

Board of Public Utilities

Memorandum

To: Marisa Slaten, Office of Economic Development, Deputy Director

From: Anne Marie McShea, Program Administrator NJCEP Evaluation & Research

Cc: Michael Winka, BPU; Frank Felder, Rutgers CEEEP; Jim Grevatt, Energy Futures; Tom Rooney, TRC

Re: **EVALUATIONS: NJCEP Process Evaluation Study (January 2016)**

Date: January 6, 2017

In 2016 an independent portfolio-level process evaluation was conducted by “Energy & Resource Solutions” (ERS) for the New Jersey Clean Energy Program (NJCEP). The study built upon a prior NJCEP Benchmarking Survey (February 2015) which provided findings that were then investigated at greater detail by ERS. The final report “*Process Evaluation Study prepared for The New Jersey Clean Energy Program by ERS,*” completed in January 2016, revealed many positive attributes of the NJCEP portfolio, including comprehensive program offerings, good participant satisfaction levels, and helpful program administrative staff. These attributes provide an excellent foundation from which improvements can be made. The NJCEP Process Evaluation Study also found performance (\$/KWh savings) lacking and made recommendations to help align program design and spending with performance. The BPU and new NJCEP Program Coordinator have since launched a high level Strategic Planning Process to establish these goals and metrics and a process by which to ensure energy savings performance.

These and other issues identified in the attached NJCEP Process Evaluation Study (January 2016) are now being addressed by the NJCEP Evaluation Committee and as part of the NJCEP Strategic Planning Process with metrics of performance expected to follow as part of the FY18 Budget and CRA process. A stakeholder engagement campaign has also been launched to ensure stakeholder input into the Strategic Planning process.

The NJCEP Evaluation Committee now recommends that the NJCEP Process Evaluation Study be made available online at www.njcleanenergy.com to support stakeholder engagement in the Strategic Planning Process and in the advancement of NJCEP goals and objectives.

Process Evaluation Study
prepared for
The New Jersey Clean Energy
Program

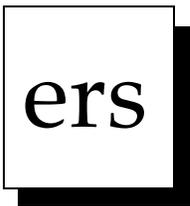


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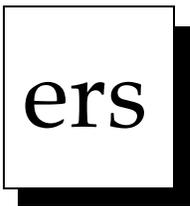
January 2016

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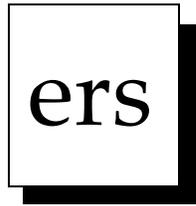
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Acknowledgments



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1 EXECUTIVE SUMMARY

This report presents the results of the portfolio-level process evaluation for the New Jersey Clean Energy Program (NJCEP). The report was authored by ERS with support from the Office of Clean Energy (OCE), Rutgers' Center for Energy, Economic & Environmental Policy, and the market manager teams: Applied Energy Group (AEG), TRC Energy & Engineering Services (TRC), and Honeywell. This study built upon the findings from the Review and Benchmarking of NJCEP completed in February 2015, with the additional goals to:

- ❑ Document and verify program operations and results
- ❑ Identify and recommend improvements to increase the program's efficiency, energy savings, and customer satisfaction

As this is a portfolio-level evaluation, ERS focused on components and structures that impact all of NJCEP's component programs rather than studying each program in detail. These included the following categories or research topics:

1. **Program motivations and goals** – State environment for energy efficiency, goal setting, and goal achievement
2. **Oversight and procedures** – Management of the programs and their implementers, reporting, and tracking tools
3. **Evaluation** – Management of evaluations, types and frequency, and measurement and verification
4. **Marketing, outreach, and customer acquisition** – Marketing outlets, management and budget, and preferred customer access points
5. **Participation experience** – Customer and trade ally perspectives on (and satisfaction with) the programs
6. **Portfolio design and composition** – A broad look at the comprehensiveness of the portfolio and deeper dives on program design aspects for potential tweaks
7. **Cost efficiency** – Focus on cost per unit of savings achieved, ways to improve cost efficiency, and incentive levels and their impact on cost

The report provides more detail into each of these categories, as well as associated recommendations. Findings and recommendations from each are summarized in Section 1.3.

1.1 Evaluation Activities

The evaluation team divided the work into two stages, with the first stage used to develop preliminary findings and areas to research and the second to develop these findings further through additional research and surveys. The first stage focused on interviews with twenty-four NJCEP staff and stakeholders, including representatives from: OCE, AEG, TRC, Honeywell, several NJ utilities, and other stakeholder organizations, such as the Economic Development Authority (NJEDA) and Sustainable Jersey. This was supplemented by a review of public and internal documents and several targeted analyses. The culmination of Stage 1 was a workshop held with NJCEP staff in June 2015 to discuss the preliminary findings and proposed work for Stage 2. The second stage consisted of further data collection in the form of 1,076 surveys conducted with both NJCEP program participants and the general population for both residential and commercial sectors, as well as twenty-nine interviews with trade allies. ERS also performed several additional analyses and comparative research activities to provide more information on specific findings from the first stage. This information was used to further develop the findings from Stage 1 as well as formulate recommendations, which were presented during the second workshop in October 2015.

1.2 Summary of Results

The evaluation yielded many different findings on a variety of topics, which could be aggregated into larger themes spanning the portfolio. ERS has articulated seven overarching findings (note that while these mainly trace directly to the seven research topics, there are some findings that relate to multiple topics):

1. NJCEP has high-level overarching goals but no clear/consistent strategy for setting specific objectives, targets, and metrics.
2. Program staff members do not see program performance as a key focus.
3. Marketing activities are underfunded compared to industry averages.
4. Trade allies are an underutilized resource for project development.
5. Customers/trade allies are happy with program results, but they found the processes involved to be burdensome.
6. There is very little evaluation or measurement and verification (M&V) data to improve program performance.
7. The portfolio is comprehensive, but specific programs will benefit from adjustments.

In response to these findings, ERS offered a total of twenty-six recommendations, which were designed to provide actionable steps and considerations on how NJCEP could improve performance towards its goals, better assess its progress, and/or increase participant

satisfaction. These recommendations can be grouped similarly to match the seven overarching findings:

1. **Develop and state a clear/consistent goal-setting strategy for setting specific objectives, targets, and metrics.** Set savings goals based on cost-efficiency targets and make them the primary metric of performance. In lieu of statewide goal-setting, continue to engage with utilities to bolster successes.
2. **Focus more on program performance.** Reorient programs/staff to improve performance by using tracking tools to monitor progress, ensuring that the BPU has enough staff to provide oversight, and developing performance incentives.
3. **Increase funding for marketing activities.** Increase marketing budgets to industry standards and boost marketing activities.
4. **Increase involvement of trade allies as a resource for project development.** Develop a more formal trade ally program with requirements and benefits.
5. **Make website improvements and develop online application functionality to address customers'/trade allies' viewpoint that the programs are beneficial but their processes are burdensome.** Make the participation process easier by revamping the website, allowing for online applications, and creating an online portal for customers and trade allies to check project status.
6. **Gather more evaluation/M&V data to improve program performance.** Create a designated BPU evaluation team responsible for carrying out evaluation plans upon their approval and ensuring implementation of the recommendations. Consider using targeted impact/process studies and M&V to provide more timely feedback.
7. **Modify specific programs as needed.** Although the portfolio is comprehensive, it should be adjusted to include a technical assistance offering, a revamped combined heat and power (CHP) program, demand offerings, and a mixed lamp technology residential lighting baseline.

These overarching findings and recommendations are explained in detail below.

1.3 Key Findings and Recommendations

The evaluation findings and recommendations are organized into seven research areas. Each finding is summarized here as an individual bullet, with a sub-bullet for any associated recommendation. Some of the findings detailed here contain general feedback for the program and do not have associated recommendations. Section 5 provides greater detail on all of the research areas, findings, and recommendations.

1.3.1 Program Motivations and Goals

- ❑ There is no single, quantified state goal regarding energy efficiency to ensure that the eight or so entities that do energy efficiency work in the state are all working towards the same end. The Utility Working Group attempted to work on coordination between the entities, especially NJCEP and the utilities, but was not able to develop actionable recommendations.
 - **Recommendation #1A:** Continue the discussions begun through the Utility Working Group on how to better coordinate and organize the efficiency work done by various New Jersey parties.
- ❑ NJCEP's historical goals have been based on participation and spending the allocated budget; savings as a performance metric has not been a priority.
 - **Recommendation #1B:** Consider energy and demand savings the primary outcome of NJCEP's efforts and therefore the primary goal and metric by which to track progress and measure performance.
- ❑ There have been several different methods of calculating savings goals used. The most recent shift in methods resulted in an overall decrease in MWh/Dtherm goals.
 - **Recommendation #1C:** Set savings goals based on program budget and cost-efficiency (\$/kWh) targets per program and aggregate those to set portfolio goals.
- ❑ There is less of an institutionalized focus on performance than peer programs, as evidenced by several factors. One of these is the lack of an incentive or penalty for meeting or missing goals.
 - **Recommendation #1D:** Implement program administrator (PA) performance incentives for achieving or exceeding goals.

1.3.2 Oversight and Procedures

- ❑ NJCEP is understaffed for its budget size compared to peer programs. As a result, the staff focuses on contract management rather than program performance.
 - **Recommendation #2A:** Clearly define primary roles and responsibilities for BPU staff and consider additional human resources who would be responsible for the oversight of the efficiency programs.
- ❑ The BPU staff receives monthly reports from the programs, but these may not be reviewed, and they are not easily digestible as a management tool.
 - **Recommendation #2B:** Update monthly reporting features to contain all metrics and formatting that allow for easy oversight of performance (specific recommended changes are provided in Section 5.2).
 - **Recommendation #2C:** Include project timing details and metrics in monthly reporting (specific recommended changes are provided in Section 5.2).

- ❑ The information management system (IMS) used to track and manage programs is missing some functionalities and is not used for day-to-day task management. NJCEP will have the opportunity to build a new IMS through the new program administrator.
 - **Recommendation #2D:** Build a more flexible IMS with future capabilities in mind (specific recommended changes are provided in Section 5.2).

1.3.3 Evaluation

- ❑ Evaluation has been a minor part of NJCEP operations compared to the industry in terms of budget, frequency of studies, and the amount of data collected. NJCEP also does not perform any M&V of projects to measure savings.
- ❑ NJCEP's Evaluation Plans have a good framework and schedule evaluations, but these are not always implemented and feedback may or may not be used to make program changes. Part of the reason is that evaluation is treated more as an administrative task at NJCEP where roles and responsibilities are not clear. Similar programs typically have a designated evaluation staff.
 - **Recommendation #3A:** Create a designated BPU evaluation program, or team, with the responsibility and authority to implement and manage evaluations.
 - **Recommendation #3B:** Ensure through the evaluation team that evaluations are used to effect program changes.
- ❑ In the past two years the BPU has begun to implement these evaluation plans and set in motion several evaluations to provide a better understanding of program structure and performance. Typically, evaluations are used to establish a baseline understanding of programs, perform deeper dives into specific areas of interest or concern, and to review any major changes.
 - **Recommendation #3C:** Complete an impact evaluation of all programs to gain a broad picture of the portfolio and use the impact/process findings to inform and design smaller, targeted studies that can occur on an annual/semi-annual basis. Consider expanding the use of M&V to provide real-time feedback.
 - **Recommendation #3D:** Hold a performance review of the single PA once the transition has occurred to establish oversight.

1.3.4 Marketing, Outreach, and Customer Acquisition

- ❑ Programs are consistently undersubscribed as compared to available budgets and potential study findings. Marketing budgets have been dramatically cut in past years to less than 1% of total budget, which is well below the industry average of 3%–5%.
- ❑ The customer surveys revealed that although general NJCEP awareness is approximately 45%, specific unaided program awareness is only 3%–7%.

- ❑ Programs do not have dedicated sales staff for approaching the larger customers, and trade allies are an underutilized yet cost-effective resource for project identification and development.
 - **Recommendation #4A:** Engage the IOUs to market NJCEP offerings to their customers.
 - **Recommendation #4B:** Develop a comprehensive marketing and outreach plan to increase participation and energy savings with targeted spending levels of 3%–5% of the total program budget.

1.3.5 Participation Experience

- ❑ The survey data collected found that customer satisfaction was very high across all programs (Residential and Commercial and Industrial [C&I]) and expectations surrounding the receipt of incentive checks matched the reality of the lengthy process.
- ❑ Customers and trade allies believe that the NJCEP website is crucial to conveying information on program offerings but they state that it is not user-friendly. Updating the website while providing a way to track a project's status for customers and trade allies is a key suggestion from the surveys.
 - **Recommendation #5A:** Design an online portal for customers and contractors to submit applications electronically and check progress.
 - **Recommendation #5B:** Redesign the NJCEP website.
- ❑ The trade ally interviews conveyed that program incentives play a very important role for both Residential and C&I trade allies as to why they participate in the NJCEP programs. Active trade allies include the incentive amounts in determining project economics, helping them to close more jobs. The trade allies also provided positive feedback on their interaction with TRC program staff.
- ❑ Trade allies did note that there were delays in response to email/voicemail and at times limited cross-program knowledge. They also stated that the overall application process is daunting, especially for new contractors.
 - **Recommendation #5C:** Develop a more formal trade ally program with requirements and benefits.

1.3.6 Portfolio Design and Composition

- ❑ Demand reduction is not a current focus of NJCEP, but the state (via the Energy Master Plan) and the BPU staff have expressed interest on the value it could provide to the grid and customers.
 - **Recommendation #6A:** Consistently track demand reductions (kW) from measures as a step towards valuing demand savings.

- **Recommendation #6B:** Create a working group with BPU staff, utilities, and other stakeholders to assess the potential for demand management and demand response programs in the state.
- ❑ Generally, program offerings are comprehensive and cover major customer segments and technologies.
- ❑ The identified program gap between SmartStart and P4P for commercial customers related to gut rehab projects has been addressed with July 2015 program changes (performance lighting path).
- ❑ The custom program is included as a part of the SmartStart program alongside the prescriptive offerings.
 - **Recommendation #6C:** Consider separating the custom program from the prescriptive program under SmartStart to create a stand-alone offering to be tracked and funded separately.
 - **Recommendation #6D:** Review the minimum eligibility level for custom projects, as there is potential to increase the number of smaller custom projects.
- ❑ Presently, there is not a Technical Assistance (TA) Program offering to help customers analyze more complex projects using an independent engineering firm. Through the interview process, the team found that there used to be a TA program offering that did not require a customer contribution, but conversion rates to actual projects were low and the program was discontinued in 2011.
- ❑ Other programs use TA as a successful way to fill the project pipeline and help customers scope more complex projects.
 - **Recommendation #6E:** Formulate and offer Technical Assistance funding for more complex projects requiring study and analysis for economic and technical viability.
- ❑ The CHP program has low participation levels and few engineering firms are involved in the program. Trade ally interviews found high levels of concern about funding stability, and survey responses revealed that general program awareness was low in the marketplace. Trade allies also noted program complexity as a deterrent to program participation.
 - **Recommendation #6F:** Simplify the CHP program structure.
- ❑ The CHP program presently has no program outreach or marketing and is primarily promoted by a handful of trade allies.
 - **Recommendation #6G:** Develop and implement a targeted marketing, outreach, and trade ally engagement plan for CHP promotion.
- ❑ Compact fluorescent lamp (CFL) federal efficiency standard changes are phasing out incandescent lamps per the Energy Independence and Security Act of 2007. As a result, the baseline lamp drops from a 60 W incandescent to a 13 W CFL and the associated

savings drop from 47 W per lamp to 3 W per lamp. The Upstream Lighting Program depends on these savings, and due to the drop in savings that can be claimed per lamp, the program's savings will decrease dramatically. This is a crucial issue for the NJCEP since from 2001 to 2014 approximately 44% of all NJCEP energy savings came from the successful residential Upstream Lighting Program.

- **Recommendation #6H:** Transition to a 100% CFL baseline by 2020 to reflect the legislation schedule, but adjust the baseline over time to include a mix of lighting technologies in order to reflect the impact of the incandescent lamp phase-out.
- **Recommendation #6I:** Research and develop incentives for new and emerging energy-efficient technologies to help offset the loss of program savings from the Upstream Lighting Program.

1.3.7 Cost Efficiency

- ❑ There is presently little or no focus on the cost efficiency of the programs and no performance metrics or specific tracking related to \$/kWh saved by portfolio, program, or measure.
- ❑ There is a limited marketing budget and associated efforts, resulting in fewer participants, lower kWh savings, and higher \$/kWh. Effective incremental marketing spending should lower \$/kWh saved by increasing participation, projects, and kWh savings.
 - **Recommendation #7A:** Track and strive to improve the cost efficiency of the NJCEP portfolio.
- ❑ The process evaluation confirms the benchmarking study findings that incentive levels in some areas are high. As evidenced by this and some of the changes in incentive levels made in July 2015, there is not a consistent method of developing incentives for the NJCEP portfolio.
 - **Recommendation #7B:** Implement a single incentive-level development methodology across all programs.

The comments above represent the high level findings and recommendations for the NJCEP portfolio as a result of this process evaluation. Further detail follows regarding the programs, history, evaluation activities, results, findings, and recommendations. A summary of all of the recommendations and associated action items can be found in Appendix A.

2 STUDY BACKGROUND

The New Jersey Clean Energy Program is a statewide portfolio of energy efficiency and renewable energy programs administered by the New Jersey Board of Public Utilities (BPU). It offers incentives for a variety of efficient electric and gas technologies for residential, commercial, industrial, and institutional customers.

In order to support effective and efficient program delivery, the BPU contracted with ERS in September 2014 to design and carry out a benchmarking study of NJCEP. This study compared NJCEP's programs to programs run by twenty-five peer administrators across the United States on a series of metrics such as cost-effectiveness (\$/kWh). Subsequent to the benchmarking study, in February 2015 the BPU contracted with ERS to perform a portfolio-level process evaluation.

Process evaluations are a type of third-party evaluation used to review all of the various structures and procedures in place for a program to achieve its outcomes. Such a study is formally defined as "a systematic assessment of an energy efficiency program for the purposes of (1) documenting program operations at the time of the examination, and (2) identifying and recommending improvements that can be made to the program to increase the program's efficiency or effectiveness for acquiring energy resources while maintaining high levels of participant satisfaction."¹

This document is the result of the portfolio-level process evaluation of NJCEP, conducted from February – December 2015.

¹ New York State Process Evaluation Protocols, April 5, 2013.

3 PROGRAM DESCRIPTION AND CONTEXT

This section provides an overview of the New Jersey Clean Energy Program's (NJCEP) portfolio of programs, including the programs' components, history, budgets, and performance.

3.1 Portfolio Description

NJCEP offers a comprehensive portfolio of programs that covers a wide range of energy efficiency opportunities in the residential, commercial, and industrial sectors. There are five residential programs:

- ❑ **Residential Existing Homes** – This program is based on the Home Performance with ENERGY STAR (HPwES) model that is used nationwide to help homeowners with home retrofits.
- ❑ **Residential New Construction** – This program is based on the ENERGY STAR Certified New Homes program model used nationwide to promote building efficient homes.
- ❑ **Residential HVAC** – This program provides prescriptive rebates for heating, cooling, and water heating equipment.
- ❑ **Residential ENERGY STAR Products** – This program includes three core components among other initiatives: appliance recycling, appliance rebates, and upstream lighting incentives (including an online store).
- ❑ **Comfort Partners** – This program is a low-income targeted program focused on heating and cooling energy savings. As this program is delivered by New Jersey utilities, it is not covered within this evaluation.

There are eight commercial and industrial programs:

- ❑ **Commercial Retrofit** – This program is NJCEP's broad-based offering for existing buildings. It is primarily composed of prescriptive measures but does offer a custom track.
- ❑ **Commercial New Construction** – This program is NJCEP's broad-based new construction and major renovation offering. It is primarily composed of prescriptive measures but does offer a custom track.
- ❑ **Pay for Performance Retrofit** – This program is a whole-building savings program that requires participants to achieve at least 15% savings relative to existing performance. Furthermore, the program requires participants to employ a technical assistance provider to help them develop a master plan that will achieve the targeted reduction.
- ❑ **Pay for Performance New Construction (P4P NC)** – This program is a whole-building savings program that requires participants to achieve at least 15% savings relative to code.
- ❑ **Small Business Direct Install (DI)** – This program follows a relatively widespread model for reaching this segment by providing free audits and offering to install recommended measures with a significant cost share. The program targets small business as defined by a peak kW cutoff.

- ❑ **Combined Heat and Power and Fuel Cells (CHP/FC)** – This program provides incentives on a dollar-per-watt basis for CHP, fuel cells, and heat recovery generation.
- ❑ **Large Energy Users Pilot (LEUP)** – This unique program offering limits participation to those who contribute \$300,000 or more per year to the System Benefits Charge fund. By nature, the program offers mostly custom measures to primarily industrial clients, but it is open to any participant that meets the criteria. The program requires that users provide a master energy plan and perform measurement and verification (M&V).
- ❑ **Local Government Energy Audit (LGEA)** – This program provides no-cost audit services to local government facilities such as municipal buildings and schools, as well as nonprofit organizations.

As a portfolio-level evaluation, this report focuses on the structures and components that span all programs; however, details on program-specific information and comparisons between programs are given where appropriate.

3.2 Program History, Goals, and Performance to Date

This section provides details on NJCEP history, milestones, goals, budgets, and performance.

3.2.1 Program History and Milestones

New Jersey has been offering clean energy programs since 2001. Since that time, the program has grown from budgeting \$165 million annually to \$418 million in FY2014, and has gone from saving about 215,000 MWh annually up to 519,000 MWh annually in FY2014. This significant growth has come from strengthening and shaping existing programs, as well as adding new and more focused programs over the years. The most recent program additions include the Large Energy Users program in 2012, a unique offering when compared nationally, and the addition of the Small Business Direct Install program in 2010.

3.2.2 Portfolio Goals

Beginning in FY2014, NJCEP began generating annual savings goals for the program that are included in the BPU staff's Comprehensive Resource Analysis (CRA) filings.² The goals are set through FY2016, and can be seen below in Table 3-1.

² Note: NJCEP historically set goals from a program level, but these have not been included in the overall program filings or orders until FY2014.

Table 3-1. NJCEP Annual Savings Goals, FY2014-FY2016

Program	FY14 Goals		FY15 Goals		FY16 Goals	
	MWh	Dtherms	MWh	Dtherms	MWh	Dtherms
Residential programs					341,838	495,310
Residential low income					10,688	93,029
Residential total	257,299	657,611	285,000	725,000	352,526	588,339
C&I total	261,066	653,358	290,000	725,000	188,645	397,570
Grand total	518,365	1,310,969	575,000	1,500,000	541,171	985,909

In FY2014, NJCEP only met its goals for residential and overall electricity savings. In Table 3-2, portfolio performance is directly compared to stated goals for FY2014.

Table 3-2. NJCEP Goal Achievement, FY2014

Savings Category	Residential	C&I	Total
Goal savings (MWh)	257,299	261,066	518,365
Actual savings (MWh)	306,192	222,031	528,223
Percent of goal reached	119%	85%	102%
Goal savings (Dth)	657,611	653,358	1,310,969
Actual savings (Dth)	333,742	550,618	884,360
Percent of goal reached	51%	84%	67%

3.2.3 Program Performance

In its last full year of reported data (2014), NJCEP expended or committed \$321 million, which is about 77% of its annual budget. From that, the portfolio achieved 518,814 MWh of electricity savings, 80,245 kW in demand reduction, and 921,791 Dth in natural gas savings. Fifty-nine percent of the electric savings came from residential programs, while 54% of demand reduction came from commercial and industrial programs. Sixty-four percent of gas savings came from commercial and industrial programs. Figures 3-1 and 3-2 show the proportion of FY2014 electric and gas savings and spending that came from each program. Note that the program spending is reported as a whole and not separately dedicated toward electric and gas efficiency.

Figure 3-1. FY2014 Electric Savings and Spending by Program

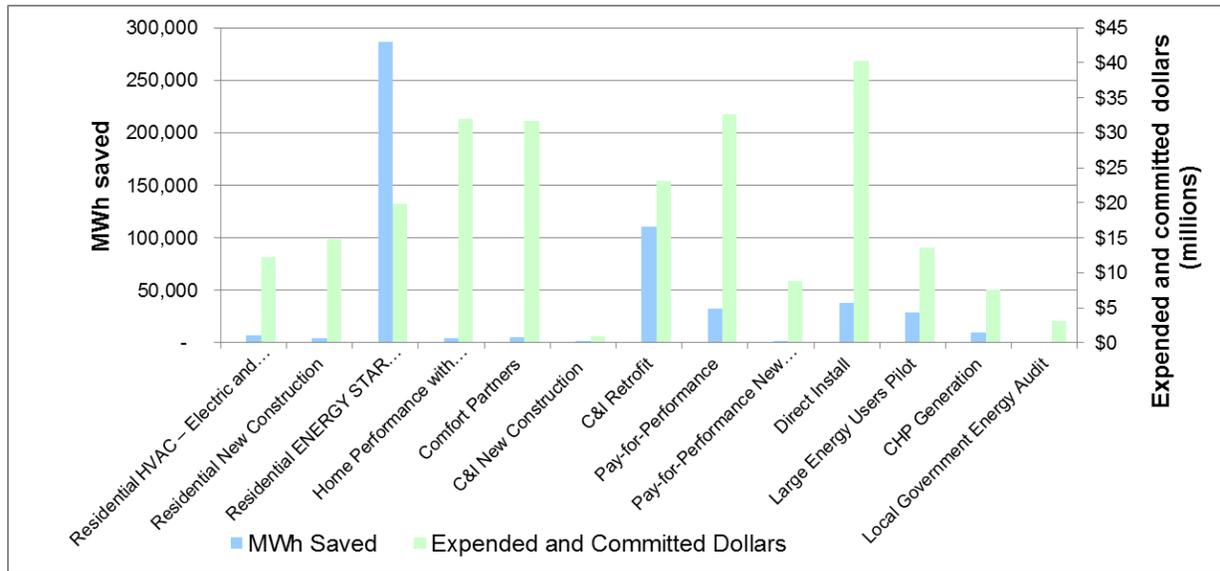
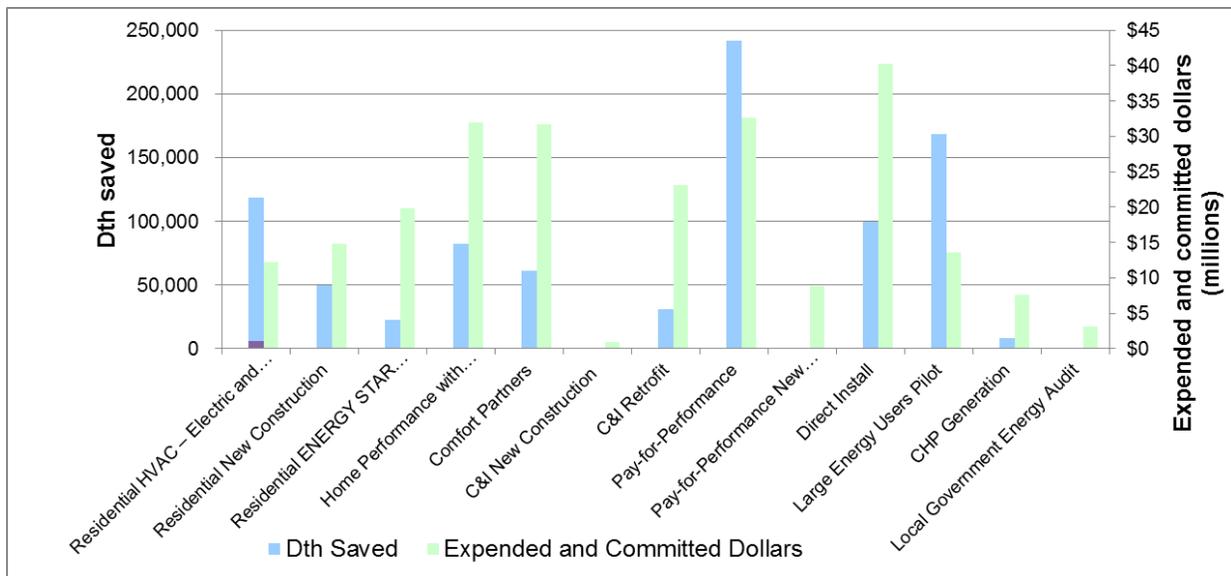


Figure 3-2. FY2014 Gas Savings and Spending by Program



As shown above, the Residential ENERGY STAR Products program drives a very high portion of portfolio electric savings. Nearly all of those savings come from the upstream lighting incentive portion of the program. Gas savings are much more balanced among the programs, though notable savings come from Pay for Performance and Large Energy Users, the two most custom-measure-oriented programs in the portfolio.

To give further context to the trajectory of the programs, Table 3-3 shows a few key metrics in detail over the last 5 years.

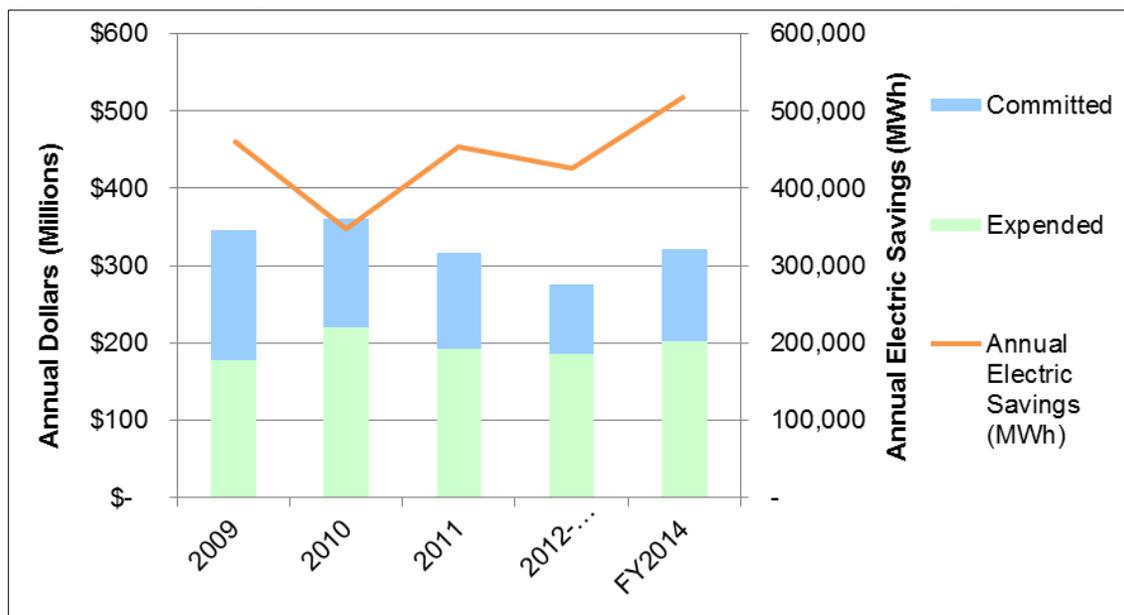
Table 3-3. NJCEP Overall Performance Metrics, 2009-FY2014

Metric	2009	2010	2011	2012-FY2013 (Prorated) ¹	FY2014
Expenditures	\$345,852,138	\$361,353,559	\$316,466,029	\$275,526,143	\$321,194,996
Annual electric savings (MWh)	462,162	347,907	453,682	425,864	518,814
Annual gas savings (Dth)	636,343	934,826	782,557	819,462	921,791
Participants	84,375	154,223	198,998	133,879	111,481

¹The program recently transitioned its tracking years from calendar years to fiscal years, so the column 2012–FY2013 represents Jan 1, 2012 through June 30, 2013, an 18-month period. The given values in the column have been prorated to represent an average 12-month period within that range, for easier comparison with other years.

