



**Energy Efficiency and  
Renewable Energy Program Plan  
Summary of Proposed Program Modifications for Fiscal Year 2017**

**(7/1/2016 through 6/30/2017)**

**May 31, 2016**



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# Summary of Proposed Changes for the FY17 NJCEP Programs

## Residential

The following summarizes the changes to the FY16 Residential energy efficiency programs that are proposed for FY17:

### Residential New Construction Program

During FY17, the Program Administrator Team will continue to work with raters and builders and implement changes that were approved late in FY16 to encourage raters and builders to become familiar with IECC 2015 code and support the adoption of the Energy Rating Index (ERI) compliance path within the code as well.

With the adoption of the IECC 2015 code the Program Administrator Team will need to develop new User Defined Reference Homes (UDRH), which are used to estimate savings for homes that receive permits under the new code and incorporate them in the NJ Protocols. These new UDRHs will be developed over the first two quarters of FY17.

In FY 2017, the Program intends to resume committing funds to non-publicly funded projects when all the enrollment requirements are met. Projects that were enrolled during the above mentioned period and did not receive a commitment will now be eligible to be granted a commitment based on their initial enrollment date provided they submitted a valid permit with the application.

In addition, the team will work in close collaboration with the U.S. Department of Energy (DOE) to identify the challenges of participating in the Zero Energy Ready Homes (ZERH). Understanding the challenges that builders face will allow the Team to develop program initiatives to increase participation in that segment of the program. Similarly, the team will engage with the U.S. Environmental Protection Agency (EPA) to support participation of Multifamily High Rise buildings and to streamline participation processes.

### Residential HVAC Program

The Program Administrator Team proposes modifications to existing eligible equipment rebates and technical standards to improve alignment with other Residential Programs. These recommendations include:

- Require Manual J load calculations for heating systems and require equipment be selected in accordance with ACCA Manual S for systems installed under the *WARMA* Advantage Program to harmonize installation standards with the *COOL* Advantage Program, NJNG SaveGreen, and Residential New Construction Programs, as well as Home Performance with ENERGY STAR®.
- Collect Permit Number or a copy of the Permit Application for all HVAC Program projects. This aligns the HVAC program requirement with the Home Performance with ENERGY STAR program. This was a request of the New Jersey ACCA group in their submitted comments in regards to FY16 changes to the Home Performance with ENERGY STAR as well as HVAC programs.

- Collect a copy of the AHRI certificate rating sheet for *WARM*Advantage projects. This is to align the submittal of supporting documentation with the *COOL*Advantage, Residential New Construction, and Home Performance with ENERGY STAR programs.
- Remove the Steam Boiler rebate. The minimum efficiency available in the market for oil boiler with steam heating is 82% and for natural gas is 81% which yields minimal savings compared to other eligible measures available through the program. Of the 161 natural gas fueled units listed on AHRI website, 85% of the listed units meet the 82% minimum requirement.
- Reduce the Domestic Hot Water rebates to align with the incremental cost of purchasing these more energy efficiency units (see Table 1).
- Reduce Combination (Heating System plus Domestic Hot Water) and Combi-boiler rebates to reflect the proposed reduced rebates for Domestic Hot Water (see Table 1).
- Increase the Mini-Split rebate to appropriately incentivize this equipment’s incremental cost and the savings benefits that it provides (See Table 1). There is a great market potential in New Jersey for the mini-split systems.

*Table 1: Incentive Adjustments*

<b>Equipment</b>	<b>Current Incentive</b>	<b>Proposed Incentives</b>
Steam Boiler	\$300	\$0 (incentive no longer available)
Domestic Hot Water - Power Vented - On-Demand	\$500	\$300
Combination		
Tier 1 Gas Furnace + Domestic Hot Water	\$900	\$700
Tier 2 Gas Furnace + Domestic Hot Water	\$1,000	\$950
Combi-Boiler	\$900	\$700
Mini-Split SEER 20	\$300	\$500

In addition, we will continue discussions with NJIT to develop trainings targeting not only trade allies but also homeowners who are potential customers for the program. During FY17, NJIT will develop an online HVAC Orientation training to introduce HPwES to that specific group of trade allies. This online training will be offered to all New Jersey HVAC contractors interested in growing their business beyond HVAC work. The online tool is being developed to reach a larger audience than could be reached through in-person trainings.

### **Energy Efficient Products Program**

The Program Administrator Team recommendations are aimed at two main areas of opportunity to boost savings associated with each dollar spent: 1) specific recommendations on equipment

categories and eligibility levels, and 2) new approaches to generating greater market penetration, driving demand, and increasing impact.

In the first category, qualifying products, the team has proposed modifications to existing equipment and eligibility levels to improve alignment with available technology and recently revised regional and national efficiency specifications. These recommendations include:

- Rely only on LEDs in the lighting program and eliminate incentives for CFLs;
- Provide an upper limit on LED incentives due to lower prices in the market— we propose an upper limit of \$5 per bulb and \$8 per fixture;
- Include “value” A-Line LEDs as an optional element in the lighting portfolio to replace the loss in CFL market share in the event that value LEDs become dominant in the retail market during FY17;

In the second category, increasing market penetration, the team has proposed new approaches to driving demand and generating impacts. These recommendations include:

- Implement a Residential Products Program (RPP) that offers midstream discounts on select appliances through national retailers such as Sears, Best Buy and Home Depot;
- Work with ARCA to expand the appliance recycling program to include room air conditioners and dehumidifiers;

## Proposed Adjustments to Incentives

### Lighting

- Setting an upper limit in markdown incentives will assure that the NJCEP incentives are aligned with incremental costs and no larger than required as the market shifts to higher performing LEDs with lower price points;
- The new ENERGY STAR specification V2.0 virtually eliminates the CFL as a viable measure for rebate programs. Retailers and manufacturers have also indicated they will no longer carry CFLs in the latter half of 2016 so the product will no longer be available to the NJ resident.

*Table 2: Proposed Incentive Matrix*

Product Type	Subtype	Maximum Per Bulb/Fixture Incentive
Value LED	Standard Omni A-Line	\$1.00
ENERGY STAR Standard LED	Standard Omni A-Line	\$3.00
ENERGY STAR Specialty LED	BR, Globe, PAR, R, Torpedo, Flame Tip, Other Decorative, 3-way	\$5.00
ENERGY STAR LED Fixture	LED Downlight	\$8.00

- We propose including “value” LED A-Line lamps as an optional program element given the emerging market of LEDs that do not comply with ENERGY STAR specification V2.0. The feature required by ENERGY STAR that value LEDs do not meet is the 15,000 hour expected lifetime. Developing LED products with shorter lifetimes that mirror the typical lifetimes of ENERGY STAR CFLs allows manufacturers to reduce costs for these products. Our intention is to prioritize support of ENERGY STAR Qualified LEDs— but the pace of lighting market changes can be so rapid that we feel it is essential to retain the option of rapidly adding value LEDs to the program if they become dominant in the lighting product mix of participating retailers. The team has developed a draft specification for value LEDs (see Table below) to assure that only value LEDs that can deliver high lighting and product quality would be included in the program. We propose offering an incentive of up to \$1.00 per bulb should these products be brought into the program. The table below summarizes the minimum requirements necessary to receive an incentive.

