STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of Albany on October 14, 2010

COMMISSIONERS PRESENT:

Garry A. Brown, Chairman
Patricia L. Acampora
Maureen F. Harris
Robert E. Curry, Jr.
James L. Larocca

CASE 07-M-0548 – Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard.

ORDER APPROVING CONSOLIDATION AND REVISION OF TECHNICAL MANUALS

(Issued and Effective October 18, 2010)

BY THE COMMISSION:

INTRODUCTION

In this order, the Commission approves the "New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs – Residential, Multi-Family and Commercial/Industrial Measures" dated October 15, 2010 (the consolidated manual). This technical manual represents an update and consolidation of a series of five technical manuals approved by the Commission between December 2008 and December 2009, covering a variety of measures applicable to the single family, multifamily and commercial/industrial sectors. The Commission-approved technical manuals are designed to provide a standardized, fair and transparent approach for measuring program energy savings.

BACKGROUND

On June 23, 2008, the Commission created an Energy Efficiency Portfolio Standard (EEPS) program for New York State to develop and encourage cost-effective energy efficiency programs.[1] The Commission initially invited the New York State Energy Research and Development Authority (NYSERDA) and the six large investor-owned electric utilities to submit electric energy efficiency program proposals. Subsequently, the Commission invited NYSERDA and natural gas utilities with 14,000 or more customers to submit natural gas energy efficiency program proposals. In the orders that approved specific EEPS programs the Commission also approved technical manuals that were designed to provide a standardized, fair and transparent approach for measuring program energy savings. The previously approved manuals are as follows:

- New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs in Single Family Residential Measures - December 16, 2009
- New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs in Commercial and Industrial Programs - September 1, 2009
- New York Standard Approach for Estimating Energy Savings from Energy Efficiency Measures in Multifamily Programs - July 9, 2009
- New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs (Gas)- March 25, 2009
- New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs (Electric) December 28, 2008

[1] Case 07-M-0548, Energy Efficiency Portfolio Standard (EEPS), Order Establishing Energy Efficiency Portfolio Standard and Approving Programs (issued June 23, 2008).

In response to concern expressed by several EEPS program administrators that they had not had ample time to review and comment on those technical manuals before they were approved, the Commission requested that Staff and the Evaluation Advisory Group (EAG) conduct a detailed review of the manuals to ensure that they are up to date, accurate and complete. Recommendations resulting from this effort were to be submitted to the Director of the Office of Energy Efficiency and Environment for consideration and potential referral to the Commission for action.

PROCESS AND DELIBERATIONS OF EAG TECHNICAL MANUAL SUBCOMMITTEE

In accordance with the Commission's request that the technical manuals be reviewed, the EAG established a subcommittee to work on this critical assignment. The subcommittee included technical experts representing all of the major program administrators. Staff enlisted the help of TecMarket Works, its outside consultant, to guide the review and revisions of the technical manuals.[2]

Over a period of months, and during twelve meetings, the EAG subcommittee scrutinized the technical manuals. The major measures and issues included within the technical manuals that were reviewed included:

- Gas furnaces and boilers;
- Lighting;
- HVAC;
- Building types;
- Refrigerators;
- Water heating;
- Shell and other miscellaneous;

[2] TecMarket Works had developed the initial drafts of the earlier technical manuals.

- Custom measures; and
- Early replacement assumptions.

The subcommittee ultimately submitted to the EAG an extensive list of proposed additions and refinements to the technical manuals including: enhanced data tables and weather station data; new data tables to clarify specific calculations; updated formulas and formulas for additional measures; and refined protocols for reviewing custom measures. Moreover, efforts were made to improve the ability to evaluate measures by lining up the parameters in the engineering equations to values that can be measured in the field through the evaluation process. At the EAG's May 4, 2010 meeting, the EAG agreed that the recommended revisions were ready to be released for public comment. Because the previous technical manuals had been developed over time on a sector-by-sector basis, energy savings calculations for some measures appeared in more than one technical manual. The EAG agreed that the current five technical manuals should be consolidated and streamlined into one technical manual to both eliminate redundant information and make them easier to use. A document dated May 11, 2010 was prepared entitled "Technical Manual Proposed Recommendations" that was a compilation of the output of the EAG process.

NOTICE OF PROPOSED RULEMAKING

A Notice of Proposed Rulemaking concerning modifications to the technical manuals associated with the EEPS program was published in the State Register on May 26, 2010 [SAPA 07-M-0548SP22]. The minimum period for the receipt of public comments pursuant to the State Administrative Procedure Act (SAPA) regarding that notice expired on July 12, 2010.

SUMMARY OF COMMENTS

Comments in response to the SAPA have been received from New York State Electric & Gas Corporation/Rochester Gas and Electric Corporation (NYSEG/RG&E), Central Hudson Gas & Electric Corporation (Central Hudson), Niagara Mohawk Power Corporation d/b/a National Grid (National Grid), Consolidated Edison Company of New York, Inc./Orange and Rockland Utilities, Inc. (Con Edison/O&R), NYSERDA, Conservation Services Group (CSG), and Rise Engineering (Rise). With the exception of NYSEG/RG&E, which submitted a brief letter in strong support of immediate and consistent use of the technical manuals, the other commenters take issue with some of the proposed technical changes and refinements. There are also questions pertaining to how and when updates to the technical manuals would be applied. For example, would program administrators be required to restate energy savings estimates retroactively in accordance with the revised manual?

