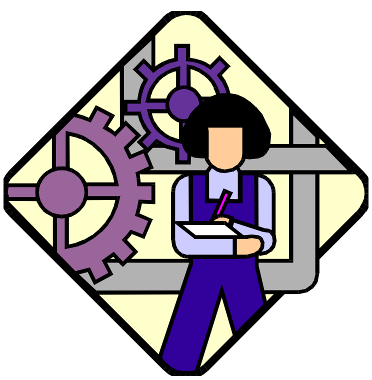
San Diego Gas & Electric
Marketing Programs & Planning
8306 Century Park Court
San Diego, California 92123

1994 & 1995 Industrial Energy Efficiency Incentives

Sixth Year Retention Evaluation

March 2001



Study ID Nos. 928 & 964

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1994 & 1995 INDUSTRIAL ENERGY EFFICIENCY INCENTIVES:
SIXTH YEAR RETENTION EVALUATION
STUDY ID NOS. 928 & 964

Program Description

SDG&E's PY94 and PY95 Industrial Energy Efficiency Incentives (IEEI) Program was designed to help customers reduce energy costs and increase energy efficiency at their facilities while providing positive resource value to society.

A customer who participated in SDG&E's Industrial Energy Efficiency Incentives Program received a rebate upon completed installation of the equipment. Information regarding customer name, address, phone number, installed measures, measure costs, energy savings and participation date were kept in SDG&E's program tracking system. The retention sample for this study was drawn from this database.

Sampling and Data Collection

The M&E Protocols require that retention studies evaluate the top 10 measures or 50% of the estimated resource value, whichever number of measures is less, excluding miscellaneous measures. For PY94, SDG&E's project tracking system did not carry resource values (and could not be constructed due to changes in data systems) but rather the "incentive basis"(IB) as defined in the shareholder mechanism in place at that time. Per the retroactive waiver attached to the end of this report, SDG&E ranked the PY94 IEEI measures by descending IB and elected to take the top eleven measures (69% of non-miscellaneous program IB and one more measure than required by the M&E Protocols). These eleven measures are also the eleven largest measures in terms of gross savings (cumulative total of 72% of non-miscellaneous program kWh savings). For PY95, seven measures constitute 51.6% of resource value. These 18 measures were evaluated for retention.

The M&E Protocols require that PY94 and PY95 program years be combined for retention studies to increase sample sizes for retention measures. Unfortunately, due to the unique process measures associated with industrial customers, there is no overlap between PY94 and PY95 measures to be studied. However, there is a crossover between years for "like" measures, which is discussed below.

Sixty-seven customers installed the 11 retention measures to be studied from PY94. Sixty-eight customers installed the 7 retention measures from PY95. SDG&E's sample design was to conduct a census of all IEEI PY94 and PY95 retention customers with on-site audits.

SDG&E contracted with Xenergy, Inc. to conduct the on-site audits of participating customers to verify the number of measures that were still in place and operable – the definition of effective useful life (EUL) per the M&E Protocols. A copy of the on-site data collection form is provided at the end of this study.

Measures/"Like" Measures

In order to apply any changes in EUL to measures not studied, M&E Protocols require that the utility identify any "like" measures within the program. For SDG&E's PY94 and PY95 IEEI Program, the "like" measures are all in the lighting enduse. M&E Protocols Table 6 in this report identifies those measures that are determined to be "like" measures (those measures that were not studied but have similar characteristics to measures that were evaluated in this retention study).

Econometric Framework

Retention model for estimating median lifetime

The model for lifetime estimation involves the key concepts of the survivor function, the hazard function, and median lifetime. Once these concepts are established, they will be applied to the data and a maximum-likelihood framework (which brings the concepts and the data together) to produce estimated median lifetime.

The survivor function

For the lifetime of the equipment in question, the survivor function is,

$$S(j) = \text{prob}(\text{lifetime} \geq j)$$

It is the estimated survivor function that allows the formation of an expected median lifetime. Of course, the survivor function must be specified. This is done through a related function: the hazard function.