*Table 3: Integral Omnidirectional LED Lamp Minimum Requirements*

Attribute	ANSI Lamp Type	Lumen Output Range	Efficacy	Lifetime	Luminous Distribution	CCT	CRI	Color Maintenance	Power Factor	Warranty
Value(s)	A (per ANSI C78.20:2003)	800 - 1,999	70	L <sub>70</sub> = 10,000	80% of the luminous intensity measured values (candelas) shall vary by no more than 35% from the average of all measured values in the 0° to 130° zone. All measured values (candelas) in the 0° to 130° zone shall vary by no more than 60% from the average of all measured values in that zone.  No less than 5% of total flux (zonal lumens) shall be emitted in the 130° to 180° zone.	2700K, 3000K, 3500K, 4000/4100K, 5000K, & 6500K (within 6%)	≥ 80 & R <sub>9</sub> > 0	Total linear distance (+/-) 0.007 Duv on the CIE 1976 u'v' diagram.	0.5	3 Years
Documents Manufacturer to provide for verification	LM-79 Report	LM-79 Report	LM-79 Report	LM-80 Report & completed ENERGY STAR TM-21 Calculator	LM-79 Report & completed ENERGY STAR Luminous Intensity Calculator	LM-79 Report	LM-79 Report	LM-79 Report	LM-79 Report or ANSI C82.77-10-2014	Product packaging
Additional Documents Manufacturer to provide for verification				<a href="#">ENERGY STAR TM-21 Calculator</a>	<a href="#">ENERGY STAR Luminous Intensity Calculator</a>					

### Appliances, Advanced Power Strips, Recycling & Cable Set Top Boxes

- Work with national retailers such as Sears, Best Buy and Home Depot to launch the Retail Product Program and offer midstream rebates;
- Offer additional rebates for the removal and recycling of working room air conditioners and dehumidifiers;
- Remove Set Top Boxes from the portfolio while we develop a comprehensive strategy to work with cable providers, set top box manufacturers and EPA ENERGY STAR on a new program design;

Current and proposed incentive levels and proposed modifications are shown in the table below.

*Table 4: Proposed Incentive Adjustments*

<b>Product Type</b>	<b>Current Incentives</b>	<b>Proposed Incentives</b>
Lighting	<ul style="list-style-type: none"> <li>• \$0.50 Standard CFLs</li> <li>• \$4.00 Standard LEDs</li> <li>• \$7.00 Specialty LEDs</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of average incentives by ~25% in markdown promotions</li> <li>• Removal of CFL incentives</li> <li>• Option to include value A-Line LEDs</li> </ul>
Clothes Washer	<ul style="list-style-type: none"> <li>• \$50 for new ENERGY STAR V7.1</li> <li>• \$75 for CEE Tier 2</li> </ul>	<ul style="list-style-type: none"> <li>• No proposed rebate changes but overall program addition recommended through participation in RPP</li> </ul>
Refrigerator	<ul style="list-style-type: none"> <li>• \$50 for new ENERGY STAR V5.0</li> <li>• \$75 for CEE Tier 2</li> </ul>	<ul style="list-style-type: none"> <li>• No proposed rebate changes but overall program addition recommended through participation in RPP</li> </ul>
Clothes Dryer	<ul style="list-style-type: none"> <li>• \$100 for new ENERGY STAR V1.0</li> <li>• \$300 for ENERGY STAR Emerging Tech Award</li> </ul>	<ul style="list-style-type: none"> <li>• No proposed rebate changes but overall program addition recommended through participation in RPP</li> </ul>
Advanced Power Strips	<ul style="list-style-type: none"> <li>• \$15 for Tier 1</li> <li>• \$40 for Tier 2</li> </ul>	<ul style="list-style-type: none"> <li>• No proposed rebate changes</li> </ul>
Cable Set Top Boxes	<ul style="list-style-type: none"> <li>• \$100 for whole-home replacement of existing STBs with thin client technology</li> </ul>	<ul style="list-style-type: none"> <li>• Remove rebate from the program due to lack of participation from industry partners</li> </ul>
Recycling	<ul style="list-style-type: none"> <li>• \$50 customer rebate for recycling old refrigerators</li> </ul>	<ul style="list-style-type: none"> <li>• Add \$25 rebates for recycling old room air conditioners and dehumidifiers</li> </ul>

### Home Performance with ENERGY STAR Program

Given the changes that were implemented in FY16, the program does not recommend any changes to the incentive structure for FY17. The Program Administrator Team intends to work closely with trade allies to bridge the gap between the HVAC and HPwES Programs and, as described in the Residential HVAC Program section, align the technical standards between both programs. Therefore, in FY17, the Program will require that equipment selection be in accordance with ACCA Manual S procedures for all HPwES projects.

With the adoption of IECC 2015, the attic insulation level requirement will increase from R-38 to R-49.

Over the past few years, the program has developed an approach to incorporate small multifamily projects within the program. In FY17, the team will continue to work with

participating contractors to refine this approach and ensure that small multifamily building owners can be served until a stand-alone multifamily program is launched.

## Multifamily

Historically, the NJCEP has provided energy efficiency to multifamily projects through either the Home Performance with ENERGY STAR program, the RNC program, or through the appropriate C&I programs depending on the size and construction details of the multifamily housing in question and on the energy efficiency opportunities present. While this approach has resulted in energy efficiency improvements for many multifamily homes, it has not been a transparent approach to multifamily property owners and managers, with the result that there may be some multifamily property types that are falling through the cracks. In these cases, property managers are either unaware of the program opportunities available to them, or the programs are not well-suited to the opportunities that exist. In FY17 the team will develop a stand-alone multifamily energy efficiency program that addresses all of the many different types of multifamily housing that exist and are being built in New Jersey.

The specific approaches and incentives for this unified multifamily program approach will be determined based on the results of the baseline study to be conducted in FY17, a stakeholder process to gather input from multifamily market actors, and a review of industry best-practices for multifamily energy efficiency programs. Clearly, among the attributes of the consolidated multifamily program there must be a streamlined participation process that does not require potential participants to sort through a variety of program offerings to determine what is best-suited to their needs. Rather the program will go to market with an offering that focuses on understanding the customer's needs and matching them to the best-suited energy efficiency options, regardless of whether the project is individually-metered, master-metered, or a combination of both; whether it is served by residential or commercial rates; and whether it is served primarily by gas or electric energy.

## Commercial and Industrial

The following summarizes changes to the FY16 Commercial and Industrial energy efficiency programs that are proposed for FY17:

### Building Code Program Impacts

The State of New Jersey adopted a new energy code on September 21, 2015. The energy sub-code is ASHRAE 90.1-2013 ("new code") which represents a technology efficiency increase of 25% versus the former energy code (ASHRAE 90.1-2007, "old code") on average across all building types. Retail buildings and schools saw the greatest increase where ASHRAE 90.1-2013 is 35% more efficient than ASHRAE 90.1-2007. The new code carried a six month grace period, resulting in an effective date of March 21, 2016.

As a result of the new code, many of the program incentives, technology efficiency requirements and in some instances, program designs for the FY16 programs require modification.

### Extension Policies

Many programs include deadlines for submittal of information. For example, some programs



require the submittal of a final application within six months or one year from the date of the letter approving the initial application.

The NJCEP provides for extensions of deadlines provided certain conditions are met. Program managers are authorized to approve first extensions. Additional standards/guidelines for approving extensions are set out in the program descriptions that follow and in the Guidelines established for each program. The Program Administrator with the approval of Board Staff may grant up to two additional extensions, beyond the first extension.