Over the past 5 years, expended and committed dollars have remained relatively flat, but annual savings have steadily increased in the last 3 years while participants have declined over the same period. Figure 3-3 shows program budget and spending details over the last 5 years.

Figure 3-3. NJCEP Expended and Committed Dollars vs. Annual Electric Savings, 2009–FY2014



Note: as with Table 3-3 above, the 2012–FY2013 column is prorated to represent an average 12 months within that period.

The program’s performance against savings and participation goals is also discussed further in Section 5.1, Program Motivations and Goals.

4 EVALUATION OBJECTIVES AND ACTIVITIES

ERS completed a portfolio-level process evaluation of NJCEP, including both its Residential and Commercial/Industrial offerings. This included the documentation and verification of program operations and results through research, interviews, and surveys. This work built upon the program-specific findings of the benchmarking study that was completed by ERS in April of 2015.

As a result of this work, ERS has identified actionable recommendations that will increase the program's efficiency, energy savings, and participant satisfaction, which are presented in Section 5 of this report.

4.1 Overview of Tasks

For the evaluation, ERS built upon the program-specific benchmarking effort, which produced conclusions from the program up, by performing a portfolio-level process evaluation to build conclusions from the portfolio down. The thematic outputs of the benchmarking effort provided a strong initial direction for inquiries as part of this process evaluation. The key questions and researchable issues explored by this process evaluation are included in Section 4.1.1.

4.1.1 Key Questions and Researchable Issues

ERS identified key research areas and questions, organized by theme, as areas of emphasis for the process evaluation. To develop these research questions, ERS drew on the results of the program-specific benchmarking, which gave critical context for issues within the portfolio. ERS used these research questions to formulate the initial direction of the research and presented preliminary findings for each research area during the workshop held on June 10, 2015. The key research areas and corresponding questions that ERS pursued to organize its evaluation efforts are as follows:

- ❑ **Portfolio goals and objectives** – What are and what should be the goals of the NJCEP and do the staff, processes, programs, and outcomes reflect those goals?
- ❑ **Portfolio composition and design** – Do the constituent programs reflect the optimal resource allocation, offer opportunities or challenges, and do the processes promote optimal configuration?
- ❑ **Evaluation and quality assurance (QA) policies** – How do the evaluation and QA policies represent the best practices, opportunities for improvement, and over-/underuse of the resources?
- ❑ **Statewide interaction and coordination** – In what ways do overlapping and/or complementary offerings from different entities (e.g., NJCEP and investor-owned utilities [IOUs]) support or impede the effective adoption of efficiency measures?
- ❑ **Organization, oversight, and procedures** – How do hierarchies, structures, and processes at both the portfolio and program level impact institutional and program effectiveness?

- ❑ **Market penetration** – To what extent is NJCEP reaching an optimal or effective level of engagement with its existing and potential customers and how best can it extend its market reach?
- ❑ **Cost efficiency** – Which factors contribute the most to the poor cost efficiency identified in the benchmarking project and how can they best be overcome?
- ❑ **Incentive levels** – Which structural factors, if any, contribute to the high levels of incentives observed in the benchmarking project? Can incentives be reduced without impacting the program’s participation?
- ❑ **Marketing and outreach** – How well targeted are marketing and outreach initiatives, and to what extent are they efficiently and effectively reaching the intended audiences?
- ❑ **Customer awareness and brand perception** – How is NJCEP viewed and understood by its customers and which activities and tactics lead to the best outcomes?
- ❑ **Intake programs** – What appetite is there for intake programs (e.g., audit and outreach) and at what cost efficiency can they be deployed to improve portfolio participation?
- ❑ **CFL impacts on portfolio** – How can the NJCEP portfolio respond to changing residential lighting baselines while maintaining its cost efficiency and market reach?
- ❑ **Commercial and industrial (C&I) program offerings** – Does the current commercial portfolio composition represent optimal resource use and in what ways, if any, can it be rearranged to better reach NJCEP goals?
- ❑ **Combined heat and power (CHP) program** – How does the market perceive this program and how can it be refashioned to expand participation?
- ❑ **Non-efficiency resources** – Are non-efficiency program offerings synced with the core NJCEP efficiency programs, and how can greater coordination improve customer uptake of the measures?

The evaluation activities and research were designed to provide answers to these questions, as well as to capture any additional information that could positively benefit the portfolio.

4.2 Evaluation Activities

In order to successfully address the key areas of research, ERS broke the evaluation effort into two stages. The first stage included research into the general program offerings and portfolio structure. This information was then used to identify areas to research in greater detail as part of the Stage 2 work. The final product of both stages of work was a presentation to key stakeholders on October 28th, 2015 and the information contained within this report. More information follows about the two stages of work completed as part of this evaluation.

4.2.1 Stage 1

Stage 1 gathered input from 24 interviews with those intimately familiar with the NJCEP and its environment: the Board of Public Utilities (BPU) staff, the program administrator (AEG), the

two market managers (TRC and Honeywell), IOU representatives, and other key stakeholders. Interview questions were tailored based on the role of the interviewee in order to get their input and perspective on a variety of topics, including the many of the key research areas described in the preceding section.

Interview responses were supplemented by discrete analyses that built upon the benchmarking study and information gleaned from the interviews. Analysis activities included a market penetration analysis that investigated the annual reach and market penetration of the programs, a review of the evaluation activities planned and completed, and an examination of the NJCEP reporting and tracking system.

Through these efforts, points of consensus and contention were identified with the goal of articulating findings to be tested via surveys and deeper research in Stage 2. The culmination of Stage 1 was a workshop with key NJCEP staff on June 10, 2015, and the creation of a Stage 2 work plan. This work plan was developed with a goal of digging deeper into the preliminary findings developed out of the Stage 1 work.

4.2.2 Stage 2

The tasks that were completed as part of the Stage 2 effort primarily included large-scale surveys with program participants and short interviews with trade allies and vendors. The Stage 2 work also included additional research into topics covered in Stage 1 that were deemed to require further insight and understanding.

4.2.2.1 Surveys

A total of 1,076 surveys were conducted with program participants and nonparticipants throughout the state of New Jersey. These surveys were conducted both over the phone and via email. They were targeted at understanding the customers' program participation experiences (for those who had completed a project or projects that were submitted to the NJCEP), as well as their general awareness of the NJCEP portfolio and its offerings. The surveys covered the breadth of the NJCEP portfolio including both the C&I and residential programs.

Residential Surveys

There were two surveys fielded for residential customers: an online survey for program participants supplemented by a direct mailing, and a phone survey for the general population (nonparticipants). On the participant side, the surveys focused on the three residential programs where participants were the homeowners or tenants themselves (contractors are typically the participant for Residential New Construction). While the team intended to complete 200 online surveys per program, a low number of Home Performance with Energy Star (HPwES) participants had email addresses in the IMS, which meant that the survey team was unable to complete the 200 surveys. On the general population side, the team anticipated and completed 150 surveys using random digital dialing. The final counts for each are shown in Table 4-1.

Table 4-1. Residential Survey Target Respondents

Program	Survey Count	Percentage of Respondents	Population Size
Residential participants	610	N/A	36,727
EEP	218	36%	24,313
HPw/ES	170	28%	417
HVAC	222	36%	117
Nonparticipants	150	N/A	3,500,000 ^a
Total	760	N/A	N/A

^aNonparticipant population estimated using U.S. Census data. Note: Due to the small sample size, the nonparticipant survey is not statistically representative of the entire NJ population but still provides some useful insights.

Respondents of the survey were categorized by some demographic-focused questions, which showed some differences between the two survey populations. Ninety-one percent of the participant respondents lived in single-family homes, compared to 72% of the general population respondents. Sixty-eight percent of the participant respondents held a college degree, compared with 47% of the general population respondents. Twenty-three percent of the participant respondents were in the highest income bracket, \$140,000 or more, compared to just 9% of the general population respondents. The average age of the participating respondents was 54, while it was 48 for the general population. Due to broad nature of this evaluation, the program sample sizes were small and therefore may not be statistically representative of the participant and nonparticipant populations. As a result, it cannot be concluded that respondents are more likely to live in a single-family home, hold a college degree, etc.; rather, these demographics are used to characterize the surveyed population and to better understand where the feedback was coming from.

Commercial and Industrial Surveys

There were two surveys fielded for commercial and industrial (C&I) customers: an online survey for program participants supplemented by a direct mailing and a phone survey for the general population (nonparticipants). On the participant side, the surveys focused on the two biggest C&I programs, C&I Retrofit and Direct Install. Additionally, participants of three of the deep-energy targeted programs, Pay-for-Performance, Pay-for-Performance New Construction, and C&I New Construction, were surveyed. The target completions were 100 each for the primary programs, and 25% of the participants for the three deep energy programs. Given the small number of participants for those three programs and the difficulty of reaching them, those targets were not met. On the general population side, a sample group of 100 was anticipated and completed using Dun & Bradstreet data. The final counts for each are shown in Table 4-2.

Table 4-2. Commercial and Industrial Survey Target Respondents

Program	Survey Count	Percentage of Respondents	Population Size
C&I participants	216	N/A	
C&I Retrofit	100	46%	2,444
Direct Install	100	46%	974
Pay-for-Performance	9	4%	77
Pay-for-Performance New Construction	4	2%	19
C&I New Construction	3	1%	39
Nonparticipants	100	N/A	600,000 ^a
Total	532	N/A	N/A

^aNonparticipant population estimated using U.S. Census data. Note: Due to the small sample size, the nonparticipant survey is not statistically representative of the entire NJ population but still provides useful insights.

Survey respondents were categorized by some firmographic-focused questions; the participants and general population were similar in many cases. In both participant and general population respondents, 75%–80% of respondents represented businesses of fifty employees or less. Of all space types, offices were most common, referenced by 16% of participant respondents and 30% of general population respondents. The next several space types, warehouse, retail, food service, and industrial, combine for another 35%–40% of the spaces in both segments. Since the results are not statistically representative of the participant and nonparticipant populations, it cannot be concluded that respondents are less likely to be office spaces, etc.; rather, these firmographics are used to characterize the population surveyed to better understand where the feedback was coming from.

4.2.2.2 Interviews

In Stage 2, a total of twenty-nine interviews were conducted with trade allies who had participated in either the C&I programs, the residential programs, or both. These interviews were conducted over the phone and involved contractors who represented all major technologies and energy efficiency measures, including:

- Lighting
- HVAC
- Building envelope (insulation, air sealing, etc.)
- CHP/fuel cells

Similar to the surveys, these interviews were conducted with trade allies who had high participation levels in both sectors, those with low participation levels, and those who had not completed any projects through the NJCEP at all. Table 4-3 shows the count in each program.

Table 4-3. C&I and Residential Interviews Completed

Program	Trade Ally Activity	Count
C&I	High participation	14
	Low/no participation	3
	Total	17
Residential	High participation	10
	Low/no participation	2
	Total	12

4.2.2.3 Research

Stage 2 also included analyses of areas that were determined to require further research based on the Stage 1 findings. These research areas included:

- ❑ **Upstream lighting energy savings and baseline concerns** – Is 2019 a reasonable date to undergo the baseline transition from incandescent to CFL? What measures and offerings might make up some of the cost-effective savings from CFLs?
- ❑ **Marketing and evaluation budgets** – How familiar are participants and the NJ general population with NJCEP’s offerings? How much lower is NJCEP’s marketing budget than those of other programs? How can NJCEP maximize value from increasing marketing?
- ❑ **Incentive levels comparison** – How much higher are NJCEP incentives for common measures than other programs? Is there a way those incentives can be decreased while not sacrificing participation?
- ❑ **Comparative reviews of peer custom programs** – What attributes should a custom program have that NJCEP can consider adding to its portfolio?
- ❑ **Comparative reviews of peer CHP programs** – How can the CHP program be structured and marketed in a way that provides the most value?
- ❑ **Demand program research** – Could demand reduction programs be a valuable addition to the NJCEP portfolio?

Findings from each are included in their relevant sections in Chapter 5.

4.2.2.4 Final Workshop

Upon the completion of the Stage 2 work, the evaluation team held a workshop meeting on October 28, 2015 with key stakeholders and program staff. This presentation included the findings of the evaluation and recommendations for the improvement of the portfolio. These are listed in detail in Chapter 5.

5 KEY FINDINGS AND RECOMMENDATIONS

This section summarizes key findings and recommendations that stem from the data collection and analysis activities detailed in the previous section. Findings are summarized by seven program topics or components:

1. Program motivations and goals
2. Oversight and procedures
3. Evaluation
4. Marketing, outreach, and customer acquisition
5. Participation experience
6. Portfolio design and offerings
7. Cost-efficiency

Each program area includes a description of key observations, critical analysis, and specific and actionable recommendations where appropriate.

5.1 Program Motivations and Goals

An organization's mission – its reason for being – is the defining force for everything it does. That mission is translated into a set of goals, or targets, that the organization strives to achieve. How the organization measures success, how it designs its offerings, the customers it attempts to reach, what it spends money on – all of these follow from a plan to complete that overall mission. On the other hand, if the goals are not clear, then an organization risks moving in a direction that does not produce as many benefits as it could have otherwise. Without a clear goal in sight, it is also challenging to define and measure success. This section discusses how the state environment for energy efficiency influences NJCEP's mission, and how it translates its mission into goals. Key findings and recommendations on these topics are presented below.

5.1.1 New Jersey Energy Efficiency Environment

Clean energy has been a focus of New Jersey government since 2001, and the state wants to be considered a national leader. Although progress has been made on this front, it is somewhat hamstrung by the lack of an overarching energy policy with quantified and binding targets. The various entities involved in promoting efficiency (of which NJCEP is the largest, followed by the utilities) have had to set their own goals and decide how best to coordinate with each other. New Jersey is also unique in that it is the only state where the organization promoting clean energy is part of the regulatory body, as opposed to an independent authority. This complex state environment is described in more detail in the following section.

5.1.1.1 State Efficiency Goals

NJCEP, as a state-founded administrator, takes its mission and goals from the State of New Jersey via various documents. Generally, the State finds energy efficiency to be a goal worth striving for, but there is no single policy document that lays out the state objectives for efficiency. There are also no current quantified goals, metrics, or measurements for the state specific to clean energy. The prior Energy Master Plan from 2008 had a goal to reduce energy consumption 20% by 2020; however, this was not a binding target and it was not included in the new administration's version in 2011. The only binding target for the state is for greenhouse gases (a 2007 law mandated a 20% reduction by 2020 and an 80% reduction by 2050). While this law does also give the BPU authority to implement an energy efficiency portfolio standard to reduce electric and gas consumption 20% over business-as-usual scenarios by 2020, the Board has not used this authority and has denied several petitions for it to create one.³

In lieu of binding targets, there were a fairly diverse set of documents mentioned when ERS asked the seven organizations interviewed for the study what represented the best embodiment of the state's goals. These six documents are listed in Table 5-1.

³ NJ Statutes, Section 38 of P.L. 1999, c.23 (C.48:3-87). Subsections g and h.

Table 5-1. NJ Policy Documents Regarding Energy Efficiency

Name	Goals and Actions
Legislative	
NJ Statutes	The Statutes are NJ’s entire body of laws. They contain the legislative acts listed below as well as others not specifically cited.
Electric Discount and Energy Competition Act (EDECA), 1999	EDECA (among other things) established requirements to advance energy efficiency and renewable energy in NJ through the Societal Benefits Charge. It also directed the BPU to initiate a proceeding to undertake a comprehensive resource analysis (CRA) of programs every 4 years and determine the appropriate level of funding.
Global Warming Response Act, 2007	The act mandates reducing greenhouse gas emissions 20% by 2020 and 80% by 2050. This is one of the few documents with a concrete goal.
Regional Greenhouse Gas Initiative Implementing Act, 2007	This act (among other things) authorized utilities to provide energy efficiency programs with cost recovery mechanisms subject to BPU approval by amending EDECA.
Executive	
Energy Master Plan, 2008	The prior administration’s EMP made several concrete goals, including reducing the state’s energy consumption 20% by 2020 and the state’s peak electricity demand 5,700 MW by 2020.
Energy Master Plan, 2011	The updated EMP provided objectives relating to clean energy in the state, but did away with the concrete goals present in the previous EMP. The only remaining quantified goal was to achieve 1500 MW of CHP by 2020. ⁴

While other documents may also influence energy efficiency in the state, such as the establishment of the State Energy Office by Gov. Christie or the Energy Resiliency Bank founding, these are thought to contain the state’s goals and objectives. The lack of quantified goals for energy efficiency does mean that organizations involved in energy efficiency are required to develop their own, and also leaves objectives up to interpretation. As a result, there is little direct line-of-sight from these documents to the organizations that follow them, although they do frequently cite state “principles” for clean energy.

5.1.1.2 Statewide Interaction and Coordination

There are eight major entities that are involved in promoting energy efficiency within the state. Although NJCEP is the largest and most comprehensive of these entities, others include:

- ❑ The rate-decoupled investor-owned utilities (IOUs), including the Public Service Enterprise Group (PSE&G), New Jersey Natural Gas (NJNG), South Jersey Gas (SJG), and Elizabethtown Gas, all offer their own energy efficiency programs that complement NJCEP.

⁴ New Jersey issued a draft update to the 2011 EMP on November 20, 2015; the document was removed from the state website <http://www.nj.gov/emp/docs/> after the 14-day comment period. Given the timing, it could not be included in this report.

- ❑ The New Jersey Economic Development Authority (NJEDA) runs two grant programs for developing emerging technologies and was also the prior administrator of the CHP program.
- ❑ Sustainable Jersey, a nonprofit that provides sustainability certification for municipalities, includes energy efficiency – specifically participation in NJCEP offerings – as an important part of attaining the certification.
- ❑ The Energy Resiliency Bank (ERB), a joint effort between the Board of Public Utilities (BPU) and NJEDA, was established in 2014 to provide financing for distributed energy resources that support resiliency.

Additionally, the NJ Rate Counsel – the consumer advocate before the BPU – is often involved in proceedings and working groups related to the NJCEP, as it involves an expenditure of ratepayer funding. With the exception of the ERB and Elizabethtown Gas, all of the organizations mentioned were interviewed for this study.⁵

In the absence of a single, unifying goal for energy efficiency across the state, most of these entities treat state documents as providing principles or motivations for their work, as opposed to set specific goals. However, each approaches efficiency from a slightly different angle. Each organization’s motivations, activities, and cited documents – all of which are self-reported via interviews – are listed in Table 5-2.

⁵ Interviews with ERB and Elizabethtown were not on the original list of suggested organizations to interview as decided in the scope of work.

Table 5-2. New Jersey Organizations Promoting Energy Efficiency and Their Missions

Entity	Document Cited	Motivations	Activities
PSE&G	2007 RGGI legislation, where utilities could create programs to stimulate the economy	To save energy and put people to work as quickly as possible	Audit-retrofit programs
NJNG	Not explicit in interviews, but programs were approved by the BPU in 2009	To save energy, create jobs, and push towards market transformation through customer education	Home audits, financing and bonus incentives, customer education newsletters
SJG	Energy Master Plan; programs were approved by the BPU in 2009	To save energy, enhance the success of the state, and be a lending agent for HPwES/other programs	Home audits, financing and bonus incentives
NJEDA	The current Energy Master Plan	To attract good businesses and keep them in NJ; create jobs	Provides funding for two emerging technology grant programs – one for manufacturing and the other as an incubator.
Sustainable Jersey	Global Warming Response Act. SJ listed this as only clear, concrete goal – 80% reduction of GHG by 2050.	Sustainability – to reduce the carbon/environmental footprint of municipalities, institutions, and schools (and through their influence, their communities)	Designed a certification that municipalities earn points towards meeting
Rate Counsel	Statutes. They noted that the EMP is high level and not meant to be the embodiment of state energy goals; the Statutes are the principle document of E policy.	To ensure efficient, beneficial use of ratepayer funds	Advocate for ratepayer interests in front of BPU when ratepayer funds are involved, including at efficiency-related proceedings

Each organization's motivations ultimately designate its choice of activity in order to move the mission forward. For example, PSE&G cites job creation as a major goal, which stems from the fact that its programs were created out of the 2007 RGGI legislation that endeavored, in part, to stimulate the state's clean energy economy. Therefore, PSE&G has designed programs to be labor-intensive in order to generate jobs, i.e., audit-retrofit programs such as Direct Install. Sustainable Jersey, on the other hand, focuses on overall sustainability and reduction of the state's footprint, especially with regards to carbon. It cited the state's greenhouse gas reduction legislation as the key state goal, and it does its part to achieve that goal by working with municipalities to help them attain a certification.

In this way, NJCEP is part of a diverse group of organizations attempting to promote energy efficiency, although they are all doing so in slightly different formats. Given that there is no single state goal that each can contribute to, it is more difficult to assess the state's overall impact regarding energy efficiency. There is also more of a possibility for duplication of work, as a single customer may interact with NJCEP staff, their utility, and possibly NJEDA or Sustainable Jersey staff on slightly different offerings. Regardless, the organizations reach

different audiences and their unique structures may offer varied abilities to engage with customers and contractors. As a result, coordination between the organizations provides an opportunity to identify synergies for reaching customers, sharing leads, and maximizing the benefits the customer and system receive. This opportunity exists particularly for coordination with the utilities.

NJCEP and the Utilities

New Jersey is unique in that it is one of the few states that has both a statewide organization running traditional “resource acquisition” energy efficiency programs and utilities also offering their own. Adding to the complexity, only some of the utilities have energy efficiency programs. PSE&G is the only electric utility that has efficiency programs (Atlantic City Electric, Jersey Central Power and Light, and Rockland Electric are not rate-decoupled and do not offer programs), whereas all of the gas utilities have some form of program. Additionally, the incentive programs differ by utility, as described in the following list.

- ❑ PSE&G offers a direct install program for government and nonprofits, as well as targeted programs for hospitals and multifamily buildings. These are intentionally structured to fit perceived gaps in NJCEP coverage. On the residential side, it has historically offered a Direct Load Control (DLC) program for air conditioners.
- ❑ New Jersey Natural Gas (NJNG) offers on-bill financing and additional incentives for customers participating in NJCEP’s WARMAdvantage (HVAC) or Home Performance with Energy Star (HPwES) programs.
- ❑ South Jersey Gas offers financing and incentives similar to NJNG’s in addition to what the customer would receive from NJCEP. It also offers financing for commercial customers participating in SmartStart Buildings and the Direct Install program.
- ❑ Elizabethtown Gas also offers additional incentives for participants of HPwES, WARMAdvantage, SmartStart Buildings, and Pay for Performance; however, their incentives are structured differently from NJNG’s and SJG’s. It also provides participants with a free weatherization kit.

The patchwork landscape of energy efficiency programs stems somewhat from the history of programs in the state, which were originally run by utilities and combined into NJCEP over the course of several years. By 2007 NJCEP’s current structure with AEG, TRC, and Honeywell implementing the programs was in place. The same year, the RGGI implementing legislation amended EDECA to allow utilities to create clean energy programs. None were filed until 2009, when the BPU directed electric and gas utilities to file energy efficiency economic (E3) stimulus programs in combination with the state’s larger effort to boost the economy. The proposals submitted by Atlantic City Electric and Jersey Central Power and Light were not approved, although E3 programs for the remainder of utilities were.

The variety in offerings for each is also partially explained by the differences in the programs’ motivations at the design phase. For example, the gas utilities each intended to “bolster the success of the state programs,” according to one interviewee, and complementary programs

were therefore designed to provide additional incentives to the participant. The Rate Counsel has raised concerns about this practice in comments on some NJCEP filings, as it essentially means that the state is paying far more to achieve savings, thereby decreasing the cost-effectiveness of the measures.⁶ However, SJG explained their bonus incentive as helping to avoid orphaned water heaters in customer homes (a water heater may back-draft carbon monoxide into homes if it is paired with a new efficient furnace, so the incentive is for the customer to replace both the furnace and the water heater at the same time). The utilities would also provide on-bill financing for some or all of the remaining customer cost, which allows the customer to pay off the loan via their monthly utility bills.

Meanwhile, PSE&G's programs operate in targeted gaps in NJCEP coverage – hospitals, multifamily homes, small government buildings, and data centers. However, these programs do compete with NJCEP's commercial offerings insofar as the customer can participate in either an NJCEP offering or a PSE&G offering (but not both within the same year).

As a result of the utility program structures, there can be a complicated relationship between the different entities, which is thought to lead to customer confusion over the different offerings. However, there are also major benefits to having both a statewide organization and utilities involved in energy efficiency. The statewide organization ensures that all customers in the state have the same opportunity to participate, and because it is a public entity, it is not held to the need to provide a return for shareholders. The utility has built-in customer relationships, usage data for each consumer, and billing mechanisms that provide an opportunity for convenient on-bill financing. However, having both operate within the same space – with different offerings, territories, and fuels that can be incentivized (gas/electric) – requires coordination.

New Jersey is not the only state to have both a statewide organization and utilities that offer programs. There are at least four others with similar structures:

- ❑ **New York** – Both the six investor-owned utilities and a statewide entity, the New York State Energy Research and Development Authority (NYSERDA), offer rebate programs in New York, often in direct competition with each other. For residential and multifamily customers, the utilities generally offer more prescriptive rebates for appliances or base-building systems, while NYSERDA offers comprehensive programs such as HPwES. NYSERDA has a unique industrial program, but commercial offerings are identical between NYSERDA and the utilities. This competition will diminish somewhat in the coming years as NYSERDA reorients itself toward market transformation. Recently, NYSERDA and Con Edison have coordinated in jointly offering a Demand Management Program for the NYC area to reduce peak demand from commercial customers.

⁶ Note – these adder incentives were not included in the analysis performed during the benchmarking study.

- ❑ **Oregon** – The Energy Trust of Oregon (ETO) is the main provider of energy efficiency. As in New Jersey, the programs started out being run by individual utilities and were brought under a single statewide entity. Utilities cannot offer their own programs but may be able to offer assistance or certain adders to ETO offerings. Portland General Electric offers an extra discount on heat pumps and a few extra features; Pacific Power has a low-income weatherization offering and the “Energy Exchange” voluntary load curtailment programs. Idaho Power, which is predominantly in Idaho but serves part of eastern Oregon, has a completely different set of programs but defers to ETO within Oregon. Publicly owned co-ops and municipalities have a choice to offer their own programs, use ETO’s offerings, or use BPA’s energy efficiency programs. NEEA is also active in the state but works on market transformation programs only.
- ❑ **Vermont** – Efficiency Vermont is the statewide provider of efficiency, run through the third-party nonprofit Vermont Energy Investment Corporation through a surcharge. They are treated as an efficiency utility that supplies “negawatts” rather than megawatts to the grid, and they have goals they must meet. Green Mountain Power (GMP) is the only IOU in the state, followed in size by the Burlington Electric Department (BED); the rest of the state is covered by small municipal utilities. GMP offers a number of energy services – including heat pump and water heater services, an eHome program, Tesla Powerwall batteries, and EV charging stations, but it does not mention Efficiency Vermont on its website. BED continues to provide its own energy efficiency services (the same as Efficiency Vermont’s, but delivered by BED).
- ❑ **Massachusetts** – MassSave is the single suite of efficiency offerings offered across Massachusetts, sponsored by the state’s electric IOUs and gas IOUs. It is not delivered as a statewide program; each utility is responsible for administering it. There are some offerings unique to certain utilities: Eversource and National Grid have two programs (Wireless Thermostat and Installation for residential and Sustainable Office Design) that only they offer. National Grid also has a special Deep Energy Retrofit pilot unique to them (in lieu of the other Deeper Energy Savings Program).

No state has cracked the code to ensuring efficient coordination between the statewide organization and the utilities, but each has attempted to find a balance between the two. Recognizing this need, the BPU convened several working groups in FY2014, including one based on exploring the relationship between NJCEP and the utilities for supporting energy efficiency.

Utility Working Group

The Utility Working Group consisted of many of the entities described above, including members of the Office of Clean Energy (OCE) in the BPU, NJCEP’s PA and market managers (AEG, TRC, and Honeywell), each of the seven utilities, the Rate Counsel, and Sustainable Jersey. It also included the New Jersey Utility Association, the Natural Resources Defense Council, the Large Energy Users Coalition, and the Clean Energy States Alliance. Its goal was to bring together the key players primarily to discuss coordination between NJCEP and the

utilities and between the utilities. Over the course of nine months, the group reviewed the existing programs, heard presentations from a number of entities on a variety of topics (administration, alternative financing, efficiency portfolio standards), and held “lively” discussions on the topics at hand. Initially the group was intended to write a report with conclusions and recommendations; instead, the BPU staff summarized the findings as part of its FY2015 CRA. There were also eleven recommendations listed, but these recommendations functioned more as principles than as actionable items. They included suggestions such as “provide contracting flexibility,” “provide opportunities for all customer classes to participate,” and “enable innovation.”

The Working Group also involved discussions on larger, more provocative issues regarding the administration of efficiency programs. These discussions were promoted by presentations from the Lawrence Berkeley National Laboratory, Efficiency Vermont, and ETO on the administrative structures of efficiency programs. New Jersey’s structure is unique, as it is currently the only state where clean energy programs are run through the regulatory body. Commenters noted that this puts special restrictions on the ability of NJCEP to run programs efficiently (for example, procurement rules and the need to go through the Treasury for contracts and payment).⁷ For the programs – both from NJCEP and the utilities – this leads to year-by-year, even month-by-month, planning that makes it challenging for both programs and contractors to build up staff and resources to make the programs more effective. These issues were not resolved during the course of the Working Group meetings.