Numerous comments have been received regarding the approach the technical manuals used to determine energy savings in the case of early replacement of existing equipment, claiming it is based on inappropriate simplifying assumptions and would significantly reduce the ability of measures to pass the required benefit cost criteria (i.e., the Total Resource Cost "TRC" test). These comments are particularly focused on the impact on commercial lighting measures, refrigerators and motors.

NYSERDA opines that in some cases it is unreasonable to assume that for all equipment designated for replacement, the only option is to replace the unit with new energy code-compliant equipment, even when the predicted end-of-service life is reached. Rather, it states a range of other options often exists including repair, rebuilding and replacing with used

equipment. In addition to its technical comments NYSERDA expressed concerns with the process used to solicit comments on the proposed manual changes.

Attached as Appendix 1 is a chart listing the 169 issues that were identified in comments and indicating how they are addressed by this order. The majority of the comments were related to technical refinements and adding measures. Most of those issues have been resolved. A few major outstanding issues, and how they will be resolved, are discussed below. For further clarification attached as Appendix 2 is a brief description of the deviations made from the proposals set forth in the earlier "Technical Manual Proposed Recommendations" document.

APPLICABILITY OF REVISED ENERGY SAVINGS METHODOLOGIES

While Con Edison/O&R and Central Hudson support the ongoing refinement of the technical manuals, they urge that changes in the methods for measuring savings apply only to future EEPS programs. They further believe that any changes adopted now should not be applied retroactively. The companies note that their approved programs and savings estimates were based on criteria that were in place when the programs were designed. Central Hudson points out that its “Fast Track” programs were designed and submitted before any technical manual existed. New standards applied retroactively may put in jeopardy the ability to meet targets developed and approved under previously-adopted assumptions. Central Hudson asks that either measure energy savings levels in effect at the time of program approval should be retained for measuring program energy savings, or targets should be adjusted to match the new measure savings levels as calculated according to the final Technical Manual.

Discussion

In a few cases where the same measures appeared in more than one of the previously approved technical manuals (e.g., residential CFLs, refrigerators) the estimation approach was updated in the latter technical manual to increase accuracy or simplify the calculations. In such cases, the program administrators were to use the most recently approved version of the technical manual when reporting energy savings. The scope and breadth of those past changes were relatively minor technical refinements impacting only a small number of measures.

Many program administrators are rightfully concerned about the potential for restatement of previously achieved energy and demand savings when, as in the case of the proposed revised and consolidated technical manual before us, more significant changes in approach are to be implemented. At the same time, there is a real need for savings estimates to be as accurate as possible for tracking progress toward the 15 by 15 goal.

We believe that it is of utmost importance to track savings as accurately as possible in order to understand actual progress toward the 15 by 15 goal and to enable the New York Independent System Operator (NYISO) and others to plan for future electric load levels. We therefore will require program administrators to use the revised technical manual for estimating savings for measures approved on or after January 1, 2011. In other words, every project contract or incentive awarded on or after January 1, 2011 will be based on energy savings estimates calculated using the revised technical manual. We will not, however, require that energy savings contracted or procured prior to that date be recalculated and restated using the revised technical manual.

We note that SAPA notice 07-M-0548SP27 published in the State Register on September 8, 2010 seeks comment on this issue and the minimum comment period for that notice runs until October 25, 2010. We will therefore reserve further action until those comments can be considered.

EARLY REPLACEMENT ISSUES

Many commenters have objected to rules, currently included in two technical manuals,[3] for calculating savings when equipment is subject to early replacement before reaching its effective-useful-life.[4] In those technical manuals, a standard early replacement dual baseline method was described but, in order to avoid complications associated with conducting separate calculations for each baseline, program administrators were offered two options for reporting savings on early replacement measures. Program administrators were allowed to either (a) treat the measure as a normal (end-of-life) replacement where the measure-life is equal to the effective-useful-life for the particular measure or (b) treat the measure as an early replacement, using the existing equipment as the baseline but only allowing a measure-life equal to the remaining-useful-life, which is defined as 1/3 of the effective-useful-life. The measure cost was to be calculated as the full cost of the measure.

The commenters argued that the basis for the remaining-useful-life determination in Option (b) was arbitrary and that ignoring savings for the second 2/3 of the effective-

[3] New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs in Single Family Residential Measures, December 16, 2009; New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs in Commercial and Industrial Programs, September 1, 2009.

[4] "Effective useful life": an estimate of the median number of years that equipment remains in place and operable.

useful-life while simultaneously requiring the use of full replacement cost in benefit/cost testing may unduly depress TRC ratios to the extent that certain measures would no longer be considered cost effective. Many of the objecting commenters suggested changing the 1/3 factor to 2/3, even though that would be equally arbitrary.

