BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

IN RE: Amendment of Rule 25-17.008,) F.A.C., pertaining to Conservation) and Self Service Wheeling Cost) Effectiveness Data Reporting Format.) _____)	DOCKET NO. 891324-EU ORDER NO. 23647 ISSUED: 10-22-90

NOTICE OF RULEMAKING

NOTICE is hereby given that the Commission, pursuant to section 120.54, Florida Statutes, has initiated rulemaking to amend Rule 25-17.008, F.A.C., relating to Conservation and Self Service Wheeling Cost Effectiveness Data Reporting Format.

The attached Notice of Rulemaking will appear in the October 26, 1990, edition of the Florida Administrative Weekly. If requested, a hearing will be held at the following time and place:

> 9:30 a.m., Friday January 4, 1991
> Room 106, Fletcher Building
> 101 East Gaines Street
> Tallahassee, Florida

Written requests for hearing and written comments or suggestions on the rule must be received by the Director, Division of Records and Reporting, Florida Public Service Commission, 101 East Gaines Street, Tallahassee, FL 32399, no later than November 16, 1990.

By Direction of the Florida Public Service Commission, this 22nd day of October , 1990 .

STEVE TRIBBLE, Director
Division of Records & Reporting

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FLORIDA PUBLIC SERVICE COMMISSION

Division of Appeals

DOCKET NO. 891324-EU

RULE TITLE: RULE NO.:

Conservation Cost Effectiveness   25-17.008

Data Reporting Format

PURPOSE AND EFFECT: The revision extends the applicability of the rule to include self-service wheeling proposals and places guidance in a manual incorporated by reference.

SUMMARY: Currently,   Rule   25-17.008,   Conservation   Cost Effectiveness Data Reporting Format, contains the data reporting formats for cost effectiveness tests. The proposed revisions would establish minimum filing requirements and place data reporting formats for cost effectiveness tests into a manual referenced by the rule, "Florida Public Service Commission Cost Effectiveness Manual for Demand Side Management Programs and Self Service Wheeling Proposals."   The proposed manual specifies four cost effectiveness components: (1) total resource impact; (2) rate impact; (3) utility impact; and (4) participant impact.

Self service wheeling proposals are explicitly included in the scope of the rule under the proposed changes which would standardize the tests for these proposals.

There are two proposed changes to the methodology contained in the referenced manual. First, the manual has avoided capacity benefits for conservation programs calculated on a year-by-year

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value-of-deferral method rather than a full revenue-requirement
method. This would put analysis of conservation programs and
cogeneration projects on the same basis. Second, the Total
Resource Cost Test is the primary method in determining the cost
effectiveness of a conservation program. However, it cannot be
used in isolation. The results of the other tests must also be
considered.

RULEMAKING AUTHORITY: 366.05(1), F.S.

LAW IMPLEMENTED: 366.082, 366.051, F.S.

SUMMARY OF THE ESTIMATE OF ECONOMIC IMPACT OF THIS RULE:

The proposed revisions should not significantly increase
Commission costs. Electric utilities do estimate a cost to their
operation. Computer software modifications, if necessary, were the
largest cost item reported by investor-owned utilities. Although
the FPSC supplies a Lotus 1-2-3 spreadsheet to assist in reporting
cost-effectiveness test data, some companies use different models
and have their own software. Investor-owned utilities report
varying estimates on "paperwork" costs for setting up a spreadsheet
program with an average of several thousand dollars. Other costs
would add to that in training, etc. The economic impact statement
estimates a total cost of $32,500 could be incurred by reporting
utilities if software had to be modified or developed.

There was no significant impact reported for including self-
service wheeling proposals under the rule amendment. The proposal
should benefit those companies proposing self-service wheeling by

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providing cost-effectiveness guidelines and establishing a consistent reporting format.

Some qualifying facilities may be small businesses and the proposal to use a year-by-year VOD (value of deferral) method rather than using full revenue requirements is intended to put analyses of QF projects on a more level playing field with analyses of other conservation projects.

There should not be any significant increases or decreases in employment from the rule changes.

A workshop was held by the Commission soliciting suggestions, and data requests were sent to companies to determine their impacts. Standard microeconomics analysis was used to assess the impacts on competition and employment.

WRITTEN COMMENTS OR SUGGESTIONS ON THE PROPOSED RULE MAY BE SUBMITTED TO THE FPSC, DIVISION OF RECORDS AND REPORTING, WITHIN 21 DAYS OF THE DATE OF THIS NOTICE FOR INCLUSION IN THE RECORD OF THE PROCEEDING.   IF REQUESTED WITHIN 21 DAYS OF THE DATE OF THIS NOTICE, A HEARING WILL BE HELD AT THE DATE AND PLACE SHOWN BELOW:

TIME AND DATE: 9:30 A.M., Friday, January 4, 1991

PLACE: Room 106, 101 East Gaines Street, Tallahassee, Florida.

THE PERSON TO BE CONTACTED REGARDING THIS RULE AND THE ECONOMIC IMPACT STATEMENT IS: Director of Appeals, Florida Public Service Commission, 101 East Gaines Street, Tallahassee, Florida 32399

THE FULL TEXT OF THE RULE IS:

(Substantial rewording of Rule 25-17.008. See Florida Administrative Code for present text).

25-17.008 Conservation and Self Service Wheeling Cost Effectiveness Data Reporting Format.

(1) This rule applies to all electric utilities, as defined by Section 366.82, F.S., whenever an evaluation of the cost effectiveness of an existing, new or modified demand side conservation program is required by the Commission and to all public utilities, as defined by Section 366.051, F.S., whenever an evaluation of the cost effectiveness of a self service wheeling proposal is required by the Commission. For the purpose of this rule, self service wheeling means transmission or distribution service provided by an electric utility to enable a retail customer to transmit electrical power generated by the customer at one location to the customer's facilities at another location.

(2) The purpose of this rule is to establish minimum filing requirements for reporting cost effectiveness data for any demand side conservation program proposed by an electric utility pursuant to Rule 25-17.002 and for any self service wheeling proposal made by a qualifying facility or public utility pursuant to Rule 25-17.0882.

(3) For the purpose of this rule, the Commission adopts and incorporates by reference the publication "Florida Public Service Commission Cost Effectiveness Manual For Demand Side Management

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Programs and Self Service Wheeling Proposals" dated 5, May 15, 1990.

(4) Nothing in this rule shall be construed as prohibiting any party from providing additional data proposing additional formats for reporting cost effectiveness data.

Specific Authority: 366.05(1), F.S.

Law Implemented: 366.82(1)-(4), 366.051, F.S.

History: New 11/28/82, formerly 25-17.08, Amended

NAME OF PERSON ORIGINATING PROPOSED RULE: Roland Floyd, Division of Electric and Gas

NAME OF SUPERVISOR OR PERSON WHO APPROVED THE PROPOSED RULES: Florida Public Service Commission

DATE PROPOSED RULES APPROVED: October 16, 1990

If any person decides to appeal any decision of the Commission with respect to any matter considered at the rulemaking hearing, if held, a record of the hearing is necessary. The appellant must ensure that a verbatim record, including testimony and evidence forming the basis of the appeal is made. The Commission usually makes a verbatim record of rulemaking hearings.

COST EFFECTIVENESS MANUAL

FOR

DEMAND SIDE MANAGEMENT PROGRAMS

AND

SELF SERVICE WHEELING PROPOSALS

FLORIDA PUBLIC SERVICE COMMISSION

TALLAHASSEE, FLORIDA

REVISION 6, SEPTEMBER 4, 1990

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SECTION I. INTRODUCTION

This manual describes the minimum data requirements for the cost-effectiveness analyses used by the Florida Public Service Commission (FPSC) to evaluate utility proposed conservation programs, direct load control programs, and self-service wheeling proposals. The use of this manual is authorized by FPSC Rule 25-17.008, F.A.C.

Chapter 366.82, Florida Statutes, requires the FPSC to review and approve cost effective utility conservation programs. In addition, Chapter 366.051, Florida Statutes, requires public utilities to provide wheeling for self-service customers if such wheeling is not likely to result in higher cost electric service to the utility's general body of retail and wholesale customers or adversely affect the adequacy or reliability of electric service to all customers. FPSC Rule 25-17.008 and this manual were adopted as part of the implementation of these Statutes.

The Total Resource Cost test described in this manual is considered to be the primary basis for determining the cost effectiveness of a conservation program since it is designed to take into account total costs and benefits to the utility and its ratepayers as a whole. It is also designed to account for externalities where these can be quantified. However, the Total Resource Cost test is not to be used in isolation of the other three tests described in this manual. These other tests provide useful information to be weighed by the Commission when making decisions regarding the adoption of programs. It is emphasized that these tests simply provide a uniform format for reporting cost effectiveness data whenever an evaluation of an existing, new, or modified conservation program or self-service wheeling proposal is required by the FPSC.

Figure 1 is a pictorial comparison of the four basic types of cost effectiveness analyses set forth in this manual. These are the Participants Test, the Total Resource Cost Test, the Rate Impact Test, and the Utility Cost Test. Only very broad categories of costs and benefits are depicted so that the conceptual differences may be seen at a glance.

The delineation of the various ways of expressing test results is not meant to discourage the continued development of additional variations for expressing cost-effectiveness.

COMPARISON OF THE FOUR MAJOR COST EFFECTIVENESS TESTS

	RATE IMPACT	*TOTAL RESOURCE*	*UTILITY*	*PARTICIPANT*
BENEFITS	Revenue Gain	Avoided Appliance Costs		Bill Reductions and Incentives
	Avoided Supply Costs	Avoided Supply Costs	Avoided Supply Costs	Avoided Appliance Costs
COSTS	Increased Supply Costs	Increased Supply Costs	Increased Supply Costs	Equipment Costs and O & M Costs
	Utility Program Costs	Utility Program Costs	Utility Program Costs	
	Incentives	Participant Costs	Incentives	
	Revenue Loss			

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Figure 1

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SECTION II. CONSERVATION AND DIRECT LOAD CONTROL

This Section describes the cost effectiveness tests that are required for conservation and direct load control programs. Four separate tests are defined. These are: the Total Resource Cost Test; the Participants Test; the Rate Impact Test; and the Utility Cost Test.

The following information is provided for each test: (1) a definition; (2) the components of the benefits; (3) the components of the costs; (4) the formulas to be used to express the results in acceptable ways; and (5) the reporting format.

TOTAL RESOURCE COST TEST

DEFINITION:

The Total Resource Cost Test measures the net costs of a demand-side management program as a resource option based on the total costs of the program, including both the participants' and the utility's costs. This test may be turned into a Societal Test by excluding tax credit benefits, by including costs and benefits of externalities, and by using a societal discount rate, assuming that the costs and benefits of externalities are quantifiable.

GENERAL DESCRIPTION OF BENEFITS:

The benefits are the avoided supply costs, including avoided generation, transmission, and distribution costs. The avoided supply costs should be calculated using net savings, ie., savings net of changes in energy use that would have happened in the absence of the program. Benefits include avoided supply costs for energy-using equipment not chosen by the participant.

GENERAL DESCRIPTION OF COSTS:

The costs are the program costs incurred by the utility and any increased supply costs. All equipment costs, installation, operation and maintenance, and administration costs, no matter who pays for them, are included in this test.

