2638

Commonwealth of Puerto Rico
GENERAL SERVICES ADMINISTRATION

REGULATION NUMBER 16

OF THE GENERAL SERVICES ADMINISTRATION

REGULATION FOR "ENERGY CONSERVATION"

Commonwealth of Puerto Rico

GENERAL SERVICES ADMINISTRATION

No. 2638
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Approved: Pedro R. Vázquez
Secretary of State

By: Lourdes Del Pueblito
Assistant Secretary of State

REGULATION NUMBER 16

To establish the standards that will prevail and regulate in the acquisition of equipment that consume energy, including vehicles; to point out the procedures that will be observed in the acquisition of said equipment; to establish the rules to be followed in the evaluation, analysis and award of said equipment; to fix responsibilities and obligations; to establish penalties; and to delegate certain functions of the Administrator of the General Services Administration.

I N D E X

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REGULATION FOR ENERGY CONSERVATION

Pages

FIRST PART

GENERAL STANDARDS

SECTION A: - INTRODUCTION

Article 1. - Short Title

This regulation will be known as "Regulation for Energy Conservation".

Article 2. - Legal Base

This regulation is adopted in accordance with the powers bestowed to the Administrator of the General Services Administration by Article 2 and 5 of Act Number 69, of June 8, 1979 and Executive Order Number 3659, issued by the Governor of Puerto Rico, dated August 3, 1979.

Article 3. - Purpose

This regulation is adopted for the purpose of establishing minimum requirements for the equipment to be purchased by the Government, in order to promote the acquisition of that equipment with the highest energy efficiency ratings. Said minimum requirements will help to attain the objectives set forth by the Government in the conservation of energy. Also, to establish the formulas and criterion to be applied in the evaluation, analysis and award of purchases of equipment so as to reduce to the bear minimum the waste and excess consumption of energy within the State agencies and governmental entities.

Article 4. - Rules of Interpretation

a) Time, Gender and Number

The words and phrases used in this regulation shall be interpreted according to its context and meaning. Present tense includes the future tense; masculine includes femenine and neutral except when such interpretation may result absurd; singular includes plural and viceverse.

b) Abbreviations & Definitions

The words and phrases used in this regulation are defined in this sub-paragraph and are short terms as follows:

(1) Administration - The General Services Administration.

(2) Administrator - The Administrator of the General Services Administration.

(3) Government of Puerto Rico - The three (3) branches of the Government of Puerto Rico.

(4) Equipment - All equipment that consumes energy (fuel and or electricity) including vehicles.

(5) Life Cycle Costing Criterion (LCC) - An acquisition technique which considers acquisition price, operation costs, maintenance costs and other related costs to determine the best performance for the lowest total cost of ownership.

(6) Energy Efficiency Ratio (EER) - An established measure of the efficiency of the equipment in terms of capacity over energy consumed.

(7) Purchase - Acquisition or procurement of equipment by means of the standards and forms established in this regulation and any other regulation in force that regulates purchases in the Government.

(8) Formula - Rule expressed in algebraic symbols where each symbol bears a value and or a meaning.

(9) Purchaser - Any purchaser in the Government duly appointed as such by a competent authority.

(10) Bidder/Offeror - Any person, natural or lawful, who participates or wishes to participate in bids or quotations.

(11) Board of Awards - Boards of Awards in the Government which are in charge of implementing acquisition regulations as well as evaluating, analyzing and awarding of bids.

(12) Regulatory Board - Consulting body of the Administrator in the preparation and revision of the specifications, terms and conditions in all purchases within the Government.

Article 5. - Jurisdiction

The dispositions in this regulation apply in all acquisition transactions for the purchase of equipment that may take place within the Government as set forth in Act Number 69, of June 8, 1979.

Article 6. - Scope

All public officials and governmental employees are bound to comply with the dispositions in this regulation.

Article 7. - Interrelation with other Standards

The dispositions in this regulation should not be interpreted isolately; when interpreting the standards here on stated, attention shall be placed in all other applicable regulations regarding energy conservation as well as any future standards that may be adopted by the Administrator and or the Energy Office of Puerto Rico.

SECOND PART

MINIMUM REQUIREMENTS IN ENERGY EFFICIENCY

SECTION A: - PROCEDURE

Article 8. - Statute

It is hereby established the statute that will be observed when making any purchase of equipment in the Government.

Article 9. - Specific

There will be no purchase of equipment made in the Government unless an evaluation and analysis is performed prior to the purchase to determine its acceptability of the level of energy consumption applying the Energy Efficiency Ratio (EER) Standards and or the Life Cycle Costing (LCC) Criterion.

Article 10. - Standard

When the established measure of efficiency of the equipment in terms of capacity over the energy consumed is applied in a purchase we are applying the Energy Efficiency Ratio (EER) Standards.

a) This standard is expressed in a number (e.i. EER-8) and is always printed in the nomenclature plate of the equipment. The higher the number, the higher the energy efficiency of the equipment.

b) The Energy Office of Puerto Rico has determined that the acceptable standard is between EER-8 and EER-10.

c) When the equipment to be purchased, becaused of its nature, does not allow to determine the standard, then the evaluation and analysis will have to be done by applying the criterion.

