STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

At a session of the Public Service Commission held in the City of Albany on July 14, 2011

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 MODIFICATIONS TO THE TECHNICAL MANUAL

(Issued and Effective July 18, 2011)

BY THE COMMISSION:

INTRODUCTION

In this order, the Commission adopts criteria for identifying special circumstance replacements and a default value for performing dual baseline calculations on such measure and caps the incentive for special circumstance replacements at 80% of measure costs. In addition, the Commission adopts a list of effective-useful-life values for various energy efficiency equipment types, as well as cost and savings guidelines for Total Resource Cost (TRC) tests involving refrigerator early replacement in multifamily programs.

BACKGROUND AND SUMMARY

In an order issued October 18, 2010, the Commission approved the technical manual "New York Standard Approach for Estimating Energy Savings from Energy Efficiency Programs –

Residential, Multi-Family and Commercial/Industrial Measures" dated October 18, 2010 (the Consolidated Technical Manual).[1] The Consolidated Technical Manual updated and consolidated the five technical manuals previously approved by the Commission between December 2008 and December 2010. In order to focus more specifically on energy savings, the Consolidated Technical Manual does not contain any rules for benefit/cost screening, cost estimates, or effective-useful-life values. Stating that the Commission would consider the issue of prescribed effective-useful-life values in a future order, the October 18, 2010 Order allowed for the continued use of effective-useful-life values contained in the previous unconsolidated technical manuals, with the exception of the effective-useful-life value for refrigerators which the order set at 17 years. The October 18, 2010 Order defined early replacement as replacement of equipment prior to the end of its prescribed effective-useful life and directed Staff to develop a dual baseline method for estimating the benefits and costs of early replacement that provides consistency between the treatment of savings and costs. The order also directed Staff to provide simplifying lookup tables for early replacement energy savings consistent with the dual baseline concept.[2]

The October 18, 2010 Order also introduced the concept of "special circumstance" replacements: the replacement of equipment operated by customers who are influenced by initial costs more than by life cycle economics. These customers

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[1] Case 07-M-0548, Energy Efficiency Portfolio Standard (EEPS), Order Approving Consolidation and Revision of Technical Manuals (issued October 18,2010).

[2] These lookup tables are contained in "Appendix M" to the Consolidated Technical Manual available as a separate document on the Commission's website at http://www3.dps.state.ny.us/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/06f2fee55575bd8a852576e4006f9af7/$FILE/Appendix%20M%20final%205-05-2011.pdf.

include those with insufficient capital, a split incentive (such as a landlord incurring cost to provide a tenant benefit), short time horizons, and/or other factors which tend to prevent long range economic decision-making regarding the installation of high efficiency equipment. The Commission applied the concept of special circumstance replacements only to commercial and industrial machinery and multifamily central systems, and only to equipment well past its prescribed effective useful life. The order specifically excluded lighting equipment from special circumstance replacement.

The Commission established a general outline for determining eligibility for special circumstance replacements treatment including:

- 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;
- The prospective next repair or replacement is likely to be much less expensive than replacement with new higher efficiency machinery.

The order indicated that more detailed criteria would be developed with input from Staff, program administrators and the Evaluation Advisory Group (EAG). The order also directed Staff, with consultation from the EAG, to develop a method for adapting dual baseline screening to special circumstance replacements where the energy savings for the first baseline would be calculated against the replaced equipment.

In response to the October 18, 2010 Order, Staff developed and put forth a number of proposals.[3] Regarding

[3] On December 7, 2010, Staff met with the Evaluation Advisory Group, which includes program administrators, concerning its proposed criteria and dual baseline default value for special circumstance replacements.

special circumstance replacements, Staff proposes that, in order to be considered under special circumstance replacement rules, the equipment to be replaced would have to be at least 125% of its prescribed effective-useful life in cases where the age of the equipment can be determined. In cases where the age of the existing equipment cannot be determined, to be eligible for special circumstance replacement, the existing equipment would have to consume at least 20% more energy than the new high efficiency equipment to do the same amount of work.

As noted above, the order also directed the development of a dual baseline approach for special circumstance customers including an initial period of savings calculated against the replaced equipment. Staff proposes an initial baseline equal to 25% of the new measure's prescribed effective-useful life. The second baseline, consisting of the 75% remainder, would reflect the rate of consumption of current models which are minimally compliant with federal or state codes and standards or otherwise represent current common practice. Staff also proposes an incentive cap for special circumstance replacements of 80% of the measure cost or 80% of the resource benefits, whichever is less.

Staff also proposes an amendment to the technical manual regarding refrigerator replacements in multi-family programs. Specifically, for early replacement of refrigerators, the current requirement to meter the replaced equipment would be eliminated. Instead, the program administrator could use the nameplate rating of the replaced refrigerator adjusted up by 10% for refrigerators older than 9 years or 15% for refrigerators older than 14 years, and by 5% in the case of a deteriorated gasket or seal. Further, in the case of normal/end-of-life replacement, the default value for the incremental cost between the high-efficiency model and the standard code-compliant model

would be set at $75. Program administrators would be allowed to use a lesser value – but not lower than $35 - with documentation of lower incremental costs.