One commenter suggested that the process evaluation be used to elucidate these administrative issues and to recommend an approach. While the evaluation team acknowledges the breadth of these challenges, they are not within the power of the NJCEP administration to change and are therefore not within the scope of work for the evaluation. Furthermore, any changes to the structure of the programs would happen through a proceeding at the BPU. Therefore, the more appropriate place to discuss these issues would be through a stakeholder process, such as the Utility Working Group.

There is also a nearer-term function played by the Utility Working Group in being able to open discussions on ways to coordinate between the entities using the existing framework. For all of the reasons discussed here, the conversations started by the Working Group were beneficial and should be continued. Increasing the amount of coordination between NJCEP and the utilities can only have benefits, as it can decrease duplicative work and competition and be used to leverage the strengths of each organization to increase program awareness, participation, and savings achieved by the program.

Recommendation #1A: Continue the discussions begun through the Utility Working Group on how to better coordinate and organize the efficiency work done by various New Jersey parties.

⁷ This will be discussed more in the Section 5.2 (Oversight and Procedures).

The BPU noted in the CRA that the transition to the single program administrator (PA) is their priority, but following the transition, these conversations should be started in order to establish that coordination is also a priority going forward. In the meantime, a good short-term strategy would be to work with the utilities to improve marketing of NJCEP programs to their customers. This is covered under recommendation #4B, in Section 5.4.2.

In the longer-term, the Working Group can be a starting place to develop discussions and decisions around many topic areas, including:

- Program and incentive coordination
- The role of each organization in promoting clean energy
- Alternative financing mechanisms
- The potential for broader market transformation initiatives in the state
- Additional program structures, such as demand management (discussed further in Section 5.6.1)
- Coordination of evaluation activities across various entities

This group represents a unique opportunity to muster and direct all of the disparate resources the state has for achieving lasting benefits through energy efficiency, and it is critical that all utilities and other key stakeholders are continually engaged and given the opportunity to participate.

5.1.2 Portfolio Goals and Objectives

NJCEP takes its mission from principles in the key state documents discussed earlier. According to the website, NJCEP is “a statewide program that offers financial incentives, programs and services for New Jersey residents, business owners and local governments to help them save energy, money and the environment.” One interviewee summarized NJCEP’s mission in a slightly different manner, as to “promote energy efficiency and renewable energy and disseminate the clean energy portion of SBC in an appropriate fashion.” This was more or less affirmed by other interviewees. That mission dictates what the NJCEP is attempting to accomplish, but given the lack of a quantified state goal for clean energy, NJCEP is left to determine what exactly it should be working towards. This section will discuss NJCEP’s goal-setting mechanisms as well as its ability to achieve and track progress toward them.

5.1.2.1 Goal Setting

Goal setting refers to the process by which NJCEP calculates specific, numeric targets it intends to hit through its activities. Progress towards these goals using quantified metrics, is the primary method by which to measure the program’s performance. While it is most common to see energy savings (in kWh) targets as the primary metric energy efficiency programs attempt to hit, other metrics include demand reduction (in kW), cost-effectiveness (in dollars spent per kWh saved), number of applications, spending against the budget, and other non-energy benefits (i.e., greenhouse gas reductions, job creation).

Primary and Secondary Goals

Interviews with PAs and program managers revealed that NJCEP viewed participation (the number of applications) and spending as the primary metrics that they used to track progress. Participation is an indication of the program's reach, whereas attempting to spend the entire allocated budget via incentives ensures that NJCEP is giving back the SBC funds it has collected to the public (and that those funds will not be lapsed into the NJ General Fund at the end of the year). Goals for participation are set by looking at the previous years' participation levels and estimating some increase over those levels; the spending goal is the budget set for each program through the Comprehensive Resource Analysis (CRA) process.

NJCEP also has goals for energy savings (in kWh and Dtherms); savings are calculated for projects and reported on a regular basis. However, these have historically been secondary goals compared to participation, as evidenced by a few factors:

- ❑ PAs and program managers, when asked what their goals were, all discussed the participation goals. When they were pressed on savings, many said that while savings were calculated, this was not historically how the program was assessed.
- ❑ Quarterly public reports have only appliances rebated/enrollments/completions (participation) listed in the "progress towards goals" section. The reader must scroll three-quarters of the way through the report to assess progress against savings goals.
- ❑ According to one interviewee, the primary tracking system (IMS) is not used to report savings. Instead, AEG must receive savings estimates from each individual program in order to put together the monthly reports.
- ❑ Monthly reports sometimes do not contain updated savings estimates by program or incomplete values.
- ❑ There is no verification of savings estimates through impact evaluations or measurement and verification (M&V).

This focus on participation and spending may be due to the historical perspective of program operation or the ease of tracking those two metrics; the program staff knows how many applications are processed and it is already tracking spending to provide in program financials reports. However, using these as the key metrics may lead to suboptimal performance. For example, focusing on increasing the application throughput for the program may lead to a preference for a high volume of simple projects, as opposed to more complex, comprehensive projects. As for spending, although it is important that the budget is spent, not coupling that with another performance metric may mean that NJCEP is not as cost-effective as it could be – i.e., that it is spending more per unit of benefit than comparable programs.

This primary focus on participation and spending and secondary focus on energy savings is essentially reversed from what performance-driven management would suggest. Many PAs in other jurisdictions put together logic models to help them track the ultimate impacts of their work. These logic models include two results of the program's actions – outcomes and outputs.

- ❑ Outcomes are the ultimate objectives of the entity – the benefit, value, or impact that the organization is trying to create.
- ❑ Outputs include the activities and audiences reached in the efforts of attaining these goals.

As stated on the NJCEP website, the program aims to help customers save energy, money, and the environment. The energy savings help customers save money on their bills, but reductions in energy consumed at peak times also lead to cost reductions for the entire electric system. Energy savings also lead to offset generation and therefore, a decrease in carbon dioxide emissions. As a result, savings are the primary outcome-based metric for NJCEP. Some specific actions NJCEP takes to achieve those savings include getting customers to participate in the programs (via tracking the number of enrollments/applications) and spending the portion of the SBC entrusted to NJCEP. Therefore, these are outputs. As a result, NJCEP should switch to base program performance on its outcomes – energy and demand savings.

Recommendation #1B: Consider energy and demand savings the primary outcome of NJCEP efforts and therefore the primary goal and metric by which to track progress and measure performance.

This recommendation is essentially a paradigm shift: NJCEP can and should continue to set secondary targets for participation and attempt to spend the entire budget, but should reorient to focus its activities on achieving the greatest reduction in energy use possible for the available budget. NJCEP can enshrine this by devising a logic model, as discussed above, but this may not be necessary; the more important part is that this focus on energy savings as the primary goal be carried out in NJCEP's day-to-day work. Some ways to accomplish this include:

- ❑ Ensuring that savings goals are made clear to program staff and contractors at the beginning of and throughout the program year.
- ❑ Consistently tracking and reporting energy savings as the most prominent metric in monthly, quarterly, and annual documents.
- ❑ Updating the IMS to include verified savings data that can be easily pulled for reporting and analysis.

Note that savings are less easily tracked than participation or spending. The calculations used to estimate savings need to be periodically checked; more complicated projects should undergo measurement and verification (M&V) to ensure that the actual energy savings match estimations. Impact evaluations can establish realization rates of energy savings as well as the savings that the program is directly responsible for (versus what would have occurred anyway through free ridership). This will be discussed further in Section 5.3 (Evaluation).

Energy Savings Goal Calculation Methodology

NJCEP has gone through multiple methods of calculating annual kWh and Dtherm goals for its programs for the upcoming year. Prior to 2014, annual savings goals are not included in the Comprehensive Resource Analysis (CRA) performed by the BPU staff or the BPU order that

approves the annual budgets for the programs. Instead, TRC and Honeywell – the market managers responsible for commercial and residential programs, respectively – have included a one-page document at the very end of their program proposals for the next year(s) with kWh and/or Dtherm goals for each program they run alongside goals for participation. There is no information provided on how these goals are calculated, though the interviews indicated that these were typically based on previous years’ participation levels and average savings per project (with a percentage adjustment).

In the FY2015 CRA, the staff included kWh and Dtherm goals for the programs, with the 2014 goals as background. There was an 11% increase in all four goals (electric and gas for both residential and commercial programs), which supports the interview findings that goals are set annually with a percentage increase. However, in the FY2016 CRA, the goals changed dramatically. This was explained as a change in methodology:

“In prior years Staff set energy savings targets as a linear calculation based on participation rates and estimated savings per application. In contrast, this year, Staff conducted a regression analysis of past energy savings associated with NJCEP programs...in order to set energy savings targets for FY16. The regression analysis enables Staff to set ambitious energy savings targets that are not directly linked to the participation levels.”⁸

In the companion order, the BPU also indicates that the FY14 and FY15 savings goals were set at the halfway point between the “achievable high” and “achievable low” potentials determined in EnerNOC’s 2012 Market Potential Study for NJCEP.⁹ The change in methodology led to a decrease in savings goals, as presented in Table 5-3.

Table 5-3. NJCEP Goals for FY15 and FY16

Program	FY15 Goals		FY16 Goals		% Change	
	MWh	Dtherms	MWh	Dtherms	MWh	Dtherms
Residential ¹	285,000	725,000	352,526	588,339	24%	-19%
C&I	290,000	725,000	188,645	397,570	-35%	-45%
Total EE	575,000	1,500,000	541,171	985,909	-6%	-34%

¹Residential includes both NJCEP market rate programs and the low-income Comfort Partners program.

There was a 6% decrease in the expected electric savings and a 34% decrease in expected gas savings. There was also a marked shift in savings goals between sectors with a 24% increase in

⁸ NJBPU Office of Clean Energy, “Revised Comprehensive Resource Analysis – Staff Straw Proposal,” May 21, 2015, p. 5. This revised version is not available online.

⁹ State of New Jersey Board of Public Utilities order, “In the Matter of the Comprehensive Energy Efficiency and Renewable Energy Resource Analysis for the Fiscal Year 2016 Clean Energy Program,” June 17, 2015, p. 18. This can be accessed at <http://www.njcleanenergy.com/filings> under “Board Order Approving Programs and Budgets June 25, 2015.”

the residential electric savings target and a 35% decrease for commercial. Meanwhile, the residential program also saw its budget decrease by 19% and the C&I budget increase by 1%, indicating that this was not dictated by a change in funding. Moreover, the majority of residential savings comes from efficient lighting under the Efficient Products Program, which is endangered due to the shift from an incandescent to CFL baseline (as described in Section 5.6.5).

These goals are not split by component programs in the CRA or the BPU order, but they are in other program documentation. For example, in the quarterly reports posted on the NJCEP website, there are several pages that include progress towards annual kWh and Dtherm goals. However, the wide variance in achievement towards those goals calls into question how realistic and appropriate those goals are. After the third quarter of FY2015 (75% of the year), electric programs had achieved 73% of their portfolio goals – but the programs had achieved anywhere from 14% to 920% of the annual goals.¹⁰ For gas this is even more pronounced; one program had achieved 1249% of its annual goals.

Given these findings, there is some evidence that the current method(s) of goal calculation are not adequately providing signals to the programs. This warrants a revisit, as progress towards goals is the program's main resource for monitoring performance and ensuring that the benefits achieved are commensurate with the effort. Well-designed goals are based on several principles:

- ❑ Consistency – Allows for comparisons across years
- ❑ Transparency – Explains to stakeholders, including a clear methodology for making adjustments
- ❑ Ambitiousness – Creates a motivation for NJCEP to strive for better results and prevent backsliding
- ❑ Realistic view – Attainable given NJCEP's suite of programs
- ❑ Forward-looking attitude – Consideration given to but independent of past performance
- ❑ Scalability – Realistic for both the portfolio and the component programs

With these in mind, and since there is no top-down, statewide goal for energy savings that NJCEP and other organizations can use, ERS recommends a method of calculating goals from the bottom up that can be consistently applied across its programs and from year to year. Using cost-efficiency targets allows NJCEP to build goals with a clear line of sight from the project, program, and portfolio.

Recommendation #1C: Set savings goals based on program budget and cost-efficiency (\$/kWh) targets per program and aggregate those to set portfolio goals.

¹⁰ FY14 NJCEP Final Report, which can be accessed at www.njcleanenergy.com/main/public-reports-and-library/financial-reports/clean-energy-program-financial-reports under "4Q Fiscal Year 2014."

This is not a new concept, as the Benchmarking study used cost efficiency (dollar spent per kWh savings claimed) to compare NJCEP's performance to twenty-five other PAs nationally. The report also provided \$/kWh targets for each program based on the benchmarking analysis on the achievable cost-efficiency for each program. NJCEP should set \$/kWh and \$/Dtherm targets for each program based on these recommended targets. To determine the savings goal for each program, NJCEP would divide the program budget by the cost-efficiency target. This provides the level of energy savings achievable at that cost-efficiency rate for the given budget. These goals should be included in monthly reports, with progress towards them measured each month.

NJCEP would be able to revise the target in the future if it determines that the program dynamics have changed (i.e., new measures included or market saturation). However, if New Jersey wants to regain its position as an energy efficiency leader, it needs to take care that any weakening of goals due to a program cost increase per kWh is made up with an increase in goals elsewhere.

Emphasis on Residential vs. Commercial

An additional consideration for PAs when setting their goals is how they will set their budgets and design targets on their different sector markets: residential and commercial/industrial customers. For many, this involves a discussion on equity and efficacy. Equity, or fairness, would suggest that wherever the collection money is coming from is where the funding should go. Efficacy, on the other hand, would suggest that the funding should go wherever there is the most potential to find energy savings, as this is the most cost-effective way to achieve those savings – and therefore benefits. Generally residential customers spend more per unit of energy, but there is more savings potential from commercial customers than residential customers. As a result, a PA that favors equity might expend more effort on residential customers, and a PA that favors efficacy might expend more effort on commercial customers.

One way to determine where this focus lies in a program is a two-part analysis:

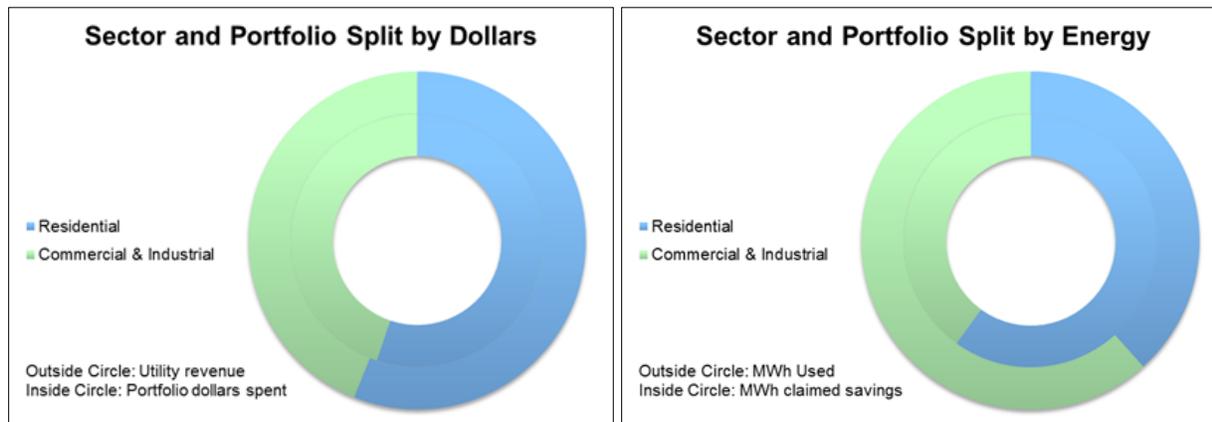
1. To compare where its spending comes from and where its spending goes by sector;
2. To compare the savings potential of each sector to the proportion of energy savings attained from that sector.

ERS attempted this analysis using proxy data to get a general idea of where NJCEP fell on the spectrum of equity and efficacy. In lieu of having exact data on which sector NJCEP received its funding from, the evaluation team used utility revenue by sector (the proportion of its revenues it received from residential customers paying for energy vs. commercial). Utility revenues should provide a reasonable proxy because the SBC is paid as a volumetric, rather than fixed, charge on customer bills. ERS compared this to the actual spending on residential vs. commercial programs for NJCEP. For the second analysis, because a current savings potential would be difficult to set assumptions for and calculate, ERS used the MWh consumption of each sector as a proxy (if the assumption is that a simple percentage reduction in use could be attained across all sectors, then the sector with the larger consumption would have the larger

savings potential in MWh). This was compared to the MWh savings claimed for each sector by NJCEP.

These analyses are shown in graphical form in Figure 5-1, with spending vs. collections on the right and savings vs. energy use on the left. The outside circles represent the customer (SBC payment and energy use), while the inside circles represent NJCEP (spending and savings).

Figure 5-1. NJCEP Spending vs. Collections, Savings vs. Use by Sector



It is very clear that NJCEP’s spending aligns very closely with where it receives its funding from, rather than where the savings potential is, which shows that it favors equity over efficacy. This is unsurprising, given that PAs view their role as disseminating SBC funding to help customers save money. As a result, its spending and savings both skew towards the residential sector. While there is nothing inherently wrong with focusing on equity, this analysis does show that there is most likely untapped potential in the commercial sector, especially given that much of the residential savings are due to lighting and may not be sustainable (as described in Section 5.6.5).

5.1.2.2 Goal Achievement

No matter how well-designed the goals may be, they are meaningless unless achieving those goals is considered a priority and progress towards them is measured and tracked. This section reviews NJCEP’s tracking mechanisms, performance against goals, and internal focus on goal achievement.

Tracking Progress Towards Goals

As explained above, NJCEP sets goals/budgets for and tracks participation, spending, and savings for each of its programs. While these are tracked in an internal monthly reporting system, there is no single public document that tracks progress towards goals over time for all metrics of interest. It is especially difficult to track past years – while documents for FY2015 have been more or less consistent, formats and timing of reports have varied in the past. The shift from calendar years to fiscal years also makes comparisons less straightforward. Four public documents include some of the information:

1. **Progress toward Goals reports** – Starting in FY2015 (July 2015), these have been quarterly. The website has Q1, Q2, and Q3; the Q4 report (which covers April through June 2015) has not been posted yet. Prior to July 2015, there are annual reports (with Q4 for FY2014 and December reports for prior calendar years). These have four distinct parts. The first includes participation against goals and expenditures against budget by program; the second provides summary financials; the third provides portfolio-level participation metrics (without providing the goals); and the fourth details savings (in MWh, Dtherms, and kW) against the goal, as well as greenhouse gas reductions. These track progress only for the current program year.
2. **NJCEP Cumulative Results** – This spreadsheet is updated annually to show expenditures, savings, demand reductions, and participation for each program from 2001 through the current year. However, there are no goals or budgets in the document.
3. **CRA Staff Straw Proposals** – These will include proposed budgets for the upcoming year or cycle. The FY2015 and FY2016 CRAs each included proposed savings goals for the upcoming year, but the previous ones did not. The budgets will be approved in the BPU order.
4. **Honeywell and TRC filings** – Leading up to the CRA, each of the market managers will submit a detailed report with explanations of each of their programs and activities. Each includes proposed budgets, participation targets, and savings targets for each program. These have to be approved before they are used, but there is no consolidated document with these metrics after BPU approval.

The quarterly reports provide the best format for publicly imparting information on current year impacts, which encourages accountability. While there should be more savings tracking at the same level of detail as participation (and this data should be featured more prominently), these are good documents for current year progress towards goals. However, these are challenging to use for comparisons with the previous years' data. They are also not searchable or useable for analysis, as they are in PDF format. On the other hand, the cumulative results spreadsheet does contain historical data in a searchable format, but it does not contain any goals or budget information. ERS suggests that NJCEP staff update the Cumulative Results spreadsheet to be a repository of all key data used to track progress against goals. Making the goals more visible and comparable is a fairly simple way of showing that NJCEP is serious about its goals. It promotes accountability by making the information more accessible to the public and will also allow NJCEP personnel to more easily highlight improvements and milestone achievements.

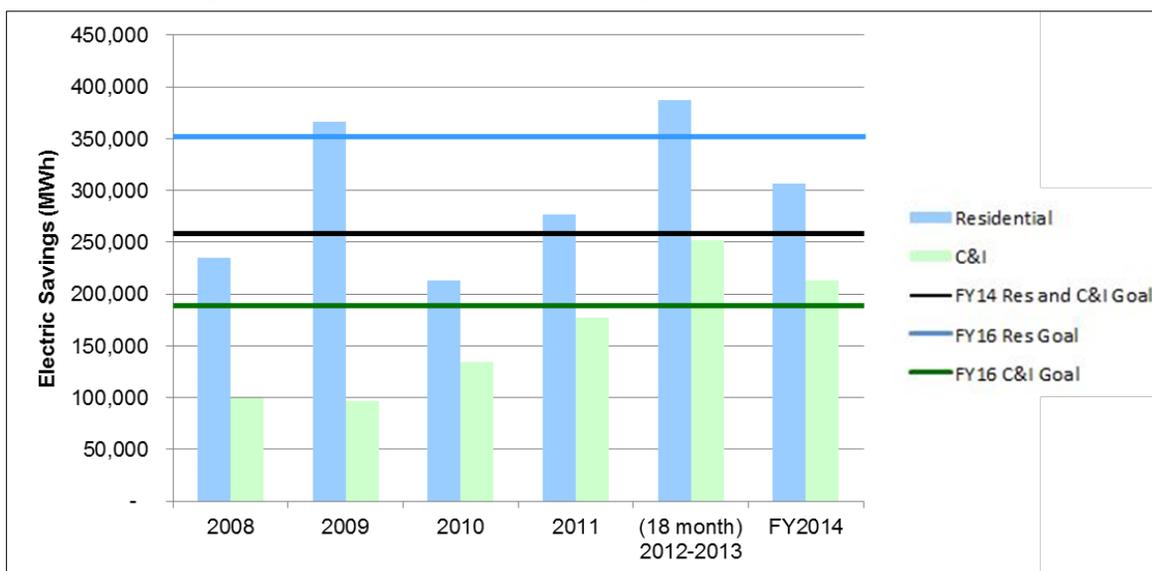
NJCEP Historical Achievement against Goals

Given some of the documentation issues described above, it is difficult to gain a historical perspective on how NJCEP has performed against all three of its goals (participation, spending, and savings) over time. This is especially true since the goals are often omitted or obscured in the same documents. As a result, it is much easier to compare NJCEP against its past performance than against annual goals using public documentation. Participation metrics are

program-specific and do not exist on a portfolio level because the metrics do not always have the same denominator (e.g., applications approved vs. applications completed vs. number of appliances/light bulbs). Therefore, this discussion will focus on the achievement of savings goals.

Historical goals are not readily available for previous years – only FY14, FY15, and FY16 goals are included in the CRAs – and of those, only FY14 has complete, publicly available data. While studying FY2014 can provide interesting information (as discussed below), this does not provide a historical perspective on how much the program has achieved over time. The evaluation team therefore used the FY14 and FY16 goals as a proxy for prior-year goals in order to discuss goal achievement, as shown in Figure 5-2. In FY14, goals for residential and C&I programs were almost the same (a difference of 1%), and so they are represented by a single line. In FY16, the residential goal was increased and the C&I goal was decreased, resulting in the residential goal being nearly double the C&I goal.

Figure 5-2. Historical Claimed Savings vs. FY14 and FY16 Goals



C&I programs have historically yielded far fewer savings than residential ones. This is partially due to the large percentage of savings attributable to CFLs from the Efficient Products Program. There is also variation by year, although the trend shows a general increase from 2010 onwards (the 2012–2013 18-month period, if it were shortened to 12 months, would be in line with previous years).

Breaking achievement towards goals into component programs provides a different perspective. The quarterly “Progress towards Goals” reports include charts on savings and goals for each component program; these are included for both electric and gas in Figure 5-3. As of the writing of this report, there was only data available through the third quarter of FY2015 (March 2015); therefore, the data below is from FY2014.

Figure 5-3. Progress toward Goals – Fourth Quarter FY2014

New Jersey's Clean Energy Program Electric Energy Savings vs. Annual Goals for Fiscal Year 2014						
Statewide Summary: Energy Efficiency Programs Reporting Period: 07-01-2013 thru 06-30-2014 (Energy Savings)	Annual Savings			Lifetime Savings		
	Annual Goal	Actual YTD	Actual YTD as % of Goal	Annual Goal	Actual YTD	Actual YTD as % of Goal
Program	MWh	MWh	%	MWh	MWh	%
RESIDENTIAL PROGRAMS						
Residential HVAC - Electric & Gas	7,598	5,353	70%	143,593	95,679	67%
Residential New Construction	5,811	4,770	82%	116,212	97,685	84%
Energy Efficient Products (All Products)	242,192	286,327	118%	1,325,437	2,391,966	180%
Home Performance with ENERGY STAR	1,698	4,661	275%	33,950	76,998	227%
Sub-Total: Residential EE Programs	257,299	301,110	117%	1,619,192	2,662,328	164%
COMMERCIAL & INDUSTRIAL PROGRAMS						
C&I New Construction	8,037	1,509	19%	144,675	22,375	15%
C&I Retrofit	132,976	110,650	83%	1,994,637	1,675,718	84%
Pay-for-Performance New Construction	7,085	1,313	19%	127,530	23,486	18%
Pay-for Performance ⁽¹⁾	68,627	32,400	47%	1,235,293	555,474	45%
Direct Install	34,808	38,040	109%	626,544	548,554	88%
Large Energy Users Program	9,533	28,710	301%	171,596	505,024	294%
Sub-Total: C&I Programs	261,066	212,622	81%	4,300,275	3,330,631	77%
TOTAL Energy Efficiency Programs	518,365	513,732	99%	5,919,467	5,992,959	101%

(1) The electric energy savings shown above for P4P represent ALL P4P projects, including CHP projects

New Jersey's Clean Energy Program Gas Energy Savings vs. Annual Goals for Fiscal Year 2014						
Statewide Summary: Energy Efficiency Programs Reporting Period: 07-01-2013 thru 06-30-2014 (Energy Savings)	Annual Savings			Lifetime Savings		
	Annual Goal	Actual YTD	Actual YTD as % of Goal	Annual Goal	Actual YTD	Actual YTD as % of Goal
Program	DTh	DTh	%	DTh	DTh	%
RESIDENTIAL PROGRAMS						
Residential HVAC - Electric & Gas	213,496	118,229	55%	4,138,222	2,120,558	51%
Residential New Construction	332,246	49,991	15%	6,644,920	1,017,268	15%
Energy Efficient Products (Clothes Washers Only)	29,419	22,143	75%	323,611	442,854	137%
Home Performance with ENERGY STAR	82,450	82,585	100%	1,649,000	2,005,100	122%
Sub-Total: Residential EE Programs	657,611	272,949	42%	12,755,753	5,585,780	44%
COMMERCIAL & INDUSTRIAL PROGRAMS						
C&I New Construction	1,942	19	1%	34,960	347	1%
C&I Retrofit	92,377	30,487	33%	1,385,660	578,990	42%
Pay-for-Performance New Construction	16,702	963	6%	300,636	15,048	5%
Pay-for Performance ⁽¹⁾	390,062	279,551	72%	7,021,115	4,954,047	71%
Direct Install	41,483	99,959	241%	746,693	1,647,942	221%
Large Energy Users Program	110,792	168,712	152%	1,994,262	3,036,821	152%
Sub-Total: C&I Programs	653,358	579,691	89%	11,483,326	10,233,195	89%
TOTAL Energy Efficiency Programs	1,310,969	852,640	65%	24,239,079	15,818,975	65%

(1) The gas energy savings shown above for P4P represent ALL P4P projects, including CHP projects

NJCEP was successful in hitting its electric target as a whole; however, there was substantial variation among programs to meet their particular goals. The residential programs over-performed, hitting 117% of the goal, and the commercial programs underperformed reaching 81% of the goal. For gas savings the story is the opposite; the commercial programs got much closer to hitting the annual target than the residential programs (89% vs. 42%), and overall the gas programs only hit 65% of the annual target. The component programs saw even greater variation. The residential electric goal attainment ranged from 70% to 275%, while on the commercial electric side, it ranged from 19% to 241% of the annual goals.

Another way to put NJCEP's savings attainment into context is to use the state's technical potential, as calculated in EnerNOC's 2012 Market Potential Assessment.¹¹ The study determined four levels of technical potential for each sector in NJCEP's portfolio (in decreasing levels of aggressiveness): Technical Potential, Economic Potential, Achievable Potential High, and Achievable Potential Low. Table 5-4 shows the achievable low and achievable high for residential and C&I programs for 2014, and how NJCEP's achieved savings for that year compare.

Table 5-4. EnerNOC Potential Savings Levels and NJCEP Actual Savings

Sector	2014 EnerNOC Achievable Low	Interpolated Midpoint	2014 EnerNOC Achievable High	2014 Actual	Percentage Met vs. Midpoint
<i>Electric Savings (GWh)</i>					
Residential	330	494	657	306	62%
C&I	354	519	683	216	42%
Total	684	1,012	1,340	522	52%
<i>Gas Savings (Million therms)</i>					
Residential	1.7	2.6	3.5	3.3	127%
C&I	6.4	10.0	13.5	5.8	58%
Total	8.1	12.6	17	9.1	73%

NJCEP has used the midpoint between the achievable low and achievable high values to determine goals before, so the evaluation team compared the 2014 actual savings to this midpoint. NJCEP's electric savings from 2014 are roughly half of that potential level, and its gas savings are three-quarters of the potential. Looking at the achievable low potential – the most conservative potential estimate in the EnerNOC report – only the residential gas savings from 2014 exceed the potential value. Across the board, residential programs performed better against the potentials than the commercial programs, and gas outperformed electric.

While NJCEP's achieved savings are substantial, there is still room to grow and a number of organizations, both within and external to the state, have noted that New Jersey is less of a leader in energy efficiency than it once was. ACEEE's 2015 State Energy Efficiency Scorecard ranks New Jersey 21st nationally for their programs; NEEP's report on efficiency in the Northeast and Mid-Atlantic states lists New Jersey as "falling behind."¹² A recent NJ Spotlight roundtable gathered together several experts in the industry (several of whom were interviewed for this study), and the consensus was similar: New Jersey is falling behind other

¹¹ EnerNOC, "New Jersey Energy Efficiency Market Potential Assessment," October 2012.