The following summarizes the proposed changes to the FY17 Commercial and Industrial (C&I) energy efficiency programs:

### C&I New Construction and Retrofit (SmartStart)

The recommendations to the SmartStart New Construction and Retrofit programs reflect the institution of the new energy code (ASHRAE 90.1-2013) and continued evaluation of program requirements and incentives levels.

#### Prescriptive Lighting

- The incentives for LED screw-in/plug-in style lamps will be reduced from \$10 to \$5 per lamp for specific types (A15, A19, A21, BR30, BR40, R40, B13, BA10, F15, MRX16). All other LED screw-in/plug-in will maintain the current \$5/lamp incentive.

#### Performance Lighting

- The baseline qualification requirement for new construction and major gut-rehab lighting projects will change from 5% over ASHRAE 90.1-2007 to simply exceeding ASHRAE 90.1-2013— the magnitude by which the improvement must exceed ASHRAE 90.1-2013 will not be specified for FY17. Rather, this will be assessed as part of the FY18-21 Strategic Planning process. The existing incentive structure will be maintained; lesser of \$30 per eligible fixture or \$1/Watt over the LPD baseline per qualified area.

#### Electric Chillers

- Incentives for existing and new construction buildings have been separated to reflect the changes to the State energy code (ASHRAE 90.1-2013).
- The base incentive for water-cooled centrifugal chillers <150 tons will be increased from \$12 to \$24 per ton. The performance incentive for this same unit will be reduced from \$4.00 to \$2.75 per ton.

Table 5: Electric Chiller Proposed Incentives

Proposed FY17 Incentives									
Type	Capacity	Existing Building				New Construction			
		Constant Speed		Variable Speed		Constant Speed		Variable Speed	
		Base \$/ton	Perf \$/ton	Base \$/ton	Perf \$/ton	Base \$/ton	Perf \$/ton	Base \$/ton	Perf \$/ton
AC	tons < 150	\$20.00	\$3.50	\$90.00	\$4.00	\$10.00	\$3.50	\$45.00	\$4.00
AC	tons ≥ 150	\$20.00	\$2.75	\$92.00	\$4.00	\$10.00	\$2.75	\$46.00	\$4.00
WC positive disp	tons < 75	\$13.00	\$2.25	\$40.00	\$2.50	\$6.50	\$2.25	\$20.00	\$2.50
WC positive disp	75 < tons < 150	\$20.00	\$2.00	\$43.00	\$2.00	\$10.00	\$2.00	\$21.50	\$2.00
WC positive disp	150 < tons < 300	\$17.00	\$2.00	\$43.00	\$2.00	\$8.50	\$2.00	\$21.50	\$2.00
WC positive disp	300 ≤ tons < 600	\$15.00	\$2.25	\$37.00	\$2.00	\$7.50	\$2.25	\$18.50	\$2.00
WC positive disp	tons > 600	\$30.00	\$2.00	\$44.00	\$2.00	\$15.00	\$2.00	\$22.00	\$2.00
WC centrifugal	tons < 150	\$24.00	\$2.25	<b>\$24.00</b>	<b>\$2.75</b>	\$12.00	\$2.25	\$12.00	\$2.75
WC centrifugal	150 < tons < 300	\$10.00	\$2.00	\$30.00	\$2.50	\$5.00	\$2.00	\$15.00	\$2.50
WC centrifugal	300 ≤ tons < 400	\$8.00	\$2.00	\$20.00	\$2.00	\$4.00	\$2.00	\$10.00	\$2.00
WC centrifugal	400 < tons < 600	\$8.00	\$2.00	\$25.00	\$2.00	\$4.00	\$2.00	\$12.50	\$2.00
WC centrifugal	tons ≥ 600	\$8.00	\$2.00	\$25.00	\$2.00	\$4.00	\$2.00	\$12.50	\$2.00

Performance Incentives apply for each 0.1 EER above the Incentive Minimum EER or for each 0.01 kW/ton below the Incentive Minimum kW/ton.

### Unitary HVAC

The recommended program changes for the prescriptive HVAC application reflect the new State building code and intent to promote higher efficiency equipment through tiered incentives for many of the eligible equipment categories.

- The size categories match those identified by ASHRAE 90.1-2013.
- The Split Systems and Single Package Units categories are separated into their own respective categories.
- Package Terminal Systems were divided into Package Terminal Air Conditioning (PTAC) and Package Terminal Heat Pump (PTHP).
- Single Package Vertical Air Conditioners (SPVAC) and Single Package Vertical Heat Pumps (SPVHP) are new categories for FY17.
- The definition of Central DX Air Conditioning was changed from > 30 tons to > 20 tons.
- Proposed equipment must meet all efficiency requirements as stated in the tables below.
- A second tier higher efficiency requirement with an associated higher incentive was established for all equipment categories except for the Package Terminal equipment. For Unitary HVAC, Central DX AC and Air Source Heat Pumps in nearly every case the first tier incentive and efficiency requirements are the same as in the FY16 program. For those categories, the existing building and new construction incentives are also the same.
- For Packaged Terminal Systems the size categories were expanded considerably to allow consistency with how ASHRAE determines unit efficiency. The existing buildings and new construction incentives are all less than the FY16 incentives.
- For Package Terminal Systems and Single Package Vertical systems, the new construction incentives are all less than the existing building incentives.

Table 6: Unitary HVAC Proposed Incentives

SmartStart Equipment Type	Cooling Capacity tons	Incentive Tier	Existing Building and New Construction					Incentive \$/ton
			Minimum Qualifying Efficiency					
			SEER	HSPF	EER	IEER	COP	
Unitary HVAC Split System	< 5.4	1	14.0					\$92
Unitary HVAC Split System	< 5.4	2	16.0					\$105
Unitary HVAC Single Package	< 5.4	1	14.3					\$92
Unitary HVAC Single Package	< 5.4	2	16.0					\$103
Unitary HVAC Single Package or	≥ 5.4 and < 11.25	1			11.5	13.0		\$73
Unitary HVAC Single Package or	≥ 5.4 and < 11.25	2			12.5	14.0		\$79
Unitary HVAC Single Package or	≥ 11.25 and < 20	1			11.5	12.4		\$79
Unitary HVAC Single Package or	≥ 11.25 and < 20	2			12.0	14.0		\$89
Central DX AC	≥ 20 and < 63	1			10.5	11.6		\$79
Central DX AC	≥ 20 and < 63	2			11.0	12.5		\$85
Central DX AC	≥ 63	1			9.7	11.2		\$72
Central DX AC	≥ 63	2			10.0	12.0		\$77
Air Source HP Split System	< 5.4	1	14.3	8.4				\$92
Air Source HP Split System	< 5.4	2	15.5	8.5				\$100
Air Source HP Single Package	< 5.4	1	14.3	8.2				\$92
Air Source HP Single Package	< 5.4	2	15.5	8.5				\$100
Air Source HP Single Package or	≥ 5.4 and < 11.25	1			11.5	12.2	3.4	\$73
Air Source HP Single Package or	≥ 5.4 and < 11.25	2			12.1	12.8	3.5	\$77
Air Source HP Single Package or	≥ 11.25 and < 20	1			11.5	11.6	3.3	\$79
Air Source HP Single Package or	≥ 11.25 and < 20	2			11.7	15.0	3.3	\$82
Air Source HP Single Package or	≥ 20	1			9.5	10.5	3.2	\$79
Air Source HP Single Package or	≥ 20	2			9.7	12.0	3.2	\$82