FORMULAS:

$$B_{npv} = \text{Sum of } (B_t / D^{t-1}) \text{ for } t = 1 \text{ to } n$$

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C_{npv} = Sum of (C_t / D^{t-1}) for t = 1 to n

where

B_{npv} is the net present value of program benefits
C_{npv} is the net present value of program costs
B_t are the total program benefits for year t
C_t are the total program costs for year t
D is 1 + the discount rate for the utility
n is the life of the program

B_t is further defined as follows:
$$B_t = AG_t + AT_t + AD_t + FS_t + TC_t + OB_t$$

where

AG_t are the avoided generation benefits
AT_t are the avoided transmission benefits
AD_t are the avoided distribution benefits
FS_t are the fuel savings from decreased sales
TC_t are any tax credits
OB_t are any other quantifiable benefits

AG_t is further defined as follows:

$$AG_t = AC_t + AO_t + AF_t - RD_t$$

where

AC_t are avoided unit capacity costs
AO_t are avoided unit O&M costs
AF_t are avoided unit fuel costs
RF_t are replacement fuel costs

AC_t is further defined as follows:

AC_t = 0 before the in-service year
AC_t = $K*CC*(1-R)/(1-R^N)$ for the in-service year
AC_t = $AC_{t-1}*(1+E_p)$ after the in-service year

where

N is the economic life of the avoided generating unit
K is the present value of carrying charges for one dollar of investment over N years
CC is the avoided in-service-year capacity costs including AFUDC
E_p is the plant cost escalation rate
R = $(1+E_p)/D$

AT_t and AD_t, avoided transmission plant and avoided distribution plant, are defined similarly to AC_t. The in-service year, the economic life, K factor, and plant escalation rate for transmission and distribution plant may differ from that of the avoided generating unit.

C_t is further defined as follows:

$$C_t = IS_t + UC_t + PC_t + OC_t$$

where

IS_t are any increased supply costs
UC_t are utility program costs
PC_t are participant program costs
OC_t are other quantifiable costs

If $B_{npv} > C_{npv}$ the program is cost effective.

REPORTING FORMAT:

Input: PSC Forms CE 1.1, 1.1A, 1.1B, 1.2

Output: PSC Forms CE 2.1, 2.2, 2.3

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PARTICIPANTS TEST

DEFINITION:

The Participants Test measures the impact of the program on the participating customers.

GENERAL DESCRIPTION OF BENEFITS:

The benefits include the reductions in the customers' bills, incentives paid by the utility or other third party, and any tax credits received.

For fuel substitution programs, benefits include the avoided capital and operating costs of the equipment not chosen. For load building programs, benefits include any increases in productivity or services attributable to the load building program.

GENERAL DESCRIPTION OF COSTS:

The costs include increases in the customers' bills, equipment and materials purchased, ongoing operation and maintenance costs and any equipment removal costs.

FORMULAS:

B_{npv} = Sum of (B_t / D^{t-1}) for t = 1 to n

C_{npv} = Sum of (C_t / D^{t-1}) for t = 1 to n

where

B_{npv} is the net present value of program benefits
C_{npv} is the net present value of program costs
B_t are the total program benefits for year t
C_t are the total program costs for year t
D is 1 + the discount rate for part. customers
n is the life of the program

B_t is further defined as follows:

$$B_t = BS_t + TC_t + UR_t + OB_t$$

where

BS_t are savings in customer bills
TC_t are any tax credits
UR_t are utility rebates or incentives
OB_t are any other quantifiable benefits

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C_t is further defined as follows:

$$C_t = EC_t + CM_t + OC_t$$

where

EC_t are customer equipment costs
CM_t are customer O&M costs
OC_t are other quantifiable costs

If $B_{npv} > C_{npv}$ the program is cost effective.

REPORTING FORMAT:

Input: PSC Forms CE 1.1, 1.2

Output: PSC Forms CE 2.4

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RATE IMPACT TEST

DEFINITION:

The Rate Impact Test is an indirect measure of the impact on customer rates caused by the program. Rates will go down more than they otherwise would have if the change in utility revenues minus the change in utility costs is positive. Rates will go up more than they otherwise would have if the change in utility revenues minus the change in utility costs is negative.

GENERAL DESCRIPTION OF BENEFITS:

The benefits are the avoided supply costs, including avoided generation, transmission, and distribution costs. The benefits also include any increased revenues generated by the program.

GENERAL DESCRIPTION OF COSTS:

The costs include the program costs incurred by the utility, the incentives paid to participants, and increased supply costs. The costs also include any decrease in revenues caused by the program.

FORMULAS:

B_{npv} = Sum of (B_t / D^{t-1}) for t = 1 to n

C_{npv} = Sum of (C_t / D^{t-1}) for t = 1 to n

where

B_{npv} is the net present value of program benefits
C_{npv} is the net present value of program costs
B_t are the total program benefits for year t
C_t are the total program costs for year t
D is 1 + the discount rate for the utility
n is the life of the program

B_t is further defined as follows:

$$B_t = AG_t + AT_t + AD_t + FS_t + IR_t + OB_t$$

where

AG_t are the avoided generation benefits
AT_t are the avoided transmission benefits
AD_t are the avoided distribution benefits
FS_t are the fuel savings from decreased sales
IR_t are any increased revenues

OB_t are any other quantifiable benefits

AG_t is further defined as follows:

$$AG_t = AC_t + AO_t + AF_t - RF_t$$

where

AC_t are avoided unit capacity costs
AO_t are avoided unit O&M costs
AF_t are avoided unit fuel costs
RF_t are replacement fuel costs

AC_t is further defined as follows:

$$AC_t = 0 \text{ before the in-service year}$$
$$AC_t = K*CC*(1-R)/(1-R^N) \text{ for the in-service year}$$
$$AC_t = AC_{t-1}*(1+E_p) \text{ after the in-service year}$$

where

N is the economic life of the avoided generating unit
K is the present value of carrying charges for
    one dollar of investment over N years
CC is the avoided in-service-year capacity costs
    including AFUDC
E_p is the plant escalation rate
$R = (1+E_p)/D$

AT_t and AD_t, avoided transmission plant and avoided distribution plant, are defined similarly to AC_t. The in-service year, the economic life, K factor, and plant escalation rate for transmission and distribution plant may differ from that of the avoided generating unit.

C_t is further defined as follows:

$$C_t = IS_t + LR_t + UC_t + UR_t + OC_t$$

where

IS_t are any increased supply costs
LR_t are lost revenues from reduced sales
UC_t are utility program costs
UR_t are utility rebates/incentives for participants.
OC_t are other quantifiable costs

If $B_{npv} > C_{npv}$ the program is cost effective.

REPORTING FORMAT:

Input: PSC Forms CE 1.1, 1.1A, 1.1B, 1.2

Output: PSC Forms CE 2.1, 2.2, 2.5

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UTILITY COST TEST

DEFINITION:

The Utility Cost Test measures the net costs of a demand-side program based on the costs incurred by the utility, including incentive costs and excluding any net costs incurred by the participant.

GENERAL DESCRIPTION OF BENEFITS:

The benefits are the avoided supply costs, including avoided generation, transmission, and distribution costs. The avoided supply costs should be calculated using net savings, ie., savings net of changes in energy use that would have happened in the absence of the program.

GENERAL DESCRIPTION OF COSTS:

The costs are the program costs incurred by the utility, the incentives paid to the customers and any increased supply costs

FORMULAS:

$$B_{npv} = \text{Sum of } (B_t / D^{t-1}) \text{ for } t = 1 \text{ to } n$$

$$C_{npv} = \text{Sum of } (C_t / D^{t-1}) \text{ for } t = 1 \text{ to } n$$

where

B_{npv} is the net present value of program benefits
C_{npv} is the net present value of program costs
B_t are the total program benefits for year t
C_t are the total program costs for year t
D is 1 + the discount rate for the utility
n is the life of the program

B_t is further defined as follows:

$$B_t = AG_t + AT_t + AD_t + FS_t + OB_t$$

where

AG_t are the avoided generation benefits
AT_t are the avoided transmission benefits
AD_t are the avoided distribution benefits
FS_t are the fuel savings from decreased sales
OB_t are any other quantifiable benefits

AG_t is further defined as follows:

$$AG_t = AC_t + AO_t + AF_t - RF_t$$

where

AC_t are avoided unit capacity costs
AO_t are avoided unit O&M costs
AF_t are avoided unit fuel costs
RF_t are replacement fuel costs
AC_t is further defined as follows:

$AC_t = 0$ before the in-service year
$AC_t = K*CC*(1-R)/(1-R^N)$ for the in-
   service year
$AC_t = AC_{t-1}*(1+E_p)$ after the in-service year

where

N is the economic life of the avoided generating unit
K is the present value of carrying charges for
   one dollar of investment over N years
CC is the avoided in-service-year capacity costs
   including AFUDC
E_p is the plant escalation rate
$R = (1+E_p)/D$

AT_t and AD_t, avoided transmission plant and avoided
distribution plant, are defined similarly to AC_t. The
in-service year, the economic life, K factor, and plant escalation
rate for transmission and distribution plant may differ from that
of the avoided generating unit.

C_t is further defined as follows:

$$C_t = IS_t + UC_t + UR_t + OC_t$$

where

IS_t are any increased supply costs
UC_t are utility program costs
UR_t are utility rebates/incentives for part.
OC_t are other quantifiable costs

If B_{npv} I C_{npv} the program is cost effective.

REPORTING FORMAT:

   Input: PSC Forms CE 1.1, 1.1A, 1.1B, 1.2

   Output: PSC Forms CE 2.1, 2.2, 2.6

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SECTION III. SELF-SERVICE WHEELING

This Section describes the prescribed cost effectiveness test for self-service wheeling proposals. A self-service wheeling proposal is one where a utility retail customer proposes to generate power at one of its locations and have it delivered to another of its locations through the utility's transmission or distribution system. Chapter 366.051, Florida Statutes, requires public utilities to provide wheeling for self-service customers if such wheeling is not likely to result in higher cost electric service to the utility's general body of retail and wholesale customers. Therefore, the test used here is similar to the Rate Impact Test used for conservation and load control programs. The reason for a separate section is that there are costs and benefits unique to cogeneration facilities, such as supplemental and standby purchases.

RATE IMPACT TEST FOR SELF-SERVICE WHEELING

DEFINITION:

The Rate Impact Test for Self-Service Wheeling is an indirect measure of the impact on customer rates caused by the wheeling proposal. Rates will go down more than they otherwise would have if the change in utility revenues minus the change in utility costs is positive. Rates will go up more than they otherwise would have if the change in utility revenues minus the change in utility costs is negative.

GENERAL DESCRIPTION OF BENEFITS:

The benefits include avoided generation, transmission, and distribution costs, and any increased revenues, such as wheeling revenues and increased standby revenues, generated by the proposed project.

GENERAL DESCRIPTION OF COSTS:

The costs include any decrease in revenues caused by the program and any increased supply costs. When marginal fuel cost is less than average fuel cost, the decrease in sales will cause an increase in average fuel cost that must be borne by the remaining customers. Costs also include loss of fixed plant costs collected through demand or non-fuel energy charges.

FORMULAS:

$$B_{npv} = \text{Sum of } (B_t / D^{t-1}) \text{ for } t = 1 \text{ to } n$$

$$C_{npv} = \text{Sum of } (C_t / D^{t-1}) \text{ for } t = 1 \text{ to } n$$

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where

B_{npv} is the net present value of benefits
C_{npv} is the net present value of costs
B_t are the total benefits for year t
C_t are the total costs for year t
D is 1 + the discount rate for the utility
n is the life of the program

B_t is further defined as follows:

$$B_t = AG_t + AT_t + AD_t + IR_t + FS_t + OB_t$$

where

AG_t are the avoided generation benefits
AT_t are the avoided transmission benefits
AD_t are the avoided distribution benefits
IR_t are the increased revenues
FS_t are the net fuel savings
OB_t are any other quantifiable benefits

AG_t is further defined as follows:

$$AG_t = AC_t + AO_t + AF_t - RF_t$$

where

AC_t are avoided unit capacity costs
AO_t are avoided unit O&M costs
AF_t are avoided unit fuel costs
RF_t are replacement fuel costs

AC_t is further defined as follows:

$$AC_t = 0 \text{ before the in-service year}$$
$$AC_t = K*CC*(1-R)/(1-R^N) \text{ for the in-service year}$$
$$AC_t = AC_{t-1}*(1+E_p) \text{ after the in-service year}$$

where

N is the tax life of the avoided generating unit
K is the present value of carrying charges for one dollar of investment over N years
CC is the avoided in-service-year capacity costs including AFUDC
E_p is the plant escalation rate
$R = (1+E_p)/D$

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AT_t and AD_t, avoided transmission plant and avoided distribution plant, are defined similarly to AC_t. The in-service year, the economic life, K factor, and plant escalation rate for transmission and distribution plant may differ from that of the avoided generating unit.