¹² ACEEE NEEP, "A Changing Landscape: The Regional Roundup of Energy Efficiency Policy in the Northeast and Mid-Atlantic States," February 2015.

states, and much more needs to be done to support efficiency as the lowest-cost energy resource.¹³

Focus on Performance

Section 5.1 has attempted to detail two things: first, how state goals are turned into objectives for NJCEP, and second, how those objectives are used to design goals and metrics that direct program activities. These goals are the yardstick by which the program's success, or performance, is defined. For New Jersey, this line of sight from objectives through goals can be summarized in a few points:

- ❑ With only a state objective to promote clean energy, as opposed to a concrete goal that it carries out, NJCEP has focused on disseminating the SBC funding entrusted to it in a way that saves individual customers money.
- ❑ As a result, NJCEP focuses on participation and spending in goal-setting, which both show the number of residents or companies directly benefitting from the program and the funding. It also means that NJCEP favors residential customers in its budgeting rather than commercial, as that is where more of the SBC funding comes from.
- ❑ The portfolio leads to positive results from benefit-cost tests and it does have benefits for the state because individual customers will save more money in aggregate than it costs to run the program.

While that framework has historically achieved satisfactory results for NJCEP, it has led to an underemphasis on energy savings – despite the fact that energy savings are ultimately what lead to benefits for customers of the entire electric system – and less of a focus on program performance than similar programs. There is a general willingness to accept whatever is attained by the program, rather than a desire to see a more ambitious reach. This is evidenced by a number of points detailed in this chapter:

- ❑ Performance has typically been defined by participation, which may create a motivation to develop a high volume of projects, regardless of their sizes and benefits.
- ❑ Tracking progress towards goals is cumbersome using public filings, indicating that the documents were never intended to be used to do so, although this is the program's main method of providing public information on how it is using ratepayer funding.
- ❑ Savings goals have not historically been approved by the Commission; they appear to be suggested by the market managers and accepted without revision.
- ❑ The most recent set of goals (for FY2016) that was approved by the Commission led to an overall decrease in savings targets.

¹³ "New Jersey Falling Behind Other States in Efforts to Boost Energy Efficiency," Tom Johnson, Sept 21, 2015, NJ Spotlight.

- ❑ There is a very wide margin of achievement of historical savings goals (i.e., 13% of goals all the way to 900% of goals), indicating that they may not be realistic. There is also no reward or penalty associated with the goals, suggesting that results are accepted regardless of whether the program is achieving 13% or 900% of goals.
- ❑ There is an underemphasis on commercial customers compared to residential customers based on the program budgets and the recent dramatic decrease in commercial savings targets, although commercial customers are generally held to have the most cost-effective savings.
- ❑ There is no verification of energy savings through impact evaluations or M&V in order to support assumptions made on how programs are achieving goals.
- ❑ NJCEP is generally less cost-effective than peer programs, as detailed by the Benchmarking study. This suggests that it is willing to spend much more per unit of benefit than its peers are, although decreasing costs would free up additional funding to accrue further benefits.
- ❑ As will be detailed later in the report, the focus on disseminating SBC funding has also led to unwillingness to spend money on functions that seemingly do not lead to direct benefits from customers, including administration, evaluation, and marketing.

This lack of focus on performance hurts the programs in the long term, as there is little motivation to strive for better results or make improvements in processes. Increasing the attention paid to program performance will ultimately lead to better programs, greater benefits achieved for the state, and a more efficient use of ratepayer dollars.

The current underweighting of performance exists for two main reasons:

1. There is not a culture in place that emphasizes achieving program goals as a key responsibility of the teams. This culture starts at the BPU and should run through the PA, market managers, and all of their contractors and trade allies.
2. There is no meaningful change in the programs from reaching the goals. Achieving 80% or 90% of the goals in place by year's end is essentially no different from achieving 110% or 200%, leading to little motivation for the program to take them seriously.

On the first point, creating a culture that values and strives for better program performance starts with the BPU. This includes a responsibility to set realistic goals, stress them in regular communication with team members, track progress against them, make it clear that subpar results will not be accepted, and to reward achievement. Using an outcome-based goal (savings) and setting realistic targets were already discussed in this section, and these will go a long way toward aligning NJCEP's activities with its high-level goals. The BPU's role in communicating, tracking, and troubleshooting performance is developed further in the next section (5.2.1, Oversight by the BPU). The remaining item from the list, then, is rewarding performance. There is no incentive mechanism in place for NJCEP to make goals into concrete milestones (as opposed to arbitrary numbers). Many peer programs, such as all of the New York PAs, use performance incentives to emphasize the value of attaining those goals to the administrator in

other peer programs. This could greatly help reorient all team members – from the BPU through the PA and its contractors – to seriously look at goals. Performance incentives are a fairly common way to align the PA's and program owner's objectives. It is an additional motivator to meet those goals and shows that strong performance will be rewarded.

Recommendation #1D: Implement PA performance incentives for achieving goals.

They are typically implemented as a monetary incentive or bonus for the PA hitting or exceeding goals and/or milestones; some programs may use disincentives or penalties for the PA missing the goals. ERS recommends starting off with positive incentives only and then evaluating whether or not to add a disincentive. There are two common models for performance incentives in play in the industry:

1. **Dollar bonus for sector goals** – Incentives structured like this are bonuses that the PA can earn for hitting one or several goals. For example, there could be four bonuses for achieving goals set for residential electric, residential gas, commercial electric, and commercial gas. There could also be only one, for hitting the portfolio-level goals. This method does make it easier to set multiple goals, but it is typically structured as all-or-nothing: either the PA attains the goal and wins the incentive, or it does not and leaves empty-handed.
2. **Percentage of the contract value** – The PA can earn (or lose) some portion of its contract value based on its performance against the goals. For example, if it attained 110% of the savings goal, then it would have the potential to earn 110% of the original contract value. In some places this is also true in reverse: if the PA only attained 80% of the savings goal, it would only be able to bill 80% of the contract. Some may choose to put only some portion of the contract value at risk, rather than the entire contract. Since many contractors bill based on time and materials, this incentive structure means that that they would have the potential to bill up to 110% of the value if they perform the work, rather than receiving just an extra amount of money.

NJCEP staff will need to consider how to structure the incentive in its budgeting so that if the administrator fails to meet the goal, the incentive amount is not lapsed to the NJ General Fund at the end of the year. Implementing a performance incentive also provides an additional reason to consider verifying energy savings (this is discussed further in Section 5.3). If there is a dollar value associated with achieving a given level of energy savings, then the BPU has good reason to ensure that it is receiving the benefits it is expecting; this is also an effective mechanism to prevent some forms of gaming.

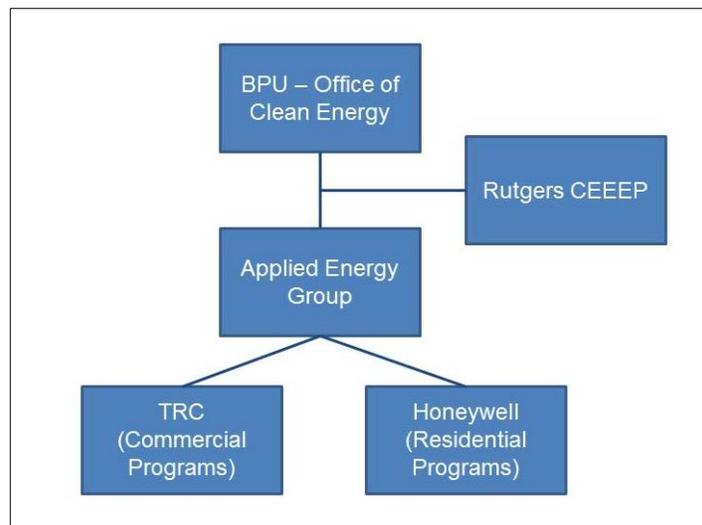
It is critical that the performance incentives be tied to the key outcome of the programs – energy savings – because this is what provides benefits to customers and the entire grid. Using a secondary metric (participation) runs the risk of incentivizing quantity, not quality, of installations.

5.2 Oversight and Procedures

With goals and objectives in place, the program must structure itself in order to execute the mission it has defined. This includes a number of functions. There must be an implementation plan, staff members in place to carry it out with clearly defined roles, established methods of communication among the different teams and companies involved, and a system in place to track and report progress on achieving goals. On a smaller scale, all of these components must also exist for each program within the administrator’s portfolio, but what is put in place for the organization as a whole will influence each of its components.

NJCEP is implemented by several companies working in tandem. The BPU “owns” the programs and performs some of its administrative functions. It also works with the Center for Energy, Economic, and Environmental Policy (CEEPP) at Rutgers University, which oversees evaluation of the portfolio. On the program side, the BPU has a PA responsible for communicating between the program implementers (called Market Managers) and the BPU; this role is filled by the Applied Energy Group (AEG). There are two Market Managers – TRC is responsible for implementing the commercial programs and Honeywell handles the residential ones. This is shown in Figure 5-4.

Figure 5-4. NJCEP Administration Structure



Because this is a state-based organization run out of the state’s regulatory agency, there are also unique structures and procedures it is subject to that place considerations or constraints on its work. This section will start with a discussion of some of those structures and procedures, then focus on the oversight and procedures put in place between the BPU at the head of NJCEP and the companies responsible for managing implementation. Findings and recommendations on these topics are presented below.

5.2.1 Administration

As noted in many staff and PA interviews, and evidenced by the lack of change over the course of the program offerings, the NJCEP organizational and oversight structure is unique among statewide efficiency organizations. NJCEP is operated within the BPU; purchasing and contracting authority for the BPU and therefore the NJCEP falls under the State of New Jersey Department of the Treasury. This situation has limited NJCEP on several fronts because all changes related to contracts, and all the associated details regarding scope of work or program structures, must go through the Department of the Treasury for approval. This approval process can take weeks, months, or, in some cases, years. Situations that require Treasury approval include program modifications in response to market changes, making no-cost contract modifications to increase length of contract or expand scope of work, changing incentive levels due to measure cost reductions, new program launches, issuing RFPs for services, and other areas that may be part of a contract with a provider. Incentive checks must also be issued by the Treasury, which increases the amount of time it takes to pay customers. The project will come through TRC or Honeywell, and invoices must go through AEG to the BPU to the Treasury, which then processes the incentive.

This situation is not ideal when trying to structure and operate programs that are market sensitive, nimble, and responsive. Recommendations on improving this situation are not part of this report, as the state's organizational structure is not within NJCEP's direct power to control and is therefore outside the scope of this process evaluation. With that said, improving turnaround time on issues identified above could create a much more responsive approach to program design and management.

5.2.2 Oversight by the BPU

Program owners – those ultimately responsible for energy efficiency programs – are different and give more or less autonomy to their implementer. However, there are generally three roles it retains to provide oversight and direction:

1. **Monitoring** – This involves regular communication, tracking progress, and checking in on program performance.
2. **Management** – This includes holding the implementer(s) accountable for program operation and meeting stated goals and objectives. As part of this function, the owner may be involved in troubleshooting, taking action if the implementer is underperforming, and making course corrections as needed.
3. **Planning** – This consists of designing and communicating the strategic, long-term views to the programs and offerings, goals, program roles, etc. Researching new, cutting edge measures and program designs to keep programs current is a key component of this.

This oversight role is important for program performance, as the owner is ultimately responsible for the program's success and therefore has a major motivation to ensure that its implementer is on the right track and not to be hesitant about stepping in if there are problems.

The ability of the program owner to fulfill such a role depends on several structures and procedures. For example, there must be staff responsible for performing particular oversight roles. Those roles should be defined in order to ensure that all tasks are completed and none are allowed to slip through the cracks. There must also be communication mechanisms in place both to transmit information on the programs from the implementer to the overseer, and to relay feedback from the overseer to the implementer.

Currently, the BPU defers most oversight of the programs to AEG, relying on it to manage TRC, Honeywell, and all of the day-to-day needs of the programs. This was affirmed in the interviews ERS conducted with each of the organizations. There is still substantive communication between the BPU and AEG, but it may focus on needed administrative tasks rather than program performance. While this setup has yielded satisfactory results, a greater oversight role for the BPU with an explicit focus on involvement in order to improve program performance may be very beneficial. This role is discussed below in regards to staffing and communication.

5.2.2.1 Staffing

The Office of Clean Energy, within the Board of Public Utilities Staff, is responsible for the oversight of NJCEP, including both the energy efficiency and renewable energy programs. It is part of the Division of Economic Development and Energy Policy, which also includes staff for government and community outreach.

There are currently ten staff members who work full-time on NJCEP – five for the renewable energy programs, three for the energy efficiency programs, and two for strategic initiatives (which includes evaluation and other research topics). There is no director in charge of only NJCEP; the staff is under the director of the Division of Economic Development and Energy Policy and three other administrative staff members who work on NJCEP alongside other initiatives.

ERS was able to interview one staff member for each of the groups within NJCEP (energy efficiency; strategic initiatives; and renewables, which has partial responsibility for CHP) as well as the director and assistant director for the Division. There were several findings from these conversations regarding staffing:

- ❑ There are some openings that have not been filled, leading to existing staff taking on additional responsibility to ensure that all of the necessary administration work is complete.
- ❑ Due to this, several staff members may split their time on very different roles. For example, the staff member in charge of overseeing evaluation is also the point person for offshore wind research at OCE.
- ❑ Also due to the shuffling of staff, there is some confusion as to what the exact roles and responsibilities of various staff members are.

- ❑ Lines of oversight within the NJCEP groups are not always clear, other than that the entire staff reports to the division director.
- ❑ With the short staff, the existing staff members focus on administrative work (such as approving invoices) for NJCEP rather than performance-based oversight.

The three oversight roles discussed above (monitoring, management, and planning) allow for the program owner to track and improve the success of its programs, but it was clear that the staff has little time to focus on these three. As already discussed in Section 5.1, there is generally not as much of an institutionalized focus on program performance at NJCEP as seen in other portfolios, which may lead to programs that are less effective than they could be.

On the staffing side, this lack of focus is due in part to lack of time; the BPU is understaffed given the amount of work it should be performing. Other than the evidence provided above, NJCEP also appears to have many fewer staff on oversight for the amount of budget it is responsible for than other administrators. One metric that can be used to compare programs on staffing is dollars of budget per number of full-time equivalents (FTEs) of staff on oversight. This will give a rough comparison of the amount of responsibility placed on the staff. ERS chose Efficiency Maine for the comparison – its staffing information and budget was readily available, and similar to NJCEP, it is a statewide organization whose programs are implemented by third parties. Although the total budgets for NJCEP and Efficiency Maine are very different, the difference in dollars per FTE is fairly staggering and worth noting:

- ❑ Efficiency Maine: \$2.3 million/FTE of oversight
- ❑ NJCEP: \$25.2 million/FTE of oversight

NJCEP is over an order of magnitude higher than Efficiency Maine in terms of the size of the program per staff members to administer it. It is a telling statistic and suggests that one of the reasons program performance is not a priority is that there are simply not enough people to check on all of the things that should be reviewed.

Given these findings, expanding program staff and reorienting to provide program oversight instead of only program logistics could allow the BPU to be more effective at steering the programs. Defining roles and responsibilities will provide clarity as well as help to ensure that oversight functions are not overlooked, both for the staff member and for the others on the team. Adding additional program oversight staff (and clearly defining their roles) will free up some of the staff to go beyond contract management to also track performance, troubleshoot, and proactively plan for the future of the programs.

Recommendation #2A: Clearly define primary roles and responsibilities for BPU staff and consider additional human resources who are responsible for the oversight of the efficiency programs.

NJCEP should ensure that all staff roles are defined with regards to the functions they perform and programs they work with. These should also include explicit oversight roles for the programs, including:

- ❑ **Monitoring** – Designating staff responsible for specific programs or sectors; setting regular check-ins with the relevant staff at the PA; reviewing monthly reports; proactively assessing performance
- ❑ **Management** – Identifying areas for improvement via monthly reports and check-ins; troubleshooting as necessary; ensuring that the PA is held accountable for changes discussed; reminding teams of the program goals
- ❑ **Planning** – Staying abreast of market and program evolutions in other states; considering how NJCEP may be able to include offerings to fulfill other NJ policy objectives (e.g., demand reductions); encouraging the PA to think critically about how to improve the program for the long term; critically assessing any changes/program additions suggested by the PA or stakeholders for benefits, costs, strategic importance, market potential, etc.

Many of these roles should be performed in a greater capacity than they have been historically, and given the small staff size, NJCEP should look at adding staff so that current staff members are not overburdened. For example, the energy efficiency team might have five members: one who oversees all energy efficiency programs and interfaces with the director, and two each for residential and commercial programs. For each of the program segments, there could be one senior member and one junior member; the junior member could be responsible for many of the logistical tasks such as invoice approvals, freeing up the senior member to focus on program performance and accountability.

5.2.2.2 Communication

In order for oversight to provide meaningful benefits, there must be a two-way flow of information – data and feedback – between the BPU and the administrator. There is already fairly regular communication via phone, email, and monthly meetings, so this section will focus on a key method for the PA to provide information to the BPU on how programs are performing: the monthly reports. These are spreadsheets that contain the key data on spending against budget and progress towards participation and savings goals, among other things. However, the current monthly reports may not be consistently reviewed by BPU staff, and in some places they are not easily digestible as a management tool.

ERS was provided with 3 months' reports to review. Currently, the monthly reports have at least four tabs:

- ❑ **Expenses vs. Budgets** – This provides a view of the expenditures and commitments for each program category (i.e., residential energy efficiency) for the year to date (YTD) and program vs. the budget. It also shows estimated additional expenditures for the remainder of the year. There is a column for each showing the percentage of the budget spent, and conditional formatting with a grey bar showing the percentage visually.
- ❑ **Expenses by Cost Category** – This breaks apart the total YTD recorded expenses for each program by cost category (i.e., administration, marketing, training, rebates/direct incentives, inspections, and evaluation). It also notes the percentage of each program's expenditures for each cost category. There are no budgets or percentage targets here.

- ❑ **Tracking Metrics vs. Goals** – This lists the participation metrics for each program (i.e., number of completed applications, number of CFLs distributed, installations complete) by goal, the actual completions YTD, and the percentage of the goal that has been met. This is accompanied by conditional formatting that displays a grey bar for the percentage of the goal that has been met. These numbers are not run from the information management system (IMS) but are inputted manually.
- ❑ **Energy Savings/Generation vs. Goals** – This includes the electric savings, gas savings, and generation associated with programs. Electric is further broken up by demand reduction (kW) and energy savings (kWh). Like other tabs, it provides the annual goal for each, the YTD savings/generation achieved, and the percentage of the goal achieved with conditional formatting showing a bar for the percentage. Also as in the previous tab, this data is not run as a report from the IMS but inputted manually. In the versions of the reports provided to ERS, this tab is incomplete.

Some months may have two other tabs:

- ❑ **Annual Trends** – This lists expenses, MWh, and Dtherm achieved for the past 4 program years. The MWh and Dtherm are converted into kWh and divided into the expenses to provide the historical cost efficiency (\$/kWh) for each program. While there is a spot to include FY15 expenses to date and estimated expenses, the MWh and Dtherm for YTD claimed are not included.
- ❑ **Budget Management** – This tab, which was only included for one of the months for which ERS has data, is a model allowing the administrator to assess the impact of an expense reduction on remaining program funds.

These monthly reports contain a wealth of information on program performance, but some of the information is not consistently updated from month to month. In addition to the two extra tabs in some monthly reports, the savings tab was not updated in the second month of the three reports ERS reviewed. It is also incomplete. Only the C&I programs have goals and annual claimed savings for each of its programs; the residential programs only have goals listed for annual kW and claimed savings for lifetime MWh and MMBtu. This tab is critical to understanding program performance, and without the data it is very difficult to assess how programs are doing. There are also a few other opportunities for improvement that would make the reports more useful and digestible as management tools.

Recommendation #2B: Update monthly reporting features to contain all metrics and formatting that allow for easy oversight of performance.

There are several updates that can be made:

- ❑ **Include all metrics of interest.** The reports already include space for spending against budget and progress towards savings and participation goals. Cost efficiency (\$ spent per kWh achieved) is done only at a historical, annual level. Since expenditures and savings are tracked at a monthly level, cost efficiency is a fairly easy addition. It should be

compared against the \$/kWh targets developed for each program as suggested in Recommendation #1C. Cost efficiency should be assessed for both the year to date and on the savings/spending from the previous month.

- ❑ **Provide comparisons for cumulative achievements.** Currently, metrics are only presented as cumulative (YTD) and are compared against the entire year goal. However, this does not provide the viewer with context as to whether that YTD achievement is well ahead of or behind what would be expected. One way to assess whether a program is on schedule is to compare the progress against the percentage of the year that has elapsed. For example: If we are 40% of the way through the fiscal year, have the programs achieved 40% of their savings and spent 40% of the budget? YTD percentages should be compared against the percentage of the year that has elapsed in order to provide context for the current levels.
- ❑ **Include monthly achievements.** Another more granular metric looks only at what has been accomplished or spent in the past month. Generally, one-twelfth of savings/participation/spending for each program should occur in each month, and the actual achievements and expenditures for each month should be compared to that one-twelfth expected amount. This will show if there was an underachievement of savings that will need to be made up in following months and why. Or, if a program is performing well, what are the keys to its success that can be leveraged for other programs?
- ❑ **Use conditional formatting more extensively to highlight performance.** The reports currently use a bar to represent the percentage of goal or budget reached, and on the first tab also turn the percentage red if a program is over budget. There should be a more extensive use across the report in order to make it much more apparent to the reviewer where there are any issues or upcoming milestones, especially on the monthly and cumulative comparisons suggested above. For example, if it is 50% of the fiscal year but a program has only achieved 25% of its savings, that cell should be formatted in a way that highlights this value for the reviewer. Similarly, if a program overspent its budget for a given month, that should also be highlighted.
- ❑ **Update each tab each month.** The monthly report is only useful as a performance management tool if all of its data is up to date.

Note that the BPU should be able to provide the requirements for the data that should be in the report and how it should look. It is easy to miss a data field that is not present in the face of a whole spreadsheet of information, but the BPU should ensure that it is receiving all the information it needs to provide oversight.

In addition to adjusting some of the metrics and formatting currently contained in the monthly reports, there is an opportunity to add other performance metrics that are not currently tracked in the reports but should be. One such area is project timing. This refers to the time it takes for projects to move from milestone to milestone – for example, from application receipt to approval, project completion to inspection, and inspection to incentive check mailing. NJCEP should track this metric – and strive to improve it – because timing is key for how customers

experience the program and has a major impact on their satisfaction. It also lets the BPU know how efficient or inefficient the process is currently, and if there are places where it can be improved.

Recommendation #2C: Include project timing details and metrics in monthly reporting.

These are very program-specific metrics – even the milestones differ by program – and NJCEP should initially track what the average amount of time for projects to move from one milestone to the next, as well as the number of outliers (i.e., the number of projects that take longer than 30 days to schedule an inspection). Once the data has been collected, NJCEP should consider putting goals in place to improve the process. This might include setting targets for what the average time should be from one milestone to another based on what is reasonable to expect and any improvements to the process that can be made. NJCEP should also aim to decrease the number of customers that experience delays in any of the milestones. Milestones to be tracked for each program could include:

- Application receipt to acceptance
- Application acceptance to approval
- Project approval to completion
- Project completion to inspection
- Project inspection to incentive check mailing

A second type of project data, also program-specific, is on inspections. The BPU should receive information on the number of inspections performed per month and cumulatively, the number of projects that failed inspection, and the reasons why. This provides another look at the participation process, and the reasons why projects are rejected may offer suggestions as to how the process can be improved.

Monthly reports are a key place to provide data on the programs, but all of that data comes from somewhere, which is discussed next.

5.2.3 Reporting and Tracking

Keeping track of program participation, savings, budgets, markets, and other data can help a program not only remain organized but also discover new avenues to expand program participation or offerings. Tracking systems, which are used to collect and analyze participant and measure data, are important for evaluating program cost-effectiveness, program reach, and other metrics. As discussed above, regularly timed reports based on these data points can provide meaningful information, which can help make the program more effective at reaching its goals. Having a comprehensive tracking system and creating insightful reports can allow PAs to be responsive and flexible in order to drive the program forward and address challenges and barriers as they arise. This section provides an analysis of program reporting and tracking activities, as well as how this information is used to revise or reinforce programmatic activities. Key findings and recommendations on these topics are presented below.

5.2.3.1 Information Management System

The information management system, or IMS, is the central database for all data related to NJCEP. Its purpose is summarized in the recent Program Administration and Management Services RFP: “The current IMS is responsible for collecting and maintaining all data and information sufficient to assess NJCEP program performance, to perform program evaluations, to prepare ongoing reports, and to meet the requirements of all State and federal audits.” The IMS is also the tool by which NJCEP sends incentive payments via the Treasury and tracks their progress. Information from application materials, contractors, and market managers is input to this central repository.

The ERS evaluation team had the opportunity to review the functions of the IMS with its manager, and discussed a number of deficiencies. Here are several key items that were found following a review of the system and an interview with the database manager.

- ❑ **Data quality verification (DQV) on all data is incomplete.** This means that the tracked data is not sufficiently accurate for reporting. To overcome this, program managers keep their own separate data on the current status of the program, and it is fetched manually every month for reporting. This takes additional staff hours and slows the reporting process.
- ❑ **Fields are not optimized for daily program management.** Report generation from the IMS must be set up manually by the database manager, which leads to some inflexibility in what a Program Manager might be able to query. Further, common management fields like “current project status” do not have standardized values – each data input source uses its own nomenclature. This leads to confusion when looking top-down on projects in progress. Standardizing input values regardless of data source, whether inside NJCEP or outside, is crucial to having more useful data. One important data point not currently recorded by the program is whether the portion of the project incentive went towards electric savings or gas savings. This is a critical attribution field in determining a project’s (and thus a program’s) \$/kWh and \$/therm metrics. Looking at these cost-efficiency metrics without disaggregated electric and gas spending will lead to misleading and incorrect values.
- ❑ **Some fields cannot be modified after creation.** The incentive field, which may be subject to change based on a post-installation inspection or commissioning report, cannot actually be modified in the IMS. This is a clear deficiency that may lead to a more complicated incentive payment as well as program budget tracking.
- ❑ **Manual data entry from some sources.** Data is entered into the IMS in regularly scheduled batches from some compatible data sources. This data must be exported from its original database into a compatible data format such as a .csv file, and sent to an IMS input location, where it will be processed on an interval. However, some sources of data must be entered manually into the IMS. This is a slow process, and it requires NJCEP administrative time to complete.

- ❑ **Project information is inaccessible to trade allies and customers.** Project information, particularly incentive processing status information, is not readily accessible to the submitting customer or contractor. This affects their participation experience and program satisfaction, as there is a sense of submitting the application into a “black hole.” Many customers or contractors will reach out to NJCEP directly for communications updates, taking staff time to track down the application.

While the IMS has been more or less sufficient for the current programs, the deficiencies noted above limit the ability of the program to adequately track or manage programs and offer data for routine reporting or other given objectives. As a result, NJCEP is looking to revamp the database within the next year or two through the new PA.

5.2.3.2 Next Generation IMS

The winner of the new RFP will be required to design a next-generation IMS. Their task has been outlined in the RFP, to create, host, operate, and maintain a next-generation system to serve program management and tracking needs, including “expenses, payments, contracts, program administration, energy performance data, for all NJCEP programs and expenses, including grants and other initiatives funded with SBC dollars through the NJCEP, as well as the utility-run energy efficiency and renewable energy programs.” This request outlines a number of expansions in capacity to the IMS, most notably tracking utility-run programs, which will give the BPU and utilities their first comprehensive look at energy efficiency and renewable energy for the entire state. The FY16 CRA also includes recommendations from the Data Work Group, such as tracking additional data including:

- ❑ Building use and square footage
- ❑ Make and model information on new and replaced equipment
- ❑ Project costs and incremental costs
- ❑ Water use and savings data
- ❑ Job creation data
- ❑ NAICS (North American Industry Classification System) codes for vendors and contractors.

Another Data Work Group recommendation echoes some of the issues the evaluation team saw, such as the DQV process and standardizing application processes online.¹⁴

As the task has already been set to create a new database system, it is an opportune time to reflect on the deficiencies of the current system to ensure that they are avoided moving forward. The next generation IMS includes a vision for a comprehensive platform for data tracking of NJCEP and utility programs that includes much more functionality than NJCEP has currently.

¹⁴ These are recommendations #2 and #4, from the Office of Clean Energy’s Revised Comprehensive Resource Analysis Staff Straw Proposal for FY16.

This has the potential to reduce administrative time spent on reporting and increase the proficiency of program managers on all levels to perform daily tasks, as well as improve the tracking ability of programs as a whole and lead to improvements in the customer experience.

Recommendation #2D: Build a more flexible IMS with future capabilities in mind.

Suggestions for the deficiencies noted above include:

- ❑ Full data-quality verification must be performed on all data entering the IMS from all sources, on all data fields and not just key reporting fields. This ensures that IMS is the all-encompassing “record of rule.” This effort will be alleviated by the forthcoming recommendation (Recommendation #5A) to move to 100% digital applications for all programs.
- ❑ Standardizing input values such as the “current project status” field regardless of data source is key to more useful data for daily program management. The database should also track the portion of the project incentive that went towards electric savings or gas savings to allow for accurate tracking of program cost efficiency on a \$/kWh and \$/Dtherm basis.
- ❑ All fields should be modifiable, and carry a “track changes” function that allows an authorized user to see a field’s previous value, who changed it, and why.
- ❑ The next-generation IMS should be built with the flexibility to accept digital applications for all programs through a program contractor, trade ally, or a customer. A 100% digital application process will ensure that all data collected can be immediately processed into the IMS, as well enabling easier data quality verification, and ensuring that no information is lost between the application and the tracking database.
- ❑ The next-generation IMS should be built for the capability to communicate project status information through a read-only web portal for contractors and customers. By making pertinent data viewable in a web-based portal, the customer and contractor experience would greatly improve, and it will also allow NJCEP administrators to focus on more critical communications rather than simple status update requests. More detail on the web portal can be found under Recommendation #5A.

By making sure that these key items become lessons learned, the next iteration of the IMS will be able to grow and adapt well to new demands on the system.

5.3 Evaluation

Evaluations are a key tool for improving program performance, as they provide the data necessary for understanding how the programs operate and create benefits for the state. Those findings can be used to inform program modifications in order to improve programs, processes, and offerings. Additionally, evaluations provide accountability and transparency for use of public funds; their findings can help the administrator guarantee that it is doing the most with that money as it can. Evaluations have historically played a minor role for NJCEP, although that role is increasing. Findings and recommendations on these topics are presented below.