Finally, Staff proposes a consolidated table of measure effective-useful-life values to be used in all cost/benefit analyses. The consolidated table, as amended by this order below, is attached as an Appendix.

NOTICE OF PROPOSED RULE MAKING

A Notice of Proposed Rulemaking concerning Staff's proposals was published in the State Register on January 12, 2011 [SAPA 07-M-0548SP30]. The minimum time period for the receipt of public comments pursuant to SAPA regarding that notice expired on February 28, 2011. The comments received are summarized below.

SUMMARY OF PUBLIC COMMENTS

Comments were submitted by New York State Energy Research and Development Authority (NYSERDA);Niagara Mohawk Power Corporation, The Brooklyn Union Gas Company and KeySpan Gas East Corporation (collectively National Grid); New York State Electric & Gas Corporation and Rochester Gas and Electric Corporation (NYSEG/RGE); and Community Environmental Center.

Special Circumstance Replacement

NYSERDA states that it supports the concept of special circumstance replacement but needs further details regarding the concept in order to fully appreciate the impact of Staff's proposals. NYSERDA also indicates that it needs further clarification of the term "multifamily central systems" as used in the October 18, 2011 Order. NYSERDA states that special circumstances replacement should also be available for its low-

income EmPower New York program and apply to all measures installed through that program regardless of equipment age and consumption level. It argues that lack of capital is frequently a barrier to adoption of energy efficiency improvement for low-income customers and that equipment replaced under the EmPower program is commonly past its effective-useful life. NYSERDA does not support a cap on incentives for special circumstance replacements. NYSERDA contends that any restriction on incentive levels should not apply to measures that have otherwise been deemed cost-effective.

Community Environmental Center supports NYSERDA's position indicating that extending special circumstance replacement to multifamily central systems and the EmPower program will allow more low-income households to receive the benefits of that program. Community Environmental Center also states that incentive caps should not apply to TRC-qualified projects and that the effective-useful-life estimates for insulation should be updated to accurately reflect industry standards.

National Grid seeks clarification as to what specific measures or end-uses are eligible for special circumstance treatment within the terms "commercial and industrial machinery" and "multifamily central systems" used in the October 18, 2010 Order. If special circumstance replacement does not apply to all non-lighting measures, National Grid requests that the Commission provide a detailed list of measures to which the concept will apply. National Grid requests clarification on whether any commercial and industrial machinery or multifamily central system that uses 20% more energy than current standard practice may be considered a special circumstance replacement and whether special circumstance replacement is intended to apply only to custom projects.

National Grid seeks clarification regarding whether field staff must determine the age of lighting fixtures and how to treat lighting measures where the age of the measure is greater than the effective-useful life. The company believes that it is likely to find commercial customers with installed lighting that is past its effective-useful life and is concerned that if that equipment is treated as normal/end of life replacement the resulting lower savings will result in significantly lower aggregate savings for commercial and industrial lighting installations.

National Grid also requests that the term "consumption" in Staff's proposal be defined. National Grid seeks clarification regarding whether equipment that does not meet the 125% effective-useful-life or the 20% energy consumption differential criteria proposed by Staff should be treated as non-special circumstance, early replacement or normal/end of life replacement. National Grid inquires whether the proposed cap on special circumstance replacements would supersede limits on incentives related to payback period established in a previous order.

National Grid also believes that Staff's proposed dual-baseline approach for special circumstance replacement is overly burdensome for program administrators. National Grid states that use of a dual-baseline approach to determine cost-effectiveness will require the redevelopment of screening tools used by field staff. The company claims that it is unaware of other jurisdictions requiring a dual baseline approach and believes that the additional effort, cost and possible customer dissatisfaction may exceed any benefit provided by the approach. National Grid suggests that the dual baseline approach for measure screening can be simplified by developing a table for "special circumstance" measure lives or measure life adjustment

factors. National Grid seeks information regarding the simplifying lookup tables for early replacement method energy savings consistent with the dual baseline concept that the Commission had ordered developed in the October 18, 2010 Order.

NYSEG/RGE do not object to the proposed definition of special circumstance replacement.

Amendment to TRC calculations for Multifamily Refrigerator Replacements

National Grid states that out of 7,430 units recovered through Refrigerator-Freezer Recycling Program to date, only approximately 20% had nameplate information and for this reason requests the use of deemed savings for refrigerator and freezer replacements. National Grid also states that, whether nameplate or deemed savings are used, the overall approach for calculating savings for many appliance measures needs to be re-examined if these measures are to be cost-effective or attractive to multifamily building owners.

NYSEG/RGE do not object to Staff's proposal regarding TRC amendments for multifamily refrigerator replacements.