Discussion

We agree that the existing approach is problematic and are directing Staff to develop a new approach, based on the dual baseline approach, which provides consistency between the treatment of savings and costs. The Director of the Office of Energy Efficiency and Environment is directed to compile and provide simplifying lookup tables, which provide early replacement method energy savings consistent with the dual baseline concept as an attachment to the consolidated technical manual prior to its effective date of January 1, 2011. We also direct Staff to develop a consistent cost estimation approach which reflects the concept that the cost of making a high efficiency early replacement will avoid an end-of-useful-life replacement with minimally code compliant equipment.

Further, all discussion of cost and effective-useful-life values will be removed from the technical manual so it can focus on energy savings issues. We will consider addressing the prescribed effective-useful-life values in a later order on TRC analysis. Until such an order is issued, program administrators are allowed to continue to use effective-useful-life values which were in the technical manuals in effect immediately prior to this order, with the exception of the effective-useful-life value for refrigerators, as discussed below.

REFRIGRATOR REPLACEMENTS

Several parties, including Con Edison/O&R, NYSERDA, National Grid, and Rise, object to the proposed treatment of refrigerator energy savings. Their general view is that the proposed new treatment of refrigerators, particularly the early replacement language, would make it unduly difficult to find cost-effective refrigerator replacement opportunities, crippling the multi-family programs. In addition, there is some confusion about the effective-useful-life values in the multifamily technical manual,[5] the proposed changes, and the ramifications for cost-effectiveness calculation.

Discussion

NYSERDA expresses concerns pertaining to the early replacement of refrigerators, which relate to the method included in the currently effective September and December 2009 technical manuals but not to the current revisions proposed by the EAG. Most of those provisions would be revised under the provisions of the proposed technical manual, with the exception of the use of full replacement costs as the resource cost for TRC calculation. The calculation of the resource cost will be resolved as described in the previous discussion of early replacement issues. The Con Edison/O&R comments mistakenly refer to the effective-useful-life for refrigerators in the July 2009 multi-family technical manual as 10 years; in fact the effective-useful-life was set at 12 years. The effective-useful-life of refrigerators will now be established at 17 years. For refrigerators and other measures, estimates of effective-useful-life will no longer be included in the

[5] New York Standard Approach for Estimating Energy Savings from Energy Efficiency Measures in Multifamily Programs, July 9, 2009.

technical manual but will be addressed in the future.[6] The increase of the effective-useful-life from 12 years to 17 years will improve the resource benefits for early and normal replacements in multifamily programs. The 17 years also replaces the 20 years in the December 2009 single-family technical manual.

NYSERDA's CONCERNS REGARDING REPLACE vs. REPAIR DECISIONS

NYSERDA is concerned that in some cases it is unreasonable to assume that when the predicted end-of-service life is reached the only option is to replace equipment with new energy code-compliant equipment. Rather, it states a range of other options often exists including repair, rebuilding and replacing with used equipment.

Discussion

It is reasonable that there are situations where, especially in the case of high cost equipment replacements, customers believe it is in their interest to keep an old piece of equipment operating through repair, rebuilding or replacement with used equipment. In any of these cases, the result is the continued use of equipment that is less efficient than minimally code compliant equipment or other higher efficiency equipment generally installed in the absence of a specific code requirement.

At issue are the first year energy savings levels that should be claimed in such instances and the level of incentives that can be paid based on the projected total energy savings

[6] The 17 years' EUL is based on the Preliminary Support Document: Energy Efficiency Program for Consumer Products: Refrigerators, Refrigerator-Freezers and Freezers, U.S. Department of Energy, November 2009. It also coincides with the time since new Federal standards were put into effect in 1993.

resulting from high efficiency replacements. Both issues are tied to the prediction of what action would be taken in the absence of the program. It is not always clear what action would be taken, so a "one size fits all" approach will not always work.

In accord with national practices, past technical manuals have recognized two types of replacement scenarios, that is: (a) early replacement; and (b) normal/end of life replacement. In this order we establish a third category of "special circumstance" replacements. Special circumstance replacements relate only to commercial and industrial machinery and multifamily central systems, but not to lighting equipment.[7] We will consider addressing criteria for being considered a special circumstance replacement, and TRC issues related to such replacements, in a later order on TRC analysis.

Special circumstance replacements would typically address equipment operated by customers which are influenced by initial costs more than by life cycle economics, customers lacking capital, customers with split incentives (such as landlord cost for tenant benefit), customers with short time horizons, and other factors which tend to prevent long range economic decision-making with regard to the installation of high efficiency equipment.

While the detailed criteria will be developed with input from Staff, the program administrators and the EAG for resolution in the future, the general outline of criteria regarding the equipment in place to be determined onsite will be:

[7] Lighting concerns in the comments are to be handled in different ways – such as the pre-qualification procedure described in a prior order. Case 07-M-0548, supra, Order Approving Three New Energy Efficiency Portfolio Standard (EEPS) Programs and Enhancing Funding and Making Other Modifications for Other EEPS Programs (issued June 24, 2010).