5.3.1 Current Program Role

Evaluation, or verification of program performance, has played a minor role in NJCEP administration historically compared to peer programs. This is in terms of number and frequency of studies, the budget allocated to evaluation, and the amount of data collected to inform programs. ERS heard from interviews – and saw, in the most recent evaluation plan – that the NJCEP staff is beginning to place greater value in evaluation work, although they realize they have some catching up to do.

5.3.1.1 Past and Present Evaluations

Evaluation encompasses several types of studies that provide feedback on how programs are performing. The two most common studies are impact evaluations, which determine the actual amount of savings attributable to a program via metering and statistical analysis, and process evaluations, which document and suggest changes to program operations. Most states where energy efficiency programs are funded via ratepayer surcharges require both of these studies to be performed every 3 to 4 years. A third type of evaluation is a benchmarking study, which compares a program's performance against other similarly structured programs. These are backward-looking studies in that they study past and current program performance in order to suggest improvements for the future.

Another set of studies sometimes lumped under evaluation, but more accurately termed market studies, study the larger market in which the programs operate in order to provide data to inform program design and offerings. These include market characterization studies, baseline studies, and market potential studies. Market characterizations aim to better understand the types, sizes and characteristics of equipment and facilities in the various market segments. Baseline studies attempt to determine the type and penetration of the most commonly used equipment in various sectors (i.e., the types of lighting used in single-family homes). Market potential studies estimate the amount of remaining opportunity in the state or service territory to decrease energy use.

NJCEP has performed most of these studies at least once, but they are not regularly scheduled, and some studies may be dated. Consider the following:

- The only impact evaluation to be performed on NJCEP was in 2009.
- Prior to this current study, there had not been a process evaluation of the energy efficiency programs.
- AEG performed an internal benchmark of its programs in 2012; ERS recently completed a more comprehensive benchmark in early 2015.
- The energy efficiency market assessment dates from 2006.
- The baseline study was conducted at the very beginning of the program, in 2000–2001.
- EnerNOC completed a market potential study in 2012.

The lack of evaluations is not necessarily for lack of planning. Every few years, Rutgers University’s Center for Energy, Economic, and Environmental Policy (CEEPP), which manages NJCEP’s evaluations, puts together an evaluation plan with stakeholder input that describes the current state of evaluation data and proposes studies for the next few years (typically a CRA cycle). These plans have a strong framework that defines the various studies and outputs, describes previous evaluations, proposes needed studies, and lists roles and responsibilities for evaluation work. However, in the past, these proposed studies have not always been approved and performed.

The most recent evaluation plan in 2014, the seventh of such plans, includes a detailed table of all previously completed evaluations, as well as the studies proposed for 2014–2016 (Table 5-5).

Table 5-5. Historical and Future NJCEP Evaluation Studies

Table 1: New Jersey Evaluation Timeline: 1999-2016																		
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
BPU Proceedings			CRA Funding Cycle 2001-2004				CRA Funding Cycle 2005-2008				CRA Funding Cycle 2009-2012				CRA Funding Cycle 2013-2016			
EDECA																		
CRA Proceeding																		
EMP																		
Major Evaluation Studies																		
Evaluation Plan																		
Cost-Benefit Analysis																		
Retrospective							EE			EE	EE	EE	EE		EE/RE	EE/RE	EE/RE	EE/RE
Prospective											EE				EE/RE	EE/RE	EE/RE	EE/RE
Market Potential	EE/RE					EE/RE				EE					EE/RE	EE/RE		EE/RE
Market Assessment							EE		RE									
Benchmarking Study																EE		
Baseline Study		EE	EE													EE	EE	
Impact Evaluation											EE/RE				EE/RE			EE/RE
Process Evaluation						RE										EE	EE	
Tracking System Assessment																		
Protocols						EE/RE			EE/RE		EE/RE	EE/RE	EE/RE	EE/RE	EE/RE	EE/RE	EE/RE	EE/RE
Clean Energy Economy Impact						RE				RE					EE/RE			
Goals, Objectives & Outcomes																		EE/RE
Survey & Focus Group									EE/RE	EE/RE								

Completed Study

Proposed Study

EE = Energy Efficiency
 RE = Renewable Energy

This cycle’s planning may be different in that more people involved in NJCEP’s administration are realizing that the lack of evaluations and data is limiting the programs, and several of the planned studies are underway or are developing. The benchmarking study and this process evaluation were both completed in 2015 by ERS; NJCEP is in the works of setting up a 2016 impact evaluation, baseline study, and market potential study.

5.3.1.2 Measurement and Verification

Measurement and verification, or M&V, is typically included under the purview of evaluation teams. M&V is used to validate savings associated with projects by measuring the energy use before and after installation of the more efficient equipment. Typically, this is done with more complex projects where there is not an established deemed savings calculation, or for some programs where it is used to confirm assumptions (such as usage hours).

M&V is used differently based on the program needs. Some peer programs use this as a form of QA/QC alongside inspections, where a sample of projects undergoes M&V to check savings assumptions. Some programs may require M&V on all projects larger than a certain size in order to ensure that projects result in reliable savings (for example, NYSERDA's performance-based track under its commercial program required M&V on lighting projects with estimated savings over 1 million kWh annually, other electric projects over 500,000 kWh, and gas projects over 5,000 MMBtu). Others may use M&V to essentially perform a concurrent impact evaluation, where all projects in the program undergo M&V to confirm the program's ability to meet its goals (Con Edison's Demand Management Program, run jointly with NYSERDA, requires M&V on all projects to ensure that the program will have reached its 100 MW peak demand reduction by summer 2016). In all of these cases, M&V provides data on projects and on the program's performance in a far more real-time format than an impact evaluation would, which is why it is considered a valuable tool.

NJCEP does not currently use M&V on any of its projects. It does, however, require inspections (which confirm that the correct equipment was installed but do not verify savings) on all custom and large prescriptive C&I projects, as well as one out of three projects for Home Performance with ENERGY STAR.

5.3.2 Evaluation Management

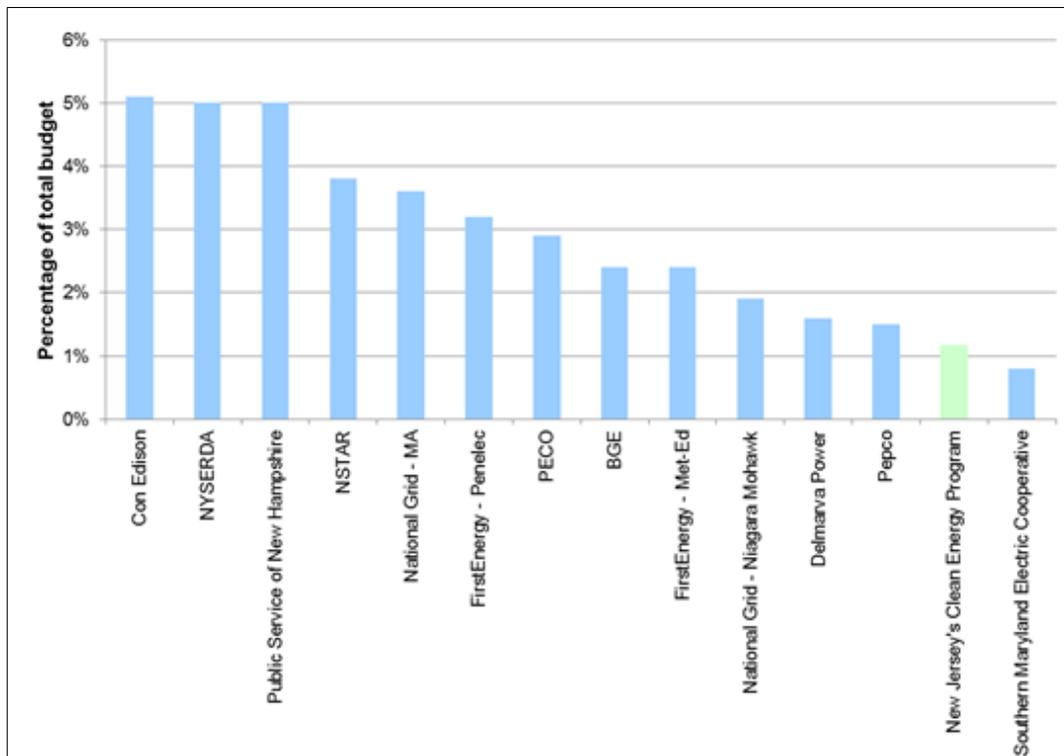
Part of the reason for the lack of evaluations historically has to do with how evaluations are managed within NJCEP. Similar programs have designated evaluation staff with authority to manage and implement evaluations, whereas for NJCEP, evaluation is considered another administrative task, and responsibility falls to several different entities. This makes scheduling, completing, relating feedback, and creating program changes challenging.

Rutgers' CEEEP is responsible for creating evaluation plans, as already discussed, as well as performing several types of analyses on the programs, such as historical benefit-cost analyses and econometric studies. It is also responsible for procuring and overseeing third-party contractors to perform larger evaluations (such as this process evaluation). Its work provides valuable data on the programs' benefits and ensures that evaluations are on the minds of administrators. However, it has no authority over the evaluation budget or the programs. CEEEP does not provide recommendations on program changes, even for the studies it performs. Its ability to procure larger evaluations that must be done by third parties is also limited by the terms of its funding, which state that only 50% of its budget may be spent on third-party contractors. An impact evaluation, which includes time-intensive site visits and metering, is likely to exceed this cap.

The evaluation budgets and implementation are managed as an administrative task by the BPU's OCE. Historically, evaluations were considered an unessential use of NJCEP funding and thus the approved budgets have been very low compared to peer programs. The 2015 funding, which is a little over 1%, represents a dramatic increase over past years where it was less than

0.5%. Higher-performing programs in the industry are closer to 3%–5%, as shown in Figure 5-5.¹⁵

Figure 5-5. Evaluation Budgets – NJCEP 2015 vs. 2010–2018 Averages



In addition to approving evaluation funding, the BPU is also ultimately responsible for overseeing the evaluation studies and for ensuring that the feedback is used to create program changes. It is not immediately clear who at the BPU is responsible for each of these things, however, and each of the involved staff may also have multiple other roles. Similar programs have designated evaluation staff with the authority to manage and implement evaluations, and this would help NJCEP build discipline in carrying out the evaluations, as well as using the data to help improve programs. The programs need the data and the feedback provided by evaluations, and the prerequisite to ensure that there are approval mechanisms and staff in place with the responsibility to take the evaluation plans from a “wish list” to a “to-do list.”

Recommendation #3A: Create a designated BPU evaluation program, or team, with the responsibility and authority to implement and manage evaluations.

NJCEP would benefit from a more defined process and set of personnel to manage evaluations from start to finish. This team should be responsible for creating the evaluation plan and estimates of budgets for each evaluation to be completed for the next program cycle, which

¹⁵ Data for comparison PAs from ESource’s DSMi database. <https://www.esource.com/>

should then be approved by the BPU. Once the evaluation plan is approved – perhaps as part of the CRA process – the team can carry out the evaluations and ensure their timely implementation. The team would work with CEEEP on procuring any third-party evaluators, hold regular check-ins on progress, and act as a go-between for the evaluators and the program managers. This is more or less carried out currently, but setting clear roles, responsibilities, and approval processes will make initiating evaluations simpler in the future and more sustainable. This same staff should be ones responsible for ensuring that evaluations and recommendations are implemented, thereby allowing the programs to extract the most benefit from the evaluations. Evaluations and the recommendations designed provide no benefit to the programs unless they are used to spark conversation and make changes in operations to improve performance.

Recommendation #3B: Ensure through the evaluation team that evaluations are used to effect program changes.

The evaluation team would enable this in a few key ways:

- Ensuring that the results are disseminated to all key staff
- Relaying feedback to the evaluator
- Facilitating an internal discussion to respond to findings and recommendations
- Designing an implementation plan of changes to be made as a result of each evaluation
- Regularly assessing progress in implementing changes
- Holding program staff accountable for those changes
- Post evaluations on the NJCEP website with PA responses to each recommendation within 60 days of completion¹⁶

As part of this, the team should hold a master list of recommendations and agreed-upon changes to implement for every evaluation conducted and should be responsible for updating this list with progress towards each change. The staff at NJCEP and Rutgers indicate that this process has started.

¹⁶ Evaluations are made public on NJCEP's website after a period of time, but in the future these evaluations should include NJCEP's response to each recommendation. This is something done in other states; for example, New York utilities post an executive summary of the report that includes all of the study's recommendations, followed by the utility's responses to each highlighted in yellow. This gives the administrator an opportunity to state whether or not they are already implementing a change; it also allows the administrator to explain why it might choose not to implement a recommendation (for example, it was tried already as a pilot, or there are significant roadblocks in place, but once those are removed this recommendation can proceed).

5.3.3 Framework for Future Evaluations

As NJCEP looks into conducting more evaluation work to gain data on its programs, it will have to decide how to conduct evaluations in a way that leads to the most efficient use of its budget and effort. These evaluations will need to be fairly regular to provide consistent data for the programs, as well as to build discipline. They should also be designed around industry best practices.

As NJCEP is starting off with very little evaluation data, it will be important to build out a baseline understanding of all of its programs and their performance. This baseline understanding should encompass data on what the programs are accomplishing (via an impact evaluation) and how they are run to create those accomplishments (via a process evaluation). This report represents the final deliverable of the portfolio-level process evaluation, which leaves a full impact evaluation as the next step. As already mentioned, this impact evaluation is scheduled for 2016. Once these studies are completed, however, NJCEP has the choice to wait for the next cycle in order to perform any more evaluation, or it can use the data in order to dive deeper on certain areas. These smaller studies, which build off the portfolio-level evaluations, will provide more timely feedback and can lead to more detailed information on key issues identified through the larger evaluations or by the program teams.

Recommendation #3C: Complete an impact evaluation of all programs to gain a broad picture of the portfolio and use the impact/process findings to inform and design smaller, targeted studies that can occur on an annual/semi-annual basis. Consider expanding the use of M&V to provide real-time feedback.

These targeted studies would be much smaller in terms of the effort, budget, and timeline needed to perform. They could focus on operations or savings associated with a program (e.g., HPwES, P4P), a measure (e.g., a commercial HVAC measure with a poor savings realization rate), or a program component (e.g., marketing, the trade ally network, or the effectiveness of the DI audit). This would allow NJCEP to focus on just an area of interest or concern rather than the entire organization, which would allow for more specific, useful data on these issues. The programs would also receive the results much faster than waiting for a large evaluation that may be a year or more in duration.

NJCEP should also consider using M&V in order to verify the savings associated with the projects. M&V provides the most real-time results on energy savings, and thus program performance, than any other method (including impact evaluations).

- ❑ **Performance or custom programs** – M&V is typically used for complex programs such as HPwES, the custom component of the C&I Retrofit program, P4P, as understanding how actual savings compare to estimates is critical for program performance. To do so, the team would conduct pre- and post-installation site visits to determine the measure's baseline energy use and how the efficient equipment impacts that usage, generally through metering.

- ❑ **Deemed or prescriptive programs** – Here, M&V is effectively an enhanced inspection where the team would verify installation, but also run time or other variables used for savings calculations. M&V can also be used to check persistence of measures, especially in direct install programs where a customer might move or alter the measure and negate the savings that the program is still claiming.¹⁷

In both cases, the program would create a selection rate (i.e., every 5 or 30 projects); selected projects would be sent to the M&V team to set up visits. M&V is most important for custom programs, but NJCEP should consider periodic M&V for direct install programs or programs where savings calculations may be outdated. M&V is also useful for programs undergoing changes where they could benefit from real-time feedback on the impact of those changes. This real-time checking of savings associated with each program also helps provide independent accountability for the program administrator, especially if there is a performance incentive tied to achieving its goals.

While the targeted studies and M&V may partially offset some of the need to do long-term, broad-based process and impact evaluations in the future, NJCEP needs to have an accurate baseline understanding of its programs. Completion of the impact evaluation is the key to providing the programs with an idea of how they are performing in reality – and to let administrators know if there are any surprises. For example, ERS completed an evaluation recently where the component program realization rates¹⁸ varied by an order of magnitude. While most programs evaluated had realization rates of roughly 80%–100% of what the administrator had calculated, one was at 19% and two were over 200%. In the case of the first program, the program was actually only resulting in 19% of the savings that the administration thought it was, and of the next two, the program was claiming only half of the savings it actually resulted in. In both cases, the administrator should look at revising the savings calculations it uses; it will also review the first program for opportunities to improve its performance. Without the evaluation, the administrator would not have been aware of these deviations from their expectations. The evaluation should also indicate if there are programs that would benefit from more real-time monitoring through M&V.

Evaluations are also important any time there is a major change to the programs and the administrator wants to understand the impact of the change. NJCEP will soon be undergoing such a change, as it transitions from one PA and two market managers to a single company as the PA. Once the transition is complete, NJCEP will want to study any processes that may have

¹⁷ For example, a small business customer might remove the free CFLs it has been given and save them for when the incandescent lights have burned out. This is also possible for residential customers. An ERS evaluation of a multifamily program found very low in-service rates for smart power strips because customers did not understand that the smart strip would only save energy if configured a certain way; when they unplugged electronics or moved the strip around, the energy savings often disappeared.

¹⁸ A realization rate is the ratio of savings data adjusted for data errors, analysis of the savings and in-service rates seen at customer sites, and free ridership and/or spillover.

been impacted by that transition and ensure that any changes are for the better – or, if not, that they can be corrected quickly.

Recommendation #3D: Hold a performance review of the single PA once the transition has occurred to establish oversight.

This review would most likely be a small process-type study 6 months to a year after the transition that focuses specifically on the processes that have been changed. NJCEP should consider what processes these might be and design metrics that can track before and after impacts – for example, whether there have been any changes to the project timing experienced by a customer between application receipt to approval, project completion to inspection, or project completion to incentive payment (see Recommendation #2C). As soon as the transition occurs, the BPU should use the opportunity to review the monthly reports in detail and work with the PA to establish oversight processes.

5.4 Marketing, Outreach, and Customer Acquisition

Marketing and outreach efforts are key tools for market engagement to promote customer participation and the associated energy savings. If the goal of the program is to generate projects and capture energy savings, it is necessary to understand how businesses, contractors, and individuals become aware of the program in order to assess the effectiveness of marketing and outreach efforts. Key questions that directed this research included the following:

- How does the delegation and organization of marketing encourage/impede the coordination and messaging?
- How are the marketing efforts targeted to demographics and/or markets?
- To what extent are the programs effectively engaging trade allies and market actors to broaden the program's reach, leading to increased participation and energy savings achievement?

Multiple approaches were used to understand the current marketing and outreach methodology of the NJCEP. ERS held interviews with trade allies and program staff, as well as conducted surveys with program participants and the general population in NJ. Through this research, insights were provided into how participants and contractors became aware of the program, and subsequently how projects were developed.

Several distinct categories related to marketing and outreach were identified. These are presented below along with findings and recommendations on these topics.

5.4.1 Customer Awareness

General population (nonparticipant) surveys found that the general awareness of NJCEP as a whole is approximately 45% for both residential and C&I programs. While this is a fairly respectable number, other programs may be closer to 60%. Awareness drops slightly to 27%–41% for residential customers when they are asked about specific offerings (i.e., “Did you know that NJCEP offers incentives for building or renovating homes to ENERGY STAR standards?”),

although the levels differed by program, and 25%–46% for C&I offerings. When asked about offerings they were aware of without any suggestions, only 7% of C&I nonparticipants and 3% of residential nonparticipants could name a program or measure without being prompted.

Unsurprisingly, NJCEP participants had a greater level of awareness of other NJCEP programs – even ones they did not participate in – than the general population. They were most familiar with the WARMAdvantage and COOLAdvantage program offerings (collectively called Residential HVAC), with 73% and 68% awareness from respondents, respectively. The two ENERGY STAR programs – HPwES and Residential New Construction – were around 48%. On the commercial side, participants had greater awareness on all seven programs than nonparticipants, with C&I Retrofit the highest (75% awareness), followed by SBDI (57%). CHP had the lowest awareness (25% of nonparticipants and 39% of participants).

Interestingly, even with the fairly high general awareness, some participants were not familiar with NJCEP: 11% of residential participants did not know that the incentive they received had come through the program.

5.4.2 Marketing Methods

Through interviews with program managers, surveys with program participants, and discussions with trade allies, ERS learned about the methods NJCEP employed to make customers aware of its programs. These include a variety of forms, including:

- Paid advertisements
 - Print: newspapers, magazines, industry trade publications
 - Digital: banner ads in digital magazines and on news websites
 - Other: television, radio
- Attendance at trade shows, community organizations, etc.
- Utility bill inserts
- Email campaigns to subscribers
- Information hosted on the website

Several of these methods, as well as ones that NJCEP does not pay for but should leverage, are discussed below.

5.4.2.1 Customer Awareness and Media Outlets

The surveys asked both participants and nonparticipants how they had first heard of NJCEP. Participants typically first heard about the program from their contractor, a retailer, or word of mouth, which was an interesting discovery because none of these methods are paid for by NJCEP. Results for the C&I and residential surveys are shown in Figures 5-6 and 5-7.

Figure 5-6. How Participants First Heard of NJCEP – C&I

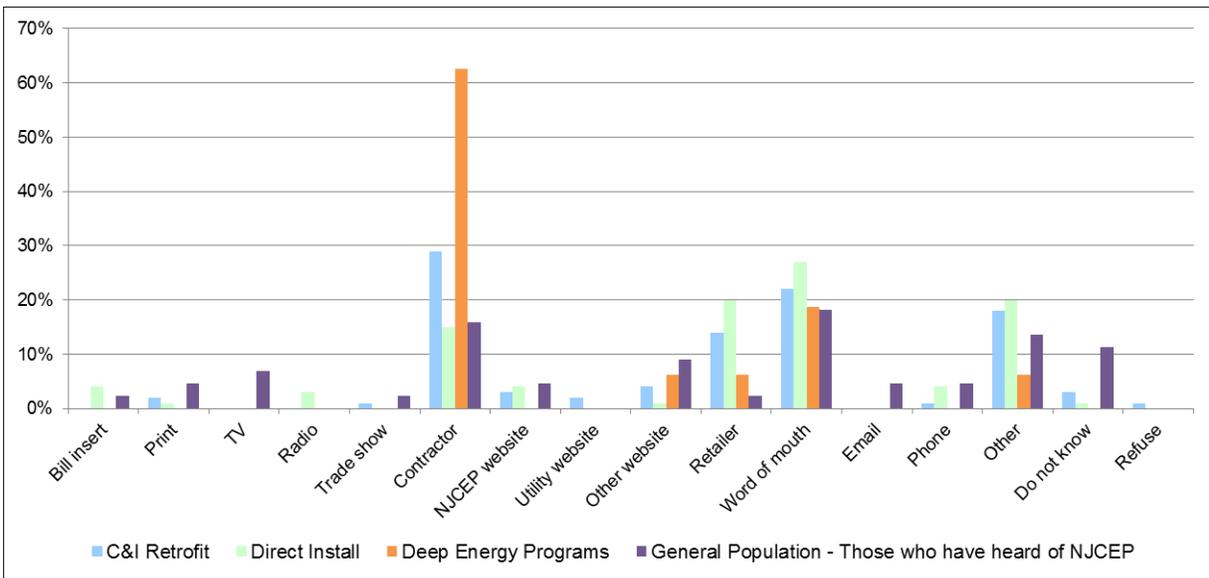
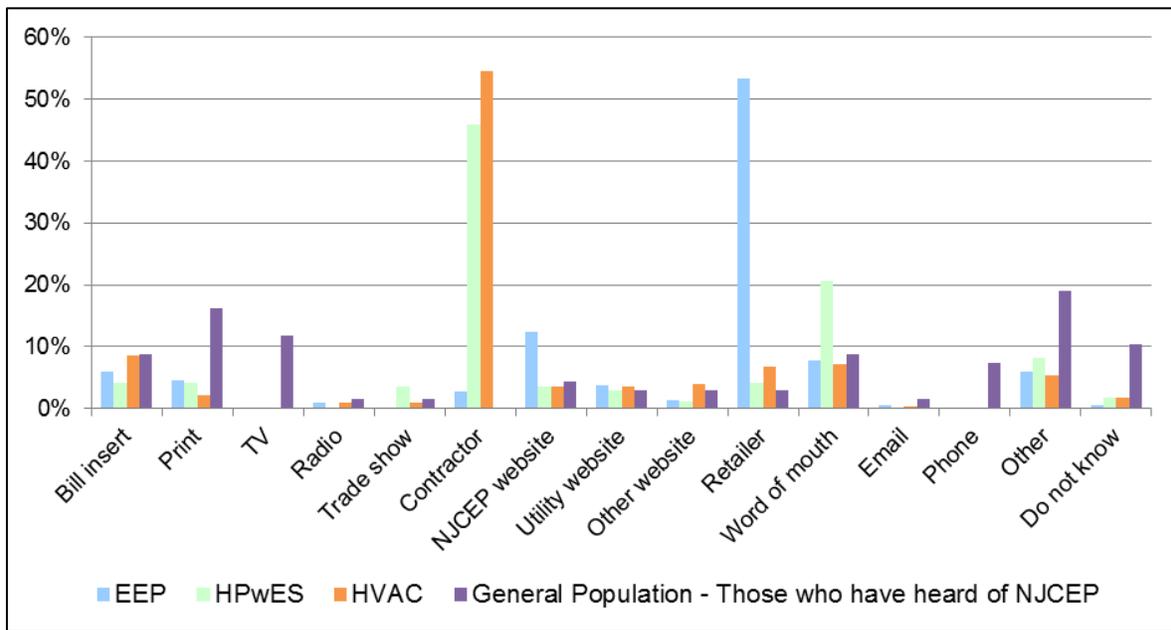


Figure 5-7. How Participants First Heard of NJCEP – Residential



Survey respondents, as well as trade allies, very rarely recalled seeing other marketing materials, such as newspaper and radio advertisements. One trade ally commented that the few advertisements he had seen had been in northern New Jersey only, and he believed that southern New Jersey had been excluded from any kind of marketing campaign.

The surveys also asked what was the best way for NJCEP to provide information on programs in the future. Email was the overwhelming response for commercial customers, with over 50% of the participants picking it; it was the second most common answer for residential customers

(after utility bill inserts). Nonparticipants in both sectors had a high incidence of people writing in post mail as an option (roughly 10% of respondents).

5.4.2.2 Website and Online Media

Both customers and trade allies cited the website as a key tool used to find out more about the program and what was offered, but a recurring comment was they did not find it particularly user-friendly. Survey results indicated that customers wanted access to more program information via the NJCEP website.

A revamped website could make key information more accessible, increasing online content while making it easier to navigate. Updating the website would also provide the opportunity to include a method of submitting applications electronically and a portal for customers and trade allies to view project statuses. These recommendations are explained with more detail in Section 5.5 (recommendations #5A and #5B).

Due to the potential variability in cost to undertake a new website design with additional interactive features, it is recommended that a dedicated budget be set aside for either a website redesign or the creation of a new platform; this should not come out of existing marketing budget.

In addition to an improved and more user-friendly website, NJCEP should consider increasing its digital advertising presence, such as the use of email and social media (Facebook, Twitter, LinkedIn). Other energy efficiency programs, such as MassSave in Massachusetts, have utilized Facebook not just as a marketing tool but as a sales tool as well. A section of their Facebook page includes a “storefront” with links to qualifying energy efficient products, which could be a good fit for the Residential EEP program. Links to other program information and incentives are provided, as well. Their site can be found at <https://www.facebook.com/MassSavers/>.

5.4.2.3 Trade Ally Network

The use of trade allies to sell the program is a very effective approach to generate projects. Incentives allow contractors to provide competitive pricing while offering projects that save their customers money. As shown above, the trade ally network (contractors) were also the greatest source of program awareness for both residential and C&I customers; without them, a key method of reaching customers would be lost. Consequently, trade allies are a marketing resource that should be better leveraged to promote the programs. For example, the co-op advertising program could be strengthened to build business for trade allies while boosting program activity. For more information on how to better utilize the trade ally network, see Recommendation #5C in Section 5.5.2.

Based on the interviews conducted, both Residential and C&I trade allies typically conduct some sort of scoping audit as part of their business model. This helps the trade ally to become familiar with the building and the potential for energy conservation measures. A certain structure or “checklist” may be created based on the specific program type to ensure that corresponding audits are comprehensive and accurate.

5.4.2.4 Utility Marketing

Conversations with participants and trade allies revealed that some participants took advantage of incentives offered by both NJCEP and the local utility, where available. For example, the installation of a qualifying high-efficiency heating system in the South Jersey Gas service territory would be eligible for an adder incentive through South Jersey Gas as well as the NJCEP incentive. This may lead to customer confusion. This confusion in some cases is not helped by the information provided on the utility websites, which may be a more common resource for customers than NJCEP's website. Most of the utilities discuss NJCEP on their website, but the amount of information varies dramatically.

- ❑ The three gas-only utilities (Elizabethtown Gas, New Jersey Natural Gas, and South Jersey Gas) all have descriptions for NJCEP programs supporting gas efficiency, alongside information on how customers can take advantage of combined IOU-NJCEP incentives. Two (NJNG and SJG) have separate efficiency websites that provide easy-to-use guidance in directing customers to the offerings best suited to them.
- ❑ PSEG has descriptions of all six NJCEP commercial offerings but only two of the residential ones, and neither is straightforward to get to.
- ❑ Rockland Electric has information only about COOLAdvantage and does not call it NJCEP (it refers to the Office of Clean Energy instead).
- ❑ Atlantic City Electric links to NJCEP but provides no information on programs.
- ❑ Jersey Central Power & Light does not mention NJCEP on its website.

In addition to the website, the utilities also already have the customer relationships and the ability to provide information to all of them via bill inserts or emails. NJCEP should work more closely with the utilities in order to ensure cross-marketing of both the NJCEP and the utility offerings. Appropriately marketing these offerings across programs would benefit all parties involved.

Recommendation #4A: Engage the IOUs to market NJCEP offerings to their customers.
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NJCEP should develop a short paragraph about each of its programs, containing direct links to the program page on the NJCEP website, which each utility can host on its efficiency webpage. If the utility chooses to include more information (for example, the separate efficiency websites hosted by NJ Natural Gas and South Jersey Gas), then they can. This should also be done for the NJEDA website (for business programs). The IOUs, in turn, should ensure that their websites mention NJCEP's offerings, and that the information they provide on their site is accurate and detailed enough to be helpful to customers.