C_t is further defined as follows:

$$C_t = FC_t + LR_t + OC_t$$

where

FC_t are net increase in fuel costs
LR_t are lost revenues from reduced sales
OC_t are other quantifiable costs

If $B_{npv} > C_{npv}$ the program is cost effective.

REPORTING FORMAT:

Input: PSC Forms CE 1.1, 1.1A, 1.1B, 1.2

Output: PSC Forms CE 3.1

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SECTION IV. FPSC COST EFFECTIVENESS FORMS

This Section contains the forms to be used in conjunction with the tests discussed in the previous sections of this manual. The following list contains the FPSC Form designation, the name of the FPSC Form, and a brief description of each form. This is followed by sample forms to be used, showing column headings and other pertinent information.

PSC FORM CE 1.1   Input Data — Part 1

This form, along with PSC FORM CE 1.2, specifies the input data to be used in the cost-effectiveness test for conservation and direct load control programs. Each element on the form is defined below:

I.(1)   Generator KW Reduction Per Customer

This input is developed by taking into account such factors as reliability, line losses and customer diversity. A crude, but acceptable, method of calculating the KW reduction is to use the following formula:

$$KW\ Red=[DS_w(WLOLP) + DS_s(SLOLP)] / [(1-FOR)(1-DL)]$$

where

DS_w is the demand saving at winter peak
DS_s is the demand saving at summer peak
WLOLP is the winter seasonal LOLP
SLOLP is the summer seasonal LOLP
FOR   is the forced outage rate
DL   is the kw line loss factor

and

$$WLOLP + SLOLP = 1$$

I.(2)   KW Line Loss Percentage

This is the percentage reduction in KW from the generator to the customer.

I.(3)   Generation KWH Reduction Per Customer

This is the annual KWH reduction given by the following formula:

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$$KWH\ Red = KWH_m / (1 - EL)$$

where

KWH_m is the KWH reduction at the customer's meter
EL is the energy line loss factor to account for losses from the generator to the customer location

I.(4)   KWH Line Loss Percentage

This is the percentage reduction in KWH from the generator to the customer.

I.(5)   Group Line Loss Multiplier

This is a factor used to take into account the fact that various groups of customers receive service at different voltage levels. It is used to adjust the fuel cost calculation for participating customers.

II.(1)   Study Period for the Conservation Program

This is the economic life of the conservation program, and will generally be less than or equal to the life of the unit to be avoided.

II.(2)   Generator Economic Life

This is the economic life of the avoided generating unit.

II.(3)   Transmission and Distribution Economic Life

This is the economic life of the avoided transmission and distribution facilities.

II.(4)   K Factor for Generation

This is the present value of carrying charges for a $1 investment over the life of the generating unit. PSC FORM CE 1.1A must be filed showing in detail the calculation of this factor.

II.(5)   K Factor for Transmission and Distribution

This is the present value of carrying charges for a $1 investment over the life of the avoided transmission and distribution facilities. PSC FORM CE 1.1A must be filed showing in detail the calculation of this factor.

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III.(1)   Utility Nonrecurring Cost per Customer

This represents nonrecurring costs in the base year that would be incurred by the utility, such as a one-time customer rebate.

III.(2)   Utility Recurring Cost per Customer

This represents recurring costs in the base year that would be incurred by the utility, such as O&M costs associated with the installed equipment.

III.(3)   Utility Cost Escalation Rate

This rate is used to escalate the costs identified in III.(2). Normally, this rate would be close to the rate at which the Consumer Price Index is projected to increase.

NOTE: As an alternative, annual program costs may bespecified for each year on the appropriate FORM, but detailed documentation must be attached to show how these costs were computed.

III.(4)   Customer Equipment Cost

This is the base year cost for equipment incurred by each customer when the program is selected.

III.(5)   Customer Equipment Cost Escalation Rate

This rate is used to escalate the costs identified in III.(4). Normally, this rate would be close to the rate at which the Consumer Price Index is projected to increase.

NOTE: As an alternative, annual customer equipment costs may be specified for each year on the appropriate FORM, but detailed documentation must be attached to show how these costs were computed.

III.(6)   Customer O&M Cost

This is the base year cost for O&M incurred by each particpating customer.

III.(7)   Customer O&M Cost Escalation Rate

This rate is used to escalate the costs identified in III(6). Normally, this rate would be close to the rate at which the Consumer Price Index is projected to increase.

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> NOTE: As an alternative, annual O&M costs may
> be specified for each year on the appropriate
> FORM, but detailed documentation must be
> attached to show how these costs were computed.

IV.(1)   Base Year

This is the reference year for the present worth analyses and the
first year for recording costs and benefits of the program.

IV.(2)   In-Service Year for Avoided Generator Unit

This is the in-service year of the generating unit to be avoided or
deferred by the conservation program.

IV.(3)   In-Service Year for Avoided T&D

This is the in-service year of the transmission and distribution
facilities to be avoided or deferred by the conservation program.

IV.(4)   Base Year Avoided Generating Unit Cost

This is the base year cost in dollars per kilowatt of the
generating unit to be avoided or deferred by the conservation
program. PSC FORM CE 1.1B must be filed showing in detail the
calculation of the installed cost of the unit in the in-service
year, including AFUDC.

IV.(5)   Base Year Avoided Transmission Cost

This is the base year cost in dollars per kilowatt of the
transmission facilities to be avoided or deferred by the
conservation program. PSC FORM CE 1.1B must be filed showing in
detail the calculation of the installed cost of the facilities in
the in-service year, including AFUDC.

IV.(6)   Base Year Avoided Distribution Cost

This is the base year cost in dollars per kilowatt of the
distribution facilities to be avoided or deferred by the
conservation program. PSC FORM CE 1.1B must be filed showing in
detail the calculation of the installed cost of the facilities in
the in-service year, including AFUDC.

IV.(7)   Gen, Tran, and Dist Cost Escalation Rate

This is the escalation rate to be used in escalating the costs in
IV.(4) through IV.(6).

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IV.(8)   Generator Fixed O&M Costs

This is the annual fixed O&M costs for the generating unit to be
avoided or deferred, stated in $/KW/Year.

IV.(9)   Generator Fixed O&M Cost Escalation Rate

This is the escalation rate to be used in escalating the costs in
IV.(8).

IV.(10)   Transmission Fixed O&M Costs

This is the annual fixed O&M costs for the transmission facilities
to be avoided or deferred, stated in $/KW/Year.

IV.(11)   Distribution Fixed O&M Costs

This is the annual fixed O&M costs for the distribution facilities
to be avoided or deferred, stated in $/KW/Year.

IV.(12)   Trans and Distr Fixed O&M Cost Escalation Rate

This is the escalation rate to be used in escalating the costs in
IV.(10) and IV.(11).

IV.(13)   Avoided Generating Unit Variable O&M Costs

This is the base year variable O&M costs for the generating unit to
be avoided or deferred, stated in cents/KWH.

IV.(14)   Generator Variable O&M Cost Escalation Rate

This is the escalation rate to be used in escalating the costs in
IV.(13).

IV.(15)   Generator Capacity Factor

This is the projected capacity factor of the generating unit to be
avoided or deferred.

IV.(16)   Avoided Generating Unit Fuel Cost

This is the base year fuel costs for the generating unit to be
avoided or deferred, stated in cents/KWH.

IV.(17)   Avoided Generating Unit Fuel Cost Escalation Rate

This is the escalation rate to be used in escalating the costs in
IV.(16).

V. (1) Non Fuel Cost in Customer Bill

This is the base year non fuel charge in the participating customer's bill in cents per KWH.

V. (2) Non Fuel Cost Escalation Rate

This is the escalation rate to be used in escalating the costs in V.(1).

V. (3) Demand Charge in Customer Bill

This is the base year demand charge in the participating customer's bill in $/KW/Month. This would be zero for residential customers.

V. (4) Demand Charge Escalation Rate

This is the escalation rate to be used in escalating the costs in V.(3).

FORM1_1.WK1

INPUT DATA -- PART 1

PROGRAM: LOAD MGMT.

===

PSC FORM CE 1.1

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11/28/89

I. PROGRAM DEMAND SAVINGS AND LINE LOSSES

(1) GENERATOR KW REDUCTION PER CUSTOMER...........	1.69 KW
(2) KW LINE LOSS PERCENTAGE.......................	8 %
(3) GENERATION KWH REDUCTION PER CUSTOMER.........	250 KWH
(4) KWH LINE LOSS PERCENTAGE......................	6 %
(5) GROUP LINE LOSS MULTIPLIER....................	0.98000

II. ECONOMIC LIFE AND K FACTORS

(1) STUDY PERIOD FOR CONSERVATION PROGRAM........	15 YRS
(2) GENERATOR ECONOMIC LIFE......................	30 YRS
(3) T & D ECONOMIC LIFE..........................	40 YRS
(4) K FACTOR FOR GENERATION......................	1.54281
(5) K FACTOR FOR T & D...........................	1.70712

III. UTILITY AND CUSTOMER COSTS

(1) UTILITY NONRECURRING COST PER CUSTOMER........	$1,159
(2) UTILITY RECURRING COST PER CUSTOMER...........	$0
(3) UTILITY COST ESCALATION RATE..................	5.0 %
(4) CUSTOMER EQUIPMENT COST.......................	$0
(5) CUSTOMER EQUIPMENT COST ESCALATION RATE.......	5.2 %
(6) CUSTOMER O&M COST.............................	$0
(7) CUSTOMER O&M COST ESCALATION RATE.............	5.1 %

IV. AVOIDED GENERATOR AND T&D COSTS

(1) BASE YEAR.....................................	1990
(2) IN-SERVICE YEAR FOR AVOIDED GENERATING UNIT......	1995
(3) IN-SERVICE YEAR FOR AVOIDED T&D..................	1995
(4) BASE YEAR AVOIDED GENERATING UNIT COST...........	400 $/KW
(5) BASE YEAR AVOIDED TRANSMISSION COST..............	133 $/KW
(6) BASE YEAR AVOIDED DISTRIBUTION COST..............	136 $/KW
(7) GEN, TRANS and DIST COST ESCALATION RATE.........	5.2 %
(8) GENERATOR FIXED O&M COSTS........................	2.45 $/KW/YR
(9) GENERATOR FIXED O&M COST ESCALATION RATE.........	6.1 %
(10) TRANSMISSION FIXED O&M COSTS....................	1.34 $/KW/YR
(11) DISTRIBUTION FIXED O&M COSTS....................	1.94 $/KW/YR
(12) T&D FIXED O&M COST ESCALATION RATE..............	6.0 %
(13) AVOIDED GEN UNIT VARIABLE O&M COSTS.............	0.8450 Cents/KWH
(14) GENERATOR VARIABLE O&M COST ESCALATION RATE......	6.0 %
(15) GENERATOR CAPACITY FACTOR.......................	20 %
(16) AVOIDED GENERATING UNIT FUEL COST...............	5.044 Cents/KWH
(17) AVOIDED GEN UNIT FUEL COST ESCALATION RATE.......	5.2 %

IV. NON-FUEL ENERGY AND DEMAND CHARGES

(1) NON-FUEL COST IN CUSTOMER BILL...................	1.0371 Cents/KWH
(2) NON-FUEL COST ESCALATION RATE....................	4.0 %
(3) DEMAND CHARGE IN CUSTOMER BILL...................	5.45 $/KW/MNTH
(4) DEMAND CHARGE ESCALATION RATE....................	4.0 %

20a

PSC FORM CE 1.1A Calculation of K Factor

This form specifies the data to be used when calculating the K Factor for the avoided generating unit and also for avoided transmission and distribution plant, if applicable. Each element on the form is defined below:

Col (1)   Year

The years begin with the in-service year of the avoided unit (or avoided transmission and distribution plant) and extend through the life of the unit (or other avoided plant).