- Equipment age significantly exceeds its effective-useful-life;
- Energy consumption significantly exceeds that of current high efficiency models;
- There is a history of significant repair or replacement with used equipment; and
- The prospective next repair or replacement is likely to initially be much less expensive than replacement with new higher efficiency machinery.

Equipment fitting these criteria would be subject to a form of dual baseline TRC screening which will reflect the concept that the equipment, while past its effective-useful-life, would likely operate for several additional years, and will allow energy savings for that period to be calculated against the in-place equipment. Under this approach, first year savings would be reported as the difference between the existing equipment's electric usage and that of the high efficiency equipment which replaces it.

Staff, in consultation with the EAG, will propose the key elements and structure for the dual baseline screening approach as they pertain to savings and costs.

COMMENTS OUTSIDE OF THE INTENDED SCOPE

In some cases comments were offered that were beyond the scope of this proceeding. For example, CSG offered a discussion of what it described as serious shortcomings in the exclusive use of the Total Resource Cost Test (TRC) as a key economic test for determining the cost-effectiveness of energy efficiency programs. CSG maintains that additional factors should be considered as benefits of energy efficiency programs including job creation, safety and consumer comfort. Con Edison recommended that changes to the useful life and energy savings assumptions not be considered until the impact evaluations required by the Commission are completed.

Discussion

The appropriateness of TRC analysis for the EEPS programs has been reviewed in the context of prior orders and will not be further reviewed as part of this technical manual review. Moreover, the various strategies for calculating benefit cost ratios are not addressed in the Technical Manuals and the issue is not, therefore one which we will address here.

Waiting for impact evaluations to be completed would unreasonably delay completion of the technical manuals given our desire that they be updated and be as accurate as possible because, in most cases, results from impact evaluations will not be available for a year or more. Con Edison, for example, has not yet submitted its formal impact evaluation plans for Staff review.

ADEQUACY OF NOTIFICATION

Although NYSERDA had access to the documents, NYSERDA cautions that two documents (Technical Manual Roadmap and Technical Manual Update Recommendations) of interest to the parties were not referenced by name in the published SAPA notice.

Discussion

Due to space limitations in the State Register, the published SAPA notice contains only a description and cannot contain every relevant document. The description given adequately covers the topics that are the subject of this order. The EAG members including NYSERDA had the documents referenced by NYSERDA, they were generally available, and could have been obtained from the Agency Contact given in the notice by anyone seeking further information as invited in the notice.

STREAMLINING THE MANUAL UPDATE PROCESS

To facilitate timely updates of the Technical Manual, we will permit minor technical changes to be approved by the Director of the Office of Energy Efficiency and Environment. These minor modifications will be limited to updating data and calculations to reflect changes to factors such as energy codes and standards, product specifications, and evaluation results.

SEQRA FINDINGS

Pursuant to our responsibilities under the State Environmental Quality Review Act (SEQRA), in conjunction with this order we find that programs approved here are within the overall action previously examined by us in Case 07-M-0548 and will not result in any different environmental impact than that previously examined. In addition, the SEQRA findings of the June 23, 2008 Order in Case 07-M-0548 are incorporated herein by reference and we certify that: (1) the requirements of SEQRA, as implemented by 6 NYCRR part 617, have been met; and (2) consistent with social, economic, and other essential considerations from among the reasonable alternatives available, the action being undertaken is one that avoids or minimizes adverse environmental impacts to the maximum extent practicable.

CONCLUSION

For the reasons given in the discussion above, the Commission accepts the Technical Manual Proposed Recommendations with deviations as noted, and approves the “New York Standard Approach for Estimating Energy Savings – Residential, Multi-Family and Commercial/Industrial Measures” dated October 15, 2010. This technical manual should be used to estimate energy saving effective January 1, 2011.

The Commission orders:

1. The document entitled "New York Standard Approach for Estimating Energy Savings – Residential, Multi-Family and Commercial/Industrial Measures" dated October 15, 2010, is approved to be effective on January 1, 2011. A copy of the manual is available for download on the Internet at the following link: http://www.dps.state.ny.us/Phase2_Case_07-M-0548.htm. The Director of the Office of Energy Efficiency and the Environment is directed to provide simplifying lookup tables, which provide early replacement method energy savings consistent with the dual baseline concept as an attachment to the consolidated technical manual prior to its effective date of January 1, 2011.

2. The Energy Efficiency Portfolio Standard (EEPS) programs will be administered in accordance with the revised and consolidated technical manual, the required attachment, any future minor technical revisions made as provided for in this order, and in accordance with the discussion contained in the body of this order.