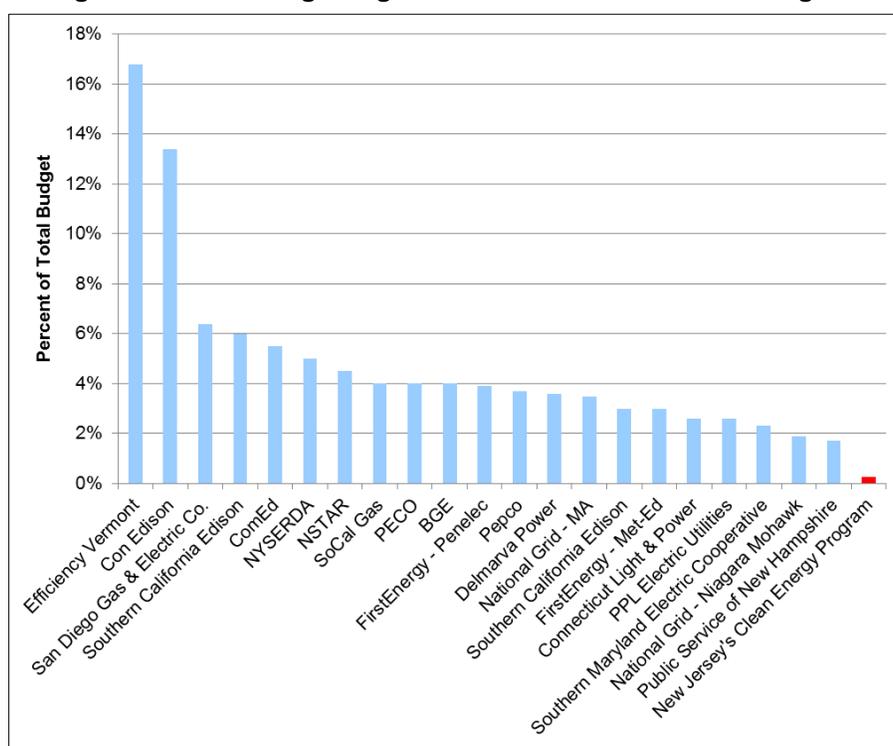
Collaborating with IOUs on targeted marketing campaigns, such as bill inserts and utility emails, would make information readily available to customers. NJCEP program staff could also work in tandem with utility key account representatives to provide additional service to large customers (i.e., those with a demand of 400 kW and larger). These efforts could be done in a way to also increase customer satisfaction with the utility while simultaneously promoting the

statewide programs. Future discussions through the Utility Working Group could discuss collaborative marketing as well as forms of data-sharing that would allow NJCEP’s marketing to be more targeted and effective.

5.4.3 Marketing Administration

Similar to evaluation, marketing has historically been considered a nonessential spending category for NJCEP, as the funding does not directly lead to incentives reaching customers. This has resulted in a marketing budget far below that of peer administrators. In the FY16 CRA, it is noted that NJCEP spends approximately 0.6% of the budget on marketing, as compared to an industry average of 5%–7%. This is shown in Figure 5-8. The entire marketing budget has been less than \$2.4 million for marketing over the past few years.

Figure 5-8. Marketing Budget: NJ 2015 vs. 2010–2018 Averages¹⁹



However, when compared to the available budgets for program spending and based on the 2012 EnerNOC market potential study findings, programs were consistently undersubscribed against what they could spend and what their potential is deemed to be. A key part of this is marketing: oftentimes an “If you build it, they will come” approach does not work for energy efficiency. Customers must first be aware of offerings, then be interested enough to learn more, and then be motivated to participate in programs. Marketing can provide the first touch to let

¹⁹ Data for comparison PAs from ESource’s DSMi database. <https://www.esource.com/>

the customer know about the program; remind them and pique their interest; provide more information or the method for them to learn more; and provide messaging to overcome concerns or inertia.

Understanding many of these issues, NJCEP has put out an RFP for a marketing contractor who would work with the PA to plan and implement marketing activities for the program. This is an opportunity for NJCEP to beef up its efforts in order to reach more customers and increase participation.

Recommendation #4B: Develop a comprehensive marketing and outreach plan to increase participation and energy savings with targeted spending levels at 3% to 5% of the total program budget.

This plan should be guided by portfolio and program goals and objectives and consider a number of things already discussed in this section:

- Consider increasing digital advertising presence, use of email and social media (Facebook, Twitter, LinkedIn)
- Determine the needs and functionalities for the website and implement a new platform.
- Develop specific metrics to track marketing success (website views, participation rates, program inquiries, energy savings, etc.)
- Develop and manage the Trade Ally Network
- Dedicate staff to actively conduct outreach to larger customers (400 kW and up)
- Consider a co-op advertising program for trade allies.

Importantly, the marketing budget should be increased to the industry average in order to start these initiatives. Through targeted efforts, an increase in marketing costs should result in an overall decrease in program cost per kWh achieved by increasing participation levels and savings, and will therefore improve program cost efficiency. The program should concurrently develop specific metrics to track the success of marketing efforts (website views, participation rates, program inquiries, energy savings, etc.) in order to provide back-up data for any increase in marketing budgets. These metrics should be both output-based (a number of website views or email blasts) and outcome-based (an increase in awareness levels or program savings for an undersubscribed program), as discussed in Section 5.1.2.

5.5 Participation Experience

The customer-facing parts of the program are critical to the program's success, since participants are the essential actors in the achievement of a program's energy efficiency goals. The participation process refers to how easy or difficult a customer (or trade ally or program implementer) finds the process to navigate – applications, scheduling, verification, in-person interactions, and communications with the program. Customer service includes the program's responsiveness to customers or implementers and the level and types of assistance provided to

them throughout the process. Customer satisfaction with the process is assessed through surveys while implementer satisfaction can be understood through interviews. In addition, all customer-facing documentation is reviewed. Unnecessarily burdensome applications or poor responsiveness from the program staff can hold back an otherwise well-designed program.

Surveys and interviews with program participants – both customers and trade allies – were used to understand their perspective and experience in working with the NJCEP. In general, it was discovered that customer satisfaction was very high across all programs (residential and C&I). However, it was noted that the issuing of incentives for completed projects was often a very lengthy process. Both customers and trade allies stated that the website is essential to conveying info on program offerings, but noted that it is not currently user-friendly. Updating the website, as well as providing ways to track the progress of applications, were the key suggestions for improvement from program participants. Key findings and recommendations on these topics are presented below.

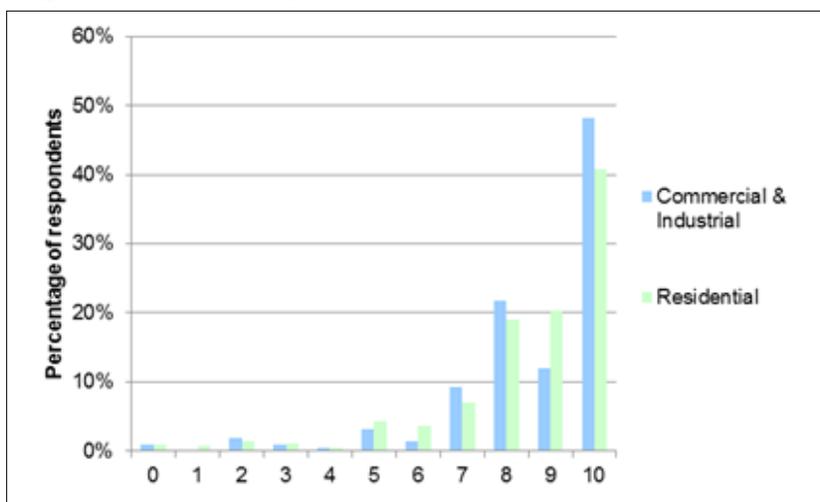
5.5.1 Customer Experience

Surveys were used to get participants' perspectives on their experience with the programs. This section describes in detail the customer experience via the surveys as well as ways to address perceived problems with interactions with the programs.

5.5.1.1 Program Satisfaction

Customer satisfaction was generally very high across both residential and C&I programs.²⁰ Across all C&I programs, the overall satisfaction of customers was high; 91% of respondents gave a 7 or higher. This was similar for residential participants, with 89% of respondents giving the same ranking. Figure 5-9 shows the responses of all C&I participant respondents, and it clearly shows that the vast majority of experiences are very positive.

²⁰ For this section, a series of questions was asked in the format "On a scale of 0 to 10 with 0 being very dissatisfied and 10 being very satisfied, how satisfied are you with..." For reporting these results, "satisfied" was defined as responding at a 7 or higher, and "dissatisfied" as responding with a 3 or lower.

Figure 5-9. Overall Experience Satisfaction, C&I and Residential

Delving into the results on a program-by-program basis does not change the findings; generally speaking, all participants were very satisfied with their overall experience.

The surveys also asked a number of satisfaction-related questions on other program components. Using the same metric of scores 7 or higher on the scale of 1 to 10 yielded the following:

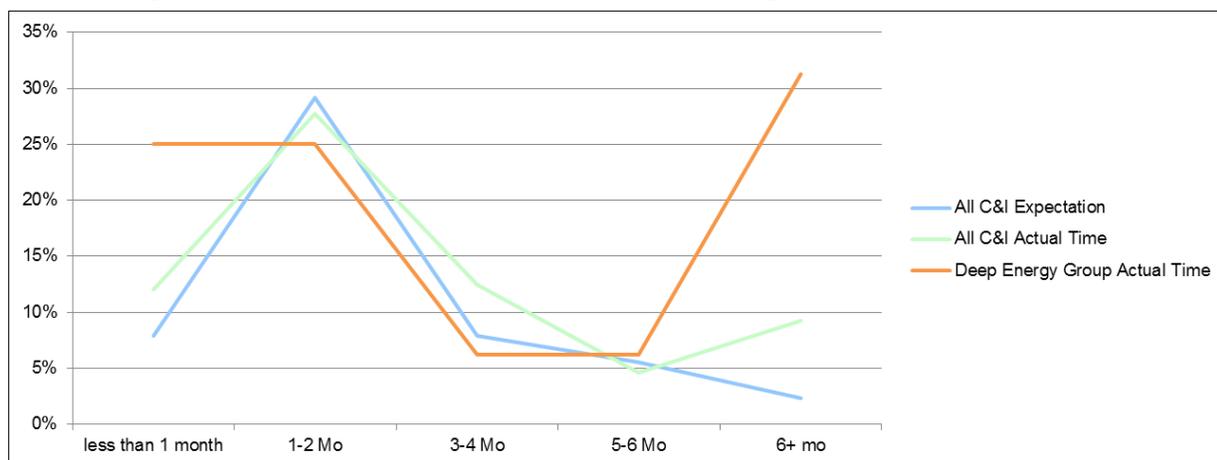
- ❑ Eighty-seven percent of C&I respondents were satisfied with the information they received about the program, as did 88% of the residential respondents.
- ❑ For Pay-for-Performance participants, 11 out of 12 respondents were satisfied with their contractor.
- ❑ About half of the C&I participants stated that they had interacted with NJCEP staff, and 88% of those called the interactions satisfactory. On the same metric, residential respondents ranked similarly, with 85% satisfaction in interactions with NJCEP.
- ❑ Eighty-eight percent of C&I respondents were satisfied with their incentive, and 81% said the incentive was easy to receive. Similarly, 85% of residential respondents were satisfied with the incentive and the ease of receiving it. 91% of C&I participant respondents and 85% of residential participant respondents were satisfied with their incentive.

Overall, the participants were very satisfied with their experiences, although many offered suggestions or ways to improve the programs when asked.

5.5.1.2 Process Timing

One interesting observation that arose from the survey results was that the time taken to deliver incentive checks generally matches the expected wait time when looking at all respondents. This is not to say that every respondent's expectations were met, but that looking on aggregate, the two time series line up well. Figure 5-10 shows C&I respondents' incentive processing expectations and actual time, as collected from self-reported timing data.

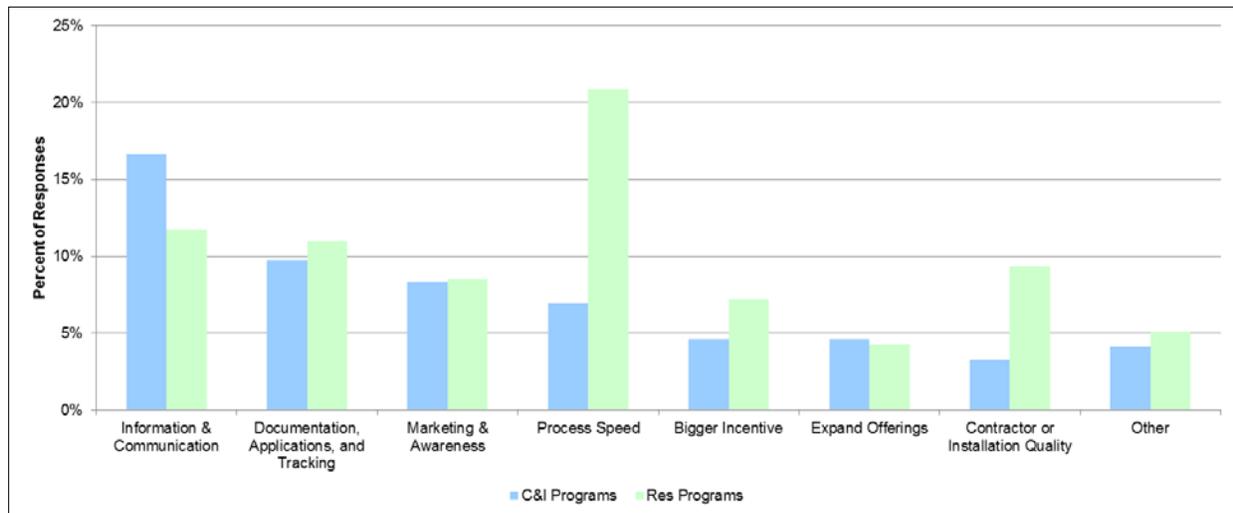
Figure 5-10. C&I Respondents' Incentive Processing Expectations and Actual Time



As demonstrated, the expected and actual times line up very well, with most respondents expecting and receiving their incentive in 1 to 2 months. This suggests that participants have been taught to expect the incentive processing time to take about as long as it does, as opposed to having expectations carried over from their own experiences elsewhere. This is an opportunity to greatly improve the participation experience by making any incremental improvements in the incentive processing time. Any improvements made will be quickly recognized as going beyond the participants' expectations. Note that the incentive processing trend is notably different for Pay for Performance, Pay for Performance New Construction, and C&I New Construction (here titled Deep Energy Group),²¹ which were separated and shown in orange to highlight the difference.

While customer expectations generally line up with what the program reality is, they still wish the process could be much faster. It was the number-one suggestion from residential participants on ways their experience could be improved and also came up frequently from commercial participants, as shown in Figure 5-11.

²¹ As discussed in the methodology section (Section 4.2.2), these three programs involve greater commitments and typically greater savings, and also have much lower participation levels. For the surveys, these programs were grouped into the "Deep Energy" programs for ease of presenting results.

Figure 5-11. Suggested Improvements from Participants

NJCEP is limited in how quickly it can turn around incentive payments, but as recommended in Section 5.2 (Recommendation #2C), the programs should track this timing on all projects and programs to determine if there is room for improvement.

Another related area concerning incentive timing is that customers (and trade allies, which will be discussed in the following section) may be confused about the process, and they feel as if they are submitting their application to a “black hole.” Communication and tracking represent the largest category of suggestions for commercial and the second for residential, both with roughly 25% of responses. Customers asked for more information on the process: “I think it would be helpful if a user version of the project steps, including outline of project scope, tasks, deadlines and completion, was made available to the consumer as a read-only resource.” They also asked for a way to submit applications electronically, rather than using the postal service, and a way to check if the application had been received and processed without having to call the NJCEP staff.

An online portal with these functionalities may be an effective way to improve satisfaction while creating several benefits:

- Online applications save administrative and processing time by avoiding the “application incomplete” status for projects where paper applications were sent in without being fully filled out and must be returned to the sender.
- Since the application process from the portal will take place online, data quality verification of all these fields will be significantly simpler, as there will be no opportunity for transcription and data processing errors before the data reaches the IMS (for example, incorrect spelling of last names and addresses). This unlocks several higher capabilities for the IMS outlined under Recommendation #2D.
- An online application may actually improve participation. Many customers – particularly residential customers – may see that they have to download, print, fill out, attach

documents to, find a stamp for, and mail the application and ultimately decide that the incentive is not worth their trouble. Some survey respondents found the process “burdensome”; in fact, some nonparticipants indicated that the process was the reason they hadn’t participated in the past.

- ❑ A portal where a customer can check on the progress of their application or incentive will also improve customer satisfaction – even if the check isn’t there yet, the customer can see it’s on the way – and decrease administrative time needed to field numerous customer and contractor inquiries on application status.

Multiple PAs allow for online applications already, including Con Edison, Efficiency Maine, and Southern California Edison (SCE). Status tracking is a less common feature, but Efficiency Maine has a portal for trade allies to check the status of their applications. This functionality, which may also exist for other PAs that the evaluation team does not have access to, is also being piloted in “online marketplaces” by several utilities in New York and Massachusetts. It is an opportune time for NJCEP to consider whether it could be a worthwhile investment to offer a “best in class” functionality.

Recommendation #5A: Design an online portal for customers and contractors to submit applications electronically and check progress.

This online portal can and should be the central point of contact between the customer and/or contractor and NJCEP, and it should include the following functions:

- ❑ **Online submission of applications and other documents** – Form-based online applications will allow for much clearer communication of project details than paper documents do, making programs much easier to apply for. The forms should have active fields that ensure that customers can only submit completed applications.
- ❑ **Project status checking** – When a customer or contractor logs on, they should see a list of their active and prior projects, and the current status of the work and status of the incentive payment. A milestone tracker graphic that shows all the milestones of their project and their current project status will make it clear how far along the process they are, as recorded in the IMS. The milestone tracker will also help manage expectations about incentive payment speed. Consider this open-ended response from a residential participant: “[T]he process is broken. It does not appear to work at all unless you call to expedite.”
- ❑ **Centralized communications** – The portal can serve as the main way by which a customer can ask questions of NJCEP about their projects and NJCEP can communicate needs back to the customers. NJCEP could consider a built-in messaging system that will allow customers or contractors to ask questions, flag information for correction, and otherwise interact with NJCEP staff. This will also allow contractors to be a part of communications, which is discussed in the next section.

- ❑ **Read-only or read/write credentials** – Depending on the user role (customer or contractor) and depending on the program, the portal can be a read-only portal to receive information one-way from NJCEP (this would be applicable to a customer who applied for HVAC rebates, for example), or it could be a place where a contractor can ask questions, submit documents, and request inspections (applicable for contractors in a Direct Install program).

The portal represents a solution for several program participation, data storage, and communications issues, and is a new model that has the potential to completely change the way customers and contractors interact with the program. However, to maintain accessibility for all populations that may seek to participate in the programs, NJCEP may consider continuing to accept paper applications for people who have limited or no access to the Internet.

5.5.1.3 Website

Program participants and the general population believe that the website is crucial for conveying information on program offerings. However, in its current state, the NJCEP website is not seen to be user-friendly. It serves to provide information for a wide range of users, but does not do so in a way that is conducive to quick and clear comprehension about the programs, as discussed in Section 5.4 (Marketing). Trade allies have noted that they do not send customers to the website because it can confuse them, and they may instead provide their own information about the programs. Some of the shortcomings include these factors:

- ❑ The NJCEP website is not easy to navigate. It is difficult to find program applications, contractors, and other participation materials. Furthermore, the structure of the program offerings is not clear based on the pages used to represent them.
- ❑ The links are disorganized and not intuitive. Program participant information is hidden between program performance information and reporting statistics.
- ❑ The website styling is dated. Banner advertisements for its own materials clutter the page.

There is also a perceived lack of information on the programs: Participants cited more information about programs as one of the key hurdles and suggestions for improvement, along with better advertising. The website does provide NJCEP with the opportunity to help customers research more efficient equipment while they are online browsing, and it can be a repository for information. This is an opportunity currently missed. When survey respondents were asked “When you are thinking of buying new equipment, where do you look to find information about which product to choose?”, only roughly 2% of commercial respondents, 4% of residential participants, and 1% of residential nonparticipants listed the NJCEP website. Online reviews were the largest category listed by a large margin for all four survey populations; manufacturer/vendor websites were also frequently listed. C&I respondents also looked to contractors, while residential respondents researched in stores and consumer publications. The Internet is clearly the preferred medium, but the NJCEP website barely registers as a source of information right now.

The evidence shows that Internet-based communication is the preference for customers of all programs. NJCEP should maintain a stronger online presence, as the current page is not seen as a useful tool for finding information. The website can and should be a resource for customers in a variety of ways by being:

- A one-stop shop to help customers to understand what their program options are and to help them navigate to the one best for them
- A clearinghouse for information on how to participate in NJCEP programs
- An educational tool to help customers understand energy efficiency
- As recommended above, a place for customers and contractors to view their project status
- A centralized method for NJCEP and customers/contractors to communicate with each other

The new PA and marketing contractor provide NJCEP with the opportunity to redo the website in a way that increases functionality and ease of use. A redesigned NJCEP main website will facilitate customers' and contractors' understanding of the program offerings. This recommendation aims to increase customer satisfaction and participation.

Recommendation #5B: Redesign the NJCEP website.

There are several things to consider during the redesign:

- Improve layout and navigability.** Several shortcomings on the NJCEP website have been highlighted by various groups over the course of this evaluation, including a cluttered appearance and a lack of a guide to help customers quickly find the right program. NJCEP should consider whether its needs would be better met by upgrading the website within its current architecture or migrating to a new platform.
- Link to/integrate the customer portal.** As outlined above under Recommendation #5A, customers and contractors should be able to submit their applications and check progress via an online portal. For this reason, the portal must be featured prominently and persistently on the NJCEP website to show ease of participation.
- Set aside dedicated budget for redesign or new platform.** The NJCEP website serves as the central point of marketing the programs and providing information. However, it is critical that the financial resources needed to redesign the website not simply come from a regular annual marketing budget. A redesign will be costly and will pull resources away from marketing, which needs funds in its own right. Consider the website redesign a functional improvement of program communications and participation rather than simply marketing for increasing the number of applicants. This item is critical and needs to be addressed fully with its own dedicated resources.

Addressing the needed changes to the website will increase program awareness if it is used as a marketing tool, increase participation if customers and contractors see the process as less burdensome, and increase participant satisfaction in general. While each PA nationally has a

different website design and ways of presenting information, NJCEP may consider visiting other PA websites to gain ideas of functionalities it wants to replicate or avoid. Some examples include the following PA websites:²²

- ❑ National Grid’s website returns a concise list of all their energy efficiency programs; customers can click to find more information on each one.
- ❑ Efficiency Maine has a fairly simple, aesthetically pleasing website with useful drop-down menus for residential and commercial customers.
- ❑ Con Edison lists all programs by segment with a quick description.

There may also be room for including some “fun” features on the website. For example, Commonwealth Edison had a game arcade with efficiency-themed takes on popular games such as Candy Crush and Alien Invasion, plus trivia games.²³

5.5.2 Trade Ally Experience

Trade allies are a critical component of NJCEP. As noted in the previous section, contractors who reach out to customers to sell their equipment combined with NJCEP incentives were the primary method by which customers heard about the program. However, they are program participants in their own right, as they market NJCEP programs, interact with NJCEP’s staff, submit applications on behalf of customers, and go through the incentive process, among other things. In order to gain a better understanding of the perspective of trade allies who participate in the NJCEP, ERS conducted interviews with both Residential and C&I trade allies. Twelve interviews were conducted with Residential trade allies and eighteen were conducted with C&I trade allies. These interviews also asked about the measures the interviewee typically install for the programs, whether they are satisfied with the application/incentive process, and what role, if any, marketing plays in increasing program activity. In general terms, these interviews informed the evaluators about what is working well within the NJCEP portfolio, and what areas could potentially be improved upon, from the perspective of the trade ally network.

5.5.2.1 Incentives and Application Process

Program incentives play a very important role for both Residential and C&I trade allies. Incentives help to sell projects by reducing the cost to the customer. In this sense, the trade ally network is currently the most effective marketing mechanism for the NJCEP.

However, the time between project completion and the time when the participant received their incentive was consistently noted as being extremely long, sometimes taking up to 5 months, according to one trade ally. For smaller trade allies with less capital who provide the incentive

²² National Grid: <https://www1.nationalgridus.com/EnergyEfficiencyPrograms>

Efficiency Maine: <http://www.energymaine.com/>

Con Edison: <http://coned.com/energyefficiency/>

²³The games, once located at www.comedgames.com, are no longer online.

up front to their customers, this delay presented substantial cash flow issues. This delay in payment often left contractors unsure of what stage in the incentive process a given project was. Along the same lines, a recurring comment was that due to the delay in response to phone calls and emails, it was difficult to keep track of a project's progress through the NJCEP process between (and including) the time of submittal through incentive approval. As a result, the previous recommendation (#5A) to design an online portal for submitting applications electronically and checking progress is also very applicable to the trade allies.

5.5.2.2 Interaction with Program Staff

Trade allies had mostly positive feedback on their interaction with the program staff. One interviewee said that the program staff were "very nice people, helpful, and knowledgeable." However, many did note a pattern of delays in responses to email or voicemail. Often, it would take from 3 to 5 days to have a call returned, according to those interviewed. Their consensus was that the program staff members are "great to deal with" but "hard to get ahold of," and the communication process "is too complicated and too long." Establishing a communication protocol including a maximum window of time in which program staff should respond to inquiries and questions may help to alleviate these issues.

Additionally, trade allies mentioned that they would often be excluded from communications between program staff and the participant. The participant may not be involved in the incentive process, as this may be part of the services provided by the contractor. Because the trade allies typically handle the paperwork necessary to get an incentive processed, they requested to be included in these communications so as to be familiar with the status of a given project and any potential issues.

5.5.2.3 Trade Ally Network

Trade allies had very limited cross-program knowledge, being mostly familiar with the program or programs that aligned with the services they offered. Some trade allies, especially those new to the program, noted that the process was very daunting. Additionally, those trade allies identified as being within the NJCEP Trade Ally Network did not typically see the benefit of being part of this group, other than having their business appear in the search results on the NJCEP website's contractor search tool. The key takeaway from speaking with trade allies was that they are a vastly underutilized resource, although there is great potential and interest in building a strong network of businesses who are presently very interested in selling NJCEP and its benefits to the public. A more formalized program through the Trade Ally Network would go a long way towards better leveraging this resource and would involve several benefits:

- Trade allies would be familiar with the entire NJCEP portfolio and in turn could sell programs that they may not be involved in.
- Developing a trade ally program would help to ensure a high level of confidence in the quality of projects being submitted by contractors. By requiring certification training to become a trade ally, NJCEP and its customers would be confident that the contractors

have been presented with the information necessary to participate and the tools needed to make the process as easy as possible.

Trade allies are one of the key ways that customers interact with NJCEP; a good experience with a contractor will also be associated with NJCEP, and a customer will similarly reflect a poor contractor experience on the program as well. Furthermore, by listing a trade ally on its website, NJCEP is lending the credibility of its name to that company. As a result, NJCEP has a significant interest in ensuring the quality of those it deems allies, as well as engaging trade allies to sell its efficiency programs to customers.

Recommendation #5C: Develop a more formal trade ally program with requirements and benefits.

Requirements (some minimum hurdle to entry) ensure that there is some level of quality and understanding common across all trade allies, and separates interested contractors from those who are looking to free-ride. This smaller group is easier for NJCEP to communicate with and engage. At minimum, these requirements should include:

- ❑ **Certification training** – Certification training could include an overview of NJCEP and the programs and incentives it offers, and clear information on the participation process and requirements. Trainings could be structured such that they occur at different locations around the state in order to capture contractors in all geographic locations, thereby ensuring that the entire state is covered by those familiar with the program, its benefits, and participation requirements.
- ❑ **Proof of liability insurance** – This is a minimum requirement for many trade ally networks nationwide.
- ❑ **Minimum number of completed projects annually** – This ensures that the trade ally is engaged and has stayed familiar with the program and application requirements.

To successfully sell a trade ally program to the contractor community, benefits should be made available to those who get certified. These benefits could include:

- ❑ **Quarterly training opportunities** – Similar to the upfront program training, these can be refresher courses on program offerings and updates, as well as value-added courses on specific efficient technologies.
- ❑ **A trade ally newsletter** – This would provide certified parties access to program information and any updates.
- ❑ **A trade ally advisory committee** – This is an opportunity for trade allies to provide feedback on the programs and their experience, as well as share valuable insights with program staff on their work in the field.

Finally, from an oversight perspective, NJCEP may benefit from conducting surveys of participants regarding trade ally performance to reward positive experiences and look into any negative experiences. Surveys found that participants with poor installation experiences often

were less satisfied with the overall program, even though the installation quality is not NJCEP's fault. This structure will help NJCEP better leverage trade allies as a resource to help market and sell the programs, as well as increase customer satisfaction and build a larger, more sustainable network of energy efficiency companies in New Jersey.

5.6 Portfolio Design and Composition

A statewide energy efficiency program's portfolio should stem from the state's overall goals or initiatives. These goals should drive program design and portfolio composition to target customers or market segments in an attempt to cost-effectively engage customers to participate in the programs. Administrators may focus on making the portfolio as comprehensive as possible to include all customer segments and minimize any market gaps. The portfolio may include programs with broader goals of reaching an underserved or disadvantaged market versus the primary focus of acquiring electricity and gas savings.

Overall, from the findings in this work and the prior benchmarking study, it is clear that the NJCEP portfolio addresses all major market segments and associated customers from large energy users to single-family homes. Some programs are more effective in engaging customers and acquiring energy savings than others, but the programs cover all the major markets. This includes both retrofit and new construction sectors as well for both commercial/industrial and residential sectors. The evaluation team did hear, during interviews and during the review, that there are opportunities to increase market penetration with specific segments targeting within the C&I market (e.g., hospitals or grocery stores). Across the board, all programs could benefit from a targeted outreach and marketing campaign. However, with a few small exceptions, the portfolio is fairly comprehensive.

To assess this, the evaluation team reviewed the program offerings, highlighting ones that had been flagged by the benchmarking study or program staff, to determine if there were gaps or opportunities. This was helped by several comparisons to other portfolios offered around the country, including to the PAs identified in the benchmarking study. Discussed below are several of the specific opportunities regarding NJCEP's portfolio of offerings. This includes offerings to reduce peak demand, several commercial and industrial offerings, combined heat and power (CHP), and future offerings due to the transition to a CFL baseline.