Col (2)   Mid-Year Rate Base

This column contains, for each year, the value of the avoided investment at mid year. This is calculated by averaging the beginning-of-year and end-of-year rate bases. The end-of-year rate base is calculated by subtracting straight-line depreciation (Column 9) and deferred taxes (Column 7) from beginning-of-year rate base. See PSC Form CE 1.1A, Page 2 of 2 for this calculation. The beginning-of-year rate base is the in-service cost of the plant calculated on PSC FORM CE 1.1B.

Col (3)   Debt

This column contains, for each year, the cost of debt associated with the investment given in Column (2).

Col (4)   Preferred Stock

This column contains, for each year, the after-tax cost of preferred stock associated with the investment given in Column (2).

Col (5)   Common Equity

This column contains, for each year, the after-tax cost of common equity associated with the investment given in Column (2).

Col (6)   Taxes

This column contains, for each year, the taxes associated with the before-tax cost of preferred and common stock.

Col (7)   Other Taxes & Insurance

This column contains all taxes and insurance not contained in Column (6).

Col (8)   Depreciation

This column contains, for each year, the depreciation costs associated with the in-service cost of the avoided plant.

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Col (9)   Deferred Taxes

This column contains the deferred taxes for each year. The tax depreciation schedule is given as Page 2 of 2 of PSC FORM CE 1.1A.

Col (10)   Total Fixed Charges

This column contains, for each year, the sum of column (3) through column (8).

Col (11)   Present Worth Fixed Charges

This column is the present value of the corresponding numbers in the previous column, using the in-service year as the reference year.

Col (12)   Cumulative Present Worth Fixed Charges

This column is the year by year accumulation of the numbers in the previous column.

As indicated in the example, this form must also contain the in-service cost of the plant, the book life of the plant, the capital structure, the effective tax rate, and the discount rate used to calculate present worth dollars.

FORM1_1A.WK1
a1..w51

CALCULATION OF K FACTOR
1995 COAL UNIT

PSC FORM CE 1.1A
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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
						OTHER			TOTAL	PRESENT WORTH	CUMULATIVE
	MID-YEAR		PREFERRED	COMMON	INCOME	TAXES &		DEFERRED	FIXED	FIXED	PW FIXED
CALENDAR	RATE-BASE	DEBT	STOCK	EQUITY	TAXES	INSURANCE	DEPREC.	TAXES	CHARGES	CHARGES	CHARGES
YEAR	($000)	($000)	($000)	($000)	($000)	($000)	($000)	($000)	($000)	($000)	($000)
1995	787,297	34,295	6,235	52,544	35,464	12,019	26,709	1,257	167,267	167,267	167,267
1996	754,100	32,849	5,972	50,329	33,968	12,019	26,709	11,721	161,847	146,893	314,160
1997	716,486	31,210	5,675	47,818	32,274	12,019	26,709	10,092	155,706	128,262	442,422
1998	680,439	29,640	5,389	45,413	30,650	12,019	26,709	8,585	149,820	112,012	554,433
1999	645,855	28,133	5,115	43,104	29,093	12,019	26,709	7,167	144,174	97,831	652,264
2000	612,628	26,686	4,852	40,887	27,596	12,019	26,709	5,871	138,749	85,451	737,715
2001	580,637	25,293	4,599	38,752	26,155	12,019	26,709	4,694	133,526	74,636	812,351
2002	549,792	23,949	4,354	36,693	24,765	12,019	26,709	3,579	128,490	65,185	877,537
2003	519,595	22,634	4,115	34,678	23,405	12,019	26,709	3,398	123,560	56,893	934,430
2004	489,488	21,322	3,877	32,668	22,049	12,019	26,709	3,398	118,645	49,582	984,012
2005	459,382	20,011	3,638	30,659	20,693	12,019	26,709	3,398	113,730	43,137	1,027,148
2006	429,275	18,699	3,400	28,650	19,337	12,019	26,709	3,398	108,814	37,459	1,064,607
2007	399,169	17,388	3,161	26,641	17,981	12,019	26,709	3,398	103,899	32,462	1,097,069
2008	369,062	16,076	2,923	24,631	16,624	12,019	26,709	3,398	98,984	28,069	1,125,138
2009	338,956	14,765	2,685	22,622	15,268	12,019	26,709	3,398	94,068	24,211	1,149,349
2010	308,849	13,453	2,446	20,613	13,912	12,019	26,709	3,398	89,153	20,825	1,170,174
2011	278,743	12,142	2,208	18,603	12,556	12,019	26,709	3,398	84,238	17,859	1,188,033
2012	248,637	10,831	1,969	16,594	11,200	12,019	26,709	3,398	79,322	15,263	1,203,297
2013	218,530	9,519	1,731	14,585	9,844	12,019	26,709	3,398	74,407	12,995	1,216,291
2014	188,424	8,208	1,492	12,575	8,488	12,019	26,709	3,398	69,492	11,015	1,227,306
2015	161,649	7,041	1,280	10,788	7,281	12,019	26,709	(3,267)	65,120	9,368	1,236,674
2016	141,598	6,168	1,121	9,450	6,378	12,019	26,709	(10,052)	61,847	8,075	1,244,750
2017	124,940	5,442	990	8,338	5,628	12,019	26,709	(10,052)	59,127	7,007	1,251,756
2018	108,281	4,717	858	7,227	4,878	12,019	26,709	(10,052)	56,407	6,067	1,257,823
2019	91,622	3,991	726	6,115	4,127	12,019	26,709	(10,052)	53,687	5,241	1,263,064
2020	74,964	3,265	594	5,003	3,377	12,019	26,709	(10,052)	50,967	4,516	1,267,580
2021	58,305	2,540	462	3,891	2,626	12,019	26,709	(10,052)	48,248	3,880	1,271,460
2022	41,647	1,814	330	2,779	1,876	12,019	26,709	(10,052)	45,528	3,323	1,274,782
2023	24,988	1,088	198	1,668	1,126	12,019	26,709	(10,052)	42,808	2,836	1,277,618
2024	8,329	363	66	556	375	12,019	26,709	(10,052)	40,088	2,410	1,280,028

Capital Structure

IN-SERVICE COST ($000)	801280	
IN-SERVICE YEAR	1995	
BOOK LIFE (YRS)	30	
EFF. TAX RATE	0.3763	
DISCOUNT RATE	0.1018	
OTAX & INS RATE	0.015	

Source	Weight	Cost
DEBT	0.44	0.099
P/S	0.09	0.088
C/S	0.47	0.142

K-FACTOR = CPWFC / IN-SVC COST = 1280028 / 801280 = 1.59748

YEAR	TAX DEPRECIATION SCHEDULE	TAX DEPRECIATION ($000)	DEFERRED TAX ($000)	END OF YEAR NET PLANT IN SERVICE ($000)	BEGINNING YEAR RATE BASE ($000)	ENDING OF YEAR RATE BASE ($000)	MID-YEAR RATE-BASE ($000)
1	0.0375	30,048	1,256	774,571	801,280	773,314	787,297
2	0.0722	57,852	11,719	747,861	773,314	734,886	754,100
3	0.0668	53,526	10,091	721,152	734,886	698,086	716,486
4	0.0618	49,519	8,583	694,443	698,086	662,793	680,439
5	0.0571	45,753	7,166	667,733	662,793	628,917	645,855
6	0.0528	42,308	5,870	641,024	628,917	596,338	612,628
7	0.0489	39,183	4,694	614,315	596,338	564,935	580,637
8	0.0452	36,218	3,578	587,605	564,935	534,648	549,792
9	0.0446	35,737	3,397	560,896	534,648	504,542	519,595
10	0.0446	35,737	3,397	534,187	504,542	474,435	489,488
11	0.0446	35,737	3,397	507,477	474,435	444,329	459,382
12	0.0446	35,737	3,397	480,768	444,329	414,222	429,275
13	0.0446	35,737	3,397	454,059	414,222	384,116	399,169
14	0.0446	35,737	3,397	427,349	384,116	354,009	369,062
15	0.0446	35,737	3,397	400,640	354,009	323,903	338,956
16	0.0446	35,737	3,397	373,931	323,903	293,796	308,849
17	0.0446	35,737	3,397	347,221	293,796	263,690	278,743
18	0.0446	35,737	3,397	320,512	263,690	233,583	248,637
19	0.0446	35,737	3,397	293,803	233,583	203,477	218,530
20	0.0446	35,737	3,397	267,093	203,477	173,370	188,424
21	0.0225	18,029	(3,266)	240,384	173,370	149,928	161,649
22	0	0	(10,051)	213,675	149,928	133,269	141,598
23	0	0	(10,051)	186,965	133,269	116,610	124,940
24	0	0	(10,051)	160,256	116,610	99,952	108,281
25	0	0	(10,051)	133,547	99,952	83,293	91,622
26	0	0	(10,051)	106,837	83,293	66,634	74,964
27	0	0	(10,051)	80,128	66,634	49,976	58,305
28	0	0	(10,051)	53,419	49,976	33,317	41,647
29	0	0	(10,051)	26,709	33,317	16,659	24,988
30	0	0	(10,051)	(0)	16,659	(0)	8,329

PSC FORM CE 1.1B   Calculation of AFUDC and In-Service Cost of Plant

This form specifies the data to be used when calculating AFUDC and the in-service cost of plant (generating unit or transmission and distribution plant). Each element on the form is defined below:

Col (1)   Year

The years begin with the first year of construction for the avoided unit (or avoided transmission and distribution plant) and extend to the in-service year.

Col (2)   Years Prior to In-Service Year

This column contains the number of years prior to the in-service year of the plant corresponding to each year in Column (1).

Col (3)   Plant Escalation Rate

This column contains the plant escalation rate corresponding to each year in Column (1).

Col (4)   Cumulative Escalation Rate

This column contains the cumulative escalation rate corresponding to each year in Column (3).

Col (5)   Percent Expenditure

This column contains, for each year of construction, the percentage of the plant to be constructed. The sum of the percentages in this column should equal 100.

Col (6)   Annual Spending

This column contains the year-end spending, in dollars per kilowatt, for each year of construction.

Col (7)   Cumulative Average Spending

This column contains the cumulative average spending for each year of construction.

Col (8)   Cumulative Spending with AFUDC

This column contains, for each year, the cumulative average spending for that year (from Column 7) plus the AFUDC that has accumulated through the previous year.

Col (9)   Yearly AFUDC

This column contains the AFUDC applicable for each year.

Col (10)   Incremental Year-End Book Value

This column contains the incremental value added to the plant each year.

Col (11)   Cumulative Year-End Book Value

This column contains, for each year, the cumulative year-end book value for the plant. The final figure in this column represents the in-service year cost.

As indicated in the example, this form must also contain the in-service cost of the plant (in dollars per kilowatt), the base year construction cost ($/KW), and the AFUDC rate.

FORM1_1B.WK1

CALCULATION OF AFUDC AND IN-SERVICE COST OF PLANT
PLANT: 1995 COAL UNIT (1989 APH)

PSC FORM CE 1.1B
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(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	NO. YEARS	PLANT	CUMULATIVE	YEARLY	ANNUAL	CUMULATIVE AVERAGE	CUMULATIVE SPENDING	YEARLY TOTAL	INCREMENTAL YEAR-END	CUMULATIVE YEAR-END
	BEFORE	ESCALATION	ESCALATION	EXPENDITURE	SPENDING	SPENDING	WITH AFUDC	AFUDC	BOOK VALUE	BOOK VALUE
YEAR	IN-SERVICE	RATE	FACTOR	(%)	($/KW)	($/KW)	($/KW)	($/KW)	($/KW)	($/KW)
1986	-9	0.000	1.000	0.00	0.00	0.00	0.00	0.000	0.00	0.00
1987	-8	0.000	1.000	0.00	0.00	0.00	0.00	0.000	0.00	0.00
1988	-7	0.000	1.000	0.01	10.23	5.12	5.12	0.605	10.83	10.83
1989	-6	0.040	1.040	0.01	10.64	15.55	16.15	1.909	12.55	23.38
1990	-5	0.044	1.086	0.02	22.21	31.98	34.49	4.077	26.29	49.67
1991	-4	0.048	1.138	0.20	232.81	159.49	166.08	19.631	252.44	302.11
1992	-3	0.051	1.196	0.35	428.19	489.99	516.21	61.016	489.21	791.33
1993	-2	0.055	1.262	0.25	322.68	865.43	952.66	112.605	435.28	1,226.61
1994	-1	0.056	1.332	0.16	218.08	1,135.80	1,335.64	157.873	375.95	1,602.56
1995	0			0.00	0.00			0.000	0.00	
				1.00	1,244.84			357.72	1,602.56	

IN-SERVICE YEAR   =   1995

PLANT COST (1988 $) =   1023
AFUDC RATE   =   0.1182

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PSC FORM CE 1.2   Input Data -- Part 2

This form, along with PSC FORM CE 1.1 specifies the input data to be used in the cost-effectiveness test for conservation and direct load control programs. Each element on the form is defined below:

Col (1)   Year

The years begin with the Base Year and extend through the life of the conservation program.

