



October 11, 2012

Pennsylvania Public Utility Commission
Attention: Secretary
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Docket No. M-2012-2313373
Act 129 Energy Efficiency and Conservation Program
2013 TRM ANNUAL UPDATE TENTATIVE ORDER

Dear Secretary Chiavetta:

Enclosed for filing please find comments of the National Housing Trust and the Pennsylvania Housing Finance Agency in the matter referenced above. Thank you for providing the opportunity to comment.

Sincerely,

A handwritten signature in black ink that reads "Michael Bodaken".

Michael Bodaken
President, National Housing Trust

A handwritten signature in black ink that reads "David L. Evans".

David L. Evans
Assistant Executive Director
of Multifamily Housing
PHFA

The National Housing Trust (“NHT”) and the Pennsylvania Housing Finance Agency (“PHFA”) respectfully submit the following comments regarding Docket Number M-2012-2313373 to the Pennsylvania Public Utility Commission (“Commission”).

We write to request that the Commission clarify the deemed savings for air sealing and insulation in multifamily housing. While the Technical Reference Manual (“TRM”) includes measures of resource savings for residential homes and non-residential commercial buildings, it is unclear whether program administrators are permitted to use these estimates to measure the savings from air sealing and insulation improvements in *multifamily buildings*.

In particular the proposed TRM raises the following questions:

- Can the measure of energy savings from ceiling/attic and wall insulation improvements identified by the TRM for residential homes be used to measure savings in residential units in multifamily (5 or more units) buildings? The TRM as written does not explicitly state that the measure can be applied to multifamily residential homes.
- Can the measure of energy savings from wall and ceiling insulation improvements identified by the TRM for commercial buildings be used to measure energy savings in common areas in multifamily buildings? The TRM as written states that the measure savings in commercial buildings applies *only to non-residential buildings* heated and/or cooled using electricity.¹
- Can the measure of energy savings from wall and ceiling insulation improvements identified by the TRM for commercial buildings be used to measure the energy savings in master-metered multifamily buildings with commercial customer accounts? Again, the TRM as written states that the measure savings in commercial buildings applies *only to non-residential buildings* heated and/or cooled using electricity.

We applaud the Commission for its statement that multifamily rental housing be given special emphasis in electric distribution companies’ (“EDC”) energy efficiency and conservation programs (“EE&C Program”).² The TRM correctly states that “wall and ceiling insulation is one of the most important aspects of the energy system of a building”.³ This is certainly true for multifamily buildings. It is common practice to include energy savings measures for air sealing improvements in multifamily housing (Please see the attached excerpt from Mass Save’s TRM as an example.) We therefore request that the Commission clarify the above questions so that the EDCs are clear about how to measure energy savings from wall and ceiling insulation improvements in multifamily residential units and common areas.

¹ See page 247 of the “Technical Reference Manual June 2013 (DRAFT)”

² See page 49 of the Implementation Order

³ See page 247 of the “Technical Reference Manual June 2013 (DRAFT)”

Multifamily – Air Sealing

Version Date and Revision History

Draft Date: 10/22/2010
Effective Date: 1/1/2011
End Date: TBD

Measure Overview

Description: Thermal shell air leaks are sealed through strategic use and location of air-tight materials.

Primary Energy Impact: Electric

Secondary Energy Impact: None

Non-Energy Impact: Low Income Only: Annual Discounted Rate Cost Reduction

Sector: Residential, Low Income

Market: Retrofit

End Use: HVAC

Program: Multi-Family Retrofit, Low-Income MultiFamily Retrofit

Notes

The savings algorithms and assumptions described in this section are specific to National Grid's Multi-Family Retrofit and Low-Income MultiFamily Retrofit programs. See the section *MultiFamily – Vendor Measures* for information about other PAs' Multi-Family programs.

Algorithms for Calculating Primary Energy Impact

Unit savings are calculated using the following algorithms and assumptions:

$$\Delta kWh = Stories \times SQFT \times (CFM / SQFT_{PRE} - CFM / SQFT_{POST}) \times \Delta kWh / CFM$$

$$\Delta kW = \Delta kWh \times kW / kWh$$

Where:

Stories = Total stories in the multi-family building

SQFT = Total SQFT of building

CFM/SQFT_{PRE} = Estimate of pre-retrofit air leakage in CFM/SQFT based on number of stories in the building and air-tightness ratings of the existing roof and floor.

CFM/SQFT_{POST} = Estimate of post-retrofit air leakage in CFM/SQFT based on number of stories in the building and air-tightness ratings of the improved roof and floor.

$\Delta kWh/CFM$ = Average annual kWh reduction per CFM: 2.48633 kWh/CFM²⁹³

kW/kWh = Average kW reduction per kWh reduction: 0.000125 kW/kWh²⁹⁴

²⁹³ National Grid's Multifamily Screening Tool. This was developed in the early 1990's. Documentation of the specific variables is unavailable. Evaluation results have consistently shown realization rates close to 100%.

²⁹⁴ Estimated using demand allocation methodology described in: Quantec, LLC (2000). *Impact Evaluation: Single-Family EnergyWise Program*. Prepared for National Grid.

Baseline Efficiency

The baseline efficiency case is a facility that has not received comprehensive air-sealing treatment.

High Efficiency

The high efficiency case is a facility with thermal shell air leaks that are sealed, leading to a reduction in air leakage

Hours

Not applicable.

Measure Life

The measure life is 15 years.²⁹⁵

Secondary Energy Impacts

There are no secondary energy impacts for this measure.

Non-Energy Benefits

Benefit Type	Description	Savings	Notes
Annual Non-Resource	Annual Discounted Rate Cost Reduction ²⁹⁶	\$(R1-R2)/kWh	Low Income

Impact Factors for Calculating Adjusted Gross Savings

Measure Name	Program	PA	ISR	SPF	RR _E	RR _{SP}	RR _{WP}	CF _{SP}	CF _{WP}
Air Sealing (Electric Heat)	MF Retrofit, LI MF Retrofit	National Grid	1.00	1.00	0.91	0.91	0.91	0.03	1.00
Air Sealing (Non-Electric Heat)	MF Retrofit, LI MF Retrofit	National Grid	1.00	1.00	0.99	0.99	0.99	0.03	1.00

In-Service Rates

All installations have 100% in service rate since all PA programs include verification of equipment installations.

Savings Persistence Factor

All PAs use 100% savings persistence factor.

Realization Rates

Realization rates are from the National Grid Energy Wise 2008 Program Evaluation.²⁹⁷

Coincidence Factors

Summer and winter coincidence factors are estimated using demand allocation methodology described National Grid 2000 EnergyWise impact evaluation.²⁹⁸

²⁹⁵ GDS Associates, Inc. (2007). *Measure Life Report: Residential and Commercial/Industrial Lighting and HVAC Measures*. Prepared for The New England State Program Working Group.

²⁹⁶ Oppenheim, Jerry (2000). *Memo - Low Income DSM Program non-energy benefits*.

²⁹⁷ Cadmus Group (2010). *EnergyWise 2008 Program Evaluation*. Prepared for National Grid.