Statewide Coordinator to allocate costs and energy savings for shared measures. Refer to Section 6.3 for a description of the role of the Statewide Coordinator.

PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-19 for the projected program expenditures for the program.

5.0 ADDITIONAL JCP&L PROGRAMS

JCP&L proposes additional programs and subprograms to provide a comprehensive portfolio of offerings to customers and greater opportunities for customers to participate. The additional offerings help to establish a framework to meet the aggressive and increasing annual energy savings targets and supports the Company's objective to implement programs to establish and develop systems and processes, program and trade ally participation, customer awareness, and experience and momentum for the future. The Additional Company Initiatives are based on successful programs in other jurisdictions and collaboration with other NJ utilities to promote coordinated program designs and delivery.

The table below provides a listing and description of the Additional JCP&L programs and subprograms included in the Plan:

Table 9: 2021-2023 JCP&L Additional Program Names & Descriptions

Program	Subprogram	Description
Residential Programs		
Existing Homes	Quick Home Energy Check-up	Audits with direct installed measures provided at no additional cost to participants with education about the opportunities to save energy including other program opportunities
	Moderate Income Weatherization	Audits with direct installed measures, weatherization services, and HVAC repair/replacement provided at no additional cost to participating income qualified customers
Home Energy Education and Management	Behavioral	Provides education of energy usage through Home Energy Reports and on-line audits, with targeted customized messaging to promote energy savings and conservation opportunities
Commercial & Industrial Programs		
Energy Solutions for Business	Energy Management	Customer engagement targeting efficient building operations through building tune-up, retro commissioning and customized energy management solutions.
	Engineered Solutions	Provides consultative service throughout delivery, including comprehensive audits, detailed analysis and recommendations of energy efficiency measures and development of project specifications, to assist customers in identifying and undertaking large comprehensive energy-efficiency projects
Other Programs		
Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Provides control and/or optimization of connected devices (e.g. smart thermostats, smart home energy management systems) to target and achieve energy and peak demand savings

The table below provides a listing of the measures that are offered in the Additional JCP&L programs and subprograms included in the Plan:

Table 10: 2021-2023 Additional JCP&L Program Portfolio		
Program	**Subprogram**	**Measure**
Residential Programs		
Existing Homes	Quick Home Energy Check-up	Quick Home Energy Checkup (QHEC)
	Moderate Income Weatherization	MI Weatherization
Home Energy Education and Management	Behavioral	Behavioral FY22
		Behavioral FY23
		On-Line Audit
Commercial & Industrial Programs		
Energy Solutions for Business	Energy Management	Virtual/Meter Data Commissioning
		Retrocommissioning
		Building Operation Training
		Building Tune Up Large
		Building Tune Up Small
		Unitary HVAC Maintenance
		Strategic Energy Management
	Engineered Solutions	ESB - Engineered Solutions - 1
		ESB - Engineered Solutions - 2
Other Programs		
Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Smart Tstat Optimization
		Smart Home Systems

5.1 Residential

5.1.1 HOME ENERGY EDUCATION & MANAGEMENT-BEHAVIORAL

This program initially includes Behavioral initiatives and energy education. This subprogram can reach a significant portion of the Company's customer base, including low- to moderate-income segment and share personalized education, including guidance on low and no-cost energy saving strategies.

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

The Home Energy Education & Management-Behavioral subprogram educates customers regarding their home energy usage and provides recommendations to implement and adopt energy efficiency and conservation measures to reduce their energy usage. This subprogram provides customized Home Energy Reports about each customer's energy usage, as well as analysis regarding their usage over time, with specific tips and recommendations that promote energy efficiency and conservation opportunities and programs available to them. The reports help customers to understand how their energy consumption compares to similarly sized and equipped homes; and to develop goals and strategies to reduce their energy use. This subprogram also offers an on-line audit. The audits similarly provide recommendations for home energy efficiency and conservation opportunities and other program opportunities available to them. Collectively, the Home Energy Reports and on-line audit targets customer engagement, education and awareness of energy efficiency and conservation and have become an industry staple for achieving customer participation and energy savings.

TARGET MARKET OR SEGMENT (MFR II.A.II)

The Home Energy Education & Management-Behavioral subprogram will be targeted to electric customers served by Company. This no-risk subprogram is intended to appeal and provide benefits to both renters and homeowners.

Residential customers, including limited - to – moderate - income customers, with above average energy usage and sufficient usage history are the primary candidates selected for participation in the subprogram. The Company will work closely with the third-party implementation contractor to review all customers and their current usage characteristics, to optimize subprogram participation, energy savings and cost.

MARKETING PLAN (MFR II.A.XIV)

While the Energy Education & Management-Behavioral subprogram itself is not marketed to customers, the subprogram markets other program opportunities to customers. The Company will work with its third-party implementation contractor to design and produce marketing modules that are used in Home Energy Reports to promote other program opportunities to customers.

The primary market barriers related to this subprogram include:

- **Customer Awareness and Engagement:** Residential customers may not be fully aware of energy efficiency opportunities for their home. This subprogram addresses this barrier by providing customers with information regarding their usage over time, with specific tips and recommendations that promote energy efficiency and conservation opportunities and programs available to them.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR.II.C)

The Company will administer and oversee this subprogram and will select a third-party implementation contractor to manage delivery of this subprogram. The implementation contractor will be responsible to conduct the energy usage analysis and develop and deliver customized Home Energy Reports to customers. For the on-line audit, the Company plans to utilize its enterprise-wide Online Audit tool.

The implementation contractor will develop and distribute customized Home Energy Reports by mail and/or email. The Home Energy Reports will provide customers with meaningful comparisons regarding their usage relative to a peer group, based on home location, size, heating type, and other criteria. The reports deliver information in a simple way, providing customers with the necessary information to take appropriate actions to reduce their energy use, along with marketing modules that promote additional residential program offerings. Customers will also have access to online functionality provided under the subprogram that customers can easily utilize to see additional tips on how to save energy, complete the online audit tool, and review their usage over a period of time.

Additionally, the implementation contractor will use utility and data analytics to identify and target participation among low to moderate income customers and will provide customized reports to these customers promoting low- to no-cost recommendations and other program opportunities available to them including income-qualified programs.

The selection of third-party implementation contractors will prioritize experience delivering similar subprograms or initiatives and cost.

The Company plans to issue a request for proposal for a third-party implementation contactor who will be responsible for developing and providing Home Energy Reports as discussed above. The Company plans to select the third-party implementation contractor in a timeframe that supports program implementation in 2023.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III) (MFR II.A.IV)

There is no additional cost to participating customers for the Energy Education & Management-Behavioral subprogram. The subprogram provides customized Home Energy Reports and access to an Online Audit tool to assist and drive customers to develop goals and strategies to reduce their energy usage as incentive for participation.

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

Since there is no additional cost for participating customers, there is no financing option for this subprogram.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-12 for the projected participants and energy savings for this program. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-12 for the projected program expenditures for the subprogram.

5.1.2 EXISTING HOMES-QUICK HOME ENERGY CHECK UP (QHEC)

This sub-program helps customers understand their best opportunities to save energy through an in-home consultation and also secure energy savings during that visit through the direct installation of energy saving measures. It will be designed to help renters as well as homeowners and promotes additional energy savings opportunities and upgrades available to the customer.

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

The Quick Home Energy Check-Up (QHEC) subprogram is an Additional Utility Led Initiative intended to provide residential customers with an understanding of opportunities to save energy and help them start saving energy immediately by providing some standard energy saving measures at no additional cost to participants. Interested customers will sign up for an in-home visit from a qualified energy auditor participating contractor, a Company employee, or a third party implementation contractor. During the visit, the auditor will perform a walk-through of the customer's home with the customer to provide education about the opportunities to save energy. The auditor may also identify larger opportunities for energy savings, including making referrals to other energy efficiency programs and program opportunities based on the needs for that premise and the customer's interest in pursuing additional upgrades. This may include sharing information about the products and incentives available under the Energy Efficient Products program, the potential for comprehensive upgrades through either the Home Performance with ENERGY STAR (HPwES) subprogram, the Moderate Income Weatherization Program, or the Comfort Partners program. Further, during the visit, Standard energy efficiency measures may be installed, including but not be limited to LED bulbs, energy and water saving showerheads, kitchen faucet aerators, bathroom faucet aerators, gaskets, power strips and other energy saving measures. All participants will receive a QHEC report that confirms the findings during the appointment and summarizes the measures received and the recommendations made. The QHEC report will also highlight incentives available to support the implementation of those recommendations, including educating customers about how to pursue the recommendations through other program opportunities as well as the availability of enhanced incentives. This no-risk program is intended to appeal and provide benefits to both renters and homeowners.

TARGET MARKET OR SEGMENT (MFR II.A.II)

The QHEC program will be available to all single-family and single-family attached (1 to 4 unit properties[4]) electric and/or natural gas customers served by at least one of the participating investor owned utilities in New Jersey. There are also additional options through other program offerings for Low-to-Moderate income (LMI) customers (up to 400% of Federal Poverty Level or potential automatic eligibility based on physical location) and access to On-Bill Repayment programs or financing with similar terms. Eligibility for these enhanced incentives can be determined based on screening an individual customer but the utilities also intend to explore implementing automatic

[4] Properties larger than 4 units will be referred for consideration in the Multi-family Program.

eligibility for enhanced incentives based upon a physical location (e.g. census tract, environmental justice community, Urban Enterprise Zone) to encourage more activity in LMI communities.

MARKETING PLAN (MFR II.A.XIV)

The utilities will utilize many marketing channels to assure subprogram awareness and participation is maximized. These may include traditional marketing channels, such as web-based engagement and information, digital advertising, media advertising, printed materials, and door-to-door marketing. The utilities also plan to cross promote this subprogram to participants in other energy efficiency program offerings. Information garnered from other program offerings, such as the Residential Behavioral and Residential Efficient Products could also be used to identify prime candidates for participation in this QHEC subprogram. For example, a review of usage data contained in Home Energy Reports from the Residential Behavioral Subprogram could allow the utilities to identify customers who are particularly susceptible to changes in weather and would be ideal candidates for a QHEC. Likewise, the Residential Efficient Products program could provide leads to customers interested in energy efficiency. Most importantly, the QHEC subprogram was specifically designed to engage and provide immediate energy savings to customers and identify strong leads for candidates that would benefit from participating in other programs.

The primary market barriers that impact this subprogram include:

- **Customer Awareness and Engagement:** Residential customers may not be fully aware of energy-efficiency opportunities for their home. This subprogram addresses this barrier by providing an independent professional assessment.
- **Up-front Cost of a Home Energy Assessment:** Many customers would not be interested or have the ability to pay the cost for an assessment. This subprogram addresses this barrier by offering the QHEC at no additional cost to the customer.
- **Split incentives:** Many renters may not consider participating in energy efficiency programs because they don't own the premise and don't have a role in decisions regarding equipment replacement or structural improvements. This subprogram addresses this barrier by providing simple energy efficiency measures that provide immediate energy savings and don't require landlord approval to install or use (e.g. smart strips, LEDs).
- **Customer skepticism of contractor proposals:** Some customers are skeptical that contractors don't have their best interests at heart since contractors are interested in performing the work. This subprogram addresses this barrier by ensuring the entity performing the assessment would not be performing the installation work for the EE Products or HPwES program that may be recommended as potential next steps in QHEC reports.
- **Trade Ally Awareness and Training:** To meet the participation goals, sufficient contractors must be available to undertake the work. The utilities will address this barrier by trying to recruit more contractors to participate in this program, including pursuing initiatives that align with the Workforce Development Working Group strategies to include more local, underrepresented, and disadvantaged workers.

The Company will seek to manage barriers to program success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, and marketing/advertising, and improvement opportunities. The utilities established customer communication channels, data, and brand in the marketplace will all be leveraged to deliver best-practice programs that identify and confront market barriers on an ongoing basis.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR.II.C)

Each utility will administer and oversee this QHEC subprogram and may also choose to select a third-party implementation contractor to manage delivery of this subprogram.

The Company's staff and/or third-party implementation contractors will oversee all aspects of the subprogram, including training and engagement, and QA/QC. The Company and/or third-party implementation contractors will maintain a close relationship with participating contractors to ensure consistent subprogram delivery experience and high customer satisfaction. Where the program services are provided by a 3rd party implementer, utility staff and/or third-party implementation contractors will also be responsible to provide an additional layer of customer support as needed and conducting selective verification of installation work.

Those selecting third-party implementation contractors will prioritize criteria including but not limited to:

- Experience delivering similar subprograms or initiatives
- Knowledge of the current marketplace
- Ability to educate and train contractors
- Local presence
- Cost
- The amount of business placed with MWVBEs.

The Company plans to issue a request for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program and trade alley engagement, application and rebate processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III) (MFR II.A.IV)

Refer to Appendix A, Table A-1 for the Proposed Incentive Ranges for this subprogram.

The utilities will provide the QHEC to their interested customers at no additional cost, including the installation of standard energy efficiency measures that are appropriate for their home. Participating customers will also benefit from receiving energy efficiency conservation tips, recommendations and referrals to other energy efficiency programs based upon the opportunities identified for their home.

For utilities who are using contractors to perform the QHECs, the utilities and/or third-party implementation contractors will complete contractor payments within 60 days following the submission of complete and required paperwork and completion of program requirements such as necessary field inspections (if required).

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

Since there is no additional cost for participating customers, there is no financing option for this subprogram.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-13 for the projected participants and energy savings for this program. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

For customers in areas where gas and electric service territories overlap, the utilities will use the Statewide Coordinator to allocate costs and energy savings for shared measures. Refer to Section 6.3 for a description of the role of the Statewide Coordinator.

PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-13 for the projected program expenditures for the subprogram.

5.1.3 EXISTING HOMES-MODERATE INCOME WEATHERIZATION

This sub-program provides an opportunity for moderate-income customers to receive no cost energy efficiency measures and upgrades.

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

The Moderate-Income Weatherization subprogram provides an opportunity for low- to moderate-income customers to receive energy efficiency measures and upgrades at no additional cost. Income eligible customers will undergo an audit and then receive direct install measures (such as showerheads, faucet aerators, and LED bulbs) and weatherization measures (insulation, air sealing, and duct sealing). Homeowners with nonfunctional heating and/or cooling systems may also be eligible to receive repairs or replacement at no additional cost. The subprogram will include a cap on each project with additional funding for health and safety expenses.

During the audit, customers will receive installation of low-cost measures such as LED lighting, energy-saving aerators, showerheads, smart thermostats and smart power strips at no additional cost, in addition to behavioral suggestions to improve efficiency of the home and a review of thermostat and water heating setpoints. Based on the in-home audit recommendations, the participant may also be given the opportunity for additional building envelope measures to be installed at no additional cost. These measures include air sealing and building insulation. Also, customers with nonfunctional heating and cooling equipment may receive repairs or new equipment.

TARGET MARKET OR SEGMENT (MFR II.A.II)

The Moderate-Income Weatherization subprogram will be available to all income-qualified single-family homes served by at least one investor-owned utility in New Jersey. To qualify for this subprogram, the customer's household income must be above the Comfort Partners program eligibility and up to 400% of Federal Poverty Income Guidelines. Eligibility for these enhanced incentives can be determined based on screening an individual customer but the utilities also intend to explore implementing automatic eligibility for enhanced incentives based upon a physical location (e.g. census tract, environmental justice community, Urban Enterprise Zone) or based upon participation in a qualifying program (E.g. PAGE assistance program) to encourage more activity in LMI communities.

MARKETING PLAN (MFR II.A.XIV)

The utilities will utilize many marketing avenues to educate potential eligible customers about the subprogram. These include traditional marketing avenues, such as web-based engagement

and information, digital advertising, and hard-copy materials to promote customer awareness. The utilities intend to cross market this subprogram and pursue additional marketing opportunities through other program offerings, such as through Home Energy Reports, where information garnered could be used to identify potential participants for this subprogram. For example, a review of usage data contained in Home Energy Reports could allow the utilities to identify customers who are particularly susceptible to changes in weather and would be ideal candidates for an audit and comprehensive weatherization. The utilities will also look at customers that did not qualify for the Comfort Partners program that might be eligible for this subprogram. Finally, utility customer service personnel will work to promote the subprogram and educate customers on energy efficiency and the programs available to assist them.

The primary market barriers that impact this subprogram include:

- **Initial Cost of Comprehensive Home Retrofits:** Comprehensive home retrofits are more expensive and require more participant investment and commitment. Customers must be willing and able to invest in more expensive energy-efficiency projects. The utilities address this barrier by offering all program services at no additional cost to income-qualified customers.
- **Customer Awareness and Engagement:** Many customers are unaware of the "whole house" approach to energy-efficiency or the fact that building science exists. The utilities will work to address this by:
    - continuing to educate customers about the subprogram and how both the structure and equipment work together
    - highlighting the extra training and BPI certification that contractors must have
    - identifying how the shell measure improvements can improve their comfort within the home
    - noting that the program includes health and safety testing and repairs to allow energy-saving measures to be installed
    - reinforcing that the installation of equipment and shell measures may increase the value of their home.
- **Awareness and Training:** To meet the participation goals, sufficient qualified contractors must be available to undertake the work. The Utilities and/or their third-party implementation contractors will address this barrier by trying to recruit qualified contractors to participate in this subprogram, including pursuing initiatives that align with the Workforce Development Working Group strategies to include more local, under-represented and disadvantaged workers.

The Company will seek to manage barriers to program success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, and marketing/advertising, and improvement opportunities. The utilities' established customer communication channels, data, and brand in the marketplace will all be leveraged to deliver best-practice programs that identify and confront market barriers on an ongoing basis.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR.II.C)

The Company and/or third-party implementation contractors will oversee all aspects of the subprogram, including contractor training and engagement, quality assurance and fulfillment of subprogram services. The in-home energy audit and efficiency improvements will be conducted by third- party implementation contractors and/or program contractors. There will be a significant focus on developing and training qualified contractors. The Company and/or third-party implementation contractors will oversee their staff and subcontractors and engage contractors to educate them on the subprogram benefits to reliably complete the in-home audits and install energy efficient equipment and improvements for participating customers. The Company and/or third-party implementation contractors will also verify eligibility of customers and will maintain a close relationship with contractors to ensure consistent subprogram delivery experience and high customer satisfaction. The Company and/or third-party implementation contractors will also monitor participation to assess the effectiveness of outreach efforts and that the subprogram is effectively achieving participation and serving customers. Company staff and/or third-party contractors will also take on the responsibility of providing an additional layer of customer support as needed and conducting selective verification of contractor installation work.

Contractors will consist of companies employing BPI-certified professionals to complete audits and energy-saving projects.

Selection of third-party implementation contractors will prioritize criteria including but not limited to:

- Experience delivering similar subprograms or initiatives
- Knowledge of the current marketplace
- Ability to educate and train contractors
- Local presence
- Cost
- The amount of business placed with MWVBEs.

The Company plans to issue a request for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program and trade alley engagement, application processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III) (MFR II.A.IV)

Refer to Appendix A, Table A-1 for the Proposed Incentive Ranges for this subprogram.

The customer may receive no-cost energy efficiency measures and upgrades with a per project cap for weatherization measures and an additional cap on health and safety expenses.

Utilities and/or the third-party implementation contractors will complete contractor payments within 60 days following completion of contractor work, submission of complete and required paperwork, and completion of subprogram requirements such as necessary field inspections (if required).

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

All services provided under this subprogram are at no additional cost or financing to the customer.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-14 for the projected participants and energy savings for this program. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

For customers in areas where gas and electric service territories overlap, the utilities will use the Statewide Coordinator to allocate costs and energy savings for shared measures. Refer to Section 6.3 for a description of the role of the Statewide Coordinator.

PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-14 for the projected program expenditures for the subprogram.

5.2 Commercial & Industrial

5.2.1 ENERGY SOLUTIONS FOR BUSINESS-ENERGY MANAGEMENT

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

The C&I Energy Management subprogram targets energy savings for existing commercial and industrial facilities by providing a holistic approach to improving building energy performance through maintenance, tune-up and retro-commissioning services for existing buildings and through the implementation of energy savings strategies that improve the overall operation and energy performance of buildings and building systems. This subprogram compliments the Prescriptive/Custom and Engineered Solutions subprograms which focus on capital equipment replacement or process improvement investments by improving the energy performance of a building by maintaining, adjusting and optimizing the systems within the building and the implementation of complimentary energy savings measures. The program also provides paths to track the ongoing building energy performance by using retro-commissioning and strategic energy management strategies, which ensures continued energy performance. By implementing these measures, customers also receive ancillary benefits including improved occupant comfort, lower maintenance costs, and extended equipment life.

This subprogram includes measures that focus on specific energy efficiency measures and management practices that can be categorized as follows:

Building Operations

Building Operations measures provide multiple paths for a customer to implement building tune-up and maintenance services. These measures are designed to focus on midsize commercial and industrial customers and include the following:

- **HVAC Tune-Up:** Provides for a tune-up of central HVAC systems, Mini-Splits and Packaged Terminal units, and include the following measures:
  - Refrigeration charge correction (if needed)
  - Cleaning evaporator and condenser coils
  - Filter changes
  - Verification of proper operation of fans and motors
  - Other minor repairs to refrigerant lines and coils

- **Building Tune-Up:** Provides a path for customers to implement a Building Tune-Up that will focus on the adjustment and calibration of building systems and controls, diagnostic testing and the installation of other measures that enhance

building energy performance and savings. Also includes application of controls to optimize operation of building systems, and includes the following measures:

- Calibration of building systems and controls, including energy management systems, lighting and HVAC
- Diagnostic and function tests of applicable major systems and equipment
- HVAC controls to optimize Roof Top Units (RTU)/Air Handling Units (AHU)
- Refrigeration controls to optimize refrigeration equipment
- Lighting upgrades including application of lighting controls and optimization
- Chiller system controls to optimize chiller performance
- Other program eligible energy saving measures identified through the building assessment
- Building Operations Training for qualified personnel to obtain Building Operations Certification (BOC) through a certified training program or other training programs as related to the efficient design, operations and maintenance of buildings.

Retro-Commissioning (RCx)

Retro-Commissioning measures provide a comprehensive assessment of a customer's commercial/industrial building by using a prescribed planning process that includes a building audit, development of an action plan for the building and development of a Measurement and Verification (M&V) plan to ensure the optimum on-going performance of the building and building systems. A comprehensive assessment of a commercial/industrial building using a prescribed planning and implementation process, including:

1. Audit Phase – Customer confirms intent to participate in program and registers with the the Company or the third-party implementation contractor. Customer and/or the customer's consultant completes the required level of an American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) audit based on the complexity of the facility, develops a retro-commissioning implementation plan, including project timelines and plan to implement audit identified operation and maintenance measures. There may be opportunities to complete this Phase without a full ASHRAE level audit.
2. Setup Phase - Contracted services to implement the plan are verified, long-term monitoring and reporting is developed and initiated, and project plan is implemented by customer.
3. Measurement and Verification (M&V) Phase: Savings verification and rebate payment from implementation of the plan is completed.

Typical Retro-Commissioning measures include, but are not limited to:

- Optimizing chiller and boiler operations to better match building load conditions

- Reducing ventilation in over-ventilated areas
- Fixing ventilation dampers that are open when they should be closed or vice versa
- Decreasing supply air pressure setpoint and system rebalancing
- Aligning zone temperature setpoints to match the building's actual operating schedule
- Virtual Commissioning (VCx)

As an option to performing an on-site audit to develop a retro-commissioning plan, this option provides eligible customers with an analysis of their building's energy performance by using meter usage data, other data and building modeling to identify and recommend energy efficiency measures and operational changes to improve a building's overall energy performance. The analysis will foster participation in the Company's other programs by identifying and encouraging customers to implement other energy efficiency improvements. The VCx process can also utilize benchmarking and peer comparison metrics to help determine energy performance to identify facilities that are underperforming. This offering can also use continuous engagement, monitoring and periodic reviews of customer's energy usage to ensure that implemented measures or changes have been successfully completed. The use of building analysis using remote analysis techniques will also help customers to participate in the programs because of limited access to customer's facilities due to concerns and restrictions such as COVID-19.

Strategic Energy Management (SEM)

The Strategic Energy Management (SEM) component of this subprogram is designed to optimize energy consumption for larger C&I customers through long term management of major energy using systems. SEM provides a holistic approach that is focused on management of existing systems and processes (including behavior), as well as tracking and benchmarking performance to identify and evaluate energy optimization efforts. SEM is a long-term effort typically focused on developing and executing an energy management strategy. This strategy is formulated through a series of site and/or remote visits and interviews with building owners and staff to specifically develop a Strategic Energy Management Plan (SEMP) for the customer's facility. The SEMP will be reviewed with the customer by the Company and/or its third-party implementation contractor on a scheduled basis. This plan may include:

- Revisions or improvements to an existing Building Automation System or the addition and initiation of the use of a Building Automation System to monitor and control the buildings components and systems. The implementation or improvements to a system or the review of an existing system, can include the proper training for building operators to achieve maximum efficiency.
- Development of a maintenance plan for existing building components and or systems to identify best practices in building performance and an interactive monitoring of system components by both staff and sponsoring utilities.
- Ongoing engagement to track energy usage and performance, assist with planning energy efficiency projects, and interact with facility personnel to adopt energy efficiency strategies and behaviors.

- Utilizing other Program offerings, including: Prescriptive/Custom measures, Building Tune-Up, Retro-commissioning (RCx), and Virtual Commissioning (VCx).
- Using building modeling and benchmarking to compare customer's usage and performance to cohort of similar facilities and Virtual Commissioning (VCx) to track energy usage and performance over time.
- Application of whole building energy modeling tools that can model buildings for both operational and capital improvements.
- Scheduling of attendance of customer personnel to attend educational workshops, webinars and group/individual training sessions with cohorts of facility managers (e.g. Building Operations Training)

Customers can participate by application to the program or will be contacted directly by subprogram personnel. The subprogram will retrieve customer information and obtain customer agreement for the services to be provided and handle on-going customer engagement. Incentives for improvements recommended by the subprogram will be issued after the retrofit is completed. The Company and/or a third-party implementation contractor will develop rebate application forms for this subprogram that will guide applicants through eligibility guidelines, terms and conditions, and general program information requirements. In addition, the subprogram will provide applications in web-ready formats to ensure participants and potential customers have easy access to the forms.

TARGET MARKET OR SEGMENT (MFR II.A.II)

The C&I Energy Management subprogram will be available to all commercial, industrial, and other non-residential customers located within the Company's service territory with buildings and building systems.

Building Operations measures target existing commercial buildings and is particularly relevant for medium building types that utilize traditional building systems and controls.

Retro-commissioning targets existing commercial buildings and is particularly relevant for medium to large building types utilizing a building energy management system.

SEM targets existing large to very large commercial and industrial customers and building types and is particularly relevant to customers with significant energy use who commit to on-going participation and engagement across the organization including various levels of management and decision making.

Marketing will specifically target commercial, industrial and government entities within the Company's service territory depending upon the subprogram offering. Given the program's breadth of offerings, the program can provide basic HVAC tune up services to medium sized commercial customers up to providing Retro-Commissioning services for the larger C&I customers that have building management technology that controls the daily operations of building lighting and HVAC systems. In many cases, customers do not maintain nor operate their existing building equipment or energy management systems, so the program will focus on bringing those systems back to peak operating performance and/or implementing control schemes that will enhance the operations of those systems as well as implementing energy saving technologies that will focus on building energy savings.

The Company will leverage existing relationships with commercial and industrial customers to promote the overall program. The program will be specifically marketed as a comprehensive solution for a customer to improve the energy performance of their building by utilizing many of the services that the program offers. The subprogram will leverage the Company's existing relationships and communication channels with customers through subprogram staff and account management teams.

The primary market barriers that impact this subprogram include:

- **Business/Operational Constraints:** These facilities often have unique operational constraints that act as a barrier to implement energy-efficiency projects and the maintenance of equipment. This barrier will be addressed by ensuring the subprogram operates cooperatively with participants, provides technical assistance, maintenance services and offers timely incentives and financing support.

- **Customer Awareness and Engagement:** Eligible participants may be unaware of energy-efficiency opportunities and programs because the segment has historically not been well served by traditional energy-efficiency programs. To address this barrier, this subprogram was designed specifically to support the segment. The Company will execute a targeted outreach strategy to ensure that relevant customers are aware of subprogram opportunities and consider energy-efficiency in building tune-ups, retro-commissioning and strategic energy management opportunities that will cover both short term and longer planning needs in those facilities. The subprogram will also prepare and distribute successful case studies of prior participants and their experiences and energy savings.

The Company will seek to manage barriers to program success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, and marketing/advertising, and improvement opportunities. The Company's established customer communication channels, data, and brand in the marketplace will all be leveraged to deliver a best-practice subprogram that identify and confront market barriers on an

ongoing basis. To the extent possible, the Company will cross-promote other programs and subprograms to spread awareness of the range of efficiency opportunities proposed in this plan.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR.II.C)

The Company will perform overall administration and oversight of the program and may also choose to select third-party implementation contractors to manage delivery of this subprogram. Company staff and/or third-party implementation contractors will oversee all aspects of the subprogram. The Company and/or third-party implementation contractors will be responsible to administer, promote and provide the program to customers including staffing, processes ensuring quality and other controls supporting successful program implementation. Company staff and/or third-party implementation contractors will conduct the marketing, management, and implementation aspects of this subprogram. Marketing will target specific customer sectors, program allies and partners to ensure awareness in the program and enhance customer participation. Additional target marketing will be completed to enhance participation among hard to reach customers.

The Company and/or third-party implementation contractors will select qualified subprogram trade ally contractors to undertake all subprogram services. Installation and maintenance trade allies must adhere to the project specifications developed by the Company and/or third-party implementation contractors. The Company will leverage its existing and or develop a network of engaged trade allies, including local construction, electrical, plumbing and other contractors, to educate them on subprogram benefits and assist with building an approved trade ally network which will reliably maintain and install energy-efficient equipment for participating customers.

The Company and/or third-party implementation contractors will also monitor participation to assess the effectiveness of outreach efforts, incentive levels, delivery methods, and subprogram trade ally availability and provide suggestions for improvement.

Selection of third-party implementation contractors and subprogram trade allies will prioritize criteria including but not limited to:

- Experience delivering similar subprograms or initiatives
- Knowledge of the current marketplace
- Resources and marketing strength
- Local presence
- Cost
- The amount of business placed with MWVBEs.

The Company plans to issue a request for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program and trade alley engagement, application and rebate processing, documentation and/or other

program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III) (MFR II.A.IV)

Refer to Appendix A, Table A-2 for the Proposed Incentive Ranges for this subprogram.

Incentives for this subprogram are structured around the measure categories that focus on specific energy efficiency measures and management practices as follows:

- **Building Operations:** Incentives provided on a fixed or project cost basis as follows:
  - HVAC Tune-Up: Fixed incentives for the implementation of the tune-up measures based on the size of the HVAC units.
  - Building Tune-Up: Incentives that cover up to 70% of the project cost with a project cap of $75,000 and up to 70% of the cost to attend qualified BOC training up to $1000 per person.
- **Retro-Commissioning**: Incentives to cover up to 50% of the initial cost to perform the required ASHRAE level audit, and the remaining cost upon the customer commitment to implementation of energy efficiency measures defined by the audit. The customer will also be paid a custom incentive for the implementation of the energy efficiency measures determined through the audit. The total audit and project incentive will be capped at up to 70% of the project cost.
- **Strategic Energy Management**: A third-party implementation contractor may perform an engineering assessment of the Customer's facility to develop a SEMP or the Customer may choose to utilize a consultant of their choosing to perform an engineering assessment to develop the SEMP. Customers who utilize a consultant will receive an incentive to cover up to 50% of the initial cost of the engineering assessment, with the remaining cost upon the customer commitment to implementation of energy efficiency measures defined by the SEMP process. A tiered incentive structure for Customer engineering assessment will be utilized based upon square footage of Customer's facility. The SEMP will identify short, medium, and long-term goals for the customer and will set identifiable metrics for mapping to the plan. For the implementation of the energy efficiency measures determined by the SEMP, the customer will be paid an incentive that is commensurate with the applicable Commercial & Industrial Program offering that the measures are attributed.

The utilities and/or third-party implementation contractors will complete customer contractor payments within 60 days following completion of contractor work, submission of complete and required paperwork, and completion of program requirements such as necessary field inspections (if required).

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

Refer to Appendix B Table B-1 for the summary of Proposed Financing for this subprogram.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-17 for the projected participants and energy savings for this program. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

For customers in areas where gas and electric service territories overlap, the utilities will use the Statewide Coordinator to allocate costs and energy savings for shared measures. Refer to Section 6.3 for a description of the role of the Statewide Coordinator.

PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-17 for the projected program expenditures for the subprogram.

5.2.2 ENERGY SOLUTIONS FOR BUSINESS-ENGINEERED SOLUTIONS

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

The Energy Solutions for Business-Engineered Solutions subprogram will provide tailored energy-efficiency assistance to public service entities, such as municipalities, universities, schools, hospitals and healthcare facilities ("MUSH") and non-profit entities. The subprogram will provide guided consultative service throughout delivery to assist customers in identifying and undertaking large energy-efficiency projects, while requiring no up-front funding from the customer.

Through this subprogram, customers will be provided with an in-depth audit of their facilities as well as a detailed assessment and recommendation of energy-efficiency measures that could be economically installed. Customer incentives are determined on a project-by-project basis. Selection of trade allies will be subject to a competitive solicitation process. In addition to the calculated project-by-project incentive, participants will have the option to pay back the non-incentive portion of the project costs through on-bill repayments or access to financing with similar terms. Through this subprogram design, participants in market segments that have typically been underserved are able to achieve greater energy savings.

TARGET MARKET OR SEGMENT (MFR II.A.II)

C&I MUSH and non-profit entities located within the Company's service territory are eligible to participate in this subprogram. The subprogram will provide energy audits and incentives to entities that directly serve the public, but often have difficultly investigating and investing in energy-efficiency. The measures included in this subprogram may include HVAC, building envelope, motors, lighting, controls, and other building systems, energy efficiency and energy consuming equipment.

MARKETING PLAN (MFR II.A.XIV)

The Company will leverage existing relationships with municipalities, universities, schools and other public agencies to promote the subprogram, and will conduct further outreach through school, university and municipal associations. The subprogram will leverage the Company's existing relationships and communication channels with customers through subprogram staff and account management/customer service personnel. In addition, the subprogram will work with hospitals, healthcare facilities, and non-profits to increase awareness of the subprogram.

The primary market barriers that impact this subprogram include:

- **Business/Operational Constraints:** These facilities often have unique operational constraints that act as a barrier to implement energy-efficiency projects. This barrier will be addressed by ensuring the subprogram operates cooperatively with participants, provides technical assistance, and offers timely incentives and financing support.

- **Customer Awareness and Engagement:** Eligible participants may be unaware of energy-efficiency opportunities and programs because the segment has historically not been well served by traditional energy-efficiency programs. To address this barrier, this subprogram was designed specifically to support the segment. The subprogram will include a targeted outreach strategy to ensure that relevant customers are aware of subprogram opportunities and consider energy-efficiency in equipment investments and long-term planning. The subprogram will also prepare and distribute successful case studies of prior participants and their experiences and energy savings.

- **Cost Effectiveness:** Efficiency upgrades require an initial investment that is recovered by lower long-run operating costs and non-energy benefits. These projects often carry longer payback periods than traditional energy-efficiency projects due to the unique needs of the segment (e.g. hospital & health buildings). To address this barrier, incentives and on-bill repayment or access to financing with similar terms is provided to the customer to reduce the initial cost, and subprogram will endeavor to communicate the non-energy benefits offered by many efficiency upgrades that are not well captured in traditional cost/benefit analysis.

The Company will seek to manage barriers to program success through a commitment to monitoring program performance and feedback channels for assessing effective program design, delivery, outreach, and marketing/advertising, and improvement opportunities. The Company's established customer communication channels, data, and brand in the marketplace will all be leveraged to deliver best-practice subprograms that identify and confront market barriers on an ongoing basis.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR.II.C)

The Company will administer this subprogram and may also choose to select a third-party to manage delivery of this subprogram. The Company and/or its third-party implementation contractor(s) will oversee all aspects of the subprogram. The Company, and/or its third-party implementation contractor(s) will utilize qualified trade allies to undertake the audit and engineering services required to deliver this subprogram. The Company may also utilize the third-party implementation contractor(s) to assist in the outreach, marketing, and trade ally coordination. Participants will contract with the installation trade allies selected through a competitive solicitation process to install the measures included in projects.

The subprogram delivery will typically occur in four steps:

- **Audit:** The Company and/or its third-party implementation contractor shall assess the required level of an ASHRAE audit to perform, based on the complexity of the facility and the potential energy efficiency measures; an investment grade audit may not be required for all facilities. The Company and/or its third-party implementation contractor will then select a subprogram trade ally to perform the appropriate level energy audit and prepare a customized audit report that includes a list of recommended energy efficiency upgrades. The Company and/or its third-party implementation contractor will then review the recommended energy efficiency upgrades with the customer to determine whether to proceed with a project.
- **Engineering Analysis of Project:** Based on the audit results and customer feedback, an engineering analysis may be required. The Company and/or its third-party implementation contractor will conduct a screening of the payback and project cost effectiveness and recommend the selected energy-efficiency measures for the project. The Company and/or its third-party implementation contractor will review the project with the Customer for Customer agreement on the approved project. The Company and/or its third-party implementation contractor and/or a subprogram engineering trade ally will work with the customer to prepare a Scope of Work and other project documents, which will be used by the customer to obtain installation cost estimates for the approved project.
- **Scope of Work/Contractor Bids:** The customer will issue a Scope of Work to obtain competitive bids to complete the identified and approved project. The Company and/or its third-party implementation contractor, the subprogram engineering trade ally and the customer will review and evaluate the bids/costs received, and the customer will make the final decision on bid selection. Following bid selection, the proposed project is again screened for cost effectiveness and the customer is presented the funding commitment proposal from the Company and/or its third-party implementation contractor. Once (i) the customer and the Company and/or its third-party implementation contractor have executed the funding commitment and (ii) the customer has executed applicable agreements and contracts with the successful bidder, project funding will be reserved and made available to support the project.
- **Measures Installation and Inspections:** The Company and/or its third-party implementation contractor and the subprogram engineering trade ally, acting as construction administration agent, will monitor project progress and will release project funds based on the following payment structure:

    - Stage 1: Project Contracting Stage - The first progress payment of up to 30% of the installation cost can be issued to the customer to initiate the project.
    - Stage 2: Construction Stage - A pre-defined series of progress payments totaling up to 50% of total project commitment can be issued
    - Stage 3: Project Completion and Commissioning - When the project is 100% complete, a final inspection and final project true-up will be performed; remaining progress payments will be issued.

  The final payment based on the results of project true-up is determined and issued only if the final inspection is successfully completed and approved. If the final costs are less than the estimated project commitment, the final payment will be adjusted down to reflect the

actual costs. If the final costs are greater than the estimated project commitment, the final payment will not be adjusted and will be paid according to the executed agreements and contracts specifying original costs.

The progress payment schedule described above is designed to ensure that customers can pay their installation contractors on a timely basis. Project progress and the project cash flow will be monitored and verified by the Company and/or its third-party implementation contractor.

The Company and/or its third-party implementation contractor will select qualified subprogram trade alleys to undertake all auditing and engineering work associated with the subprogram. The Company and/or its third-party implementation contractor will also monitor participation to assess the effectiveness of outreach efforts, incentive levels, delivery methods, and subprogram trade ally and installation contractor availability and provide suggestions for improvement. The installation contractor(s) will adhere to the project specifications recommended by Company and/or its third-party implementation contractor and the subprogram engineering trade ally and set forth between the installation contractor and the customer.

Selection of third-party implementation contractors and subprogram trade allies will prioritize criteria including but not limited to:

- Experience delivering similar subprograms or initiatives
- Knowledge of the current marketplace
- Resources and marketing strength
- Local presence
- Cost
- The amount of business placed with MWVBEs.

The Company plans to issue a request for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program and trade alley engagement, application and rebate processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III) (MFR II.A.IV)

Refer to Appendix A, Table A-2 for the Proposed Incentive Ranges for this subprogram.

The subprogram will provide a 100% incentive for an up-front ASHRAE audit, the specific audit level will be determined on a project by project basis based on the complexity of the facility and the potential energy efficiency measures. In addition, the Company will buy-down the simple

payback of the recommended energy-efficiency project cost for approved measures by up to six years, with the resulting payback not less than three years. After the project incentive buy-down, the remaining project costs may be funded by the subprogram with participants repaying the balance of the project costs through OBRP or access to financing with similar terms.

The Company and/or its third-party implementation contractor will complete customer contractor payments within 60 days following completion of contractor work, submission of complete and required paperwork, and completion of program requirements such as necessary field inspections (if required).