3. This proceeding is continued.

By the Commission,

Jaclyn A. Brilling

Digitally Signed by Secretary
New York Public Service Commission

JACLYN A. BRILLING
Secretary

Comments Received and Action Taken

No.	Party	Measure/Issue	Comment	ACTION		
				Addressed in Order	None	Incorporated
1	National Grid	Lighting	ER/RUL method will render Commercial lighting not cost effective. Recommend EUL of 13	X		
2	National Grid	Vintages	Vintage inconsistency between Commercial 1970s and Res/MF 1980s manuals			X
3	National Grid	Vintages	SF/MF gap between 1960 and 1979			X
4	National Grid	Building types	Add an "Other" building type that represents weighted average of the other building types			X
5	National Grid	Building types	Default when building type not available			X
6	National Grid	Faucet aerators	Add faucet aerators to SF and Commercial			X
7	National Grid	Showerheads	Add showerheads to SF and Commercial			X
8	National Grid	Commercial setback thermostat	Add eq revision similar to SF and MF manuals			X
9	National Grid	Commercial setback thermostat	Provide default equipment size			X
10	National Grid	SF and MF HVAC	Provide new EFLH for cooling and heating. Memo only addresses heating			X
11	National Grid	Commercial lighting	Specific lamp watts vs. standard lamp watts for DI programs			X
12	National Grid	Commercial lighting	Add lamps to lighting table			X
13	National Grid	Commercial lighting	F51GHL (1) 60in fixture listed twice with different values. Use 89			X
14	National Grid	Commercial lighting	add HVAC interactions for grocery buildings			X
15	National Grid	Commercial interior lighting controls	Define s subscript for DSFs			X
16	National Grid	Refrigerator LEDs	LED EUL too low, Recommend 70000/annual op hrs or 15 (whichever is less)	X		
17	National Grid	Refrigerator LEDs	Insert "Proposed Changes" header		X	
18	National Grid	VFDs	Provide VFD savings values where missing and revise existing values that are too high			X
19	National Grid	VFDs	Clarify that HVAC supply fans and CHW pumps included			X
20	National Grid	VFDs	Recommend using NSTAR values			X
21	National Grid	Compressed air measures	Adopt NGRID New England equations and parameters			X
22	National Grid	Compressed air measures	Use other software besides AirMaster for compressed air custom		X	
23	National Grid	Commercial duct insulation and air leakage sealing	Add duct insulation values for other Commercial buildings			X

No.	Party	Measure/Issue	Comment	ACTION		
				Addressed in Order	None	Incorporated
24	National Grid	Commercial duct insulation and air leakage sealing	What to do for other building types in the mean time		X	
25	National Grid	Commercial furnaces and boilers	Clarify default efficiency for HW and steam boilers (.8 and .75 respectively)			X
26	National Grid	Commercial shell insulation	Add commercial insulation measure		X	
27	National Grid	Commercial boiler reset controls	provide equation and default size similar to MF			X
28	National Grid	Commercial HW pipe insulation	Add measure			X
29	National Grid	Commercial HW pipe insulation	Provide defaults for delta Ts and average delta T			X
30	National Grid	Commercial HW pipe insulation	Add equations for HW and steam heating pipes; use suggested defaults			X
31	National Grid	Commercial HW pipe insulation	UA/L values for steel pipe			X
32	National Grid	Commercial HW pipe insulation	More insulation options			X
33	National Grid	Commercial HW pipe insulation	Provide boiler or water heater efficiency default			X
34	National Grid	Commercial indirect water heater	How to calc UA for indirect water heater			X
35	National Grid	Commercial indirect water heater	Deemed hw GPD			X
36	National Grid	Commercial indirect water heater	Provide default WH efficiency for old equip			X
37	National Grid	Commercial indirect water heater	Raise setpoint for Commercial applications			X
38	National Grid	Commercial indirect water heater	Provide default capacity for commercial WHs			X
39	National Grid	MF building type	MF building description discrepancy between manual and update - which tables should be used?			X
40	National Grid	MF CFLs	CFL screw in vs. CFL fixture EUL	X		
41	National Grid	MF refrigerators	MF refrigerators savings revised down; programs approved with higher value	X		
42	National Grid	MF refrigerators	measure life limits on ER units restrict cost effectiveness	X		
43	National Grid	MF refrigerators	Why was additional grid savings removed?		X	
44	National Grid	MF faucet aerators	Why only 260 days vs. 365?			X
45	National Grid	MF reset controls	Revise deemed capacity appl. to central and distributed boilers			X
46	National Grid	MF tstats	Revise deemed capacity appl. to central and distributed boilers			X
47	National Grid	MF tstats	Provide ESF for distributed vs. central boilers			X
48	National Grid	MF insulation	Use old delta kwh/sf values with new equations?			X

