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November 6, 2019

VIA ELECTRONIC MAIL (EnergyEfficiency@bpu.nj.gov)
AND HAND-DELIVERY

Honorable Aida Camacho-Welch, Secretary
New Jersey Board of Public Utilities
44 South Clinton Avenue, 9th Floor
Trenton, New Jersey 08625-0350

**Re: Clean Energy Act – Energy Efficiency Transition
BPU Docket No.: Undocketed Matter
Stakeholder Meeting – Program Structure
Comments of the Division of Rate Counsel**

Dear Secretary Camacho-Welch:

Enclosed for filing please find an original and ten copies of the comments of the New Jersey Division of Rate Counsel (“Rate Counsel”) submitted pursuant to the Board of Public Utilities’ Notice dated October 15, 2019 (“Notice”). In accordance with the Notice, an electronic copy will be emailed to EnergyEfficiency@bpu.nj.gov.

We have also enclosed one additional copy of the materials transmitted. **Please stamp and date the copy as “filed” and return to our courier.**

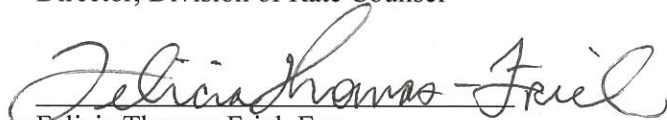
The Honorable Aida Camacho-Welch, Secretary
November 6, 2019
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Thank you for your consideration and attention to this matter.

Respectfully submitted,

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**Clean Energy Act
New Jersey Energy Efficiency Transition
Stakeholder Process
Energy Efficiency Stakeholder Meeting – Programs**

BPU Docket No.: Undocketed Matter

Comments of the Division of Rate Counsel

November 6, 2019

Introduction

As part of the process to implement the Clean Energy Act¹, the Staff (“Staff”) of the Board of Public Utilities (“Board”, “BPU”) convened a Stakeholder Meeting on October 30, 2019 and invited stakeholders to comment on energy efficiency (“EE”) programs in New Jersey. The within comments are being submitted by the New Jersey Division of Rate Counsel (“Rate Counsel”) pursuant to the Notice dated October 15, 2019 (“Notice”) in this matter and the meeting agenda (“Agenda”), which set forth five questions for comments:

Questions for Comments

1. Which New Jersey programs are considered the most successful? How do you define “success”?
2. What programs will achieve the most energy and/or cost savings?
3. How do we balance consistency and flexibility in program requirements and incentives if multiple entities are running the same program? How important is consistency versus flexibility?
4. What market barriers are prevalent in specific New Jersey programs?
5. How do we ensure equitable access?

In the following sections, Rate Counsel provides its responses to these questions.

¹ P.L. 2018, c. 16 (C.48:3-87.3-87.7) (“Clean Energy Act” or “CEA”).

Responses to the Five Questions

1. Which New Jersey programs are considered the most successful? How do you define “success”?

Success of New Jersey’s EE programs can be evaluated in various metrics. Among others, key performance metrics for evaluating successful programs include, but are not limited to, the following:

- Cost-effectiveness (e.g., net benefits, benefit-cost ratios);
- Cost of saved energy (e.g., cents per kWh, dollars per therm or Btu);
- Participation rates which could include participation rates for certain customer segments, such as low-income and small business customers.

According to the New Jersey Clean Energy Program (“CEP” or “NJCEP”) website, the most recent program cost-benefit evaluation report was conducted and published by Rutgers Center for Green Building in May 2019 (“May 2019 Cost-Benefit Study”).² However, the latest program year evaluated in this report was FY2017, which was from July 1, 2016 to June 31, 2017. Thus, while the results may not be directly applicable to the current programs, the May 2019 Cost-Benefit Study provides a high-level depiction of costs and benefits of the CEP programs.

The table below (TABLE 1) shows benefit-cost ratios based on the Total Resource Cost test from the May 2019 Cost-Benefit Study. The most successful programs - estimated to produce most benefits relative to costs using the Total Resource Cost test - are four commercial and industrial (“C&I”) programs: New Construction, Retrofit, Direct Install, and Pay for

² Rutgers Center for Green Building. 2019. “Cost-Benefit Analysis of the NJCEP Energy Efficiency Programs: FY2017 Retrospective and FY2019 Summary Reports.” Available at <https://www.njcleanenergy.com/files/file/BPU/FY17%20CBA%20Report%20Update%20Final.pdf>.