Col (2)   Cumulative Total Participating Customers

This column contains, for each year, the cumulative total participating customers without regard as to whether they would have adopted the conservation measure in the absence of a utility sponsored program.

Col (3)   Adjusted Cumulative Total Participating Customers

This column contains, for each year, the cumulative total participating customers adjusted for the fact that some customers would have adopted the conservation measure in the absence of a utility sponsored program.

Col (4)   Utility Average System Fuel Cost

This column contains, for each year, the annual average system fuel cost, including costs of purchases and sales.

Col (5)   Avoided Marginal Fuel Cost

This column contains, for each year, the annual average avoided fuel costs in cents per KWH. These costs should reflect the fact that conservation programs have different impacts on the system, depending on the hour of the day. If the program reduces consumption on peak, the marginal fuel costs may be significantly higher that the average fuel costs, resulting in savings to all customers.

Col (6)   Increased Marginal Fuel Cost

This column contains, for each year, the annual average increased fuel costs in cents per KWH. These costs reflect the fact that some conservation programs increase energy use during certain hours.

Col (7)   Replacement Fuel Cost of Avoided Generating Unit

This column contains, for each year, the annual average replacement fuel costs in cents per KWH. This is the system fuel cost if the

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utility had built the unit to be avoided. If the avoided unit would have lowered system fuel costs, then these costs act as an offset to the savings gained by not building the unit. On the other hand, if the avoided unit would have raised system fuel costs, there are additional savings to be achieved by avoiding the unit.

Col (8)   Program KW Effectiveness Factor

This column contains, for each year, a factor that represents the degradation or improvement of the demand savings over time. Complete documentation must be supplied if a factor other than 1 is used.

Col (9)   Program KWH Effectiveness Factor

This column contains, for each year, a factor that represents the degradation or improvement of the energy savings over time. Complete documentation must be supplied if a factor other than 1 is used.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	CUMULATIVE TOTAL PARTICIPATING	ADJUSTED CUMULATIVE PARTICIPATING	UTILITY AVERAGE SYSTEM FUEL COST	AVOIDED MARGINAL FUEL COST	INCREASED MARGINAL FUEL COST	REPLACEMENT FUEL COST	PROGRAM KW EFFECTIVENESS	PROGRAM KWH EFFECTIVENESS
YEAR	CUSTOMERS	CUSTOMERS	(C/KWH)	(C/KWH)	(C/KWH)	(C/KWH)	FACTOR	FACTOR
1990	500	400	2.27	3.60	2.38	5.04	1.00	1.00
1991	1,000	800	2.25	3.51	2.36	5.13	1.00	1.00
1992	1,500	800	2.47	3.49	2.59	5.30	1.00	1.00
1993	1,500	800	2.72	3.50	2.86	6.22	1.00	1.00
1994	1,500	800	3.11	3.93	3.27	6.56	1.00	1.00
1995	1,500	800	3.11	3.90	3.27	6.98	1.00	1.00
1996	1,500	800	3.43	4.32	3.60	7.40	1.00	1.00
1997	1,500	800	3.56	4.57	3.74	7.82	1.00	1.00
1998	1,500	800	3.89	4.94	4.08	8.32	1.00	1.00
1999	1,500	800	4.04	5.16	4.24	8.58	1.00	1.00
2000	1,500	800	4.38	5.45	4.60	9.03	1.00	1.00
2001	1,500	800	4.55	5.81	4.78	9.50	1.00	1.00
2002	1,500	800	4.94	6.09	5.19	10.01	1.00	1.00
2003	1,500	800	5.13	6.45	5.39	10.53	1.00	1.00
2004	1,500	800	5.56	6.73	5.84	11.11	1.00	1.00
2005	1,500	800	5.77	7.09	6.06	11.67	1.00	1.00
2006	1,500	800	6.24	7.45	6.55	12.30	1.00	1.00
2007	1,500	800	6.47	7.83	6.79	12.95	1.00	1.00
2008	1,500	800	6.83	7.68	7.17	11.52	1.00	1.00
2009	1,500	800	7.21	7.94	7.57	11.91	1.00	1.00
2010	1,500	800	7.20	8.19	7.54	12.29	1.00	1.00

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PSC FORM CE 2.1 Avoided Generating Unit Benefits

This form is used to report the avoided generating unit benefits of a conservation program. Each item to be reported is listed below:

Col (1)   Year

The years begin with the base year of analysis and extend through the life of the program. Normally, benefits on this form will be zero until the in-service year of the avoided unit. Also, benefits will only accrue for the life of the conservation program.

Col (2)   Avoided Generating Unit Capacity Cost

This column contains the avoided generating unit benefits as previously defined in Section II. These are value of deferral benefits that extend from the in-service year of the avoided unit through the life of the conservation program or the life of the avoided unit, whichever comes first.

Col (3)   Avoided Generating Unit Fixed O&M

This column contains the avoided generating unit fixed O&M costs. This may be calculated by taking the dollars per kilowatt per year as reported on PSC FORM CE 1.1 times the kilowatts saved, with costs escalated appropriately.

Col (4)   Avoided Generating Unit Variable O&M

This column contains the avoided generating unit variable O&M costs. This may be calculated by taking the dollars per kilowatt-hour reported on PSC FORM CE 1.1 times the kilowatts saved times the capacity factor times 8760, with costs escalated appropriately.

Col (5)   Avoided Generating Unit Fuel Costs

This column contains the annual fuel costs for the avoided generating unit. This may be calculated by taking the fuel cost reported on PSC FORM CE 1.1 times the kilowatts saved times the capacity factor times 8760, with fuel costs escalated appropriately.

Col (6)   Replacement Fuel Costs

This column contains the replacement fuel costs that occur because the avoided generating unit was not built. These costs may be calculated by multiplying the annual kwh generation of the avoided unit by the replacement fuel costs shown on PSC FORM CE 1.2. (The net fuel savings of the avoided plant would be calculated by

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subtracting this column from column 5). For a base loaded avoided unit, the net fuel savings might be large. At the other extreme, the net fuel savings for a peaker might be very small or slightly negative.

Col (7)   Avoided Generating Unit Benefits

This column is the sum of columns (2) through (5) minus column (6).

This form also contains totals for each column and the cumulative net present value for each column.

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AVOIDED GENERATING UNIT BENEFITS

(1) Year	(2) Avoided Gen Unit Capacity Cost $(000)	(3) Avoided Gen Unit Fixed O&M $(000)	(4) Avoided Gen Unit Variable O&M $(000)	(5) Avoided Gen Unit Fuel Cost $(000)	(6) Replacement Fuel Cost $(000)	(7) Avoided Gen Unit Benefits $(000)
1988	0	0	0	0	0	0
1989	0	0	0	0	0	0
1990	0	0	0	0	0	0
1991	0	0	0	0	0	0
1992	0	0	0	0	0	0
1993	0	0	0	0	0	0
1994	0	0	0	0	0	0
1995	353	87	109	318	356	510
1996	369	92	115	335	368	543
1997	387	98	122	352	380	579
1998	406	104	129	370	393	616
1999	425	110	137	390	406	656
2000	446	116	145	410	419	698
2001	467	123	154	431	433	742
2002	489	131	163	454	448	790
2003	513	139	173	477	463	839
2004	538	147	183	502	478	892
2005	563	156	194	528	494	948
2006	590	165	206	556	510	1,007
2007	619	175	218	585	527	1,070
2008	648	186	232	615	544	1,136
2009	680	197	245	647	562	1,206
2010	712	208	260	681	581	1,280
Nominal:	8,206	2,233	2,787	7,651	7,363	13,514
NPV:	2,011	535	667	1,861	1,858	3,216

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PSC FORM CE 2.2 Avoided T&D, Program Fuel Savings, and Other Benefits

This form is used to report the avoided transmission benefits, avoided distribution benefits, program fuel savings, and other benefits of a conservation program. Each item to be reported is listed below:

Col (1)   Year

The years begin with the base year of analysis and extend through the life of the program.

Col (2)   Avoided Transmission Capacity Cost

This column contains the avoided transmission capacity benefits as previously defined in Section II. These are value of deferral benefits that extend from the in-service year of the avoided transmission plant through the life of the conservation program or the life of the avoided generating unit, whichever comes first.

Col (3)   Avoided Transmission Fixed O&M Cost

This column contains the avoided generating unit fixed O&M costs. This may be calculated by taking the dollars per kilowatt per year as reported on PSC FORM CE 1.1 times the kilowatts saved, with costs escalated appropriately.

Col (4)   Total Avoided Transmission Cost

This is the sum of columns (2) and (3).

Col (5)   Avoided Distribution Capacity Cost

This column is analogous to Column (2).

Col (6)   Avoided Distribution Fixed O&M Cost

This column is analogous to Column (3).

Col (7)   Total Avoided Distribution Costs

This is the sum of columns (5) and (6).

Col (8)   Program Fuel Savings

This column contains the fuel savings generated by the conservation program. This is the product of the kwh saved per customer, the number of participating customers, and the appropriate marginal fuel cost.

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AVOIDED T&D AND PROGRAM FUEL SAVINGS

PSC FORM CE 2.2
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(1) Year	(2) Avoided Transmission Capacity Cost $(000)	(3) Avoided Transmission O&M Cost $(000)	(4) Total Avoided Transmission Cost $(000)	(5) Avoided Distribution Capacity Cost $(000)	(6) Avoided Distribution O&M Cost $(000)	(7) Total Avoided Distribution Cost $(000)	(8) Program Fuel Savings $(000)
1988	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	1
1991	0	0	0	0	0	0	3
1992	0	0	0	0	0	0	4
1993	0	0	0	0	0	0	6
1994	0	0	0	0	0	0	8
1995	31	4	35	32	6	37	10
1996	33	4	37	34	6	40	11
1997	34	4	38	36	6	42	12
1998	36	5	40	38	7	45	12
1999	37	5	42	40	7	47	13
2000	39	5	44	42	8	50	14
2001	41	6	47	45	8	53	15
2002	43	6	49	48	9	56	15
2003	45	6	51	51	9	60	16
2004	47	7	54	54	10	63	17
2005	50	7	57	57	10	67	18
2006	52	7	59	60	11	71	20
2007	54	8	62	64	11	75	21
2008	57	8	65	68	12	80	22
2009	60	9	69	72	13	85	23
2010	63	9	72	76	14	90	25
Nominal:	722	101	823	815	146	960	286
NPV:	177	24	201	195	35	230	77

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PSC FORM CE 2.3 Total Resource Cost Test

This form is used for the Total Resources Cost Test. Each item to be reported is listed below:

Col (1)   Year

The years begin with the base year of analysis and extend through the life of the program.

Col (2)   Increased Supply Costs

This column contains any increased supply costs associated with the program. This includes both energy and capacity supply costs as well as costs for alternate fuels.

Col (3)   Utility Program Costs

This column contains the costs of the program incurred by the utility, including equipment costs, administrative costs and rebates.

Col (4)   Participant Program Costs

This column is the same as column (10), PSC FORM CE 2.7.

Col (5)   Other Costs

This column contains other quantifiable costs attributable to the program, including environmental and other external costs.