The hazard function

The hazard function $h(j)$ is the probability of equipment failure (removal, retirement, etc.) in the next unit of time, conditioned on having reached age j. It bears the following relationship to the survivor function.

$$h(j) = -\frac{dS(j)/dj}{S(j)}$$

The hazard function is generally the "intuitive starting point" of any lifetime analysis, since it is structured to reflect the general pattern of equipment failures. The quadratic hazard function allows for U-shaped and linear hazard curves ($b_2 = 0$, below), as well as an exponential survivor function ($b_1 = b_2 = 0$, below) as special cases:[1]

Equation 1 (The quadratic hazard function)

$$-\frac{dS(j)/dj}{S(j)} = h(j) = b_0 + b_1 j + b_2 j^2$$

Note that the hazard function is actually a differential equation in the survivor curve.

Getting the survivor function from the hazard function

The exact structure of the survivor function can be obtained by solving the hazard function (a differential equation in the survivor function) for $S(j)$, imposing the constraint $S(0) = 1$:

Equation 2 (The survivor function)

$$S(j) = e^{-\left(\beta_1 j + \beta_2 j^2 + \beta_3 j^3\right)} \quad (\beta_1 = b_0, \quad \beta_2 = \frac{b_1}{2}, \quad \beta_3 = \frac{b_2}{3})$$

The median lifetime

The median age at failure m is then given by the implicit expression,

Equation 3 (Definition of the median m)

$$S(m) = e^{-\left(\beta_1 m + \beta_2 m^2 + \beta_3 m^3\right)} = \frac{1}{2}$$

[1] Lawless, J.F. (1982). *Statistical Models and Methods for Lifetime Data*. New York: Wiley. 252-253.

We now show the steps necessary to estimate the median lifetime from actual data, by defining the "discrete failure function" and the likelihood function.

The discrete failure function

For uniform periods of time (months), the likelihood of failure at age j (before age j+1) is,

Equation 4 (The discrete failure function)

$$F(j) = S(j) - S(j+1)$$

The data, the likelihood function, and estimation

Consider an equipment sample of size n. Let n_j^F be the number of known failures at age j, and let n^Q be the number of known failures whose age at failure is unknown; then the number of survivors by observation at age J is $n - n^Q - \sum_{j=0}^{J} n_j^F$. Furthermore, let α be the likelihood that the age at failure is unknown, given failure. The log-likelihood function (the log of the likelihood of observing the data) is then,

$$L(\beta, \omega) = \sum_{j=0}^{J} n_j^F \log[(1-\omega)F(j)] + n^Q \log\{\omega[1 - S(J+1)]\} + \left(n - n^Q - \sum_{j=0}^{J} n_j^F\right) \log S(J+1).$$

The log-likelihood function can be maximized with respect to its arguments just as a sum-of-squares function can be minimized in a standard regression problem. Standard numerical and grid-search methods can be used to maximize the log-likelihood function. Once estimates are obtained for the vector of coefficients β, the median lifetime can be estimated using Equation 3.

The estimated variance of β, on which the standard errors of its elements are based, is a fairly complex calculation and one which will not be expressly derived here, although the calculation is based on the expectation of the second-derivative matrix for the log-likelihood function:

$$VAR(\beta) = \left(-E\frac{\partial^2 L}{\partial\beta\partial\beta'}\right)^{-1}$$

The estimated median is a nonlinear function of β; as such, its standard error can be estimated dependably for large samples, based on $VAR(\beta)$.

Solving data problems--developing independent and dependent failures

Lifetime estimation using maximum likelihood requires the statistical independence of failures. Sometimes equipment failures are indeed independent, as when failures occur due to age or manufacturing weaknesses. However, in many cases failures are not independent--that is, they are "dependent"--as when, for example, a "cluster" or "bank" of lighting measures are jointly removed during a remodeling.