Consolidated Table of Effective Useful Life Values

National Grid states that the proposed consolidated table of measure effective-useful-life values is incomplete. National Grid provides a list of omitted measures currently offered in its various programs requesting that a measure life be provided for each one. National Grid also provides a list of recommended measure-life values for these measures. National Grid suggests that the measure life of light-emitting diodes (LEDs) in walk-in coolers be increased from the 3.5 years proposed by Staff to between 6 and 10 years, depending on use conditions. National Grid seeks clarification on what is included in the terms "packaged heat pumps" and "packaged air source heat pumps" contained in the December 28, 2010 consolidated table of effective-useful-life values. National

Grid further suggests the use of two categories of measure lives for multifamily common area lighting – one based on compact fluorescent lamp life expectancy of 9,000 hours and a second based on fluorescent ballast life of approximately 70,000 hours, with various burn hour estimates for each. National Grid believes that the currently specified effective-useful-life for compact fluorescent light fixtures is too short stating that it appears based on a lamp lifetime of approximately 10,000 hours but that is should be, at a minimum, based on a ballast lifetime of approximately 22,000 hours in accordance with U.S. Environmental Protection Agency assumptions for Energy Star fixtures. National Grid also suggests that the effective-useful-life value for furnace tune-ups be five years, instead of 10 years.

NYSERDA proposes that the effective-useful life of opaque shell insulation should be 40 years rather than 20 years. NYSERDA indicates that such insulation is a component of the structure and is rarely replaced unless the structure itself becomes damaged. NYSERDA believes that its quality control measures are sufficient to ensure that installed insulation will remain effective for a period of 40 years. Community Environmental Center supports NYSERDA's position on this issue.

NYSEG/RGE do not object to the proposed table of effective-useful-life values to be used in all cost/benefit analyses.

DISCUSSION

Simplifying Lookup Table For Early Replacement Dual Baseline

National Grid's concerns that the dual baseline method is too burdensome should be allayed by the simplifying lookup tables. The early replacement tables and directions for using them are available now on our website as part of Appendix M to

the Consolidated Technical Manual.[4] We will instruct the Director of the Office of Energy Efficiency and Environment to compile and provide by September 1, 2011 similar lookup tables for special circumstance replacement consistent with the dual baseline concept, as an appendix to the Consolidated Technical Manual. The tables are meant to provide a simple method to approximate cost and savings related to the dual baseline methodology for both early and special circumstance replacement. Use of the tables will avoid complex calculations and may avoid the need for program administrators to develop their own research and assumptions concerning various measures. Program administrators, however, are free to perform detailed dual baseline analyses on their own, subject to Staff review, if they prefer.

Special Circumstance Replacement

As stated in the October 18, 2010 Order, for the replacement of installed equipment to be treated as a special circumstance replacement the installed equipment must 1) be significantly older than its effective-useful-life; 2) consume significantly more energy than current high efficiency models and 3) have a history of significant repair or replacement with used equipment. The next prospective repair or replacement of the equipment must also be likely to be significantly less expensive than replacing the equipment with new higher efficiency equipment. As established in the October 18, 2010 Order, special circumstance replacement is only applicable to commercial and industrial machinery and multifamily central systems and is subject to a dual baseline method for calculating

[4] Appendix M is listed as a separate document and is available at http://www3.dps.state.ny.us/W/PSCWeb.nsf/96f0fec0b45a3c6485257688006a701a/06f2fee55575bd8a852576e4006f9af7/$FILE/Appendix%20M%20final%205-05-2011.pdf.

savings. The Order specifically excluded lighting equipment from special circumstance replacement but noted that lighting could be addressed using the pre-qualification procedures approved in our June 20, 2010 Order in this proceeding.

Age and Consumption Thresholds

Staff's proposal, which we adopt here with the modifications explained below, provides a specific age threshold of 125% of the effective-useful life when the age of the equipment can be determined and an electricity or gas consumption threshold of 120% of that consumed by the new high efficiency equipment when the age of the replaced equipment cannot be determined. These thresholds must be applied for any equipment considered for special circumstance replacement.

Staff's proposed age threshold of at least 125% of the prescribed effective-useful life in cases where this the age of the equipment can be determined is reasonable.[5] The criterion is based on Staff's consultant TecMarket Works analysis and estimation that 85% of equipment at 125% of effective-useful is no longer in use. This threshold, considered with the requirements concerning history of repair and the cost of new high efficiency versus repair or replacement with used equipment, provides sufficient assurance that the situation reflects a customer with special circumstances as described above.

Staff's proposed energy consumption threshold, to be used only when the replaced equipment's age cannot be determined, requires that the replaced equipment use 20% more energy than the new high-efficiency equipment in order to qualify for special circumstances replacement. Although the 120% consumption threshold is adopted for most equipment, we

[5] It is not necessary to determine the exact age of the equipment as long as it can be determined to be at least 125% of the effective-useful life.

adopt a threshold of 135% for special circumstance replacement of chillers. The thresholds are based on the Database for Energy Efficient Resources[6] and reflect ratios of the energy consumption of equipment manufactured between 1978 and 1992 and the energy consumption of current high-efficiency equipment promoted by EEPS. These thresholds reflect a balancing between identifying suitably old and inefficient equipment - that is very unlikely to be replaced with high efficiency equipment absent the EEPS program – and the need to screen out equipment for which special circumstance treatment is inappropriate. Consumption of the old equipment will be based on that equipment's measured performance. Consumption of the new equipment will be based on the rated efficiency level of that equipment, using the Consolidated Technical Manual as appropriate.