Article 11. - Criterion

When it is take into account the operating, maintenance and other costs of ownership, as well as the acquisition price, we are applying the Life Cycle

Costing Criterion (LCC) in the purchase of equipment.

SECTION B: - APPLICATION OF THE CRITERION

Article 12. - Elements of Costs

a) Acquisition Cost - The price quoted by the bidder or offeror.

b) Operating Cost - Those expenses incurred regularly during the normal operation of the equipment. Usually consist of fuel or electricity used or consumed to operate the equipment.

c) Maintenance Costs - Those expenses incurred regularly in maintaining the equipment during its normal operation including both, remedial and preventive maintenance.

d) Other Costs - Any other predictable expenses that may be considered in the evaluation and in the analysis.

Article 13. - Prerequisites for using the LCC procurement method

a) Ability to predict costs with reasonable confidence. One hundred per cent is, by no means, essential but costs prediction must be sufficiently accurate that the resultant contract award or purchase be more in line with Government interest than an award on the basis of price alone.

b) The second prerequisite is that bidders' claims must be capable of verification.

(1) By obtaining bid samples to be examined and tested.

(2) By accepting the claims for evaluation purposes.

(3) By requesting manufacturers certificates. Such certificated must be signed by the manufacturers and witnessed by a Notary Public, Bidder's Signatures are not accepted.

c) Third prerequisite is that the award criteria must be stated in the Invitation for Bid or Request for Quotation in clear and definite terms. The following "Warning" will be included in the terms and conditions of all invitations for bid or request for quotations:

> "The evaluation, analysis and award of this bid and or purchase will be made applying the Life Cycle Costing Criterion (LCC) and Standards of Energy Efficiency Ratio (EER) in compliance with Act Number 69, of June 8, 1979. All bidders are advised to fill all related blanks that may appear in the invitation documents for failure to comply will be grounds to disqualify participation in the bid. Should there be any doubts or need for additional information bidder or offeror should communicate with the official signing the bid's documents".

d) Invitation for Bids and Request for Quotations will always include the telephone number of the official signing such documents. The telephone number will appear in a conspicuous place of the first page.

THIRD PART

EVALUATION, ANALYSIS & AWARDS

SECTION A: - RESPONSIBILITY

The Government Buyers and Boards of Awards are responsible for the evaluation, analysis and award of all purchases of equipment in the Government. There will never be an award made unless the LCC Criterion and EER Standards are applied to determine which equipment is more economically sound based on energy consumption.

Article 14. - Evaluation

Soon after offers are received for the equipment requested they will be registered and tabulated in the form shown in Annex 1, as follows:

a) Left margin will reflect characteristics, specifications and nomenclature of requested equipment.

b) Top margin will reflect bidders or offerors.

c) Under each bidder or offeror extension are recorded describing equipment being offered.

d) Tabulated information will be used in the analysis of the equipment applying pertinent formulas.

Article 15. - Analysis

a) Several formulas are used in the analysis depending on the equipment being purchased. Basic formula is as follows:

$$EC = P \neq CO \neq CM$$

Where:

EC = Total evaluated cost along the probable useful life of the equipment. In all cases the probable useful life of the equipment will be the warranty offered by the bidder when one year or better. Otherwise, the probable useful life will be established based on the agencies experience with like products as to years and energy consumption units (hours, miles, etc.)

P = Quoted price

CO = Anticipated operation costs along the probable useful life of the equipment.

CM = Anticipated maintenance cost along the probable useful life of the equipment.

b) To determine the cost of operation (CO) the following formula is used:

$$CO = \frac{R(H \times K)}{EER}$$

Where:

R - Capacity of the equipment in terms of BTU's.

H - Total number of hours the equipment will be in operation along its probable useful life.

K - Cost of electricity in Kilowatts/Hour. The Energy Office of Puerto Rico will issue this cost from time to time.

EER - Energy Efficiency Ratio which is the quotient obtained when dividing the capacity in BTU's by the electrical power consumed (watts).

c) To determine maintenance cost (CM) the following formula is used:

$$CM = EF\ (LC + MC) + PMC$$

Where:

EF = Expected number of failures during the probable useful life of the equipment.

LC = Labor cost for each failure.

MC = Parts and material cost for each failure.

PMC = Preventive maintenance costs.

d) Life Cycle Costing analysis may be applied to any equipment that consume energy be it fuel or electricity. Other formulas are shown in Annex 3.

Article 16. - Award

After offers are analyzed and formulas resolved data is tabulated and recorded in the tables shown in Annex 2 as follows:

a) Left margin reflects offerors or their assigned numbers.

b) Upper margin reflects the following information from left to right:

(1) Bid price

(2) Cost of Operations

(3) Cost of Maintenance

(4) Total Cost (LCC)

c) Award is made to the responsible bidder that meet with the specifications, terms, conditions and bid the lowest offer considering initial acquisition price plus cost of operation and maintenance costs along the probable useful life of the equipment. Lowest total cost (LCC) reflected in the extreme right of the table is the lowest offer.