Independent failures can easily be handled using the maximum likelihood framework described above. Fortunately, dependent failures can also be handled in a similar fashion. A cluster of dependent failures can be viewed as an independent failure in its own right, one of numerous observed clusters, each of which is subject to the possibility of independent failure. The maximum likelihood framework can simply be applied to the clustered data.

Modeling and estimating with independent and dependent failures

When any one piece of equipment is subject to both independent and dependent failure, the hazard function can be modified accordingly (ignoring the event of both types of failures occurring jointly):

$$h(j) = h_{ind}(j) + h_{dep}(j)$$

Independent failures are bound to be age-dependent, so that,

$$h_{ind}(j) = b_0^{ind} + b_1 j + b_2 j^2$$

Dependent failures are mostly likely age-independent (with respect to the building-remodeling effect, we expect the age of the equipment to be irrelevant), so that,

$$h_{dep}(j) = b_0^{dep}$$

This yields a new survivor function (and, implicitly, a new median life that can be estimated based on the joint use of independent and dependent failure data):

$$S(j) = e^{-\left[\left(\beta_1^{ind} + \beta_1^{dep}\right)j + \beta_2 j^2 + \beta_3 j^3\right]}$$

The variance matrix for the joint estimation problem can be constructed, as can the standard error for the jointly estimated median lifetime, represented by the expression,

$$S(m) = e^{-\left[\left(\beta_1^{ind} + \beta_1^{dep}\right)j + \beta_2 m^2 + \beta_3 m^3\right]} = \frac{1}{2}$$

M&E PROTOCOLS TABLE 6

RESULTS USED TO SUPPORT

PY94 FOURTH EARNINGS CLAIM

FOR

INDUSTRIAL ENERGY EFFICIENCY INCENTIVES PROGRAM

SIXTH YEAR RETENTION EVALUATION

MARCH 2001

STUDY ID NOS. 928 & 964

TABLE 6 for RETENTION STUDIES
PROGRAM: IndEEI
YEAR(S): PY94 & PY95

	1. Enduse	1. Measure	2. *ex-ante* EUL	2. *ex-ante* EUL Source	3. *ex-post* EUL from Study	4. *ex-post* EUL for 3rd & 4th claim	5. Standard Error	6. Upper & lower bounds @ 80% Conf Int		7. P Value	8. Realization Rate	9. "Like" Measures to be Adjusted
PY94	LIGHTING	2FO32/1B4T8-2L/1R4-D2	20	***	28.6	20.0	13.2	11.7	45.4	51.6%	1.00	1
PY94	PROCESS	10" Crossover Piping & Valve Controls	20	***	NA	20.0	NA	NA	NA	NA	1.00	2
PY94	LIGHTING	4Ft. Fluorescent Fixtures	15	***	NA	15.0	NA	NA	NA	NA	1.00	3
PY94	LIGHTING	2FO32/1B4T8-2L	20	***	21.8	20.0	8.0	11.6	32.0	81.8%	1.00	4
PY94	PROCESS	5000#/Hr. Co2 Vaporizer (FCWB 6x8x10)	15	***	NA	15.0	NA	NA	NA	NA	1.00	5
PY94	PROCESS	EDM Machines-Electrical Discharge Machining	20	***	NA	20.0	NA	NA	NA	NA	1.00	6
PY94	PROCESS	Automatic Ingot Loaders w/ Rotary Accuater	20	***	NA	20.0	NA	NA	NA	NA	1.00	7
PY94	LIGHTING	4FO32/1B4T8-4L	20	***	45.8	20.0	32.5	4.1	87.5	42.7%	1.00	8
PY94	PROCESS	Molding machine insulating blankets	20	***	NA	20.0	NA	NA	NA	NA	1.00	9
PY94	PROCESS	Repaired Compressed Air System Leaks	5	***	NA	5.0	NA	NA	NA	NA	1.00	10
PY94	LIGHTING	2FO32/1B4T8-2L/1R4-D1	20	***	20.8	20.0	15.2	1.3	40.2	95.8%	1.00	11
PY95	PROCESS	Hi eff multistage air compressors	7	***	NA	7.0	NA	NA	NA	NA	1.00	12
PY95	PROCESS	Crossover Piping	20	***	NA	20.0	NA	NA	NA	NA	1.00	13
PY95	PROCESS	Compressed Air System Enhancement	5	***	NA	5.0	NA	NA	NA	NA	1.00	14
PY95	PROCESS	Electric Aqueous Degreasers	15	***	NA	15.0	NA	NA	NA	NA	1.00	15
PY95	PROCESS	New Copper Compressed Air Piping System	20	***	NA	20.0	NA	NA	NA	NA	1.00	16
PY95	LIGHTING	T-8 El Bal (4ft/2la)	16	*	18.5	16.0	5.2	11.8	25.2	63.2%	1.00	17
PY95	LIGHTING	Exit Sign Kit (LED)	20	***	40.3	20.0	28.0	4.5	76.2	46.7%	1.00	18