For complex systems, such as a system of dispatched chillers in which the oldest chiller is to be replaced by a new one, the measured efficiency of the oldest equipment should be compared to the rated efficiency of the new equipment for purposes of determining eligibility for special circumstance replacement. However, for purposes of the TRC analysis and first year savings calculations, dispatch must be considered because the old equipment may only operate for a few hours. Measured consumption data for the entire existing system should be used. Dispatch simulation may be needed to determine the prospective consumption of whole system with the new equipment.

In adopting these age and consumption thresholds, we also stress the relationship between these criteria. If the age

[6] The Database for Energy Efficiency Resources is a database sponsored by the California Energy Commission and California Public Utilities Commission designed to provide well-documented estimates of energy and peak demand savings values, measure costs and effective-useful-life values.

of the equipment being replaced is determined to be less than 125% of its effective-useful life, the equipment is not eligible for special replacement treatment regardless of consumption. Special circumstance replacement is meant to address conditions, in specific commercial and industrial and multifamily situations, that result in the continued use of inefficient equipment well past its effective-useful life, as opposed to simply addressing the need to replace inefficient equipment. We will not allow special circumstance replacement for equipment which is known to be younger than its effective-useful life regardless of its efficiency.

Additional Special Circumstance Criteria

The third and fourth criteria listed in the October 18, 2010 Order must also be met in order for replaced equipment to be eligible for special circumstance replacement. The purpose of requiring a significant record of repair (or replacement with used equipment) is to ensure that the special circumstance replacement treatment is only applied to customers unlikely to replace aging and inefficient equipment - as opposed to customers whose old equipment has operated trouble-free well past its effective-useful life.[7] The requirement that the next repair or replacement is likely to be much less expensive than replacement with new higher efficiency machinery is also designed to help predict customer behavior upon the next breakdown of the old equipment.

Special Circumstance Dual Baseline

Staff's proposal also provides details, which we adopt, for the dual baseline approach for special circumstance

[7] Since effective-useful-life values represent medians, many pieces of equipment will operate trouble-free well past their associated effective-useful-life value. In these situations, customers may well follow rational life cycle economics when the equipment ultimately fails and thus are not necessarily special circumstance customers.

customers. Special circumstance replacement is intended to apply to equipment well past its effective-useful life with high consumption as a proxy for age when actual age cannot be determined. As is the case with early replacement, full savings against the older equipment can be reported as first year savings toward the approved goals.

For special circumstance replacements, Staff proposes using an initial baseline that reflects the consumption rate of the equipment being replaced for a period equal to 25% of the new measure's prescribed effective-useful life (usually about 5-8 years for eligible machinery). The second baseline reflects the rate of consumption of current minimally compliant or common practice efficiency models for the 75% remainder of the new measure's prescribed effective-useful life. The initial baseline using the consumption of the old equipment recognizes the concept stated in the October 18, 2010 Order that in special circumstance situations, existing equipment, although well past its effective-useful-life value, would likely operate for several additional years if not replaced through an EEPS program.

Until the Director of OEEE issues the Technical Manual appendix with simplifying lookup tables specific to special circumstance replacement treatment, program administrators can use the simplifying lookup tables contained in Appendix M for special circumstance replacement.[8] The rows in the tables are identified by remaining useful life. Since the remaining useful life concept, by definition, does not apply to special circumstance replacements, program administrators should use the

[8] Program administrators should calculate their own ratios and use the second set of tables, as measure specifics may differ between early and special circumstance replacement. Please see Technical Manual Appendix M for explanation regarding ratios and the table sets.

values representing 25% of the effective-useful life of the new measure being installed.

Incentive Cap for Special Circumstance Replacement

Staff proposes a cap on incentives for special circumstance replacement of 80% of the measure cost or 80% of the resource benefits, whichever is less. We adopt an incentive cap on special circumstance replacement of 80% of the measure cost.[9] This value was selected to balance concern about excessive incentives against the need to motivate and enable special circumstance customers, who may have limited funds and other deterrents to replacing equipment based on life cycle economics analysis. If more than one incentive cap is applicable to a particular project or measure, whichever limitation yields the lower incentive will govern.

NYSERDA opposes the incentives cap, contending that incentive restrictions should not apply to measures that pass the EEPS TRC screening. We have always limited incentives for cost-effective measures, as NYSERDA acknowledges. Here, the 80% of measure cost cap should provide sufficient incentive and avoid inefficient use of ratepayers funds.

Other Special Circumstance Replacement Concerns

Both NYSERDA and National Grid requested clarification of the term "multifamily central system" used in the October 18, 2011 Order. The term is meant to include equipment serving a building, building wing, or group of buildings as a whole, rather than serving individual tenants or units. Examples include boilers (space and domestic water heating), furnaces, elevators, heat recovery, chillers, and ventilation systems. For all these central systems, the eligibility includes

[9] As Staff has pointed out, in order for the measure to qualify for an EEPS incentive, the benefits must be greater than the cost, making cost/benefit comparison for purposes of calculating the incentive cap superfluous.

distribution components and auxiliary equipment such as controls, motors, pumps, fans, air handlers, and duct and pipeline mains.[10]

At this time, we will not attempt to provide a list of commercial and industrial machinery eligible for special circumstance replacement as requested by National Grid. Such a list would be very lengthy and undoubtedly lack some suitable measures. However, if program administrators have doubts or questions about specific projects, we encourage them to consult with Staff. In the event of differences, we have previously instituted the Implementation Advisory Group and Evaluation Advisory Group with the intent that detailed issues such as these could be discussed and resolved in accordance with Commission orders.