Table 7: Unitary HVAC Proposed Incentives (continued)

SmartStart Equipment Type	Cooling Capacity Btu/hr	Incentive Tier	Existing Building			New Construction		
			Minimum Qualifying Efficiency		Incentive \$/ton	Minimum Qualifying Efficiency		Incentive \$/ton
			EER	COP		EER	COP	
PTAC	< 7,000	1	12.0		\$40	12.0		\$20
PTAC	≥ 7,000	1	12.0		\$40	12.0		\$20
PTAC	≥ 8,000	1	11.7		\$40	11.7		\$20
PTAC	≥ 9,000	1	11.4		\$40	11.4		\$20
PTAC	≥ 10,000	1	11.1		\$40	11.1		\$20
PTAC	≥ 11,000	1	10.8		\$40	10.8		\$20
PTAC	≥ 12,000	1	10.5		\$40	10.5		\$20
PTAC	≥ 13,000	1	10.2		\$40	10.2		\$20
PTAC	≥ 14,000	1	9.9		\$40	9.9		\$20
PTAC	≥ 15,000	1	9.6		\$40	9.6		\$20
PTHP	< 7,000	1	12.0	3.4	\$40	12.0	3.4	\$20
PTHP	≥ 7,000	1	12.0	3.4	\$40	12.0	3.4	\$20
PTHP	≥ 8,000	1	11.7	3.3	\$40	11.7	3.3	\$20
PTHP	≥ 9,000	1	11.4	3.3	\$40	11.4	3.3	\$20
PTHP	≥ 10,000	1	11.1	3.2	\$40	11.1	3.2	\$20
PTHP	≥ 11,000	1	10.8	3.2	\$40	10.8	3.2	\$20
PTHP	≥ 12,000	1	10.5	3.1	\$40	10.5	3.1	\$20
PTHP	≥ 13,000	1	10.2	3.1	\$40	10.2	3.1	\$20
PTHP	≥ 14,000	1	9.9	3.0	\$40	9.9	3.0	\$20
PTHP	≥ 15,000	1	9.6	3.0	\$40	9.6	3.0	\$20

Table 8: Unitary HVAC Proposed Incentives (continued)

SmartStart Equipment Type	Cooling Capacity tons	Incentive Tier	Existing Building			New Construction		
			Minimum Qualifying Efficiency		Incentive \$/ton	Minimum Qualifying Efficiency		Incentive \$/ton
			EER	COP		EER	COP	
Water Source Heat Pump	< 1.4	1	12.4	4.3	\$40	12.4	4.3	\$20
Water Source Heat Pump	< 1.4	2	14.0	4.8	\$45	14.0	4.8	\$23
Water Source Heat Pump	≥ 1.4 and < 5.4	1	13.3	4.3	\$60	13.3	4.3	\$30
Water Source Heat Pump	≥ 1.4 and < 5.4	2	15.0	4.5	\$68	15.0	4.5	\$34
Water Source Heat Pump	≥ 5.4 and < 11.25	1	13.3	4.3	\$80	13.3	4.3	\$40
Water Source Heat Pump	> 5.4 and < 11.25	2	15.0	4.5	\$90	15.0	4.5	\$45
SPVAC	< 5.4	1	10.2		\$45	10.2		\$10
SPVAC	< 5.4	2	10.7		\$47	10.7		\$12
SPVAC	≥ 5.4 and < 11.25	1	10.2		\$45	10.2		\$10
SPVAC	≥ 5.4 and < 11.25	2	10.7		\$47	10.7		\$12
SPVAC	≥ 11.25 and < 20	1	10.2		\$45	10.2		\$10
SPVAC	> 11.25 and < 20	2	10.7		\$47	10.7		\$12
SPVHP	< 5.4	1	10.2	3.1	\$45	10.2	3.1	\$10
SPVHP	< 5.4	2	10.7	3.2	\$47	10.7	3.2	\$12
SPVHP	≥ 5.4 and < 11.25	1	10.2	3.1	\$45	10.2	3.1	\$10
SPVHP	> 5.4 and < 11.25	2	10.7	3.2	\$47	10.7	3.2	\$12
SPVHP	≥ 11.25 and < 20	1	10.2	3.1	\$45	10.2	3.1	\$10
SPVHP	≥ 11.25 and < 20	2	10.7	3.2	\$47	10.7	3.2	\$12

Ground Source Heat Pumps

- The Ground and Ground Water Source Heat Pump equipment categories and incentives have been revised to reflect the changes to the C&I energy code. Overall incentives have been reduced from FY16.
- Equipment must meet both EER and COP efficiency requirements to qualify for incentives.

Table 9: Ground Source Heat Pump Proposed Incentives

SmartStart Equipment Type	Cooling Capacity tons	Incentive Tier	Existing Building			New Construction		
			Minimum Qualifying Efficiency		Incentive \$/ton	Minimum Qualifying Efficiency		Incentive \$/ton
			EER	COP		EER	COP	
Groundwater Source Heat Pump	< 11.25	1	18.4	3.7	\$80	18.4	3.7	\$40
Groundwater Source Heat Pump	< 11.25	2	22.0	3.9	\$96	22.0	3.9	\$48
Ground Source Heat Pump	< 11.25	1	14.4	3.2	\$80	14.4	3.2	\$40
Ground Source Heat Pump	< 11.25	2	18.0	3.6	\$100	18.0	3.6	\$50

Variable Frequency Drives (VFD)

- The proposed incentive structure is reformatted to aid customer use with some minor incentive revisions.
- For all VFD measure except air compressors, the maximum controlled threshold is 50HP. VFDs controlling more than 50HP, except related to air compressors, will be reviewed through the custom measure path.
- For new air compressors with VFDs, prescriptive incentives will be provided for units up to 200HP. VFDs controlling air compressor motors exceeding 200HP will be reviewed through the custom measure path.
- Centrifugal Fans on VAV Systems / Boiler Fans
  - 5 HP – 7.5 HP— slightly increased incentives on average
  - 10 HP – 15 HP— decreased incentives on average

- 20 HP – 50 HP— decreased incentives on average
- 60 HP and above have been moved to the custom SmartStart program
- Centrifugal Fans on CV Systems
  - 10 HP – 50 HP— slightly increased incentives on average
  - 60 HP and above have been moved to the custom SmartStart program
- Cooling Tower Fans
  - 10 HP – 50 HP— slightly increased incentives on average
  - 60 HP and above have been moved to the custom SmartStart program
- Chilled Water Pumps
  - 20 HP – 50 HP— slightly increased incentives on average
  - 60 HP and above have been moved to the custom SmartStart program
- Boiler Feed Water Pumps
  - 5 HP – 7.5 HP— slightly increased incentives on average
  - 10 HP – 15 HP— decreased incentives on average
  - 20 HP – 50 HP— decreased incentives on average
  - 60 HP and above have been moved to the custom SmartStart program
- Air Compressor Specific Changes
  - The standardized VFD incentive table decreases total incentive value for all eligible projects.
  - Greater than 200 HP have been moved to the custom SmartStart program
- Commercial Kitchen Hoods
  - The standardized VFD incentive table decreases total incentive value for all eligible projects.