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

Refer to Appendix B Table B-1 for the Summary of Proposed Financing for this subprogram.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-18 for the projected participants and energy savings for this program. The table summarizes the projected participation and savings associated with this subprogram. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

For customers in areas where gas and electric service territories overlap, the utilities will use the Statewide Coordinator to allocate costs and energy savings for shared measures. Refer to Section 6.3 for a description of the role of the Statewide Coordinator.

PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-18 for the projected program expenditures for the subprogram.

5.3 Other Programs

5.3.1 HOME OPTIMIZATION & PEAK DEMAND REDUCTION

PROGRAM DESCRIPTION / DESIGN (MFR II.A.I)

Smart home and home optimization programs have emerged over the past few years through connected devices and smart home offerings. The Company has observed traditional residential demand response program offerings in the industry transition to the use of the smart thermostat as the primary control device in the home. The industry is evolving to include other connected devices such as plug loads, window shading controls, appliances, pool pumps, water heaters, electric vehicles/chargers, and battery storage systems. In addition, ENERGY STAR has established a specification for Smart Home Energy Management Systems (SHEMS) which is composed of packages of smart home devices (including the smart thermostat as a required device) with features for occupancy detection and corresponding user services which are accessible through a single platform interface, such as a smart app. The SHEMS specification includes an interface that provides user control of devices and information on the energy consumption of SHEMS-connected devices, among other things. The platform also receives and responds to occupancy data to optimize energy savings device control actions.

This program provides incentives to customers for the control and optimization of connected devices (initially Smart Thermostats) and for the purchase, installation and/or enrollment of smart home energy management systems meeting program requirements to provide energy and peak demand reduction savings.

TARGET MARKET OR SEGMENT (MFR II.A.II)

Residential customers who own or purchase and install program qualified connected devices (initially smart thermostats) or home energy management systems.

All residential customers with internet service and a home wi-fi network.

MARKETING PLAN (MFR II.A.XIV)

The marketing of this program will be provided by TPICs under management by Company personnel. Marketing activities will target Smart Home Energy Management System providers

(as available) and customers to inform them of the program, its components, and the associated benefits to participation. The Company or the TPIC(s) may recruit smart home system providers and program trade allies throughout program implementation. The Company or the contractors(s) may also market and/or cross market the program offerings to customers through bill inserts, social media, e-mail, online marketing, direct mail, print, newspaper and radio advertisements, Home Energy Reports, point-of-sale displays at retailers, in-store, and community events, and the Company's website. The contractor(s) will design and produce all materials needed to promote the program including promotional signage, informational brochures and rebate forms.

DELIVERY METHOD, CONTRACTOR ROLES AND IMPLEMENTATION PLAN (MFR II.A.V, MFR II.A.VIII, MFR II.A.X.III, MFR.II.C)

The Company will outsource the implementation of this program to a TPIC who will be responsible for marketing, outreach, enrollment, and fulfillment aspects of program. The Company will perform overall administration and oversight of the program.

The contractor will develop an implementation plan that involves marketing activities to target and conduct outreach to both smart home system providers (as available) and customers to inform them of the program offering, components, benefits, and to achieve program buy-in and participation. The contractor will also develop and provide educational materials to support delivery of this program including promotional brochures and presentation. The Home Energy Education & Management Program will also promote this program through Home Energy Reports. The frequency of this promotion will be determined during the program launch phase.

This program supports enrollment of qualified connected devices (initially smart thermostats) for their control and optimization and for implementation of smart technologies in homes (as available). The TPIC will provide education and promote the installation of qualified products and systems to customers and trade allies. Trade allies will also be recruited to partner in and support this program.

The Company plans to issue a request for proposal for third-party implementation contactor(s) who will be responsible for marketing, customer enrollment, program and trade alley engagement, application and rebate processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports program implementation in 2023.

EXISTING AND PROPOSED INCENTIVES RANGES (MFR II.A.III) (MFR II.A.IV)

Refer to Appendix A, Table A-3 for the Proposed Incentive Ranges for this program.

The customer receives an incentive following the enrollment in optimization with qualifying devices (e.g. Smart Thermostats meeting program requirements) or following the purchase, installation and/or enrollment of a Home Energy Management System meeting ENERGY STAR or other program requirements.

CUSTOMER FINANCING OPTIONS (MFR II.A.VI)

There are no financing options for this program.

CUSTOMER ACCESS TO CURRENT AND HISTORIC ENERGY USAGE DATA (MFR II.A.VII)

Refer to Section 10.2 for a description of how the Company provides customers access to their current and historic energy usage data.

Additionally, ENERGY STAR has established a certification for Smart Home Energy Management Systems (SHEMS) which is composed of packages of smart home devices (including the smart thermostat as a required device) and corresponding user services which are accessible through a single platform interface, such as a smart app. A certified SHEMS includes an interface that provides easy recognition and set up of new devices, and user control of devices and information on the energy consumption of SHEMS-connected devices. The platform also receives and responds to occupancy data and initiates energy savings device control actions. The Company anticipates that the participating customer will have access to the data available from the SHEMs system for this program.

PROJECTED PARTICIPANTS (MFR II.A.IX) AND ENERGY SAVINGS (MFR II.A.X)

Refer to Appendix D, Table D-20 for the projected participants and energy and peak demand reduction savings for this program. The table summarizes the projected participation and savings associated with this program. All values are annual incremental totals, and do not incorporate savings achieved in prior years. Savings estimates are based on projected participation during each year of the forecast period.

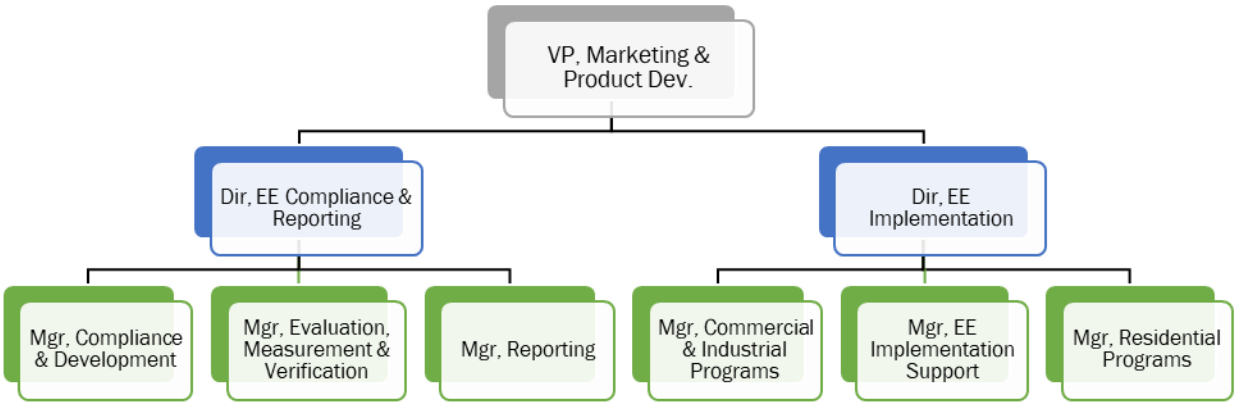
PROGRAM BUDGET (MFR II A.XI) (MFR II.A.XII)

Refer to Appendix E, Table E-20 for the projected program expenditures for the program.

6.0 PROGRAM MANAGEMENT AND IMPLEMENTATION PLAN

6.1 Describe the Company's management structure for efficiency programs and include the organization chart for management team responsible for implementing this plan

The Energy Efficiency Department is entrusted with ensuring that the Company complies with all statutory EE/PDR requirements and that the approved programs are successfully implemented. The group reports to the Vice President, Marketing and Product Development. This group also has responsibility for similar activities for FirstEnergy's other utility subsidiaries in other states. The organization chart set forth below depicts the management team and their primary areas of responsibility as they currently exist.



The Energy Efficiency Implementation group is organized based on program management responsibilities across customer classes. Key activities include planning and executing marketing campaigns and acquiring and managing the program implementation vendors to ensure quality control and assurance over program implementation. The Energy Efficiency Compliance and Reporting group is organized based on support functions that are common to all programs such as plan development; program evaluation, measurement and verification; and compliance tracking and reporting. Members from this group also coordinate working group and stakeholder engagement activities, both of which provide input and recommendations on program design and implementation, including customer communication/education.

6.2 Summary of the Company's implementation strategy to manage the portfolio, engage customers and trade allies, encourage innovation and market access, transform markets, and align or coordinate with other utilities (MFR II a xiii, MFR II c)

Program Administration

The Company will provide the management, administration, and implementation of the programs through internal operations or under supervised support of third-party implementation contractors. The program teams will monitor the following program elements for each utility-administered program:

- Progress to goal
- Projects completed
- Energy savings
- Customers served
- Budgets

The Company will also keep abreast of industry trends, market research, and best practices from other New Jersey utilities and other jurisdictions to consider possible enhancements to the programs and ensure best-quality program implementation and performance during the term of the Plan.

The Company plans to begin to issue requests for proposal in the 1st quarter of 2021 for third-party implementation contactor(s) who will support the marketing, customer enrollment, program and trade alley engagement, application and rebate processing, documentation and/or other program delivery activities as discussed above. The Company plans to select the third-party implementation contractor(s) in a timeframe that supports timely program implementation upon Board approval of the program and throughout the period of the Plan.

Additionally, JCP&L will ensure a coordinated delivery of programs among utilities and allocation of costs and energy savings among the utilities for areas where utility service territories overlap.

Marketing Collaboration

To support a consistent statewide approach for program marketing and to support statewide awareness of energy efficiency programs and efforts, the Company will collaborate with partnering utilities on marketing materials and broad customer-awareness language. The Company will also participate in and support efforts of the NJ Marketing Working Group to determine appropriate measures for joint and statewide marketing efforts.

Customer Service and Call Center

The Company will utilize telephone, Internet, mobile app, and other customer-facing tools to provide energy efficiency program customer support and service. Additionally, the Company will leverage relationships with customers to conduct outreach regarding program availability and provide additional customer support and service. Company personnel (e.g. Area Managers and Customer Support Representatives) will provide first line contacts to eligible customers to engage and educate customers regarding the program opportunities available to them and support their participation in the program offerings.

Listed below are the typical responsibilities of the customer support representatives:

- Handle inquiries related to the Energy Efficiency Programs
- Facilitate electronic or postal delivery of requested information
- Provide program application support and status updates
- Resolve issues or complaints

Any customer complaints will be escalated to the appropriate department within the Company and handled through standard customer service practices.

IT, Data Tracking and Reporting

The Company or its third-party vendor will identify and implement appropriate Information Technology (IT) systems to track and report program participation and energy-saving data. These systems will be in coordination with existing Company systems or built-out appropriately to meet the specific program tracking and regulatory reporting requirements. The systems will transmit data feeds with the Statewide Coordinator to facilitate data sharing between utilities for dual-fuel programs to support coordinated, consistent delivery of programs among utilities and allocation of costs and energy savings among the utilities

The IT systems capabilities will include, but is not limited to the following functions:

- Program monitoring reports
- Invoicing coordinating utilities and third-party vendors
- EM&V data extracts
- Regulatory reporting extracts

Processes to ensure data quality and data security will be put in place and monitored on a routine basis to ensure program reporting accuracy and customer data protections.

See Section 9.0 for more information regarding the Company's Reporting Plan

Program Quality Assurance and Quality Control

The Company will deploy routine quality assurance and quality control measures to ensure its internal and vendor processes are meeting the goals, requirements and objectives of the program. Such measures may include routine program performance reviews, vendor meetings, customer participation surveys, and project inspections. Additionally, any Trade Ally or Participating Contractor will undergo a thorough onboarding review to ensure that participating contractors are licensed, insured, and that they fully understand program requirements before performing any work on behalf of the Company and program. Further, routine review periods exist to ensure consistent program deployment and execution. The Company will take corrective actions for non-compliance and conformance with program requirements, objectives or Company standards.

6.3 Role of Statewide Coordinator

In response to the Board Order directing each electric public utility and gas public utility in the State of New Jersey to establish energy efficiency ("EE") and peak demand reduction ("PDR") programs pursuant to the CEA, the New Jersey investor-owned electric and gas utilities are collaborating in order to implement programs in a consistent manner and develop supportive processes, procedures, requirements, and forms.

Coordinated Program Offerings

To support the coordinated delivery of Core and certain Additional program offerings in situations that involve gas and electric savings opportunities in overlapping utility territories, the Utilities have established a framework that will align key program elements through use of Interconnected Tracking Systems supported by use of a Statewide Coordinator System, aligned Utility Responsibilities, and Coordinated Program Elements as further described below. This structure will support the coordinated delivery of appropriate energy efficiency measures in the following Program or Sub-program offerings:

Core Offerings

- Energy Efficient Products
- Home Performance with ENERGY STAR
- Multi-Family
- Direct Install
- Prescriptive and Custom Measures

Additional Utility-Led Offerings

- Moderate-Income Weatherization
- Quick Home Energy Check-Up
- Engineered Solutions
- Energy Management

Interconnected Tracking Systems

To support consistency across the state and to align the above coordinated program offerings, the utilities will contract with a single third-party entity to serve as a Statewide Coordinator ("SWC") for measures and costs that impact more than one utility in situations where gas and electric service territories overlap. This entity, to be selected through a competitive procurement process, will provide a software platform to cross-reference eligible customers, identify the local gas and electric company serving the customer, identify completed and in-progress efficiency projects, and perform independent allocations of energy savings and costs for coordinated program offerings. These costs and savings will be allocated between the Utility that provides the program services

(i.e. "Lead Utility") and the Utility with whom the services were coordinated (i.e. "Partner Utility').

In areas where gas and electric service territories overlap, the utilities will design program elements that support consistent delivery of the above coordinated program offerings among all of the utilities to enable the SWC to allocate shared costs and energy savings appropriately based on the fuel types impacted by EE measures.

Statewide Coordinator System Responsibilities

- Serve as a central platform to ensure data minimums required for coordinated data elements, exchange protocols, and serve as a repository for shared measure costs and shared savings for applicable programs.
- Track participation specific to utility programs that require coordination (e.g. screen prior participation in coordinated program offerings)
- Serve as a clearing house for pre-determined data formats and exchanges
- Perform allocation of dual-fuel or partner-fuel savings and cost for customers with separate gas and electric utilities, sharing of costs, investments, and applicable to customer financing
- Determine and provide supporting reports respective to utility invoice balances for allocation of shared measure costs (e.g. costs of respective measures and share of costs)
- Provide monthly reports of coordinated program activity so that customer participation and program results may be tracked

Utility Responsibilities

The Utilities will implement certain program operations through either internal resources, or under contract with TPICs, outside of the Statewide Coordinator system. By retaining these functions, the Utilities can maintain a strong line of sight to program operations and still work collaboratively with the other Utilities in offering coordinated programs to New Jersey customers. These functions include, where appropriate:

- Customer enrollment
- Developing consistent enrollment forms to collect agreed-upon customer information to share between the utilities
- Screening and qualifying contractors for Utility programs
- Customer care functions
- Marketing of programs
- Providing in-home/business auditing or direct-install of efficiency measures
- Communicating availability of customer financing options
- Integrating with other Utility or Co-managed programs

- Sponsoring EE program applications including paying initial incentives to customers and contractors
- Invoicing peer Utility partners for coordinated program costs

Coordinated Program Elements

As envisioned by the Board's direction on coordinated program offerings, the Utilities' programs are designed in a way to minimize customer confusion and present consistent opportunities for customer participation with access to both electric and gas measures simultaneously, where appropriate. The utilities recognize that programs will evolve after initial launch and commit to ongoing collaborative efforts among the Utilities to continue program alignment. Central to both initial launch and ongoing efforts will be a focus by the Utilities to standardize the following wherever possible:

- Common forms for contractors and customers with uniform field requirements
- Contractor minimum requirements and credentials for applicable programs
- Eligible customers and property requirements
- Eligible measures
- Incentive structures through use of an agreed-upon standard range
- Software platforms or interfaces to be used by market contractors
- Targeted bonus approaches for customers that meet specific policy priorities (e.g. income qualified, targeted geographic locations)

6.4 Workforce Development (MFR II b 2)

The utilities recognize the importance of developing and supporting strong Workforce Development Programs. There needs to be a strong pool of qualified candidates ready for companies to hire to meet the increased demand for the energy efficiency programs and projects as the utilities implement programs to strive to meet the new energy savings targets required by the CEA. This overview will address thoughts on training needs and career paths, trade ally needs, and contracting provisions. However, the utilities are not including a detailed Workforce Development Plan for the Core Programs as part of this filing because of the clear direction in the June 10th Board Order for the workforce development and job training partnerships and pipelines to be developed in collaboration with the State and the Workforce Development Working Group and Equity Working Group.

JCP&L is interested in being an active participant in the Workforce Development Working Group to share anticipated program hiring needs and understand the interests, feedback and concerns of the other stakeholders. The utilities anticipate that this new work group will provide significant input that will shape the recommended slate of programs and policies to develop a robust pipeline of workers able to meet the needs of a growing energy efficiency industry in New Jersey and to ensure that local, underrepresented, and disadvantaged workers are included in those opportunities.

Training Needs and Career Paths

In order for the utilities to reach the aggressive energy efficiency goals established by the CEA, New Jersey will need to significantly increase the number of trained professionals and skilled trade persons who are proficient in meeting the needs of residential, commercial and multi-family projects, such as:

- Auditors
- HVAC technicians
- Plumbers
- Electricians
- Seal-up and insulation contractors
- Engineers
- Analysts (energy modeling and evaluation, customer service, financial tracking, cost benefit analysis, demographic analysis)
- Program staff with a strong understanding of the approved energy efficiency programs and supporting administrative staff
- Outreach Specialists

The Company recognizes that these positions require a broad range of technical training and educational experience and that it is in our interest to partner with New Jersey based vocational institutions, community colleges, universities, community-based organizations, and non-profits. The Company anticipates that most of these entities will have some level of representation with

either the Workforce Development Working Group or the Equity Working Group and look forward to hearing their input. The Company also expects the discussion within those working groups will include insights from successful models in other states and other industries as well as efforts already underway in New Jersey. Considering recommendations from those groups and funding from either the State or what the utilities are reserving within these filings, the utilities hope to start to launch programs in Spring of 2021.

Trade Ally Needs

While ensuring there is trained staff available is a critical path, the utilities also recognize there must be a pool of employers interested in hiring these individuals. While the utilities will be hiring some individuals directly and will see strong interest from implementers and trade allies under direct contracts with the utilities, the Company recognizes that it must also engage the open market to understand the needs of contractors and other firms. Organizations like the New Jersey Air Conditioning Contractors Association (NJACCA), the New Jersey Association of Plumbing, Heating, and Cooling Contractors (NJPHCC) and the New Jersey Association of Energy Engineers (NJAEE) provide industry leadership and guidance to energy businesses, and should be included in the Working Group to guide policies and program designs that will meet the needs of existing and new contractors.

With the Equity lens in mind, utilities expect the Working Groups to also explore paths that can help Women and Minority Owned Businesses grow and thrive in the Clean Energy Economy. The potential for coaching or incubator programs could ensure that underrepresented individuals have a greater chance to share in management and ownership opportunities.

Contracting Provisions

The utilities will be following internal procurement protocols for the services that will be secured to implement their programs. The utilities are all willing to include the amount of business placed with MWVBEs as part of our rating criteria when evaluating contract proposals.

Budget Considerations for Workforce Development Programs

The Company has proposed a total budget of $400,000 per year for workforce development as a component of its Utility Administration budget presented in Appendix E. These budgets were established to ensure that there is adequate funding to launch and maintain programs during this initial triennial period. In the event that the State identifies adequate funding from other sources to support these types of programs, the utilities may be able to reduce their planned expenditures.

7.0 EVALUATION, MEASUREMENT & VERIFICATION

7.1 Summary of the utility's data management, quality assurance and internal evaluation processes, including how the Plan and individual program will be updated or refined based on evaluation results

The utilities recognize the importance of incorporating Evaluation, Measurement and Verification ("EM&V") into the energy-efficiency programs. EM&V can help assess whether program objectives are being achieved, document energy and non-energy benefits and inform future program development. PJM Interconnection, L.L.C. (PJM) specific EM&V will be needed to support utility EE Offers into PJM's Capacity Market. This overview will address common definitions of the types of evaluations and primary evaluation objectives, the philosophy of monitoring and improving program performance, and EM&V budget considerations. Proposed budgets for evaluation are reflected in Appendix E, Tables E-1 through E-12.

Further, the utilities are not including a detailed Evaluation Plan for the Core Programs as part of this filing because of the clear intention of the June 10th Board Order for the evaluation plans to be developed in collaboration with the EM&V Working Group. All of the utilities are interested in being active participants in this EM&V Work Group to share both program experiences and understand the interests and concerns of the other stakeholders. The utilities anticipate that this new EM&V workgroup will provide significant input that will shape the slate of evaluation activities for this first triennial program cycle. Further, the Company expects that there will be a robust discussion of which types of evaluations make the most sense in the early stages of this transition. Accordingly, the utilities did not want to prejudge the outcome of the EM&V work group efforts with the Company's own recommendations, but the Company has included sufficient funding to support the anticipated evaluation work within its filing.

Common Definitions and Objectives

The State and Local Energy Efficiency Action Network ("SEE Action") offers resources, discussion forums, and technical assistance to state and local policymakers as they seek to advance energy efficiency. Their EE Program Impact Evaluation Guide from December 2012 identified three primary objectives for evaluations.

- **Document the benefits** (i.e., impacts) of a program and determine whether the subject program (or portfolio of programs) met its goals
- **Identify ways to improve current and future programs** through determining why program-induced impacts occurred
- **Support energy demand forecasting and resource planning** by understanding the historical and future resource contributions of EE as compared to other energy resources.

That same guide provides the following standard categories of evaluations:

- **Impact evaluations:** assessments that determine and document the direct and indirect benefits of an energy efficiency program. Impact evaluation involves real-time and/or retrospective assessments of the performance and implementation of an efficiency program or portfolio of programs. Program benefits, or impacts, can include energy and demand savings and non-energy benefits (sometimes called co-benefits, with examples being avoided emissions, and water savings). Impact evaluations can also include cost-effectiveness analyses aimed at identifying relative program costs and benefits of EE as compared to other energy resources, including both demand- and supply-side options.
- **Process evaluations:** formative, systematic assessments of an EE program from both a customer and program administrator viewpoint. Process evaluations document program operations and identify and recommend improvements that are likely to increase the program's efficiency or effectiveness for acquiring EE resources and improve the customer experience with the program.
- **Market evaluations:** assessments of structure or functioning of a market, the behavior of market participants, and/or market changes that result from one or more program efforts. Market evaluation studies may include estimates of the current market role of energy-efficiency (market baselines), as well as the potential role of efficiency in a local, state, regional, or national market (potential studies). Market evaluation studies indicate how the overall supply chain and market for EE products works and how they have been affected by a program(s). These evaluations can also include assessments of other societal, customer, or utility benefits of EE programs, such as the economic and job creation impacts of the programs, health benefits to society, or T&D benefits to utilities. And finally, these studies can also be used to inform changes to the portfolio of efficiency measures to be offered to customers, or the savings achieved by the measures.

Monitoring and Improving Program and Portfolio Performance

There is a feedback loop among program design and implementation, impact evaluation, and process evaluation. Program design and implementation, and evaluation are elements in a cyclical feedback process. Initial program design is informed by prior baseline and market potential studies. Ongoing impact evaluation quantifies whether a program is meeting its goals and may raise questions related to program processes and design. Process evaluation tells the story behind how the impact was achieved and points the way toward improving program impacts by providing insight into program operations. Thus, the three elements work together to create a better, more effective program.

Budget Considerations for EM&V work

As noted, proposed budgets for "evaluation" are reflected in Appendix E, Tables E-1 though E-12. These budgets were established with consideration of the industry standard of reserving 3% to 5% of budget for this type of work[5], excluding the cost of financing and any anticipated costs associated with a Statewide Evaluator.

[5] https://www.aceee.org/toolkit/2020/02/evaluation-measurement-verification

8.0 QUANTITATIVE PERFORMANCE INDICATORS

For the duration of this Plan, PY1 through PY3, the Board adopted two quantitative performance indicators ("QPIs"): annual and lifetime energy savings. The following QPI metrics and values are applicable for the first plan cycle:

Table 11: JCP&L 2021-2023 Quantitative Performance Indicators (QPIs)			
Metric (MWh)	**2021**	**2022**	**2023**
Net Annual Energy Savings[1]	124,221	174,385	208,848
Net Lifetime Energy Savings[1]	1,752,890	2,264,413	2,530,829

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

While the below additional metrics are not applicable until PY4 and PY5, and therefore targets not included in this plan cycle, JCP&L will track and report the additional future metrics beginning in PY1, consistent with the methodology and guidance provided by Staff. These additional future QPIs include:

- Net annual peak demand savings
- Net lifetime demand savings
- Net present value of net benefits as determined by the Utility Cost Test
- Net lifetime energy savings derived from qualifying low-income customers
- Net lifetime energy savings derived from qualifying small commercial customers

The following table, provided for informational purposes for this three-year plan cycle, provides the plan estimates for these additional future QPIs during each year of the plan.

Table 12: JCPL Future Quantitative Performance Indicators (QPIs)			
Metric	**2021**	**2022**	**2023**
Net Annual Peak Demand Savings (MW)[1]	15	26	46
Net Lifetime Peak Demand Savings (MW)[1]	209	318	390
Net Present Value of Net Benefits by UCT	$131,242,986	$157,534,160	$164,291,642
Net Lifetime Energy Savings from Qualifying Low Income Customers (MWh)[1]	14,740	21,287	24,996
Net Lifetime Energy Savings from Qualifying Small Commerical Customers (MWh)[1]	60,967	274,350	304,833

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

The Company will monitor progress and make necessary adjustments to improve the portfolio performance to achieve the Company's QPI's for the EE&C Plan cycle. As discussed in Section 6.1, FirstEnergy has a dedicated department focused on energy efficiency. The EE Department is entrusted with ensuring that the Company complies with all EE/PDR requirements and that the approved programs are successfully implemented. To support this, the Company will develop and leverage its tracking and reporting processes to monitor progress of each program toward its

goals and budgets, and for the portfolio of programs towards its targets on a monthly basis, identifying performance issues, gaps and opportunities for improvement. Progress review meetings are performed at least monthly. In addition, while implementing the approved Plan, the Company will gain additional direct input from various sources and customers will be surveyed to measure satisfaction with the programs and related services. Evaluation activities including program assessments will also inform how well the programs are moving toward the achievement of goals and will inform recommendations for adjustments to programs for continuous improvement.

As discussed earlier in Sections 2.0 and 3.0, the Company designed the EE&C Plan based on three primary goals:

- Comply with statutory and Board Order requirements and directives
- Establish a program framework that is adaptable and scalable to meet the aggressive and increasing energy savings targets over time; and
- Implement programs to establish systems and processes, customer awareness, program and trade ally participation, and experience and momentum for the future.

To achieve these three goals as well as individual QPI targets, the EE&C Plan includes a comprehensive portfolio of cost-effective EE&C programs for all customer sectors, leverages the experience of Company affiliates in other states, includes enhancements to existing NJ programs and successful programs in other jurisdictions, and is based on collaboration with other NJ utilities to promote coordinated program designs and delivery. The Plan incorporates both near-term and longer-term energy saving opportunities for customers including single and prescriptive measures, multiple prescriptive and custom measures, direct install, and comprehensive whole building solutions that provides opportunities for all customers to participate in EE programs. The Plan includes a commitment to workforce development and job training through participation in the Workforce Development Working Group as well as consideration of the amount of business placed with MWVBEs when evaluating contract proposals from vendors and contractors to support the program offerings. The Plan relies on experienced outsourced TPICs, and leverages experiences, volume cost efficiencies, and a variety of delivery channels that will support successful and efficient program operations and customer participation.

As a result, the Company has prepared an EE&C strategy that balances near-term energy savings opportunities among all rate classes with longer-term programs that continue to create jobs and build capacity and momentum for delivering greater energy savings in the future. The result of these efforts is a comprehensive set of programs that, if approved as filed, will enable the Company to meet its energy savings targets as set forth in Table 1 and its QPIs detailed above in Table 11.

9.0 REPORTING PLAN

JCP&L has the following tracking and reporting plan to comply with the Board's reporting requirements of: i) quarterly progress reports; ii) annual progress reports; and iii) triennial reports. FirstEnergy has developed an enterprise-wide EE&C Tracking and Reporting System ("T&R System" or "System") in partnership with a third-party vendor to support regulatory required EE&C reports across any jurisdiction in its footprint. This T&R System is used by the Company's affiliated Utilities in other jurisdictions and has capabilities for advanced reporting, analytics, and quality assurance/quality control processes. The Company will enhance the system to integrate new JCP&L EE&C offerings and generate reports with format and content consistent with that defined by the Board. The System will also be able to produce customized reports as required and will provide summaries, dashboards, or other information to be used by the Company to monitor program performance on an on-going basis. Utilization of the existing FirstEnergy Corp. enterprise T&R System will allow JCP&L to benefit through reduced development efforts, sophisticated data integrity and quality control processes, and administrative efficiencies that will lead to reduced costs in delivering reporting services. In addition, the Company will utilize SAP[6] enterprise software for financial management and reporting of program costs.

The T&R System will exchange data with TPIC databases wherever necessary to gather data to upload key program metrics on a routine basis, (e.g., daily, weekly or monthly) and will ensure data integrity through routine reconciliation processes. The Company will work with the TPICs and the Company's EM&V consultant on a regular basis to verify the accuracy of data transferred from TPIC databases to the T&R System. Not only will this reduce paperwork and minimize data entry, but it will support quality control and allow for easy access to track goal attainment and budget variances.

The T&R System will store various data fields where appropriate, including but not limited to:

- Customer name
- Customer contact info
- Customer type
- Customer ID number
- Account number
- Premise number
- Project/Program name
- Contractor/Retailer
- Measure
- Service address
- Job status
- Completion date
- *Install Date*
- *Heating system type*
- *Square footage*

[6] SAP, which stands for System Applications and Products, is JCP&Ls Enterprise Resource Planning (ERP) software

- kWh savings
- kW savings
- MWh savings
- MW savings
- Rate Code
- Incentive
- Transaction results
- Measures implemented
- MMBtu savings

10.0 PLAN COMPLIANCE AND OTHER INFORMATION

10.1 Energy Efficiency as a Resource

PJM EE Potential Determination

The Company provided initial estimates of the PJM Summer and Winter MW EE potential for each PJM delivery year as shown in Appendix F, Table F-1.

These estimates were developed from the MWh savings modeled in the EE&C Plan, with the following additional assumptions and modifications.

- Identified and removed energy savings of all measures not eligible for PJM including:
  - online audits
  - appliance recycling
  - building lighting controls and occupancy sensors
  - smart thermostats, energy management systems or smart homes
  - behavioral programs
  - educational programs
- Assumes utilities retain all Utility EE program Capacity Rights to support their offered EE resources and to ensure no double counting of EE resources by third parties
- Categorized all PJM eligible measures by PJM Program name
- Segregated EE Plan MWh estimates provided for NJ fiscal year (July-June) into the applicable PJM delivery year (June-May)
- Assigned an initial savings load shape to each PJM eligible EE measure
- Estimated the potential KW savings values for each measure for the PJM defined Summer and Winter periods using the appropriate load shape curve values including estimates for HVAC interactive factors and fuel type
- Included T & D line losses to adjust retail kW values to wholesale kW values

The Capacity Performance potential kW would be the lesser of the Summer or Winter kW values by installation period.

EE Offer Determination

The Board Order requires participation of EE Resources beginning with PY2 in the 2024/25 Base Residual Auction ("BRA"). All EE sell offer values and buy bids shall remain confidential as they are considered market sensitive information; however, they can be provided to BPU Staff via confidential submission and after the applicable auction results are available.

The Company proposes the following considerations and processes to further evaluate the potential values provided in Appendix F, Table F-1 to facilitate participation in the PJM Capacity Auctions.

- Adjustment of the PJM kW estimates for any Point of Sales (POS), Mid-Stream, and Up-Stream Programs. Measures from these programs require additional PJM EM&V and annual persistence studies to ensure offered EE measures are initially installed in the JCP&L load zone and remain in service during each applicable delivery year.

- The Initial EE Plan values are based on many assumptions including adoption/installation rates, more generic or composite measure savings curve shapes, initial incentives or rebate levels, line losses and current measure baselines. Adjustments to each must be considered for EE offers and subsequent true up of positions.

- Adjustments to recognize that EE resources have a limited offer duration of four years with additional installation period limitations.

EE Offers need to consider Capacity Market rule changes like the pending PJM Minimum Offer Price Rules (MOPR) and Board's finalization of the Resource Adequacy activities. MOPR rules may necessitate the need for more aggressive BRA EE offers to ensure resources with significant floor prices clear versus not clear an Incremental Auction (IA), or, if the Board authorizes the use of an Fixed Resource Requirement (FRR) Alternative Capacity Auction for the Electric Distribution Company (EDCs), PJM Capacity Market EE Offers would not be applicable.

EE Offers are made in Installed Capacity (ICAP) values but clear in Unforced Capacity (UCAP) values based on PJM's Planning Parameters for each specific auction. The UCAP values that clear an auction will remain the obligation for the delivery year regardless of subsequent IA parameter changes. True ups may be needed during incremental auctions or at a minimum the Third IA when parameters become final, to either purchase any shortfall resources or possibly sell any excess resources.

10.2 Customer Access to Current and Historic Energy Usage Data (MFR II.a.vii)

The Company provides access to energy usage data to its customers through the customer's online accounts where Customers are initially provided 12 months of energy usage data and bar graphs illustrating their usage over time. The Company also provides an "Analyze Usage" function option through the customer online accounts that provides up to 24 months of energy usage data, temperature, and meter reading types along with energy costs. Additionally, hourly energy usage data is available for up to 24 months for customers with interval meters.

In addition to online presentation of energy usage data, the Company also provides a "Green Button" function to customers through their online accounts and "Analyze Usage" function where customers can download their energy usage data in CSV or XML format. Additional historic energy usage data beyond 24 months can be obtained where available using this function.

The Company also provides a billing usage statement to customers who make a request through the Company's contact center. The statement includes 12 months of history including the read date, meter reading, consumption usage, days in billing period, daily use, and read type in addition to other billing information.

11.0 APPENDICES

A. Existing and Proposed Incentives Ranges (MFR II.a.iii, MFR II.a.iv)

- A-1. Residential Incentives
- A-2. Commercial & Industrial Incentives
- A-3. Multifamily & Other Incentives

B. Customer Financing Options (MFR II.a.vi)

- B-1. Program Financing Options

C. Calculation Methods and Assumptions

- C-1. Cost Assumptions
- C-2. Measure Assumptions
- C-3. Number of Units
- C-4. Measure Eligibility

D. Projected Participants (MFR II.a.ix, MFR I.c, MFR II.b.iii) and Energy Savings (MFR II.a.x)

- D-1. Total Portfolio
- D-2. Total Residential
- D-3. Total Residential Core
- D-4. Total Residential Additional Utility
- D-5. Total Commercial & Industrial
- D-6. Total Commercial & Industrial Core
- D-7. Total Commercial & Industrial Additional Utility
- D-8. Total Multifamily
- D-9. Total Other
- D-10. Efficient Products - Efficient Products
- D-11. Existing Homes – Home Performance with ENERGY STAR
- D-12. Home Energy Education & Management – Behavioral
- D-13. Existing Homes - Quick Home Energy Check-up (QHEC)
- D-14. Existing Homes - Moderate Income Weatherization
- D-15. Direct Install - Direct Install

D-16. Energy Solutions for Business - Prescriptive / Custom

D-17. Energy Solutions for Business - Energy Management

D-18. Energy Solutions for Business - Engineered Solutions

D-19. Multifamily - Multifamily

D-20. Other - Home Optimization & Peak Demand Reduction

E. Program Budget by Cost Category (MFR II a.xi, MFR II.a.xii, MFR IV.f)

E-1. Total Portfolio

E-2. Total Residential

E-3. Total Residential Core

E-4. Total Residential Additional Utility

E-5. Total Commercial & Industrial

E-6. Total Commercial & Industrial Core

E-7. Total Commercial & Industrial Additional Utility

E-8. Total Multifamily

E-9. Total Other

E-10. Efficient Products - Efficient Products

E-11. Existing Homes – Home Performance with ENERGY STAR

E-12. Home Energy Education & Management – Behavioral

E-13. Existing Homes - Quick Home Energy Check-up (QHEC)

E-14. Existing Homes - Moderate Income Weatherization

E-15. Direct Install - Direct Install

E-16. Energy Solutions for Business - Prescriptive / Custom

E-17. Energy Solutions for Business - Energy Management

E-18. Energy Solutions for Business - Engineered Solutions

E-19. Multifamily - Multifamily

E-20. Other - Home Optimization & Peak Demand Reduction

F. Energy Efficiency as a Resource

F-1. EE Plan PJM MW Potential

12.0 LIST OF TABLES

Appendix A: Table A 1: Proposed Incentives Ranges				
Residential Incentives				
Program	**Subprogram**	**Measure[1]**	**Proposed Rebate Strategy[2]**	**NJCEP Existing Rebate Strategy**
Efficient Products	-	LED Lamps	Up to $5 std Up to $7 special	Up to $3 std Up to $5 special
		LED Fixtures	Up to $10	Up to $8
		Occupancy Sensors	Up to $7	-
		LED Holiday Lights	Up to $5	-
		Ceiling Fans	Up to $35	-
		LED Table/Desk Lamps	Up to $15	-
		Clothes Washer	Up to $100	Up to $75
		Clothes Dryer	Up to $300	Up to $300
		Refrigerator	Up to $100	Up to $75
		Freezers	Up to $75	-
		Dishwasher	Up to $25	-
		Induction Cooktop Stove	Up to $25	-
		Air Purifier / Cleaner	Up to $50	Up to $50
		Room A/C Unit	Up to $30	Up to $15
		Dehumidifier	Up to $35	Up to $25
		Heat Pump Water Heater	Up to $1,000	Up to $750
		Smart Thermostats	Up to $125[3]	-
		Pool Pump	Up to $500	-
		Sound Bars	Up to $20	-
		Water Cooler	Up to $25	-
		Electric Vehicle Charger	Up to $50	-
		Monitors	Up to $25	-
		Computers	Up to $25	-
		Imaging	Up to $25	-
		Smart Strip Plug Outlets	Up to $40	Up to $40
		TVs	Up to $50	-
		Smart Home	Up to $10	-
		Refrigerator Recycling	Up to $100	Up to $50
		Freezer Recycling	Up to $100	Up to $50
		Room A/C Unit Recycling	Up to $35	Up to $25
		Dehumidifier Recycling	Up to $35	Up to $25
		EE Kits	Up to $60	-
		Central Air Conditioning	Up to $500	Up to $500
		Air Source Heat Pump	Up to $1,000	Up to $1,000
		Geothermal Heat Pump	Up to $1500	-
		Ductless Mini-Split Heat Pump	Up to $400	-
		Ductless Mini Split A/C	Up to $500	Up to $500
		Furnace Fans (ECM)	Up to $100	-
		PTAC - CEE Tier 2 - Multi Family	Up to $50	-
		PTHP - CEE Tier 2- Multi Family	Up to $125	-
		Circulating Pump	Up to $75	-
		Bathroom Fan	Up to $20	-
		HVAC Maintenance	Up to $100	-
		HVAC Quality Install	Up to $450	-
Existing Homes	Home Performance with Energy Star (HPwES)	Home Performance with Energy Star	- Customer must have a minimum savings percentage of 5% based on modeled reduction of consumption Rebate is $2,000 + $200 for each percentage point of savings above 5%, up to $6,000 - Up to $500 contractor production incentive	- Tiered incentive cash rebate of 50% of the costs of the measures used to calculate Total Energy Saving, up to $4,000 - $500 Contractor production incentive
	Quick Home Energy Checkup	Quick Home Energy Checkup (QHEC)	No up front cost to customer for walk through audit with no cost or low cost measures installed at time of audit	-
	Moderate Income Weatherization	Moderate Income Weatherization	No up front cost to customer for BPI-certified audit with up to $6,000 of direct install and weatherization measures and up to $1,500 on healthy and safety expenses	-

[1] The utilities reserve the right to include additional measures that are supported by established protocols or evaluation results in the industry to ensure we include a broad range of energy savings measures to maximize energy savings for customers and avoid market disruption (e.g. new NJCEP measures added in FY21)

[2] All rebates will be offered equal to or less than the "Up to" value

[3] The total rebate value for a smart thermostat will be up to $125 total between both fuel utilities