National Grid also asks whether special circumstance replacement only applies to custom projects. The approach can be applied to custom projects as well as to any approved measure with site-specific screening.

National Grid seeks clarification regarding whether field staff must determine the age of lighting fixtures and how to treat lighting measures where the age of the measure is greater than the effective-useful life. We note that it is often difficult to determine the age of lighting fixtures. Generally, such fixtures would be treated as normal replacement. However, lighting fixtures are often kept in place for extended periods, sometimes by ongoing repair and are only replaced through an energy efficiency program. This is in some ways analogous to special circumstance replacement. As we believe there are a

[10] Equipment providing service, such as heat, to areas such as laundry rooms or other common areas may be eligible, but equipment within the common areas, such as washing machines or dryers, would not be. Eligible equipment will generally be located in the basement, in mechanical rooms, or on the roof.

number of important issues to explore in regard to National Grid's question, we will not provide specific guidance at this time, but direct the Implementation Advisory Group to attempt to resolve the issues of determining the age of lighting equipment and the correct approach for valuing savings from lighting replacements under the mechanism we provided for modifying the Consolidated Technical Manual in our June 20, 2011 Order in this proceeding.[11]

National Grid also seeks clarification as to how measures that do not meet the thresholds of 125% of the effective-useful life or the 20% energy consumption differential should be treated. If the equipment in place is known to be at or past its effective-useful life but not eligible for special circumstance treatment, it must be treated as normal/end of life replacement and only the incremental savings (between current standard/minimally compliant, or common practice in the absence of standards, and the high efficiency equipment being installed) can be reported toward approved targets. Early replacement treatment should only be applied when the age of the equipment to be replaced is demonstrably less than the effective-useful life of that equipment.[12] If a program administrator cannot substantiate that the age of the equipment in place is less than its prescribed effective-useful life, the replacement must be analyzed as normal/end of life replacement. Program administrators that have been reporting savings based on incorrectly treating normal/end of life replacements as early

[11] Case 07-M-0548, supra, Order Approving Modifications to the Energy Efficiency Portfolio Standard (EEPS) Program to Streamline and Increase Flexibility in Administration (issued June 20, 2011).

[12] "Exhibit A" attached to National Grid's comments appears to list equipment that is past its effective-useful life as eligible for early replacement treatment. As stated above, only equipment that is being replaced prior to the end of its effective-useful life is eligible for early replacement.

replacements should correct and update their reports to reflect the correct treatment of these measures.

TRC Calculations for Multifamily Refrigerator Replacements

As discussed in the October 18, 2010 Order, rules in the previous technical manual rendered it difficult to find early replacement of all types of measures to be cost-effective. The previous approach provided an early replacement TRC method which required the full costs of a measure to be compared to truncated savings determined as the difference between the existing equipment for 1/3 of the effective-useful life of the new equipment. Thus, much of the savings calculated with a true dual-baseline early replacement approach were ignored for TRC purposes.[13] The October 18, 2010 Order provided for the use of lower costs and higher savings for early replacement under the dual baseline approach. However, even with the more flexible approach to early replacement, it remained difficult for early refrigerator replacements to be found cost-effective in part because of the expense of metering the equipment.

Early Replacement Performance Data

Staff proposes to eliminate the current metering requirement and allow program administrators to use the manufacturer's energy use rating, determined from a database with model number information found on the unit's nameplate. Staff also proposes that the rated performance be adjusted upward by 10% for refrigerators older than 9 years or 15% for refrigerators older than 14 years, and by 5% in the case of a deteriorated gasket or seal.

National Grid states that for about 80% of refrigerator/freezer replacements the nameplate rating was not available and requests that deemed consumption values be applied

[13] Normal/end of life treatment was also available as an option, but that method results in lower calculated savings for TRC and incentive purposes.

to these measures. In recognition of National Grid's concern, we will adopt an additional approach. We will adopt Staff's proposal but also allow program administrators to use a deemed annual consumption value, for the refrigerator to be replaced, that is more conservative than Staff's proposal. The deemed consumption values for existing refrigerators shall be 695 kWh/year in Consolidated Edison Company of New York, Inc.'s and Orange and Rockland Utilities, Inc.'s service territories and 595 kWh/year for other utility service territories. These values consider degradation of the appliance and are based on a publicly available evaluation study in California.[14] The annual consumption values are considered conservative because they represent a 15 cubic foot, ten-year old refrigerator in a small household. Refrigerators in multifamily housing are estimated to range up to 20 cubic feet and refrigerators are considered early replacement up to 16 years of age. Therefore, the two other options are likely to yield higher savings estimates than the deemed value approach.