Col (6)   Total Costs

This column is the sum of the costs in columns (2) through (5).

Col (7)   Avoided Generating Unit Benefits

This column is the same as column (7) on PSC FORM 2.1.

Col (8)   Avoided Transmission Plant Benefits

This column is the same as column (4) on PSC FORM CE 2.2.

Col (9)   Avoided Distribution Plant Benefits

This column is the same as column (7) on PSC FORM CE 2.2.

Col (10)   Program Fuel Savings

This column is the same as column (8) on PSC FORM CE 2.2.

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Col (11)   Other Benefits

This column contains any other quantifiable benefits. Complete documentation must be provided to support the figures in this column.

Col (12)   Total Benefits

This column is the total of columns (7) through (11).

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TOTAL RESOURCE COST TEST

PSC FORM CE 2.3
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(1) Year	(2) Increased Supply Costs $(000)	(3) Utility Program Costs $(000)	(4) Participant Program Costs $(000)	(5) Other Costs $(000)	(6) Total Costs $(000)	(7) Avoided Gen Unit Benefits $(000)	(8) Avoided T&D Benefits $(000)	(9) Program Fuel Savings $(000)	(10) Other Benefits $(000)	(11) Total Benefits $(000)	(12) Net Benefits $(000)	(13) Cumulative Discounted Net Benefits $(000)
1988	0	2576	1380	225	4,181	345	0	0	0	345	(3,836)	(3,836)
1989	0	2737	1490	225	4,452	733	0	0	0	733	(3,719)	(7,210)
1990	0	2907	1609	225	4,741	1,171	0	1	0	1172	(3,569)	(10,149)
1991	0	3,087	1,736	225	5,048	1,661	0	3	0	1664	(3,384)	(12,677)
1992	0	3,276	1,872	225	5,373	2,210	0	4	0	2214	(3,159)	(14,818)
1993	0	3,475	2,019	225	5,719	2,700	0	6	0	2706	(3,013)	(16,671)
1994	0	3,550	2,250	225	6,025	3,250	0	8	0	3258	(2,767)	(18,215)
1995	0	0	0	225	225	17,694	72	10	0	17776	17,551	(9,328)
1996	0	0	0	225	225	17,809	77	11	0	17897	17,672	(1,209)
1997	0	0	0	225	225	17,968	80	12	0	18060	17,835	6,226
1998	0	0	0	225	225	18,175	85	12	0	18272	18,047	13,053
1999	0	0	0	225	225	18,431	89	13	0	18533	18,308	19,336
2000	0	0	0	225	225	18,742	94	14	0	18850	18,625	25,136
2001	0	0	0	225	225	19,112	100	15	0	19227	19,002	30,506
2002	0	0	0	225	225	19,544	105	15	0	19664	19,439	35,490
2003	0	0	0	225	225	20,043	111	16	0	20170	19,945	40,130
2004	0	0	0	225	225	20,500	117	17	0	20634	20,409	44,438
2005	0	0	0	225	225	20,900	124	189	0	21213	20,988	48,458
2006	0	0	0	225	225	21,300	130	20	0	21450	21,225	52,146
2007	0	0	0	225	225	21,700	137	21	0	21858	21,633	55,558
2008	0	0	0	225	225	22,100	145	22	0	22267	22,042	58,712
2009	0	0	0	225	225	22,400	154	23	0	22577	22,352	61,613
2010	0	0	0	225	225	22,800	162	25	0	22987	22,762	64,295
Nominal:	0	21,608	12,356	5,175	39,139	331,288	1,782	457	0	333,527	294,388	
NPV:	0	16,098	9,120	2,169	27,387	91,141	431	110	0	91,681	64,295	

Discount Rate: 10.21%

Benefit/Cost Ratio: Col (11) / Col (6): 3.35

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PSC FORM CE 2.4 Participant Costs and Benefits

This form is used to report the costs and benefits for the participating customers. Each item to be reported is listed below:

Col (1)   Year

The years begin with the base year of analysis and extend through the life of the program.

Col (2)   Savings in Participants' Bills

This column contains the savings in customer bills brought about by the reduction in kwh useage.

Col (3)   Tax Credits

This column contains any tax credits received by the participant.

Col (4)   Utility Rebates

This column contains any utility rebates to participating customers.

Col (5)   Other Benefits

This column contains other quantifiable benefits to the participant attributable to the program. Complete documentation must be provided to support the figures in this column.

Col (6)   Total Benefits

This column is the sum of the costs in columns (2) through (5).

Col (7)   Customer Equipment Costs

This column contains equipment costs borne by the participating customer.

Col (8)   Customer O&M Costs

This column contains O&M costs borne by the participant.

Col (9)   Other Costs

This column contains other quantifiable costs borne by the participant. Complete documentation must be provided to support the figures in this column.

Col (10)   Total Costs

This column is the total of columns (7) through (9).

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Col (11) Net Benefits

The numbers in this column are calculated by subtracting column (9) from column (6).

Col (12) Cumulative Discounted Net Benefits

This column contains the cumulative discounted net benefits of the program. The figures in this column are obtained by discounting the figures in column (11) and accumulating them year by year.

This form also contains the in-service year of the avoided generating unit and the appropriate customer discount rate.

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PARTICIPANT COSTS AND BENEFITS

(1) Year	(2) Savings in Participants' Bills $(000)	(3) Tax Credits $(000)	(4) Utility Rebates $(000)	(5) Other Benefits $(000)	(6) Total Benefits $(000)	(7) Customer Equipment Costs $(000)	(8) Customer O&M Costs $(000)	(9) Other Costs $(000)	(9) Total Costs $(000)	(10) Net Benefits $(000)	(11) Cumulative Discounted Net Benefits $(000)
1988	673	0	1955	0	2,628	1,380	0	0	1,380	1,248	1,248
1989	1,456	0	1998	0	3,454	1,490	0	0	1,490	1,964	3,030
1990	2,362	0	2040	0	4,402	1,609	0	0	1,609	2,793	5,330
1991	3,405	0	2,083	0	5,488	1,736	0	0	1,736	3,752	8,132
1992	4,602	0	2,125	0	6,727	1,872	0	0	1,872	4,855	11,423
1993	5,971	0	2,168	0	8,139	2,019	0	0	2,019	6,120	15,187
1994	6,389	0	2,220	0	8,609	2,170	0	0	2,170	6,439	18,780
1995	6,836	0	0	0	6,836	0	0	0	0	6,836	22,242
1996	7,315	0	0	0	7,315	0	0	0	0	7,315	25,603
1997	7,827	0	0	0	7,827	0	0	0	0	7,827	28,866
1998	8,375	0	0	0	8,375	0	0	0	0	8,375	32,034
1999	8,961	0	0	0	8,961	0	0	0	0	8,961	35,109
2000	9,588	0	0	0	9,588	0	0	0	0	9,588	38,095
2001	10,260	0	0	0	10,260	0	0	0	0	10,260	40,994
2002	10,978	0	0	0	10,978	0	0	0	0	10,978	43,809
2003	11,746	0	0	0	11,746	0	0	0	0	11,746	46,541
2004	12,400	0	0	0	12,400	0	0	0	0	12,400	49,159
2005	13,100	0	0	0	13,100	0	0	0	0	13,100	51,668
2006	13,900	0	0	0	13,900	0	0	0	0	13,900	54,084
2007	14,700	0	0	0	14,700	0	0	0	0	14,700	56,402
2008	15,400	0	0	0	15,400	0	0	0	0	15,400	58,605
2009	16,100	0	0	0	16,100	0	0	0	0	16,100	60,695
2010	16,800	0	0	0	16,800	0	0	0	0	16,800	62,674
Nominal:	209,144	0	14,589	0	223,733	12,276	0	0	12,276	211,457	
NPV:	60,733	0	11,016	0	71,749	9,075	0	0	9,075	62,674	

In Service Year of Gen Unit: 1995

Discount Rate: 10.21%

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PSC FORM CE 2.5 Rate Impact Test

This form is used to report the costs and benefits from the standpoint of the impact on customer rates. If costs exceed benefits, rates would be higher than they otherwise would be if the program is implemented. Each item to be reported is listed below:

Col (1) Year

The years begin with the base year of analysis and extend through the life of the program.

Col (2) Increased Supply Costs

This column is identical to column (2), PSC FORM CE 2.3.

Col (3) Utility Program Costs

This column is identical to column (3), PSC FORM CE 2.3.

Col (4) Incentives

This column contains any utility incentives paid to the participating customers.

Col (5) Revenue Losses

This column contains any revenue losses for periods where the load has been decreased.

Col (6) Other Costs

This column contains any other quantifiable costs attributable to the program. Complete documentation must be provided to support the figures in this column.

Col (7) Total Costs

This column is the sum of columns (2) through (6).

Col (8) Avoided Gen Unit & Fuel Benefits

This column is the sum of columns (4) and (5), PSC FORM CE 2.1.

Col (9) Avoided T&D Benefits

This column is identical to column (8), PSC FORM CE 2.3.

Col (10)   Revenue Gains

This column contains any revenue losses for periods where the load has been increased.

Col (11)   Other Benefits

This column contains other quantifiable benefits. Complete documentation must be provided for the numbers in this column.

Col (12)   Total Benefits

This column is the sum of columns (8) through (11).

Col (13)   Net Benefits

This column is calculated by subtracting column (7) from column (12).

Col (14)   Cumulative Discounted Net Benefits

This column is the accumulation of the figures in column (13), discounted by the appropriate discount rate.

This form also contains the discount rate and the benefit/cost ratio.

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RATE IMPACT TEST

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(1) Year	(2) Increased Supply Costs $(000)	(3) Utility Program Costs $(000)	(4) Incentives $(000)	(5) Revenue Losses $(000)	(6) Other Costs $(000)	(7) Total Costs $(000)	(8) Avoided Gen Unit & Fuel Benefits $(000)	(9) Avoided T&D Benefits $(000)	(10) Revenue Gains $(000)	(11) Other Benefits $(000)	(12) Total Benefits $(000)	(13) Net Benefits $(000)	(14) Cumulative Discounted Net Benefits $(000)
1988	0	2576	1380	673	0	4,629	345	0	0	0	345	(4,284)	(4,284)
1989	0	2737	1490	1456	0	5,683	733	0	0	0	733	(4,950)	(8,775)
1990	0	2907	1609	2362	0	6,878	1173	0	0	0	1173	(5,705)	(13,472)
1991	0	3,087	1,736	3405	0	8,228	1667	0	0	0	1667	(6,561)	(18,374)
1992	0	3,276	1,872	4602	0	9,750	2218	0	0	0	2218	(7,532)	(23,479)
1993	0	3,475	2,019	5971	0	11,465	2712	0	0	0	2712	(8,753)	(28,862)
1994	0	3,550	2,250	6389	0	12,189	3266	0	0	0	3266	(8,923)	(33,842)
1995	0	0	0	6836	0	6,836	17714	72	72	0	17858	11,022	(28,261)
1996	0	0	0	7315	0	7,315	17831	77	77	0	17985	10,670	(23,359)
1997	0	0	0	7827	0	7,827	17992	80	80	0	18152	10,325	(19,054)
1998	0	0	0	8375	0	8,375	18199	85	85	0	18369	9,994	(15,274)
1999	0	0	0	8961	0	8,961	18457	89	89	0	18635	9,674	(11,954)
2000	0	0	0	9588	0	9,588	18770	94	94	0	18958	9,370	(9,036)
2001	0	0	0	10260	0	10,260	19142	100	100	0	19342	9,082	(6,469)
2002	0	0	0	10978	0	10,978	19574	105	105	0	19784	8,806	(4,212)
2003	0	0	0	11746	0	11,746	20075	111	111	0	20297	8,551	(2,222)
2004	0	0	0	12400	0	12,400	20534	117	117	0	20768	8,368	(456)
2005	0	0	0	13100	0	13,100	21278	124	124	0	21526	8,426	1,158
2006	0	0	0	13900	0	13,900	21340	130	130	0	21600	7,700	2,496
2007	0	0	0	14700	0	14,700	21742	137	137	0	22016	7,316	3,650
2008	0	0	0	15400	0	15,400	22144	145	145	0	22434	7,034	4,656
2009	0	0	0	16100	0	16,100	22446	154	154	0	22754	6,654	5,520
2010	0	0	0	16800	0	16,800	22850	162	162	0	23174	6,374	6,271
Nominal:	0	21,608	12,356	209,144	0	243,108	332,202	1,782	1,782	0	335,766	92,658	
NPV:	0	16,098	9,120	60,733	0	85,951	91,361	431	431	0	92,222	6,271	

Discount Rate: 10.21%

Benefit/Cost Ratio: Col (12) / Col (7):   1.07

<u>PSC FORM CE 2.6</u> Utility Cost Test

This form is used to report the costs and benefits from the standpoint of the impact on the utility. Each item to be reported is listed below:

Col (1)   <u>Year</u>

The years begin with the base year of analysis and extend through the life of the program.