Performance–Existing Buildings. Residential programs are generally much less cost-effective than the C&I programs. Among the residential programs, Energy Star Products and New Construction programs show the highest benefit-cost ratios using this test, although they are only marginally cost-effective.

TABLE 1: Total Resource Cost Test Ratios for FY17

	Benefit-Cost Ratio
Residential Programs:	
Low Income	0.1
HVAC	0.6
Home Performance with ENERGY STAR (HPwES)	0.7
Energy Star Products	1.1
New Construction	1.0
C&I Programs:	
New Construction	2.6
Retrofit	4.9
Direct Install	2.5
Pay for Performance - Existing Building	2.5
Pay for Performance - New Construction	0.9
Large Energy Users Program	n/a

Rate Counsel also reviewed the CEP’s program performance data available on the CEP website. The latest performance data available from the CEP website are for FY2018 program preliminary data, provided in the CEP’s most recent monthly FY2018 report as of June 2018 (“June 2018 CEP Report”).³ However, the June 2018 CEP Report does not provide any of the

³ FY18 NJCEP Reporting, as of June 2018. Available at <https://www.njcleanenergy.com/files/file/Library/PTG%20June%202018%20-%20FY18%20v3.pdf>.

key metrics necessary to evaluate the success of the CEP programs. Rate Counsel recommends that the CEP include cost of saved energy and participation rates in its program reports.

2. What programs will achieve the most energy and/or cost savings?

Energy efficiency programs in New Jersey serve three basic customer sectors: residential, commercial, and industrial. Since the distribution of measures within each program can vary from year to year and savings potential data are not available by program, Rate Counsel reviewed savings and costs by end-use within each sector.

One way to estimate future savings is through potential studies, although many factors can cause actual savings to differ from these estimates. Program administrators may target certain market segments or technologies, new standards could go into effect, or fuel prices could fluctuate. Any of these could impact program success. Absent insight into those possibilities, potential studies are a reasonable starting point.

In 2019, Optimal Energy, Inc. (“Optimal”) conducted the “Energy Efficiency Potential in New Jersey” (“Optimal Potential Study”) on behalf of the New Jersey Board of Public Utilities.⁴ The Optimal Potential Study evaluated the maximum achievable potential for energy efficiency for electric and gas programs between 2020 and 2029. However, the Optimal Potential Study has some shortcomings, as addressed in comments submitted earlier by Rate Counsel.⁵ Therein, Rate Counsel expressed a concern about the use of the Societal Cost Test in the Optimal Potential Study and recommended the use of additional cost benefit analysis tests. While Rate Counsel still maintains its earlier concerns, the results in the Optimal Potential Study are useful

⁴ Optimal Energy, 2019. *Energy Efficiency Potential in New Jersey*. Draft prepared for the New Jersey Board of Public Utilities.

⁵ See Rate Counsel’s comments on the Optimal Potential Study, dated May 16, 2019.

to assess the relative amounts of energy savings potential among different end-uses. The Optimal Potential Study breaks down each fuel and sector by end-use potential, which are discussed by sector below.

End-uses that will achieve the greatest cost savings must have high penetration potential and low costs of saved energy (“COSE”). According to a 2018 Lawrence Berkeley National Laboratory (“LBNL”) study of ratepayer-funded programs, heating, cooling, and water heating measures have high a COSE. Products (including appliances, refrigeration, and plug loads) and behavior programs have a moderate COSE. Lighting has a low COSE.⁶

With the caveat regarding the Optimal Potential Report noted above, brief summaries of the energy savings potential for the Residential, Commercial, and Industrial sectors are presented below.