Appendix A: Table A 2: Proposed Incentives Ranges			
Commercial and Industrial Incentives			
Measure[1]	**Paid**	**Rebate Strategy[2]**	**NJCEP Existing Rebate Strategy**
Lighting (Retrofit & New Construction)			
LED TROFFER LUMINAIRES			
New LED linear recessed troffer/panel for 2x2, 1x4 and 2x4 luminaires	Per Fixture	$100	$15 to $25
LED FLAT PANEL LUMINAIRES			
New LED flat panel for 2x2, 1x4 and 2x4 luminaires	Per Panel	$50	-
LED LINEAR AMBIENT/STAIRWELL LUMINAIRES			
New LED linear ambient luminaire	Per Foot	$30	$5 to $7.50
New LED stairwell luminaire	Per Fixture	$100	$45
LED INTERIOR DIRECTIONAL LUMINAIRES			
New LED wall wash luminaire	Per Foot	$30	$55 per fixture
New LED track/mono-point luminaire	Per Head	$40	$30
LED DISPLAY CASE LUMINAIRES			
New LED display case luminaire, including refrigerator/freezer display	Per Fixture	$50	$15 to $25
LED HIGH/LOW BAY LUMINAIRES			
New LED high/low bay luminaire	Per Fixture	$600	$50 to $150
LED EXTERIOR LUMINAIRES			
New LED luminaire - wall packs, flood lights, canopy, landscape	Per Fixture	$600	$50 to $100
LED RETROFIT KITS			
LED linear retrofit kit for 2x2, 1x4 and 2x4 fixtures	Per Fixture	$45	$15 to $25
LED integrated retrofit kit for 2x2, 1x4 and 2x4 fixtures	Per Fixture	$120	$15 to $25
LED integrated flat panel retrofit kit for 2x2, 1x4 and 2x4 fixtures	Per Panel Kit	$40	$15 to $25
LED retrofit kit for linear ambient luminaire	Per Foot	$15	$15 to $40
LED retrofit kit for high/low bay luminaires	Per Fixture	$100	-
LED retrofit kit for exterior luminaire	Per Fixture	$100	-
LED ENERGY STAR FIXTURES			
New LED ENERGY STAR LED fixture - recessed downlight, specialty, cove, under cabinet, vent fan, ceiling mount, etc.	Per Fixture	$100	$5 to $15
LED REPLACEMENT LAMPS			
LED linear replacement lamp with new LED driver for wall pack, flood light, canopy, recessed fixture.	Per Lamp	$80	$50 to $150
LED mogul-screw base replacement for HID lamps and new external driver	Per Lamp	$100	$50 to $150
LED SIGN LIGHTING			
Exterior/Dusk-to-Dawn, Interior and 24 hour application	Per Watt Reduced	$2	-
OTHER LIGHTING			
Exit Signs	Per Unit	$23	-
Linear Fluorescent HE T8	Per Fixture	$15	-
Street/Roadway and Area Lighting	Per Fixture	$500	$100 to $150
Lighting Controls			
NETWORKED LIGHTING CONTROLS			
Networked lighting control system controlling efficient luminaires	Per Watt Controlled	$0.60	-
Networked lighting control - fixture level control	Per Fixture	$60	-
DUAL DAYLIGHT/OCCUPANCY CONTROLS			
Dual daylight & occupancy sensor (DOS)	Per Control	$100	-
DAYLIGHT CONTROLS			
Daylight continuous dimming control	Per Control	$100	$45
OCCUPANCY/VACANCY CONTROLS			
Vacancy or Occupancy control	Per Control	$100	$20
Unitary HVAC			
AIR CONDITIONERS & HEAT PUMPS			
Air Conditioning (AC) only - all sizes	Per Ton	$250	$72 to $105
Heat Pumps - Air Source and Water Source - all sizes	Per Ton	$250	$40 to $100
WATER-COOLED & EVAPORATIVE COOLING AIR CONDITIONERS			
<5.4 to <11.25 tons	Per Ton	$250	-
≥11.25 to ≥ 63.3 tons	Per Ton	$250	-

Appendix A: Table A 2: Proposed Incentives Ranges			
Commercial and Industrial Incentives			
Measure[1]	**Paid**	**Rebate Strategy[2]**	**NJCEP Existing Rebate Strategy**
GEOTHERMAL HEAT PUMPS			
Geothermal Heat Pumps – (Ground Source/Ground Water Source) Tier I or Tier II	Per Ton	$500	$80 to $100
DUCTLESS, MINI SPLIT AIR CONDITIONERS OR HEAT PUMPS - ALL SIZES			
all sizes	Per Ton	$150	-
PACKAGED TERMINAL AIR CONDITIONERS OR HEAT PUMPS			
all sizes	Per Ton	$125	$40
OTHER HVAC EQUIPMENT			
HVAC - Smart Thermostat	Per Unit	$125 [3]	-
Dual Enthalpy Economizer Controls	Per Unit	$250	$85 to $170
ECM motors for HVAC Applications (fans/pumps) - refer to ECM motors table below			
Chillers			
Air-Cooled Chiller with Condenser	Per Ton	$300	$20, plus $2.75 to $3.50 performance
Water-Cooled Screw Chiller & Reciprocating Chillers	Per Ton	$300	$13 to $30, plus $2 to $2.25 performance
Water-Cooled Centrifugal Chillers	Per Ton	$300	$8 to $24, plus $2 to $2.25 performance
Chillers with a VFD			
Air-Cooled Chiller with Condenser	Per Ton	$300	$90 to $92, plus $4.00 performance
Water-Cooled Screw and Reciprocating Chillers	Per Ton	$300	$40 to $44, plus $2 to $2.50 performance
Water-Cooled Centrifugal Chillers	Per Ton	$300	$20 to $30, plus $2 to $2.75 performance
Refrigeration			
Anti-Fog Film	Per Sq. Ft.	$15	-
Anti-Sweat Heat Control	Per Door	$50	$50
ECM Evaporator Fan Motor, <1 hp	Per Unit	$150	$40
Evaporator/Compressor Controller	Per Cooler	$1,000	-
Evaporator Fan Controller on Existing Shaded-Pole Motor	Per Unit	$100	$75
Night Covers - Open Reach-In Coolers	Per Case	$500	-
Reach-In Door Closer	Per Unit	$75	-
Refrigeration Display Case Doors on Open Display Case	Per Case	$600	-
Gaskets	Per Ln Ft.	$4	-
Strip Curtains for Walk-In Coolers and Freezers	Per Sq. Ft.	$5	-
Refrigerator Case Light Sensor	Per Case	$30	-
VFD - Variable Frequency Drives			
Horse Power			
< 100 hp	Per HP	$250	$50 to $100
≥100 to ≤200	Per HP	$50	$35
ECM Motors			
<1 HP	Per unit	$150	-
1 HP	Per unit	$150	-
2 HP	Per unit	$175	-
3-5 HP	Per unit	$250	-
6-10 HP	Per unit	$500	-
11+ HP	Per unit	$750	-
Commercial Kitchen Equipment			
COMMERCIAL DISHWASHERS	Per Unit	$1,500	$400 to $1500
COOKING EQUIPMENT			
Fat Fryers	Per Unit	$250	$200
Griddles	Per Unit	$300	$300
Insulated Holding Cabinets	Per Unit	$400	$200 to $300
COMBINATION and CONVECTION OVENS			
Convection Ovens	Per Unit	$400	$350
Combination Ovens	Per Unit	$1,200	$750
STEAM COOKERS	Per Pan	$150	-
OTHER FOOD SERVICE			
Energy Star Beverage Vending Machine	Per Unit	$75	-
Food Warmers/Rethermalizer Well/Coffee Pots	Per Unit	$200	-
Pre-Rinse Spray Valve	Per Unit	$75	-
ICE MACHINES - CEE Tier I	Per Unit	$200	$50 to $250
ICE MACHINES - CEE Tier II	Per Unit	$300	$100 to $500
SOLID DOOR REACH-IN REFRIGERATORS	Per Unit	$225	$50 to $200
SOLID DOOR REACH-IN FREEZERS	Per Unit	$500	$100 to $600
GLASS DOOR REACH-IN REFRIGERATORS	Per Unit	$150	$75 to $150
GLASS DOOR REACH-IN Freezers	Per Unit	$300	$200 to $1000

Appendix A: Table A 2: Proposed Incentives Ranges			
Commercial and Industrial Incentives			
Measure[1]	**Paid**	**Rebate Strategy[2]**	**NJCEP Existing Rebate Strategy**
COMMERICAL APPLIANCES			
CLOTHES WASHER			
CEE Tier 1	Per Unit	$100	-
CEE Tier 2	Per Unit	$200	-
WATER HEATING			
Heat Pump Water Heater - C&I	Per Unit	$1,500	
PLUG LOAD CONTROLS			
Personal Occupancy Sensor	Per Unit	$20	-
Hotel Room HVAC Controls	Per Unit	$90	-
Hotel Room HVAC/Receptacle Control	Per Unit	$20	-
Smart Power Strip	Per Unit	$20	-
Electric Vehicle Charger	Per Unit	$50	-
Vending Machine Controls			
Non-Refrigerated	Per Unit	$75	-
Refrigerated	Per Unit	$125	-
OFFICE EQUIPMENT			
Monitors - C&I	Per Unit	$25	-
Computers - C&I	Per Unit	$25	-
Uninterruptible Power Supply (UPS)	Per kVA	$40	-
Imaging - C&I	Per Unit	$25	-
Small Network PC Controller	Per PC Controlled	$25	-
AGRICULTURE			
Auto Milker Takeoff	Per Unit	$90	-
Dairy Scroll Compressor	Per Unit	$1,000	-
HE Ventilation Fans	Per Unit	$215	-
Heat Reclaimers	Per Unit	$1,000	-
High Volume Low Speed Fans (Destratification)	Per Ft of Single Blade	$25	-
Livestock Waterer	Per Unit	$60	-
Dairy Vac Pump VSD Controls	Per Unit	$1,000	-
Low Pressure Irrigation	Per acre	$100	-
Dairy Refrigeration Tune-Up	Per Unit	$200	-
Engine Block Heater Timer	Per Unit	$25	-
RECYCLING			
Dehumidifier Recycling	Per Unit	Refer to Residential Incentive Table	-
Refrigerator Recycling	Per Unit	"	-
Freezer Recycling	Per Unit	"	-
Room A/C Unit Recycling	Per Unit	"	
RESIDENITAL APPLIANCES in C&I BUILDING - Non Commercial Duty			
Clothes Washer Tier 2 - C&I	Per Unit	Refer to Residential Incentive Table	-
Clothes Washer Tier 3 - C&I	Per Unit	"	-
Clothes Dryer (w Moisture Snsr) - C&I	Per Unit	"	-
Refrigerators Tier 2 - C&I	Per Unit	"	-
Refrigerators Tier 3 - C&I	Per Unit	"	-
ES Freezer - C&I	Per Unit	"	-
ENERGY STAR Dehumidifier	Per Unit	"	-
ENERGY STAR Room Air Conditioner	Per Unit	"	-
ENERGY STAR Water Cooler	Per Unit	"	-
CUSTOM PROJECTS			
Compressed Air, Refrigeration, Data Center Equipment/Servers, HVAC/Chillers, HVAC Controls, Motors/VFD - Large, Building Improvements, Process Improvements, Agricultural Lighting/Process, Custom Lighting	per kWh	Up to $0.35	$0.16 per kWh
ENERGY MANAGEMENT			
RETROCOMMISSIONING (including Virtual and Meter Data Commissioning)	per kWh	Up to $0.35	-
HVAC TUNE UP			-
Single compressor units	Per Unit	$175	-
Multiple compressor units	Per Unit	$250	-
PTAC, PTHP, MiniSplits	Per Unit	$75	-
BUILDING TUNE UP		Up to 70% of Project Cost w project cap of $75,000	-
BUILDING OPERATIONS TRAINING		Up to 70% of the cost to attend qualified BOC training up to $1000 per person.	-
ENGINEERED SOLUTIONS			
		Formula buy down based on payback	Formula buy down based on payback

[1] The utilities reserve the right to include additional measures that are supported by established protocols or evaluation results in the industry to ensure we include a broad range of energy savings measures to maximize energy savings for customers and avoid market disruption (e.g. new NJCEP measures added in FY21)

[2] All rebates will be offered equal to or less than the "Up to" value

[3] The total rebate value for a smart thermostat will be up to $125 total between both fuel utilities

Appendix A: Table A 3: Proposed Incentives Ranges				
Multifamily Incentives				
Program	**Subprogram**	**Measure[1]**	**Rebate Strategy[2]**	**NJCEP Existing Rebate Strategy**
Multifamily	-	Energy Assessment with installation of standard energy savings measures	Energy Assessment with the equipment and installation costs for the standard energy savings measures will be provided to eligible properties with “Up to 100%” of the cost provided by the program.	-
		Prescriptive Equipment replacement and custom retrofit projects	- Same value as incentives offered through the Residential and Commercial & Industrial programs applicable for the prescriptive equipment replacement and custom retrofits. - Includes enhanced incentives offered for properties that are located in qualifying target areas or for LMI qualified customers.	Same value as incentives offered through the Residential and Commercial & Industrial programs applicable for the prescriptive equipment replacement and custom retrofits.
		MF Home Performance with ENERGYSTAR	- Tiered incentive cash rebate not to exeed 50% of the costs of the measures used to calculate Total Energy Savings, up to $1,500 per unit - Up to $50 contractor production incentive per unit	- Tiered incentive cash rebate not to exeed 50% of the costs of the measures used to calculate Total Energy Savings, up to $1,500 per unit - $50 contractor production incentive per unit
		MF - Engineered Solutions	- No cost ASHRAE Level I, II, or III audit. - Program will buy-down the simple payback of the recommended energy-efficiency project cost for approved measures by up to six years, with the resulting payback not less than three years.	- No cost ASHRAE Level I, II, or III audit. - Program will buy-down the simple payback of the recommended energy-efficiency project cost for approved measures by up to six years, with the resulting payback not less than three years.
Other Incentives				
Program	**Subprogram**	**Measure[1]**	**Rebate Strategy[2]**	**NJCEP Existing Rebate Strategy**
Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Smart Tstat Optimization	$100	-
		Smart Home Systems	$100	-

[1] The utilities reserve the right to include additional measures that are supported by established protocols or evaluation results

[2] All rebates will be offered equal to or less than the "Up to" value

Appendix B, Table B-1: Program Financing Overview			
Program	**Eligibility**	**Terms**	
Efficient Products	Efficient program eligible HVAC and water heating equipment	Maximum to be financed	Up to $15,000
		Minimum to be financed	As low as $2,500
		Interest Rate	Up to 0.99%
		Term	Up to 7 years
Existing Homes	Comprehensive HPwES projects recommended by the program audit	Maximum to be financed	Up to $15,000
		Minimum to be financed	As low as $2,500
		Interest Rate	Up to 0.99%
		Term	Up to 7 years <=$10,000; Up to 10 years > $10,000
Multifamily	Prescriptive/Custom equipment, retrofit and comprehensive projects, Engineered Solutions projects	Maximum to be financed	Up to $3,000/unit with a maximum of up to $250,000 per project
		Minimum to be financed	As low as $2,500
		Interest Rate	Up to 0.99%
		Term	Up to 10 years, depending on eligibility
Direct Install	Balance of program eligible project cost	Maximum to be financed	Up to $75,000
		Minimum to be financed	As low as $2,500
		Interest Rate	Up to 0.99%
		Term	Up to 5 years
Energy Solutions for Business	Prescriptive/Custom equipment, retrofit and comprehensive projects, Engineered Solutions projects	Maximum to be financed	Up to $250,000
		Minimum to be financed	As low as $2,500
		Interest Rate	Up to 0.99%
		Term	Up to 5 years

Appendix C, Table C-1: Cost Assumptions	
Program cost elements of this Plan include Utility Administration costs associated with utility labor and other costs, Outside Services costs for Third-Party Implementation Contractors, External Legal and Consultants, Utility and Third Party Implementation Contractor Marketing, Measurement and Verification (M&V) costs associated with EMV of the programs, Inspections and Quality Control, and Incentive costs including both rebates and financing. The following details the assumptions for each cost element used in the budget tables of the Plan:	
Cost Elements	**Description**
Utility Administration	Utility Administration costs were based on the Company's estimated Portfolio administration costs. Includes costs incurred by the utility for employee labor and other costs to oversee and manage the portfolio and perform duties associated with activities such as compliance reporting or meetings to support the Plan (Ex. stakeholder meetings, working groups, collaborative meetings. etc.). Other costs, including costs associated with plan development, employee expenses, tracking system software costs, association fees and workforce development initiatives. Utility Administration costs are estimated based on actual costs or Company estimates, allocated to each subprogram based on the estimated direct charges to each subprogram, and summed to the program level.
Marketing	Marketing costs were informed by Company estimates of both Utility and Third-Party Implementation Contractor pricing for the plan, program or subprogram. Utility Marketing was based on estimated annual costs and allocated to each subprogram. Subprogram specific marketing costs were identified by two components, (1) fixed program/sub-program and (2) variable unit cost. Includes costs associated with developing and providing marketing/promotional strategies, advertising space and materials.
Outside Services	Outside Services costs were informed by Company estimates of External Legal and Consultant costs for the Plan and Third-Party Implementation Contractor pricing for the programs or subprograms. External Legal and Consultant costs were based on estimated total costs and allocated to each subprogram. Third-Party Implementation Contractor costs were identified by two components, (1) fixed program/sub-program, and (2) variable unit cost. Includes costs for the management and implementation of programs or subprograms, including staffing, websites(s), data collection and transfers, call centers, incentive processing, quality assurances and control processes, and other activities supporting successful program implementation.
Inspections and Quality Control	Inspections and quality control costs were informed by Company estimates of performing inspections on completed projects for each subprogram to ensure program quality and delivery conforms to program requirements. Inspections and Quality Control costs were identified by two components, (1) fixed program/sub-program, and (2) variable unit cost.
Evaluation (EM&V)	EM&V costs were based on 4% of the Program or subprogram cost. Includes costs for evaluation, measurement and verification activities performed by the Company and the Company's independent third-party evaluator. These funds are spent on evaluation, surveys, M&V processes, data transfer responsibilities and participation in evaluation and working group meetings.
Incentives	Incentives include rebates paid to customers, the costs associated with the value of services or measures provided to customers, or upstream payments to trade allies (retail stores, distributors, contractors, etc.) where applicable. Incentives also includes the cost of interest rate buy downs, loan fees and defaults to provide customers access to low- to no-cost financing for certain program offerings.

Appendix C, Table C-2: Measure Assumptions															
Sector	Program Type	Program	Sub Program	Measure	Measure Life	Verified kWh	Verified kW	NTG	Incremental Cost	Modeled Rebate	O&M Benefit ($/Yr)	Gas Savings (Therms/Yr)	Source of Savings	Source of Measure Life	Source of Inc Cost
Residential	Core Utility	Efficient Products	Efficient Products	Freezer Recycling	4	679	0.10	1.00	$0.00	$70.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Refrigerator Recycling	5	1,043	0.16	1.00	$0.00	$70.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Room Air Conditioner Recycling	3	85	0.09	1.00	$0.00	$25.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Dehumidifier Recycling	3	186	0.11	1.00	$0.00	$25.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Clothes Washer	12	76	0.01	1.00	$27.59	$65.00	$0.00	5.63	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Refrigerators	14	77	0.01	1.00	$33.60	$78.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Room Air Conditioner	9	47	0.02	1.00	$21.00	$30.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Freezers	11	41	0.01	1.00	$10.00	$50.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Clothes Dryer	12	186	0.02	1.00	$77.00	$100.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Air Purifier / Cleaner	9	391	0.05	1.00	$60.00	$35.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Dehumidifiers	12	83	0.02	1.00	$60.00	$33.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Water Heater - Heat Pump	10	1,687	0.26	1.00	$850.00	$700.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Pool Pump Variable Speed	10	594	0.34	1.00	$560.00	$400.00	$0.00	-	MA TRM	MA TRM	MA TRM
				Dishwashers	10	30	0.00	1.00	$316.39	$28.00	$0.00	0.30	MA TRM	MA TRM	MA TRM
				Water Coolers	10	361	0.02	1.00	$49.00	$25.00	$0.00	-	PA TRM	PA TRM	MA TRM - Dehumd
				Elec Vehicle Chargers - Res	10	31	0.00	1.00	$500.00	$25.00	$0.00	-	Energy Star	Internet	MA TRM - Elctrncs
				Monitors	4	24	0.00	1.00	$2.00	$25.00	$0.00	-	MA TRM	MA TRM	MA TRM
				Computers	4	71	0.08	1.00	$18.50	$25.00	$0.00	-	MA TRM	MA TRM	MA TRM
				Imaging	6	40	0.01	1.00	$0.00	$25.00	$0.00	-	MA TRM	MA TRM	N/A
				Smart Strip Plug Outlets	8	103	0.01	1.00	$18.00	$25.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				TVs	6	32	0.00	1.00	$10.00	$50.00	$0.00	-	MA TRM	MA TRM	MA TRM
				Sound Bars	10	44	0.00	1.00	$0.00	$25.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Smart Home	15	5	0.00	1.00	$11.00	$10.00	$0.00	(0.15)	MA TRM	MA TRM	MA TRM
				LED Lamps (Speciality)	15	28	0.00	1.00	$2.56	$2.50	$2.22	(0.44)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				LED Lamps	15	46	0.00	1.00	$1.63	$1.50	$2.34	(0.73)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				LED Fixtures Internal	15	25	0.00	1.00	$46.00	$8.00	$0.00	(0.39)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				LED Fixtures External	15	6	0.00	1.00	$46.00	$8.00	$0.00	(0.10)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Residential Occupancy Sensors	10	40	0.01	1.00	$25.00	$7.00	$0.00	(0.84)	MA TRM	MA TRM	MA TRM
				LED Holiday Lights	10	21	-	1.00	$12.00	$4.00	$0.00	-	PA TRM	PA TRM	PA SWE DB
				Ceiling Fans	15	59	0.01	1.00	$46.00	$35.00	$0.00	-	MA TRM	MA TRM	MA TRM
				LED Table/Desk Lamps	10	31	0.00	1.00	$30.00	$15.00	$0.00	-	Energy Star	Internet	MA TRM - 66%
				Air Source Heat Pumps	15	640	0.26	1.00	$431.50	$752.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	NJ Util
				Central Air Conditioners	15	342	0.27	1.00	$978.00	$400.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	NJ Util
				Ductless Mini-Split Heat Pump	17	408	0.06	1.00	$978.00	$300.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	NJ Util
				Ductless Mini-Split A/C	17	154	0.07	1.00	$978.00	$400.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	NJ Util
				PTAC	15	78	0.05	1.00	$84.00	$50.00	$0.00	-	MA TRM	MA TRM	PA SWE DB
				PTHP	15	199	0.06	1.00	$84.00	$125.00	$0.00	-	MA TRM	MA TRM	PA SWE DB
				Heat Pump - Water & Geothermal	25	1,557	0.77	1.00	$1,414.00	$1,500.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	NJ Util
				Furnace Fans	15	274	0.02	1.00	$203.00	$100.00	$0.00	-	MA TRM	NJCEP Prtcls	MA TRM
				Smart Thermostat	8	142	-	1.00	$153.00	$100.00	$0.00	25.38	MA TRM	MA TRM	MA TRM
				HVAC - Custom	5	289	0.10	1.00	$173.38	$100.00	$0.00	-	NJCEP Prtcls	50% of Avg	$.6/ kWH
				Circulating Pump	15	220	-	1.00	$98.00	$30.00	$0.00	-	MN TRM	MN TRM	MN TRM
				HE Bathroom Fans	19	35	0.00	1.00	$43.50	$20.00	$0.00	-	MA TRM	MA TRM	MA TRM
				HVAC Quality Install	15	302	0.16	1.00	$0.00	$100.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				EE Kits	15	248	0.02	1.00	$68.69	$53.00	$13.43	(2.67)	MA/PA TRMs	MA/PA TRMs	N/A
		Existing Homes	Home Performance with Energy Star	Home Performance with Energy Star	15	1,375	0.44	1.00	$1,323.00	$4,000.00	$16.00	276.41	NJCEP Prtcls	MD Actuals	MD Actuals
	Additional Utility		Quick Home Energy Check-up	Quick Home Energy Checkup (QHEC)	15	475	0.06	1.00	$333.00	$400.00	$24.00	20.56	MD Actuals	MD Actuals	N/A
			Moderate Income Weatherization	MI Weatherization	15	1,250	0.30	1.00	$6,500.00	$6,500.00	$16.00	250.00	NJ Actuals	MA/PA TRMs	N/A
		Home Energy Education and Management	Behavioral	Behavioral FY22	1	100	0.02	1.00	$0.00	$0.00	$0.00	-	Vendor	Industry Stndrd	N/A
				Behavioral FY23	1	180	0.04	1.00	$0.00	$0.00	$0.00	-	Vendor	Industry Stndrd	N/A
				On-Line Audit	1	124	0.02	1.00	$0.00	$0.00	$0.00	-	EE Consultant	Industry Stndrd	N/A
Commercial and Industrial	Core Utility	Direct Install	Direct Install	Audits w DI - CI - Tier 1	15	30,483	6.38	1.00	$7,620.82	$12,193.31	$0.00	-	NJ Actuals	MA/PA TRMs	NJ Actuals
				Audits w DI - CI - Tier 2	15	50,805	10.64	1.00	$12,701.37	$20,322.19	$0.00	-	NJ Actuals	MA/PA TRMs	NJ Actuals
		Energy Solutions for Business	Prescriptive / Custom	Auto Milker Takeoff	10	434	0.07	1.00	$200.00	$90.00	$0.00	-	PA TRM	PA TRM	Internet
				Custom - Agricultural	15	9,842	1.12	1.00	$2,165.21	$1,000.00	$0.00	-	Actuals	PA TRM	EE Consultant
				Dairy Refrigeration Tune-Up	1	261	0.03	1.00	$194.00	$50.00	$0.00	-	Wis TRM	Wis TRM	Wis TRM
				Dairy Scroll Compressor	15	974	0.17	1.00	$1,000.00	$500.00	$0.00	-	PA TRM	PA TRM	Emerson
				Dairy Vac Pump VSD Controls	15	19,394	4.15	1.00	$3,942.50	$1,000.00	$0.00	-	PA TRM	PA TRM	PA SWE DB
				Engine Block Heater Timer	15	738	-	1.00	$25.00	$10.00	$0.00	-	PA TRM	PA TRM	Wis TRM
				HE Ventilation Fans	15	974	0.19	1.00	$250.00	$100.00	$0.00	-	PA TRM	PA TRM	Grainger
				Heat Reclaimers	15	7,790	1.32	1.00	$4,353.00	$1,000.00	$0.00	-	PA TRM	PA TRM	Internet
				High Volume Low Speed Fans	15	10,936	4.51	1.00	$816.00	$400.00	$0.00	-	PA TRM	PA TRM	Wis TRM
				Livestock Waterer	10	1,250	-	1.00	$566.73	$100.00	$0.00	-	PA TRM	PA TRM	PA SWE DB
				Low Pressure Irrigation	5	3,378	8.78	1.00	$2,095.00	$250.00	$0.00	-	PA TRM	PA TRM	PA SWE DB
				Process Lighting - Agricultural	15	2,216	0.19	1.00	$950.00	$222.00	$48.25	-	MA TRM	MA TRM	Internet
				Clothes Dryer - C&I	12	186	0.02	1.00	$77.00	$50.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Clothes Washer- C&I	12	75	0.01	1.00	$37.99	$30.00	$0.00	7.98	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Dehumidifier - C&I	12	83	0.02	1.00	$60.00	$30.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Elec Vehicle Chargers - C&I	10	31	0.00	1.00	$500.00	$50.00	$0.00	-	Energy Star	Internet	MA TRM - Elctrncs
				Freezer - C&I	11	41	0.01	1.00	$10.00	$50.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Pre-Rinse Sprayers	5	1,321	-	1.00	$52.00	$50.00	$0.00	54.67	NJCEP Prtcls	NJCEP Prtcls	Internet
				Refrigerators - C&I	14	92	0.01	1.00	$46.76	$32.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Water Cooler C&I	10	361	0.02	1.00	$49.00	$25.00	$0.00	-	PA TRM	PA TRM	MA TRM - Dehumd
				Water Heater - Heat Pump - C&I	10	1,649	0.30	1.00	$1,795.50	$750.00	$0.00	-	MA TRM	MA TRM	MA TRM
				Dehumidifier Recycling - C&I	3	186	0.11	1.00	$0.00	$25.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Freezer Recycling - C&I	4	679	0.10	1.00	$0.00	$70.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Refrigerator Recycling - C&I	5	1,043	0.16	1.00	$0.00	$70.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Room Air Conditioner Recycling - C&I	3	85	0.09	1.00	$0.00	$25.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Advanced Pwr Strips- C&I	8	103	0.01	1.00	$18.00	$8.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Computers - C&I	4	71	0.08	1.00	$18.50	$5.00	$0.00	-	MA TRM	MA TRM	MA TRM
				Imaging - C&I	6	89	0.01	1.00	$0.00	$10.00	$0.00	-	PA TRM	PA TRM	N/A
				Monitors - C&I	4	24	0.00	1.00	$2.00	$5.00	$0.00	-	MA TRM	MA TRM	MA TRM
				Small Network	5	315	0.04	1.00	$30.00	$15.00	$0.00	-	PA TRM	PA TRM	PA SWE DB
				Uninterruptible Power Supply (UPS)	10	1,020	0.12	1.00	$295.00	$200.00	$0.00	-	CMUA TRM	CMUA TRM	CMUA TRM
				Custom - Compressed Air	13	80,688	9.21	1.00	$16,987.00	$23,781.80	$0.00	-	Actuals	MA/PA TRMs	EE Consultant
				Custom - HVAC/Chlrs/Cntrls	15	4,134	2.57	1.00	$1,368.50	$1,218.56	$0.00	1,182.50	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Custom - Process Improvement	15	126,588	14.45	1.00	$45,305.00	$37,310.00	$0.00	-	Actuals	MA/PA TRMs	EE Consultant
				Custom - Refrigeration	15	9,391	1.07	1.00	$5,041.41	$2,767.83	$0.00	-	Actuals	MA/PA TRMs	EE Consultant
				Custom - Equipment/Servers	13	2,751	0.36	1.00	$984.67	$810.91	$0.00	-	PA TRM	PA TRM	EE Consultant
				Custom - Motors - Three Phase	15	1,199	0.22	1.00	$353.37	$353.37	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	EE Consultant
				Custom - VFDs < 10HP	15	5,680	1.07	1.00	$2,242.50	$800.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM

Appendix C, Table C-2: Measure Assumptions															
Sector	Program Type	Program	Sub Program	Measure	Measure Life	Verified kWh	Verified kW	NTG	Incremental Cost	Modeled Rebate	O&M Benefit ($/Yr)	Gas Savings (Therms/Yr)	Source of Savings	Source of Measure Life	Source of Inc Cost
Commercial and Industrial	Core Utility	Energy Solutions for Business	Prescriptive / Custom	Custom - VFDs > 10 HP	15	85,204	16.08	1.00	$8,532.00	$3,750.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Custom - Audit & Education	0	-	-	1.00	$5,000.00	$5,000.00	$0.00	-	N/A	N/A	N/A
				Custom - Bldg Improvements	15	41,460	4.73	1.00	$3,491.36	$12,219.76	$0.00	-	Actuals	MA/PA TRMs	EE Consultant
				Anti Sweat Heater Controls	12	687	0.06	1.00	$417.80	$50.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Beverage Vending Machine - Controls	5	1,410	0.16	1.00	$180.00	$100.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Beverage Vending Machine - Energy Star	14	125	-	1.00	$500.00	$100.00	$0.00	-	PA TRM	PA TRM	Internet
				Coffee Brewers	15	1,331	0.15	1.00	$200.00	$100.00	$0.00	-	Energy Star	MA/PA TRMs	Internet
				Combination Oven	12	11,462	2.70	1.00	$2,512.00	$500.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Convection Oven	12	1,880	0.52	1.00	$374.00	$250.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Dishwasher - C&I	15	2,928	0.33	1.00	$881.67	$200.00	$0.00	280.83	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				ECM Evap Fan Motor	15	1,538	0.18	1.00	$61.00	$30.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Evap Fan Controls	16	1,396	0.07	1.00	$532.00	$100.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Refrigerators - Reach In	12	1,577	0.18	1.00	$321.95	$200.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Freezers - Reach In	12	6,307	0.72	1.00	$211.27	$200.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Fryers	12	2,691	0.63	1.00	$210.00	$150.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Griddles	12	2,656	0.63	1.00	$500.00	$250.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	Internet
				Hot Food Holding Cabinet	12	2,927	0.69	1.00	$895.00	$250.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Ice Machines	10	2,355	0.36	1.00	$345.00	$125.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MD IC DB
				Induction Warmer/Rethermalizer Well	15	400	0.05	1.00	$500.00	$200.00	$0.00	-	Mfg Data	MA/PA TRMs	MA TRM
				Refrigerated Case Cover	5	292	-	1.00	$42.00	$30.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MD IC DB
				Steam Cookers	12	10,741	2.53	1.00	$460.00	$450.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Strip Curtains	4	177	0.02	1.00	$3.80	$3.00	$0.00	-	PA TRM	PA TRM	PA SWE DB
				Air Conditioning (>5.4 < 20 Ton) - C&I	15	481	0.26	1.00	$1,357.90	$500.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Air Conditioning (<=5.4 Ton) - C&I	15	979	0.55	1.00	$1,013.98	$1,100.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Air Conditioning (>=20 Ton) - C&I	15	1,723	0.96	1.00	$921.50	$1,900.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Circulating Pump - C&I	15	1,030	-	1.00	$98.00	$75.00	$0.00	-	PA TRM	PA TRM	MN TRM
				Ductless Mini-Split Heat Pump - C&I	18	326	0.03	1.00	$624.00	$300.00	$0.00	-	MA TRM	MA TRM	MA TRM
				Ductless Mini-Split A/C - C&I	17	154	0.07	1.00	$978.00	$400.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	NJ Util
				Furnace Fans - C&I	18	223	0.03	1.00	$287.00	$150.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	Internet
				Heat Pump (<=5.4 Ton) - C&I	15	1,134	0.26	1.00	$460.00	$375.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Heat Pumps - Wtr & GeoT - C&I	15	970	0.32	1.00	$10,916.50	$1,750.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				HVAC - Custom C&I	5	52,792	6.03	1.00	$32,731.06	$12,142.17	$0.00	-	Actuals	MA/PA TRMs	EE Consultant
				HVAC - Maintenance - C&I	5	414	0.23	1.00	$175.00	$175.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				PTAC - C&I	15	94	0.05	1.00	$156.00	$60.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				PTHP - C&I	15	199	0.05	1.00	$255.00	$60.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Room Air Conditioner - C&I	12	129	0.04	1.00	$20.00	$15.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Smart Thermostat - C&I	8	205	-	1.00	$204.00	$75.00	$0.00	8.06	MA TRM	MA TRM	MA TRM
				Exit Signs	5	86	0.01	1.00	$32.50	$10.00	$26.92	(0.54)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				LED Channel Signage	15	193	0.04	1.00	$35.00	$26.66	$0.00	(1.22)	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				LED Fixture External	15	421	0.01	1.00	$290.00	$150.00	$41.42	-	NJCEP Prtcls	NJCEP Prtcls	MD IC DB
				LED Fixture Internal	15	243	0.05	1.00	$2.40	$2.00	$5.74	(1.53)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				LED Lamps - C&I	15	130	0.03	1.00	$2.03	$1.00	$11.44	(0.82)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				LED Linear	15	141	0.03	1.00	$118.00	$40.00	$8.32	(0.89)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				LED Reach in Refrigerator / Freezer Lights	16	69	0.01	1.00	$23.00	$12.50	$2.17	-	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Lighting - Custom	15	85,288	9.74	1.00	$18,763.46	$23,880.77	$0.00	-	Actuals	MA/PA TRMs	EE Consultant
				Lighting - Other	15	85,288	9.74	1.00	$18,763.46	$23,880.77	$0.00	-	Actuals	MA/PA TRMs	EE Consultant
				Lighting Controls (Daylight & Occupancy)	8	1,043	0.28	1.00	$100.00	$34.00	$0.00	(1.14)	NJCEP Prtcls	NJCEP Prtcls	PA SWE DB
				Lighting Controls (Network)	10	115	0.03	1.00	$152.10	$36.00	$0.00	(0.00)	MA TRM	MA TRM	MA TRM
				Linear Fluorescent	15	87	0.02	1.00	$6.00	$3.00	$0.00	(0.55)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Linear Lamps - Mnt-C&I	15	30	0.01	1.00	$22.67	$5.00	$0.00	(0.19)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				High/Low Bays Lamps - Mnt-C&I	15	1,165	0.24	1.00	$134.00	$80.00	$23.27	(73.65)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				LED Fixture - Mnt-C&I	15	242	0.05	1.00	$92.00	$12.00	$10.86	(1.53)	NJCEP Prtcls	NJCEP Prtcls	MA TRM
				Street & Area Lighting	15	573	0.02	1.00	$750.00	$150.00	$30.00	-	MA TRM	MA TRM	MA TRM
	Additional Utility		Energy Management	Virtual/Meter Data Commissioning	15	30,965	3.53	1.00	$9,778.40	$3,259.47	$0.00	-	ComEd	MA/PA TRMs	ComEd
				Retrocommissioning	8	378,779	86.48	1.00	$0.00	$71,768.57	$0.00	-	BGE Actuals	EE Consultant	N/A
				Building Operation Training	5	51,754	6.94	1.00	$2,500.00	$1,000.00	$0.00	-	MD Evaluation	MD Evaluation	Expenses
				Building Tune Up Large	15	130,421	41.39	1.00	$21,965.71	$43,931.43	$0.00	-	BGE Actuals	MA/PA TRMs	BGE Actuals
				Building Tune Up Small	15	65,211	20.70	1.00	$10,982.86	$21,965.71	$0.00	-	BGE Actuals	MA/PA TRMs	BGE Actuals
				Unitary HVAC Maintenance	5	394	0.21	1.00	$175.00	$175.00	$0.00	-	NJCEP Prtcls	NJCEP Prtcls	N/A
				Strategic Energy Management	0	-	-	1.00	$0.00	$0.00	$0.00	-	N/A	N/A	N/A
			Engineered Solutions	ESB - Engineered Solutions - 1	15	820,000	67.26	1.00	$180,400.00	$615,000.00	$0.00	62,453.68	NJ Util	MA/PA TRMs	EE Consultant
				ESB - Engineered Solutions - 2	15	275,000	25.76	1.00	$60,500.00	$206,250.00	$0.00	20,944.83	NJ Util	MA/PA TRMs	EE Consultant
Multifamily	Core Utility	Multifamily	Multifamily	MF - Tenant - DI	15	475	0.06	1.00	$300.00	$300.00	$24.00	15.17	MD Actuals	MD Actuals	N/A
				MF - Tenant - Prescriptive	12	110	0.01	1.00	$30.00	$60.00	$0.00	0.70	MA TRM	MA TRM	MA TRM
				MF - Tenant - Custom	15	139	0.05	1.00	$84.00	$90.00	$0.00	-	MA TRM	MA TRM	PA SWE DB
				MF - Common - DI	12	350	0.02	1.00	$195.00	$822.00	$20.00	-	MA TRM	MA TRM	MA TRM
				MF - Common - Prescriptive	12	350	0.02	1.00	$117.00	$92.00	$20.00	-	MA TRM	MA TRM	MA TRM
				MF - Common - Custom	15	43,642	4.98	1.00	$3,491.36	$12,000.00	$0.00	-	Actuals	MA/PA TRMs	EE Consultant
				MF - Engineered Solutions	15	75,125	8.58	1.00	$18,043.01	$37,550.00	$0.00	5,700.00	Actuals	MA/PA TRMs	EE Consultant
Other	Additional Utility	Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Smart Tstat Optimization	1	249	1.20	1.00	$100.00	$100.00	$0.00	51.75	MA TRM	DR	NJ Util
				Smart Home Systems	8	142	-	1.00	$100.00	$50.00	$0.00	25.38	MA TRM	MA TRM	NJ Util