No.	Party	Measure/Issue	Comment	ACTION		
				Addressed in Order	None	Incorporated
49	National Grid	MF air leakage sealing	Provide a methodology for large buildings			X
50	National Grid	MF duct leakage sealing and insulation	Values for heating dist efficiency missing			X
51	National Grid	MF duct leakage sealing and insulation	Appl of dist efficiency to low and HR buildings		X	
52	National Grid	MF HW pipe insulation	Add measure			X
53	National Grid	MF HW pipe insulation	Provide CF			X
54	National Grid	MF HW pipe insulation	Provide default deltaTs and average deltaT			X
55	National Grid	MF HW pipe insulation	Add equations for HW and steam heating pipes; use suggested defaults			X
56	National Grid	MF HW pipe insulation	HW pipe insulation - steel pipe UA/L			X
57	National Grid	MF HW pipe insulation	More insulation options			X
58	National Grid	MF HW pipe insulation	Provide boiler or water heater efficiency default			X
59	National Grid	MF Indirect water heater	How to calc UA for indirect water heater			X
60	National Grid	MF Indirect water heater	Provide deemed hw GPD			X
61	National Grid	MF Indirect water heater	Provide default capacity and efficiency			X
62	National Grid	SF air leak sealing	populate kW/CFM tables			X
63	National Grid	SF HW pipe insulation	Add SF DHW pipe insulation			X
64	National Grid	SF HW pipe insulation	Provide CF			X
65	National Grid	SF HW pipe insulation	Provide defaults for delta Ts			X
66	National Grid	SF HW pipe insulation	Add equations for HW and steam heating pipes; use suggested defaults			X
67	National Grid	SF HW pipe insulation	UA/L values for steel pipe			X
68	National Grid	SF HW pipe insulation	More insulation options			X
69	National Grid	SF HW pipe insulation	Provide boiler or water heater efficiency default			X
70	National Grid	SF faucet aerators	verify days per year in aerator equation			X
71	National Grid	SF shell insulation	Use existing kWh/SF insulation savings in new equations?			X
72	National Grid	SF boiler reset controls	Revised default boiler size for reset controls			X
73	National Grid	SF Indirect water heater	How to calc UA for indirect water heater			X
74	National Grid	SF Indirect water heater	Provide default capacity and efficiency			X
75	Con Edison	General	Don't apply changes midstream	X		
76	Con Edison	General	Retroactive effects	X		
77	Con Edison	General	EUL and savings inconsistency with already approved programs	X		
78	Con Edison	General	Wait for impact evaluations to make changes	X		
79	Con Edison	MF Refrigerators	New calcs impact cost effectiveness, will eliminate MF refrigerator from program	X		
80	Con Edison	MF Refrigerators	Use 10 yr EUL	X		

No.	Party	Measure/Issue	Comment	ACTION		
				Addressed in Order	None	Incorporated
81	Con Edison	MF Refrigerators	Use rated consumption lookup instead of sampling and testing		X	
82	Con Edison	Commercial lighting	ER/EUL issue affects ability to run program	X		
83	Con Edison	Commercial lighting	revise 1/3 EUL to 2/3 EUL	X		
84	Con Edison	MF high rise building	Add steam heating system			X
85	Con Edison	Vintages	clarify vintage classifications so nothing falls into the cracks			X
86	Con Edison	Commercial lighting	Add circlines with electronic ballasts to table			X
87	Con Edison	MF building types	Include 1 story, 3 story, 6 story and 8 story building		X	
88	Con Edison	MF air leakage sealing	Add method for HR MF			X
89	Con Edison	MF VFDs	Add HW heating, HVAC fans, boiler draft fans, water supply fans (pumps)?			X
90	Con Edison	MF motors	Add EC motor for HW pump			X
91	Con Edison	MF pipe insulation	1 in FG insulation, in accordance with NYS ECCC			X
92	Con Edison	MF HW tank wraps	Add larger tanks > 80 gal			X
93	Con Edison	MF HW tank wraps	Add uninsulated tanks			X
94	Con Edison	SF Heating systems	HLH are fine, adjust only after impact evaluation		X	
95	Con Edison	SF Cooling	Discrepancies in CLH			X
96	Con Edison	Commercial EMS	Establish baseline		X	
97	NYSERDA	General	Update memo and roadmap not included with SAPA notice	X		
98	NYSERDA	Early replacement/EUL	Apply methods consistently across programs and PAs	X		
99	NYSERDA	Early replacement/EUL	Use NYSERDA EULs	X		
100	NYSERDA	Early replacement/EUL	Consider specific cases in custom programs	X		
101	NYSERDA	Early replacement/EUL	What to do when no EUL provided?	X		
102	NYSERDA	Early replacement/EUL	1/3 rule doesn't apply to NY	X		
103	NYSERDA	Early replacement/EUL	1/3 rule undermines ability to provide savings	X		
104	NYSERDA	MF Refrigerators	Methodology restrictive and will limit savings	X		
105	NYSERDA	MF Refrigerators	Will method be imposed on SF also?	X		
106	NYSERDA	Residential CFL	Pin based vs. screw in CFL operating hour differences create incentive toward screw In over pin based systems		X	
107	NYSERDA	Air sealing	No air leakage definition in MF manual. Blower doors not used in MF buildings. Adopt method in MF Simulation Guidelines		X	
108	NYSERDA	All	Add multiple measure interactions		X	
109	NYSERDA	HVAC	Account for HVAC system type changes		X	