Col (2)   <u>Increased Supply Costs</u>

This column is identical to column (2), PSC FORM CE 2.3.

Col (3)   <u>Utility Program Costs</u>

This column is identical to column (3), PSC FORM CE 2.3.

Col (4)   <u>Incentives</u>

This column contains any utility incentives paid to the participating customers.

Col (5)   <u>Other Costs</u>

This column contains any other quantifiable costs attributable to the program. Complete documentation must be provided to support the figures in this column.

Col (6)   <u>Total Costs</u>

This column is the sum of columns (2) through (5).

Col (7)   <u>Avoided Gen Unit Benefits</u>

This column is identical to column (4), PSC FORM CE 2.1.

Col (8)   <u>Avoided T&D Benefits</u>

This column is identical to column (8), PSC FORM CE 2.3.

Col (9)   <u>Program Fuel Savings</u>

This column is identical to column (8), PSC FORM CE 2.2.

Col (10)   <u>Other Benefits</u>

This column contains other quantifiable benefits. Complete documentation must be provided for the numbers in this column.

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Col (11)   Total Benefits

This column is the sum of columns (7) through (10).

Col (12)   Net Benefits

This column is calculated by subtracting column (6) from column (11).

Col (13)   Cumulative Discounted Net Benefits

This column is the accumulation of the figures in column (12), discounted by the appropriate discount rate.

This form also contains the discount rate and the benefit/cost ratio.

FORM2_6.WK1
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UTILITY COST TEST

PSC FORM CE 2.6
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(1) Year	(2) Increased Supply Costs $(000)	(3) Utility Program Costs $(000)	(4) Incentives $(000)	(5) Other Costs $(000)	(6) Total Costs $(000)	(7) Avoided Gen Unit Benefits $(000)	(8) Avoided T&D Benefits $(000)	(9) Program Fuel Savings $(000)	(10) Other Benefits $(000)	(11) Total Benefits $(000)	(12) Net Benefits $(000)	(13) Cumulative Discounted Net Benefits $(000)
1988	0	2576	0	225	2,801	345	0	0	0	345	(2,456)	(2,456)
1989	0	2737	0	225	2,962	733	0	0	0	733	(2,229)	(4,479)
1990	0	2907	0	225	3,132	1,171	0	1	0	1172	(1,960)	(6,092)
1991	0	3,087	0	225	3,312	1,661	0	3	0	1664	(1,648)	(7,323)
1992	0	3,276	0	225	3,501	2,210	0	4	0	2214	(1,287)	(8,196)
1993	0	3,475	0	225	3,700	2,700	0	6	0	2706	(994)	(8,807)
1994	0	3,550	0	225	3,775	3,250	0	8	0	3258	(517)	(9,095)
1995	0	0	0	225	225	17,694	72	10	0	17776	17,551	(208)
1996	0	0	0	225	225	17,809	77	11	0	17897	17,672	7,911
1997	0	0	0	225	225	17,968	80	12	0	18060	17,835	15,346
1998	0	0	0	225	225	18,175	85	12	0	18272	18,047	22,172
1999	0	0	0	225	225	18,431	89	13	0	18533	18,308	28,456
2000	0	0	0	225	225	18,742	94	14	0	18850	18,625	34,256
2001	0	0	0	225	225	19,112	100	15	0	19227	19,002	39,626
2002	0	0	0	225	225	19,544	105	15	0	19664	19,439	44,610
2003	0	0	0	225	225	20,043	111	16	0	20170	19,945	49,250
2004	0	0	0	225	225	20,500	117	17	0	20634	20,409	53,558
2005	0	0	0	225	225	20,900	124	189	0	21213	20,988	57,578
2006	0	0	0	225	225	21,300	130	20	0	21450	21,225	61,266
2007	0	0	0	225	225	21,700	137	21	0	21858	21,633	64,678
2008	0	0	0	225	225	22,100	145	22	0	22267	22,042	67,831
2009	0	0	0	225	225	22,400	154	23	0	22577	22,352	70,733
2010	0	0	0	225	225	22,800	162	25	0	22987	22,762	73,414
Nominal:	0	21,608	0	5,175	26,783	331,288	1,782	457	0	333,527	306,744	
NPV:	0	16,098	0	2,169	18,267	91,141	431	110	0	91,681	73,414	

Discount Rate: 10.21%

Benefit/Cost Ratio: Col (11) / Col (6):   5.02

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PSC FORM CE 3.1 Input Data, Self-Service Wheeling -- Part 1

This form, along with PSC FORM CE 3.2, specifies the input data to be used for self-service wheeling proposals. Each element on the form is defined below:

I.(1)   Generator KW Reduction

This input is calculated by taking into account such factors as reliability, line losses and customer diversity.

I.(2)   KW Line Loss Percentage

This is the percentage reduction in KW from the generator to the customer.

I.(3)   KWH Line Loss Percentage

This is the percentage reduction in KWH from the generator to the customer.

I.(4)   Group Line Loss Multiplier

This is a factor used to take into account the fact that various groups of customers receive service at differenct voltage levels.

II.(1)   Study Period for the Proposal

This is the number of years in the analysis and will generally be less than or equal to the life of the avoided unit.

II.(2)   Generator Economic Life

This is the economic life of the avoided generating unit.

II.(3)   T&D Economic Life

This is the economic life of the avoided transmission and distribution facilities.

II.(4)   K Factor for Generation

This is the present value of carrying charges for a $1 investment over the life of the avoided generating unit. PSC FORM CE 1.1A must be filed showing in detail the calculation of this factor.

II.(5) <u>K Factor for T&D</u>

This is the present value of carrying charges for a $1 investment over the life of the avoided transmission and distribution facilities. PSC FORM CE 1.1A must be filed showing in detail the calculation of this factor.

III.(1) <u>Capacity at Meter</u>

The amount of capacity that the QF will sell to the utility.

III.(2) <u>Energy at Meter</u>

This value is the product of the capacity at the meter, the annual capacity factor and the number of hours in a year.

III.(3) <u>QF Generation Capacity Factor</u>

The annual capacity factor of the QF at the meter.

III.(4) <u>Supplemental Billing KW Reduction</u>

The reduction in billing demand for supplemental purchases because the QF will serve load with its own generation.

III.(5) <u>Supplemental MWH Reduction at Meter</u>

The reduction in energy for supplemental purchases as a result of self-service wheeling.

III.(6) <u>Self-Service Wheeling Charge</u>

The charge for self-service wheeling.

III.(7) <u>Wheeling Escalation Rate</u>

The annual rate of escalation that applies to III.(6).

III.(8) <u>Standby Billing KW Increase</u>

The increase in billing demand for standby purchases as a result of self-service wheeling.

III.(9) <u>Standby MWH Increase at Meter</u>

The increase in billing energy for standby purchases as a result of self-service wheeling.

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IV.(1)   Utility Non-Recurring Cost

This represents non-recurring costs in the base year of the analysis.

IV.(2)   Utility Recurring Costs

These are the recurring administrative costs of the utility as a result of the self-service wheeling proposal.

IV.(3)   Utility Cost Escalation Rate

This rate is used to escalate the costs in IV.(2).

V.(1)   Base Year

This is the reference year for the present worth analyses and the first year for recording costs and benefits of the proposal.

V.(2)   In-Service Year of Avoided Gen Unit

This is the in-service year of the generating unit to be avoided by the self-service wheeling project.

V.(3)   In-Service Year for Avoided T&D

This is the in-service year of the transmission and distribution facilities to be avoided by the self-service wheeling project.

V.(4)   Base Year Avoided Gen Unit Cost

This is the base year cost in dollars per kilowatt of the generating unit to be avoided or deferred by the project. PSC FORM CE 1.1B must be filed showing in detail the calculation of the installed cost of the unit in the in-service year, including AFUDC.

V.(5)   Base Year Avoided Transmission Cost

This is the base year cost in dollars per kilowatt of the transmission facilities to be avoided or deferred by the project. PSC FORM CE 1.1B must be filed showing in detail the calculation of the installed cost of the unit in the in-service year, including AFUDC.

V.(6)   Base Year Avoided Distribution Cost

This is the base year cost in dollars per kilowatt of the distriabution facilities to be avoided or deferred by the project. PSC FORM CE 1.1B must be filed showing in detail the calculation of the installed cost of the unit in the in-service year, including AFUDC.

V.(7)   Gen. Trans. Dist Cost Escalation Rate

This rate is used to escalate the costs in V.(4), V.(5) and V.(6).

V.(8)   Generator Fixed O&M Costs

This is the annual fixed O&M costs for the generating unit to be avoided or deferred, stated in $/KW/Year.

V.(9)   Generator Fixed O&M Cost Escalation Rate

This is the escalation rate to be used in escalating the costs in V.(8).

V.(10)   Transmission Fixed O&M Costs

This is the annual fixed O&M costs for the transmission facilities to be avoided or deferred, stated in $/KW/Year.

V.(11)   Distribution Fixed O&M Costs

This is the annual fixed O&M costs for the distribution facilities to be avoided or deferred, stated in $/KW/Year.

V.(12)   Trans and Distr Fixed O&M Cost Escalation Rate

This is the escalation rate to be used in escalating the costs in V.(10) and V.(11).

V.(13)   Avoided Generating Unit Variable O&M Costs

This is the base year variable O&M costs for the generating unit to be avoided or deferred, stated in cents/KWH.

V.(14)   Generator Variable O&M Cost Escalation Rate

This is the escalation rate to be used in escalating the costs in V.(13).

V.(15)   Generator Capacity Factor

This is the projected capacity factor of the generating unit to be avoided or deferred.

V.(16)   Avoided Generating Unit Fuel Cost

This is the base year fuel costs for the generating unit to be avoided or deferred, stated in cents/KWH.

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V.(17)   Avoided Generating Unit Fuel Cost Escalation Rate

The rate of escalation that the cost in V.(16) would be escalated each year.

VI.(1)   Supplemental Service Rate, Non-Fuel

The non-fuel energy charge in the QF's bill for supplemental service.

VI.(2)   Supplemental Service Rate, Demand

The demand charge in the QF's bill for supplemental service.

VI.(3)   Supplemental Service Escalation Rate

The annual rate of escalation that applies to items VI.(1) and VI.(2).

VI.(4)   Standby Rate, Non-Fuel

The non-fuel energy charge in the QF's bill for standby service.

VI.(5)   Standby Rate, Demand

The demand charge in the QF's bill for standby service.

VI.(6)   Standby Escalation Rate

The annual rate of escalation that applies to items VI.(4) and VI.(5).

