



REQUEST FOR COMMENTS
Issued January 5, 2018

- **Proposed New Pilot Components of Home Performance with ENERGY STAR® (HPwES) Program**
- **Proposed Update of Commercial & Industrial (C&I) Standards to Conform to New Uniform Energy Factor (UEF) Standards**

PROPOSED PROGRAM REVISIONS

Proposed New Pilot Components of HPwES Program

TRC's FY18 Compliance Filing, approved by the Board in June of 2017, anticipated implementing two pilots to test concepts relevant to potential new program designs. Specifically, the FY18 Compliance Filing included the following language:

- If sufficient budgetary capacity remains later in the FY, the program may pilot a basic entry level for insulation contractors to perform air sealing and insulation measures with prescriptive incentives (mirrors current WARM/COOL Advantage programs but with a focus on envelope measures) to engage insulation and remodeling contractors and increase customer participation.
- If sufficient budgetary capacity remains later in the FY, the program may pilot a Direct Install (DI) component to the program (LEDs, water conservation measures) to capture additional savings, including for fuel saved because of water use reductions.

The intent of the proposed pilots is to generate and collect information that will guide the Board, its Staff, and TRC in designing new programs currently planned for FY19. The pilots would be assessed based on, among other things, a review of pilot program participation levels and energy savings, as well on the results of focus groups and homeowner surveys conducted by TRC and/or its Program Managers. Some of the questions the pilots are designed to address are:

- Would the prescriptive air sealing and insulation measures attract additional contractors to participate in and promote the Program?
- Would the prescriptive air sealing and insulation measures lead to greater levels of customer participation?
- Would the prescriptive air sealing and insulation measures serve as a "gateway" for some customers to participate in a more comprehensive HPwES project in the future?
- Would the prescriptive air sealing and insulation measures and/or the DI component increase savings per program dollar spent and/or overall program cost-effectiveness?

- By how much would the implementation of the DI component increase the program’s electricity savings?

TRC and Board Staff believe the proposed pilots would provide information that could potentially lead to program changes that could increase savings at a lower overall cost per unit of savings, a prime objective of NJCEP.

Details of the proposed pilot components, including measures and incentives, are set forth in **Attachment A** to this Request for Comments.

Because the proposed pilots include new incentives and some new measures, the pilots will be presented to the Board for consideration, and Board Staff is seeking public and stakeholder input before so presenting them.

Proposed Update of C&I Standards to Conform to New UEF Standards

The C&I Programs’ water heater application requirements have long been denominated in terms of Energy Factor (EF) and/or Thermal Efficiency (TE or Et). However, in December 2016, USDOE adopted a final rule requiring the use of a new Uniform Energy Factor (UEF) denomination for certain water heaters. 81 FR 96204 (December 29, 2016)(the UEF Rule). Through December 29, 2017, manufacturers, rating agencies, and other stakeholders can simply use a mathematical formula to convert EF/TE to UEF, which formula is designed so that the standards denominated in UEF are equivalent in stringency to those denominated in ET/TE. However, after December 29, 2017, stakeholders will be required to use a new testing procedure to determine actual UEF. In light of this, the NJCEP Residential Programs in FY18 began using criteria that allowed water heaters covered by the UEF Rule to meet either the old EF/TE-denominated or the new UEF-denominated standards.

Some applications to the SmartStart and other NJCEP C&I Programs can and do include eligibility for the “Consumer” and the “Residential-duty commercial” water heaters covered by the UEF Rule. At present, the NJCEP C&I standards that provide a direct numerical standard are expressed only in the old EF/TE-denominated standards, but some other C&I standards are expressed by reference to other codes and standards, which, at present, are expressed in either or both the old EF/TE-denominated standards and/or the new UEF-denominated standards.

As previously mentioned, the mathematically-derived UEFs were established by USDOE such that energy use based on a UEF will be comparable to energy use based on EF. Therefore, switching to UEF values is not expected to impact incentive levels until at least after December 29, 2017 when the new UEF testing procedures go into use. (For the avoidance of doubt, the present proposal does not propose to directly change any incentives.) At present, it is difficult to predict the effect of the new testing procedures, but that effect is likely to begin to be measurable by mid-2018. Although USDOE seems to contemplate that stakeholders will be using only the new test-based UEFs after December 29, 2017, we think it likely that during early 2018 some applicants installing what is currently eligible equipment will be unable to obtain and/or produce certificates that include the new UEF standards

Accordingly, Board Staff intends to seek Board approval of the following:

1. The TRC Compliance Filing and implementing program documents would be updated to adjust water heater sizing and minimum efficiency requirements for gas water heaters to include the essentially mathematically derived UEF standards for gas water heaters, as well as the current EF/TE standards, all as set forth in the “Recommended SmartStart Requirements” column in **Table 1** of this Request for Comments. As shown in the table, the UEF equivalent efficiencies align with Residential program requirements wherever there are identical or nearly identical requirements in both the C&I and Residential programs, while also taking into consideration all the other influencing references, including USDOE, ASHRAE 90.1-2013, ENERGY STAR, and AHRI.

2. All C&I efficiency standards for other water heater types (e.g., electric storage/instantaneous), would be aligned with the current USDOE Tables for Consumer water heaters and Residential-duty commercial water heaters and with ASHRAE 90.1-2013 for non-Consumer and non-Residential-duty water heaters, not with the standards identified in Table 1 in this Request for Comments.

Because the above would revise the TRC Compliance Filing, it would be presented to the Board for consideration, and Board Staff is seeking public and stakeholder input before so presenting them.

PROCESS FOR SUBMITTING COMMENTS

Board Staff is requesting comments on the above proposals prior to presenting its recommendations to the Board for consideration. Comments should be submitted to publiccomments@njcleanenergy.com by 5 pm on January 17, 2018 under the subject heading “Request for Comments regarding HPwES Pilots and UEF Standards”.