Appendix C, Table C-3: Number of Units							
Sector	Program Type	Program	Sub Program	Measure Name	Participants/Units		
					2021	2022	2023
Residential	Core Utility	Efficient Products	Efficient Products	Freezer Recycling	625	725	850
				Refrigerator Recycling	3,000	3,400	4,000
				Room Air Conditioner Recycling	175	250	340
				Dehumidifier Recycling	125	175	225
				Clothes Washer	200	825	950
				Refrigerators	90	361	456
				Room Air Conditioner	5	9	12
				Freezers	30	120	150
				Clothes Dryer	80	325	500
				Air Purifier / Cleaner	7	9	12
				Dehumidifiers	80	120	150
				Water Heater - Heat Pump	65	95	120
				Pool Pump Variable Speed	2	10	15
				Dishwashers	7	25	32
				Water Coolers	4	10	15
				Elec Vehicle Chargers - Res	3	9	12
				Monitors	70	270	350
				Computers	45	75	100
				Imaging	5	20	27
				Smart Strip Plug Outlets	20	28	36
				TVs	200	790	975
				Sound Bars	15	60	75
				Smart Home	1	1	1
				LED Lamps (Speciality)	300,000	600,000	775,000
				LED Lamps	750,000	357,500	176,750
				LED Fixtures Internal	25,000	35,000	40,000
				LED Fixtures External	1,900	7,500	8,250
				Residential Occupancy Sensors	140	200	200
				LED Holiday Lights	1,000	1,500	2,000
				Ceiling Fans	250	1,000	1,300
				LED Table/Desk Lamps	200	750	1,000
				Air Source Heat Pumps	295	1,180	1,460
				Central Air Conditioners	350	1,415	1,725
				Ductless Mini-Split Heat Pump	40	162	210
				Ductless Mini-Split A/C	12	46	55
				PTAC	10	30	38
				PTHP	15	47	50
				Heat Pump - Water & Geothermal	15	45	56
				Furnace Fans	145	310	410
				Smart Thermostat	7,500	15,000	15,000
				HVAC - Custom	1	1	1
				Circulating Pump	10	15	20
				HE Bathroom Fans	45	185	255
				HVAC Quality Install	6	9	12
				EE Kits	70,000	100,000	100,000

Appendix C, Table C-3: Number of Units							
Sector	Program Type	Program	Sub Program	Measure Name	Participants/Units		
					2021	2022	2023
Residential	Core Utility	Existing Homes	Home Performance with Energy Star	Home Performance with Energy Star	500	1,000	1,260
	Additional Utility		Quick Home Energy Check-up	Quick Home Energy Checkup (QHEC)	1,500	2,500	3,960
			Moderate Income Weatherization	MI Weatherization	300	500	600
		Home Energy Education and Management	Behavioral	Behavioral FY22	-	139,200	-
				Behavioral FY23	-	-	139,200
				On-Line Audit	1,650	2,400	3,100
Commercial and Industrial	Core Utility	Direct Install	Direct Install	Audits w DI - CI - Tier 1	100	475	500
				Audits w DI - CI - Tier 2	20	75	100
		Energy Solutions for Business	Prescriptive / Custom	Auto Milker Takeoff	1	2	5
				Custom - Agricultural	1	1	1
				Dairy Refrigeration Tune-Up	1	1	6
				Dairy Scroll Compressor	1	2	8
				Dairy Vac Pump VSD Controls	1	2	6
				Engine Block Heater Timer	2	5	10
				HE Ventilation Fans	6	12	30
				Heat Reclaimers	1	1	3
				High Volume Low Speed Fans	1	3	6
				Livestock Waterer	1	2	6
				Low Pressure Irrigation	1	1	3
				Process Lighting - Agricultural	19	38	38
				Clothes Dryer - C&I	8	12	15
				Clothes Washer- C&I	25	50	65
				Dehumidifier - C&I	25	40	50
				Elec Vehicle Chargers - C&I	14	21	30
				Freezer - C&I	25	40	50
				Pre-Rinse Sprayers	25	40	50
				Refrigerators - C&I	25	40	50
				Water Cooler C&I	25	40	50
				Water Heater - Heat Pump - C&I	7	9	12
				Dehumidifier Recycling - C&I	4	6	8
				Freezer Recycling - C&I	140	204	258
				Refrigerator Recycling - C&I	559	817	1,031
				Room Air Conditioner Recycling - C&I	48	70	89
				Advanced Pwr Strips- C&I	67	98	124
				Computers - C&I	96	141	178
				Imaging - C&I	174	254	321
				Monitors - C&I	257	376	475
				Small Network	257	376	475
				Uninterruptible Power Supply (UPS)	35	51	64
				Custom - Compressed Air	2	5	7
				Custom - HVAC/Chlrs/Cntrls	10	20	25
				Custom - Process Improvement	7	15	20
				Custom - Refrigeration	7	15	20
				Custom - Equipment/Servers	22	45	55

Appendix C, Table C-3: Number of Units							
Sector	Program Type	Program	Sub Program	Measure Name	Participants/Units		
					2021	2022	2023
Commercial and Industrial	Core Utility	Energy Solutions for Business	Prescriptive / Custom	Custom - Motors - Three Phase	10	20	26
				Custom - VFDs < 10HP	22	45	60
				Custom - VFDs > 10 HP	5	10	15
				Custom - Audit & Education	1	1	1
				Custom - Bldg Improvements	1	1	6
				Anti Sweat Heater Controls	19	28	36
				Beverage Vending Machine - Controls	6	9	12
				Beverage Vending Machine - Energy Star	23	33	42
				Coffee Brewers	2	3	4
				Combination Oven	3	5	6
				Convection Oven	3	4	5
				Dishwasher - C&I	1	1	1
				ECM Evap Fan Motor	7	10	13
				Evap Fan Controls	7	10	13
				Refrigerators - Reach In	11	16	60
				Freezers - Reach In	3	5	20
				Fryers	5	8	10
				Griddles	4	5	7
				Hot Food Holding Cabinet	5	8	10
				Ice Machines	6	9	12
				Induction Warmer/Rethermalizer Well	7	10	12
				Refrigerated Case Cover	152	223	281
				Steam Cookers	4	6	8
				Strip Curtains	212	310	392
				Air Conditioning (>5.4 < 20 Ton) - C&I	22	44	56
				Air Conditioning (<=5.4 Ton) - C&I	5	11	14
				Air Conditioning (>=20 Ton) - C&I	1	1	2
				Circulating Pump - C&I	37	78	98
				Ductless Mini-Split Heat Pump - C&I	9	19	24
				Ductless Mini-Split A/C - C&I	1	1	3
				Furnace Fans - C&I	2	4	6
				Heat Pump (<=5.4 Ton) - C&I	1	2	2
				Heat Pumps - Wtr & GeoT - C&I	1	2	2
				HVAC - Custom C&I	1	1	1
				HVAC - Maintenance - C&I	2	4	5
				PTAC - C&I	10	21	26
				PTHP - C&I	2	4	5
				Room Air Conditioner - C&I	6	12	15
				Smart Thermostat - C&I	275	400	515
				Exit Signs	500	750	1,000
				LED Channel Signage	1,750	2,750	3,500
				LED Fixture External	3,750	5,750	7,250
				LED Fixture Internal	600	900	1,100
				LED Lamps - C&I	3,250	5,500	6,750
				LED Linear	150,000	200,000	225,000
				LED Reach in Refrigerator / Freezer Lights	1,200	1,750	2,200
				Lighting - Custom	1	2	2
				Lighting - Other	1	2	2

Appendix C, Table C-3: Number of Units							
Sector	Program Type	Program	Sub Program	Measure Name	Participants/Units		
					2021	2022	2023
Commercial and Industrial	Core Utility	Energy Solutions for Business	Prescriptive / Custom	Lighting Controls (Daylight & Occupancy)	6,750	10,000	12,500
				Lighting Controls (Network)	150	225	275
				Linear Fluorescent	2,500	3,500	4,000
				Linear Lamps - Mnt-C&I	45,000	60,000	60,000
				High/Low Bays Lamps - Mnt-C&I	2,000	2,375	2,375
				LED Fixture - Mnt-C&I	3,000	3,750	3,750
				Street & Area Lighting	20,000	20,000	20,000
	Additional Utility		Energy Management	Virtual/Meter Data Commissioning	-	3	16
				Retrocommissioning	-	-	8
				Building Operation Training	-	2	6
				Building Tune Up Large	-	2	9
				Building Tune Up Small	-	10	35
				Unitary HVAC Maintenance	-	50	175
				Strategic Energy Management	1	1	1
			Engineered Solutions	ESB - Engineered Solutions - 1	-	2	5
				ESB - Engineered Solutions - 2	1	4	7
Multifamily	Core Utility	Multifamily	Multifamily	MF - Tenant - DI	1,500	1,750	2,000
				MF - Tenant - Prescriptive	1	1	1
				MF - Tenant - Custom	1	1	1
				MF - Common - DI	1	1	1
				MF - Common - Prescriptive	1	1	1
				MF - Common - Custom	1	1	1
				MF - Engineered Solutions	3	3	3
Other	Additional Utility	Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Smart Tstat Optimization	-	-	11,000
				Smart Home Systems	-	-	1

Appendix C, Table C-4: Measure Eligibility					
Sector	**Program Type**	**Program**	**Sub Program**	**Measure Name**	**Energy Efficiency Eligibility / Description**
Residential	Core Utility	Efficient Products	Efficient Products	Freezer Recycling	Removal of an existing inefficient unit generally older than 10 years from service prior to end of useful life via recycling.
				Refrigerator Recycling	Removal of an existing inefficient unit generally older than 10 years from service prior to end of useful life via recycling.
				Room Air Conditioner Recycling	This measure involves the removal of an existing inefficient room air conditioner from service prior to end of useful life via recycling.
				Dehumidifier Recycling	This measure involves the removal of an existing inefficient dehumidifier from service prior to end of useful life via recycling.
				Clothes Washer	Purchase and installation of a clothes washer meeting or exceeding ENERGY STAR specifications.
				Refrigerators	Purchase and installation of a new refrigerator meeting or exceeding ENERGY STAR specifications.
				Room Air Conditioner	Purchase and installation of a new room air conditioner meeting or exceeding either ENERGY STAR specifications or CEE Advanced Tier.
				Freezers	Purchase and installation of a freezer meeting or exceeding ENERGY STAR specifications.
				Clothes Dryer	Purchase and installation of a clothes dryer meeting or exceeding ENERGY STAR specifications with moisture sensor or a heat pump type clothes dryer.
				Air Purifier / Cleaner	Purchase and installation of a new air purifier meeting or exceeding ENERGY STAR specifications.
				Dehumidifiers	Purchase and installation of a new dehumidifier meeting or exceeding ENERGY STAR specifications.
				Water Heater - Heat Pump	Purchase and installation of a new Heat Pump water heater or Solar water heater meeting or exceeding ENERGY STAR specifications in place of a standard electric water heater.
				Pool Pump Variable Speed	Purchase and installation of a variable speed swimming pool pump motor to replace a single speed motor.
				Dishwashers	Purchase and installation of a new dishwasher meeting or exceeding ENERGY STAR specifications.
				Water Coolers	Purchase and installation of a new water cooler meeting or exceeding ENERGY STAR specifications.
				Elec Vehicle Chargers - Res	Purchase and installation of a new EV Charger Cord meeting or exceeding ENERGY STAR specifications.
				Monitors	Purchase and installation of a new monitor meeting or exceeding ENERGY STAR specifications.
				Computers	Purchase and installation of a new computer meeting or exceeding ENERGY STAR specifications.
				Imaging	Purchase and installation of a new imaging equipment meeting or exceeding ENERGY STAR specifications.
				Smart Strip Plug Outlets	Purchase and use of a Current-Sensing Master/Controlled Advanced Power Strip (APS) in place of a standard power strip.
				TVs	Purchase and installation of a new television meeting or exceeding ENERGY STAR specifications or 2020 Most Efficient, as applicable.
				Sound Bars	Purchase and installation of a new sound bar meeting or exceeding ENERGY STAR specifications.
				Smart Home	Purchase and installation of connected devices that allows for remote user control.
				LED Lamps (Speciality)	Purchase and installation of ENERGY STAR or DLC rated LED lamps, exempt from EISA.
				LED Lamps	Purchase and installation of an ENERGY STAR LED lamps that are non-exempt from EISA.
				LED Fixtures Internal	Purchase and installation of LED lighting fixture meeting or exceeding ENERGY STAR specifications.
				LED Fixtures External	Purchase and installation of LED lighting fixture meeting or exceeding ENERGY STAR specifications.
				Residential Occupancy Sensors	Purchase and installation of a wall, fixture, or remote-mounted occupancy sensor for interior or common area applications.
				LED Holiday Lights	Purchase and installation of LED holiday lights replacing traditional incandescent holiday lights.
				Ceiling Fans	Purchase and installation of a ceiling fan meeting or exceeding ENERGY STAR specifications with integral LED lamps.
				LED Table/Desk Lamps	Purchase of an ENERGY STAR rated lighting products, including desk, table or floor lamps.
				Air Source Heat Pumps	Purchase and installation of Single Package or Split System central unit w/ SEER ratings > or = 16, 13 EER, HSPF > or =9. Includes variable flow (VRF) systems.
				Central Air Conditioners	Replacement of ducted split central units prior to end of life w/ ENERGY STAR qualifying units w/ SEER ratings > or = 16 or 13 EER. Includes variable refrigerant flow (VRF) systems.
				Ductless Mini-Split Heat Pump	Purchase and installation of a new or replacement ENERGY STAR qualifying unit w/ SEER >= 20, EER >=12.5 or HSPF >= 10.
				Ductless Mini-Split A/C	Purchase and installation of a new or replacement ENERGY STAR qualifying unit w/ SEER >= 20, EER >=12.5.
				PTAC	Purchase and installation of packaged terminal unit exceeding ASHRAE Std. 90.1 – 2013 by 7.5%, as applicable. Includes variable flow (VRF) systems.
				PTHP	Purchase and installation of packaged terminal unit exceeding ASHRAE Std. 90.1 – 2013 by 7.5%, as applicable. Includes variable flow (VRF) systems.
				Heat Pump - Water & Geothermal	Purchase and installation of a Ground Source Heat Pump meeting or exceeding ENERGY STAR specifications.

Appendix C, Table C-4: Measure Eligibility					
Sector	**Program Type**	**Program**	**Sub Program**	**Measure Name**	**Energy Efficiency Eligibility / Description**
Residential	Core Utility	Efficient Products	Efficient Products	Furnace Fans	Purchase and installation of a high efficiency brushless permanent magnet fan motor (BPM or ECM) to replace a permanent split capacitor (PSC) motor.
				Smart Thermostat	The purchase and installation of a smart thermostat that has earned ENERGY STAR certification.
				HVAC - Custom	Replacement or retrofit of existing HVAC equipment or process changes or enhancements that results in electric energy savings.
				Circulating Pump	Replacement of existing single speed circulation pump or new circulation pump with variable speed motor and/or controls to automatically change pump speed to produce flow rates that match system heating requirements.
				HE Bathroom Fans	Purchase and installation of a new high efficiency bathroom fan that meets or exceeds ENERGY STAR specifications.
				HVAC Quality Install	Implementation of proper sizing techniques which requires Manual J calculations, following of ENERGY STAR HVAC Quality Installation procedures, or similar calculations.
				EE Kits	Energy efficiency kits to encourage customers to adopt energy efficient behaviors to conserve and save energy in their homes.
		Existing Homes	Home Performance with Energy Star	Home Performance with Energy Star	In-Home Audit w/ direct install measures. Also provides incentive for comprehensive measures including but not limited to: Windows, Duct Sealing, and Wall & Attic Insulation, Smart Thermostats etc.
	Additional Utility		Quick Home Energy Check-up	Quick Home Energy Checkup (QHEC)	In-Home Audit w/ direct install measures. Eligible to single family home customers.
			Moderate Income Weatherization	MI Weatherization	In-Home Audit w/ direct install measures. Also provides incentive for comprehensive measures including but not limited to: Windows, Duct Sealing, and Wall & Attic Insulation, etc.
		Home Energy Education and Management	Behavioral	Behavioral FY22	Reports containing energy usage comparisons, recommendations and education emphasizing key points, general conservation tips and information on tools and resources supporting implementation of measures and efficiencies behaviors that reduces consumption of energy and demand.
				Behavioral FY23	
				On-Line Audit	Online Audit process including recommendations and education emphasizing key points, general conservation tips and information on tools and resources supporting implementation of measures and efficiency behaviors that reduces consumption of energy and demand.
Commercial and Industrial	Core Utility	Direct Install	Direct Install	Audits w DI - CI - Tier 1	Provides an audit with the installation of standard energy efficiency measures and a expedited simple solution for small business sector customers.
				Audits w DI - CI - Tier 2	Provides an audit with the installation of standard energy efficiency measures and a expedited simple solution for small business sector customers.
		Energy Solutions for Business	Prescriptive / Custom	Auto Milker Takeoff	Purchase and installation of a new automatic milker takeoffs to replace pre-existing manual takeoffs on dairy milking vacuum pump systems.
				Custom - Agricultural	Replacement or retrofit of existing agricultural growing/harvesting type equipment or process changes or enhancements that results in electric energy savings. Grow house/indoor agriculture process also qualify under this measure.
				Dairy Refrigeration Tune-Up	Tune up of refrigeration systems for agriculture applications.
				Dairy Scroll Compressor	Purchase and installation of a new or replacement of existing reciprocating compressor with a scroll compressor.
				Dairy Vac Pump VSD Controls	Purchase and installation of VFD and controls on dairy vacuum pumps, or the purchase of dairy vacuum pumps with variable speed capability. Pre-existing pumps with VSD's are not eligible for this measure.
				Engine Block Heater Timer	Purchase and installation of an engine block heater timer.
				HE Ventilation Fans	Purchase and installation of a new or replacement of standard efficiency ventilation fans with high efficiency ventilation fans.
				Heat Reclaimers	Purchase and installation of heat reclaim units on dairy parlor milk refrigeration systems. Addition of heat reclaimer on new milk refrigeration system also qualifies under this measure.
				High Volume Low Speed Fans	Purchase and installation of new or replacement of conventional circulating fans with High Volume Low Speed (HVLS) fans. HVLS fans are a minimum of 16 feet long in diameter and move more cubic feet of air per watt than conventional circulating fans.
				Livestock Waterer	Purchase and installation of an energy efficient livestock waterer that is thermostatically controlled and has a minimum of two inches of factory-installed insulation.
				Low Pressure Irrigation	Purchase and Installation of Low Pressure Irrigation System.
				Process Lighting - Agricultural	Purchase and installation of new or replacement of lighting equipment to a higher efficiency than existing or designed for agriculture grow processes.
				Clothes Dryer - C&I	Purchase and installation of an ENERGY STAR rated clothes dryer.
				Clothes Washer- C&I	Purchase and installation of a clothes washer meeting ENERGY STAR.
				Dehumidifier - C&I	Purchase and installation of a new dehumidifier meeting ENERGY STAR.
				Elec Vehicle Chargers - C&I	Purchase and installation of ENERGY STAR rated EV Charger Cord.
				Freezer - C&I	Purchase and installation of a new ENERGY STAR rated freezer.
				Pre-Rinse Sprayers	Replacement of existing sprayer with new unit that use 1.6 GPM or less, on/off squeeze lever, and cleaning of performance of at least 26 seconds. Electric water heating only.
				Refrigerators - C&I	Purchase and installation of a new ENERGY STAR refrigerator.
				Water Cooler C&I	Purchase and installation of an ENERGY STAR water cooler.
				Water Heater - Heat Pump - C&I	Purchase and installation of a Heat Pump domestic water heater in place of a standard electric water heater, EF>2.0.
				Dehumidifier Recycling - C&I	Removal of an existing inefficient dehumidifier from service prior to end of useful life via recycling.
				Freezer Recycling - C&I	Removal of an existing inefficient unit generally older than 10 years from service prior to end of useful life via recycling.
				Refrigerator Recycling - C&I	Removal of an existing inefficient unit generally older than 10 years from service prior to end of useful life via recycling.

Appendix C, Table C-4: Measure Eligibility					
Sector	**Program Type**	**Program**	**Sub Program**	**Measure Name**	**Energy Efficiency Eligibility / Description**
Commercial and Industrial	Core Utility	Energy Solutions for Business	Prescriptive / Custom	Room Air Conditioner Recycling - C&I	Removal of an existing inefficient room air conditioner from service prior to end of useful life via recycling.
				Advanced Pwr Strips- C&I	Purchase and use of a Current-Sensing Master/Controlled Advanced Power Strip (APS) in place of a standard power strip.
				Computers - C&I	Purchase and installation of a new computer meeting ENERGY STAR.
				Imaging - C&I	Purchase and installation of a new imaging equipment meeting ENERGY STAR.
				Monitors - C&I	Purchase and installation of a new monitor meeting ENERGY STAR.
				Small Network	The purchase and installation of network level software that controls desktop computers and monitors power settings with the network. Software must be capable of measuring and managing power consumption of each deskstop computer and monitor. Laptops are eligible but savings assume workstation includes desktop monitor, laptop computer with laptop screen in use.
				Uninterruptible Power Supply (UPS)	Replacement or new installation of a UPS (less than 12 kW) that exceeds the minimum average efficiency standard as determined by Table 1 of the Energy Star UPS standard. Table 2 of the standard shall be used in calculating the loading of the UPS.
				Custom - Compressed Air	Purchase and installation of new or replacement or retrofit of existing air compressor systems, including but no limited to: new compressors, air dryers, or increased storage capacity. Other efficiency measures such as: leak repair, controls, high efficiency nozzles, piping enhancements, and no loss drains are also eligible. Retrofit of compressor with a VFD is also eligible.
				Custom - HVAC/Chlrs/Cntrls	Purchase and installation of HVAC controls/controllers that optimizes ventilation and economization control schemes of a building's HVAC system based on occupancy or sensor level inputs.
				Custom - Process Improvement	Replacement or retrofit of existing equipment, process changes or process enhancements that results in more energy efficient usage or electric energy.
				Custom - Refrigeration	Purchase and installation of new or retrofit of refrigeration measures on commercial walk-in refrigerators and coolers, including, but not limited to: high efficiency fan motors, evaporator fan controllers, floating head pressure controls, evaporator coil defrost controls and variable speed compressor motors.
				Custom - Equipment/Servers	Purchase and installation of more efficient data center equipment (servers, UPS, HVAC, etc.) the optimization optimization of those systems to decrease energy usage. The measure is for retrofit applications.
				Custom - Motors - Three Phase	Purchase and installation of a new premium efficiency motor as a direct replacement or early replacement
				Custom - VFDs < 10HP	Purchase and installation of a new VFD for an existing motor (less than 10 hp) driving fans, pumps and other suitable applications. VFD retrofits are not eligible.
				Custom - VFDs > 10 HP	Purchase and installation of a new VFD for an existing motor (greater than 10 hp) driving fans, pumps and other suitable applications. VFD retrofits are not eligible.
				Custom - Audit & Education	Comprehensive Energy Audit for commercial/industrial facilities or manufacturing processes recommending installation of efficient equipment, building shell/envelop improvements, manufacturing process changes, building operating changes, or other energy efficiency improvements. Audit must meet minimum audit requirements for buildings or for process equipment.
				Custom - Bldg Improvements	Retrofit of existing building shell, electrical & electric mechanical retrofits to greater efficiency components and processes, including but not limited to: wall and ceiling insulation, windows, reduction of conditioned CF w/ SF of floor space remaining the same, reduction in window size w/ improved R value, installation of building energy management systems.
				Anti Sweat Heater Controls	Purchase and installation of door heater controls on commercial glass door coolers for refrigerators, coolers or freezers utilizing either ON/OFF or micro pulse controls in place of no controls.
				Beverage Vending Machine - Controls	Retrofit controls for a non ENERGY STAR rated vending machine.
				Beverage Vending Machine - Energy Star	The purchase and installation of an ENERGY STAR certified beverage vending machine.
				Coffee Brewers	Replacement or new installation of an Energy Star Type II small, medium or large coffee brewer.
				Combination Oven	Replacement or new installation of ENERGY STAR qualified electric units.
				Convection Oven	Replacement or new installation of ENERGY STAR qualified electric units.
				Dishwasher - C&I	Replacement or new installation of ENERGY STAR qualified stationary or conveyor type commercial dishwasher.
				ECM Evap Fan Motor	Purchase and installation of a ECM motor to replace a permanent split capacitor or shaded pole motor in a commercial refrigeration unit.
				Evap Fan Controls	Purchase and installation of ON/OFF controls or multispeed controls for an uncontrolled ECM or permanent split capacitor or shaded pole motor in a commercial refrigeration unit.
				Refrigerators - Reach In	Purchase and installation of a new high efficiency packaged commercial refrigerator meeting ENERGY STAR.
				Freezers - Reach In	Purchase and installation of a new high efficiency packaged commercial freezer meeting ENERGY STAR.
				Fryers	Replacement or new installation of ENERGY STAR qualified electric units.
				Griddles	Replacement or new installation of Energy Star qualified electric units.
				Hot Food Holding Cabinet	Replacement or new installation of full, three quarter and half sized ENERGY STAR qualified units with idle energy rate of 0.04 kW/CF.
				Ice Machines	Purchase and installation of new ENERGY STAR qualified ice machine.
				Induction Warmer/Rethermalizer Well	Replacement or new installation of a energy efficient Rethermalizer & Food Warmers.
				Refrigerated Case Cover	Installation of refrigerated case covers.
				Steam Cookers	Replacement or new installation of ENERGY STAR electric commercial steam cooker.
				Strip Curtains	Replacement or new installation of polyethylene strip curtains on walk in freezers and coolers covering the entire door fame. Eligible units must be open a least 2.5 hrs./day.
				Air Conditioning (>5.4 < 20 Ton) - C&I	Installation of Single Package or Split System central unit exceeding ASHRAE Std. 90.1 – 2013 by 5%, as applicable. Includes variable flow (VRF) systems.
				Air Conditioning (<=5.4 Ton) - C&I	Replacement of ducted split central units prior to end of life w/ ENERGY STAR qualifying units w/ SEER ratings > or = 16 or 13 EER. Includes variable refrigerant flow (VRF) systems.
				Air Conditioning (>=20 Ton) - C&I	Installation of Single Package or Split System central unit exceeding ASHRAE Std. 90.1 – 2013 by 5%, as applicable. Includes variable flow (VRF) systems.
				Circulating Pump - C&I	Replacement of existing circulation pump with permanent split capacitor motor or installation of a new circulation pump < 1HP with a variable speed motor (ECM) and/or controls to automatically change pump speed to produce flow rates that match system heating requirements.

Appendix C, Table C-4: Measure Eligibility					
Sector	**Program Type**	**Program**	**Sub Program**	**Measure Name**	**Energy Efficiency Eligibility / Description**
Commercial and Industrial	Core Utility	Energy Solutions for Business	Prescriptive / Custom	Ductless Mini-Split Heat Pump - C&I	Purchase and installation of a new or replacement ENERGY STAR qualifying unit w/ SEER >= 20, EER >=12 or HSPF >= 10.
				Ductless Mini-Split A/C - C&I	Purchase and installation of a new or replacement ENERGY STAR qualifying unit w/ SEER >= 20, EER >=12.5.
				Furnace Fans - C&I	Purchase and installation of a high efficiency brushless permanent magnet fan motor (BPM or ECM) to replace a permanent split capacitor (PSC) motor.
				Heat Pump (<=5.4 Ton) - C&I	Installation of Single Package or Split System central unit w/ SEER ratings > or = 16, 13 EER, HSPF > or =9. Includes variable flow (VRF) systems.
				Heat Pumps - Wtr & GeoT - C&I	Purchase and installation of Energy Star qualified Water or Ground Source Heat Pump exceeding ASHRAE Std. 90.1 – 2013, as applicable.
				HVAC - Custom C&I	Purchase and installation of HVAC controls/controllers that optimizes ventilation and economization control schemes of a building's HVAC system based on occupancy or sensor level inputs.
				HVAC - Maintenance - C&I	Provides for tune-up of commercial HVAC unit.
				PTAC - C&I	Installation of packaged terminal unit exceeding ASHRAE Std. 90.1 – 2013 by 7.5%, as applicable. Includes variable flow (VRF) systems.
				PTHP - C&I	Installation of packaged terminal unit exceeding ASHRAE Std. 90.1 – 2013 by 7.5%, as applicable. Includes variable flow (VRF) systems.
				Room Air Conditioner - C&I	Purchase and installation of new unit meeting ENERGY STAR standard.
				Smart Thermostat - C&I	The purchase and installation of a smart thermostat that has earned ENERGY STAR certification.
				Exit Signs	Replacement of incandescent or fluorescent exit signs w/ LED type exit sign.
				LED Channel Signage	Replacement, retrofit or new installation of channel letter signs w/ LED technology. Must meet ENERGY STAR or DLC, as applicable.
				LED Fixture External	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps installed in an exterior setting. Must meet ENERGY STAR or DLC, as applicable.
				LED Fixture Internal	Replacement or new installation of a lighting fixture wired for exclusive use with LED lamps installed in an interior setting. Must meet ENERGY STAR or DLC, as applicable.
				LED Lamps - C&I	Purchase and installation of an ENERGY STAR LED lamps, including A-Line and specialty lamps.
				LED Linear	Replacement or new installation of linear LED lighting equipment to a higher efficiency than existing or designed. Must meet ENERGY STAR or DLC, as applicable.
				LED Reach in Refrigerator / Freezer Lights	Purchase and installation of LED luminaries in vertical and horizontal refrigerated display cases replacing linear fluorescent lamp technology. Must meet ENERGY STAR or DLC, as applicable.
				Lighting - Custom	Replacement or new installation of lighting to a higher efficiency than existing or designed lighting equipment. Specialty lighting applications may be eligible, but will require approval by the Company.
				Lighting - Other	Replacement or new installation of lighting to a higher efficiency than existing or designed lighting equipment. Must meet ENERGY STAR or DLC, as applicable.
				Lighting Controls (Daylight & Occupancy)	New installation of non-networked lighting controls including, but not limited to: daylight On/Off, dimming, occupancy sensors (wall plate, remote & fixture mounted), time clocks and switching controls.
				Lighting Controls (Network)	New installation of a networked lighting control system by applying, but not limited to: occupancy sensors, photo sensors, and dimming controls where the system must dim or turn off individual fixtures based on local occupancy and/or light levels. The control system must include luminaire-level lighting control (LLLC) that can switch lights on and off based on occupancy and is capable of full-range dimming based on local light levels.
				Linear Fluorescent	Replacement of existing T8 lamps with high performance T8 lamps to a higher efficiency than existing or designed.
				Linear Lamps - Mnt-C&I	Midstream delivery of maintenance replacement lamps and fixtures. Must meet ENERGY STAR or DLC, as applicable.
				High/Low Bays Lamps - Mnt-C&I	Midstream delivery of maintenance replacement lamps and fixtures. Must meet ENERGY STAR or DLC, as applicable.
				LED Fixture - Mnt-C&I	Midstream delivery of maintenance replacement lamps and fixtures. Must meet ENERGY STAR or DLC, as applicable.
				Street & Area Lighting	Replacement or new installation of Street and Area lighting equipment to a greater efficiency than existing or designed. Must meet Energy Star or DLC, as applicable.
	Additional Utility		Energy Management	Virtual/Meter Data Commissioning	Assessment of energy usage using meter data and analytics, engineering and building modeling to determine energy saving strategies for the upgrade and/or replacement of building systems including, but not limited to: lighting, HVAC, refrigeration, compressed air and other operational energy savings. Additionally, the measure will utilize pre and post enrollment meter usage data to further evaluate building energy savings.
				Retrocommissioning	Adjusting electrical, electro-mechanical, mechanical and control system set points to improve system performance to existing building conditions and use, including the implementation of energy savings measures identified through facility audit or building operations training.
				Building Operation Training	Obtain Building Operations Certification (BOC) by attending a certified training program or other training programs as related to the efficient design, operations and maintenance of buildings.
				Building Tune Up Large	Portfolio of measures and services that focus on the adjustment, maintenance and improvement of building systems to achieve maximum operating efficiency, including the installation of energy efficiency measures.
				Building Tune Up Small	Portfolio of measures and services that focus on the adjustment, maintenance and improvement of building systems to achieve maximum operating efficiency, including the installation of energy efficiency measures.
				Unitary HVAC Maintenance	Provides for tune-up of commercial HVAC unit.
				Strategic Energy Management	Management and optimization of energy consumption for C&I customers through long term management of major energy using systems.
			Engineered Solutions	ESB - Engineered Solutions - 1	Provides tailored energy-efficiency assistance using customized energy solutions to public service entities, such as municipalities, universities, schools, hospitals (“MUSH”), and non-profit entities. Energy efficiency improvements that are eligible include, but not limited to: lighting, HVAC, motors and drives, refrigeration, appliances, etc.
				ESB - Engineered Solutions - 2	Provides tailored energy-efficiency assistance using customized energy solutions to public service entities, such as municipalities, universities, schools, hospitals (“MUSH”), and non-profit entities. Energy efficiency improvements that are eligible include, but not limited to: lighting, HVAC, motors and drives, refrigeration, appliances, etc.

Appendix C, Table C-4: Measure Eligibility					
Sector	**Program Type**	**Program**	**Sub Program**	**Measure Name**	**Energy Efficiency Eligibility / Description**
Multifamily	Core Utility	Multifamily	Multifamily	MF - Tenant - DI	Multi-Family Tenant Space Audit w/ direct install measures. Smart Thermostats eligible for a prescriptive incentive.
				MF - Tenant - Prescriptive	Removal with recycle of inefficient appliances and/or the purchase and installation of ENERGY STAR rated appliances or equipment.
				MF - Tenant - Custom	Retrofit of existing building shell, electrical & electric mechanical retrofits to greater efficiency components and processes, including but not limited to wall and ceiling insulation, windows, reduction of conditioned CF w/ SF of floor space remaining the same, reduction in window size w/ improved R value, installation of building energy management systems.
				MF - Common - DI	Multi-Family Common Space Audit w/ direct install measures. Smart Thermostats eligible for a prescriptive incentive.
				MF - Common - Prescriptive	Removal with recycle of inefficient appliances and/or the purchase and installation of ENERGY STAR rated appliances or equipment.
				MF - Common - Custom	Retrofit of existing building shell, electrical & electric mechanical retrofits to greater efficiency components and processes, including but not limited to wall and ceiling insulation, windows, reduction of conditioned CF w/ SF of floor space remaining the same, reduction in window size w/ improved R value, installation of building energy management systems.
				MF - Engineered Solutions	Provides tailored energy-efficiency assistance using customized energy solutions to multi-family buildings. Energy efficiency improvements that are eligible include, but not limited to: lighting, HVAC, motors and drives, refrigeration, appliances, etc.
Other	Additional Utility	Home Optimization & Peak Demand Reduction	Home Optimization & Peak Demand Reduction	Smart Tstat Optimization	The control of a Smart Thermostat by using additional energy management strategies, which can include, but not limited to: external temperature/humidity adjustments, occupancy patters, behavioral and remote energy management.
				Smart Home Systems	The control of a home end use devices by applying Smart Home Energy Management System (SHEMS) technology.

Appendix D, Table D-1: Projected Participants and Energy Savings			
Total Portfolio[2]	**2021**	**2022**	**2023**
Estimated Participants	1,410,615	1,599,081	1,650,358
Projected Net Annual Natural Gas Savings (therms)	(671,724)	(78,998)	903,983
Projected Net Lifetime Natural Gas Savings (therms)	(11,470,300)	(4,002,815)	2,778,814
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	(156,892)	(222,494)	(222,139)
Projected Net Annual Electric Savings[1] (kWh)	124,221,059	174,385,132	208,848,211
Projected Net Lifetime Electric Savings[1] (kWh)	1,752,890,047	2,264,412,668	2,530,828,653
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	16,345,309	23,110,789	27,140,866
Projected Net Annual Peak Demand Savings[1] (kW)	15,330	25,784	46,326
Projected Net Lifetime Peak Demand Savings[1] (kW)	208,535	317,880	389,592

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

[2] Projections include participation of small commercial customers.

Appendix D, Table D-2: Projected Participants and Energy Savings			
Total Residential	**2021**	**2022**	**2023**
Estimated Participants	1,165,738	1,275,207	1,281,315
Projected Net Annual Natural Gas Savings (therms)	(439,081)	32,287	212,241
Projected Net Lifetime Natural Gas Savings (therms)	(8,006,172)	(2,369,862)	327,140
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	(156,892)	(222,494)	(222,139)
Projected Net Annual Electric Savings[1] (kWh)	68,456,009	84,756,312	95,047,250
Projected Net Lifetime Electric Savings[1] (kWh)	977,829,427	1,012,157,660	1,001,646,341
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	16,345,309	23,110,789	27,140,866
Projected Net Annual Peak Demand Savings[1] (kW)	6,006	9,756	12,845
Projected Net Lifetime Peak Demand Savings[1] (kW)	83,803	100,066	106,016

Appendix D, Table D-3: Projected Participants and Energy Savings			
Total Residential Core	**2021**	**2022**	**2023**
Estimated Participants	1,162,288	1,130,607	1,134,455
Projected Net Annual Natural Gas Savings (therms)	(544,924)	(144,116)	(19,183)
Projected Net Lifetime Natural Gas Savings (therms)	(9,593,805)	(5,015,916)	(3,144,210)
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	(156,892)	(222,494)	(222,139)
Projected Net Annual Electric Savings[1] (kWh)	67,164,734	68,727,412	66,977,400
Projected Net Lifetime Electric Savings[1] (kWh)	961,313,152	970,753,760	936,742,491
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	16,345,309	23,110,789	23,540,866
Projected Net Annual Peak Demand Savings[1] (kW)	5,794	6,626	6,801
Projected Net Lifetime Peak Demand Savings[1] (kW)	81,072	92,736	94,125

Appendix D, Table D-4: Projected Participants and Energy Savings			
Total Residential Additional Utility	**2021**	**2022**	**2023**
Estimated Participants	3,450	144,600	146,860
Projected Net Annual Natural Gas Savings (therms)	105,842	176,404	231,423
Projected Net Lifetime Natural Gas Savings (therms)	1,587,633	2,646,054	3,471,350
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	1,291,275	16,028,900	28,069,850
Projected Net Lifetime Electric Savings[1] (kWh)	16,516,275	41,403,900	64,903,850
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	3,600,000
Projected Net Annual Peak Demand Savings[1] (kW)	211	3,130	6,045
Projected Net Lifetime Peak Demand Savings[1] (kW)	2,731	7,330	11,891

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

Appendix D, Table D-5: Projected Participants and Energy Savings			
Total Commerical & Industrial[2]	**2021**	**2022**	**2023**
Estimated Participants	243,369	322,116	356,033
Projected Net Annual Natural Gas Savings (therms)	(272,498)	(154,933)	75,060
Projected Net Lifetime Natural Gas Savings (therms)	(4,061,951)	(2,287,662)	1,170,672
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	54,782,583	88,527,604	109,842,420
Projected Net Lifetime Electric Savings[1] (kWh)	760,326,049	1,235,739,187	1,508,145,740
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	9,211	15,902	20,140
Projected Net Lifetime Peak Demand Savings[1] (kW)	123,032	215,909	268,264

Appendix D, Table D-6: Projected Participants and Energy Savings			
Total Commercial & Industrial Core[2]	**2021**	**2022**	**2023**
Estimated Participants	243,367	322,042	355,771
Projected Net Annual Natural Gas Savings (therms)	(293,443)	(363,620)	(383,823)
Projected Net Lifetime Natural Gas Savings (therms)	(4,376,123)	(5,417,962)	(5,712,562)
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	54,507,583	84,658,564	96,456,156
Projected Net Lifetime Electric Savings[1] (kWh)	756,201,049	1,178,935,540	1,332,357,668
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	9,186	15,339	17,699
Projected Net Lifetime Peak Demand Savings[1] (kW)	122,646	207,717	237,282

Appendix D, Table D-7: Projected Participants and Energy Savings			
Total Commercial & Industrial Additional Utility[2]	**2021**	**2022**	**2023**
Estimated Participants	2	74	262
Projected Net Annual Natural Gas Savings (therms)	20,945	208,687	458,882
Projected Net Lifetime Natural Gas Savings (therms)	314,172	3,130,301	6,883,234
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	275,000	3,869,040	13,386,264
Projected Net Lifetime Electric Savings[1] (kWh)	4,125,000	56,803,647	175,788,072
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	26	563	2,441
Projected Net Lifetime Peak Demand Savings[1] (kW)	386	8,192	30,982

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

[2] Projections include participation of small commercial customers.

Appendix D, Table D-8: Projected Participants and Energy Savings			
Total Multifamily[2]	**2021**	**2022**	**2023**
Estimated Participants	1,508	1,758	2,008
Projected Net Annual Natural Gas Savings (therms)	39,855	43,647	47,440
Projected Net Lifetime Natural Gas Savings (therms)	597,823	654,709	711,594
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	982,467	1,101,217	1,219,967
Projected Net Lifetime Electric Savings[1] (kWh)	14,734,571	16,515,821	18,297,071
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	113	127	141
Projected Net Lifetime Peak Demand Savings[1] (kW)	1,700	1,906	2,112

Appendix D, Table D-9: Projected Participants and Energy Savings			
Total Other	**2021**	**2022**	**2023**
Estimated Participants	-	-	11,001
Projected Net Annual Natural Gas Savings (therms)	-	-	569,242
Projected Net Lifetime Natural Gas Savings (therms)	-	-	569,407
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	-	-	2,738,574
Projected Net Lifetime Electric Savings[1] (kWh)	-	-	2,739,500
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	-	-	13,200
Projected Net Lifetime Peak Demand Savings[1] (kW)	-	-	13,200

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

[2] Projections include participation of small commercial customers.