Residential Sector

TABLE 2: Residential Electric Potential Energy Savings (MWh)⁷

Electric (MWh)	
Water Heating	1,562,759
Cooling	627,198
Appliances	491,556
Space Heating	441,603
Refrigeration	315,385
Whole Building	299,087
Other	139,376
Plug Loads	139,027
Exterior Lighting	54,888
Interior Lighting	39,151

⁶ Lawrence Berkeley National Laboratory, 2018. The Cost of Saving Electricity Through Energy Efficiency Programs Funded by Utility Customers: 2009-2015. Page 65. Available at: <https://www.swenergy.org/Data/Sites/1/media/lbnl-cse-report-june-2018.pdf>.

⁷ Optimal Potential Study, Figure 7.

TABLE 3: Residential Gas Potential Energy Savings (BBtu)⁸

Gas (BBtu)	
Space Heating	12,349
Water Heating	7,393
Whole Building	1,552

For Residential electric programs, the Optimal Potential Study finds that the majority of savings opportunities are from water heating and cooling measures. Appliances, space heating, refrigeration, and whole building end-uses will contribute moderately to future savings. The Optimal Potential Study indicates that residential lighting opportunities will drop to just a small percentage of savings compared to historical program contributions. Residential gas programs, meanwhile, show that the most potential exists for space heating, followed by water heating and whole building end-uses.

The greatest residential electric cost savings will likely come from a combination of HVAC/water heating measures and products. HVAC/water heating measures will lead to portfolio savings but generally have a high COSE. The less expensive measures and products will provide higher cost savings per measure, even if they make up a smaller percentage of the portfolio total. In the case of gas, the vast majority of cost savings will be from space and water heating simply because those two end-uses make up nearly the entire market share.

⁸ Id., Figure 8.

Commercial Sector

TABLE 4: Commercial Electric Potential Energy Savings (MWh)⁹

Electric (MWh)	
Interior Lighting	3,331,361
Whole Building	2,958,230
Refrigeration	1,784,588
Ventilation	1,334,715
Cooling	1,113,212
Plug Loads	328,459
Space Heating	299,388
Other	290,366
Exterior Lighting	288,731
Cooking	157,528
Appliances	151,528
Water Heating	90,551

TABLE 5: Commercial Gas Potential Energy Savings (BBtu)¹⁰

Gas (BBtu)	
Space Heating	20,269
Whole Building	5,804
Cooking	2,661
Water Heating	1,930

In the Commercial electric sector, the Optimal Potential Study shows end-uses with the highest savings opportunities are interior lighting, whole building, and refrigeration, followed closely by ventilation and cooling. The Commercial gas sector follows a similar trend as the residential gas sector, with space heating accounting for approximately two thirds of savings opportunities. Results show whole building has the next largest savings potential, followed by cooking and water heating.

⁹ Optimal Potential Study, Figure 9.

¹⁰ *Id.*, Figure 10.

Further, in the Commercial sector, the majority of electric cost savings will likely come from interior lighting measures and products, due to the high penetration and low COSE for the end-use. Meanwhile, consistent with the Residential sector, gas cost savings will likely be driven by the dominant space heating end-use, as shown in Table 5.

Industrial Sector

TABLE 6: Industrial Electric Potential Energy Savings (MWh)¹¹

Electric (MWh)	
Interior Lighting	273,822
Motors and VFDs	131,804
Whole Building	72,203
Other	58,136
Drives	34,891
Compressed Air Systems	26,562
Cooling	7,117
Process Heating	6,271
Process Cooling and Refrigeration	6,107
Space Heating	4,760

TABLE 7: Industrial Gas Potential Energy Savings (BBtu)¹²

Gas (BBtu)	
Process Heating	3,002
Whole Building	1,102
Space Heating	741
Other	214
Process Cooling and Refrigeration	11

For the Industrial electric sector, the results show interior lighting accounts for the largest portion of the savings potential. The end-use with the next largest potential is motors and

¹¹ Id., Figure 11.

¹² Id., Figure 12.

variable frequency drives, followed by whole building, “other,” drives, and compressed air. Industrial gas heating end-use potential differs from the other two sectors, with process heating representing more than half of expected future savings. Whole building and space heating have the next largest potential for savings.