Incremental Costs for Normal/End-of-life Replacement

Staff proposes a $75 default value for the incremental cost between the high-efficiency and the standard compliant models for normal/end-of-life replacement of multifamily refrigerators.[15] Staff's proposal would also permit program administrators to use a lesser value with documentation of lower costs, not less than $35. According to Staff, the incremental price of refrigerators of various efficiency levels can vary widely (above and below $75). Further, comparison of various

[14] "Residential Retrofit High Impact Measure Evaluation Report" prepared for the California Public Utilities Commission Energy Division, The Cadmus Group, February 8, 2010. Available at www.calmac.org/publications/FinalResidentialRetroEvaluationReport_11.pdf

[15] Under the dual baseline approach, this incremental cost is also used for early replacement.

units is complicated by differences in features and warranties. However, we adopt the $75 incremental cost as a reasonable default value in order to facilitate the benefit/cost analysis performed by program administrators. We will also allow program administrators to use a lesser value, not less than $35, if they can document those costs.

Consolidated Table of Effective-Useful-Life Values

Staff proposes a "Consolidated Table of Measure Effective Useful Lives" for all benefit/cost analyses of covered measures. We adopt this table with some modifications. The table as modified is attached as an Appendix.

NYSERDA proposes that the service life for opaque shell insulation in residential applications be listed at 40 years instead of 20 as proposed by Staff. Extending a benefit/cost analysis to 40 years renders out-year savings estimates more and more speculative. However, we recognize that opaque shell insulation has the potential to remain functional for a considerable number of years and allowing for benefits in additional years for TRC analysis is reasonable. In order to balance these concerns, we adopt a conservative increase in the measure life to 30 years. Staff and program administrators shall calculate TRCs for opaque shell insulation assuming constant long range avoided cost (LRAC) values (in real, same year dollars) for the years beyond those contained in our established LRACs estimates.

National Grid notes that the terms “packaged heat pumps” and “packaged air source heat pumps” are listed separately in the December 28, 2010 consolidated table of effective-useful-life values and requests clarification. This inadvertent duplication has been corrected in the current table. National Grid also requests effective-useful-life values for a list of over thirty measures/measure groups currently offered

through its EEPS programs, for which Staff did not propose an effective-useful-life value. Recognizing the value of covering as many eligible measures as feasible, we have added effective-useful-life values for almost all of the proposed additions. For twenty-five of them, we adopt the values proposed by National Grid or substitute a larger value. We reject inclusion of the solar measure proposed by National Grid as not authorized for EEPS programs. In other instances, National Grid listed a group of sub-measures as one item without tying effective-useful-life values to the specific sub-measures. Absent specific proposed values and clarity in measure identification, these measure groups were not acted upon.

In addition, National Grid disagrees with Staff's proposed EULs for three measures. For furnace tune-ups National Grid suggests an effective-useful-life value of five years instead of 10 years and we adopt the five-year value. For refrigerated case (walk-in) LEDs, the company advocates an increase from 3.5 years to 6 to 10 years (depending on hours of operation and whether a motion sensor is in use). Staff, after discussion of available national data with its consultant TecMarket, recommends six years in all cases, provided that only measures with a 50,000 hours rated life and a 5 year warranty are eligible for EEPS incentives. We adopt six years as the EUL with these program conditions. National Grid also disputed the seven-year effective-useful-life value for residential compact fluorescent light fixtures, citing an Energy Star estimate of 22,000 hours ballast life and advocating 20 years instead. TecMarket and Staff agree with National Grid's premise and we adopt a value of 22,000 hours divided by annual use hours as the measure life with a maximum measure life of 20-years.

NYSERDA's proposal to extend special circumstances replacement treatment to its EmPower program is beyond the scope of this Order.

SEQRA FINDINGS

Pursuant to our responsibilities under the State Environmental Quality Review Act (SEQRA), in conjunction with this Order we find that programs modified 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

The Commission approves the changes to the Consolidated Technical Manual described above.

The Commission orders:

1. Energy Efficiency Portfolio Standard (EEPS) Program Administrators are authorized to apply special circumstance replacement treatment pursuant to the criteria described above. The Director of the Office of Energy Efficiency and Environment is directed to compile and provide simplifying lookup tables with instructions, adapted for special circumstances replacements as discussed above, of energy savings and costs consistent with the dual baseline concept, as an

attachment to the Consolidated Technical Manual by September 1, 2011.

2. The Energy Efficiency Portfolio Standard (EEPS) programs will be administered in accordance with the revisions to the consolidated technical manual described above, the attachment contained here as an Appendix and in accordance with the discussion contained in the body of this Order.