*Table 10: Variable Frequency Drives Proposed Incentives*

<b>Motor Size (HP)</b>	<b>Proposed Incentive (\$)</b>
0.5	\$50
1	\$75
2	\$100
3	\$200
4	\$300
5	\$900
7.5	\$1,000
10	\$1,100
15	\$1,200
20	\$1,300
25	\$1,400
30	\$1,500
40	\$2,500
50	\$3,000

60	\$3,500
75	\$4,000
100	\$5,000
200	\$7,000

*Table 11: Eligible controlled horsepower with a single VFD, by types of usage*

VAV - Variable Air Volume HVAC System:	5 HP ≤ 50 HP
CV - Constant Volume HVAC System:	0.5 HP ≤ 50 HP
T - Cooling Tower:	10 HP ≤ 50 HP
P - Chilled Water Pump:	20 HP ≤ 50 HP
A - Air Compressor:	25 HP ≤ 200 HP
BP - Boiler Feed Water Pump:	5 HP ≤ 50 HP
BF - Boiler Fan Motor:	5 HP ≤ 50 HP
K- Kitchen Hood:	0.5 HP ≤ 50 HP

Notes, Table 10 and Table 11:

- Controlled HP is the cumulative motor HP controlled by each VFD.
- Controlled HP less than the listed eligible values are ineligible for incentives.
- Controlled HP more than the listed eligible values should use the SmartStart Custom program.
- If the controlled HP falls in between the HP listed on the VFD incentive table, the incentive is based on the lower controlled HP listed.

#### Gas Water Heating

- The table below represents the proposed efficiency and incentive structure for tank-style gas water heating equipment.
- The revised efficiency requirements for tank-style equipment are consistent with the new energy code (ASHRAE 90.1-2013) and AHRI input rating categories. The capacity and efficiency values must be documented by the manufacturer’s published ratings or a certificate from the AHRI Directory.

*Table 12: Gas Water Heating Proposed Incentives*

Capacity	Efficiency	Incentive \$ / MBh
≤ 75,000 Btu/h	≥ 0.67 EF	\$1.75
≤ 75,000 Btu/h	≥ 0.80 EF	\$3.50
> 75,000 Btu/h	≥ 82% Et	\$1.75
> 75,000 Btu/h	≥ 92% Et	\$3.50

## Custom Measures

- The current custom program requires that projects exceed efficiency ratings by at least 2%, per the ASHRAE 90.1-2007 code, as applicable. Due to the energy code change, ASHRAE 90.1-2013 will replace 90.1-2007 as the baseline. Existing building and new construction projects must demonstrate that the proposed measure(s) exceed ASHRAE 90.1-2013 or industry standards (CEE, EPA ENERGY STAR, Others) by at least 2% to be considered for program incentives.

## Local Government Energy Audit

The following proposed change will provide further detail regarding QA/QC of LGEA audits, which will be performed by TRC for FY17:

On an annual basis AEG will accompany each LGEA auditor on a site visit to a randomly selected LGEA applicant's facility to verify that the audit is conducted in accordance with proper protocols and to ensure the accuracy of TRC's audit in documenting the facility's detailed building survey. AEG will also regularly conduct technical reviews of full audit reports based on a pre-determined percentage, perform file reviews on a sampling of applications prior to incentive payments, and will review audit pricing for consistency and as compared to LGEA historical data.

## Direct Install Program

The Program Administrator Team is working with the BPU to resume implementation of this program. There are currently no proposed changes for this program in FY17

## Pay for Performance - Existing Buildings

There are currently no proposed changes for this program in FY17.

## Pay for Performance – New Construction

We propose to modify the Pay for Performance - New Construction (P4P NC) program design to set minimum performance targets over the new state code (i.e. ASHRAE 90.1-2013), simplify modeling requirements, reduce review time, emphasize actual achieved performance of buildings after construction, and align the program with other rating authorities such as LEED, ENERGY STAR, and ASHRAE Building Energy Quotient.

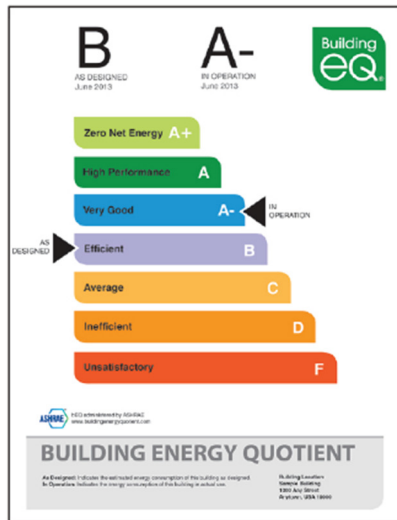
Partners will be required to develop and submit project deliverables as outlined below in order to secure incentives for participants. All Partners currently qualified for New Construction will have to attend a training webinar to understand the new program requirements.

## Modeling Requirements

Under the current program, a Partner must develop a baseline-compliant design following ASHRAE 90.1-2007 Appendix G and then model improvements to represent the proposed design. Under the new program, Partners may comply with modeling requirements by following either of the paths below:

- Path 1** - Under this path, the Partner will develop a single energy model representing the proposed project design using prescribed modeling assumptions that follow *ASHRAE Building Energy Quotient (bEQ) As-Designed*<sup>1</sup> simulation requirements. Proposed design simulation results, including Energy Use Intensity (EUI<sub>standard</sub>), will be measured against the median EUI for the building type (EUI<sub>median</sub>) to evaluate the Performance Score. Median value (score of 100) is set to the national median EUI from CBECS for that building type based on ASHRAE 100.

$$\text{Performance Score} = (\text{EUI}_{\text{standard}} / \text{EUI}_{\text{median}}) \times 100$$



Scale Range	Rating	Description
≤ 0	A+	Zero Net Energy
1-25	A	High Performance
26-55	A-	Very Efficient
56-85	B	Efficient
86-115	C	Average
116-145	D	Inefficient
>145	F	Unsatisfactory

- Path 2** - Under this option the Partner will model a baseline and proposed building using ASHRAE 90.1-2013 Appendix G *modified by Addendum BM*.

Addendum BM sets a common baseline building approach that will remain the same for ASHRAE 90.1-2013 and all future iterations of ASHRAE 90.1, and is roughly equivalent to ASHRAE 90.1-2004. To comply with ASHRAE 90.1-2013, a proposed building has to have energy cost savings of 11-40% from the Addendum BM baseline, depending on the building type and climate zone.

The Addendum BM modeling approach is technically similar to the current program offering and less challenging than the ASHRAE 90.1-2013 Appendix G approach *without* Addendum BM accepted. Furthermore, LEED New Construction will incorporate Addendum BM into its modeling requirements. Adopting Addendum BM as a program compliance path will simplify modeling rigor for Partners participating in both P4P and LEED, which is common. In addition, aligning with LEED will reduce program administration overhead due to opportunities for utilizing LEED templates as the basis for P4P submittals.

<sup>1</sup> <http://buildingenergyquotient.org/asdesigned.html>



When New Jersey adopts a future version of ASHRAE 90.1 as its energy code (e.g. 2016), an added benefit is that the program does not need to be redesigned. Instead, the minimum performance target to be eligible for incentives would be adjusted.