Similar to the commercial sector, the Industrial sector will likely see most of its electric cost saving from interior lighting and products. For gas, process heating and whole building typically fall under custom measures, as they vary from facility to facility. Accordingly, COSE varies. Nevertheless, these two end-uses account for over 75 percent of future savings, and they will likely provide the greatest cost savings.

3. How do we balance consistency and flexibility in program requirements and incentives if multiple entities are running the same program? How important is consistency versus flexibility?

First of all, New Jersey should not allow multiple entities to run the same program in the same service territory. For example, utilities should not offer incentives on top of existing CEP program incentives. Utilities should be encouraged to offer programs that are different from existing CEP programs. For instance, utilities can offer on-bill financing or unique programs that target specific market segments for which utilities can provide highly individual service—namely large commercial and industrial customers.

Where multiple entities are implementing the same or similar programs in different service territories, these programs should have consistency in a number of aspects to avoid or reduce confusion. Such consistency will facilitate smooth program transactions (e.g., rebate application and processing) by customers and contractors that have buildings in more than one utility service territory. Aspects that should be consistent include, but are not limited to, (a) marketing messages, (b) application format and process, (c) eligible energy efficiency measures,

(d) efficiency levels for similar measures or measure types, (e) incentive structures, (f) performance reporting formats, and (g) program related terminologies. Ideally, there should be a single point of contact for the same program across the State over different utility service territories.

As mentioned in Rate Counsel's comments regarding the Clean Energy Act – Energy Efficiency Transition, utilities in Massachusetts coordinate under the Mass Save collaborative. Mass Save enables customers to access efficiency from a single point of contact.¹³ While Mass Save is the face of efficiency in Massachusetts, the programs are still operated by the utilities in each service territory.

Lastly, Rate Counsel also notes that many of the areas in need of consistency apply across all programs rather than just to similar programs. For example, the following should be consistent for all programs whether they are similar to each other or not: application formats and process, measure efficiency levels, incentive structure, performance reporting formats, and program terminologies.

With the consistencies described above, program administrators would still have the flexibility to address specific needs and barriers in different geographic areas or market segments. For instance, for certain geographic areas with lower program participation rates or for harder-to-reach customer segments, utilities or the CEP could use a targeted marketing campaign or enhanced incentives to increase participation rates and energy savings. As another example, for a certain constrained distribution area, utilities could provide additional incentives to encourage targeted peak load reductions in order to alleviate the constraints and defer or avoid any future needs to expand the distribution system.

¹³ See Rate Counsel's comments, dated October 4, 2019.

4. What market barriers are prevalent in specific New Jersey programs?

Regulatory uncertainty poses a barrier to maintaining current participation levels, and also to scaling up programs. Selling and providing services, particularly those with a long time period from sale of efficiency services to project completion, is difficult when funding is interrupted recurrently (e.g. funding runs out in the middle of the program year). Energy efficiency programs are most successful when financial and regulatory support is sustained over time. Funding consistency will need to be addressed to meet the targets established in the Clean Energy Act.

Another notable barrier is the CEP's historically low marketing budget. This issue is generally applicable to all CEP programs. Rate Counsel has repeatedly raised its concern about the low level of marketing budget by the CEP, which is just about 1 percent of the total program budget while the industry average is between 3 to 5 percent.¹⁴ Rate Counsel notes that the 2016 ERS process evaluation also found the low level of marketing expenditures to be problematic.¹⁵

In addition to the level of the budget, the CEP's marketing activities appear to lack any targeted approaches. Community-based targeted marketing or customer-segment focused marketing can be used to promote increased program participation. These strategies are likely to be particularly helpful where customer acquisition costs are high.

Program delivery mechanisms also lack effective approaches to increasing adoption of efficiency HVAC measures by consumers when existing, old HVAC systems fail. Such customers need to have contractors install new systems as soon as possible. In such situations,

¹⁴ ERS 2016, "Review and Benchmarking of the New Jersey Clean Energy Program." Available at <http://www.njcleanenergy.com/files/file/Library/NJCEP%20Process%20Evaluation%20Final%20Report%20and%20Memo%2002152017.pdf>.

¹⁵ Id.

contractors can only offer products already stocked at local distributors, which typically might not stock high efficiency systems. By offering financial incentives to distributors to reduce the cost of qualifying products, the CEP can encourage them to stock higher efficiency systems so that these products would be readily available for consumers when old systems suddenly fail.