FOURT PART

GENERAL DISPOSITIONS

SECTION A: - REPORTS

Article 17. - Quarterly Report

Buyers and Boards of Award will prepare and submit quarterly reports covering purchases of equipment.

a) Reports will be submitted to the Purchase, Service and Supply Area of the General Services Administration, attention Regulatory Board, not later than the tenth day of the fourth month.

b) Reports will include the following information:

(1) Date of the report and period covered.

(2) Name of the person preparing the report and originating agency.

(3) Description of the equipment purchased during the period, (air conditioners, typewriters, etc.)

(4) Quantity purchased.

(5) Quoted price.

(6) Evaluated cost for award.

(7) Formula used.

(8) Copy of each table (Annexes 1 and 2) used in each purchase.

c) The purpose for the report is to register purchasing activities and to ascertain compliance with regulations.

SECTION B: - Penalties

a) Any bidder, vendor or offeror that submit incorrect or deceitful information with the intention of being favored with an award will be subject to civil court action against him in accordance with existing laws and regulations.

b) Public officials and Government employees that may incur in irregularities or non-compliances are subject to disciplinary action by the Administrator as may be determined by pertinent Personnel Laws of the Public Service.

SECTION C: - Effectiveness

This regulation will take effect thirty (30) days after its filing at the Department of State of Puerto Rico in accordance with the dispositions of Act Number 112, of June 30, 1957, as amended, known as the Regulations Law.

SECTION D: - Annexes

This regulation includes various annexes depicting tables and formulas applicable in the evaluation and analysis of purchases related to Life Cycle Costing Criterion (LCC).

Subscribed and approved in San Juan, Puerto Rico, this 22d day of April 1980.

Leopoldo Mercado Santini
Administrator

TABLE FOR EVALUATION AND ANALYSIS

Specification of Equipment	Bidder #1	Bidder #2	Bidder #3	Bidder #4	Bidder #5	Bidder #6	Bidder #7

SUMMARY OF OFFERS

Bidder	Quoted Price	Cost of Operation	Cost of Maintenance	Cost of Preventive Maintenance	Other Costs	Total Evaluated Cost LCC

ANNEX 3:

Suggested Formulas

A - Automobiles and Motor Vehicles

$$EC = P - B \quad \frac{(C \times E)}{(D \quad)}$$

Where:

EC = Total evaluated cost over the anticipated life span of the equipment.

P = Quoted price

B = Trade-in allowance

C = Probable useful life in miles

D = Efficiency in miles per galon

E = Fuel price

Note: Other costs may be applied if they can be predicted.

B - Electric Typewriters

$$EC = P + (W \times K \times H) + (E \times Qe \times Y) + (R \times Qr \times Y)$$

Where:

EC = Total evaluated cost over the anticipated life of the machine.

P = Quoted price.

W = Electricity consumption of machine during operation in Kilowatts/Hour.

K = Cost of electricity - Kilowatts/Hour.

H = Life of machine in hours.

E = Element cost.

Qe = Quantity of elements used per year.

Y = Life of machine in years.

R = Ribbon cost.

Qr = Quantity of ribbons used per year

C - Copying Machines

(1) $EC = P + A + B$

(2) $A = \frac{(Q)}{(C)} \times Ec \times K$

(3) $B = \frac{(2600 - Q)}{-C)} \times Es \times K$

Where:

EC = Energy Efficient cost calculated for one year.

P = Quoted price.

A = Cost of electricity used copying.

B = Cost of electricity used on Stand-by. (Use zero for instant on machines)

Q = Estimated copies to be produced per year.

C = Rated production of copies per hour.

Ec = Electricity consumption of machine when copying - Kilowatts/Hour.

K = Cost of electricity - Kilowatts/Hour.

Es = Electricity consumption of machine on Stand-by - $/watt-hour.

Note: Values for C, Ec and Es must be furnished by bidder.

D - Air Conditioners

(1) $EC = P + CO + CM$

(2) $CO = \frac{R(H \times K)}{EER}$

(3) $CM = EF(LC + MC) + PMC$

Where:

EC = Total evaluated cost over the anticipated life span of equipment.

P = Quoted price.

CO = Anticipated cost of operation along the probable life span of the equipment.

CM = Anticipated maintenance cost along the probable life span of the equipment.

R = Rated cooling capacity in BTU's.

H = Anticipated hours of operation along the probable life span of the equipment.

K = Cost of electricity - Kilowatts/Hour.

EER = Energy Efficiency Ratio

$$\frac{\text{(BTU's)}}{\text{(Watts)}}$$

EF = Expected number of failures during the probable life span of the equipment.

LC = Labor cost for each failure.

MC = Parts and material cost for each failure.

PMC = Preventive maintenance cost during the probable life span of the equipment.

E - Lighting

$$\frac{H \times L}{C \times W} = \text{LCC Factor}$$

Where:

H = Rated life in hours.

L = Rated lumens.

C = Unit cost.

W = Rated watts.

Note: In evaluating the purchase look for the most hours for the least cost and the most lumens for the least watts. Award is made using the highest LCC Factor.

F - For additional applicable formulas refer to the Regulatory Board, Box 4112, San Juan, Puerto Rico 00905.