Appendix D, Table D-10: Projected Participants and Energy Savings			
Efficient Products - Efficient Products	**2021**	**2022**	**2023**
Estimated Participants	1,161,788	1,129,607	1,133,195
Projected Net Annual Natural Gas Savings (therms)	(683,128)	(420,526)	(367,459)
Projected Net Lifetime Natural Gas Savings (therms)	(11,666,877)	(9,162,059)	(8,368,351)
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	(156,892)	(222,494)	(222,139)
Projected Net Annual Electric Savings[1] (kWh)	66,477,468	67,352,881	65,245,491
Projected Net Lifetime Electric Savings[1] (kWh)	951,004,166	950,135,789	910,763,848
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	16,345,309	23,110,789	23,540,866
Projected Net Annual Peak Demand Savings[1] (kW)	5,575	6,188	6,249
Projected Net Lifetime Peak Demand Savings[1] (kW)	77,788	86,168	85,850

Appendix D, Table D-11: Projected Participants and Energy Savings			
Existing Homes - Home Performance with ENERGY STAR	**2021**	**2022**	**2023**
Estimated Participants	500	1,000	1,260
Projected Net Annual Natural Gas Savings (therms)	138,205	276,410	348,276
Projected Net Lifetime Natural Gas Savings (therms)	2,073,072	4,146,143	5,224,141
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	687,266	1,374,531	1,731,910
Projected Net Lifetime Electric Savings[1] (kWh)	10,308,985	20,617,971	25,978,643
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	219	438	552
Projected Net Lifetime Peak Demand Savings[1] (kW)	3,284	6,568	8,275

Appendix D, Table D-12: Projected Participants and Energy Savings			
Home Energy Education & Management - Behavioral	**2021**	**2022**	**2023**
Estimated Participants	1,650	141,600	142,300
Projected Net Annual Natural Gas Savings (therms)	-	-	-
Projected Net Lifetime Natural Gas Savings (therms)	-	-	-
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	203,775	14,216,400	25,438,850
Projected Net Lifetime Electric Savings[1] (kWh)	203,775	14,216,400	25,438,850
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	3,600,000
Projected Net Annual Peak Demand Savings[1] (kW)	31	2,830	5,627
Projected Net Lifetime Peak Demand Savings[1] (kW)	31	2,830	5,627

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

Appendix D, Table D-13: Projected Participants and Energy Savings			
Existing Homes - Quick Home Energy Check-up (QHEC)	**2021**	**2022**	**2023**
Estimated Participants	1,500	2,500	3,960
Projected Net Annual Natural Gas Savings (therms)	30,842	51,404	81,423
Projected Net Lifetime Natural Gas Savings (therms)	462,633	771,054	1,221,350
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	712,500	1,187,500	1,881,000
Projected Net Lifetime Electric Savings[1] (kWh)	10,687,500	17,812,500	28,215,000
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	90	150	238
Projected Net Lifetime Peak Demand Savings[1] (kW)	1,350	2,250	3,564

Appendix D, Table D-14: Projected Participants and Energy Savings			
Existing Homes - Moderate Income Weatherization	**2021**	**2022**	**2023**
Estimated Participants	300	500	600
Projected Net Annual Natural Gas Savings (therms)	75,000	125,000	150,000
Projected Net Lifetime Natural Gas Savings (therms)	1,125,000	1,875,000	2,250,000
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	375,000	625,000	750,000
Projected Net Lifetime Electric Savings[1] (kWh)	5,625,000	9,375,000	11,250,000
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	90	150	180
Projected Net Lifetime Peak Demand Savings[1] (kW)	1,350	2,250	2,700

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

Appendix D, Table D-15: Projected Participants and Energy Savings			
Direct Install - Direct Install[2]	2021	2022	2023
Estimated Participants	120	550	600
Projected Net Annual Natural Gas Savings (therms)	-	-	-
Projected Net Lifetime Natural Gas Savings (therms)	-	-	-
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	4,064,438	18,289,969	20,322,188
Projected Net Lifetime Electric Savings[1] (kWh)	60,966,565	274,349,542	304,832,825
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	851	3,829	4,255
Projected Net Lifetime Peak Demand Savings[1] (kW)	12,764	57,439	63,821

Appendix D, Table D-16: Projected Participants and Energy Savings			
Energy Solutions for Business - Prescriptive / Custom[2]	2021	2022	2023
Estimated Participants	243,247	321,492	355,171
Projected Net Annual Natural Gas Savings (therms)	(293,443)	(363,620)	(383,823)
Projected Net Lifetime Natural Gas Savings (therms)	(4,376,123)	(5,417,962)	(5,712,562)
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	50,443,145	66,368,594	76,133,967
Projected Net Lifetime Electric Savings[1] (kWh)	695,234,484	904,585,998	1,027,524,844
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	8,335	11,510	13,444
Projected Net Lifetime Peak Demand Savings[1] (kW)	109,882	150,278	173,461

Appendix D, Table D-17: Projected Participants and Energy Savings			
Energy Solutions for Business - Energy Management	2021	2022	2023
Estimated Participants	1	68	250
Projected Net Annual Natural Gas Savings (therms)	-	-	-
Projected Net Lifetime Natural Gas Savings (therms)	-	-	-
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	-	1,129,040	7,361,264
Projected Net Lifetime Electric Savings[1] (kWh)	-	15,703,647	85,413,072
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	-	325	1,925
Projected Net Lifetime Peak Demand Savings[1] (kW)	-	4,628	23,233

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

[2] Projections include participation of small commercial customers.

Appendix D, Table D-18: Projected Participants and Energy Savings			
Energy Solutions for Business - Engineered Solutions	**2021**	**2022**	**2023**
Estimated Participants	1	6	12
Projected Net Annual Natural Gas Savings (therms)	20,945	208,687	458,882
Projected Net Lifetime Natural Gas Savings (therms)	314,172	3,130,301	6,883,234
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	275,000	2,740,000	6,025,000
Projected Net Lifetime Electric Savings[1] (kWh)	4,125,000	41,100,000	90,375,000
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	26	238	517
Projected Net Lifetime Peak Demand Savings[1] (kW)	386	3,563	7,749

Appendix D, Table D-19: Projected Participants and Energy Savings			
Multifamily - Multifamily[2]	**2021**	**2022**	**2023**
Estimated Participants	1,508	1,758	2,008
Projected Net Annual Natural Gas Savings (therms)	39,855	43,647	47,440
Projected Net Lifetime Natural Gas Savings (therms)	597,823	654,709	711,594
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	982,467	1,101,217	1,219,967
Projected Net Lifetime Electric Savings[1] (kWh)	14,734,571	16,515,821	18,297,071
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	113	127	141
Projected Net Lifetime Peak Demand Savings[1] (kW)	1,700	1,906	2,112

Appendix D, Table D-20: Projected Participants and Energy Savings			
Other - Home Optimization & Peak Demand Reduction	**2021**	**2022**	**2023**
Estimated Participants	-	-	11,001
Projected Net Annual Natural Gas Savings (therms)	-	-	569,242
Projected Net Lifetime Natural Gas Savings (therms)	-	-	569,407
Projected Net Lifetime Natural Gas Savings from Qualifying Low-Income Customers (therms)	-	-	-
Projected Net Annual Electric Savings[1] (kWh)	-	-	2,738,574
Projected Net Lifetime Electric Savings[1] (kWh)	-	-	2,739,500
Projected Net Lifetime Electric Savings from Qualifying Low-Income Customers[1] (kWh)	-	-	-
Projected Net Annual Peak Demand Savings[1] (kW)	-	-	13,200
Projected Net Lifetime Peak Demand Savings[1] (kW)	-	-	13,200

[1] Values are Retail Net Electricity Savings. To reflect actual realized system-wide savings at the wholesale/generator level, line loss savings would need to be added to the retail net electricity savings.

[2] Projections include participation of small commercial customers.

Appendix E, Table E-1: Program Budget by Cost Category			
Total Portfolio	**2021**	**2022**	**2023**
Utility Administration	$8,488,565	$4,952,856	$4,952,712
Marketing	$4,167,368	$4,424,527	$4,500,152
Outside Services	$11,973,312	$12,099,600	$14,546,139
Incentives- Rebates and Other	$25,242,470	$44,102,559	$54,870,723
Incentives- Financing	$2,909,748	$8,151,150	$10,784,249
Inspections and Quality Control	$607,041	$1,014,694	$1,231,023
Evaluation	$2,436,630	$3,869,179	$4,818,774
Total	**$55,825,134**	**$78,614,566**	**$95,703,773**

Appendix E, Table E-2: Program Budget by Cost Category			
Total Residential	**2021**	**2022**	**2023**
Utility Administration	$5,505,565	$2,943,525	$2,652,046
Marketing	$3,137,047	$3,198,878	$3,139,048
Outside Services	$7,651,447	$7,084,515	$7,578,851
Incentives- Rebates and Other	$11,891,203	$19,657,998	$22,664,797
Incentives- Financing	$1,505,604	$4,788,582	$5,929,756
Inspections and Quality Control	$58,250	$103,750	$143,700
Evaluation	$1,335,626	$1,990,572	$2,277,481
Total	**$31,084,742**	**$39,767,819**	**$44,385,678**

Appendix E, Table E-3: Program Budget by Cost Category			
Total Residential Core	**2021**	**2022**	**2023**
Utility Administration	$4,348,777	$2,004,918	$1,788,963
Marketing	$2,571,495	$2,520,137	$2,484,157
Outside Services	$6,011,266	$4,607,094	$4,872,128
Incentives- Rebates and Other	$9,341,203	$15,407,998	$17,180,797
Incentives- Financing	$1,505,604	$4,788,582	$5,929,756
Inspections and Quality Control	$20,000	$40,000	$50,400
Evaluation	$1,097,595	$1,654,231	$1,885,401
Total	**$24,895,940**	**$31,022,959**	**$34,191,601**

Appendix E, Table E-4: Program Budget by Cost Category			
Total Residential Additional Utility	**2021**	**2022**	**2023**
Utility Administration	$1,156,787	$938,608	$863,083
Marketing	$565,552	$678,741	$654,891
Outside Services	$1,640,182	$2,477,421	$2,706,723
Incentives- Rebates and Other	$2,550,000	$4,250,000	$5,484,000
Incentives- Financing	$0	$0	$0
Inspections and Quality Control	$38,250	$63,750	$93,300
Evaluation	$238,031	$336,341	$392,080
Total	**$6,188,802**	**$8,744,860**	**$10,194,077**

Appendix E, Table E-5: Program Budget by Cost Category			
Total Commerical & Industrial	**2021**	**2022**	**2023**
Utility Administration	$2,610,827	$1,665,450	$1,719,431
Marketing	$889,623	$984,994	$1,022,343
Outside Services	$3,744,638	$4,078,319	$5,031,962
Incentives- Rebates and Other	$12,775,554	$23,793,848	$30,380,162
Incentives- Financing	$1,359,674	$3,318,098	$4,810,023
Inspections and Quality Control	$530,482	$890,379	$1,064,502
Evaluation	$1,027,065	$1,784,329	$2,346,562
Total	**$22,937,862**	**$36,515,417**	**$46,374,986**

Appendix E, Table E-6: Program Budget by Cost Category			
Total Commercial & Industrial Core	**2021**	**2022**	**2023**
Utility Administration	$2,484,516	$1,420,053	$1,335,334
Marketing	$829,760	$834,137	$814,326
Outside Services	$3,587,334	$3,437,781	$3,826,620
Incentives- Rebates and Other	$12,569,304	$21,410,799	$24,034,304
Incentives- Financing	$1,304,262	$2,765,961	$3,588,208
Inspections and Quality Control	$497,781	$804,525	$887,619
Evaluation	$993,177	$1,538,577	$1,780,242
Total	**$22,266,134**	**$32,211,834**	**$36,266,654**

Appendix E, Table E-7: Program Budget by Cost Category			
Total Commercial & Industrial Additional Utility	**2021**	**2022**	**2023**
Utility Administration	$126,311	$245,396	$384,097
Marketing	$59,863	$150,857	$208,016
Outside Services	$157,304	$640,538	$1,205,343
Incentives- Rebates and Other	$206,250	$2,383,048	$6,345,858
Incentives- Financing	$55,413	$552,137	$1,221,815
Inspections and Quality Control	$32,701	$85,854	$176,884
Evaluation	$33,888	$245,752	$566,321
Total	**$671,728**	**$4,303,583**	**$10,108,333**

Appendix E, Table E-8: Program Budget by Cost Category			
Total Multifamily	**2021**	**2022**	**2023**
Utility Administration	$372,173	$241,579	$237,478
Marketing	$140,698	$151,778	$151,326
Outside Services	$577,227	$691,258	$809,061
Incentives- Rebates and Other	$575,714	$650,714	$725,714
Incentives- Financing	$44,470	$44,470	$44,470
Inspections and Quality Control	$18,309	$20,565	$22,821
Evaluation	$73,940	$76,811	$84,431
Total	**$1,802,530**	**$1,877,174**	**$2,075,301**

Appendix E, Table E-9: Program Budget by Cost Category			
Total Other	**2021**	**2022**	**2023**
Utility Administration	$0	$102,303	$343,756
Marketing	$0	$88,878	$187,436
Outside Services	$0	$245,508	$1,126,265
Incentives- Rebates and Other	$0	$0	$1,100,050
Incentives- Financing	$0	$0	$0
Inspections and Quality Control	$0	$0	$0
Evaluation	$0	$17,468	$110,300
Total	**$0**	**$454,156**	**$2,867,807**

Appendix E, Table E-10: Program Budget by Cost Category			
Efficient Products - Efficient Products	**2021**	**2022**	**2023**
Utility Administration	$3,557,715	$1,504,762	$1,290,707
Marketing	$2,120,112	$2,047,089	$2,005,866
Outside Services	$4,917,768	$3,332,173	$3,337,931
Incentives- Rebates and Other	$7,341,203	$11,407,998	$12,140,797
Incentives- Financing	$942,166	$3,661,704	$4,509,890
Inspections and Quality Control	$0	$0	$0
Evaluation	$854,900	$1,265,792	$1,408,843
Total	**$19,733,863**	**$23,219,518**	**$24,694,033**

Appendix E, Table E-11: Program Budget by Cost Category			
Existing Homes - Home Performance with ENERGY STAR	**2021**	**2022**	**2023**
Utility Administration	$791,062	$500,156	$498,257
Marketing	$451,383	$473,048	$478,291
Outside Services	$1,093,498	$1,274,921	$1,534,197
Incentives- Rebates and Other	$2,000,000	$4,000,000	$5,040,000
Incentives- Financing	$563,439	$1,126,878	$1,419,866
Inspections and Quality Control	$20,000	$40,000	$50,400
Evaluation	$242,695	$388,439	$476,558
Total	**$5,162,077**	**$7,803,441**	**$9,497,569**

Appendix E, Table E-12: Program Budget by Cost Category			
Home Energy Education & Management - Behavioral	**2021**	**2022**	**2023**
Utility Administration	$117,922	$442,283	$371,714
Marketing	$52,784	$204,171	$176,245
Outside Services	$136,113	$1,241,469	$1,244,301
Incentives- Rebates and Other	$0	$0	$0
Incentives- Financing	$0	$0	$0
Inspections and Quality Control	$0	$0	$0
Evaluation	$12,273	$75,517	$71,690
Total	**$319,091**	**$1,963,440**	**$1,863,951**

Appendix E, Table E-13: Program Budget by Cost Category			
Existing Homes - Quick Home Energy Check-up (QHEC)	**2021**	**2022**	**2023**
Utility Administration	$517,912	$228,074	$237,735
Marketing	$242,026	$214,852	$221,475
Outside Services	$756,258	$556,723	$693,500
Incentives- Rebates and Other	$600,000	$1,000,000	$1,584,000
Incentives- Financing	$0	$0	$0
Inspections and Quality Control	$26,250	$43,750	$69,300
Evaluation	$85,698	$81,736	$112,240
Total	**$2,228,144**	**$2,125,135**	**$2,918,250**

Appendix E, Table E-14: Program Budget by Cost Category			
Existing Homes - Moderate Income Weatherization	**2021**	**2022**	**2023**
Utility Administration	$520,954	$268,250	$253,633
Marketing	$270,743	$259,718	$257,171
Outside Services	$747,810	$679,230	$768,923
Incentives- Rebates and Other	$1,950,000	$3,250,000	$3,900,000
Incentives- Financing	$0	$0	$0
Inspections and Quality Control	$12,000	$20,000	$24,000
Evaluation	$140,060	$179,088	$208,149
Total	**$3,641,567**	**$4,656,285**	**$5,411,876**

Appendix E, Table E-15: Program Budget by Cost Category			
Direct Install - Direct Install	**2021**	**2022**	**2023**
Utility Administration	$640,759	$543,391	$496,775
Marketing	$230,661	$300,945	$283,933
Outside Services	$886,583	$1,256,146	$1,352,171
Incentives- Rebates and Other	$1,625,775	$7,315,988	$8,128,875
Incentives- Financing	$92,466	$416,097	$462,330
Inspections and Quality Control	$150,307	$385,437	$420,649
Evaluation	$159,035	$471,601	$515,656
Total	**$3,785,587**	**$10,689,605**	**$11,660,388**

Appendix E, Table E-16: Program Budget by Cost Category			
Energy Solutions for Business - Prescriptive / Custom	**2021**	**2022**	**2023**
Utility Administration	$1,843,757	$876,662	$838,560
Marketing	$599,099	$533,192	$530,394
Outside Services	$2,700,751	$2,181,635	$2,474,449
Incentives- Rebates and Other	$10,943,529	$14,094,812	$15,905,429
Incentives- Financing	$1,211,796	$2,349,864	$3,125,878
Inspections and Quality Control	$347,474	$419,088	$466,970
Evaluation	$834,142	$1,066,976	$1,264,585
Total	**$18,480,546**	**$21,522,229**	**$24,606,266**

Appendix E, Table E-17: Program Budget by Cost Category			
Energy Solutions for Business - Energy Management	**2021**	**2022**	**2023**
Utility Administration	$0	$149,310	$242,341
Marketing	$0	$81,263	$119,297
Outside Services	$0	$423,328	$795,572
Incentives- Rebates and Other	$0	$328,048	$1,827,108
Incentives- Financing	$0	$5,997	$22,702
Inspections and Quality Control	$0	$29,168	$88,472
Evaluation	$0	$41,591	$127,250
Total	**$0**	**$1,058,705**	**$3,222,741**

Appendix E, Table E-18: Program Budget by Cost Category			
Energy Solutions for Business - Engineered Solutions	**2021**	**2022**	**2023**
Utility Administration	$126,311	$96,086	$141,756
Marketing	$59,863	$69,594	$88,719
Outside Services	$157,304	$217,211	$409,770
Incentives- Rebates and Other	$206,250	$2,055,000	$4,518,750
Incentives- Financing	$55,413	$546,140	$1,199,114
Inspections and Quality Control	$32,701	$56,686	$88,412
Evaluation	$33,888	$204,161	$439,070
Total	**$671,728**	**$3,244,878**	**$6,885,591**

Appendix E, Table E-19: Program Budget by Cost Category			
Multifamily - Multifamily	**2021**	**2022**	**2023**
Utility Administration	$372,173	$241,579	$237,478
Marketing	$140,698	$151,778	$151,326
Outside Services	$577,227	$691,258	$809,061
Incentives- Rebates and Other	$575,714	$650,714	$725,714
Incentives- Financing	$44,470	$44,470	$44,470
Inspections and Quality Control	$18,309	$20,565	$22,821
Evaluation	$73,940	$76,811	$84,431
Total	**$1,802,530**	**$1,877,174**	**$2,075,301**

Appendix E, Table E-20: Program Budget by Cost Category			
Other - Home Optimization & Peak Demand Reduction	**2021**	**2022**	**2023**
Utility Administration	$0	$102,303	$343,756
Marketing	$0	$88,878	$187,436
Outside Services	$0	$245,508	$1,126,265
Incentives- Rebates and Other	$0	$0	$1,100,050
Incentives- Financing	$0	$0	$0
Inspections and Quality Control	$0	$0	$0
Evaluation	$0	$17,468	$110,300
Total	**$0**	**$454,156**	**$2,867,807**

Appendix F, Table F-1: EE Plan PJM MW Potential[1]									
EE Installation Period	EE Plan Potential Summer MW	EE Plan Potential Winter MW	EE Plan Potential CP MW	Potential DY 24/25 CP MW	Potential 25/26 CP MW	Potential 26/27 EE CP MW	Potential 27/28 CP MW	Potential 28/29 CP MW	Potential 29/30 CP MW
20/21	0.0	0.0	0.0	n/a	n/a	n/a	n/a	n/a	n/a
21/22	18.7	15.8	15.8	15.8	15.8	n/a	n/a	n/a	n/a
22/23	27.0	21.1	21.1	21.1	21.1	21.1	n/a	n/a	n/a
23/24	30.4	23.5	23.5	23.5	23.5	23.5	23.5	n/a	n/a
24/25	2.5	2.0	2.0	n/a	2.0	2.0	2.0	2.0	n/a
25/26	0.0	0.0	0.0	n/a	n/a	n/a	n/a	n/a	0.0
26/27	0.0	0.0	0.0	n/a	n/a	n/a	n/a	n/a	n/a
Totals	**78.6**	**62.3**	**62.3**	**60.3**	**62.3**	**46.5**	**25.4**	**2.0**	**0.0**

[1] All MW values are estimated EE Plan Potential MW values and do not represent actual EE values to be offered into PJM's capacity market. These estimates are based on planning projections prior to any adjustments except for the addition of line losses and eliminating non-PJM eligible measures. These estimates are presented for information purposes only and are subject to change for many reasons, including but not limited to, changes in program participation, baselines, measurement and verification protocols and PJM rules. The utilities will determine the actual EE Resource offers applicable to each PJM auction.

Attachment C

Workpapers for Plan

- Measures Assumptions Workpapers [public/attached]

- EE Model Workpapers [Confidential/redacted (to be provided on execution of NDA)]

- PJM Estimator Workpapers [Confidential/redacted (to be provided on execution of NDA)]

EXHIBIT JC-3

BEFORE THE
NEW JERSEY BOARD OF PUBLIC UTILITIES

In The Matter Of 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 EE&C)

BPU Docket No. _____

Direct Testimony
Of
Carol Pittavino

On Behalf Of
Jersey Central Power & Light Company

September 25, 2020

I. Introduction

Q. Please state your name and business address.

A. My name is Carol Pittavino and my business address is 800 Cabin Hill Drive, Greensburg, PA 15601.

Q. By whom are you employed and in what capacity?

A. I am employed by FirstEnergy Service Company and my job title is Consultant in the Rates and Regulatory Affairs Department, concentrating on rates in New Jersey. I report to Mark A. Mader, Director of Rates & Regulatory Affairs. My principal responsibilities are to provide accounting, financial and analytical support for Jersey Central Power & Light Company ("JCP&L"). My qualifications are set forth in detail in Appendix A to my direct testimony.

Q. Have you previously testified before the New Jersey Board of Public Utilities ("BPU" or "Board")?

A. Yes. I provided pre-filed testimony on behalf of JCP&L in its two most recently completed base rate cases, in BPU Docket Nos. ER16040383 and ER12111052, in JCP&L's Reliability Plus Infrastructure Investment Program (JCP&L's Reliability Plus) rate adjustment proceeding in BPU Docket No. ER19091238, and in JCP&L's pending Advanced Metering Infrastructure (AMI) proceeding in BPU Docket No. EO20080545.

Q. Please describe the purpose of your direct testimony.

A. In its Petition filed with the Board, JCP&L has requested approval of an Energy Efficiency and Conservation Plan ("EE&C Plan" or "Plan") proposing a portfolio of Energy Efficiency ("EE") and Peak Demand Reduction ("PDR") programs and subprograms. In my direct testimony, I will address the revenue requirements calculation; the proposed

recovery methodology for recovery of the EE&C Plan costs; bill impacts; the proposal for recovery of lost revenues; and tariffs for the JCP&L EE&C Plan.

My testimony provides detailed schedules setting forth the proposed revenue requirements, initial rates and projected bill impacts during the three-year program period from July 1, 2021 through June 30, 2024.

Q. Please briefly describe JCP&L's proposed cost recovery methodology.

A. The Energy Efficiency and Conservation Plan Rider ("Rider EE&C") is a reconcilable rider which recovers the costs associated with the development and implementation of the Company's Plan. The details of the costs to be recovered, as well as the rate mechanism to recover such costs, are set forth below in this testimony.

II. Revenue Requirements

Q. Please summarize JCP&L's proposed cost recovery program.

A. JCP&L is proposing to recover the revenue requirement associated with the costs of the EE&C Plan. These include, but are not limited to, all costs related to EE&C Plan expenditures, such as: Customer Incentives, Outside Services, Inspections and Quality Control, information technology ("IT") costs and operations and maintenance costs, including related administrative costs and marketing evaluation expense. The revenue requirement would be reduced by any revenue offsets from PJM capacity resources related to EE programs and subprograms.

Q. Please describe the type of expenditures to be included in Rate Base.

A. Rate Base will include all EE investments associated with the EE&C Plan, such as Customer Incentives, Outside Services and Inspections and Quality Control.

Q. How does JCP&L propose to calculate the revenue requirements on a monthly basis?

A. JCP&L proposes to calculate the revenue requirements associated with the Plan costs using the following formula:

*Revenue Requirements = [(Pre-Tax Cost of Capital * Rate Base)*

+ Amortization + O&M Expense - Revenue Offsets

- Rate Base = Cumulative Investments – Accumulated Amortization of Investments – Accumulated Deferred Income Tax.
- Cumulative Investments = Plan-to-date investments, such as Customer Incentives, Outside Services, and Inspections/Quality Control.

The Company will also apply the appropriate factor to collect applicable Sales and Use Tax ("SUT").

Q. Please describe the components of JCP&L's proposed revenue requirement calculation.

A. The "Pre-Tax Cost of Capital * Rate Base" component provides recovery of the return ***on*** the JCP&L EE&C Plan investments in rate base. The term "Pre-Tax Cost of Capital" means JCP&L's pre-tax overall weighted average cost of capital ("WACC") for the Plan. Pursuant to the Board's June 10, 2020 Order ("June 10 Order") (p.39)[1], carrying costs for program and subprogram investments should use the capital structure established in the utility's most recent base rate case, incorporating both the cost of debt and the return on

[1] *In the Matter of the Implementation of P.L. 2018, c. 17 Regarding the Establishment of Energy Efficiency and Peak Demand Reduction Programs et. al*, BPU Docket Nos. Q19010040, QO19060748, QO17091004, Order Directing the Utilities to Establish Energy Efficiency and Peak Demand Reduction Programs (June 10, 2020) ("June 10 Order").

equity ("ROE"). Accordingly, JCP&L proposes to earn a return on Rate Base associated with the Plan, based upon its current authorized ROE and capital structure including income tax effects. The Company's initial WACC for the Plan will be based on the ROE, long-term debt and capital structure approved by the Board on December 12, 2016 in the 2016 JCP&L base rate case, BPU Docket No. ER16040383. JCP&L proposes the initial pre-tax WACC to be 9.16 percent. ***See*** Schedule CP-1 for the calculation of the current Pre-Tax and After-Tax WACC. Any change in the WACC authorized by the Board in a base rate case following this filing, including the case pending in BPU Docket No. ER20020146, will be reflected in the revenue requirement calculations and subsequent rate adjustment filings for JCP&L Rider EE&C. Any changes to current tax rates will be reflected in an adjustment to the WACC.

The term "Rate Base" refers to Cumulative Investments less the associated Accumulated Amortization less Accumulated Deferred Income Taxes ("ADIT"). Cumulative Investments include Plan-to-date investments, such as Customer Incentives, Outside services, Inspections and Quality Control. A summary of the projected investments can be found in Schedule CP-2

ADIT is calculated as Book Amortization less Tax Depreciation, multiplied by the statutory composite federal and state income tax rate, which is currently 28.11%. Any future changes to the book amortization or tax depreciation rates during the JCP&L EE&C Plan period and at the time of each rate adjustment, will be reflected in the accumulated amortization and/or ADIT calculation described above. All Plan investments in Rate Base will be expensed in the year of investment for tax purposes.

The "Amortization" component provides for recovery ***of*** the Company's Plan investments. Pursuant to the Board's June 10 Order (at 39), the amortization expense is based on a 10-year amortization of Plan investments. Amortization for ratemaking purposes will be done monthly, using a straight-line method. The current month's amortization will be included in the current month's revenue requirement and will also reduce the current month's Cumulative Investment.

The term "O&M Expense" means expenses for administration, marketing, training, evaluation and program management required to conduct the programs and subprograms in the Plan. Pursuant to the June 10 Order (at 25), O&M Expense associated with the Plan is to be expensed and included in a utility's annual cost recovery petition. An annual summary of the projected administrative expenses can be found in Schedule CP-2. The annual detail supporting the O&M Expenses for the Plan can be found in Appendix E of the Plan.

The term "Revenue Offsets" includes any revenue received from any future source (relating to the JCP&L EE&C Plan) that shall be credited as a reduction to revenue requirements. For example, Revenue Offsets include PJM capacity market revenues (net of the costs associated with auction participation and including replacement capacity charges, capacity deficiency charges and any unavoidable PJM charges) to be credited in the Revenue Requirement. Program measures deemed appropriate by the Company to be offered into PJM's capacity market are discussed in the testimony of Edward C Miller.

Uncollectible expense associated with the Plan is not included in the Revenue Requirement because it will be recovered along with other uncollectible expenses in existing Rider UNC.

Q. Has the Company included an adjustment to the WACC for performance incentives or penalties in its definition of WACC in the formula above?

A. No, not at this time. The Company acknowledges that the June 10 Order (p. 40) approves Staff's recommendations for performance incentives and penalties, which take the form of a ROE adjustment applied to Rate Base resulting from EE and PDR investments. However, the Board also adopted the recommendation that no award of incentives or imposition of penalties would be made until after the conclusion of Program Year 5 based on year 5 performance. The Company's instant filing only seeks to establish Plan Year 1 through Plan Year 3, so it is not necessary to include any such an adjustment, at this time.

Q. Will any of the EE/PDR Program expenditures be eligible for Allowance for Funds Used During Construction ("AFUDC")?

A. No.

Q. Is there a witness sponsoring the Investments and O&M Expense used to calculate the Revenue Requirements?

A. Yes. The projected Plan expenditures are sponsored by Company witness Edward C. Miller and set forth in Appendix E to the Plan.

Q. Have you provided a schedule showing the calculation of the revenue requirements?

A. Yes. ***See*** Schedule CP-3 for a calculation of the JCP&L EE&C Plan revenue requirements for the period of July 1, 2021 through June 30, 2024, which I have calculated based on the

forecasted costs to be incurred during various periods provided by Mr. Miller in Appendix E to the Plan.

III. Cost Recovery Mechanism

Q. How does the Company propose to recover the Revenue Requirements as described above?

A. The Company proposes to recover the Revenue Requirements associated with the Plan through a separate surcharge clause of its tariff, Rider EE&C. This is consistent with the June 10 Order (p. 39) directing each utility to "file to recover on a full and current basis through a surcharge all reasonable and prudent costs incurred as a result of the EE and PDR programs "including but not limited to recovery of an on capital investment…". So as to provide recovery on a full and current basis, the Company will fix an initial tariffed rate effective July 1, 2021 based on estimate Revenue Requirements for the period July 1, 2021 through June 30, 2022 and thereafter will make rate adjustment filings on an annual basis. The projected effective date for the initial tariff is based on the date for commencement of the Plan on July 1, 2021 which, in turn, is based on the Board's June 10 Order (at p.38).[2] Following the initial rates, which the Company requests be approved in this proceeding, the Company further proposes that its annual rate filing will be made on March 31st of each year with rates effective the following July 1st. Each rate filing will address a true-up for actuals from the prior period and the projected revenue requirement for the subsequent recovery period in order to set the new rate. The first reconciliation period will be performed to compare the actual revenues received from customers with the actual

[2] June 10 Order p. 38 ("The Board…directs the utilities to file three-year program petitions by September 25, 2020, for approval by the Board by May 1, 2021 and implementation beginning July 1, 2021.")

recovered costs for the period July 1, 2021 through February 28, 2022, with the (over)/under collection reflected in the current year's rate calculation. In addition, the Company will accrue interest on a monthly basis on the over/under recovered balance calculated based upon the average balance net of tax at an interest rate equal to the rate on two-year constant maturity Treasuries, as shown in the Federal Reserve Statistical Release on or closest to January 1 of each year, plus sixty basis points, compounded annually as of January 1 of each year. The calculation of the estimated proposed rate adjustments for each period from July 1, 2021 through June 30, 2022 are shown in Schedule CP-4.

Q. Has the Company proposed a schedule for rate filings to adjust the rates in Rider EE&C?

A. Yes. The June 10 Order (p.39), provides that each utility shall file an annual petition no later than 75 days following the end of each Plan Year ("PY") to demonstrate compliance of the EE and PDR Plan, compliance with performance targets, and for cost recovery of the programs, including any performance incentives or penalties, consistent with the Minimum Filing Requirements ("MFRs"). The target schedule for annual rate filings is listed below.

JCP&L EE&C Plan Rate Filing Schedule				
Filing	**Filing (On or About)**	**Projected Spending Through**	**True-Up of Prior Period Actuals**	**Rates Effective**
0 (Initial Rate)	This Petition	June 30, 2022	N/A	July 1, 2021
1	March 31, 2022	June 30. 2023	July 1, 2021 through February 28, 2022	July 1, 2022

2	March 31, 2023	June 30, 2024	March 1, 2022 through February 28, 2023	July 1, 2023

The Company will continue annual filings on the above schedule while programs and subprograms in the EE&C Plan remain in effect. Under the proposed schedule, changes to the rates in Rider EE&C would occur once per year, following the above-identified filings with the Board.

Q. Will the BPU have an opportunity to review the actual Plan expenditures?

A. Yes. As addressed above, following BPU approval of the EE&C Plan, JCP&L will make annual filings in a process that resets rates to: (1) provide refunds or adjustments to reconcile the projected Revenue Requirements for the prior period to actual Revenue Requirements based on actual Plan costs, and (2) recover projected Plan costs for the prospective period. The BPU will have the opportunity review each rate filing and ask discovery.

Q. What is the projected Revenue Requirement for the initial rate recovery period?

A. The Revenue Requirement is currently forecasted to be $18,695,588 million for the initial rate period of July 1, 2021 through June 30, 2022. ***See*** Schedule C-4. The Revenue Requirements are allocated between Residential and General Service (i.e., Commercial and Industrial) rate schedules.

The following represents the initial revenue requirement for each of these classes excluding SUT (SUT is included in the proposed rate calculation):

Residential	$11,845,226
Commercial/Industrial ("C/I") -	$6,850,361
Total -	$18,695,588

Q. What rate design is the Company proposing to use for Rider EE&C?

A. The Company proposes to apply the following rate design to all applicable rate classes to recover EE&C Plan costs. For Residential and smaller General Service rate classes, the Company proposes to collect the revenue requirement through a $/kWh consumption charge. The Company proposes a $/kW charge for larger General Service Rate Schedules GST, GP, and GT. Finally, for all lighting classes, the rate will be a per $/kWh rate. The detailed calculations supporting the initial rates (in Rider EE&C) are shown in Schedule CP-3 and Schedule CP-4. In addition, Schedule CP-5 provides a summary of the proposed rates for all forecasted rate filings.

Q. How are the revenue requirements allocated to the Rate Schedules?

A. The Residential class will incorporate direct assignment of Plan costs that are specific to the Residential Rate class. For the C/I classes, a portion of the C/I Plan cost will be directly assigned for those Plan costs that are specific to the Large C/I customers and Small C&I customers. The balance of the C/I Plan cost will be allocated on a kWh basis. For purposes of this allocation, the following rate schedules will be assigned to the three rate classes:

Residential – RS, RT, RGT

Small C&I – GS, OL, SVL, MVL, ISL, LED

Large C&I – GST, GP, GT

IV. Bill Impacts

Q. What are the annual JCP&L EE&C Plan and LRAM rate impacts to the typical residential customer?

A. Based upon the forecasted rates shown in Schedule CP-5, the bill impacts for a typical residential customer as well as rate class average customers for each rate period over the period July 1, 2021 through June 30, 2024 are set forth in Schedule CP-5. Based on the projected revenue requirements provided in Schedule CP-3 and CP-4, the initial bill impact of the proposed initial rates for the initial rate period to the typical residential customer who uses 768 kWh per month is an increase of 1.2% or approximately $1.25 per month above rates effective July 1, 2021.

A summary of the incremental bill impact on an average residential customer for each year of the JCP&L EE/PDR Program and LRAM through June 30, 2024 compared to the current average monthly bill is shown in the following chart.

EE/PDR Program - Average Residential Rate Impact						
Recovery Period	**1**	**2**	**3**			
Effective Date	7/1/21	7/1/22	7/1/23			
Monthly Increase	$1.25	$0.27	$0.53			
% Monthly Bill	1.2%	0.3%	0.5%			

The maximum cumulative bill impact on a residential customer over the entire three-year program period is an estimated increase of approximately $2.05 or about 2% of the current average monthly bill.

V. Tariff Rider

Q. Does the Company propose a modification to its tariff as part of this filing?

A. Yes. The Company proposes to recover its costs for the JCP&L EE&C Plan through rates set forth in a separate clause of its tariff. Specifically, the Company is proposing a new tariff rider, Rider EE&C, attached hereto as Schedule CP-7. The attached Rider includes the initial tariffed rates proposed to commence on July 1, 2021. In addition, the Company proposes to recover its lost revenues related to the EE&C Plan through rates set forth in a separate clause of its tariff. The Company is proposing a new tariff rider, Rider LRAM, attached hereto as Schedule CP-8. The attached Rider includes the initial tariffed rates proposed to commence on July 1, 2021

VI. Lost Revenue Recovery Mechanism

Q. How does the Company propose to recover lost revenues?

A. In the June 10 Order (p.39), the Board directed that the required full and current recovery of program costs includes "the revenue impact of sales losses resulting implementation of" the EE and PDR programs. The Board permitted the utilities to employ a modified Conservation Incentive Program ("CIP") developed by the utilities, Staff and Rate Counsel for use by all utilities, or alternatively, a Lost Revenue Adjustment Mechanism ("LRAM") previously proposed by Staff. JCP&L proposes to use an LRAM for recovery of lost revenues. See the LRAM lost revenue calculation, which is located in Schedule CP-6.

Q. How does JCP&L's proposed LRAM operate?

A. The Company is including an LRAM mechanism in schedule CP-6 and is proposing to set the rate based upon forecasted energy efficiency sales loss targets with rates effective July 1, 2021. The Company will reconcile the actual energy efficiency sales losses to the energy efficiency forecasted sales loss targets and include the (over)/under collection in the

following year Rider LRAM rate calculation. In addition, the Company will impose the same rate design as used in Rider EE&C.

Q. Does the Company intend to file an Earnings Test for the true-up period?

A. The Company will file an Earnings Test where the Company's jurisdictional ROE shall be determined 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. The Company intends to perform the earnings test in the same manner as approved for its Infrastructure and Investment Plan ("IIP") cost recovery mechanism at Docket No EO18070728. The IIP earnings test includes an accounting adjustment for Pension & OPEB for ratemaking purposes that is consistent with the recommendations of the ALJ and the BPU determinations in the Company's 2012 base rate case and as filed in its 2016 & 2020 base rate cases.[3]

Q. Does the Company propose a future base rate filing date?

A. Yes, if the Board approves the Company's proposed LRAM, the Company will file a base rate case no later than five years after commencement of its approved EE&C Plan.

VIII. Additional Filing Information

Q. Does the Company propose the method for treatment of Renewable Energy Credits ("RECs")?

[3] In 2011, FirstEnergy Corp. and its subsidiaries (including JCP&L), under Statement of Financial Accounting Standards No. 87, "Employer's Accounting for Pensions" ("SFAS 87"), elected to change the method by which it accounted for pension and OPEB expense whereby actuarial gains and losses – representing the change in value of plan assets or obligations – are recognized immediately in earnings) referred to as ("mark-to market accounting", or "immediate recognition") as opposed to its previous method, which amortized those costs into earnings over a future period) referred to as "delayed recognition". For ratemaking purposes, JCP&L uses the delayed recognition method.

A. The Company does not anticipate that the energy savings from the EE&C Plan will be eligible for RECs and/or solar renewable energy credits ("SRECs") due to the nature of the Plan programs. Accordingly, that portion of the MFR is inapplicable to the Company's EE&C Plan.

