

Department of Energy

§ 455.63

(v) An estimate of any significant salvage value or disposal cost of each energy conservation measure at the end of its useful life if relevant to the cost effectiveness test applicable under this part;

(vi) An estimate, supported by all data and assumptions used in arriving at the estimate, of the annual energy savings, the annual cost of energy to be saved, and total annual cost savings using current energy prices including demand charges expected from each energy conservation maintenance and operating procedure change and the acquisition and installation of each energy conservation measure. In calculating the potential annual energy savings, annual cost of energy to be saved, or total annual cost savings of each energy conservation measure, including renewable resource measures, the technical assistance analyst shall:

(A) Assume that all energy savings obtained from energy conservation maintenance and operating procedures have been realized;

(B) Calculate the total annual energy savings, annual cost of energy to be saved, and total annual cost savings, by fuel type, expected to result from the acquisition and installation of the energy conservation measures, taking into account the interaction among the various measures;

(C) Calculate that portion of the total annual energy savings, annual cost of energy to be saved, and total annual cost savings, as determined in paragraph (d)(3)(vi)(B) of this section, attributable to each individual energy conservation measure; and

(D) Consider climate and other variables;

(vii) An analysis of the cost effectiveness of each energy conservation measure consistent with § 455.63 and, if applicable, § 455.64 of this part;

(viii) The estimated cost of the measure, which shall be the total cost for design and other professional service (excluding the cost of a technical assistance program), if any, and acquisition and installation costs. If required by the State in its State Plan, or if requested by the applicant, the technical assistance report shall provide a life-cycle cost analysis which is consistent with § 455.64 and states the discount

and energy cost escalation rates that were used;

(ix) The simple payback period of each energy conservation measure, calculated pursuant to § 455.63(a);

(4) Energy use and cost data, actual or estimated, for each fuel type used for the prior 12-month period, by month, if possible;

(5) Documentation of demand charges paid by the institution for the prior 12-month period, by month if possible, when demand charges are included in current energy prices or when the technical assistance report recommends an energy conservation measure that shifts energy usage to periods of lower demand and cost; and

(6) A signed and dated certification that the technical assistance program has been conducted in accordance with the requirements of this section and that the data presented is accurate to the best of the technical assistance analyst's knowledge.

§ 455.63 Cost-effectiveness testing.

(a) This paragraph applies to calculation of the simple payback period of energy conservation measures.

(1) The simple payback period of each energy conservation measure (except measures to shift demand, or renewable resource measures) shall be calculated, taking into account the interactions among the various measures, by dividing the estimated total cost of the measure, as determined pursuant to § 455.62(d)(3)(ii), by the estimated annual cost savings accruing from the measure (adjusted for demand charges), as determined pursuant to § 455.62(d)(3)(vi), provided that:

(i) At least 50 percent of the annual cost savings used in this calculation shall be from the cost of the energy to be saved or a higher percent if required by a State in its State Plan pursuant to § 455.20(u)(3); and

(ii) No more than 50 percent of the annual cost savings used in this calculation shall be from other cost savings, such as those resulting from energy conservation maintenance and operating procedures related to particular energy conservation measures, or from changes in type of fuel used, or a lower percent if required by a State

§ 455.64

10 CFR Ch. II (1-1-12 Edition)

in its State Plan pursuant to § 455.20(u)(3).

(2) The simple payback period of each renewable resource energy conservation measure shall be calculated, taking into account the interactions among the various measures, by dividing the estimated total cost of the measure, as determined pursuant to § 455.62(d)(3)(ii), by the estimated annual cost savings accruing from the measure taking into account at least the annual cost of the non-renewable fuels displaced less the annual cost of the renewable fuel, if any, and the annual cost of any backup non-renewable fuel needed to operate the system, adjusted for demand charges, as determined pursuant to § 455.62(d)(3)(vi).

(3) The simple payback period of each energy conservation measure designed to shift demand to a period of lower demand and lower cost shall be calculated, taking into account the interactions among the various measures, by dividing the estimated total cost of the measure, as determined pursuant to § 455.62(d)(3)(ii), by the estimated annual cost savings accruing from the measure taking into account at least the annual cost of the energy used before the measure is installed less the estimated annual cost of the energy to be used after the measure is installed, adjusted for demand charges, as determined pursuant to § 455.62(d)(3)(vi).

(b) This paragraph applies, in addition to paragraph (a) of this section, if the State plan requires the cost effectiveness of an energy conservation measure to be determined by life-cycle cost analysis or if the applicant requests such an analysis.

(1) A life-cycle cost analysis, showing a savings-to-investment ratio greater than or equal to one over the useful life of the energy conservation measure or 15 years, whichever is less, shall be conducted in accordance with the requirements set forth in the State Plan pursuant to §§ 455.20(u)(2), 455.20(u)(3) and § 455.64.

(2) The resulting savings-to-investment ratio shall be used for the purpose of ranking applications.

§ 455.64 Life-cycle cost methodology.

(a) The life-cycle cost methodology under § 455.63(b) of this part is a sys-

tematic comparison of the relevant significant cost savings and costs associated with an energy conservation measure over its expected useful life, or other appropriate study period with future cost savings and costs discounted to present value. The format for displaying life-cycle costs shall be a savings-to-investment ratio.

(b) An energy conservation measure must be cost effective, and its savings-to-investment ratio must be greater than or equal to one no earlier than the end of the second year of the study period.

(c) A savings-to-investment ratio is the ratio of the present value of net cost savings attributable to an energy conservation measure to the present value of the net increase in investment, maintenance and operating, and replacement costs less salvage value or disposal cost attributable to that measure over a study period.

(d) Except for energy conservation measures to shift demand or to use renewable energy resources, the numerator of the savings-to-investment ratio shall include net cost savings, appropriately discounted and adjusted for energy cost escalation consistent with paragraph (g) of this section, subject to the limitation that the cost of the energy to be saved shall constitute at least 50 percent of the net cost savings unless the State specifies a higher percent in its State plan pursuant to § 455.20(u)(3).

(e) With respect to energy conservation measures to shift demand or to use renewable energy resources, the numerator of the savings-to-investment ratio shall be net cost savings appropriately discounted and adjusted for energy cost escalation consistent with paragraph (g) of this section.

(f) The study period for a life-cycle cost analysis, which may not exceed 15 years, shall be the useful life of the energy conservation measure or of the energy conservation measure with the longest life (for purposes of ranking buildings with multiple energy conservation measures).

(g) The discount rate must equal or exceed the discount rate annually provided by DOE under 10 CFR part 436. The energy cost escalation rates must