### Minimum Performance Target

The current program requires a minimum 15% energy cost savings from an ASHRAE 90.1-2007 compliant baseline. Under the new program the Minimum Performance Target is set to 5% for commercial and industrial buildings and 15% for multifamily buildings compared to ASHRAE 90.1-2013 baseline. This target has the following *equivalent* values for the compliance paths described above:

- **Path 1** - Proposed design will be required to meet a minimum score of 68<sup>2</sup>.
- **Path 2** – Proposed design will be required to meet specified Performance Cost Index (PCI)<sup>3</sup> value, which will vary depending on building type. For example, multifamily buildings will have to meet a minimum PCI of 0.74, which equates to a 15% improvement over ASHRAE 90.1-2013 and 26% over ASHRAE 90.1-2004 (BM baseline). Commercial office buildings will have to meet a minimum PCI of 0.71, which equates to a 5% improvement over ASHRAE 90.1-2013 and 29% over ASHRAE 90.1-2004 (BM baseline)<sup>4</sup>

### Measure Requirements

The current program requires at least two (2) unique measures where lighting/lighting controls cannot make up more than 50% of total energy cost savings. Under the new program each project, regardless of compliance path selected, must have at least one measure addressing *each* of the following building systems: envelope, heating, cooling, and lighting (e.g. increased insulation, improved HVAC efficiency, lighting power density below code requirements, etc.). Buildings that are not heated (e.g. refrigerated warehouse) or not cooled (e.g. warehouse) will not be required to have a measure addressing the missing building system. Measures are defined as components that exceed ASHRAE 90.1-2013 requirements.

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<sup>2</sup> Scores subject to change slightly due to anticipated updates to bEQ program by ASHRAE.

<sup>3</sup> Performance Cost Index: Addendum BM establishes a new formula to evaluate building performance called the Performance Cost Index (PCI). PCI is equivalent to 1 - Performance Rating. Under the current P4P NC program, a 15% energy cost savings from ASHRAE 90.1-2007 is equal to  $1 - .15 = 0.85$  PCI. A PCI of 1.0 is equal to baseline of ASHRAE 90.1-2004.

<sup>4</sup> PCI subject to change slightly to align with the final PNNL / LEED technical documents.

## Incentives

Table 13: P4P New Construction Proposed Incentive Structure

	Cost reduction over 90.1-2013 Baseline	Incentive by Building Type Per Square Foot	
Minimum Performance Requirement	15% Multifamily 5% All other	Industrial/High Energy Use Intensity	Commercial and Multifamily
Incentive 1 Proposed Energy Reduction Plan	+ 0 - 1.9% (Tier 1)	\$0.10	\$0.08
	+ 2 - 4.9% (Tier 2)	\$0.12	\$0.10
	+ 5% or greater (Tier 3)	\$0.14	\$0.12
	Max	\$50,000.00	
	Pre-Design Bonus	\$0.02	
	Max	\$10,000.00	
Incentive 2 As-Built Energy Reduction Plan and Cx Report	+ 0 - 1.9% (Tier 1)	\$1.00	\$0.80
	+ 2 - 4.9% (Tier 2)	\$1.20	\$1.00
	+ 5% or greater (Tier 3)	\$1.40	\$1.20
	Max	75% Measure Incremental Cost	
Incentive 3 Building Performance		\$0.40	\$0.35
	Max	25% Measure Incremental Cost	

- Incentive #1, Proposed Energy Reduction Plan (ERP): Will be paid per the table above upon successful submittal and approval of the Proposed ERP. Proposed ERP will follow the previously described modeling compliance paths, meeting minimum performance target and measure requirements.
- Incentive #1 Pre-Design Bonus: Projects that are in pre-design or schematic design may be eligible for a higher Incentive #1. The goal is to incentivize applicants to critically think about their building design from an energy efficiency standpoint early in the process where changes are easier to make, thereby supporting high-performance, cost-effective project outcomes. In order to qualify, Partner will need to work with the applicant beginning in pre-design and continuing throughout the design phases. They will perform a preliminary “simple box” energy modeling analysis before the completion of schematic design that explores how to reduce energy loads in the building and accomplish related sustainability goals by questioning default assumptions. They will then document how this analysis informed building design decisions relative to owner’s project requirements, basis of design, and eventual design of the project. This submittal shall be submitted after Application approval but prior to the Proposed Energy Reduction Plan. Although pre-construction inspections are not routinely performed in this program, the Program Administrator may inspect projects applying for this bonus.

- Incentive #2 As-Built ERP and Commissioning (Cx): Will encompass any design changes that occurred during construction. Minimum performance target must still be met. A Commissioning Report will be required at this stage to support installed equipment and ensure there are no major outstanding operational issues. Invoices for measures, or equivalent documents (e.g. AIA documents), will be collected to support measure costs, partner fees, and other eligible project costs. A post-inspection will be conducted by the Program Administrator to verify on-site equipment.
- Incentive #3 Building Performance: The purpose of this incentive is to assess the energy performance of the project building based on its first year of operation, and promote quality construction and energy efficient operation and maintenance practices resulting in low post-construction energy use. Projects may be eligible for this incentive if they can achieve a score of 75 or higher through ENERGY STAR Portfolio Manager and show proof of receiving ENERGY STAR Certification. Building types not eligible for ENERGY STAR Certification can qualify for this incentive by obtaining *ASHRAE Building Energy Quotient (bEQ) In-Operation* Certification and receive a score of 68 or less.
- Projects pursuing compliance Path 1 will be required to meet Performance Scores equivalent to the above cost reduction tiers as shown below:

*Table 14: Equivalent bEQ Targets*

bEQ Target Score*	Cost reduction over 90.1-2013 Baseline
68	15% Multifamily 5% All other
68-66	+ 0 - 1.9% (Tier 1)
65-63	+ 2 - 4.9% (Tier 2)
62 OR LESS	+ 5% or greater (Tier 3)

- Projects pursuing compliance Path 2 will be required to meet Performance Cost Index (PCI) value equivalent to the above cost reduction tiers, which will vary depending on building type as shown below:

Table 15: Equivalent PCI Targets

Maximum Performance Cost Index (PCI)				
Building Type	Baseline	Tier 1	Tier 2	Tier 3
	PCI	0-2%	2-5%	5%+
Multifamily	0.87	0.74	0.72	0.70
Healthcare/Hospital	0.74	0.70	0.69	0.66
Hotel/Motel	0.75	0.71	0.70	0.68
Office	0.74	0.71	0.69	0.67
Restaurant	0.78	0.74	0.72	0.70
Retail	0.64	0.61	0.60	0.58
School	0.63	0.60	0.59	0.57
Warehouse	0.68	0.65	0.64	0.61
All Others	0.71	0.68	0.66	0.64

- Incentives are capped per the table above. All other incentive caps remain unchanged.

#### Core and Shell vs. Tenant Fit-Out Considerations

The P4P NC program is unique in that the incentive is based on conditioned square footage. Although there is a minimum energy savings threshold, by design, the P4P NC program is meant to cover all energy efficiency measures within an assigned area/building(s). Therefore, P4P NC projects are required to evaluate the whole building design. Further, if a P4P NC Application is submitted to the program, that same building(s) cannot also submit applications to other programs. An exception to this rule may apply to eligible projects pursuing Core & Shell separate from Tenant fit-out improvements, which may fall into one of two scenarios:

- **Project Scenario 1: Core & Shell and Tenant Fit-out are combined:** In this scenario, all aspects of the design (whole building) must be included under a single P4P NC Application and treated as a single project. This may apply where:
  - Developer is funding and constructing both Core & Shell and Tenant fit-out.
  - High performance systems are specified and funded for the Tenant space separate from Core & Shell, **but** the building owner and tenant come to an agreement to include both scopes of work under a single project.