VII. Schedules

Q. Are there any additional items included with this filing?

A. Yes, MFR IV.a requires the provision of 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. The documents are provided at Schedule CP-8. Also, MFR I a. and b. requires the utility to provide accounts and account numbers that shall 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, which are not renewable energy programs. The account numbers are provided at Schedule CP-3.

Q. Please list the schedules attached to this direct testimony.

A. Schedule CP-1 - Weighted Average Cost of Capital (WACC)
Schedule CP-2– Detailed Program Capital and O &M Schedule
Schedule CP-3 – Revenue Requirements Schedule
Schedule CP-4 - Proposed Rate Calculation
Schedule CP-5 - Bill Impact Summary
Schedule CP-6 - LRAM Calculation
Schedule CP-7 - Proposed Tariff Sheet for Rider EE&C
Schedule CP-8 - Proposed Tariff Sheet for Rider LRAM
Schedule CP-9 - Pro Forma Balance Sheet and Income Statement

Q. Does this conclude your pre-filed direct testimony at this time?

A. Yes, although I reserve the right to supplement this testimony should further information arise.

APPENDIX A

Experience and Qualifications

My name is Carol Pittavino. I am currently employed by FirstEnergy Service Company as a Rates Consultant in the Rates and Regulatory Affairs Department, concentrating on rates in New Jersey. I report to the Director of Rates and Regulatory Affairs. I have held this position since January 2019. I am responsible for providing accounting, financial and analytical support for rate activities.

In August 2012, I was employed by JCP&L as a rates analyst. From November 2017 to January 2019, I held an analyst position in the FirstEnergy Transmission Business Services area, while continuing to support Rates and Regulatory Affairs. In January 2019, I returned to JCP&L Rates and Regulatory Affairs Department as a Rates Consultant.

From October 2003 to September 2010 I was employed by Allegheny Energy, Inc. as a Senior Accountant in the Regulatory Accounting department. One of my primary responsibilities was FERC Form 1 preparation and analysis. I also performed General Accounting responsibilities and performed forecasting preparation for the regulated subsidiary entities owned by Allegheny Energy, Inc. In addition, I assisted the Rate Department with a Base Case filing as well as prepared the revenue requirement calculation on transmission line construction projects.

I was employed at United Health Group from October 2010 to July 2012 as a Senior Accountant. I was responsible for the oversight and accounting functions of two Medicaid Managed Care Organizations.

From May 2001 through September 2003 I was employed at S.R. Snodgrass as a Senior Accountant. S.R. Snodgrass is a regional public accounting firm which performs external and internal audit services for their clients. I functioned as an external auditor assisting in the drafting

and inspection of the financial records of clients, which ultimately resulted in issuing an opinion on their financial records.

From June 1985 through April 2001, I was employed for the First National Bank of Herminie. I held various positions when I was employed by the bank. I progressed through all aspects of branch operations which resulted in my being promoted to Branch Manager. I transferred into the finance department as an Accountant and functioned in this capacity until the bank was acquired by The First National Bank of Pennsylvania in April 2001.

I graduated from Seton Hill University (then College) in May 2000 with a Bachelor of Science degree with a major in accounting. I earned my Pennsylvania Certified Public Accountant license in September 2003.

Jersey Central Power & Light **Schedule CP-1**

Clean Energy Energy Efficiency Program

Weighted Average Cost of Capital (WACC)

	Percent	Cost	Weighted Cost	Tax Multiplier	Pre-Tax Weighted Cost	Discount Rate
Long Term Debt	55.0%	5.732%	3.15%	1.00000	3.15%	
Common Equity	45.0%	9.600%	4.32%	1.39101	6.01%	4.32%
Total	100.0%		7.47%		9.16%	6.59%
Monthly WACC			0.623%		**0.763%**	
Federal and State Income Tax rate		28.11%				

Jersey Central Power & Light **Schedule CP-2**
Clean Energy Energy Efficiency Program
Program Expenditures Schedule

Yearly Budget

RS,RT/RGT

Program Year	Customer Incentives	Outside Services	Inspections & Qual. Cont.	Total Investments	Utility Admin Exp	Marketing Costs	Evaluation Cost	Total Admin Exp.
2021	$ 13,396,807	$ 7,651,447	$ 58,250	$ 21,106,504	$ 5,505,565	$ 3,137,047	$ 1,335,626	$ 9,978,238
2022	24,446,579	7,084,515	103,750	31,634,844	2,943,525	3,198,878	1,990,572	8,132,975
2023	28,594,553	7,578,851	143,700	36,317,104	2,652,046	3,139,048	2,277,481	8,068,575
Total	$ 66,437,939	$ 22,314,813	$ 305,700	$ 89,058,452	$ 11,101,136	$ 9,474,973	$ 5,603,678	$ 26,179,787

GS,OL,SVL,MVL,ISL,LED

Program Year	Customer Incentives	Outside Services	Inspections & Qual. Cont.	Total Investments	Utility Admin Exp	Marketing Costs	Evaluation Cost	Total Admin Exp.
2021	$ 9,795,477	$ 3,120,667	$ 381,784	$ 13,297,928	$ 2,144,041	$ 738,895	$ 744,705	$ 3,627,640
2022	18,720,683	3,696,111	680,998	23,097,793	1,503,098	918,557	1,245,963	3,667,617
2023	22,846,402	4,858,267	784,222	28,488,892	1,741,120	1,021,267	1,041,237	3,803,624
Total	$ 51,362,563	$ 11,675,046	$ 1,847,005	$ 64,884,613	$ 5,388,258	$ 2,678,719	$ 3,031,905	$ 11,098,882

GST,GP,GT

Program Year	Customer Incentives	Outside Services	Inspections & Qual. Cont.	Total Investments	Utility Admin Exp	Marketing Costs	Evaluation Cost	Total Admin Exp.
2021	$ 4,959,935	$ 1,201,197	$ 167,007	$ 6,328,138	$ 838,959	$ 291,426	$ 356,300	$ 1,486,685
2022	9,086,446	1,318,973	229,946	10,635,366	506,234	307,093	632,644	1,445,970
2023	14,214,017	2,109,021	303,101	16,626,140	559,546	339,838	1,500,056	2,399,439
Total	$ 28,260,399	$ 4,629,192	$ 700,054	$ 33,589,644	$ 1,904,738	$ 938,357	$ 2,489,000	$ 5,332,094
				-				-

* Program year 7/1 to 6/30

Investment Month	RS,RT/RGT Customer Incentives	Outside Services*	Total Investments	Total O & M Expenses	GS,OL,SVL,MVL,ISL,LED Customer Incentives	Outside Services*	Total Investments	Total O & M Expenses	GST,GP,GT Customer Incentives	Outside Services*	Total Investments	Total O & M Expenses
Jul-21	$ 1,116,401	$ 642,475	$ 1,758,875	$ 831,520	$ 816,290	$ 291,871	$ 1,108,161	$ 302,303	$ 413,328	$ 114,017	$ 527,345	$ 123,890
Aug-21	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Sep-21	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Oct-21	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Nov-21	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Dec-21	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Jan-22	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Feb-22	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Mar-22	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Apr-22	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
May-22	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Jun-22	1,116,401	642,475	1,758,875	831,520	816,290	291,871	1,108,161	302,303	413,328	114,017	527,345	123,890
Jul-22	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Aug-22	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Sep-22	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Oct-22	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Nov-22	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Dec-22	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Jan-23	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Feb-23	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Mar-23	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Apr-23	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
May-23	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Jun-23	2,037,215	599,022	2,636,237	677,748	1,560,057	364,759	1,924,816	305,635	757,204	129,077	886,280	120,498
Jul-23	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Aug-23	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Sep-23	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Oct-23	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Nov-23	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Dec-23	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Jan-24	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Feb-24	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Mar-24	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Apr-24	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
May-24	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Jun-24	2,382,879	643,546	3,026,425	672,381	1,903,867	470,207	2,374,074	316,969	1,184,501	201,010	1,385,512	199,953
Total	$ 66,437,939	$ 22,620,513	$ 89,058,452	$ 26,179,787	$ 51,362,563	$ 13,522,051	$ 64,884,613	$ 11,098,882	$ 28,260,399	$ 5,329,246	$ 33,589,644	$ 5,332,094

Jersey Central Power & Light
Clean Energy Energy Efficiency Program
Electric Revenue Requirements Calculation - RS,RT/RGT

Program Investment Amortization	10 Years
Monthly WACC Effective 7/1/21	0.76348%
Federal & State Income tax rate	28.11%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Investment Month	**Customer Incentives FERC (182)**	**Outside Services FERC (182)**	**Total Monthly Investments FERC (182)**	**Cumulative Investments FERC (182)**	**Customer Incentives Amortization FERC (407)**	**Outside Services Amortization FERC (407)**	**Accumulated Amortization FERC (407)**	**Net Investments (4) + (7)**	**Tax Depreciation**	**Book Depreciation Tax Basis (5) + (6)**	**Deferred Income Tax FERC (283)**	**Beginning Accumulated Deferred Income Tax (11) + (12)**	**Ending Accumulated Deferred Income Tax (11) + (12)**	**Rate Base (8) - (13)**	**Return Component (14) x WACC**	**O & M Expenses FERC (923)**	**Revenue Requirements (FERC 440-444)**
Jul-21	$ 1,116,401	$ 642,475	$ 1,758,875	$ 1,758,875	9,303	5,354	$ 14,657	$ 1,744,218	$ 1,758,875	$ 14,657	$ 490,300	$ -	$ 490,300	$ 1,253,918	$ 9,573	$ 831,520	$ 855,751
Aug-21	1,116,401	642,475	1,758,875	3,517,751	18,607	10,708	43,972	3,473,779	1,758,875	29,315	486,180	490,300	976,479	2,497,300	19,066	831,520	879,901
Sep-21	1,116,401	642,475	1,758,875	5,276,626	27,910	16,062	87,944	5,188,682	1,758,875	43,972	482,059	976,479	1,458,539	3,730,144	28,479	831,520	903,971
Oct-21	1,116,401	642,475	1,758,875	7,035,501	37,213	21,416	146,573	6,888,928	1,758,875	58,629	477,939	1,458,539	1,936,478	4,952,451	37,811	831,520	927,960
Nov-21	1,116,401	642,475	1,758,875	8,794,377	46,517	26,770	219,859	8,574,517	1,758,875	73,286	473,819	1,936,478	2,410,297	6,164,220	47,063	831,520	951,869
Dec-21	1,116,401	642,475	1,758,875	10,553,252	55,820	32,124	307,803	10,245,449	1,758,875	87,944	469,699	2,410,297	2,879,996	7,365,453	56,234	831,520	975,697
Jan-22	1,116,401	642,475	1,758,875	12,312,127	65,123	37,478	410,404	11,901,723	1,758,875	102,601	465,579	2,879,996	3,345,574	8,556,149	65,325	831,520	999,446
Feb-22	1,116,401	642,475	1,758,875	14,071,003	74,427	42,832	527,663	13,543,340	1,758,875	117,258	461,459	3,345,574	3,807,033	9,736,307	74,335	831,520	1,023,113
Mar-22	1,116,401	642,475	1,758,875	15,829,878	83,730	48,186	659,578	15,170,300	1,758,875	131,916	457,338	3,807,033	4,264,371	10,905,929	83,265	831,520	1,046,700
Apr-22	1,116,401	642,475	1,758,875	17,588,753	93,033	53,540	806,151	16,782,602	1,758,875	146,573	453,218	4,264,371	4,717,589	12,065,013	92,114	831,520	1,070,207
May-22	1,116,401	642,475	1,758,875	19,347,629	102,337	58,894	967,381	18,380,247	1,758,875	161,230	449,098	4,717,589	5,166,688	13,213,560	100,883	831,520	1,093,633
Jun-22	1,116,401	642,475	1,758,875	21,106,504	111,640	64,247	1,143,269	19,963,235	1,758,875	175,888	444,978	5,166,688	5,611,665	14,351,570	109,572	831,520	1,116,979
Jul-22	2,037,215	599,022	2,636,237	23,742,741	128,617	69,239	1,341,125	22,401,616	2,636,237	197,856	685,429	5,611,665	6,297,094	16,104,522	122,955	677,748	998,559
Aug-22	2,037,215	599,022	2,636,237	26,378,978	145,594	74,231	1,560,950	24,818,028	2,636,237	219,825	679,253	6,297,094	6,976,348	17,841,680	136,218	677,748	1,033,791
Sep-22	2,037,215	599,022	2,636,237	29,015,215	162,570	79,223	1,802,743	27,212,472	2,636,237	241,793	673,078	6,976,348	7,649,426	19,563,046	149,360	677,748	1,068,902
Oct-22	2,037,215	599,022	2,636,237	31,651,452	179,547	84,215	2,066,506	29,584,947	2,636,237	263,762	666,903	7,649,426	8,316,329	21,268,618	162,382	677,748	1,103,892
Nov-22	2,037,215	599,022	2,636,237	34,287,689	196,524	89,207	2,352,236	31,935,453	2,636,237	285,731	660,727	8,316,329	8,977,056	22,958,397	175,283	677,748	1,138,762
Dec-22	2,037,215	599,022	2,636,237	36,923,926	213,501	94,199	2,659,936	34,263,991	2,636,237	307,699	654,552	8,977,056	9,631,608	24,632,383	188,064	677,748	1,173,511
Jan-23	2,037,215	599,022	2,636,237	39,560,163	230,478	99,190	2,989,604	36,570,560	2,636,237	329,668	648,377	9,631,608	10,279,984	26,290,575	200,724	677,748	1,208,140
Feb-23	2,037,215	599,022	2,636,237	42,196,400	247,454	104,182	3,341,240	38,855,160	2,636,237	351,637	642,201	10,279,984	10,922,185	27,932,975	213,263	677,748	1,242,648
Mar-23	2,037,215	599,022	2,636,237	44,832,637	264,431	109,174	3,714,846	41,117,792	2,636,237	373,605	636,026	10,922,185	11,558,211	29,559,581	225,682	677,748	1,277,035
Apr-23	2,037,215	599,022	2,636,237	47,468,875	281,408	114,166	4,110,420	43,358,455	2,636,237	395,574	629,850	11,558,211	12,188,062	31,170,393	237,980	677,748	1,311,302
May-23	2,037,215	599,022	2,636,237	50,105,112	298,385	119,158	4,527,962	45,577,149	2,636,237	417,543	623,675	12,188,062	12,811,737	32,765,413	250,158	677,748	1,345,448
Jun-23	2,037,215	599,022	2,636,237	52,741,349	315,362	124,150	4,967,473	47,773,875	2,636,237	439,511	617,500	12,811,737	13,429,236	34,344,639	262,215	677,748	1,379,474
Jul-23	2,382,879	643,546	3,026,425	55,767,774	335,219	129,513	5,432,205	50,335,569	3,026,425	464,731	720,092	13,429,236	14,149,328	36,186,241	276,275	672,381	1,413,388
Aug-23	2,382,879	643,546	3,026,425	58,794,199	355,076	134,875	5,922,157	52,872,043	3,026,425	489,952	713,003	14,149,328	14,862,331	38,009,711	290,197	672,381	1,452,530
Sep-23	2,382,879	643,546	3,026,425	61,820,624	374,934	140,238	6,437,328	55,383,296	3,026,425	515,172	705,913	14,862,331	15,568,245	39,815,052	303,981	672,381	1,491,534
Oct-23	2,382,879	643,546	3,026,425	64,847,050	394,791	145,601	6,977,721	57,869,329	3,026,425	540,392	698,824	15,568,245	16,267,068	41,602,261	317,626	672,381	1,530,399
Nov-23	2,382,879	643,546	3,026,425	67,873,475	414,648	150,964	7,543,333	60,330,142	3,026,425	565,612	691,735	16,267,068	16,958,803	43,371,339	331,132	672,381	1,569,126
Dec-23	2,382,879	643,546	3,026,425	70,899,900	434,506	156,327	8,134,165	62,765,735	3,026,425	590,833	684,645	16,958,803	17,643,448	45,122,287	344,500	672,381	1,607,714
Jan-24	2,382,879	643,546	3,026,425	73,926,326	454,363	161,690	8,750,218	65,176,108	3,026,425	616,053	677,556	17,643,448	18,321,004	46,855,104	357,730	672,381	1,646,164
Feb-24	2,382,879	643,546	3,026,425	76,952,751	474,220	167,053	9,391,491	67,561,260	3,026,425	641,273	670,466	18,321,004	18,991,470	48,569,790	370,821	672,381	1,684,476
Mar-24	2,382,879	643,546	3,026,425	79,979,176	494,078	172,416	10,057,984	69,921,192	3,026,425	666,493	663,377	18,991,470	19,654,847	50,266,345	383,774	672,381	1,722,649
Apr-24	2,382,879	643,546	3,026,425	83,005,602	513,935	177,779	10,749,697	72,255,904	3,026,425	691,713	656,288	19,654,847	20,311,135	51,944,769	396,589	672,381	1,760,683
May-24	2,382,879	643,546	3,026,425	86,032,027	533,792	183,141	11,466,631	74,565,396	3,026,425	716,934	649,198	20,311,135	20,960,333	53,605,063	409,265	672,381	1,798,580
Jun-24	2,382,879	643,546	3,026,425	89,058,452	553,649	188,504	12,208,785	76,849,667	3,026,425	742,154	642,109	20,960,333	21,602,441	55,247,226	421,802	672,381	1,836,337
Total	$ 66,437,939	$ 22,620,513	$ 89,058,452		$ 8,722,741	$ 3,486,044			$ 89,058,452	$ 12,208,785	$ 21,602,441				$ 7,251,698	$ 26,179,787	$ 45,640,270
Footnotes:			Col. 1 + Col. 2		Cum. Sum of Col. 1/12/10	Cum. Sum of Col. 2/12/10	Cum. Sum of Col. 5 + 6	Col. 4 - Col. 7		Col. 5 + Col. 6	Col. 9 - Col. 10) x Tax Rate (28.11%)	Prior mth. Col. 12 + Prior mth. Col. 11	Prior mth. Col. 13 + Current mth. Col. 11	Col. 8 - Col. 13	Col. 14 x Monthly WACC		Col. 5 + Col. 6 + Col. 15 + Col. 16

Jersey Central Power & Light
Clean Energy Energy Efficiency Program
Electric Revenue Requirements Calculation - GS,OL,SVL,MVL,ISL,LED

Program Investment Amortization	10 Years
Monthly WACC Effective 7/1/21	0.76348%
Federal & State Income tax rate	28.11%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Investment Month	**Customer Incentives FERC (182)**	**Outside Services FERC (182)**	**Total Monthly Investments FERC (182)**	**Cumulative Investments FERC (182)**	**Customer Incentives Amortization FERC (407)**	**Outside Services Amortization FERC (407)**	**Accumulated Amortization FERC (407)**	**Net Investments (4) + (7)**	**Tax Depreciation**	**Book Depreciation Tax Basis (5) + (6)**	**Deferred Income Tax FERC (283)**	**Beginning Accumulated Deferred Income Tax (11) + (12)**	**Ending Accumulated Deferred Income Tax (11) + (12)**	**Rate Base (8) - (13)**	**Return Component (14) x WACC**	**O & M Expenses FERC (923)**	**Revenue Requirements (FERC 440-444)**
Jul-21	$ 816,290	$ 291,871	$ 1,108,161	$ 1,108,161	6,802	2,432	$ 9,235	$ 1,098,926	$ 1,108,161	$ 9,235	$ 308,908	$ -	$ 308,908	$ 790,018	$ 6,032	$ 302,303	$ 317,570
Aug-21	816,290	291,871	1,108,161	2,216,321	13,605	4,865	27,704	2,188,617	1,108,161	18,469	306,312	308,908	615,220	1,573,397	12,013	302,303	332,785
Sep-21	816,290	291,871	1,108,161	3,324,482	20,407	7,297	55,408	3,269,074	1,108,161	27,704	303,716	615,220	918,937	2,350,137	17,943	302,303	347,950
Oct-21	816,290	291,871	1,108,161	4,432,643	27,210	9,729	92,347	4,340,296	1,108,161	36,939	301,121	918,937	1,220,057	3,120,239	23,822	302,303	363,065
Nov-21	816,290	291,871	1,108,161	5,540,804	34,012	12,161	138,520	5,402,283	1,108,161	46,173	298,525	1,220,057	1,518,582	3,883,702	29,651	302,303	378,128
Dec-21	816,290	291,871	1,108,161	6,648,964	40,814	14,594	193,928	6,455,036	1,108,161	55,408	295,929	1,518,582	1,814,511	4,640,525	35,430	302,303	393,141
Jan-22	816,290	291,871	1,108,161	7,757,125	47,617	17,026	258,571	7,498,554	1,108,161	64,643	293,333	1,814,511	2,107,844	5,390,711	41,157	302,303	408,103
Feb-22	816,290	291,871	1,108,161	8,865,286	54,419	19,458	332,448	8,532,837	1,108,161	73,877	290,737	2,107,844	2,398,581	6,134,257	46,834	302,303	423,015
Mar-22	816,290	291,871	1,108,161	9,973,446	61,222	21,890	415,560	9,557,886	1,108,161	83,112	288,141	2,398,581	2,686,722	6,871,164	52,460	302,303	437,876
Apr-22	816,290	291,871	1,108,161	11,081,607	68,024	24,323	507,907	10,573,700	1,108,161	92,347	285,545	2,686,722	2,972,267	7,601,433	58,036	302,303	452,686
May-22	816,290	291,871	1,108,161	12,189,768	74,827	26,755	609,488	11,580,279	1,108,161	101,581	282,949	2,972,267	3,255,217	8,325,063	63,560	302,303	467,445
Jun-22	816,290	291,871	1,108,161	13,297,928	81,629	29,187	720,304	12,577,624	1,108,161	110,816	280,354	3,255,217	3,535,570	9,042,054	69,034	302,303	482,154
Jul-22	1,560,057	364,759	1,924,816	15,222,745	94,629	32,227	847,161	14,375,584	1,924,816	126,856	505,407	3,535,570	4,040,977	10,334,607	78,903	305,635	511,394
Aug-22	1,560,057	364,759	1,924,816	17,147,561	107,630	35,266	990,057	16,157,504	1,924,816	142,896	500,898	4,040,977	4,541,874	11,615,629	88,683	305,635	537,214
Sep-22	1,560,057	364,759	1,924,816	19,072,377	120,630	38,306	1,148,993	17,923,383	1,924,816	158,936	496,389	4,541,874	5,038,263	12,885,120	98,376	305,635	562,947
Oct-22	1,560,057	364,759	1,924,816	20,997,193	133,631	41,346	1,323,970	19,673,223	1,924,816	174,977	491,880	5,038,263	5,530,143	14,143,080	107,980	305,635	588,591
Nov-22	1,560,057	364,759	1,924,816	22,922,009	146,631	44,385	1,514,987	21,407,022	1,924,816	191,017	487,371	5,530,143	6,017,514	15,389,508	117,496	305,635	614,148
Dec-22	1,560,057	364,759	1,924,816	24,846,825	159,632	47,425	1,722,044	23,124,781	1,924,816	207,057	482,862	6,017,514	6,500,376	16,624,405	126,924	305,635	639,616
Jan-23	1,560,057	364,759	1,924,816	26,771,641	172,632	50,465	1,945,141	24,826,501	1,924,816	223,097	478,353	6,500,376	6,978,729	17,847,771	136,264	305,635	664,996
Feb-23	1,560,057	364,759	1,924,816	28,696,457	185,633	53,504	2,184,278	26,512,180	1,924,816	239,137	473,844	6,978,729	7,452,574	19,059,606	145,517	305,635	690,289
Mar-23	1,560,057	364,759	1,924,816	30,621,273	198,633	56,544	2,439,455	28,181,818	1,924,816	255,177	469,335	7,452,574	7,921,909	20,259,909	154,681	305,635	715,493
Apr-23	1,560,057	364,759	1,924,816	32,546,090	211,634	59,584	2,710,673	29,835,417	1,924,816	271,217	464,827	7,921,909	8,386,736	21,448,681	163,757	305,635	740,609
May-23	1,560,057	364,759	1,924,816	34,470,906	224,634	62,623	2,997,930	31,472,976	1,924,816	287,258	460,318	8,386,736	8,847,053	22,625,922	172,745	305,635	765,637
Jun-23	1,560,057	364,759	1,924,816	36,395,722	237,635	65,663	3,301,228	33,094,494	1,924,816	303,298	455,809	8,847,053	9,302,862	23,791,632	181,645	305,635	790,577
Jul-23	1,903,867	470,207	2,374,074	38,769,796	253,500	69,581	3,624,309	35,145,487	2,374,074	323,082	576,534	9,302,862	9,879,396	25,266,090	192,902	316,969	832,952
Aug-23	1,903,867	470,207	2,374,074	41,143,870	269,366	73,500	3,967,175	37,176,695	2,374,074	342,866	570,973	9,879,396	10,450,369	26,726,326	204,051	316,969	863,885
Sep-23	1,903,867	470,207	2,374,074	43,517,945	285,231	77,418	4,329,825	39,188,120	2,374,074	362,650	565,412	10,450,369	11,015,781	28,172,340	215,091	316,969	894,709
Oct-23	1,903,867	470,207	2,374,074	45,892,019	301,097	81,337	4,712,258	41,179,761	2,374,074	382,433	559,850	11,015,781	11,575,631	29,604,130	226,022	316,969	925,424
Nov-23	1,903,867	470,207	2,374,074	48,266,093	316,962	85,255	5,114,475	43,151,618	2,374,074	402,217	554,289	11,575,631	12,129,920	31,021,698	236,845	316,969	956,031
Dec-23	1,903,867	470,207	2,374,074	50,640,168	332,828	89,173	5,536,477	45,103,691	2,374,074	422,001	548,728	12,129,920	12,678,647	32,425,043	247,559	316,969	986,529
Jan-24	1,903,867	470,207	2,374,074	53,014,242	348,694	93,092	5,978,262	47,035,980	2,374,074	441,785	543,166	12,678,647	13,221,814	33,814,166	258,165	316,969	1,016,919
Feb-24	1,903,867	470,207	2,374,074	55,388,316	364,559	97,010	6,439,832	48,948,485	2,374,074	461,569	537,605	13,221,814	13,759,419	35,189,066	268,662	316,969	1,047,200
Mar-24	1,903,867	470,207	2,374,074	57,762,391	380,425	100,929	6,921,185	50,841,206	2,374,074	481,353	532,044	13,759,419	14,291,463	36,549,743	279,051	316,969	1,077,373
Apr-24	1,903,867	470,207	2,374,074	60,136,465	396,290	104,847	7,422,322	52,714,143	2,374,074	501,137	526,483	14,291,463	14,817,946	37,896,197	289,331	316,969	1,107,436
May-24	1,903,867	470,207	2,374,074	62,510,539	412,156	108,765	7,943,243	54,567,296	2,374,074	520,921	520,921	14,817,946	15,338,867	39,228,429	299,502	316,969	1,137,392
Jun-24	1,903,867	470,207	2,374,074	64,884,613	428,021	112,684	8,483,948	56,400,665	2,374,074	540,705	515,360	15,338,867	15,854,227	40,546,438	309,565	316,969	1,167,238
Total	$ 51,362,563	$ 13,522,051	$ 64,884,613		$ 6,613,303	$ 1,870,646			$ 64,884,613	$ 8,483,948	$ 15,854,227				$ 5,055,686	$ 11,098,882	$ 24,638,516
Footnotes:			Col. 1 + Col. 2		Cum. Sum of Col. 1/12/10	Cum. Sum of Col. 2/12/10	Cum. Sum of Col. 5 + 6	Col. 4 - Col. 7		Col. 5 + Col. 6	Col. 9 - Col. 10) x Tax Rate (28.11%)	Prior mth. Col. 12 + Prior mth. Col. 11	Prior mth. Col. 13 + Current mth. Col. 11	Col. 8 - Col. 13	Col. 14 x Monthly WACC		Col. 5 + Col. 6 + Col. 15 + Col. 16

Jersey Central Power & Light
Clean Energy Energy Efficiency Program
Electric Revenue Requirements Calculation - GST,GP,GT

Program Investment Amortization	10 Years
Monthly WACC Effective 7/1/21	0.76348%
Federal & State Income tax rate	28.11%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Investment Month	**Customer Incentives FERC (182)**	**Outside Services FERC (182)**	**Total Monthly Investments FERC (182)**	**Cumulative Investments FERC (182)**	**Customer Incentives Amortization FERC (407)**	**Outside Services Amortization FERC (407)**	**Accumulated Amortization FERC (407)**	**Net Investments (4) + (7)**	**Tax Depreciation**	**Book Depreciation Tax Basis (5) + (6)**	**Deferred Income Tax FERC (283)**	**Beginning Accumulated Deferred Income Tax (11) + (12)**	**Ending Accumulated Deferred Income Tax (11) + (12)**	**Rate Base (8) - (13)**	**Return Component (14) x WACC**	**O & M Expenses FERC (923)**	**Revenue Requirements (FERC 440-444)**
Jul-21	$ 413,328	$ 114,017	$ 527,345	$ 527,345	3,444	950	$ 4,395	$ 522,950	$ 527,345	$ 4,395	$ 147,001	$ -	$ 147,001	$ 375,949	$ 2,870	$ 123,890	$ 131,155
Aug-21	413,328	114,017	527,345	1,054,690	6,889	1,900	13,184	1,041,506	527,345	8,789	145,766	147,001	292,767	748,739	5,716	123,890	138,396
Sep-21	413,328	114,017	527,345	1,582,035	10,333	2,850	26,367	1,555,667	527,345	13,184	144,531	292,767	437,298	1,118,369	8,539	123,890	145,613
Oct-21	413,328	114,017	527,345	2,109,379	13,778	3,801	43,945	2,065,434	527,345	17,578	143,295	437,298	580,594	1,484,841	11,336	123,890	152,805
Nov-21	413,328	114,017	527,345	2,636,724	17,222	4,751	65,918	2,570,806	527,345	21,973	142,060	580,594	722,654	1,848,153	14,110	123,890	159,973
Dec-21	413,328	114,017	527,345	3,164,069	20,666	5,701	92,285	3,071,784	527,345	26,367	140,825	722,654	863,478	2,208,305	16,860	123,890	167,118
Jan-22	413,328	114,017	527,345	3,691,414	24,111	6,651	123,047	3,568,367	527,345	30,762	139,590	863,478	1,003,068	2,565,299	19,586	123,890	174,238
Feb-22	413,328	114,017	527,345	4,218,759	27,555	7,601	158,203	4,060,556	527,345	35,156	138,354	1,003,068	1,141,422	2,919,133	22,287	123,890	181,334
Mar-22	413,328	114,017	527,345	4,746,104	31,000	8,551	197,754	4,548,350	527,345	39,551	137,119	1,141,422	1,278,541	3,269,808	24,964	123,890	188,406
Apr-22	413,328	114,017	527,345	5,273,449	34,444	9,501	241,700	5,031,749	527,345	43,945	135,884	1,278,541	1,414,425	3,617,324	27,618	123,890	195,453
May-22	413,328	114,017	527,345	5,800,794	37,888	10,452	290,040	5,510,754	527,345	48,340	134,648	1,414,425	1,549,073	3,961,681	30,247	123,890	202,477
Jun-22	413,328	114,017	527,345	6,328,138	41,333	11,402	342,774	5,985,364	527,345	52,734	133,413	1,549,073	1,682,486	4,302,878	32,852	123,890	209,477
Jul-22	757,204	129,077	886,280	7,214,419	47,643	12,477	402,894	6,811,525	886,280	60,120	232,234	1,682,486	1,914,720	4,896,805	37,386	120,498	218,004
Aug-22	757,204	129,077	886,280	8,100,699	53,953	13,553	470,400	7,630,299	886,280	67,506	230,158	1,914,720	2,144,877	5,485,422	41,880	120,498	229,884
Sep-22	757,204	129,077	886,280	8,986,980	60,263	14,629	545,292	8,441,688	886,280	74,891	228,081	2,144,877	2,372,959	6,068,730	46,334	120,498	241,723
Oct-22	757,204	129,077	886,280	9,873,260	66,573	15,704	627,569	9,245,692	886,280	82,277	226,005	2,372,959	2,598,964	6,646,728	50,747	120,498	253,521
Nov-22	757,204	129,077	886,280	10,759,541	72,883	16,780	717,232	10,042,309	886,280	89,663	223,929	2,598,964	2,822,893	7,219,416	55,119	120,498	265,279
Dec-22	757,204	129,077	886,280	11,645,821	79,193	17,856	814,280	10,831,541	886,280	97,049	221,853	2,822,893	3,044,746	7,786,795	59,451	120,498	276,997
Jan-23	757,204	129,077	886,280	12,532,102	85,503	18,931	918,714	11,613,388	886,280	104,434	219,777	3,044,746	3,264,523	8,348,864	63,742	120,498	288,674
Feb-23	757,204	129,077	886,280	13,418,382	91,813	20,007	1,030,534	12,387,848	886,280	111,820	217,701	3,264,523	3,482,224	8,905,624	67,993	120,498	300,310
Mar-23	757,204	129,077	886,280	14,304,663	98,123	21,082	1,149,740	13,154,923	886,280	119,206	215,625	3,482,224	3,697,849	9,457,074	72,203	120,498	311,906
Apr-23	757,204	129,077	886,280	15,190,943	104,433	22,158	1,276,331	13,914,612	886,280	126,591	213,549	3,697,849	3,911,398	10,003,215	76,373	120,498	323,461
May-23	757,204	129,077	886,280	16,077,224	110,743	23,234	1,410,308	14,666,916	886,280	133,977	211,473	3,911,398	4,122,870	10,544,046	80,502	120,498	334,976
Jun-23	757,204	129,077	886,280	16,963,504	117,053	24,309	1,551,670	15,411,834	886,280	141,363	209,396	4,122,870	4,332,267	11,079,567	84,590	120,498	346,451
Jul-23	1,184,501	201,010	1,385,512	18,349,016	126,924	25,984	1,704,579	16,644,437	1,385,512	152,908	346,485	4,332,267	4,678,751	11,965,686	91,356	199,953	444,218
Aug-23	1,184,501	201,010	1,385,512	19,734,528	136,795	27,660	1,869,033	17,865,494	1,385,512	164,454	343,239	4,678,751	5,021,990	12,843,504	98,058	199,953	462,465
Sep-23	1,184,501	201,010	1,385,512	21,120,039	146,666	29,335	2,045,034	19,075,006	1,385,512	176,000	339,994	5,021,990	5,361,984	13,713,022	104,696	199,953	480,650
Oct-23	1,184,501	201,010	1,385,512	22,505,551	156,537	31,010	2,232,580	20,272,971	1,385,512	187,546	336,748	5,361,984	5,698,732	14,574,239	111,272	199,953	498,771
Nov-23	1,184,501	201,010	1,385,512	23,891,063	166,407	32,685	2,431,672	21,459,391	1,385,512	199,092	333,503	5,698,732	6,032,235	15,427,156	117,784	199,953	516,829
Dec-23	1,184,501	201,010	1,385,512	25,276,574	176,278	34,360	2,642,310	22,634,264	1,385,512	210,638	330,257	6,032,235	6,362,492	16,271,773	124,232	199,953	534,823
Jan-24	1,184,501	201,010	1,385,512	26,662,086	186,149	36,035	2,864,494	23,797,592	1,385,512	222,184	327,011	6,362,492	6,689,503	17,108,089	130,617	199,953	552,754
Feb-24	1,184,501	201,010	1,385,512	28,047,598	196,020	37,710	3,098,224	24,949,373	1,385,512	233,730	323,766	6,689,503	7,013,269	17,936,105	136,939	199,953	570,622
Mar-24	1,184,501	201,010	1,385,512	29,433,109	205,891	39,385	3,343,500	26,089,609	1,385,512	245,276	320,520	7,013,269	7,333,789	18,755,820	143,197	199,953	588,426
Apr-24	1,184,501	201,010	1,385,512	30,818,621	215,762	41,060	3,600,322	27,218,299	1,385,512	256,822	317,275	7,333,789	7,651,064	19,567,235	149,392	199,953	606,167
May-24	1,184,501	201,010	1,385,512	32,204,132	225,632	42,735	3,868,690	28,335,443	1,385,512	268,368	314,029	7,651,064	7,965,093	20,370,350	155,524	199,953	623,845
Jun-24	1,184,501	201,010	1,385,512	33,589,644	235,503	44,410	4,148,603	29,441,041	1,385,512	279,914	310,784	7,965,093	8,275,877	21,165,164	161,592	199,953	641,459
Total	$ 28,260,399	$ 5,329,246	$ 33,589,644		$ 3,431,403	$ 717,200			$ 33,589,644	$ 4,148,603	$ 8,275,877				$ 2,477,963	$ 5,332,094	$ 11,958,661
Footnotes:			Col. 1 + Col. 2		Cum. Sum of Col. 1/12/10	Cum. Sum of Col. 2/12/10	Cum. Sum of Col. 5 + 6	Col. 4 - Col. 7		Col. 5 + Col. 6	Col. 9 - Col. 10) x Tax Rate (28.11%)	Prior mth. Col. 12 + Prior mth. Col. 11	Prior mth. Col. 13 + Current mth. Col. 11	Col. 8 - Col. 13	Col. 14 x Monthly WACC		Col. 5 + Col. 6 + Col. 15 + Col. 16

Jersey Central Power & Light **Schedule CP-4**

Clean Energy Energy Efficiency Program

Proposed Rate Calculation

(In $ per kWh)

Line #		7/1/2021 to 6/30/2022	7/1/2022 to 6/30/2023	7/1/2023 to 6/30/2024	Comments
	RS,RT/RGT				
1	Amortization Expense	$ 1,143,269	$ 3,824,204	$ 7,241,311	Schedule CP-3, Col. 5 + Col. 6
2	Rate of Return	723,720	2,324,284	4,203,694	Schedule CP-3, Col. 15
3	O & M Expenses	9,978,238	8,132,975	8,068,575	Schedule CP-3, Col. 16
4	less Revenue offsets	-	-	-	
5	Revenue Requirements	$ 11,845,226	$ 14,281,464	$ 19,513,580	Schedule CP-3, Col 17
6	Forecasted kWh	9,093,546,059	9,100,508,437	9,093,853,803	
7	Proposed rate w/o SUT ($/kWh)	$ 0.001303	$ 0.001569	$ 0.002146	Line 5 / Line 6 (rounded 6 dec. pts.)
8	**Proposed rate w SUT ($/kWh)**	**$ 0.001389**	**$ 0.001673**	**$ 0.002288**	Line 7 x (1 + 6.625%)
9	Revenues received	$ 12,630,935	$ 15,225,151	$ 20,806,738	Line 8 x Line 6
	GS,OL,SVL,MVL,ISL,LED				
1	Amortization Expense	$ 720,304	$ 2,580,923	$ 5,182,720	Schedule CP-3, Col. 5 + Col. 6
2	Rate of Return	455,972	1,572,970	3,026,744	Schedule CP-3, Col. 15
3	O & M Expenses	3,627,640	3,667,617	3,803,624	Schedule CP-3, Col. 16
4	less Revenue offsets	-	-	-	
5	Revenue Requirements	$ 4,803,917	$ 7,821,510	$ 12,013,089	Schedule CP-3, Col 17
6	Forecasted kWh	6,261,632,334	6,379,441,491	6,432,016,143	
7	Proposed rate w/o SUT ($/kWh)	$ 0.000767	$ 0.001226	$ 0.001868	Line 5 / Line 6 (rounded 6 dec. pts.)
8	**Proposed rate w SUT ($/kWh)**	**$ 0.000818**	**$ 0.001307**	**$ 0.001992**	Line 7 x (1 + 6.625%)
9	Revenues received	$ 5,122,015	$ 8,337,930	$ 12,812,576	Line 8 x Line 6
	GST,GP,GT				
1	Amortization Expense	$ 342,774	$ 1,208,896	$ 2,596,933	Schedule CP-3, Col. 5 + Col. 6
2	Rate of Return	216,985	736,319	1,524,659	Schedule CP-3, Col. 15
3	O & M Expenses	1,486,685	1,445,970	2,399,439	Schedule CP-3, Col. 16
4	less Revenue offsets	-	-	-	
5	Revenue Requirements	$ 2,046,444	$ 3,391,186	$ 6,521,031	Schedule CP-3, Col 17
6	Forecasted kW	9,171,684	9,360,219	9,493,873	
7	Proposed rate w/o SUT ($/kW)	$ 0.22	$ 0.36	$ 0.69	Line 5 / Line 6 (rounded 6 dec. pts.)
8	**Proposed rate w SUT ($/kW)**	**$ 0.23**	**$ 0.38**	**$ 0.74**	Line 7 x (1 + 6.625%)
9	Revenues received	$ 2,109,487	$ 3,556,883	$ 7,025,466	Line 8 x Line 6
	Total Company				
1	Amortization Expense	$ 2,206,348	$ 7,614,024	$ 15,020,965	
2	Rate of Return	1,396,677	4,633,573	8,755,097	
3	O & M Expenses	15,092,563	13,246,562	14,271,638	
4	less Revenue offsets	-	-	-	
5	Revenue Requirements	$ 18,695,588	$ 25,494,160	$ 38,047,699	
6	Forecasted kWh	15,364,350,076	15,489,310,147	15,535,363,820	