TABLE 1

Gas Water Heater Efficiency Requirements Comparison and Recommendations

U.S. DOE Definitions			ASHRAE 90.1-2013	DOE	ENERGY STAR	Current WARM Advantage Requirements	Current SmartStart Requirements ¹	Recommended SmartStart Requirements
Gas-fired, Storage	≤ 75,000 Btu/h (consumer)	≤ 55 gal	0.675–0.0015V EF	Based on storage vol and draw (see Table II.1 above)	0.67 EF / 0.64 UEF (med draw) 0.68 UEF (high draw)	0.67 EF / 0.64 UEF	0.67 EF (Tier 1) 0.87 EF (Tier 2)	0.67 EF / 0.64 UEF (T1) 0.87 EF / 0.81 UEF (T2)
		> 55 gal	0.8012 – 0.00078V EF		0.77 EF / 0.78 UEF (med draw), 0.80 UEF (high draw)	90% Et / 0.85 UEF		
	>75,000 Btu/h and ≤ 105,000 Btu/h (residential duty commercial)	80% Et	Based on draw (see Table II.2 above)	90% Et / 0.80 UEF	90% Et / 0.85 UEF	82% Et (Tier 1) 92% Et (Tier 2)	82% Et / 0.64 UEF (T1) 90% Et ² / 0.85 UEF (T2)	
	>105,000 Btu/h (commercial)	80% Et	80% Et	94% Et or 0.93 EF			82% Et (T1) 92% Et (T2) No change	
Gas-fired, instant (tankless)	< 200,000 Btu/h (consumer)	0.82 – 0.0019V EF	0.81 UEF	0.90 EF / 0.87 UEF	0.82 EF / 0.79 UEF	90% Et or > 0.82 EF	90% Et or 0.82 EF / 0.81 UEF	
	≥ 200,000 Btu/h (commercial)	80% Et	80% Et	94% Et or 0.93 EF			90% Et No change	

T = Smart Start Tier.

V = rated volume in gallons.

1. See FY18 Gas Water Heating Application, p.3.

2. Includes adjustment from 92% Et to 90% Et to more closely align with the ENERGY STAR and the WARMADVANTAGE programs. Note also that the commercial list on AHRI only has two (2) gas water heaters that are 90 Et, the rest are 92 and higher.

ATTACHMENT A

AIR SEALING AND INSULATION PILOT DETAILS

Currently, air sealing and insulation are eligible measures as part of the whole house comprehensive HPwES Program. The main difference with this pilot is that projects will be handled through a prescriptive, rather than whole house comprehensive, path. Measures will receive flat incentives consisting of the lesser of:

1. 50% of total project cost; or
2. \$500 for each of (a) air sealing and (b) installing any type of insulation.

For example, a home owner who installed \$1,200 of air sealing and \$1,400 of insulation, would receive an incentive of \$1,000 (the lesser of $2 \times \$500 = \$1,000$ vs $.5 \times 2,600 = \$1,300$).

To avoid the possibility of health and safety issues that can be associated especially with air sealing, these prescriptive incentives would only be available to those whose homes do not use atmospheric draft combustion appliances. In addition, the incentives will be available only to homes that at the time of application or project completion, whichever is later, have an ENERGY STAR bathroom or inline exhaust fan to ensure the home meets minimum ventilation requirements in accordance with the ASHRAE 62.2-2016 standard for existing homes.

The following eligibility requirements must also be satisfied:

Air Sealing:

1. At least 500 square feet of attic space must be
 - a. Accessible to the installer of the air sealing;
 - b. Contain open framing cavities;
 - c. Without any flooring.
2. The air sealing crew will follow a required checklist designed to address all likely significant pathways of attic air leakage.

Insulation:

1. The installation of at least 500 square feet of insulation that meets the following:
 - a. Floors over vented crawlspaces and/or framed walls:
 - i. Must be uninsulated prior to the incentivized project; and
 - ii. Any new wall insulation must be dense packed; and
 - iii. Any new floor insulation must be at least 6-inches thick.
 - b. Insulated attic areas:
 - i. Insulation prior to the incentivized project shall be less than the lesser of (a) 7-inches, or (b) below the top of the framing at the floor of the attic; and
 - ii. New insulation must be at least 6-inches thick; and

- iii. Must be air sealed in compliance with the above-described checklist at or prior to installation of the insulation.
- c. Uninsulated Attic areas:
 - i. At least R-49 of new insulation must be installed at the floor of the attic as prescribed by code; and
 - ii. Must be air sealed in compliance with the above-described checklist at or prior to installation of the insulation.

Contractors need not be BPI-certified to be eligible to participate in this pilot; instead, any contractor holding a New Jersey Home Improvement Contractor registration may participate in this pilot. But note that the foregoing is not intended to affect the impact of any other law that may require a contractor to hold a license or other credential to perform work related to this pilot.

RESIDENTIAL DI PILOT DETAILS

NJCEP's Commercial and Industrial (C&I) Program currently includes a DI Program. Through the subject Residential DI pilot, certain energy efficiency measures would also be made available to residential consumers on a DI basis, as described below.

The incentive would be \$50 paid to the installation contractor, and the energy efficiency measures would be provided and installed at no cost to the consumer.

The measures to be installed would consist of at least nine (9) items selected by the contractor and/or consumer from a published list of eligible measures (e.g., LEDs, low-flow faucet aerators and showerheads labeled with USEPA's WaterSense), and the contractor would be free to procure the equipment for the measures from whomever and whatever price it chooses.

To participate, a contractor would need to be one of the HPwES program's accredited and certified contractors, which requires that, among other things, the contractor be BPI Building Analyst-certified.