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INPUT DATA -- PART 1
SELF-SERVICE WHEELING

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I. PROGRAM DEMAND SAVINGS AND LINE LOSSES

```
(1) GENERATOR KW REDUCTION........................    938.00 KW
(2) KW LINE LOSS PERCENTAGE.......................         8 %
(3) KWH LINE LOSS PERCENTAGE......................         6 %
(4) GROUP LINE LOSS MULTIPLIER....................   0.98000
```

II. ECONOMIC LIFE AND K FACTORS

```
(1) STUDY PERIOD FOR PROPOSAL.....................    15 YRS
(2) GENERATOR ECONOMIC LIFE.......................    30 YRS
(3) T & D ECONOMIC LIFE...........................    40 YRS
(4) K FACTOR FOR GENERATION.......................   1.54281
(5) K FACTOR FOR T & D............................   1.70712
```

III. UTILITY AND QF PURCHASES

```
(1) CAPACITY AT METER.........................      1,000 KW
(2) ENERGY AT METER...........................   6,132.00 MWH/YR
(3) QF GENERATION CAPACITY FACTOR.............      70.00 %
(4) SUPPLEMENTAL BILLING KW REDUCTION.........       0.00 KW
(5) SUPPLEMENTAL MWH REDUCTION AT METER.......       0.00 MWH/YR
(6) SELF-SERVICE WHEELING CHARGE..............          0 $/YR
(7) WHEELING ESCALATION RATE..................       5.40 %
(8) STANDBY BILLING KW INCREASE...............       0.00 KW
(9) STANDBY MWH INCREASE AT METER.............       0.00 MWH/YR
```

IV. UTILITY AND CUSTOMER COSTS

```
(1) UTILITY NONRECURRING COST PER CUSTOMER........    $1,159
(2) UTILITY RECURRING COST PER CUSTOMER...........       $0
(3) UTILITY COST ESCALATION RATE..................      5.0 %
```

V. AVOIDED GENERATOR AND T&D COSTS

```
(1)  BASE YEAR......................................    1990
(2)  IN-SERVICE YEAR FOR AVOIDED GENERATING UNIT......  1995
(3)  IN-SERVICE YEAR FOR AVOIDED T&D................    1995
(4)  BASE YEAR AVOIDED GENERATING UNIT COST.........    400 $/KW
(5)  BASE YEAR AVOIDED TRANSMISSION COST............    133 $/KW
(6)  BASE YEAR AVOIDED DISTRIBUTION COST............    136 $/KW
(7)  GEN, TRANS and DIST COST ESCALATION RATE.......    5.2 %
(8)  GENERATOR FIXED O&M COSTS......................    2.45 $/KW/YR
(9)  GENERATOR FIXED O&M COST ESCALATION RATE.......    6.1 %
(10) TRANSMISSION FIXED O&M COSTS...................    1.34 $/KW/YR
(11) DISTRIBUTION FIXED O&M COSTS...................    1.94 $/KW/YR
(12) T&D FIXED O&M COST ESCALATION RATE.............    6.0 %
(13) AVOIDED GEN UNIT VARIABLE O&M COSTS............    0.8450 Cents/KWH
(14) GENERATOR VARIABLE O&M COST ESCALATION RATE....    6.0 %
(15) GENERATOR CAPACITY FACTOR......................    20 %
(16) AVOIDED GENERATING UNIT FUEL COST..............    5.044 Cents/KWH
(17) AVOIDED GEN UNIT FUEL COST ESCALATION RATE.....    5.2 %
```

VI. UTILITY RATE DATA

```
(1) SUPPLEMENTAL SERVICE RATE, NON-FUEL............    0.869 Cents/KWH
(2) SUPPLEMENTAL SERVICE RATE, DEMAND..............    1.09 $/KW/MNTH
(3) SUPPLEMENTAL SERVICE ESCALATION RATE...........    4.60 %
(4) STANDBY RATE, NON-FUEL.........................    0.56 Cents/KWH
(5) STANDBY RATE, DEMAND...........................    2.31 $/KW/MNTH
(6) STANDBY ESCALATION RATE........................    4.60 %
```

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PSC FORM CE 3.2 Input Data, Self-Service Wheeling -- Part 2

This form, along with PSC FORM CE 3.1, specifies the input data to be used for self-service wheeling proposals. Each element on the form is defined below:

Col (1)   Year

The years begin with the base year and extend through the life of the proposal.

Col (2)   Utility Average System Fuel Cost

This is the utility's annual system fuel cost approved by the FPSC that includes fuel, purchases and sales.

Col (3)   Utility Purchase Marginal Fuel Cost

This is the marginal fuel cost reduction caused by purchases of QF energy by the utility.

Col (4)   QF Supplemental Marginal Fuel Cost

This is the marginal fuel cost reduction caused by the reduction in supplemental purchases by a QF that serves its own load.

Col (5)   QF Standby Marginal Fuel Cost

This is the marginal fuel cost increase caused by the increase in standby purchases by the QF.

Col (6)   Replacement Fuel Cost

This column contains, for each year, the annual average replacement fuel costs in cents per kwh. This is the system fuel cost if the utility had built the unit to be avoided. If the avoided unit would have lowered system fuel costs, then these costs act as an offset to the savings gained by not building the unit. On the other hand, if the avoided unit would have raised system fuel costs, there are additional savings to be achieved by avoiding the unit.

Col (7)   QF Capacity Payments

These are the capacity payments in dollars per kilowatt per month based on other inputs.

Col (8)   QF Energy Payments

These are the energy payments in dollars per megawatt-hour based on other inputs.

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Col (9)   QF Effectiveness Factor -- KW

This is a factor that is normally 1.00, but may be reduced or
increased to simulate degradation or improvement on KW.

Col(10)   QF Effectiveness Factor -- KWH

This is a factor that is normally 1.00, but may be reduced or
increased to simulate degradation or improvement on KWH.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		Utility	QF	QF				QF	QF
	Utility	Purchase	Supplemental	Standby Purch		QF	QF	QF	QF
	Avg System	Marginal	Marginal	Marginal	Replacement	Capacity	Energy	Effectiveness	Effectiveness
	Fuel Adj Cost	Fuel Cost	Fuel Cost	Fuel Cost	Fuel Cost	Payments	Payments	Factor	Factor
YEAR	(c/KWH)	(c/KWH)	(c/KWH)	(c/KWH)	(c/KWH)	($/KWH/MO)	($/MWH)	-- KW --	-- KWH --
1990	2.27	2.98	2.98	2.98	5.04	0.00	30.41	1.00	1.00
1991	2.25	3.38	3.38	3.38	4.58	0.00	34.36	1.00	1.00
1992	2.47	3.69	3.69	3.69	4.77	0.00	37.50	1.00	1.00
1993	2.72	3.66	3.66	3.66	5.31	7.48	31.01	1.00	1.00
1994	3.11	4.33	4.33	4.33	5.56	7.89	33.83	1.00	1.00
1995	3.11	4.51	4.51	4.51	5.76	8.31	36.91	1.00	1.00
1996	3.43	5.20	5.20	5.20	6.14	8.75	40.27	1.00	1.00
1997	3.56	5.20	5.20	5.20	6.59	9.23	43.93	1.00	1.00
1998	3.89	5.65	5.65	5.65	6.98	9.73	47.93	1.00	1.00
1999	4.04	5.77	5.77	5.77	7.34	10.25	52.29	1.00	1.00
2000	4.38	6.28	6.28	6.28	7.88	10.80	57.05	1.00	1.00
2001	4.55	6.60	6.60	6.60	8.31	11.39	62.24	1.00	1.00
2002	4.94	7.07	7.07	7.07	8.69	12.00	67.91	1.00	1.00
2003	5.13	7.41	7.41	7.41	9.18	12.64	74.09	1.00	1.00
2004	5.56	7.95	7.95	7.95	9.69	13.33	80.83	1.00	1.00
2005	5.77	8.41	8.41	8.41	10.04	14.04	88.19	1.00	1.00
2006	6.24	9.03	9.03	9.03	10.56	14.80	96.21	1.00	1.00
2007	6.47	9.47	9.47	9.47	10.95	15.59	104.97	1.00	1.00
2008	6.83	9.43	9.43	9.43	9.56	16.44	114.52	1.00	1.00
2009	7.21	9.79	9.79	9.79	10.09	17.31	124.94	1.00	1.00
2010	7.20	10.16	10.16	10.16	10.08	18.35	136.31	1.00	1.00

PSC FORM CE 3.3 Self Service Wheeling Cost Effectiveness Test

This form is used to report the costs and benefits of a self-service wheeling proposal. Each item to be reported is listed below:

Col (1)   Year

The years begin with the base year of analysis and extend through the life of the program.

Col (2)   Increased Fuel Costs

This column is used to report any increases in fuel costs attributable to the self-service wheeling proposal.

Col (3)   Revenue Losses

This column is used to report any revenue losses resulting from the proposal.

Col (4)   Other Costs

This column contains any other quantifiable costs. Complete documentation must be provided to support the numbers in this column.

Col (5)   Total Costs

This column is the sum of columns (2) through (4).

Col (6)   Avoided Gen Unit and Fuel Benefits

This column is the sum of columns (4) and (5), PSC FORM CE 2.1.

Col (7)   Avoided T&D Benefits

This column is the sum of columns (4) and (7), PSC FORM CE 2.2.

Col (8)   Revenue Gains

This column contains any revenue gains, such as wheeling revenues, resulting from the proposal.

Col (9)   Other Benefits

This column contains other quantifiable benefits. Complete documentation must be provided for the numbers in this column.

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Col (10)   Total Benefits

This column is the sum of columns (7) through (10).

Col (11)   Net Benefits

This column is calculated by subtracting column (6) from column (11).

Col (12)   Cumulative Discounted Net Benefits

This column is the accumulation of the figures in column (12), discounted by the appropriate discount rate.

This form also contains the discount rate and the benefit/cost ratio.

FORM3_3.WK1
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SELF-SERVICE WHEELING

PSC FORM CE 3.3
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(1) Year	(2) Increased Fuel Costs $(000)	(3) Revenue Losses $(000)	(4) Other Costs $(000)	(5) Total Costs $(000)	(6) Avoided Gen Unit & Fuel Benefits $(000)	(7) Avoided T&D Benefits $(000)	(8) Revenue Gains $(000)	(9) Other Benefits $(000)	(10) Total Benefits $(000)	(11) Net Benefits $(000)	(12) Cumulative Discounted Net Benefits $(000)
1988	0	673	0	673	345	0	0	0	345	(328)	(328)
1989	0	1456	0	1,456	733	0	0	0	733	(723)	(984)
1990	0	2362	0	2,362	1173	0	0	0	1173	(1,189)	(1,963)
1991	0	3405	0	3,405	1667	0	0	0	1667	(1,738)	(3,261)
1992	0	4602	0	4,602	2218	0	0	0	2218	(2,384)	(4,877)
1993	0	5971	0	5,971	2712	0	0	0	2712	(3,259)	(6,882)
1994	0	6389	0	6,389	3266	0	0	0	3266	(3,123)	(8,624)
1995	0	6836	0	6,836	17714	72	72	0	17858	11,022	(3,043)
1996	0	7315	0	7,315	17831	77	77	0	17985	10,670	1,859
1997	0	7827	0	7,827	17992	80	80	0	18152	10,325	6,163
1998	0	8375	0	8,375	18199	85	85	0	18369	9,994	9,944
1999	0	8961	0	8,961	18457	89	89	0	18635	9,674	13,264
2000	0	9588	0	9,588	18770	94	94	0	18958	9,370	16,182
2001	0	10260	0	10,260	19142	100	100	0	19342	9,082	18,748
2002	0	10978	0	10,978	19574	105	105	0	19784	8,806	21,006
2003	0	11746	0	11,746	20075	111	111	0	20297	8,551	22,995
2004	0	12400	0	12,400	20534	117	117	0	20768	8,368	24,762
2005	0	13100	0	13,100	21278	124	124	0	21526	8,426	26,375
2006	0	13900	0	13,900	21340	130	130	0	21600	7,700	27,714
2007	0	14700	0	14,700	21742	137	137	0	22016	7,316	28,867
2008	0	15400	0	15,400	22144	145	145	0	22434	7,034	29,874
2009	0	16100	0	16,100	22446	154	154	0	22754	6,654	30,738
2010	0	16800	0	16,800	22850	162	162	0	23174	6,374	31,488
Nominal:	0	209,144	0	209,144	332,202	1,782	1,782	0	335,766	126,622	
NPV:	0	60,733	0	60,733	91,361	431	431	0	92,222	31,488	

Discount Rate: 10.21%

Benefit/Cost Ratio: 1.52