Jersey Central Power & Light **Schedule CP-5**

Clean Energy Energy Efficiency Program

Rate Impact Summary

CLASS INCREASES

Class Average Rate w/SUT ($/kWh)

Period	RS	RT	RGT	GS	GST	GP	GT	Lighting
Current	$ 0.13983	$ 0.13184	$ 0.13588	$ 0.12971	$ 0.11864	$ 0.09725	$ 0.08886	$ 0.23011
July 21 - June 22	$ 0.14147	$ 0.13347	$ 0.13751	$ 0.13070	$ 0.11932	$ 0.09784	$ 0.08954	$ 0.23110
July 22 - June 23	$ 0.14182	$ 0.13382	$ 0.13786	$ 0.13126	$ 0.11976	$ 0.09822	$ 0.08997	$ 0.23166
July 23 - June 24	$ 0.14251	$ 0.13452	$ 0.13856	$ 0.13201	$ 0.12079	$ 0.09913	$ 0.09101	$ 0.23241

Class Average Annual Increase

Period	RS	RT	RGT	GS	GST	GP	GT	Lighting
July 21 - June 22	1.2%	1.2%	1.2%	0.8%	0.6%	0.6%	0.8%	0.4%
July 22 - June 23	0.2%	0.3%	0.3%	0.4%	0.4%	0.4%	0.5%	0.2%
July 23 - June 24	0.5%	0.5%	0.5%	0.6%	0.9%	0.9%	1.2%	0.3%

Cumulative Class Average Annual Increase

Period	RS	RT	RGT	GS	GST	GP	GT	Lighting
July 21 - June 22	1.2%	1.2%	1.2%	0.8%	0.6%	0.6%	0.8%	0.4%
July 22 - June 23	1.4%	1.5%	1.5%	1.2%	0.9%	1.0%	1.2%	0.7%
July 23 - June 24	1.9%	2.0%	2.0%	1.8%	1.8%	1.9%	2.4%	1.0%

TYPICAL BILL INCR

Typical Customer Monthly Bill

	RS	RT	RGT	GS	GST	GP	GT
Typical Average Cus	768	1,052	2,134	4,445	246,416	361,532	1,067,426
Current Typical Bill	$ 105.52	$ 138.77	$ 289.95	$ 577.19	$ 29,235.49	$ 35,157.93	$ 94,847.86
July 21 - June 22 typ	$ 106.77	140.49	293.43	581.59	29,402.69	35,372.79	95,575.23
July 22 - June 23 typ	$ 107.04	140.86	294.18	584.09	29,509.70	35,510.29	96,040.75
July 23 - June 24 typ	$ 107.57	141.59	295.66	587.42	29,763.85	35,836.87	97,146.36

Typical Customer Average Annual Increase

Period	RS	RT	RGT	GS	GST	GP	GT
July 21 - June 22	1.2%	1.2%	1.2%	0.8%	0.6%	0.6%	0.8%
July 22 - June 23	0.3%	0.3%	0.3%	0.4%	0.4%	0.4%	0.5%
July 23 - June 24	0.5%	0.5%	0.5%	0.6%	0.9%	0.9%	1.2%

Cumulative Typical Customer Average Annual Increase

Period	RS	RT	RGT	GS	GST	GP	GT
July 21 - June 22	1.2%	1.2%	1.2%	0.8%	0.6%	0.6%	0.8%
July 22 - June 23	1.5%	1.5%	1.5%	1.2%	0.9%	1.0%	1.3%
July 23 - June 24	2.0%	2.0%	2.0%	1.8%	1.8%	1.9%	2.4%

Jersey Central Power & Light **Schedule CP-6**

Clean Energy Energy Efficiency Program

Proposed Lost Revenue Rate Calculation

	7/1/2021 to 6/30/2022		7/1/2022 to 6/30/2023		7/1/2023 to 6/30/2022	
Target Savings (kWh)						
	Summer	**Winter**	**Summer**	**Winter**	**Summer**	**Winter**
RS	23,247,715	31,692,063	29,620,138	40,215,669	37,207,045	50,285,375
RT	366,720	770,510	467,197	977,860	586,817	1,222,685
RGT	26,212	62,367	33,392	79,152	41,939	98,971
GS	7,225,610	12,811,031	13,624,812	24,254,205	19,191,965	34,178,523
GST	560,825	1,046,817	1,058,092	1,983,071	1,490,736	2,794,283
GP	1,888,238	3,360,724	3,571,250	6,378,476	5,032,443	8,987,652
GT	2,032,997	3,924,451	3,844,167	7,438,799	5,483,338	10,612,506
Lighting	3,820,240	7,640,480	3,820,240	7,640,480	3,820,240	7,640,480
	39,168,557	61,308,443	56,039,288	88,967,712	72,854,523	115,820,475
Revenue Factor ($ per kWh)						
RS	$0.056031	$0.023211	$0.056031	$0.023211	$0.056031	$0.023211
RT	$0.043421	$0.031895	$0.043421	$0.031895	$0.043421	$0.031895
RGT	$0.043421	$0.023211	$0.043421	$0.023211	$0.043421	$0.023211
GS	$0.026638	$0.024756	$0.026638	$0.024756	$0.026638	$0.024756
GST	$0.021529	$0.020179	$0.021529	$0.020179	$0.021529	$0.020179
GP	$0.015543	$0.014185	$0.015543	$0.014185	$0.015543	$0.014185
GT	$0.009758	$0.009758	$0.009758	$0.009758	$0.009758	$0.009758
Lighting	$0.043172	$0.043172	$0.043172	$0.043172	$0.043172	$0.043172
Lost Revenue						
RS	$1,302,593	$735,604	$1,659,646	$933,446	$2,084,748	$1,167,174
RT	$15,923	$24,575	$20,286	$31,189	$25,480	$38,998
RGT	$1,138	$1,448	$1,450	$1,837	$1,821	$2,297
GS	$192,473	$317,145	$362,932	$600,427	$511,227	$846,110
GST	$12,074	$21,123	$22,779	$40,016	$32,094	$56,385
GP	$29,349	$47,673	$55,508	$90,481	$78,219	$127,493
GT	$19,837	$38,293	$37,510	$72,585	$53,504	$103,553
Lighting	$164,927	$329,855	$164,927	$329,855	$164,927	$329,855
	$1,738,314	$1,515,717	$2,325,038	$2,099,835	$2,952,021	$2,671,864
	Annualized		**Annualized**		**Annualized**	
RS, RT and RGT	$2,081,282		$2,647,854		$3,320,518	
GS and Lighting	$1,004,400		$1,458,141		$1,852,119	
GST, GP and GT	$168,349		$318,878		$451,247	
	$3,254,031		$4,424,874		$5,623,884	
Forecast Sales						
RS, RT and RGT	9,093,546,059 *kWH*		9,100,508,437 *kWH*		9,093,853,803 *kWH*	
GS and Lighting	6,261,632,334 *kWH*		6,379,422,914 *kWH*		6,431,997,566 *kWH*	
GST, GP and GT	9,171,684 *kW*		9,360,219 *kW*		9,493,873 *kW*	
Lost Revenue Rate						
RS, RT and RGT	$0.000229 *$/kWH*		$0.000291 *$/kWH*		$0.000365 *$/kWH*	
GS and Lighting	$0.000160 *$/kWH*		$0.000229 *$/kWH*		$0.000288 *$/kWH*	
GST, GP and GT	$0.02 *$/kW*		$0.03 *$/kW*		$0.05 *$/kW*	
Lost Revenue Rate with SUT						
RS, RT and RGT	$0.000244 *$/kWH*		$0.000310 *$/kWH*		$0.000389 *$/kWH*	
GS and Lighting	$0.000171 *$/kWH*		$0.000244 *$/kWH*		$0.000307 *$/kWH*	
GST, GP and GT	$0.02 *$/kW*		$0.03 *$/kW*		$0.05 *$/kW*	

Rider EE&C
JCP&L Energy Efficiency and Conservation Charge

APPLICABILITY: The Energy Efficiency and Conservation Charge ("Rider EE&C") provides for recovery of revenue requirements associated with Energy Efficiency and Peak Demand Reduction Programs subject to regulations pursuant to N.J.S.A. 48:3-98 1(a)(1) and as approved by the BPU Order.

The JCP&L EE&C Charge is applicable to Service Classifications RS (Residential Service), RT (Residential Time-of-Day), RGT (Residential Geothermal & Heat Pump), GS (General Service Secondary), GST (General Service Secondary Time-of-Day), GP (General Service Primary), GT (General Service Transmission), OL (Outdoor Lighting), SVL (Sodium Vapor Street Lighting), MVL (Mercury Vapor Street Lighting), ISL (Incandescent Street Lighting) and LED (LED Street Lighting) and for all usage (KWH and KW) of any Full Service Customer or Delivery Service Customer, as follows:

Service Classification	EE&C Charge (Including SUT)	
RS	$0.001389	per KWH
RT/RGT	$0.001389	per KWH
GS	$0.000818	per KWH
GST	$0.23	per KW
GP	$0.23	per KW
GT	$0.23	per KW
Lighting (OL, SVL, MVL, SVL and LED)	$0.000818	per KWH

The Company will submit to the BPU by March 31 of each year starting March 31, 2022 an application to recover the revenue requirements for the forthcoming Program Year starting July 1st of each year and ending June 30th of the following year. The revenue requirements will include a return of and on EE&C program investments and a reconciliation of actual revenues with actual costs including carrying costs through the end of February of each year. Carrying cost is calculated on a monthly basis at an interest rate equal to the rate on two-year constant maturity Treasuries, as show in the Federal Reserve Statistical Release on or closest to January 1 of each year, plus sixty basis points, compounded annually as of January 1 of each year. All subsequent filings will adhere to the Company's recovery periods as approved in the below referenced BPU Order.

Rider LRAM
JCP&L Lost Revenue Adjustment Mechanism Charge

APPLICABILITY: The Lost Revenue Adjustment Mechanism Charge ("Rider LRAM" or "LRAM Charge") provides for recovery of lost distribution revenues associated with the Company's Energy Efficiency and Peak Demand Reduction Programs subject to regulations pursuant to N.J.S.A. 48:3-98. 1(a)(1) and as approved by the BPU Order.

The JCP&L LRAM Charge is applicable to Service Classifications RS (Residential Service), RT (Residential Time-of-Day), RGT (Residential Geothermal & Heat Pump), GS (General Service Secondary), GST (General Service Secondary Time-of-Day), GP (General Service Primary), GT (General Service Transmission), OL (Outdoor Lighting), SVL (Sodium Vapor Street Lighting), MVL (Mercury Vapor Street Lighting), ISL (Incandescent Street Lighting) and LED (LED Street Lighting) and for all usage (KWH and KW) of any Full Service Customer or Delivery Service Customer, as follows:

Service Classification	LRAM Charge (Including SUT)	
RS	$0.000244	per KWH
RT/RGT	$0.000244	per KWH
GS	$0.000171	per KWH
GST	$0.02	per KW
GP	$0.02	per KW
GT	$0.02	per KW
Lighting (OL, SVL, MVL, SVL and LED)	$0.000171	per KWH

The Company will submit to the BPU by March 31 of each year starting March 31, 2022 recover the revenue requirements for the forthcoming Year starting July 1st of each year and ending June 30th of the following year. The revenue requirements will include a reconciliation of actual revenues with projected revenues including carrying costs through the end of February of each year. Carrying cost is calculated on a monthly basis at an interest rate equal to the rate on two-year constant maturity Treasuries, as show in the Federal Reserve Statistical Release on or closest to January 1 of each year, plus sixty basis points, compounded annually as of January 1 of each year. All subsequent filings will adhere to the Company's recovery periods as approved in the above referenced BPU Order and in accordance with N.J.S.A. 48:3-98. 1(a)(1).

Jersey Central Power & Light **Schedule CP-9**
Clean Energy Energy Efficiency Program
Proforma Income Statement & Balance Sheet
For Program Year Ending June 30th of Each Year

INCOME STATEMENT

	Program Year Ending		
	30-Jun-22	30-Jun-23	30-Jun-24
Operating Revenues w/ SUT	$ 19,862,438	$ 27,119,964	$ 40,644,780
less SUT	(1,315,887)	(1,796,698)	(2,692,717)
Net Operating Revenues	**$ 18,546,551**	**$ 25,323,266**	**$ 37,952,063**
Operating Expenses			
Operating & Maintenance Expense	$ 15,092,563	$ 13,246,562	$ 14,271,638
Amortization Expense	2,206,348	7,614,024	15,020,965
Total Operating Expense	**17,298,911**	**20,860,586**	**29,292,602**
Operating Income	**1,247,641**	**4,462,680**	**8,659,461**
Interest Expense	480,601	1,594,428	3,012,659
Income before Income Taxes	**767,039**	**2,868,252**	**5,646,802**
Income Tax Expense	(215,615)	(806,265)	(1,587,316)
Net Income	**551,425**	**2,061,986**	**4,059,486**

BALANCE SHEET

		Program Year Ending		
Assets	1-Jul-21	30-Jun-22	30-Jun-23	30-Jun-24
Regulatory Asset - Capitalized Program Expenditures	$ -	$ 40,732,571	$ 106,100,575	$ 187,532,710
less Accumulated Amortization	-	2,206,348	9,820,372	24,841,336
Net Regulatory Assets	**$ -**	**$ 38,526,223**	**$ 96,280,203**	**$ 162,691,373**
Total Assets	**$ -**	**$ 38,526,223**	**$ 96,280,203**	**$ 162,691,373**
Liabilities & Capitalization				
Liabilities				
Deferred Income Taxes	$ -	$ 10,829,721	$ 26,854,969	$ 45,732,545
Capitalization				
Debt	-	15,233,076	3,979,454	3,687,244
Common Equity	-	12,463,426	65,445,780	113,271,584
Total Capitalization	**$ -**	**$ 27,696,502**	**$ 69,425,235**	**$ 116,958,828**
Total Liabilities & Capitalization	**$ -**	**$ 38,526,223**	**$ 96,280,203**	**$ 162,691,373**

Exhibit JC-4

IN THE MATTER OF THE PETITION OF JERSEY CENTRAL POWER & LIGHT FOR APPROVAL OF JCP&L'S ENERGY EFFICIENCY AND CONSERVATION PLAN INCLUDING ENERGY EFFICIENCY AND PEAK DEMAND REDUCTION PROGRAMS (JCP&L EE&C)

BPU DOCKET NO. _____

DIRECT TESTIMONY

OF

BRENDON J. BAATZ

Gabel Associates, Inc.

On Behalf Of
Jersey Central Power & Light

September 25, 2020

JERSEY CENTRAL POWER & LIGHT
DIRECT TESTIMONY OF
BRENDON J. BAATZ

I. INTRODUCTION

Q. Please state your name, business address, and position.

A. My name is Brendon J. Baatz and my business address is 417 Denison Street, Highland Park, New Jersey, 08904. I am presently employed as a Vice President at Gabel Associates, Inc., an energy, environmental, and public utility consulting firm.

Q. Please summarize your professional experience and educational background.

A. I have been employed with Gabel Associates since March of 2018. While at Gabel Associates, I have worked for a range of public and private clients on various issues in the utility industry. The issues include retail and wholesale electric rate design, renewable energy project cost benefit analysis, and electric vehicle utility policy. I have also worked extensively on energy efficiency program design, policy, and cost benefit analysis for several clients, including gas and electric utilities.

Prior to my employment with Gabel Associates, I managed the utility program at the American Council for an Energy Efficient Economy ("ACEEE"). There I focused on various issues related to utility-sector energy efficiency programs, including efficiency program design, state policies, and regulatory issues affecting energy efficiency, including electric and gas rate design. While at ACEEE I published numerous reports on energy efficiency programs and policy, and also regularly spoke at conferences on related issues. I also testified in various proceedings on these issues during that time.

Prior to my employment with ACEEE, I was employed with the Federal Energy Regulatory Commission ("FERC"). During my employment with FERC my primary

responsibilities were the review and analyses of electric utility cost of service studies in wholesale transmission and electric power rate cases. I also worked on other litigated issues while at FERC including but not limited to transmission capacity reservation rights, municipal power contracts, and formula rate structure and protocols. Prior to my employment with FERC, I held positions with the Maryland Public Service Commission ("PSC") as an energy analyst and the Indiana Office of Utility Consumer Counselor ("OUCC") as a utility analyst. While at the Maryland PSC, I worked on the EmPOWER Maryland programs focusing on program design, avoided cost development, and other policy issues. While working at the OUCC, I testified on a variety of utility issues including but not limited to rate design, renewable energy credit compensation, and utility petitions for construction. I also represented the agency in several oversight boards for utility energy efficiency programs.

I hold a Master of Public affairs degree from Indiana University Bloomington and a Bachelor of Science in political science from Arizona State University. I have continued my education through attendance of various seminars and conferences. I have also completed formal training in rate design, cost of service, depreciation, and other utility regulatory matters.

My resume is attached as Exhibit BJB-1.

Q. Have you previously testified before the New Jersey Board of Public Utilities ("Board" or "BPU")?

A. Yes. I previously testified in Docket Nos. GR18080860 and GR20070503.

Q. What is the purpose of your direct testimony in this case?

A. The purpose of my testimony is to present the cost effectiveness analysis conducted on the Jersey Central Power and Light ("JCP&L") proposed three-year energy efficiency portfolio.

Q. Are you sponsoring any schedules in connection with your direct testimony?

A. Yes. I am presenting the following schedules, which have been prepared by me or under my direction and supervision, and are accurate and complete to the best of my knowledge and belief. These schedules contain information responsive to the Minimum Filing Requirements ("MFRs") as referenced in the MFR Index attached to the Petition as Exhibit A and as approved by the Board in its June 10, 2020 Order in Docket Nos. QO19010040, QO19060748, and QO10791004 ("June 10 Order'). The schedules attached include:

(a) Exhibit BJB-1 – Baatz Resume

(b) Exhibit BJB-2 – Cost Effectiveness Results

(c) Exhibit BJB-3 –Energy Efficiency Program Cost Benefit Analysis Workpapers (Confidential)

(d) Exhibit BJB-4 – Emissions Avoided Results

(e) Exhibit BJB-5 – Economic Development and Job Creation Analysis Results

(f) Exhibit BJB-6 –Cost to Achieve Results

(g) Exhibit BJB-7 –Energy Savings Target Development Schedule

II. <u>COST EFFECTIVENESS ANALYSIS OF JCP&L EE&C PLAN</u>

Q. Did you conduct cost effectiveness analysis of the program portfolio in the JCP&L Plan?

A. Yes. I prepared the cost-benefit analysis ("CBA") which calculates and details the results of the six tests prescribed in the MFRs as required by the Board. This entailed developing a model which analyzed measure-specific details and computed the estimated costs and savings of each program for use in the New Jersey Cost Test ("NJCT"), the Total Resource Cost ("TRC") test, the Participant Cost test ("PCT"), the Program Administrator Cost ("PAC") test, the Ratepayer Impact Measure ("RIM") test, and the Societal Cost test ("SCT"). This testimony presents the methodology and results of the six CBA tests required by the Board's MFRs for the Company's energy efficiency program results for the plan period of July 1, 2021 through June 30, 2023. These results allow the BPU to evaluate the projected performance of the program offerings proposed for this time period.

Q. Please describe the CBA tests required by the Board's MFRs.

A. In the June 10 Order, the Board updated the energy efficiency MFRs. Section V.a. in the updated MFRs, states:

> The utility shall conduct a benefit-cost analysis of the programs and portfolio using the New Jersey Cost Test, 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. The utility may also provide any additional benefit-cost analysis that it believes appropriate with supporting rationales and documentation.

Each test listed above is designed to provide a different perspective on the cost-effectiveness of the proposed programs. The six cost effectiveness tests prescribed by the Board provide the following perspectives for decision makers:

- New Jersey Cost Test – The New Jersey Cost Test is the primary cost effectiveness test for energy efficiency programs in New Jersey. The test measures net costs of the program as a resource option based on total costs, similar to the total resource

cost test, but also includes additional benefits to address specific state policy considerations in New Jersey, like the social cost of avoiding carbon dioxide emissions.

- Societal Cost Test – The Societal Cost Test measures the net costs of a program as a resource option based on the total costs of the program, including both the participants' and the utility's costs. The Societal Test differs from the total resource test in that it includes the effects of societal impacts such as environmental impacts to the economy, excludes tax credit benefits, and uses a different (societal) discount rate.
- Total Resource Cost Test – The Total Resource Cost Test measures the net costs of a program as a resource option based on the total costs, including both the participant and the utility costs of the program.
- Participant Cost Test – The Participant Cost Test is the measure of the quantifiable benefits and costs from the perspective of program participants. Since many customers do not base their decision to participate in a program entirely on quantifiable variables, this test is not a complete measure of the benefits and costs of a program to a customer.
- Program Administrator Cost Test – The Program Administrator Cost Test measures the net costs of a program as a resource option based on the costs incurred by the program administrator or utility (including incentive costs) and excluding any net costs incurred by the participant. The benefits are similar to the TRC benefits. Costs include the total program costs. This test measures the net economic impact of investing in energy efficiency programs from the perspective of the utility.

- Ratepayer Impact Measure Test – The Ratepayer Impact Measure test measures what happens to customer rates due to changes in utility revenues and operating costs caused by the program.

In aggregate, these tests provide the Board with multiple viewpoints of the benefits and costs associated with the programs.

Q. Please describe your approach to assessing cost effectiveness using the six tests described above.

A. I completed all six tests using guidance from the Board's August 24, 2020 Order Adopting the First New Jersey Cost Test ("August 24 Order") and the California Standard Practice Manual.[1,2] The August 24 Order provided specific guidance on how to estimate costs and benefits of programs, including assumptions on line losses and discount rate, for the New Jersey Cost Test. I applied the Board's guidance on the development of specific benefits and costs to all tests conducted. For the Societal Cost Test, I included additional benefits that were not included in the August 24 Order. For those benefits, I relied on industry best practice methods.

Q. Did you evaluate JCP&L's portfolio of programs being proposed using the six CBA tests required in the MFRs?

A. Yes, I evaluated program cost effectiveness for all six tests. The results of this analysis are presented in Schedule BJB-2. The supporting workpapers for the cost benefit analysis are attached as Exhibit BJB-3.

[1] New Jersey Board of Public Utilities. *Order Adopting the First New Jersey Cost Test.* Docket Nos. QO19010040 and QO20060389. August 24, 2020.
[2] California Public Utilities Commission. 2001. *California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects.*
cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/CPUC_STANDARD_PRACTICE_MANUAL.pdf

Q. Please summarize your conclusions.

A. The CBA shows the JCP&L portfolio is cost effective under the New Jersey Cost Test. Under the New Jersey Cost Test, the three-year portfolio resulted in net benefits of $685 million and a cost benefit ratio of 3.5. This implies that for every dollar JCP&L spends on energy efficiency programs, customer will receive $3.48 in benefits.

The portfolio also produced significant environmental and health benefits. I estimate that the energy savings produced by the JCP&L Plan will reduce carbon dioxide ("CO_2") emissions by 4.3 million tons, sulfur dioxide ("SO_2") emissions by 2,814 tons, and nitrogen oxide ("NO_X") emissions by 2,239 tons.[3] The portfolio also will provide significant economic development benefits. I estimate the portfolio will add $981 million to the New Jersey GDP and create 8,996 job-year equivalents over the life of the measures.[4]

Q. Did you also review the JCP&L cost to achieve values in relation to the Board's proposed guidelines from the June 10th Order?

A. Yes. The JCP&L sector level cost to achieve values are shown in Exhibit BJB-6. The JCP&L sector cost to achieve is within the guidelines suggested by the Board.

I. COST-BENEFIT ANALYSIS ASSUMPTIONS

Q. What types of cost benefit analyses did you prepare?

A. I prepared an analysis for each of the six CBA tests required by the Board's MFRs.

Q. What methodology did you use to undertake these calculations?

[3] The results of the emissions avoided analysis are shown in Exhibit BJB-4.
[4] The results of the economic development benefits analysis are shown in Exhibit BJB-5.

A. I relied on methodology outlined in the Board's August 24 Order and the California Standard Practice Manual.[5,6] Within the CBA tests, there are a wide range of costs and benefits used to characterize program integrity, some of which are applicable in conducting certain tests but not others. Table 1 shows a list of specific costs and benefits and the tests they apply to:

[5] New Jersey Board of Public Utilities. *Order Adopting the First New Jersey Cost Test.* Docket Nos. QO19010040 and QO20060389. August 24, 2020.
[6] California Public Utilities Commission. 2001. *California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects.*
cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/CPUC_STANDARD_PRACTICE_MANUAL.pdf

Table 1: Costs and Benefits Utilized in CBA Tests

	NJCT	SCT	TRC	PCT	PAC	RIM
Program Benefits						
Avoided Wholesale Electric Energy	x	x	x		x	x
Avoided Electric Ancillary Services	x	x	x		x	x
Avoided Wholesale Electric Capacity	x	x	x		x	x
Avoided Wholesale Natural Gas	x	x	x		x	x
Demand Reduction Induced Price Effect	x	x	x		x	x
Avoided RPS REC Purchases		x			x	x
Avoided Wholesale Volatility		x			x	x
Avoided T&D	x	x	x		x	x
Avoided Retail Electric and Gas Costs				x		
Customer Rebates and Incentives				x		
Utility Lost Revenues						x
Non-Energy Benefits 5% Adder	x					
Low-Income Benefit 10% Adder	x					
Avoided Emissions Impacts (CO_2)	x	x				
Avoided Emissions Impacts (SO_2 & NO_X)		x				
Economic Development Benefits		x				
Program Costs						
Incremental Costs	x	x	x			
Participant Costs				x		
Administration Costs	x	x	x		x	x
Customer Rebates and Incentives					x	x
Utility Lost Revenues						x

Q. Please describe the Program Benefits shown in Table 1.

A. The following sections describe the benefits and calculation approach.

1. Avoided Wholesale Electric Energy Costs

The avoided wholesale electric energy costs benefit represents the wholesale electric market purchases that would be avoided as a result of reductions in energy usage associated with the programs. Consistent with the New Jersey Cost Test guidance document, this value was estimated using the three year average of historic PJM energy

prices for the JCP&L zone.[7] The prices were then forecasted using a blend of basis adjusted energy market forward trading prices for PJM-Western Hub, the most liquidly traded zone in PJM, and forecasted prices from the Energy Information Administration ("EIA") in its newest (currently 2020) Annual Energy Outlook generation reference case for the PJM/East region.[8] Values were calculated for on- and off-peak prices on a monthly basis. All values were adjusted to account for marginal line losses on the JCP&L and PJM systems, and sales and use tax.

2. Avoided Electric Ancillary Services Costs

The avoided electric ancillary services costs benefit represents the wholesale electric ancillary service market purchases that would be avoided as a result of reductions in energy usage associated with the programs. Consistent with the New Jersey Cost Test guidance document, this value was estimated using the three-year average of historic PJM ancillary service prices based upon data from PJM's Independent Market Monitor.[9] The prices were then forecasted using the electric energy forecast described above.

3. Avoided Wholesale Electric Capacity Costs

The avoided wholesale electric capacity costs category captures the wholesale reduction in PJM capacity as a result of the reductions in electric demand associated with the programs. I used actual cleared PJM Eastern Mid-Atlantic Area Council ("EMAAC")

[7] New Jersey Board of Public Utilities. *Order Adopting the First New Jersey Cost Test.* Docket Nos. QO19010040 and QO20060389. August 24, 2020. *p. 12*

[8] United States Energy Information Administration. Annual Energy Outlook 2020. Table 54. Electric Power Projections by Electricity Market Module Region (Reference Case, PJM/East Region). eia.gov/outlooks/aeo/data/browser/#/?id=62-AEO2020&region=5-10&cases=ref2020&start=2018&end=2050&f=A&linechart=ref2020-d112119a.130-62-AEO2020.5-10&map=&ctype=linechart&sourcekey=0.

[9] Monitoring Analytics, LLC. *2019 State of the Market Report for PJM.* Section 10 Ancillary Services. Table 10-4. History of ancillary service costs per MWh of load: 1999 through 2019. monitoringanalytics.com/reports/PJM_State_of_the_Market/2019/2019-som-pjm-sec10.pdf

Locational Deliverability Area ("LDA") prices where available. Clearing prices were forecasted based upon a baseline of the average of the previous three delivery year clearing prices. Prices were escalated based upon a regression forecast of how capacity prices have increased over time. All values were adjusted to account for marginal line losses on the JCP&L and PJM systems, PJM's Forecast Pool Requirement ("FPR") to account for avoided reserve requirements, and sales and use tax.

4. Demand Reduction Induced Price Effect Benefits (Electric & Gas)

The demand reduction induced price effects ("DRIPE") price suppression (also known as merit order benefits) is a benefit that captures the reduction in wholesale electric and natural gas market prices to all customers, not just participants, as a result of energy efficiency. Wholesale electric and natural gas markets are fundamentally supply and demand based – therefore, downward movement in the electric or natural gas demand curve as a result of reduced consumption should result in less expensive generation resources being dispatched for electricity, and less expensive natural gas delivered. If either market "clears" at a lower price, the associated reductions in market prices flow through to all customers.

Both electric energy and capacity DRIPE benefits were estimated using a univariate regression model. This approach is consistent with the NJCT guidance document.[10]

5. Avoided Wholesale Natural Gas Costs

The avoided wholesale natural gas costs category captures wholesale natural gas market purchases that would be avoided as a result of reduction in energy usage associated with the programs.

[10] New Jersey Board of Public Utilities. *New Jersey Cost Test.* August 24, 2020. Page 15-16. bpu.state.nj.us/bpu/pdf/boardorders/2020/20200824/8A%20-%20ORDER%20New%20Jersey%20Cost%20Test.pdf

The value of avoided natural gas costs is estimated using New York Mercantile Exchange ("NYMEX") forward trading prices for Henry Hub adjusted for transportation to Texas Eastern Transmission Pipeline (Tetco) M3 delivery point. The underlying Henry Hub supply forecast was combined with the Tetco M3 basis to determine the avoided cost projection. All values were adjusted to account for average losses and sales and use tax. This approach is consistent with the prescribed method in the New Jersey Cost Test guidance document.[11]

6. Avoided RPS REC Purchase Costs

The avoided Renewable Portfolio Standard ("RPS") Renewable Energy Certificates ("RECs") purchase cost estimates the reduced volume of RECs that must be purchased by New Jersey's electric retail suppliers as a result of energy efficiency electricity reductions. The New Jersey RPS sets the total volume requirement of RECs that must be purchased as a percentage of retail load. A reduction in retail load due to energy efficiency will reduce the total number of RECs required to be purchased.

Forecast market prices for New Jersey Class I RECs, Class II RECs and solar renewable energy credits ("SRECs") (legacy, transition, successor) were used based upon an internal supply-demand analysis and compliance costs for the three New Jersey REC markets.

7. Avoided Wholesale Volatility Costs (Electric & Gas)

The avoided wholesale volatility cost category estimates the value of avoiding risk of wholesale purchases. Wholesale electric and natural gas prices are inherently risky as they are market-based and not fixed in price or volume. Large fluctuations in prices expose

[11] *Ibid* page 13.

customers and retail suppliers to risks that ultimately are priced into retail rates. Energy efficient measures and practices amount to a purchase of energy service which does not contain the price volatility implicit in the price of electricity and natural gas. By reducing the overall energy purchases of customers, customers are exposed to less fuel volatility. In this regard, energy efficiency can be viewed as an energy resource that does not contain the price volatility embedded in purchases from the electric and gas supply systems.

The risk avoidance benefit of energy efficiency was applied as a price adder to the cost of electricity and natural gas (only in the SCT). The price adder was determined based upon a review of studies and regulatory decisions. While there is some variation among the studies, a conservative premium based on these precedents equal to 10% of electric and natural gas costs was assumed.[12]

8. Avoided T&D Costs

The value of avoided transmission and distribution costs was estimated using the methods prescribed in the NJCT guidance document. For transmission, the most recent Network Integrated Transmission Service ("NITS") rate for the JCP&L service territory was used.[13] For distribution, the value was estimated in the manner prescribed by the Board

[12] For studies reviewed, please see Baatz et al. Estimating the Value of Energy Efficiency to Reduce Wholesale Energy Price Volatility. American Council for an Energy-Efficient Economy; aceee.org/research-report/u1803. Stanton et al. Net Metering in Mississippi. Synapse Energy Economics. Appendix A. synapse-energy.com/sites/default/files/Net%20Metering%20in%20Mississippi.pdf; Hornby et al. Avoided Energy Supply Costs in New England: 2013 Report. Synapse Energy Economics. pp 5-22. publicservice.vermont.gov/sites/dps/files/documents/Energy_Efficiency/AESC%20Report%20-%20With%20Appendices%20Attached.pdf; 2013 Integrated Resource Plan. Rocky Mountain Power. pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2013IRP/PacifiCorp-2013IRP_Vol1-Main_4-30-13.pdf and pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Integrated_Resource_Plan/2013IRP/PacifiCorp-2013IRP_Vol2-Appendices_4-30-13.pdf; Bolinger et al. Quantifying the Value that Energy Efficiency and Renewable Energy Provide As a Hedge Against Volatile Natural Gas Prices. Lawrence Berkley National Labs. aceee.org/files/proceedings/2002/data/papers/SS02_Panel5_Paper02.pdf; Is Fixed Price Energy a Good Deal? Walden Labs. waldenlabs.com/is-fixed-price-energy-a-good-deal; EEU Avoided Costs for the 2016-2017 Time Period. P. 17 – number 6. puc.vermont.gov/sites/psbnew/files/doc_library/order-re-eeu-avoided-cost-2016-2017.pdf.

[13] PJM Annual Transmission Revenue Requirements and Rates. pjm.com/-/media/markets-ops/settlements/network-

in the NJCT guidance document. This required estimating the total distribution charges that would have been paid by program participants in the absence of the program and then subtracting the total distribution charges the customer paid after the implementation of the energy efficiency measures.[14]

9. Avoided Retail Electric and Natural Gas Costs

The avoided retail electric and natural gas cost categories captures the actual bill savings to participants of the programs. A key benefit of energy efficiency is reduced consumption by participants which results in reduced utility costs.

Avoided retail electric costs were calculated based upon the electric charges and applicable rate classes in JCP&L's Tariff for Electric Service. This method results in a "price to compare" analysis, as only portions of the tariff which would be offset as a result of the programs are included in the analysis. By way of example, customers will not offset any of the monthly fixed service charge, so that avoiding that charge was not included in the retail electric savings analysis. Each charge was escalated, by component, to account for separate escalation rates for distribution and supply charges. Charges related to electric delivery and transmission were assumed to escalate at 2.0% per year and electric energy and capacity supply charges were escalated in a manner consistent with the wholesale market escalations explained above.

Avoided retail natural gas costs were calculated based on the natural gas charges and applicable rate classes available in New Jersey Natural Gas's Tariff for Gas Service. This method results in a "price to compare" type analysis, as only portions of the tariff

integration-trans-service-june-2020.ashx?la=en

[14] New Jersey Board of Public Utilities. *New Jersey Cost Test.* August 24, 2020. Page 13. bpu.state.nj.us/bpu/pdf/boardorders/2020/20200824/8A%20-%20ORDER%20New%20Jersey%20Cost%20Test.pdf

which would be offset as a result of the programs are included in the analysis. By way of example, customers will not offset any of the monthly fixed service charge, so that avoiding that charge was not included in the retail natural gas savings analysis. Each charge was escalated, by component, to account for separate escalation rates for distribution and supply charges. Charges related to natural gas delivery were escalated at 2.0% per year while natural gas supply charges were escalated in a manner consistent with the wholesale market escalations explained above.

10. Customer Rebates and Incentives

The customer rebate and incentive cost category capture the direct rebate incentives provided to participants of the programs. Depending on perspective, customer rebates and incentive costs can either be a benefit to a program (to participants) or a cost to programs (to the utility and ultimately, ratepayers). This benefit is only realized in the participant cost test, as that test singles out the experience of a participant in the programs. The time-value of money associated with the provision of loans to participations is also a benefit to customers (and costs to the utility and ultimately, ratepayers), and is captured as a benefit in the PCT, and as a cost in the PAC and RIM tests.

11. Avoided Emissions Damages

The avoided emissions damages category captures the economic value (also known as the avoided social cost) of reductions in CO_2, NO_x, and SO_2. Energy efficiency programs displace power plant emissions which cause negative impacts, also known as damages. I did not include any other criteria air pollutants or greenhouse gases.

To estimate the displaced CO_2, I relied on the electric emissions factor of 1,374 pounds per MWh and natural gas emission factor of 11.7 pounds per therm, per the NJCT

guidance document.[15] The avoided damages for CO_2 were estimated using the "Social Cost of Carbon for Regulatory Impact Analysis - Under Executive Order 12866" produced by the Interagency Working Group on Social Cost of Greenhouse Gases, United States Government.[16] This benefit was included in the NJCT and SCT.

I also estimate the economic value of the avoided SO_2 and NO_X emissions from the programs. While not included in the NJCT, the economic value of avoiding these emissions is substantial and reflected in the SCT. To estimated displaced SO_2 and NO_X emissions, I relied on the non-baseload tons per MWh estimate from the most recent eGrid data release (currently eGRID2018 released in March 2020).[17] I then de-escalated these rates over time based upon emissions rates from the most recent EIA Annual Energy Outlook (currently 2020) for the PJM/East region.[18] The de-escalation is intended to reflect the likely shift away from fossil based generation towards clean energy resources. To estimate the avoided damages from SO2 and NO_X, I relied on the February 2018 Technical Support Document Estimating the Benefit per Ton of Reducing PM2.5 Precursors from 17 Sectors by the U.S. Environmental Protection Agency Office of Air and Radiation Office of Air Quality

[15] New Jersey Board of Public Utilities. *New Jersey Cost Test.* August 24, 2020. Page 17. bpu.state.nj.us/bpu/pdf/boardorders/2020/20200824/8A%20-%20ORDER%20New%20Jersey%20Cost%20Test.pdf

[16] Interagency Working Group on Social Cost of Greenhouse Gases, United States Government. 2016 Technical Support Document: -Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis -Under Executive Order 12866. August 2016. epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf

[17] United States Environmental Protection Agency. Emissions and Generation Resource Integrated Database (eGRID). Released 1/28/2020, Revised 3/9/2020. epa.gov/energy/emissions-generation-resource-integrated-database-egrid

[18] United States Energy Information Administration. Annual Energy Outlook 2020. Table 54. Electric Power Projections by Electricity Market Module Region (Reference Case, PJM/East Region). eia.gov/outlooks/aeo/data/browser/#/?id=62-AEO2020&region=5-10&cases=ref2020&start=2018&end=2050&f=A&linechart=ref2020-d112119a.108-62-AEO2020.5-10~ref2020-d112119a.156-62-AEO2020.5-10~ref2020-d112119a.157-62-AEO2020.5-10~ref2020-d112119a.158-62-AEO2020.5-10~&map=&ctype=linechart&sourcekey=0.

Planning and Standards.[19] This source was used and approved by the Board[20] in the Evaluation of New Jersey Solicitation for offshore wind renewable energy credits ("OREC") for Offshore Wind Capacity Framework for Evaluation of Impacts.[21]

12. Economic Development Benefits

Energy efficiency programs can be a powerful tool for local economic development and job creation. While cost effective energy efficiency programs provide many other benefits including reduced utility system costs, lower emissions, and lower bills for program participants, the job creation and local economic growth benefits are critical as states begin to recover from the COVID-19 pandemic.

Economic benefits are created by energy efficiency programs in two significant ways. First, economic benefits are created through the direct implementation of the programs, which are driven by the additional program spending and associated impacts in industries directly receiving dollars. Second, benefits are also created through the ripple effects on the economy of customer bills savings. Energy efficiency programs create significant bill savings, which increase disposable income for residents and businesses. The spending of this increased disposable income stimulates the economy, providing ripple effects in many sectors of the economy.

I estimated the economic development benefits using IMPLAN, a widely used industry standard input/output model. IMPLAN and similar input output models have been

[19] United States Environmental Protection Agency. 2018. Technical Support Document: Estimating the Benefit per Ton of Reducing PM2.5 Precursors from 17 Sectors. epa.gov/sites/production/files/2018-02/documents/sourceapportionmentbpttsd_2018.pdf.