No.	Party	Measure/Issue	Comment	ACTION		
				Addressed in Order	None	Incorporated
110	NYSERDA	HVAC	Interactions between HVAC and shell (load reduction) measures; which EFLH to use		X	
111	NYSERDA	HVAC	Put adjustment factors for simulated vs. actual equipment and duct efficiencies in HVAC measures		X	
112	NYSERDA	All	Apply factors that account for program delivery approach should be explored		X	
113	NYSERDA	Infiltration reduction	Explore the opportunity to Include OA/QC adjustments		X	
114	NYSERDA	Water heater wrap	1 in of insulation on baseline WH not representative. Disallow WH wraps on gas water heaters			X
115	NYSERDA	CFL equivalency	Use 3.53 instead of 2.53		X	
116	NYSERDA	CFL op hours for MF in NYC	Increase hours of use to reflect restricted daylight in NYC; clarification of 2004 study referenced requested		X	
117	NYSERDA	Low flow showerhead	Increase showers per day from 2 to average family size or actual household use		X	
118	NYSERDA	Cooling towers	Additional data collection will increase consultant fees		X	
119	NYSERDA	MF Setback thermostat	Behavioral measures not allowed		X	
120	NYSERDA	Air leakage sealing	Modify based on QA/QC adjustments		X	
121	NYSERDA	CFL equivalency	Use 3.53 instead of 2.53 for the 'Incandescent to CFL' wattage ratio.		X	
122	NYSERDA	Fixture wattage table	Move out of manual to make it easier to update; request schedule of anticipated updates	X		
123	NYSERDA	Compressed air	Please provide equations or deemed values			X
124	NYSERDA	Setback thermostat	Use 110 kBtu/hr instead of 88 for deemed value; reason for using National Fuels data requested with equations or other supporting documentation requested			X
125	NYSERDA	Setback thermostat	Use weighted average of boiler and furnace if heating system type not known			X
126	NYSERDA	Boilers, furnaces, thermostats, duct insulation air sealing et al.	For measures: boilers, furnaces, thermostats, duct insulation and sealing there is a factor in the savings calculation called Equivalent Full Load Hours (EFLH). This data required for this factor is incomplete and text states (page 35 Manual) that it will be present in next version of the manual. Because this information is forthcoming and essential to the calculations, NYSERDA is not able to comply with the calculations for these measures.			X

No.	Party	Measure/Issue	Comment	ACTION		
				Addressed in Order	None	Incorporated
127	NYSERDA	Residential EFLH	The Equivalent Full Load Hours EFLH factor also calls for contractor to obtain and record the amount of BTU's (kBtuh per unit) used by specific piece of equipment. Determining actual usage by a single piece of equipment is not feasible in single family residential applications.		X	
128	NYSERDA	Air Sealing	Residential Air Leakage Sealing, Page 53, Variables ask for vintage and HVAC type weighted by city. It does not include consideration for HLH changes. However, this variable does appear on page 33 of the April 30, 2010 Road Map in the High Efficiency Furnace calculation		X	
129	NYSERDA	A/C and Heat pump	A/C and Heat Pump: Page 10: when considering early replacement vs. normal replacement there appears to be an error in the SEERbase factor. The manual instructs to use a SEERbase 10 for early replacement and a SEERbase 13 for normal replacement. This penalizes normal replacement, which is counterintuitive to early/normal methodology. Should base factors be switched, or should calculation have SEERee first instead of second? Should it be :(12/EERee -12/EERbase)?		X	
130	NYSERDA	A/C and Heat pump	A/C and Heat Pump: Calculation calls for use of EFLHcooling. When investigating table below manual calls for lookup by vintage and city. We cannot find this cooling load lookup table. Should the reference direct to CLH table on page 39 of December 16. 2009 manual?			X

No.	Party	Measure/Issue	Comment	ACTION		
				Addressed in Order	None	Incorporated
131	NYSERDA	Water heating	Water Heating, page 68 of December 16, 2009: states that for normal replacement, ACCEE recommends using an EF > .65. However, calculation states: New construction and replace on failure: efficient water heater is assumed to replace a standard efficiency tank type water heater. Energy Factors (EF) according to NAECA for storage water heaters are calculated as a function of storage volume: Electric water heaters: EF = 0.93-0.00132V; Gas water heaters: EF = 0.62-0.0019V where V is tank volume in gallons. Compliance Efficiency from which incentives are calculated: ACEEE recommendations for the energy factor (EFee) of storage type water heaters are as follows: Electric: EF > .93; Gas: EF > .65. Is there an error in this calculation? We would expect algorithm to state: EF = 0.65-0.0019V. However, in all subsequent versions the number .62 is used.		X	
132	NYSERDA	Air Sealing	Single Family Air Leakage Sealing, page 52: formula calls for deltaCFM50 however text states that it equals change In Infiltration rate (cim) at measured 30 pascals. Previous comments identified this correction; however, the 30 pascal reference remains unchanged in all references to this variable.			X
133	NYSERDA	Water heating	Indirect Hot water page 44 formula calls for a recovery efficiency (RE) to be used. On following page RE is given, but only for a 40,000 BTU tank. It is unclear if the RE consistent for all Indirect hot water tank sizes.			X
134	NYSERDA	Early replacement	The early replacement savings valuation is not consistent among each of the technical manuals, thus causing inequalities in the reporting of energy savings per measure and market segment	X		