5.6.1 Demand Programs

New Jersey has indicated an interest in focusing more on demand reduction (kW) alongside energy savings (kWh) via the Energy Master Plan (EMP) and other state filings. The greatest costs to the grid are during times of peak demand, the several hours each year where customers on aggregate use the most electricity and that the entire electric grid must be built to provide – even if the normal demand is only half that level. As a result, the more that demand for electricity grows, the more infrastructure that must be built up to meet that demand; those few hours each year are also where the grid sees the highest electricity prices. As noted in the 2011

EMP, lowering peak demand will lower costs for all ratepayers, not only the ones that participate in NJCEP offerings.²⁴ The BPU staff also recommended in the FY2016 CRA that a working group be formed to review the existing portfolio and recommend new programs, including a demand response program that would sell savings into the PJM capacity market. While this particular program will have to wait until the Supreme Court rules on the legality of FERC Order 745, NJCEP and New Jersey have indicated their interest in focusing more of their efforts on demand reductions. There are two main ways that NJCEP can include a demand component in its work:

1. Offering/promoting measures that reduce peak demand in addition to energy savings
2. Designing programs around demand reductions

There are also several ways to reduce demand at different time scales. Demand management, or reduction, leads to permanent reductions in the electricity demand of a piece of equipment (e.g., changing out a 60 W incandescent lamp to a 10 W LED, which reduces demand by 50 W). Demand response (DR), on the other hand, is a temporary reduction in electricity demand whereby a customer will automatically or manually turn off or reduce use from equipment in response to a signal from a system operator or utility. Measures and programs can be designed around both types of demand reductions. These are discussed in more detail below.

5.6.1.1 Demand Measures

Most efficient equipment offers some type of demand reduction over conventional equipment in that it will decrease the amount of power drawn by the unit at any given time. As a result, many programs – NJCEP included – will have deemed savings calculations that determine what the demand reduction is from the unit. However, all demand is not equal, and there is a shift to focus on equipment that reduces demand at times of peak load, when the electric grid is most stressed. Generally, these peak times occur in afternoon (2–6 p.m.), Monday–Friday, during the summer (June, July, and August), although individual networks may peak at different times. Programs have begun to focus on demand reductions during peak-coincident times to reduce the load. As a result, they have focused on:

- Lighting (especially commercial fixtures that are on during the day)
- Cooling loads (both commercial and residential A/Cs)
- Demand response enablement for commercial equipment
- Residential and small commercial direct load control (DLC) modlets for A/Cs
- Solar power
- Thermal and battery storage

²⁴ The previous EMP, in 2008, also set an explicit goal to reduce the state's peak electricity demand by 5,700 MW by 2020. This was not included in the 2011 EMP.

To support these measures, programs have offered special incentives for measures with peak-coincident savings or promoted them through special campaigns. NJCEP should first attempt to calculate demand (especially peak-coincident demand) for its measures and then assess whether there is potential to add any measures or bonus incentives to support existing measures.

5.6.1.2 Demand Programs

Several administrators have begun offering programs for technologies that reduce demand, with incentives that are based on the demand reduction (\$/kW) rather than energy (\$/kWh). These programs are generally put in place for specific reasons and have separate kW (or MW) goals. This is due to the fact that demand reductions are much more useful on specific temporal and locational scales (i.e., at times when networks see a peak and in particular areas of the grid where there are constraints), whereas most energy efficiency programs are built to reduce the overall amount of energy consumed, no matter when or where. Because peak demand reductions provide a direct benefit to the grid if targeted correctly, these programs are often run by, or in conjunction with, entities that have responsibility for grid operations, such as regional transmission organizations (RTOs) such as PJM or the utility. Statewide organizations have been involved in funneling reductions toward the grid operators.

There are two major types of demand reduction programs: the first is based on DR to achieve temporary, immediate-term reductions in emergency situations or times when the cost of electricity rises above a certain point. The second aims to achieve a certain amount of permanent demand reductions in response to a system contingency (generally a medium-term shortfall in generation or distribution capacity). Each of these is discussed more below.

Demand Response Programs

Demand response programs have been around for several years and are run by either the RTO or utility. When the RTO or utility puts out a signal, customers will turn off or reduce energy use on registered equipment and will be paid based on the amount of reduction. Statewide energy efficiency organizations have helped in the past by helping customers explore whether their efficiency upgrades would also be a good fit for an RTO or utility program (or work through an aggregator for mass-market customers like small businesses or homeowners). Some have provided additional incentives on a \$/kW basis for customers who put in automated demand response capabilities on upgraded equipment, which improves its reliability. In all cases that ERS is aware of, the revenues for demand response participation go to the customer (rather than the efficiency organization) and are used to “sweeten the deal” or potentially decrease the incentive needed to get the customer to participate.

Utilities also use another type of DR program called Direct Load Control, or DLC. Using Internet-connected modules on small pieces of equipment such as A/C units, the utility is able to cycle the equipment on and off for a short duration (generally every 15 minutes over a 2-hour span) in order to reduce demand without the customer having to do anything. Customers are paid an upfront amount for installing the module and then an additional amount each time the

utility takes control of the modlet. Several New Jersey utilities have offered DLC programs in previous years (for example, Jersey Central Power & Light's EasyGreen program).

Demand Management Programs

The second type of demand program is used for contingency planning in order to respond to mid-term system shortfalls. Generally, the utility, RTO, or regulatory body notes that the existing electricity system will be unable to meet the demands placed on it several years in the future due to a generation deficiency (i.e., due to a power plant retirement) or distribution load growth (for example, a specific portion of the grid is experiencing a growth in electricity demand that will be above what the existing infrastructure can handle). In the past these shortfalls have been handled by simply building more infrastructure. However, some states have begun to look at reducing demand in the affected areas in order to offset the need for new power plants or substations that can cost billions of dollars and take years to build. Four current or completed demand management programs are discussed below:

1. **Con Edison Demand Management Program (DMP)** – This program aims to reduce the peak demand in the New York City and Westchester service territory by 100 MW using energy efficiency, storage, and demand response for summer 2016. The program was put in place to offset some of the shortfall created by the impending closure of two reactors at the Indian Point nuclear generating facility, which supplies roughly a quarter of NYC's power. The program was put in place in 2014, and because Con Edison needed to be sure of the reduction by June 1, 2016, the program featured bonus incentives on top of normal commercial custom incentives. It is jointly implemented by the statewide agency NYSERDA.²⁵
2. **Southern California Edison (SCE) Preferred Resources Pilot (PRP)** – SCE's program is similar in that it was put in place after the closure of a nuclear power plant. Although the utility's need is a little longer-term – a shortfall is not expected until 2020–2024 – it started the program to test out the ability of “preferred resources” (energy efficiency, demand response, distributed generation, and storage) to defer infrastructure needs through targeted programs. The program aims to acquire 100 MW of demand reductions by the end of 2017; it has deployed or committed most of this amount already.
3. **Con Edison Brooklyn-Queens Demand Management Program (BQDM)** – Con Edison's second demand management program is targeted to a specific portion of its grid in Brooklyn and Queens served by the Brownsville substation. Load growth in the area will lead to the substation becoming overloaded as soon as 2018. Con Edison estimated that it would cost roughly \$1 billion to build a new substation to serve the area. Instead, the utility is attempting to make up 52 MW of the shortfall by offering bonus incentives on its existing small business and multifamily programs, plus soliciting for additional market-

²⁵ More information can be found at:

http://www.coned.com/energyefficiency/demand_management_incentives.asp

based program ideas. The program began in early 2015 and will aim to have all reductions operational by summer 2018.

4. **Efficiency Maine Boothbay Harbor Transmission Alternative Pilot Program** – this program was an earlier, smaller attempt at infrastructure deferment finished in summer 2013. Instead of having to supplement the transmission line that served this area in coastal Maine, Efficiency Maine increased its commercial program incentives to reduce the area’s load by 90 kW. The program was successful and led to a total reduction of closer to 200 kW.

Non-wires alternatives (NWAs) like BQDM and the Boothbay Harbor pilot are becoming more common in infrastructure planning, as incentives for demand reduction are generally less expensive for ratepayers than new substations or transmission lines. As part of New York’s Reforming the Energy Vision (REV) proceeding, all six of the state’s utilities identified a constrained area of its grid where an NWA program might be beneficial.

Statewide organizations have had a role in two of the above programs – NYSERDA jointly implemented the DMP incentives with Con Edison, and Efficiency Maine ran the Boothbay Harbor pilot. However, the statewide organization does not have the data to determine where targeted demand initiatives should be located; it would be involved in achieving the reductions after the area was highlighted and a program was set up by the regulatory body or utility. Similarly, the statewide organization is not in a place to run a demand response program as it is not a grid operator, nor does it generally have the capabilities to become an aggregator. However, in both cases, NJCEP can and should take a look at how its programs can support demand measures; it can also start discussions with the BPU and the utilities on potential areas for targeted demand programs. As a first step, NJCEP should take stock of its measures and their demand savings.

Recommendation #6A: Consistently track demand reductions (kW) from measures as a step towards valuing demand savings.

NJCEP cannot manage what is not consistently measured; while kW reductions may be calculated for projects, they are not always reported. This information should be calculated and contained in the IMS database for each project completed. Then, using this data, NJCEP can assess which measures lead to the most cost-efficient reductions and develop a plan to promote these measures.

As discussed above, the most aggressive programs targeting demand reductions are ones run by or in conjunction with utilities, as utilities have the data to put targeted programs together. Due to the large potential benefits for New Jersey customers, NJCEP should work to start conversations about the potential for these.

Recommendation #6B: Create a working group with BPU staff, utilities, and other stakeholders to assess the potential for demand management and demand response programs in the state.

This working group can be a sub-part of the Utility Work Group discussed in recommendation #1A if that is convenient, since many of the key members will be the same. This will be an ideal forum to discuss the potential for demand response programs (both through PJM and the utilities) and encourage the utilities to consider targeted demand management programs, as well as how NJCEP can be instrumental in each.

5.6.2 Commercial and Industrial Offerings – Custom Program

The custom component of the C&I portfolio covers all eligible energy efficiency measures that do not fit into the prescriptive SmartStart Program. The program is positioned on the NJCEP website as a component under the SmartStart Program and not as its own program offering. The lack of a standalone custom program (one that is budgeted and administered separately from the prequalified program) differs from other comparison PA portfolios, making it more challenging to compare its cost-efficiency, a fact noted in the benchmarking study. Consideration should be given to making the Custom Program a separate and more prominent offering on the website as well so that it is more obviously available to customers.

Custom program projects are generally more complex and potentially include emerging technologies. Separating the custom program from the prescriptive program will allow for more accurate tracking and funding monitoring and will also provide an opportunity to more prominently display the offering on the NJCEP website. This will result in increased awareness and participation.

Recommendation #6C: Consider separating the custom program from the prescriptive program under SmartStart to create a stand-alone offering to be tracked and funded separately.

This custom program – C&I Custom – should be tracked separately in IMS and all program filings from the C&I Retrofit program, and its budget should also be separated where possible. NJCEP will have to consider how to divide administrative budgets and billing to each program.

In terms of structure, the program is similar to other custom programs in that the incentive is based upon a \$/kWh saved or \$/therm saved. Incentives are calculated based on the smallest of three factors:

1. Buy-down to a 1-year payback based on incremental cost
2. 50% of incremental project cost
3. \$0.16/kWh and \$1.60/therm saved in the first year

Projects with a payback without incentive of less than 1 year are not eligible. The current minimum project size is 75,000 kWh for electric projects and 1,500 therms for gas projects.

The evaluation team compared the C&I Custom Program against ten peer programs to verify that the offering is in line with other programs and has no major gaps. The one identified program gap between SmartStart and P4P with gut rehab projects regarding lighting has been addressed with the July 2015 program changes by allowing the performance lighting path as an

option. The one remaining opportunity for change is regarding the eligibility levels, as present eligibility states that the project must save 75,000 kWh in order to qualify, resulting in a minimum incentive level of \$12,000 ($75,000 \times \$0.16 = \$12,000$).

Recommendation #6D: Review the minimum eligibility level for custom projects, as there is a potential to increase number of smaller custom projects.

Some custom programs reviewed have no minimum project size requirements, whereas others have a lower kWh threshold – for example, 35,000 kWh. NJCEP should determine the impact of allowing smaller projects into the program from a budgetary and resource requirement perspective, balanced against the probability of capturing missed opportunities as related to specific technologies. However, it should be noted that other programs, especially ones with M&V requirements in order to ensure savings, may have higher eligibility requirements due to the effort required. At minimum, NJCEP should consider instituting M&V for all custom projects larger than a certain threshold. As it is paying projects per kWh or therm saved, it is in NJCEP's best interest to ensure that the projects are achieving the level of savings expected for the incentive.

Additionally, the custom program provides an opportunity for NJCEP to review and approve new technologies that are not in wide use but could be, especially by collecting savings data via M&V that could be used to design a savings calculation for the New Jersey Protocols. As a particular technology becomes more mainstream, as did the LED lighting technology, NJCEP can begin to develop incentives for individual measures that can be moved into the SmartStart prescriptive program, which would allow for broader market adoption.

5.6.3 Commercial and Industrial Offerings – Technical Assistance Program

There is currently no Technical Assistance (TA) program available for assisting customers in scoping and analyzing more complex custom projects. According to the program staff interviewed, NJCEP did historically offer a TA program at no charge to the customer, but the program was discontinued due to the lack of conversions to actual projects. However, in ERS's experience, properly structured TA programs are a common methodology for helping to fill the project pipeline, which was supported by the research the team conducted into other peer C&I programs. The program would allow customers to employ the services of a third party independent engineering firm to conduct a feasibility study of the particular energy efficiency measure (EEM) being considered. The engineering study would investigate the costs, savings and associated economics of the EEM allowing the customer to make an investment decision as well as NJCEP to determine eligibility and potential incentives. The structure of the TA program is critical to helping ensure that a high percentage of projects move from the TA analysis stage to actual implementation, which may include a cost-shared study and technical staff that can help scope projects that need more assistance understanding the process.

The benefits of a properly designed TA program will not only help fill the project pipeline and increase participation, it will also engage additional qualified engineering firms in the program

process, leading to increased project identification and implementation. It can also help customers who may be unsure where to start.

Recommendation #6E: Formulate and offer Technical Assistance funding for more complex projects requiring study and analysis for economic and technical viability.

The TA program should include:

- A detailed description of program requirements
- A clear description of eligible project types to help ensure that only more complex projects requiring engineering analysis are studied. For instance, lighting projects would not typically qualify for TA studies.
- Engineering firm expertise and experience requirements as it relates to the technology being studied
- Report content deliverable requirements resulting in complete savings and feasibility analysis as well as an economic analysis
- A proposed funding structure

One potential way to structure the incentive could be:

- 50% cost coverage by NJCEP up to \$20,000
- Customer responsible for 50% of TA cost
- Additional 25% cost coverage by NJCEP upon project completion

These components will help NJCEP design an offering that can help C&I customers overcome their inertia and funnel projects into NJCEP's C&I programs.

5.6.4 Combined Heat and Power Program

NJCEP's Combined Heat and Power (CHP) and Fuel Cells program provides incentives on a dollar-per-watt basis for CHP, fuel cells, and heat recovery generation. For NJCEP's program, more than 90% of the projects are CHP, so the recommendation is centered on CHP. The evaluation team used the benchmarking study and associated findings and recommendations as a starting point when looking at the CHP program. Although the number of projects for the CHP program were low (25 projects from 2001 to 2014), making true benchmarking difficult, the program design comparison was valuable. The team confirmed through trade ally interviews that the incentive structure is complex and confusing to potential participants or new firms considering participating in the program. In particular, the project intake process, including the initial Excel spreadsheet on the NJCEP website, is seen to be daunting. There is also confusion as to whether it makes more sense for a project to move through NJCEP's CHP program or through the Energy Resiliency Bank. Finally, there is a general concern from trade allies about the stability of incentive funding based upon funds being redirected in the past outside of NJCEP's control.

In addition, interviews with program staff and review of marketing information showed no significant program outreach or marketing for the program. As a result, the program is not well known by customers (it had the lowest awareness rate of any NJCEP program from the surveys), and customers and contractors alike are wary of getting involved due to the complexity.

A less complicated program structure and participation process can lead to increased participation and market penetration of CHP technologies. The State has for several years declared its interest in CHP (the 2011 and 2008 Energy Master Plans both contained the goal of achieving 1500 MW of CHP within the decade), and taking a long-term view when revamping the program may improve NJCEP's ability to transform the market. The FY2016 CRA suggested starting a stakeholder process to "market barriers to CHP/FC development, review Board and NJCEP policies, and examine the interplay between CHP/FC and the State's resiliency goals." This stakeholder process would be an excellent opportunity to review the best way to structure the program and its components (for example, incentives, requirements, and outreach).

Several programs around the nation offer some kind of CHP incentive, most of which provide some kind of capacity incentive (\$/kW installed) or production incentive (\$/kWh produced). Each also has its own minimum and maximum caps based on incentive size or capacity. The programs are shown in Table 5-6.

Table 5-6. National CHP Programs

Program/State	State	Program Name
NYSERDA	NY	CHP Acceleration CHP Performance
MassSave	MA	Combined Heat and Power
Energize Connecticut	CT	Combined Heat and Power Pilot Program
EmPOWER Maryland	MD	CHP Grant Program
Maryland Utilities (BGE, Potomac Edison, Pepco)	MD	*Each offers its own program, although the incentives are almost identical.
Illinois Department of Commerce and Economic Opportunity	IL	Public Sector CHP Pilot Program
California Statewide	CA	Self-Generation Incentive Program (SGIP)

NYSERDA's CHP Acceleration Program in particular has caught the attention of the Department of Energy as well as some stakeholders in NJ for its "prescriptive" structure. The program offers incentives for the installation of prequalified and conditionally qualified CHP systems by approved vendors in the size range of 50 kW to 1.3 MW. The catalog contains descriptions of eligible CHP systems and vendors, and the NYSERDA incentive amount assigned to each CHP system. Additional information about the CHP Acceleration Program, including the catalog, can be found at <http://www.nyserdera.ny.gov/PON2568>.

Recommendation #6F: Simplify the CHP program structure.

There are several ways to go about this:

- Reduce the complexity and data requirements for the CHP Excel Application spreadsheet to only the data required to determine preliminary eligibility. Additional data can be requested once the project passes the preliminary screening.
- Reduce the number of incentive categories for the various sizes and project types.
- Review NYSERDA “catalog approach” to CHP program offerings.
- Consider how to revise the incentives and requirements.

Through the stakeholder process, NJCEP should explore how to structure the program going forward. One example incentive and requirement structure could be as follows:²⁶

- Limit the incentive to 50% of project cost, with a certain dollar amount per kWh.
- Cap the individual customer incentive amount to \$2M annually.
- Change the minimum efficiency to 60% (industry standard 60% – 65%).

Require a benefit/cost test on all projects as part of preapproval. In addition to the incentive structure and the requirements, there is a need to promote the program. The awareness is currently very low, potential customers are skeptical due to the effort required, and there is lasting uncertainty from contractors with prior experiences with the program.

During the interview process some trade allies expressed a desire for increased marketing on the part of NJCEP to improve customer awareness, which would make their jobs somewhat easier in promoting CHP technologies. They also expressed interest in having periodic meetings with the program staff for the purposes of discussing program changes or updates, project statuses, and opportunities for program promotion. These efforts should help increase program awareness, trade ally engagement and participation, and project implementation.

Recommendation #6G: Develop and implement a targeted marketing, outreach, and trade ally engagement plan for CHP promotion.

There are also potential synergies between the NJCEP CHP Program and the Energy Resilience Bank. The two organizations should work together to ensure efficient customer targeting and outreach as well as cross-promotion of the two programs, and help to deliver a consistent and clear message to potential participants.

5.6.5 CFL Impacts on Portfolio

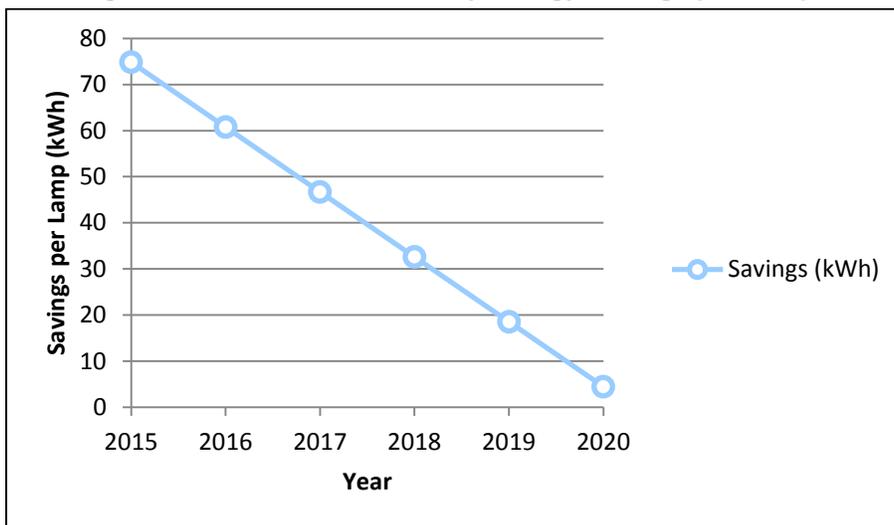
In 2014, 51% of NJCEP’s total portfolio energy savings came from the Upstream Lighting Program. This was achieved through the buy-down and sale of approximately 6.5 million

²⁶ Note: some of these design components already exist in some fashion in the current program.

lamps²⁷. This substantial energy savings were primarily achievable due to the large difference in wattage between the baseline lamp type, or the current inefficient lighting technology found in most homes (incandescent), and the energy-efficient alternative promoted by NJCEP (CFL and LED).

However, recent federal lamp efficiency standards are phasing out incandescent lamps. The Energy Independence and Security Act (EISA), passed in 2007, established efficacy criteria for a majority of the general service lamps used in homes today, including incandescent lightbulbs.²⁸ While this means that market transformation is occurring due to the mandated shift to more efficient lamps, it also means that the amount of energy savings that NJCEP – and efficiency programs across the country – can claim for having participants switch from incandescent lamps to CFLs or LEDs will be drastically reduced. Figure 5-12 shows the decreasing amount of average savings that can be claimed per lamp as CFLs become the baseline lamp in the market. By 2020, residential lighting programs will only be able to claim roughly 80%–90% of the savings claimed today due to the market shift.

Figure 5-12. Reduction in Yearly Energy Savings per Lamp²⁹



²⁷ Data gathered from NJCEP FY2014 Yearly Report. Per the report, these figures reflect savings from the sale of CFLs, although interviews with program staff indicated that LED lamps were also promoted through the program.

²⁸ Some exemptions to these new standards do exist, such as lamps used in appliances, lamps used for growing plants, and certain decorative lamp types. However, the quantity of installations of these types of lamps is extremely small compared to lamp types not exempt, such as a typical 60-watt incandescent lamp.

²⁹ Assumes average daily operation of 4.1 hrs, per the 2014 Northeast Residential Lighting Hours-of-Use Study values for downstate NY, calculated by The NMR Group and DNV GL.

However, this switch will not happen suddenly. It is important to note that even with the passing of this legislation incandescent lamps will still be available for purchase from stores with existing inventory until 2020. The law simply restricts manufacturing or importing lamps that do not meet EISA 2007's efficacy criteria until a "backstop" provision takes place on January 1, 2020, that will prohibit their sale if further legislative action is not taken. A study conducted in 2014 on behalf of several utilities in the Northeast acknowledged that a large quantity of distribution channels did in fact still have incandescent lamps available, especially 60-watt lamps, which are the prevalent baseline lamp type in many homes. This is shown in Table 5-7.

Table 5-7. Availability of Incandescent Lamps Based On Retailer Inventory³⁰

Percentage of Participant Stores with 100 W, 75 W, and 60 W Incandescent Bulbs (2014)			
Distribution Channel	100-Watt	75-Watt	60-Watt
Discount	22%	11%	78%
Drug store	40%	47%	67%
Grocery	50%	50%	83%
Large home improvement	75%	88%	100%
Mass merchandise	62%	77%	92%
Membership	0%	0%	100%
Small hardware	74%	81%	87%

Incandescent lamps will continue to be bought and sold for a number of years, although the quantity will gradually decrease until a time where either stock is depleted or federal legislation prohibits their sale. In the meantime, the percentage of the market held by efficient lighting will increase, leading to the aforementioned decrease in savings. As a result, how NJCEP calculates savings should change over time.

The program staff revealed that this changing baseline had been acknowledged and a plan is in place to transition to a 100% CFL baseline by the year 2019. However, ERS does not recommend that an incandescent baseline be used up until that time, as it does not accurately reflect the market. Some NJCEP-incentivized CFLs or LEDs will be used to replace CFLs, meaning that NJCEP will be overclaiming savings and the number will be knocked down during an impact evaluation.

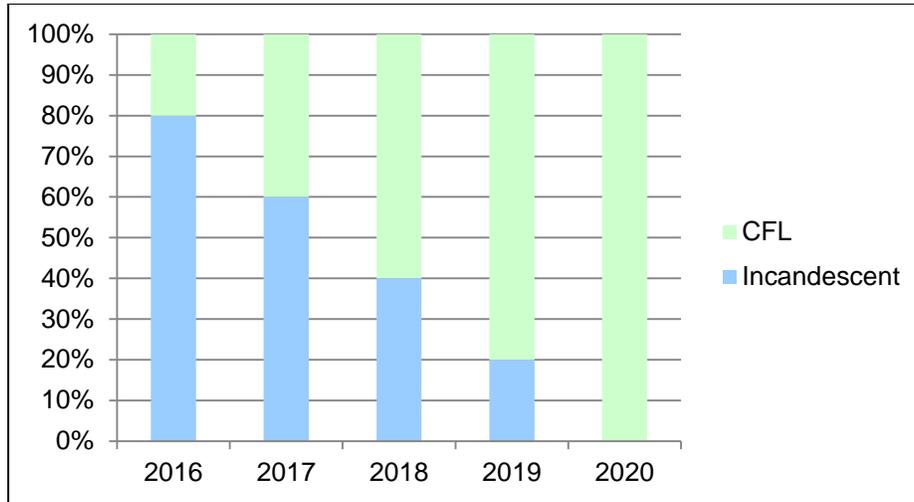
Recommendation #6H: Transition to a 100% CFL baseline by 2020 to reflect the legislation schedule, but adjust the baseline over time to include a mix of technologies in order to reflect the impact of the incandescent phase-out.

ERS recommends that a mixed baseline be used to account for different lamp types that will be replaced by those promoted by the Upstream Lighting Program. This will allow the program to

³⁰ Study conducted by Cadmus and The NMR Group: <http://ma-eeac.org/wordpress/wp-content/uploads/Residential-Lighting-Shelf-Survey-and-Pricing-Analysis.pdf>

acknowledge and account for the recent EISA 2007 standards and the corresponding effect on the market while still capturing defensible energy savings. Figure 5-13 represents a potential way for NJCEP to account for the decreasing market availability of incandescent lamps in its baseline.

Figure 5-13. Proposed Upstream Lighting Baseline Transition from Incandescent to CFL³¹



Alternatively, NJCEP may consider using an EISA-compliant lamp as a baseline to maximize savings, even though this may not align with real-world installations. According to the Department of Energy’s Residential Lighting Evaluation Protocol, another approach to capturing savings resulting from the installation of LED lamps is to compare lamp types and wattages based on lumen output. For example, the light output of a 60-watt incandescent is equivalent to a 13-watt CFL, as shown in Table 5-8.

³¹ Years shown represent calendar years – program and fiscal years may differ.

Table 5-8. Standard Lamp Estimated Baseline Wattage for Lumen Equivalencies³²

Minimum Lumens	Maximum Lumens	Incandescent Equivalent Wattage	
		Baseline (Exempt bulbs)	Baseline (Post-EISA)
2,000	2,600	150	72
1,600	1,999	100	72
1,100	1,599	75	53
800	1,099	60	43
450	799	40	29
310	449	25	25

While the 60-watt incandescent does not meet the EISA guidelines, the 13-watt CFL does. Additionally, manufacturers are offering EISA-compliant halogen lamps that are equivalent to 60-watt incandescent lamps that draw only 43 W, which are also EISA-compliant. Table 5-9 shows the types and wattages of the lamps.

Table 5-9. Lamp Type and Wattage Equivalencies

Technology	Wattage
Incandescent	60
EISA-compliant halogen	43
CFL	13
LED	10

Using this 43-watt halogen lamp as the baseline will result in greater energy savings that can be claimed compared to using a 13-watt CFL baseline. For example, the difference in wattage between a 10-watt LED lamp and an equivalent CFL is only 3 W, whereas an equivalent EISA-compliant halogen is 33 W.

This approach would maximize the savings that can be claimed from the Upstream Lighting Program by maintaining a large difference in wattage between the assumed baseline lamp type and the lamps promoted by NJCEP. However, this may not align with real-world installations. It is expected that fewer 43-watt halogen lamps have been sold and installed compared to 13-watt CFLs, although this should be confirmed locally.

Regardless of the baseline technology that is selected, there will be a need to offset the loss of savings from the lighting baseline wattage reductions. Even with a conservative approach to changing the upstream lighting baseline, this will equate to large losses in energy savings that can be claimed by the program. In order to reclaim the energy savings lost from the upstream

³² Study conducted by Apex Analytics in conjunction with the National Renewable Energy Laboratory on behalf of the US Department of Energy: <http://energy.gov/sites/prod/files/2015/02/f19/UMPCChapter21-residential-lighting-evaluation-protocol.pdf>

lighting program it is recommended that new and emerging technologies be researched and corresponding incentives be developed.

Recommendation #6I: Research and develop incentives for new and emerging energy-efficient technologies to help offset the loss of program savings from the Upstream Lighting Program.

Some examples may include developing a measure for VRF heat pumps, or expanding the current LED measures offered by both the residential and the C&I programs. There are a number of emerging technology programs nationwide, including through utilities (e.g., the California Emerging Technologies Program, or ETP) or organizations (e.g., the Northeast Energy Efficiency Partnership, or NEEP).³³ NJCEP may be able to leverage some of the research being done by these organizations.

As mentioned in Section 5.6.2, the custom program may also offer NJCEP an opportunity to scan for new measures.

5.7 Cost-Efficiency

Cost-efficiency (in the form of dollars per kWh or dollars per therm saved) is a common metric within the industry to gauge how effectively a program uses budget dollars to procure savings. A lower cost-efficiency means that less money needed by the program to acquire a unit of energy savings. The metric can be used to monitor historical program performance, as well as benchmark against other programs, and it was one of the primary metrics by which the benchmarking study compared NJCEP to its peers. The study noted that NJCEP had an overall higher cost per kWh compared to the twenty-five peer programs. As a result, there is room for NJCEP to improve this metric by either decreasing their acquisition costs or increasing the savings achieved. This section discusses NJCEP's cost efficiency in more detail, as well as a number of areas included throughout this report that could help improve this metric. It also reviews incentive levels, which were noted as generally higher than peers' in the benchmarking study, and contribute to the cost per kWh. Key findings and recommendations are presented below.