3. Program Administrators and Staff are directed to resolve questions regarding the correct approach for valuing savings within the Implementation Advisory Group under the mechanism we provided for modifying the Technical Manual in our June 20, 2011 Order in this proceeding

4. This proceeding is continued.

By the Commission

Jaclyn A. Brilling

Digitally Signed by Secretary
New York Public Service Commission

JACLYN A. BRILLING
Secretary

Consolidated Table of Prescribed Effective Useful Life Values (EULs)

Measure	Sector	Effective Useful Life (years)	Source
Air Leakage Sealing	Residential	15	GDS[16]
Boiler	Residential	25	Efficiency VT[17]
Boiler Reset Control	Residential	15	ACEEE[18]
Central Air Conditioning	Residential	15	DEER[19]
Central Air Source Heat Pumps	Residential	15	DEER
CFL Light Bulb	Residential	Coupon - 5 Direct Install - 7 Markdown - 7	GDS[1]
	MF Common Area	9000 hours / annual operating hours	See note below[20]
Light Fixture: Houses, apartments, and MF Common Areas.	Residential: Linear Fluorescent	70,000 hours / annual operating hours, or 20 years (whichever is less)	DEER[21]
	Residential:CFL	22,000 hours / annual operating hours, or 20 years (whichever is less)	See note below[22]
Clothes Washers	SF Res MF Res	11 14	DEER NWPPC
Duct Insulation and Leakage Sealing	Residential	18	DEER
EC Motors on Furnace Fans	Residential	15	DEER
EC Motors on Hydronic Heating Pumps	Residential	15	See note below[23]
Electric Heat Pump Water Heater[24]	Residential	10	DEER[25]
Energy Star Dehumidifier	Residential	12	US EPA[26]
Energy Star Dishwasher	Residential	11	DEER

[16] Measure Life Report, Residential and Commercial/Industrial Lighting and HVAC Measures, GDS Associates, June 2007. http://www.ctsavesenergy.org/files/Measure%20Life%20Report%202007.pdf.

[17] Efficiency Vermont Technical Reference Manual, ver. 4.

[18] Potential for Energy Efficiency, Demand Response and Onsite Solar Energy in Pennsylvania, ACEEE report number E093. April 2009.

[19] Effective Useful Life tables to be used by California IOUs for 2009-2011 program cycle planning. From the California DEER website: www.deeresources.com.

[20] Multifamily common areas tend to have longer run hours than dwelling units. Default value from C&I lighting table is 7,665 hours per year.

[21] Capped at 20 years.as is common given redecoration patterns.

[22] Based on 22,000 hour ballast life per US EPA. Capped at 20 years as above (2.5 hours per day average lamp operation).

[23] Based on DEER value for furnace fans.

[24] Electric heat pump used for service hot water heating.

[25] Effective Useful Life tables to be used by California IOUs for 2009-2011 program cycle planning from the California DEER website: www.deeresources.com.

[26] ENERGY STAR Dehumidifier Calculator. http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/CalculatorConsumerDehumidifier.xls.

Measure	Sector	Effective Useful Life (years)	Source
Faucet Aerators	Residential	10	DEER
Furnace Tune-Up	Residential	5	See note below[27]
Ground Source Heat Pump	Residential	20	DPS
Heat Pump Water Heater	Residential	10	DEER
High Efficiency Gas Furnace	Residential	20	DEER
High Performance Windows	Residential	20	DEER
Hot Water Tank Insulation	Residential	10	NYSERDA[28]
Indirect Water Heater	Residential	13	DEER[29]
Instantaneous Water Heaters	Residential	20	ACEEE
Low Flow Showerheads	Residential	10	DEER
Opaque Shell Insulation	Residential	30	See note below[30]
Pipe Insulation	Residential	13 – Electric water heater 11 – Gas Water Heater	DEER
Refrigerant Charge Correction	Residential	10	DEER
Refrigerator	Residential	17	DPS
Refrigerator, Freezer and Room Air Conditioner Bounty/Recycling	Residential	Freezer: 4[31] Refrigerator: 5 Room AC: 3	DEER[32]
Right Sizing	Residential	15	DEER[33]
Room Air Conditioners	Residential	9	DEER
Setback Thermostat	Residential	11	DEER
Submetering	MF Res	14	DPS
Water Heater	Residential	13 – Electric water heater 11 – Gas Water Heater	DEER

[27] Reduced from DEER value of 10 years.
[28] NYSERDA Energy Smart Program Deemed Savings Database. Rev 9 – 062006.
[29] Based on EUL of unfired (electric) water heater tank from DEER
[30] Consistent with commercial value below.
[31] The hypothetical remaining years of use in the absence of removal of the appliance by the program.
[32] DEER 2008 RUL assumptions, based on 1/3 of DEER EUL
[33] Savings assumed to persist over EUL of air conditioner or heat pump.

Measure	Sector	Effective Useful Life (years)	Source
Air Compressor Upgrade	C&I	15	Ohio TRM[34]
Air Side Economizer	C&I	10	DEER
Anti-Sweat Heater Controls	C&I	12	DEER
Auto/Fast Close Doors for Walk-in Coolers/Freezers	C&I	8	DEER
Boiler Reset Control	C&I	15	See note below[35]
CFL Light Bulb	C&I	9000 hours / annual operating hours	See note below[36]
CFL Light Fixture (for linear fluorescent, see under Interior and Exterior Lighting)	C&I	12	DEER
Chiller	C&I	20	DEER
Combined High Efficiency Boiler and Water Heater	C&I	20	DEER[37]
Compressed Air Engineered Nozzle	C&I	15	PA Consulting for WI PSC[38]
Commercial High Efficiency Electric Cooking Equipment (Oven, Fryer, Steamer)	C&I	12	DEER
Commercial High Efficiency Gas-Fired Cooking Equipment (Oven, Griddle, Fryer, Steamer)	C&I	12	DEER
Commercial/Industrial Refrigeration Controls (condenser pressure and temperature controls)	C&I	15	DEER
Commercial/Industrial Refrigeration Equipment (Condensers, Compressors, Subcooling)	C&I	15	DEER
Condensing Gas-Fired Unit Heater for Space Heating	C&I	18	Ecotope[39]
Cool Roof	C&I	15	DEER
Cooling Tower	C&I	15	DEER
Demand Controlled Ventilation	C&I	10	DEER
Duct Insulation and Leakage Sealing	C&I	18	DEER
Efficient Air-Cooled Refrigeration Condenser	C&I	15	DEER
Electric Heat Pump Water Heater	C&I	10	DEER