No.	Party	Measure/Issue	Comment	ACTION		
				Addressed in Order	None	Incorporated
135	NYSERDA	Refrigerators	It is essential that the early replacement guidance is applied to all refrigerator measures, multi family, specifically, spanning all technical manual segments. It is simply not manageable to treat refrigerators differently from all other measures. Further, the guidance provided in the Tech Manual Recommendations memo dated April 30, 2010 that directs program administrators to claim incremental savings for units less than 17 years old would severely restrict the ability of program administrators to implement the replacement of refrigerators.	X		
136	NYSERDA	All	Peak electricity and gas savings require more discussion		X	
137	NYSERDA	Boiler replacement	Baseline efficiencies too high for existing boilers in MF buildings			X
138	NYSERDA	CFL fixture	Increase hours of use to reflect restricted daylight In NYC		X	
139	NYSERDA	CFL	Add more CFL watts to table or provide a range			X
140	NYSERDA	Faucet aerators (residential)	NYSERDA comments submitted on April 1, 2010 recommended that the days of use for residential aerators be changed from 220 days to 365. This does not yet appear to have been addressed in the compilation of comments.			X
141	NYSERDA	High efficiency windows	Savings tables: there appears to be an error in “Gas Window Impacts” table; the table reports more savings from an average house than an old house. Further, the associated "electric heat with no A/C” and “gas heat with no A/C" data tables are believed to be incorrect, perhaps inverted.			X
142	RISE/ICF	MF Refrigerators	Will eliminate measure	X		
143	RISE/ICF	MF Refrigerators	Refrigerators are important intro measure	X		
144	RISE/ICF	MF lighting	1/3 EUL will eliminate measure, recommend 13	X		
145	CSG	Whole building approach	Recommendations on software standards, certifications, QC/QA		X	
146	CSG	Heating and cooling	Provide EFLH values			X
147	CSG	Boiler	AFUE equation wrong			X
148	CSG	Heating and cooling	Accounting for downsizing			X
149	CSG	Duct leakage sealing	Values not appropriate for duct systems outside conditioned space		X	
150	CSG	Air leakage sealing	Provide unit savings values			X

No.	Party	Measure/Issue	Comment	ACTION		
				Addressed in Order	None	Incorporated
151	CSG	Building shell insulation	Provide unit savings values			X
152	CSG	Window replacement	Provide unit savings values			X
153	CSG	Additional cities	Not worth the effort; not the driving factor		X	
154	CSG	Early replacement/EUL	1/3 approach too stringent	X		
155	CSG	TRC Test	Not appropriate for home performance programs	X		
156	CHGE	Manual applicability	Apply to future programs, not current programs retroactively	X		
157	CHGE	Manual applicability	Moving target	X		
158	CHGE	Manual applicability	Fast track programs approved before TMs developed	X		
159	CHGE	Early replacement/EUL	Change 1/3 RUL to 2/3 RUL	X		
160	CHGE	Res AC and Heat pump	Use SEER instead of EERpk		X	
161	CHGE	Programmable thermostat	Applicability to electric resistance baseboard heat			X
162	CHGE	Programmable thermostat	Use COP = 1, dist efficiency = 1, ESF = .068			X
163	CHGE	Programmable thermostat	Make sure calc includes capacity of strip heat in ASHP			X
164	CHGE	EC furnace fan motors	Don't alter the approved savings of 711 kWh per motor			X
165	CHGE	Air leakage sealing	Change method to CFM reduction			X
166	CHGE	Refrigerator recycling	Use statewide averages for HVAC type, refrigerator age, seal condition, DOE consumption			X
167	CHGE	Heating and cooling	Account for Right sizing			X
168	CHGE	Additional cities	If EFLH for Poughkeepsie is much different than current assumption, will be hard to make savings goal	X		
169	NYSEG/RGE	All	No comments other than general support for process		X	

DEVIATIONS FROM THE
TECHNICAL MANUAL PROPOSED RECOMMENDATIONS

- The algorithms for calculating peak gas impacts will be prepared by Staff, in consultation with the EAG, within 90 days of the effective date of this order.

- Poughkeepsie was added as a weather station location but the zip code mapping will not be provided with the Technical Manual. The mapping will be prepared by Staff, in consultation with the EAG, within 90 days of the effective date of this order.

- The effective useful life (EUL) tables and text regarding EUL adjustments for early replacement measures were removed. As discussed earlier, these topics will be addressed in a future order.

- For insulation and glazing replacement measures, energy savings are now shown for a variety of base case insulation levels. The vintage distinction for insulation and glazing replacement has been dropped.

- Electronically commutated (EC) motors on hot water pumps are now included as an additional measure.

- For EC motors on furnace fans, an energy savings approach based on research conducted in Wisconsin was substituted for the simulation analysis.

- Calculations were added for refrigerator bounty programs.

- Freezers have been removed from the section discussing single family and multifamily refrigerator replacements.

- Domestic hot water service pipe insulation for non-recirculating systems common in single family buildings is limited to the first 12 feet of hot water supply pipe leaving the water heater. Recirculating systems common in multifamily buildings should use the full length of installed pipe insulation to calculate savings.

- Hot water heating systems for single family and multifamily low rise buildings should use the heating equivalent full-load hours as shown in Appendix G.