5.7.1 Cost Efficiency as a Performance Metric

Through the initial work conducted in the benchmarking study and through research conducted in this process evaluation by interviewing staff and reviewing program data and reports, it is clear that the NJCEP programs have not typically used this particular performance metric. The more common focus has been on developing a comprehensive portfolio of programs to cover the various customer segments and energy efficient technologies while attempting to increase customer participation to match available budgets. In reviewing monthly

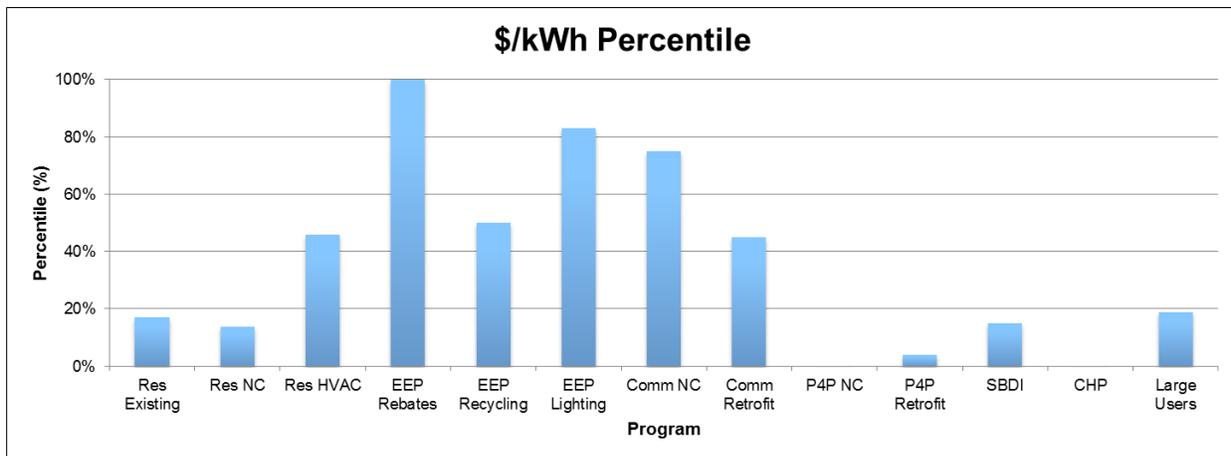
³³ ETP posts many of its reports publicly via the Emerging Technology Coordinating Council (ETCC) website, accessed at <http://etcc-ca.com/>. NEEP's website is at <http://neep.org/>.

report documents it was noted that \$/kWh is tracked on a historical basis but not used as a performance metric. In order to make cost efficiency a true performance metric it needs to become part of the goal structure and NJCEP management focus. Many of the recommendations in this report have a direct effect on cost efficiency even though their primary focus may be on improving the customer experience, increasing participation rates, creating a more effective trade ally program, etc. With this in mind, the discussion in this section refers to the detail in prior sections regarding recommendations effecting cost efficiency.

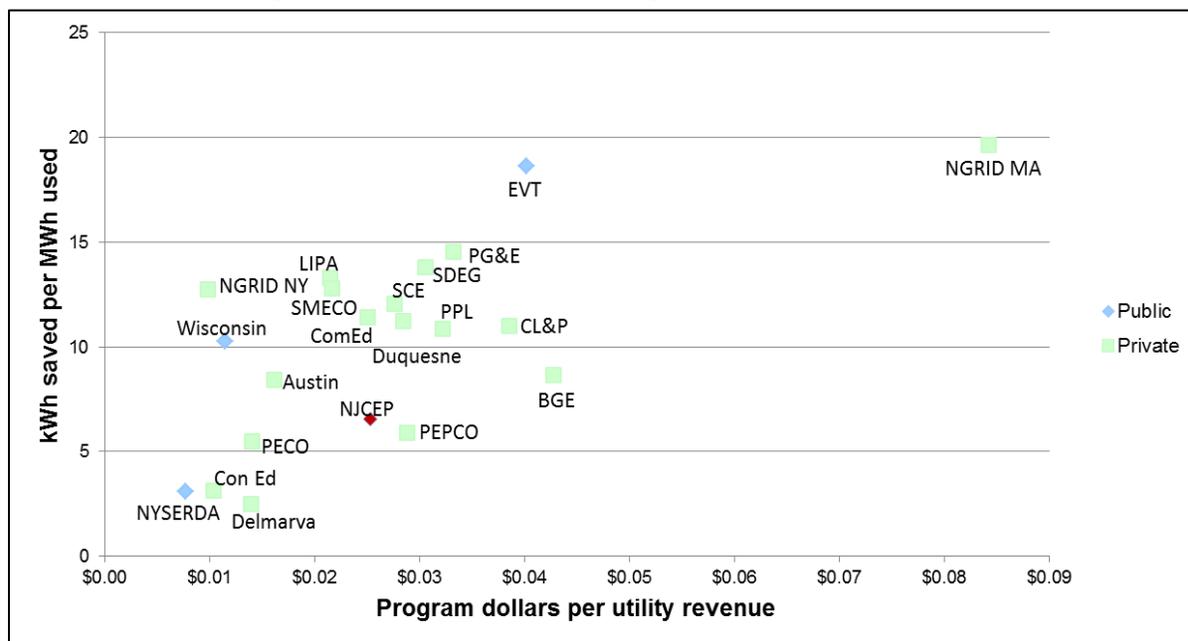
5.7.1.1 Cost-Efficiency Analysis

Several analyses have supported the finding that NJCEP’s cost of acquiring savings is generally higher than its peers’, and that cost efficiency is not a focus within the organization. These findings were first listed in the benchmarking study, which found that NJCEP programs were on average in the 39th percentile of peer programs for their cost efficiency (just over the median performance of the 32nd percentile). Cost efficiency does vary by program, as shown by Figure 5-14 from the benchmarking study.

Figure 5-14. NJCEP Cost Efficiency as Percentile of Peer Programs, from Benchmarking



The process evaluation team performed an additional benchmarking analysis that plotted the relative amount of savings attained by each of the peer administrators (kWh saved divided by MWh sold within the territory) against the relative amount spent on efficiency (efficiency program budgets divided by utility revenues). This is presented in Figure 5-15. The ideal programs will spend the least to attain the most savings (or, in other words, be the most cost-efficient) and will be located in the top left corner of the graph.

Figure 5-15. Benchmark of Energy Efficiency Portfolios³⁴

The results of the analysis above show that compared to other EE portfolios, New Jersey has a typical-sized budget but achieves fewer savings than most, resulting in a higher cost per energy unit saved than many other programs with very similar program portfolios.

5.7.1.2 Opportunities for Improving Cost Efficiency

The benchmarking study, interviews with program staff, and the evaluation team's analyses all attempted to answer why New Jersey's cost efficiency was low. While there are clearly a number of ways NJCEP could decrease costs (reduce the numerator) and increase savings (raise the denominator), there are not many obvious reasons for why NJCEP does not perform as well as some peers. Some potential ones may be:

- ❑ Incentive levels (discussed in the next section) may be higher than average for some programs, leading to higher costs.
- ❑ Customer acquisition costs may ultimately be higher for NJCEP as it does little marketing, outreach, and project assistance work.
- ❑ Program performance (achieving kWh goals) has not been a historical focus on NJCEP, leading to lower savings than what the programs could potentially attain.

There were two additional findings from the benchmarking study that may have led to NJCEP's programs looking less expensive (more cost-effective) than they were in reality:

³⁴ Data according to 2013 EIA Form 861. Annual sales for Public PAs are the totals of all reporting utilities in their respective states.

- ❑ NJCEP has different accounting practices than many other PAs. It reports marketing and evaluation as administrative rather than part of the program budget, meaning that these costs are not allocated across the programs.
- ❑ NJCEP has not had its savings verified by an impact evaluation and may be overstating savings on some programs.

NJCEP should take steps towards improving its cost efficiency in order to regain its position as a leader. The interest in implementing cost efficiency metrics is high at the BPU and the timing is optimal with the recent award of a new Program Administrator contract, as well as the implementation of a new reporting and tracking system. The findings and recommendations resulting from the benchmarking study and this process evaluation lay the groundwork and provide the basis for changing focus to include cost efficiency as a primary metric for gauging program performance, and then working to improve it. There are a number of specific recommendations outlined below to help NJCEP offer a broad array of programs at a lower \$/kWh saved, as cost-efficiency improvements will free up funds for additional projects and initiatives, and ultimately lead to greater benefits for the state.

Recommendation #7A: Track and strive to improve the cost efficiency of the NJCEP portfolio.

Suggestions on how to track and improve cost efficiency were provided in many of the prior findings and recommendations; the focus on cost efficiency ties many of them together. The suggestions include:

- ❑ **Set and track cost-efficiency metrics.** The benchmarking study provides potential \$/kWh targets on a program basis of which to help set improvement goals. As discussed in Recommendation #1C, NJCEP should use a program-specific \$/kWh, such as the ones presented in the benchmarking study, and then strive to improve cost efficiency to that level. One key to the success of this recommendation is to track and report progress via monthly reporting, as per Recommendation #2B. As part of this, NJCEP should consider how to allocate administrative functions that help programs (for example, marketing) to the programs to provide accurate accounting of program costs as suggested in the benchmarking study.
- ❑ **Change application submittal and tracking methods to electronic-only.** Significant efficiency gain/cost reduction opportunities exist in the process of receiving, reviewing, and tracking applications by moving towards electronic submittal and tracking. Presently, the program applications are in the form of PDFs or Excel spreadsheets that need to be printed, filled out, scanned and mailed, emailed, or faxed. This requires data entry of the information into the tracking system for review and processing. Participants and PAs still use the postal service to submit applications and communicate on missing application data or pre-approval. The USPS should be eliminated as much as possible as a form of communication and application submittal, as it is costly and time-consuming. With the implementation of an online application submittal and tracking system (per Recommendation #5A), upfront errors on applications are reduced due to the individual

data field requirements in the database and time spent on manual data entry is essentially eliminated. Project tracking and reporting commences upon acceptance of the application into the system and major milestones (receipt, approval, project completion, incentive check mailed) are tracked and flagged based upon acceptable time parameters within each step.

- ❑ **Consider program administrator performance incentives.** Performance incentives should be considered as part of a reward system for meeting or exceeding cost reduction targets and energy savings goals, as discussed in Recommendation #1D. Beyond cost efficiency and goal achievement, which are primary objectives of energy efficiency programs, excellent customer service, technical support for customers and trade allies as well as thorough application review and approval are also very important factors in successful energy efficiency programs.
- ❑ **Implement trade ally program.** As discussed in Recommendation #5C on Trade Ally Experience, a properly structured and managed trade ally organization has the potential to serve as one of the lowest-cost project development tools. A contractor who understands the program and finds value in using the incentives in upselling projects to more energy efficient options will incorporate the program details into his or her business model and use the incentives in the economic analysis. Implementing the Trade Ally Program recommendations will create a large sales force to help fill the project pipeline and potentially stimulate economic growth within the contractor and supplier community.
- ❑ **Increase the marketing budget.** NJCEP has attempted to reduce costs in the form of lowering marketing budgets to approximately 1% of the total portfolio budget, but this may actually lead to increasing the overall cost per energy unit saved due to the lack of increasing customer participation levels. As mentioned earlier and in Section 5.4, increasing marketing spending and outreach activities will result in increased participation, projects, and associated savings with the opportunity to actually lower \$/kWh. The old adage “You have to spend money to make money,” holds true in modified form for this scenario. A well-designed and effectively implemented marketing plan can increase unaided specific program awareness, which according to the general population survey results was very low. This increased program awareness will also assist the trade ally network in developing and implementing projects because potential participants will already be aware of the general program attributes, allowing trade allies to focus on the benefits of participation.
- ❑ **Re-align program staff to include program performance as a major metric.** As discussed in Section 5.2, clearly defining roles, responsibilities, and goals for NJCEP/BPU program staff to focus on cost efficiency as a key performance metric will go a long way in helping to lower the cost per energy unit saved. Presently, the staff operates more in a contract management role, reviewing budget spent, participation levels, and savings, but not from the perspective of improving cost efficiency. With this new perspective they will help

manage the new Program Administrator Team with a view towards lowering the \$/kWh or \$/therm saved.

- ❑ **Consider conducting benefit/cost (B/C) test on measure/project level at time of review and pre-approval.** Performing a B/C test at a project level for non-prescriptive measures will help to ensure that incentive payments are made only on those projects that pass the test and are cost-effective. Paying incentives for projects with less than a 1.0 B/C ratio could possibly result in those projects being disqualified or eliminated from the mix as part of an impact evaluation, reducing the overall savings numbers and thereby increasing the \$/kWh for the program.

These suggestions will help NJCEP improve its cost efficiency by decreasing costs or increasing savings. One other area to look at that has not been discussed yet is incentive levels, which directly impact the program costs.

5.7.2 Incentive Levels

As part of the benchmarking study, ERS reviewed incentive levels for nine NJCEP programs and found that five had incentives that were high relative to comparable PAs (Residential Existing Homes, Residential New Construction, Pay-for-Performance New Construction, parts of CHP, and Large Energy Users). ERS recommended reductions ranging from 20% to 50%. None of the nine programs were much lower than peers' programs, with the exception of large CHP incentives. NJCEP has indicated through the program staff interviews that they are looking at these incentive levels. Some incentive levels were changed effective July 1, 2015; for example, LED 2x2 and 1x4 fixtures went from \$50 to \$15 per fixture and from a cost-based incentive to an energy savings incentive based upon \$0.16/kWh. ERS reviewed these changes and found that there is no consistent method of developing incentives overall, which was supported by the interviews held with the program staff. As a result, the amount that NJCEP will pay for a measure can be far above or below industry standard, and it varies by program and measure.

A consistent incentive setting methodology allows for better incentive-level understanding and management. It also makes the process much more consistent, and easier, when adding a measure to the program offerings.

Recommendation #7B: Implement a single incentive-level development methodology across all programs.

There are a number of approaches to setting incentives, from using measure savings to a percent of total or incremental cost. Many programs reviewed use a cost-based incentive, which requires an incremental cost study at a measure level in order to formulate the incentive. For instance, if a measure costs \$100 and the target cost coverage is 35%, then the incentive would be \$35/measure. This is the typical methodology used in setting incentives for prescriptive measures, whereas custom incentives are based upon a \$/kWh saved rate (\$0.16/kWh for NJCEP's custom program). These incentives are generally limited to a percent of total project cost for retrofit projects and a percentage of incremental costs for new construction projects,

roughly 50% for retrofit and 35% for new construction, based upon other programs studied. An incremental cost study should be performed prior to setting cost-based incentives for prescriptive measures.

With the methodology in place, the NJCEP program staff can effectively adjust incentive levels based upon the particular goals of the program or for a particular measure. These adjustments can be done to promote a new technology, focus attention away from a measure that becomes standard practice and towards a more emerging technology, or to boost program participation (e.g., a sale). Some programs have been reluctant to make mid-year incentive level changes (for example, to ensure that a program does not go over budget due to an oversubscribed measure) because of negative customer or trade ally reactions, but done thoughtfully this reaction can be overcome and program goals can be achieved. In all other areas of society, buyers are exposed to changing prices based upon the seller's objectives or fundamental supply and demand relationships.

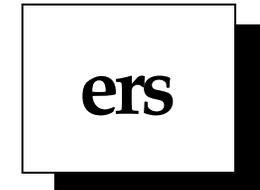
This is especially important in the burgeoning LED lighting field where over the past few years product costs have dropped significantly and demand for the product has increased significantly. Programs that did not follow the decrease in equipment costs ended up with higher than necessary incentive levels, which in some cases may have forced the program to run over budget and shut down early in the program year. Having a sound incentive development methodology along with a system for monitoring measure costs allows for accurate and timely incentive adjustments, thereby avoiding this scenario.

6 CONCLUSION

The NJCEP process evaluation revealed many positive attributes of the portfolio, including comprehensive program offerings, good participant satisfaction levels, and helpful program administrative staff. These all provide for an excellent foundation for which process, outreach, and marketing improvements can be made. The opportunities described in this report will result in increased program participation and associated energy savings, increased customer satisfaction, and decreased costs per unit of energy saved.

Program administration has historically been a challenge due to the state's contracting structure and requirements which were exacerbated in recent years due to program administrator contract award disputes. This situation has made program changes and enhancements difficult, if not impossible. These circumstances should improve with the successful award of the new single PA contract. The new contract also provides an opportunity for the BPU and the PA to think of NJCEP's long-term goals. New Jersey was once a first mover on energy efficiency programs, and many stakeholders feel that the state has been left behind. This is a crossroads point in time for NJCEP to look strategically at where it is most needed and what it can and should accomplish in the years to come. While this study does not claim to provide the keys to making NJCEP the greatest program in the nation, it provides a number of recommendations designed to provide both a tactical and strategic look across the portfolio. NJCEP has the potential to significantly improve the customer and contractor program experience while

attaining a more ambitious level of energy savings at a lower cost, and in so doing will help bring New Jersey back to its position as a leader.



APPENDIX: SUMMARY LIST OF RECOMMENDATIONS

#	Section	Page	Recommendation	Action Items
1A	Program Motivations & Goals	29	Continue the discussions begun through the Utility Working Group on how to better coordinate and organize the efficiency work done by various New Jersey parties.	<ul style="list-style-type: none"> <input type="checkbox"/> After the transition to the single program administrator (PA) is complete, restart the Utility Working Group. <input type="checkbox"/> Work with the utilities to improve marketing (see Recommendation #4B).
1B	Program Motivations & Goals	32	Consider energy and demand savings the primary outcome of its efforts, and therefore the primary goal and metric by which to track progress and measure performance.	<ul style="list-style-type: none"> <input type="checkbox"/> Ensure that savings goals are made clear to program staff and contractors at the beginning of and throughout the program year. <input type="checkbox"/> Consistently track and report energy savings as the most prominent metric in monthly, quarterly, and annual documents. <input type="checkbox"/> Update the IMS to include verified savings data that can be easily pulled for reporting and analysis. <input type="checkbox"/> Periodically check savings calculations; use M&V for more complicated projects; use impact evaluations to establish program realization rates.
1C	Program Motivations & Goals	34	Set savings goals based on program budget and cost-efficiency (\$/kWh) targets per program, and aggregate those to set portfolio goals.	<ul style="list-style-type: none"> <input type="checkbox"/> Set \$/kWh and \$/Dtherm targets for each program based on the benchmarking report's recommended targets. Then divide the program budget by the cost-efficiency target to get the level of energy savings achievable at that cost-efficiency rate for the given budget. <input type="checkbox"/> Include these goals in monthly reports and measure progress towards them each month.
1D	Program Motivations & Goals	43	Implement program administrator (PA) performance incentives for achieving goals.	<ul style="list-style-type: none"> <input type="checkbox"/> Consider what format is best suited to NJCEP's structure and contracting mechanisms. <input type="checkbox"/> Start with positive incentives only and then evaluate whether or not to add a disincentive. <input type="checkbox"/> Consider how to structure the incentive into its budgeting so that if the administrator fails to meet the goal, the incentive amount is not lapsed to the NJ General Fund at the end of the year. <input type="checkbox"/> Tie performance incentives to energy savings; consider M&V to ensure that the PA is accurately reporting savings.

#	Section	Page	Recommendation	Action Items
2A	Oversight & Procedures	47	Clearly define primary roles and responsibilities for BPU staff and consider additional human resources who are responsible for the oversight of the efficiency programs.	<ul style="list-style-type: none"> <input type="checkbox"/> Define staff roles with regards to the functions they perform, programs they work with, and explicit oversight roles for monitoring, management, and planning. <input type="checkbox"/> Add program oversight staff (i.e., two staff for residential programs, two staff for commercial programs, one energy efficiency program manager).
2B	Oversight & Procedures	49	Update monthly reporting features to contain all metrics and formatting that allow for easy oversight of performance.	<ul style="list-style-type: none"> <input type="checkbox"/> Make recommended updates: <ul style="list-style-type: none"> ➤ Include all metrics of interest ➤ Provide comparisons for cumulative achievements ➤ Include monthly achievements ➤ Use conditional formatting more extensively to highlight performance ➤ Update each tab each month <input type="checkbox"/> Allow the BPU to provide the data requirements for what it wants to see.
2C	Oversight & Procedures	51	Include project timing details and metrics in monthly reporting.	<ul style="list-style-type: none"> <input type="checkbox"/> Track project milestones and time it takes to move from one to the next. For each program, track the average time for projects to move from one milestone to the next, as well as any outliers. <input type="checkbox"/> Once data has been collected, NJCEP should consider putting goals in place (i.e., setting targets for the average time to move from one milestone to another and decreasing the number of outliers). <input type="checkbox"/> The BPU should receive information on the number of inspections performed per month and cumulatively, the number of projects that failed inspection, and the reasons why.
2D	Oversight & Procedures	54	Build a more flexible IMS with future capabilities in mind.	<ul style="list-style-type: none"> <input type="checkbox"/> Ensure full data quality verification (DQV) on all fields tracked in the IMS, even those that are not currently critical for program activities but may be in the future. <input type="checkbox"/> Standardize input values; ensure that all fields are modifiable and can be edited and annotated for greater project flexibility. <input type="checkbox"/> Automate data input from all sources using a standardized online application process. Standardize nomenclature and methodologies used by various trade allies and market partners. <input type="checkbox"/> Track changes on each every field recorded in applications or gathered by contractors. <input type="checkbox"/> Plan for interoperability with a web portal for customers and contractors.
3A	Evaluation	58	Create a designated BPU evaluation program, or team, with the responsibility and authority to implement and manage evaluations.	<ul style="list-style-type: none"> <input type="checkbox"/> Put a process in place where a dedicated team shepherds the process from planning, to a proposal that can be approved by the BPU, to procurement, to implementation, and to completion and response. <input type="checkbox"/> Consider approving evaluation plans and budgets for each evaluation as part of the CRA process.

#	Section	Page	Recommendation	Action Items
3B	Evaluation	59	Ensure through the evaluation team that evaluations are used to effect program changes.	<ul style="list-style-type: none"> <input type="checkbox"/> Facilitate an internal discussion with program staff to respond to findings and recommendations; oversee design of an implementation plan of changes to be made as a result of each evaluation. <input type="checkbox"/> Hold and update a master list of all evaluation recommendations and progress towards agreed-upon changes to implement for every evaluation conducted. <input type="checkbox"/> Post evaluations on the NJCEP website with PA responses to each recommendation within 60 days of completion
3C	Evaluation	60	Complete an impact evaluation of all programs to gain a broad picture of the portfolio and use the impact/process findings to inform and design smaller, targeted studies that can occur on an annual/semi-annual basis. Consider expanding the use of M&V to provide real-time feedback.	<ul style="list-style-type: none"> <input type="checkbox"/> Complete an impact evaluation. <input type="checkbox"/> Design targeted studies that dive deeper on a specific area of concern or interest, such as a program, measure, or program component like marketing. <input type="checkbox"/> Consider using M&V in more complex NJCEP programs, including the custom component of the C&I Retrofit program, P4P, and HPwES.
3D	Evaluation	62	Hold a performance review of the single PA once the transition has occurred to establish oversight.	<ul style="list-style-type: none"> <input type="checkbox"/> Perform a process-type study 6 months to a year after the transition that focuses specifically on the processes that have been changed and/or intended to be improved. <input type="checkbox"/> Review the PA monthly reports in detail immediately to establish oversight.
4A	Marketing & Outreach	66	Engage the IOUs to market NJCEP offerings to their customers.	<ul style="list-style-type: none"> <input type="checkbox"/> Develop information that can be hosted on IOU websites (existing info varies dramatically) <input type="checkbox"/> Collaborate with IOUs on targeted campaigns (bill inserts, utility emails) <input type="checkbox"/> Explore how data might be shared between IOUs and NJCEP to target marketing and outreach efforts <input type="checkbox"/> Work with utilities' key account representatives to target large customers (400 kW and up)
4B	Marketing & Outreach	68	Develop a comprehensive marketing and outreach plan to increase participation and energy savings with targeted spending levels of 3% to 5% of the total program budget.	<ul style="list-style-type: none"> <input type="checkbox"/> Consider increasing digital advertising presence, use of email and social media (Facebook, Twitter, LinkedIn) <input type="checkbox"/> Determine needs and functionalities for the website and implement a new platform. <input type="checkbox"/> Develop specific metrics to track marketing success (website views, participation rates, program inquiries, energy savings, etc.) <input type="checkbox"/> Develop and manage the Trade Ally Network <input type="checkbox"/> Dedicate staff to actively conduct outreach to larger customers (400 kW and up) <input type="checkbox"/> Consider a co-op advertising program for trade allies.

#	Section	Page	Recommendation	Action Items
5A	Participation Experience	73	Design an online portal for customers and contractors to submit applications electronically and check progress.	<ul style="list-style-type: none"> <input type="checkbox"/> Consider the following features for the portal: <ul style="list-style-type: none"> ➤ Online submission of applications and other documents ➤ Project status checking ➤ Centralized communications ➤ Read-only/write-only credentials
5B	Participation Experience	75	Redesign the NJCEP website.	<ul style="list-style-type: none"> <input type="checkbox"/> Improve layout, navigability. <input type="checkbox"/> Include method of submitting applications electronically and/or link to the customer portal. <input type="checkbox"/> Set aside dedicated budget for redesign or new platform; the funding should not come out of the existing marketing budget.
5C	Participation Experience	78	Develop a more formal trade ally program with requirements and benefits.	<ul style="list-style-type: none"> <input type="checkbox"/> Create requirements to become a Trade Ally, including certification training, proof of liability insurance, and a minimum number of completed projects annually. <input type="checkbox"/> Design Trade Ally benefits to promote the program, including quarterly training opportunities, a trade ally newsletter, and a trade ally advisory committee. <input type="checkbox"/> Conduct surveys of participants regarding trade ally performance
6A	Portfolio Design	83	Consistently track demand reductions (kW) from measures as a step towards valuing demand savings.	<ul style="list-style-type: none"> <input type="checkbox"/> Consistently calculate and track kW for all projects in the IMS database. <input type="checkbox"/> Assess which measures lead to the most cost-effective demand reductions, and develop a plan for promoting these measures.
6B	Portfolio Design	83	Create a working group with BPU staff, utilities, and other stakeholders to assess the potential for demand management and demand response programs in the state.	<ul style="list-style-type: none"> <input type="checkbox"/> Consider whether this should be included as a sub-part of the Utility Work Group or a separate group.
6C	Portfolio Design	84	Consider separating the custom program from the prescriptive program under SmartStart to create a stand-alone offering to be tracked and funded separately.	<ul style="list-style-type: none"> <input type="checkbox"/> Track the custom program separately in IMS and all program filings <input type="checkbox"/> Present the custom program as a separate offering on the NJCEP website.
6D	Portfolio Design	85	Review the minimum eligibility level for custom projects, as there is a potential to increase number of smaller custom projects.	<ul style="list-style-type: none"> <input type="checkbox"/> Review and discuss present strategy for the custom program and determine if allowing additional smaller projects would be beneficial. <input type="checkbox"/> Consider M&V for the custom program to verify savings and contribute to new measure development.

#	Section	Page	Recommendation	Action Items
6E	Portfolio Design	86	Formulate and offer Technical Assistance funding for more complex projects requiring study and analysis for economic and technical viability.	<ul style="list-style-type: none"> <input type="checkbox"/> Consider what incentive structure, report/deliverable requirements, and engineering firm expertise requirements are most appropriate for NJCEP in designing a cost-shared program.
6F	Portfolio Design	87	Simplify the CHP program structure.	<ul style="list-style-type: none"> <input type="checkbox"/> Reduce the complexity and data requirements for the CHP Excel Application spreadsheet to only the data required to determine preliminary eligibility. Additional data can be requested once the project passes the preliminary screening. <input type="checkbox"/> Reduce the number of incentive categories for the various sizes and project types. <input type="checkbox"/> Review NYSERDA “catalog approach” to CHP program offerings. <input type="checkbox"/> Consider how to revise the incentives and requirements.
6G	Portfolio Design	88	Develop and implement a targeted marketing, outreach, and trade ally engagement plan for CHP promotion.	<ul style="list-style-type: none"> <input type="checkbox"/> Identify trade allies who specialize in CHP products and installations. <input type="checkbox"/> Develop training programs for identified trade allies. <input type="checkbox"/> Identify customer segments most likely to have CHP project opportunities. <input type="checkbox"/> Identify outreach staff who can target potential participants. <input type="checkbox"/> Decide on the most effective marketing strategies to reach potential participants. <input type="checkbox"/> Consider educational webinars for trade allies and potential participants.
6H	Portfolio Design	90	Transition to a 100% CFL baseline by 2020 to reflect the legislation schedule, but adjust the baseline over time to include a mix of technologies to reflect the impact of the incandescent phase-out.	<ul style="list-style-type: none"> <input type="checkbox"/> Consider whether a mixed-baseline or alternative compliant lamp represents a more accurate picture of the New Jersey baseline.
6I	Portfolio Design	93	Research and develop incentives for new and emerging energy-efficient technologies to help offset the loss of program savings from the Upstream Lighting Program.	<ul style="list-style-type: none"> <input type="checkbox"/> Leverage research from emerging technology programs nationally. <input type="checkbox"/> Consider using the custom component of SmartStart Buildings to scan for new measures.
7A	Cost Efficiency	96	Track and strive to improve the cost efficiency of the NJCEP portfolio.	<ul style="list-style-type: none"> <input type="checkbox"/> Use/refine a portfolio- or program-specific \$/kWh historical cost and set a target improvement (% reduction) for program years. <input type="checkbox"/> Track program \$/kWh through monthly reporting to ensure no under/overspend. <input type="checkbox"/> Consider efficiency improvement/cost reduction performance incentives for the implementation contractor. <input type="checkbox"/> Conduct BCA test on measure/project level at time of review and preapproval.

#	Section	Page	Recommendation	Action Items
7B	Cost Efficiency	98	Implement a single incentive-level development methodology across all programs.	<ul style="list-style-type: none"> <input type="checkbox"/> Base incentives upon percentage of cost or delivered energy savings. <input type="checkbox"/> Conduct an incremental cost study to be used for incentive level determination. <input type="checkbox"/> Make incentive level adjustments based upon new technology promotion, measures becoming standard practice, a throttle for program participation, etc.