Projects under this scenario will follow all Program Guidelines as typical.

- **Project Scenario 2: Core & Shell Separate from Tenant Fit-out:** This scenario applies when the Core & Shell work is known but the tenant space development is unknown and/or is funded separately. Therefore, the Core & Shell is treated as a separate project from the Tenant fit-out.

For most cases, a building may apply for P4P NC for either Core & Shell or Tenant fit-out(s), not both. *The determining factor depends on which scope will include design and construction of the central HVAC system*, in which case:

- P4P NC incentives will apply to all conditioned square footage of the building serviced by the HVAC in the project’s scope of work.
- The project scope applying for P4P NC (e.g. Core & Shell OR Tenant Fit-out) must be able to meet all requirements for P4P NC (e.g. 15% energy cost savings) on its own.
- Any Tenant fit-out OR Core & Shell work not included in P4P NC, (and connected to a non-residential electric/gas account paying into the SBC), may seek incentives through the SmartStart Prescriptive or Custom Measure programs for eligible equipment.

### Modeling Considerations

For Core & Shell projects applying to P4P NC, tenant spaces shall NOT be excluded from the whole building model, but instead must be modeled as energy neutral. In addition, these spaces shall be modeled using set points and schedules that are typical of the space type. Core & Shell systems shall follow Program Guidelines for establishing baseline and proposed systems within the model.

For Tenant fit-outs applying to P4P NC, the envelope included in the Core & Shell scope shall be treated as an “unmodified existing condition” and must be modeled to match the Core & Shell design in both the baseline and proposed models, or ASHRAE stipulated values if details are unknown.

### Large Energy Users Program

There are currently no proposed changes for this program in FY17.

### Customer-Tailored Energy Efficiency Pilot

In FY17 the Program Administrator Team proposes to launch a pilot program to better serve the needs of specific commercial and industrial customers whose usage is too large for them to qualify for the Direct Install program, but too low for the Large Energy Users Program. There are likely significant energy efficiency opportunities at the facilities that these customers operate, and while the NJCEP clearly offers programs in which they can participate, the existing mix of available programs may not provide the tools that will allow these customers to maximize their efficiency.

To address this, the Commercial and Industrial Customer-Tailored Energy Efficiency Pilot Program (C&I CTEEP) will employ Account Management to engage targeted customers in the mid-large energy cost category. Rather than simply contacting these customers with program information, the Account Managers will establish regular communications with these customers to better understand the specific energy efficiency opportunities and barriers at play. The C&I CTEEP will use a custom approach to assisting customers in overcoming those barriers with the goal of obtaining commitments to proceed with projects based on a variable mix of technical assistance, financial analysis, design incentives, and measure incentives. Recognizing that both efficiency opportunities and the barriers to addressing them can vary dramatically from customer to customer, the Account Manager will work closely with decision makers at participating customer facilities to identify a range of energy efficiency projects that can be incorporated into capital planning, along with a package of support that will result in the desired efficiency

improvements being installed. Incentive caps will be consistent with caps for other C&I participants.

In addition to securing commitments for significant energy efficiency projects for customers who might not otherwise participate at the level envisioned, the C&I CTEEP will gather information about the unique needs of customers in the mid-large energy cost category to maximize program impacts and benefits. The information gathered through implementation of this pilot, along with data from the C&I baseline study to be conducted in FY17, will be a vital tool in the development of robust C&I program models in the FY18-21 strategic plan.

The Program Administrator Team will present pilot program details for Board consideration within the first quarter of FY17.

## Combined Heat and Power (CHP) and Fuel Cell (FC)

The following is a summary of Staff's recommended refinements to the Combined Heat and Power & Fuel Cell (CHP-FC) Program. The proposed program refinements would apply to projects that are submitted when the CHP-FC program starts accepting new applications in FY17.

### *New budget category*

Staff recommends a new, broader budget category, Distributed Energy Resources (DER), which would replace the existing CHP-FC budget category. The new DER budget category would include the CHP/Fuel Cell program, the Renewable Energy (RE) Storage program and, as discussed below, the Bio-power component of the Renewable Energy Incentive Program (REIP) will be folded into the FY17 CHP Program. This new DER budget category follows the recommendation to administer CHP/Fuel Cell, RE Storage and Bio-power projects through a single program making it easier to address some of the more common barriers, like interconnection, which impact these technologies.

#### *1. Incentivize biomass and biogas-fueled projects*

Current program requirements state that qualifying CHP systems must run on natural gas, hydrogen, or mixed fuel natural gas/biogas and that systems running on 100% biomass and/or biogas may be eligible for incentives under the bio-power component of the REIP. In the current program, it is not clear whether 100% biomass and biogas are included or precluded from participating in the CHP program. The bio-power component of the REIP is not currently open and accepting project applications and there are no immediate plans to reopen the program, so no incentives are currently available for biomass and biogas-fueled CHP systems. Staff recommends that fully-powered biomass or biogas-fueled projects, partially-powered biomass or biogas-fueled projects, and/or partially powered by natural gas or hydrogen which meet CHP program criteria be eligible to receive incentives as any other CHP system through the program.

#### *2. Suspend Incentives for Fuel Cells without Heat Recovery Pending Further Analysis*

Several concerns regarding the inclusion of fuel cells without heat recovery in the CHP program have been raised including:

1. Concerns raised by BPU Commissioners at recent agenda meetings regarding the costs and benefits of fuel cells without heat recovery;
2. The higher cost for the benefit of fuel cells without heat recovery compared to the lower cost for the benefit of other distributed generation technologies, including those with lower emissions, that are not currently supported; and
3. Issues raised in a recent report by California Public Utility Commission (CPUC) staff <http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M156/K013/156013203.PDF> regarding both the costs and benefits of fuel cells without heat recovery, as well as CO2 emission levels. CPUC staff recommended eliminating incentives for electric only fuel cells as part of California's Self Generation Incentive Program (SGIP).

Based on the above, Staff recommends that the Board suspend incentives for fuel cells without heat recovery pending further analysis. Staff recommends that an independent evaluation of the costs, emissions and benefits of various distributed generation technologies, including fuel cells without heat recovery, be performed. Once the evaluation is complete, Staff can utilize those findings to develop recommendations regarding incentive levels and performance standards, etc. for fuel cells without heat recovery, as well as the value of FCs and other forms of distributed generation in building resilience and present those findings to the Board.