[34] Ohio Technical Reference Manual (TRM). Based on a review of TRM assumptions from Vermont, New Hampshire, Massachusetts, and Wisconsin. Estimates range from 10 to 15 years. www.OhioTRM.org.

[35] Set to 15 years, consistent with Energy Management System (EMS) value in DEER.

[36] Based on reported annual operating hours; default value by space type in the technical manual (pps. 109-110).

[37] Based on DEER value for high efficiency boiler.

[38] PA Consulting Group (2009). *Business Programs: Measure Life Study*. Prepared for State of Wisconsin Public Service Commission.

[39] Ecotope Natural Gas Efficiency and Conservation Measure Resource Assessment (2003).

Measure	Sector	Effective Useful Life (years)	Source
Electronically Commutated Motors (ECMs) on HVAC Equipment (including fan powered terminal boxes, fan coils and HVAC supply fans)	C&I	15	DEER[40]
Electronically Commutated Motors (ECM) for Refrigerated Cases and Walk-in Cooler Fans	C&I	15	DEER
Energy Management System	C&I	15	DEER
Evaporator Fan Controls	C&I	16	DEER
Exterior Lighting Controls	C&I	8	DEER[41]
Faucet Aerators	C&I	10	DEER
Furnaces and Boilers	C&I	20	DEER
High Performance Glazing	C&I	20	DEER
Hotel Occupancy Sensors (Occupancy-based controls for hotel room Packaged Terminal AC and HP units)	C&I	8	DEER[42]
Retro-Commissioning (RCx)	C&I	10	DEER
Indirect Water Heater	C&I	15	DEER[43]
Infrared Gas Space Heater	C&I	17	GDS
Interior and Exterior Lighting: including linear fluorescent	C&I	70,000 hours/annual operating hours or 15 years (whichever is less)	DEER[44]
Interior Dry Transformers	C&I	25	See note below[45]
Interior Lighting controls	C&I	8	DEER
Low Flow Showerheads	C&I	10	DEER
Motors	C&I	15	DEER
No Loss Drain	C&I	15	Ohio TRM[46]
Opaque Shell Insulation	C&I	30	Energy Trust and CEC[47]
Packaged Air Conditioners	C&I	15	DEER
Packaged Air Source Heat Pumps	C&I	15	DEER
Pipe Insulation (DHW or HVAC)	C&I	11	DEER
Plug Load Occupancy Sensor	C&I	8	DEER[48]
Pre-Rinse Spray Valve	C&I	5	GDS
Programmable Setback Thermostat	C&I	11	DEER

[40] DEER value for HVAC fan motors.
[41] Same as DEER value for interior lighting controls.
[42] DEER value for occupancy sensor controls. Hardwired (not battery powered) controls only.
[43] EUL for commercial central water heater used.
[44] Capped at 15 years to reflect C&I redecoration and business type change patterns.
[45] 25 yrs for new transformers is conservative estimate based on literature review: DOE assumes typical service lifespan of 32 yrs; ASHRAE lists typical service life of 30 yrs.
[46] EUL for this measure not available. Default to air compressor upgrade EUL from Ohio TRM. www.OhioTRM.org.
[47] Energy Trust uses 30 years for commercial applications. http://energytrust.org/library/reports/resource_assesment/gasrptfinal_ss103103.pdf. CEC uses 30 years for insulation in Title 24 analysis.
[48] DEER value for lighting occupancy sensors

Measure	Sector	Effective Useful Life (years)	Source
Refrigerant Charge Correction	C&I	10	DEER
Refrigerated Air Dryer	C&I	15	Ohio TRM
Refrigerated Case LEDs	C&I	6	NW RTF[49]
Refrigerated Case Night Covers	C&I	5	DEER
Refrigerators	C&I	12	DEER
Strip Curtains and Door Gaskets for Reach-In or Walk-in Coolers and Freezers	C&I	4	DEER
Steam Traps Repair/Replace	C&I	6	DEER
Tankless Water Heater	C&I	20	DEER
Variable Frequency Drive	C&I	15	DEER
Vending Machine Occupancy Sensor Controls	C&I	5	DEER
Water Heaters	C&I	15	DEER
Water Heater Tank Wrap	C&I	7	DEER
Window Film	C&I	10	DEER

[49] Northwest Regional Technical Forum (RTF) value