The recently launched Multi-Family program seeks to address the split incentive problem. This problem occurs when landlords have little incentive to invest in energy efficiency improvements to rental properties because tenants pay their own energy bills, and tenants have limited ability and muted incentives to make these improvements on their own. Rate Counsel is not aware of any updates on the new Multi-Family program's performance. Rate Counsel notes that the structure of the Multi-Family program is complicated. Thus, it is critical to provide timely updates on the performance to identify problems early.

Finally, the lack of access to low-cost financing is another market barrier to energy efficiency in New Jersey. To address lack of access to capital, some utilities (New Jersey Natural Gas, Elizabethtown Gas, and South Jersey Gas) offer financing services. However, those that offer financing do not necessarily provide on-bill financing. Where utilities currently offer on-bill financing, they should consider options for making this service more accessible to the low-income customer segment. Utilities that do not provide any form of financing should consider making such an offering, preferably via on-bill financing.

5. How do we ensure equitable access?

Accessibility and affordability are paramount to ensuring that all residents and businesses see benefits from achieving the targets set forth in the Clean Energy Act. The state must work to ensure energy efficiency is delivered equitably by identifying the market barriers faced by different participant groups and developing strategies to overcome those barriers. One segment

that has historically been underserved, in New Jersey as elsewhere, is the low-income population.

Comfort Partners provides critical energy efficiency and energy education services for income-qualified households in the state.¹⁶ Administered jointly by New Jersey’s electric and natural gas utilities, Comfort Partners works with the Weatherization Assistance Program (“WAP”) to cover a larger population than each program could cover on its own. However, these programs are not able to address the needs of all low-income customers in the State.

Income eligibility for Comfort Partners is up to 250 percent of the federal poverty level (“FPL”). The population at or below 250 percent of the poverty level, aligned with the Comfort Partners income eligibility requirements, is around 2.6 million people.¹⁷ Comfort Partners claims to have served over 114,000 families since it was launched in 2001.¹⁸ Assuming New Jersey’s current average of 2.74 persons per household,¹⁹ Comfort Partners has covered a population of more than 312,000 people *over the 19 years it has operated*. That is equivalent to only about 12 percent of the current population eligible for Comfort Partners, based on income eligibility requirements alone.

Income eligibility for WAP is up to 200 percent of the FPL. New Jersey’s population below 200 percent of the FPL - reflecting WAP’s more restrictive eligibility requirement - is over 2.1 million. This is roughly a quarter of the total statewide population of 8.7 million.²⁰

¹⁶ Rockland Electric Company does not participate in the Comfort Partners program.

¹⁷ O’Dea, Colleen. “Incomes Rose in NJ Last Year but Significant Number of Residents Remain in Poverty.” Sept. 13, 2018. <https://www.njspotlight.com/2018/09/18-09-12-incomes-rose-in-nj-last-year-but-significant-number-of-residents-live-in-poverty/>.

¹⁸ <https://www.njcleanenergy.com/residential/programs/comfort-partners/comfort-partners>.

¹⁹ See US Census data at <https://www.census.gov/quickfacts/NJ>.

²⁰ State of New Jersey Department of Community Affairs. U.S. Department of Energy Weatherization Assistance Program: New Jersey State Plan and Application. Available at: https://www.nj.gov/dca/divisions/dhcr/offices/docs/wap/2019_DOE_State_Plan.pdf.

WAP has weatherized a total of 42,441 housing units in the state since 2009.²¹ Assuming 2.74 persons per housing unit,²² WAP has covered roughly 116,000 people, or 5.5 percent, of the population at or below 200 percent of the FPL, over a 10-year period.

Importantly, a significant portion of the population that meets Comfort Partners income requirements is not eligible for other reasons. For instance, the customer may not be listed as a current electric or gas account holder. Another possible reason is that the home is in foreclosure or for sale, is not a primary residence, or is not individually metered. Based on a previous evaluation, the ineligible population is about 40 percent of those who meet the income requirements.²³ Nonetheless, there appears to be a large, unmet need.