**3. Lower incentive levels for fuel cells with heat recovery to CHP incentive levels**

The following table shows the current rebate levels for CHP and fuel cell projects:

**Table 16: Current Incentive Levels for CHP and Fuel Cells**

Eligible Technology	Size (Installed Rated Capacity)	Incentive (\$/Watt)	P4P Bonus (\$/Watt) (cap \$250,000)	% of Total Cost Cap per project	\$ Cap per project	
<b>Combined Heat &amp; Power</b>  Powered by non-renewable fuel source  Gas Internal Combustion Engine  Gas Combustion Turbine  Micro-turbine	≤500 kW	\$2.00	\$0.25	30-40%	\$2 million	
	>500 kW – 1 MW	\$1.00				
	>1 MW – 3 MW	\$0.55		30%	\$3 million	
	>3 MW	\$0.35				
<b>Fuel Cells</b>  Powered by non-renewable fuel source. Incentives available for systems both with and without waste heat recovery.	≤1 MW w/ waste heat	\$4.00		60%	\$2 million	
	≤1 MW	\$3.00				
	>1 MW w/ waste heat	\$2.00			45%	\$3 million
	>1 MW	\$1.50				

As shown in the table above, a fuel cell system with heat recovery is eligible for significantly higher incentives than a CHP system, i.e. a small fuel cell system with heat recovery is eligible for an incentive of \$4/watt versus \$2/watt for CHP. This was driven by the high cost of fuel cell systems compared to CHP systems, and a higher incentive to lower the market barriers to FC adoption. In the past two years, the NJCEP has seen a significant increase in FC applications, indicating that the market is maturing to the point where rebate levels for fuel cells with heat recovery can be reduced to be competitive with other CHP systems.

Staff recommends that incentives and project cap for fuel cells with heat recovery be lowered to the same levels currently available for CHP projects, changing the incentive structure to be technology neutral.

**4. CHP Project Cap and Adder**

The NJCEP has a cap of \$4 million in incentives per entity, per Fiscal Year which is increased to \$5 million if a project includes the installation of both “comprehensive energy efficiency scopes of work” and a CHP or Fuel Cell system at the same site. The “comprehensive EE” is a new requirement implemented in FY16. This adder often causes more confusion than benefit, as “comprehensive EE” is a debated topic without a clear definition. Staff recommends that the “EE adder” be eliminated and that the cap be set at \$4 million per year for all entities.

**5. Eliminate ‘bonus’ incentive for performing EE before sizing a CHP system**

Presently, applicants who install CHP after implementing a P4P project are eligible for a ‘bonus’ incentive of \$0.25/W, up to \$250,000, beyond the CHP incentive. As the applicant facility has already received incentives through the P4P program for implementing EE, Staff recommends that the ‘bonus’ incentive be eliminated. This will retain the funds for additional CHP projects.

The table below illustrates the proposed rebate levels, cost cap and incentive cap per project for all CHP and Fuel Cell with heat recovery projects:

**Table 17: Proposed Incentive for CHP and Fuel Cells with Heat Recovery**

Eligible Technology	Size (Installed Rated Capacity)	Incentive (\$/Watt)	% of Total Cost Cap per project	\$ Cap per project
<b>Combined Heat &amp; Power</b>  Powered by non-renewable or renewable fuel source  Gas Internal Combustion Engine  Gas Combustion Turbine  Microturbine  Fuel Cell with heat recovery	≤500 kW	\$2.00	30-40%	\$2 million
	>500 kW – 1 MW	\$1.00		
	>1 MW – 3 MW	\$0.55	30%	\$3 million
	>3 MW	\$0.35		



#### ***6. Shift the payment structure to more emphasis on performance***

Incentives are currently paid to successful applicants based upon the following three milestones: 30% after equipment is purchased; 60% when the equipment is installed; and 10% after receiving twelve months of operating data and verifying that system operation is meeting program requirements. Staff recommends that the payment schedule be restructured from 30/60/10 to 30/50/20, whereby 30% will still be paid after equipment is purchased; with 50% to be paid at equipment installation; and 20% will be paid after receiving 12 months of operating data within a 24 month period, and verification that the system has achieved its design efficiencies for 12 consecutive months. While this change will put more risk on the customer and/or vendor installing the system, it reinforces the program's required performance thresholds and the program's reliance on performance data in program evaluation.

#### ***7. Require cost data for island mode capability***

As Superstorm Sandy demonstrated, CHP can play a vital role in ensuring emergency response services are available and critical infrastructure remains operational during natural or man-made disasters. The requirements for a CHP system to deliver power reliably during a grid outage are straightforward, but there are often added costs to configure a CHP system to operate in island mode during utility grid outages. The collection of cost data will help Staff assess whether or not island mode capability should be a program requirement going forward. For these reasons, Staff recommends that all FY17 CHP project submissions provide separate cost numbers for systems with and without island mode capability, regardless of whether or not the system is built with the capability.

#### ***8. Cost-effectiveness screening***

Staff proposes that all CHP projects be required to pass a cost-effectiveness test to be eligible for incentives by demonstrating the simple payback is 10 years or less (including any federal tax credits and Program incentives). The proposed 10 year simple payback requirement aligns with the current Program rule that CHP systems have a minimum 10-year all-inclusive system warranty or service contract, and ensures that the Program will not incentivize projects where the simple payback is greater than the project measure life.

Staff also recommends the CHP Program run the TRC, PCT, PACT/UCT, SCT, and RIM tests annually, or more frequently if requested, at the program-level for program planning purposes.

#### ***9. Clarifying CHP and Waste Heat to Power Definitions***

The CHP-FC program has received several inquiries from developers and manufacturers regarding eligibility of potential system configurations. In an effort to provide consistency and transparency, the following definitions are proposed to more clearly define "Combined Heat and Power" and "Waste Heat to Power" for the purposes of the Program.

#### ***Proposed Definitions***

##### ***Combined Heat and Power (includes Fuel Cells with Heat Recovery)***

Combined Heat and Power (CHP), also known as cogeneration, is the sequential production of electricity and useful thermal energy from a single source fuel. Useful thermal energy means energy in the form of direct heat, steam, hot water, or other thermal form that is used for heating,

cooling, humidity control, process use, or other valid thermal end-use energy requirements, for which fuel or electricity would otherwise be consumed.

### ***Waste Heat to Power***

Waste heat to power (WHP) is the process of capturing waste heat discharged as a byproduct of a process and using that heat to generate power. In this configuration, a source fuel is first used to provide thermal energy to meet load requirements of a process or system (i.e. not deliberately creating excess thermal energy for the purpose of electricity generation). The byproduct of this process is heat that would otherwise be wasted to the atmosphere. The waste heat is then repurposed to produce electricity, as opposed to directly consuming additional fuel for this purpose.

### ***10. Reserving Funding for Cancelled Projects***

Currently there is no CHP-FC Program language defining how long the program should reserve funding for projects or applications which have been cancelled. Staff recommends that once a project has been cancelled, the project be removed from the queue and the funds that were reserved for that project be returned to the program budget. Per program rules, the applicant may appeal the project cancellation decision to the Board or submit a new application to the program (if the program is still accepting applications). However, the project will not be guaranteed funding or keep its original place in the project queue. Staff recommends that the Program Guidelines be modified to reflect this change.

## **Renewable Energy**

The solar SREC Registration Program will be split from the rest of the renewable program portfolio. The SRP will be managed and budgeted separately from the Biopower and Renewable Electric Storage programs which will be classified as Distributed Energy Resource (DER) Programs. Additionally, the Biopower Program will become a subset of the CHP Program and budget.

## **Renewable Electric Storage**

Rutgers University LESS is developing a quantifiable methodology to evaluate which electric storage projects should receive incentives. It is expected that Electric Storage Program will be modified in FY17 based on the results of this evaluation.

## **SREC Registration Program (SRP)**

On March 1, 2016 the program launched a new online portal designed to streamline the participation process and reduce administrative burdens on program staff. No additional program changes are planned for FY17.