[20] In the Matter of the Board of Public Utilities Offshore Wind Solicitation for 1,100 MW – Evaluation of the Offshore Wind Applications. Docket No. QO18121289. bpu.state.nj.us/bpu/pdf/boardorders/2019/20190621/6-21-19-8D.pdf

[21] Levitan & Associates, Inc. *Evaluation of New Jersey Solicitation for ORECs for Offshore Wind Capacity Framework for Evaluation of Impacts*. bpu.state.nj.us/bpu/pdf/boardorders/2019/20190621/6-21-19-8D%20-%20Public%20Version%20-%20Levitan%20NJ%20OREC%20Final%20Report.pdf

presented to the Board numerous times, including instances by its own consultants and by consultants to Rate Counsel. IMPLAN is also one of the input output models suggested by the Board for evaluation of offshore wind investments. Finally, input/output modeling is required under the Offshore Wind Economic Development Act ("OWEDA") for offshore wind projects submitting for ORECs.[22]

I estimated the economic impacts by imputing the projected program spending and bill savings into IMPLAN. For program spending, I used a program by program approach to break out materials and labor, mapping spending into specific industries within IMPLAN. For bill savings, I mapped the increased disposable income to households by income level and to relevant commercial industries. Finally, to capture the negative economic impacts of higher rates and bills from the cost recovery associated with the programs, I offset the increased disposable income by the projected increase in bills driven by program costs. Collectively, these three steps provide a comprehensive estimate of economic impacts and job creation.

13. Non-Energy and Low-Income Adders

I applied a 5% adder to avoided energy benefits to address non-energy benefits, including comfort, health, and safety. I also applied a 10% adder to avoided energy benefits to address low-income non energy benefits, including reduced arrearages and other low-income specific benefits. The low-income adder was in addition to the 5% non-energy benefit adder. Both adders are consistent with the prescribed method in the New Jersey Cost Test guidance document.[23]

[22] N.J.A.C. 14: § 14:8-6.5 Application Requirements. nj.gov/bpu/pdf/boardorders/2018/20180917/9-17-18-8G.pdf
[23] New Jersey Board of Public Utilities. *New Jersey Cost Test.* August 24, 2020. Page 18. bpu.state.nj.us/bpu/pdf/boardorders/2020/20200824/8A%20-%20ORDER%20New%20Jersey%20Cost%20Test.pdf

Q. Please describe the Program Costs listed in Table 1 above.

A. The program costs include:

1. Incremental Costs

The incremental cost category captures the incremental cost of participating in the programs. This cost is calculated based upon the difference between the efficient measure costs assumed to install energy efficiency technologies and processes and the base measure cost assumed that a participant would otherwise pay without access to the proposed program.

2. Participant Costs

The participant cost category captures the incremental cost of participating in the programs paid by participants. This category includes both incremental costs paid by participants for the non-subsidized portion of energy efficiency costs, as well as loan repayments for programs offering financing.

3. Program Administration Costs

The program administration cost category captures the cost of administering the energy efficiency programs by JCP&L. These include costs for marketing, outside services, utility administration, inspections and quality control, and evaluation. These costs were developed based on JCP&L's previous experience delivering similar programs and guidance from the Board in the June 10 and August 24 orders.

4. Customer Rebate and Incentives Cost

The customer rebate and incentive cost category capture the direct rebate incentives provided to participants of the programs. These costs were developing through a

coordinated approach with other New Jersey utilities, but also based on existing programs in New Jersey and other jurisdictions for similar measures.

5. Utility Lost Revenues

An associated cost is the reallocated distribution costs category which captures the value of any distribution costs being avoided by participants that must be collected from the balance of ratepayers. These are not direct program costs and represent the transfer between existing ratepayer subsectors. This cost is also known as lost utility costs or lost revenues.

Utility lost revenues were calculated based upon the individual rate charges which currently contribute to supporting distribution costs. In addition, the utility lost revenues also include tariff surcharges and riders which do not contribute to distribution costs but would likely be reallocated to ratepayers at large. Utility lost revenues do not include any supply related costs, as New Jersey's electric and natural gas utilities are deregulated, and avoided supply costs resulting from energy efficiency are not currently borne by ratepayers.

Q. What assumptions did you use for measure-level energy savings?

A. All measure level assumptions were provided by JCP&L. These are also available in Appendix C, Table C-2 of the JCP&L EE&C Plan.

Q. Were the costs and benefits evaluated on a nominal or present value basis?

A. For the purposes of each of the CBA tests, all costs and benefits were evaluated on a present value basis. The NJCT and SCT both relied on a 3% societal discount rate as prescribed by the Board in the August 24 Order.[24] The TRC, PCT, PAC, and RIM tests relied on the JCP&L weighted average cost of capital of 7.47% (post-tax) to discount costs and benefits.

[24] New Jersey Board of Public Utilities. *New Jersey Cost Test.* August 24, 2020. Page 13. bpu.state.nj.us/bpu/pdf/boardorders/2020/20200824/8A%20-%20ORDER%20New%20Jersey%20Cost%20Test.pdf

Q. What net to gross assumption did you make in conducting the cost benefit analysis?

A. Consistent with Board guidance, I used a 1.0 net-to-gross factor for all programs and measures.[25]

Q. Please describe how the JCP&L energy savings target was developed.

A. The JCP&L energy savings target is based on guidance from the Board in the June 10 Order. In the Order, Staff recommends that "the average usage for the purposes of compliance be calculated based on the average of retail sales for the most recent three-year years relative to the program year for which the target is applicable."[26] Accordingly, the savings target for each program year is based on an average of the three prior years. For program year one, which runs from July 1, 2021 through June 30, 2022, the savings target is based on the average of the actual sales in 2018-2019 and forecasted sales for 2020. For program year two, the savings target is developed based on the average of actual sales in 2019, and forecasted sales in 2020-2021. The program year three target was based upon forecasted sales for 2021-2023. The baseline developed through this approach was then multiplied by the energy savings target percentages in the June 10 Order to determine the MWh goals. The target development is detailed in Exhibit BJB-7.

III. CONCLUSIONS

Q. Please summarize your testimony and recommendations to the Board.

A. The JCP&L 2021-2023 Energy Efficiency and Conservation Program is a cost-effective portfolio of energy efficiency programs that achieve the state policy goals of the Board. The programs provide energy savings opportunities to all customers in the JCP&L service

[25] New Jersey Board of Public Utilities. *Order Directing the Utilities to Establish Energy Efficiency and Peak Demand Reduction Programs.* Docket Nos. QO19010040, QO19060748, and QO10791004. June 10, 2020.
[26] *See* June 10 Order at page 19.

territory and ensure low-to-moderate income customers have equal opportunity to realize program benefits. The portfolio also puts JCP&L on a trajectory to meet the program year five energy savings target mandated in the Clean Energy Act.

The CBA shows that the JCP&L program portfolio is cost effective under the New Jersey Cost Test with a cost benefit ratio of 3.5 and net benefits of $685 million. These results indicate that the programs will provide significant benefits to all JCP&L customers, while improving environmental quality and stimulating economic development. I recommend the Board approve the JCP&L program portfolio as proposed.

Q. Does this conclude your testimony?

A. Yes.

Brendon J. Baatz (231) 282-0585 | brendon@gabelassociates.com

Brendon Baatz has nearly ten years of experience working directly on issues related to the electric and gas utility industry. His primary areas of expertise include electric cost of service and rate design, energy efficiency program design, energy efficiency policy, cost benefit analysis, utility regulatory strategy, stakeholder engagement, integrated resource planning, electric vehicle policy, and renewable energy technology and policy.

Mr. Baatz is an internationally recognized expert in rate design and energy efficiency policy. He has published peer reviewed papers and spoken on a variety of topics at trade events and conferences. Mr. Baatz is also a sought-after expert witness in litigated cases before regulatory commissions. He has appeared before commissions in Arizona, Colorado, Indiana, Maryland, New Jersey, New York, Oklahoma, Pennsylvania, and Washington D.C.

Professional Experience

Gabel Associates Inc. Highland Park, NJ
Vice President 2018-Present

- Support and advise clients on a variety of energy and regulatory issues including retail and wholesale electric rate design, energy efficiency policy and program design, cost benefit analysis, resource planning, and renewable energy project development.
- Lead consultant to the solar industry in New York Reforming the Energy Vision (REV) regulatory process on rate design for mass market customers.
- Provide ongoing consulting services to multiple gas and electric utilities on energy efficiency program design, cost benefit analysis, avoided cost development, strategic guidance, and program delivery in New Jersey.
- Advise various wholesale energy market clients, including power plant project developers and operators on regulatory issues such as retail ratemaking, wholesale ratemaking, RTO governance, FERC rulemakings, and other relevant issues.
- Provide technical expert testimony for various clients in regulatory matters before state energy commissions. Have testified in Arizona, Colorado, Indiana, Maryland, New Jersey, New York, Oklahoma, Pennsylvania, and Washington D.C

American Council for an Energy-Efficient Economy Washington, D.C.
Senior Manager, Utilities Program 2014-2018

- Oversaw and coordinated ACEEE's efforts related to utility sector energy efficiency programs. Served as project manager and lead author for research projects involving utility sector energy efficiency programs, business models, best practices, rate design, and other topics.
- Provided technical assistance for utilities and other energy efficiency implementation partners such as state government agencies on a variety of regulatory policy and best practice program topics.
- Filed testimony and formal comments before state regulatory commissions on issues related to energy efficiency programs, integrated resource planning, rate design, and other issues related to the best practices and policies for implementing energy efficiency.

Federal Energy Regulatory Commission — Washington, D.C.
Energy Industry Analyst — 2013–2014

- Served as a technical expert in litigated cases before the Federal Energy Regulatory Commission on behalf of the FERC trial staff. Issues examined included: wholesale energy rates, transmission rates, Open Access Transmission Tariff interpretation, transmission capacity rights, cost allocation for various customer classes, formula rate mechanics and protocols, electric cost of service, interruptible load, rate design, and regional transmission organization functionality and governance.

Maryland Public Service Commission — Baltimore, MD
Energy Analyst — 2012–2013

- Reviewed and analyzed utility filings for EmPOWER Maryland statewide energy efficiency, conservation, and demand response programs. Presented results of research before the Commission. Worked closely with the Agency energy efficiency evaluation contractor to develop evaluation policies that reduced costs for Maryland ratepayers while ensuring integrity of the evaluation process.

Indiana Office of Utility Consumer Counselor — Indianapolis, IN
Utility Analyst — 2011–2012

- Served as a technical expert witness in utility cases before the Indiana Utility Regulatory Commission on behalf of utility ratepayers in the State of Indiana. Developed agency position through analyses of relevant utility applications, petitions, testimony, schedules, and exhibits. Served as agency representative in collaborative demand side management oversight boards for electric and gas utilities.

Education

Master of Public Affairs, Environmental Policy Analysis, Indiana University Bloomington, 2010

BS, Political Science and Sociology, Arizona State University, 2007

Selected Research Publications

B. Baatz, G. Relf, and S. Nowak. 2018. The Role of Energy Efficiency in a Distributed Energy Future. The Electricity Journal, Vol. 31, Issue 10. doi.org/10.1016/j.tej.2018.11.004.

B. Baatz, J. Barrett, and B. Stickles. 2018. Estimating the Value of Energy Efficiency to Reduce Wholesale Energy Price Volatility. Washington, DC: ACEEE. aceee.org/research-report/u1803.

B. Baatz, G. Relf, and M. Kelly. 2017. Consequences of Large Customer Opt Out: An Ohio Example. The Electricity Journal, Vol. 30, Issue 9. doi.org/10.1016/j.tej.2017.10.002.

B. Baatz. 2017. Rate Design Matters: The Intersection of Residential Rate Design and Energy Efficiency. Washington, DC: ACEEE. aceee.org/research-report/u1703.

B. Baatz and J. Barrett. 2017. Maryland Benefits: Examining the Results of EmPOWER Maryland through 2015. Washington, DC: ACEEE. aceee.org/research-report/u1701.

B. Baatz and A. Gilleo. 2016. Big Savers: Experiences and Recent History of Program Administrators Achieving High Levels of Electric Savings. The Electricity Journal, Vol. 29, Issue 8. doi.org/10.1016/j.tej.2016.09.009.

B. Baatz. 2015. Everyone Benefits: Practices and Recommendations for Utility System Benefits of Energy Efficiency. Washington, DC: ACEEE. aceee.org/everyone-benefits-practices-and-recommendations.

S. Nowak, B. Baatz, A. Gilleo, M. Kushler, M. Molina, and D. York. 2015. Beyond Carrots for Utilities: A National Review of Performance Incentives for Energy Efficiency. Washington, DC: ACEEE. aceee.org/beyond-carrots-utilities-national-review.

Selected Expert Witness Regulatory Cases

Elizabethtown Gas; New Jersey Board of Public Utilities; July 31,2020 (Docket No. GR20070503). Client: Elizabethtown Gas. Issues: cost benefit analysis for energy efficiency true up filing.

Tucson Electric Power Company; Arizona Corporate Commission (Docket No. E- 01933A-19-0028); October 11, 2019. Client: Southwest Energy Efficiency Partnerships Issues: performance-based ratemaking, energy efficiency program cost recovery, time of use rate design, electric vehicle rate design.

Black Hills Colorado Electric; Public Utilities Commission of Colorado (Proceeding No. 18A-0676E), January 22, 2019. Client: Pueblo County, Colorado. Issue: time of use pilot proposal, low income bill analysis.

Oklahoma Gas and Electric Company; Oklahoma Corporate Commission (Cause No. PUD 201800140); April 22, 2019. Client: Oklahoma Energy Results. Issues: prudence of environmental cost recovery for aged coal units, integrated resource planning assessment.

Lancaster Solid Waste Management Authority; Federal Energy Regulatory Commission (Docket No. ER19-342); November 14, 2018. Client: Lancaster Solid Waste Management Authority. Issue: reactive power ratemaking.

Elizabethtown Gas; New Jersey Board of Public Utilities (Docket No. GR18080860); August 8, 2018. Client: Elizabethtown Gas. Issues: cost benefit analysis for energy efficiency true up filing.

Duquesne Light Company; Pennsylvania Public Utility Commission (Docket R-2018-3000124); June 25, 2018. Client: Keystone Energy Efficiency Alliance, Natural Resources Defense Council, and Clean Air Council. Issues: submetering for multifamily buildings, time of use rates, rate design.

Tucson Electric Power Company; Arizona Corporate Commission (Docket No. E- 01933A-15-0322); June 24, 2016. Client: Southwest Energy Efficiency Partnerships Issues: rate design, prepaid electricity.

PECO Electric Company; Pennsylvania Public Utility Commission (Docket R-2015-2468981); June 23, 2015. Client: Keystone Energy Efficiency Alliance, Natural Resources Defense Council, and Clean Air Council. Issues: rate design, revenue decoupling.

PPL Electric Corporation; Pennsylvania Public Utility Commission (Docket R-2015-2469275); June 23, 2015. Client: Keystone Energy Efficiency Alliance, Natural Resources Defense Council, and Clean Air Council. Issues: rate design, revenue decoupling.

Northern Indiana Public Service Company; Indiana Utility Regulatory Commission (Cause 44012); October 20, 2011. Representing Indiana Office of Utility Consumer Counselor. Issues: environmental control upgrades, alternate scenario economic analysis.

Indianapolis Power and Light Company; Indiana Utility Regulatory Commission (Cause 43623 DSM-5); April 26, 2012. Representing Indiana Office of Utility Consumer Counselor. Issue: energy efficiency performance incentive reconciliation.

Indianapolis Power and Light Company; Indiana Utility Regulatory Commission (Cause 44018); August 22, 2011. Representing Indiana Office of Utility Consumer Counselor. Issue: renewable energy feed in tariff design.

Indiana Michigan Power Company; Indiana Utility Regulatory Commission (Cause 44034); August 12, 2011. Representing Indiana Office of Utility Consumer Counselor. Issue: renewable energy credit benefit allocation.

Indiana Gas Company, Inc. and Indiana Gas and Electric Company; Indiana Utility Regulatory Commission (Cause 44019); May 20, 2011. Representing Indiana Office of Utility Consumer Counselor. Issue: revenue decoupling.

Jersey Central Power and Light
Energy Efficiency and Conservation Program
Cost Benefit Results Summary

Exhibit BJB-2

Total Resource Cost Test (TRC)		Res	C&I	Total Portfolio	Efficient Products	Existing Homes	Home Energy Education and Management	Multifamily	Direct Install	Energy Solutions for Business	Home Optimization & Peak Demand Reduction
BENEFITS											
1 Avoided Wholesale Electric Energy and Electric Ancillary Costs		$ 81,451,893	$ 83,474,961	$ 166,281,560	$ 76,555,817	$ 3,667,034	$ 1,229,043	$ 1,270,588	$ 15,342,359	$ 68,132,602	$ 84,118
2 Avoided Wholesale Electric Capacity Costs		$ 7,751,760	$ 22,866,861	$ 31,408,466	$ 6,661,345	$ 878,164	$ 212,251	$ 167,760	$ 5,129,735	$ 17,737,127	$ 622,085
3 Avoided Wholesale Natural Gas Costs		$ (3,008,451)	$ (1,515,820)	$ (3,781,689)	$ (8,594,427)	$ 5,585,976	$ -	$ 564,621	$ -	$ (1,515,820)	$ 177,961
4 Avoided RPS REC Purchase Costs		$ 41,730,105	$ 55,597,007	$ 98,230,130	$ 38,523,428	$ 2,431,474	$ 775,202	$ 849,185	$ 10,232,200	$ 45,364,806	$ 53,834
5 Avoided Wholesale Volatility Costs		$ 8,619,520	$ 10,482,600	$ 19,390,834	$ 7,462,273	$ 1,013,117	$ 144,129	$ 200,297	$ 2,047,209	$ 8,435,391	$ 88,416
6 Electric Energy and Capacity Demand Reduction Induced Price Effects (DRIPE)		$ 20,856,455	$ 38,824,825	$ 60,800,677	$ 18,844,707	$ 1,548,306	$ 463,442	$ 378,576	$ 8,194,061	$ 30,630,764	$ 740,822
7 Avoided Transmission and Distribution Costs		$ 121,042,206	$ 141,925,660	$ 266,557,610	$ 104,774,099	$ 14,086,419	$ 2,181,688	$ 2,801,233	$ 34,719,215	$ 107,206,445	$ 788,512
Total Benefits	***1+2+3+4+5+6+7***	**$ 278,443,487**	**$ 351,656,094**	**$ 638,887,587**	**$ 244,227,242**	**$ 29,210,491**	**$ 5,005,755**	**$ 6,232,258**	**$ 75,664,779**	**$ 275,991,315**	**$ 2,555,748**
COSTS											
8 Incremental Costs		$ 52,662,717	$ 129,933,572	$ 185,094,445	$ 38,991,489	$ 13,671,228	$ -	$ 1,568,621	$ 9,385,332	$ 120,548,239	$ 929,536
9 Administration Costs		$ 44,173,427	$ 26,401,367	$ 75,786,170	$ 25,157,780	$ 15,361,623	$ 3,654,024	$ 3,306,233	$ 7,250,174	$ 19,151,193	$ 1,905,144
Total Costs	***8+9***	**$ 96,836,144**	**$ 156,334,938**	**$ 260,880,615**	**$ 64,149,269**	**$ 29,032,851**	**$ 3,654,024**	**$ 4,874,853**	**$ 16,635,506**	**$ 139,699,432**	**$ 2,834,680**
Benefit Cost Ratio	**(1+2+3+4+5+6+7)/(8+9)**	**2.9**	**2.2**	**2.4**	**3.8**	**1.0**	**1.4**	**1.3**	**4.5**	**2.0**	**0.9**

Participant Cost Test (PCT)		Res	C&I	Total Portfolio	Efficient Products	Existing Homes	Home Energy Education and Management	Multifamily	Direct Install	Energy Solutions for Business	Home Optimization & Peak Demand Reduction
BENEFITS											
10 Avoided Retail Electric Costs		$ 342,401,336	$ 337,184,953	$ 685,332,262	$ 321,473,727	$ 15,424,621	$ 5,502,988	$ 5,371,200	$ 72,016,850	$ 265,168,103	$ 374,772
11 Avoided Retail Natural Gas Costs		$ (9,423,842)	$ (4,440,586)	$ (11,438,908)	$ (27,141,450)	$ 17,717,607	$ -	$ 1,801,221	$ -	$ (4,440,586)	$ 624,300
12 Program Incentive Costs		$ 49,114,171	$ 59,356,334	$ 111,151,671	$ 28,426,305	$ 20,687,866	$ -	$ 1,751,672	$ 15,016,532	$ 44,339,803	$ 929,494
13 Time-Value of Loan Repayments		$ (715,985)	$ (382,372)	$ (1,104,656)	$ (442,286)	$ (273,699)	$ -	$ (6,299)	$ (23,033)	$ (359,339)	$ -
Total Benefits	***10+11+12+13***	**$ 381,375,679**	**$ 391,718,330**	**$ 783,940,370**	**$ 322,316,295**	**$ 53,556,396**	**$ 5,502,988**	**$ 8,917,794**	**$ 87,010,349**	**$ 304,707,981**	**$ 1,928,566**
COSTS											
14 Lifetime Participant Costs				$ 190,344,123	$ 41,182,944	$ 14,685,565	$ -	$ 1,600,097	$ 9,540,103	$ 122,405,879	$ 929,536
Total Costs	***14***	$ -	$ -	**$ 190,344,123**	**$ 41,182,944**	**$ 14,685,565**	$ -	**$ 1,600,097**	**$ 9,540,103**	**$ 122,405,879**	**$ 929,536**
Benefit Cost Ratio	**(10+11+12+13)/14**	**n/a**	**n/a**	**4.1**	**7.8**	**3.6**	**n/a**	**5.6**	**9.1**	**2.5**	**2.1**

Program Administrator Cost Test (PAC)		Res	C&I	Total Portfolio	Efficient Products	Existing Homes	Home Energy Education and Management	Multifamily	Direct Install	Energy Solutions for Business	Home Optimization & Peak Demand Reduction
BENEFITS											
15 Avoided Wholesale Electric Energy and Electric Ancillary Costs		$ 81,451,893	$ 83,474,961	$ 166,281,560	$ 76,555,817	$ 3,667,034	$ 1,229,043	$ 1,270,588	$ 15,342,359	$ 68,132,602	$ 84,118
16 Avoided Wholesale Electric Capacity Costs		$ 7,751,760	$ 22,866,861	$ 31,408,466	$ 6,661,345	$ 878,164	$ 212,251	$ 167,760	$ 5,129,735	$ 17,737,127	$ 622,085
17 Avoided Wholesale Natural Gas Costs		$ (3,008,451)	$ (1,515,820)	$ (3,781,689)	$ (8,594,427)	$ 5,585,976	$ -	$ 564,621	$ -	$ (1,515,820)	$ 177,961
18 Avoided RPS REC Purchase Costs		$ 41,730,105	$ 55,597,007	$ 98,230,130	$ 38,523,428	$ 2,431,474	$ 775,202	$ 849,185	$ 10,232,200	$ 45,364,806	$ 53,834
19 Avoided Wholesale Volatility Costs		$ 8,619,520	$ 10,482,600	$ 19,390,834	$ 7,462,273	$ 1,013,117	$ 144,129	$ 200,297	$ 2,047,209	$ 8,435,391	$ 88,416
20 Electric Energy and Capacity Demand Reduction Induced Price Effects (DRIPE)		$ 20,863,894	$ 38,832,415	$ 60,815,064	$ 18,862,896	$ 1,537,556	$ 463,442	$ 377,131	$ 8,194,061	$ 30,638,354	$ 741,624
21 Avoided Transmission and Distribution Costs		$ 121,042,206	$ 141,925,660	$ 266,557,610	$ 104,774,099	$ 14,086,419	$ 2,181,688	$ 2,801,233	$ 34,719,215	$ 107,206,445	$ 788,512
Total Benefits	***15+16+17+18+19+20+21***	**$ 278,450,927**	**$ 351,663,683**	**$ 638,901,973**	**$ 244,245,431**	**$ 29,199,741**	**$ 5,005,755**	**$ 6,230,814**	**$ 75,664,779**	**$ 275,998,905**	**$ 2,556,550**
COSTS											
22 Administration Costs		$ 44,173,427	$ 26,401,367	$ 75,786,170	$ 25,157,780	$ 15,361,623	$ 3,654,024	$ 3,306,233	$ 7,250,174	$ 19,151,193	$ 1,905,144
23 Program Rebate Costs		$ 49,114,171	$ 59,356,334	$ 111,151,671	$ 28,426,305	$ 20,687,866	$ -	$ 1,751,672	$ 15,016,532	$ 44,339,803	$ 929,494
24 Time-Value of Loan Repayments		$ (715,985)	$ (382,372)	$ (1,104,656)	$ (442,286)	$ (273,699)	$ -	$ (6,299)	$ (23,033)	$ (359,339)	$ -
Total Costs	***22+23+24***	**$ 92,571,613**	**$ 85,375,329**	**$ 185,833,185**	**$ 53,141,799**	**$ 35,775,790**	**$ 3,654,024**	**$ 5,051,606**	**$ 22,243,673**	**$ 63,131,657**	**$ 2,834,637**
Benefit Cost Ratio	**(15+16+17+18+19+20+21)/(22+23+24)**	**3.0**	**4.1**	**3.4**	**4.6**	**0.8**	**1.4**	**1.2**	**3.4**	**4.4**	**0.9**

Ratepayer Impact Measure Test (RIM)		Res	C&I	Total Portfolio	Efficient Products	Existing Homes	Home Energy Education and Management	Multifamily	Direct Install	Energy Solutions for Business	Home Optimization & Peak Demand Reduction
BENEFITS											
25 Avoided Wholesale Electric Energy and Electric Ancillary Costs		$ 81,451,893	$ 83,474,961	$ 166,281,560	$ 76,555,817	$ 3,667,034	$ 1,229,043	$ 1,270,588	$ 15,342,359	$ 68,132,602	$ 84,118
26 Avoided Wholesale Electric Capacity Costs		$ 7,751,760	$ 22,866,861	$ 31,408,466	$ 6,661,345	$ 878,164	$ 212,251	$ 167,760	$ 5,129,735	$ 17,737,127	$ 622,085
27 Avoided Wholesale Natural Gas Costs		$ (3,008,451)	$ (1,515,820)	$ (3,781,689)	$ (8,594,427)	$ 5,585,976	$ -	$ 564,621	$ -	$ (1,515,820)	$ 177,961
28 Avoided RPS REC Purchase Costs		$ 41,730,105	$ 55,597,007	$ 98,230,130	$ 38,523,428	$ 2,431,474	$ 775,202	$ 849,185	$ 10,232,200	$ 45,364,806	$ 53,834
29 Avoided Wholesale Volatility Costs		$ 8,619,520	$ 10,482,600	$ 19,390,834	$ 7,462,273	$ 1,013,117	$ 144,129	$ 200,297	$ 2,047,209	$ 8,435,391	$ 88,416
30 Electric Energy and Capacity Demand Reduction Induced Price Effects (DRIPE)		$ 20,856,455	$ 38,824,825	$ 60,800,677	$ 18,844,707	$ 1,548,306	$ 463,442	$ 378,576	$ 8,194,061	$ 30,630,764	$ 740,822
31 Avoided Transmission and Distribution Costs		$ 121,042,206	$ 141,925,660	$ 266,557,610	$ 104,774,099	$ 14,086,419	$ 2,181,688	$ 2,801,233	$ 34,719,215	$ 107,206,445	$ 788,512
Total Benefits	***25+26+27+28+29+30+31***	**$ 278,443,487**	**$ 351,656,094**	**$ 638,887,587**	**$ 244,227,242**	**$ 29,210,491**	**$ 5,005,755**	**$ 6,232,258**	**$ 75,664,779**	**$ 275,991,315**	**$ 2,555,748**
COSTS											
32 Administration Costs		$ 44,173,427	$ 26,401,367	$ 75,786,170	$ 25,157,780	$ 15,361,623	$ 3,654,024	$ 3,306,233	$ 7,250,174	$ 19,151,193	$ 1,905,144
33 Program Rebate Costs		$ 49,114,171	$ 59,356,334	$ 111,151,671	$ 28,426,305	$ 20,687,866	$ -	$ 1,751,672	$ 15,016,532	$ 44,339,803	$ 929,494
34 Re-allocated Distribution Costs		$ 114,570,720	$ 127,427,315	$ 245,118,774	$ 99,188,730	$ 13,385,560	$ 1,996,430	$ 2,675,448	$ 31,460,919	$ 95,966,396	$ 445,291
35 Time-Value of Loan Repayments		$ (715,985)	$ (382,372)	$ (1,104,656)	$ (442,286)	$ (273,699)	$ -	$ (6,299)	$ (23,033)	$ (359,339)	$ -
Total Costs	***32+33+34+35***	**$ 207,142,333**	**$ 212,802,644**	**$ 430,951,959**	**$ 152,330,529**	**$ 49,161,350**	**$ 5,650,454**	**$ 7,727,054**	**$ 53,704,591**	**$ 159,098,053**	**$ 3,279,928**
Benefit Cost Ratio	**(25+26+27+28+29+30+31)/(32+33+34+35)**	**1.3**	**1.7**	**1.5**	**1.6**	**0.6**	**0.9**	**0.8**	**1.4**	**1.7**	**0.8**

Societal Cost Test (SCT)		Res	C&I	Total Portfolio	Efficient Products	Existing Homes	Home Energy Education and Management	Multifamily	Direct Install	Energy Solutions for Business	Home Optimization & Peak Demand Reduction
BENEFITS											
36 Avoided Wholesale Electric Energy and Electric Ancillary Costs		$ 107,784,883	$ 112,701,017	$ 222,304,723	$ 101,421,213	$ 5,014,020	$ 1,349,650	$ 1,725,288	$ 21,054,254	$ 91,646,762	$ 93,536
37 Avoided Wholesale Electric Capacity Costs		$ 10,932,457	$ 32,504,739	$ 44,405,693	$ 9,414,770	$ 1,269,749	$ 247,938	$ 241,816	$ 7,411,019	$ 25,093,720	$ 726,681
38 Avoided Wholesale Natural Gas Costs		$ (4,168,493)	$ (1,978,797)	$ (5,183,284)	$ (11,800,883)	$ 7,632,389	$ -	$ 766,240	$ -	$ (1,978,797)	$ 197,766
39 Electric Energy and Capacity Demand Reduction Induced Price Effects (DRIPE)		$ 28,026,678	$ 54,020,983	$ 83,436,771	$ 25,327,769	$ 2,172,813	$ 526,096	$ 523,654	$ 11,622,842	$ 42,398,142	$ 865,455
40 Natural Gas Demand Reduction Induced Price Effects (DRIPE)		$ 10,041	$ 10,109	$ 19,484	$ 20,877	$ (10,835)	$ -	$ (1,556)	$ -	$ 10,109	$ 890
41 Avoided RPS REC Purchase Costs		$ 53,338,466	$ 55,597,007	$ 109,838,490	$ 50,131,789	$ 2,431,474	$ 775,202	$ 849,185	$ 10,232,200	$ 45,364,806	$ 53,834
42 Avoided Wholesale Volatility Costs		$ 11,454,885	$ 14,322,696	$ 26,152,713	$ 9,903,510	$ 1,391,616	$ 159,759	$ 273,334	$ 2,846,527	$ 11,476,169	$ 101,798
43 Avoided Transmission and Distribution Costs		$ 156,162,893	$ 185,036,223	$ 345,761,358	$ 134,965,580	$ 18,820,731	$ 2,376,582	$ 3,724,013	$ 46,023,423	$ 139,012,800	$ 838,229
44 Avoided CO_2 Emissions Damages		$ 112,362,597	$ 120,451,970	$ 235,608,920	$ 99,138,406	$ 11,659,598	$ 1,564,592	$ 2,513,900	$ 22,720,418	$ 97,731,552	$ 280,453
45 Avoided SO_2 + NOx Emissions Damages		$ 126,276,747	$ 134,318,037	$ 262,994,933	$ 116,993,590	$ 7,639,821	$ 1,643,336	$ 2,241,391	$ 25,178,034	$ 109,140,003	$ 158,758
46 Job and Energy Savings Economic Value-Added Multiplier Benefits		$ 301,727,214	$ 455,243,760	$ 769,214,869	$ 254,128,664	$ 42,100,944	$ 5,497,606	$ 8,355,921	$ 97,403,360	$ 357,840,400	$ 3,887,974
Total Benefits	***36+37+38+39+40+41+42+43+44+45+46***	**$ 903,908,367**	**$ 1,162,227,744**	**$ 2,094,554,671**	**$ 789,645,286**	**$ 100,122,319**	**$ 14,140,762**	**$ 21,213,187**	**$ 244,492,077**	**$ 917,735,667**	**$ 7,205,373**
COSTS											
47 Incremental Costs		$ 55,336,856	$ 137,903,354	$ 195,920,059	$ 40,767,518	$ 14,569,338	$ -	$ 1,662,411	$ 10,051,106	$ 127,852,249	$ 1,017,437
48 Administration Costs		$ 46,580,833	$ 27,954,932	$ 80,099,644	$ 26,452,286	$ 16,218,956	$ 3,909,591	$ 3,495,083	$ 7,688,695	$ 20,266,237	$ 2,068,796
Total Costs	***47+48***	**$ 101,917,690**	**$ 165,858,286**	**$ 276,019,703**	**$ 67,219,804**	**$ 30,788,295**	**$ 3,909,591**	**$ 5,157,494**	**$ 17,739,800**	**$ 148,118,486**	**$ 3,086,234**
Benefit Cost Ratio	**(36+37+38+39+40+41+42+43+44+45+46)/(47+48)**	**8.9**	**7.0**	**7.6**	**11.7**	**3.3**	**3.6**	**4.1**	**13.8**	**6.2**	**2.3**

New Jersey Cost Test (NJCT)		Res	C&I	Total Portfolio	Efficient Products	Existing Homes	Home Energy Education and Management	Multifamily	Direct Install	Energy Solutions for Business	Home Optimization & Peak Demand Reduction
BENEFITS											
49 Avoided Wholesale Electric Energy and Electric Ancillary Costs		$ 107,784,883	$ 112,701,017	$ 222,304,723	$ 101,421,213	$ 5,014,020	$ 1,349,650	$ 1,725,288	$ 21,054,254	$ 91,646,762	$ 93,536
50 Avoided Wholesale Electric Capacity Costs		$ 10,932,457	$ 32,504,739	$ 44,405,693	$ 9,414,770	$ 1,269,749	$ 247,938	$ 241,816	$ 7,411,019	$ 25,093,720	$ 726,681
51 Avoided Wholesale Natural Gas Costs		$ (4,168,493)	$ (1,978,797)	$ (5,183,284)	$ (11,800,883)	$ 7,632,389	$ -	$ 766,240	$ -	$ (1,978,797)	$ 197,766
52 Electric Energy and Capacity Demand Reduction Induced Price Effects (DRIPE)		$ 28,037,514	$ 54,010,875	$ 83,438,164	$ 25,327,769	$ 2,183,648	$ 526,096	$ 525,210	$ 11,622,842	$ 42,388,033	$ 864,565
53 Avoided Transmission and Distribution Costs		$ 156,162,893	$ 185,036,223	$ 345,761,358	$ 134,965,580	$ 18,820,731	$ 2,376,582	$ 3,724,013	$ 46,023,423	$ 139,012,800	$ 838,229
54 Avoided CO_2 Emissions Damages		$ 112,362,597	$ 120,451,970	$ 235,608,920	$ 99,138,406	$ 11,659,598	$ 1,564,592	$ 2,513,900	$ 22,720,418	$ 97,731,552	$ 280,453
55 Non-Energy Benefits (5%)		$ 14,937,463	$ 19,113,703	$ 34,536,333	$ 12,966,422	$ 1,746,027	$ 225,013	$ 349,128	$ 4,305,577	$ 14,808,126	$ 136,039
56 Low-Income Benefits (10%)		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Total Benefits	***49+50+51+52+53+54+55+56***	**$ 426,049,312**	**$ 521,839,729**	**$ 960,871,907**	**$ 371,433,278**	**$ 48,326,163**	**$ 6,289,872**	**$ 9,845,598**	**$ 113,137,532**	**$ 408,702,197**	**$ 3,137,268**
COSTS											
57 Incremental Costs		$ 55,336,856	$ 137,903,354	$ 195,920,059	$ 40,767,518	$ 14,569,338	$ -	$ 1,662,411	$ 10,051,106	$ 127,852,249	$ 1,017,437
58 Administration Costs		$ 46,580,833	$ 27,954,932	$ 80,099,644	$ 26,452,286	$ 16,218,956	$ 3,909,591	$ 3,495,083	$ 7,688,695	$ 20,266,237	$ 2,068,796
Total Costs	***57+58***	**$ 101,917,690**	**$ 165,858,286**	**$ 276,019,703**	**$ 67,219,804**	**$ 30,788,295**	**$ 3,909,591**	**$ 5,157,494**	**$ 17,739,800**	**$ 148,118,486**	**$ 3,086,234**
Benefit Cost Ratio	**(49+50+51+52+53+54+55+56)/(57+58)**	**4.2**	**3.1**	**3.5**	**5.5**	**1.6**	**1.6**	**1.9**	**6.4**	**2.8**	**1.0**

Jersey Central Power and Light Exhibit BJB-3
Energy Efficiency and Conservation Program
CBA Workpapers

*Confidential - will be provided after execution of NDA

Jersey Central Power and Light Exhibit BJB-4
Energy Efficiency and Conservation Program
Economic Development and Job Creation Results Summary

Table BJB-2.1 Nominal Economic Impacts of JCP&L EE&C Portfolio

Program	Value Added to GDP (NPV$)	Value Added to GDP (Nominal$)
Home Optimization & Peak Demand Reduction	198,311,518	321,862,148
Efficient Products	36,299,016	49,256,857
Existing Homes	5,285,565	5,640,522
Home Energy Education and Management	6,847,791	10,226,819
Direct Install	73,325,753	127,537,557
Energy Solutions for Business	272,456,219	462,941,999
Multifamily	3,756,540	3,954,735
Total Portfolio	596,282,401	981,420,637

Table BJB-2.2 Anticipated Job Creation Impacts of JCP&L EE&C Portfolio

Program	Total Direct Jobs	Total Indirect & Induced Jobs	Total Jobs
Home Optimization & Peak Demand Reduction	201	2,625	2,827
Efficient Products	122	115	237
Existing Homes	30	26	56
Home Energy Education and Management	33	48	81
Direct Install	639	560	1,199
Energy Solutions for Business	2,573	2,016	4,589
Multifamily	16	-8	8
Total Portfolio	3,614	5,381	8,996

Jersey Central Power and Light Exhibit BJB-5
Energy Efficiency and Conservation Program
Emissions Avoided Results Summary

Subprogram	CO_2 Emissions Reduction (tons)	SO_2 Emissions Reduction (tons)	NOx Emissions Reduction (tons)
Efficient Products	1,837,556	1,277	907
Existing Homes	212,175	63	141
Home Energy Education and Management	30,892	18	15
Multifamily	45,985	22	27
Direct Install	415,125	267	217
Energy Solutions for Business	1,797,355	1,166	928
Home Optimization & Peak Demand Reduction	5,491	1	4
Total	**4,344,579**	**2,814**	**2,239**

Jersey Central Power and Light Exhibit BJB-6
Energy Efficiency and Conservation Program
Cost to Achieve Results

Sector	Total
Residential	0.325
Commerical and Industrial	0.395
Multi-Family	1.238

Jersey Central Power and Light
Energy Efficiency and Conservation Program
JCP&L EE Target Development

Exhibit BJB-7

Sales Data Type	Year	Sales (kWh)	Baseline (kWh)	Program Year	Goal (%)	Goal (MWh)
Actual	2018	20,785,610,806				
Actual	2019	19,927,808,262				
Forecast	2020	19,572,733,517				
Forecast	2021	19,286,067,889	20,095,384,195	1	0.50%	100,477
Forecast	2022	19,494,281,861	19,595,536,556	2	0.74%	145,007
Forecast	2023		19,451,027,756	3	0.97%	188,675

Jersey Central Power and Light Exhibit BJB-8
Energy Efficiency and Conservation Program
Quantitative Performance Indicators

QPI Metric	Program Year 1	Program Year 2	Program Year 3
Annual Energy Savings (kWh)	139,244,824	194,442,032	232,379,606
Annual Demand Savings (kW)	7,832	9,903	12,915
Lifetime Energy Savings (kWh)	1,967,635,847	2,517,284,882	2,798,243,934
Lifetime of Persisting Demand Savings (kW)	108,671	132,110	141,540
NPV of UCT Net Benefits ($)	131,242,986	157,534,160	164,291,642
Low-Income Lifetime Savings (kWh)	5,625,000	9,375,000	11,250,000
Small Business Lifetime Savings (kWh)	60,966,565	274,349,542	304,832,825