The 2014 evaluation of Comfort Partners is five years old and should be updated. Comfort Partners' eligibility requirement for income in 2014 was up to 225 percent of the FPL, as opposed to the current requirement of a maximum income of 250 percent of the FPL. Nonetheless, Rate Counsel believes that some of the insights provided by the 2014 report could be helpful in improving access and reducing energy burdens of the state's low-income population. The following findings of the APPRISE Report are particularly pertinent here:

- Word of mouth has been the primary means of participants getting information about Comfort Partners.²⁴ This might indicate that more efforts should be put into marketing, but it also may mean that there are trust issues that impede participation in the program. Making partnerships with trusted local organizations to spread the word about the program could be helpful.

²¹ State of New Jersey Department of Community Affairs. "State Agencies Collaborate to Help Low-income Residents Save Money and Energy," Oct. 23, 2018. <https://www.nj.gov/dca/news/news/2018/approved/20181023.html>.

²² Rate Counsel assumes the number of persons per household as a proxy for the number of persons per housing unit. See US Census data at <https://www.census.gov/quickfacts/NJ>.

²³ According to the 2014 APPRISE evaluation of the Comfort Partners Program ("APPRISE Report"), roughly 62 percent of the income-eligible households had housing and energy bill characteristics that made them eligible for Comfort Partners. In 2014, Comfort Partners' income eligibility was up to 225 percent of the FPL, APPRISE Report, p. v.

²⁴ *Id.*, p. 85.

- A large portion—39 percent of households—do not speak English in the home. This suggests that providing marketing materials in multiple languages and engaging multi-lingual community organizations may help with increasing the program’s reach.²⁵
- A solid majority of households meeting the income requirement, over 60 percent, do not own their homes.²⁶ In order to serve renters, landlord permission must be obtained, and landlords may not have adequate motivation to make energy efficiency improvements in their properties. Approaches to address split incentive problems, such as targeted low-income multi-family programs, should be considered.
- Comfort Partner contractors provide up to two hours of education on energy use and bills.²⁷ Other program types could be helpful in educating and prompting behavior change in low-income communities. For example, community-based social marketing (“CBSM”) campaigns can influence a targeted behavior (e.g., energy consumption) through social and behavioral factors and achieve much greater participation and deeper savings than those achieved by programs that only use economic and attitudinal traits as motivation.

In addition to these points, Rate Counsel notes that low-income customers are much less likely to have capital to invest in efficiency than market rate customers. To address this barrier, more utilities can offer an on-bill financing service in which energy efficiency improvements are repaid through a customer’s energy bills. Where utilities currently offer on-bill financing, they should consider options for making this service more accessible to the low-income customer segment.

Besides low-income customers, there are other customer segments that are likely underserved (for example moderate-income customers, multi-family properties and renters, as noted above, and small commercial and industrial businesses). Without more information on who is participating in energy efficiency programs, or even up-to-date information on the numbers of participants in current programs, it is difficult to make conclusions about how well ratepayers as a whole are being served. To this end, the Office of Clean Energy should review,

²⁵ Id., p. 40.

²⁶ Id., p. 42.

²⁷ Id., p. iii.

monitor, and report on participation by low-income, moderate-income, multi-family, and small business customers periodically to increase transparency and reveal trends that can inform future programs. Rate Counsel recommends using a “dashboard” to increase transparency and reporting frequency, and to promote timelier course-correction if costs, participation, savings, or other important metrics are out of line with the state’s goals.

New Jersey should identify the existing barriers to participation in energy efficiency programs and develop cost-effective ways to address these barriers in program administration and design. Program administration and design should consider access to programs as well as cost-effectiveness. Energy efficiency programs should be delivered in a manner that does not render energy efficiency measures unaffordable for ratepayers and the overall cost of such programs should not unduly burden ratepayers.

As noted in previous comments, low- and moderate-income households have different energy needs and will require separate programs and goals to better serve each community. It is critical that low-income programs not be simply broadened to include moderate-income customers, as pressures to keep costs down may cause programs to favor moderate-income customers, who are likely to need lower incentives for the same amount of energy saved relative to low-income customers.