# above	9. "Like" Measures to be Adjusted	
1	2FO32/1B4T8-2L/1R8-D1	PY94
8	4FO32/1B4T8-4L/2R4-D0	PY94
1	6FO32/2B4T8-3L/2R4-D0	PY95
1	2FO32/1B4T8-2L/1R8-D1	PY95
8	4FO32/1B4T8-4L	PY95
8	4FO32/1B4T8-4L/2R4-D2	PY95
8	4FO32/1B4T8-4L/1R8-D0	PY95
17	T-8 El Bal (4ft/3la)	PY95
17	T-8 El Bal (4ft/4la)	PY95

*M&E Protocols Appendix "F"

**Advice Letter filing 926-E-A/934-G-A: March 23, 1995

*** Custom Job, Engineering Judgement

Note: NA indicates that no failures were observed

M&E PROTOCOLS TABLE 7

DATA QUALITY AND PROCESSING

DOCUMENTATION

FOR

INDUSTRIAL ENERGY EFFICIENCY INCENTIVES PROGRAM

SIXTH YEAR RETENTION EVALUATION

MARCH 2001

STUDY ID NOS. 928 & 964

M&E PROTOCOLS TABLE 7

DATA QUALITY AND PROCESSING DOCUMENTATION

For Industrial Energy Efficiency Incentives Program

Sixth Year Retention Evaluation

March 2001

Study ID Nos. 928 & 964

B. Retention Studies

1. OVERVIEW INFORMATION

a. Study Title and Study ID:

1994 & 1995 Industrial Energy Efficiency Incentives Program – Sixth Year Retention Evaluation, March 2001, Study ID Nos. 928 & 964.

b. Program, Program Year(s), and Program Description (Design):

Industrial Energy Efficiency Incentives Program for the 1994 and 1995 program years. The Program was designed to help customers reduce energy costs and increase energy efficiency at their facilities while at the same time providing positive resource value to society.

c. End Uses and Measures Covered:

Lighting and Process end uses. The measures are identified in Table 6.

d. Methods and Models Used:

See the section of the report entitled Econometric Framework for a complete description of the final model specifications.

e. Analysis sample size:

Program Year	Measure	# of Customers in Program	# of Installations in Program	# of Measures Installed in Program	# of Measures in Sample Frame	Date of Retention Studies
PY94	2FO32/1B4T8-2L/1R4-D2	43	9,846	9,846	9,846	Dec ‘97 Aug-Dec '99 Apr-Sep '00
PY94	10" Crossover Piping & Valve Controls	1	1	1	1	Oct ‘97 Nov '99 July '00
PY94	4Ft. Fluorescent Fixtures	1	1,794	1,794	1,794	Dec ‘97 Oct '99 May '00
PY94	2FO32/1B4T8-2L	51	6,633	6,633	6,633	Dec ‘97 Aug-Oct '99 Apr-Sep '00
PY94	5000#/Hr. Co2 Vaporizer (FCWB 6x8x10)	1	1	1	1	Aug ‘98 Oct '99 Sep '00
PY94	EDM Machines-Electrical Discharge Machining	1	2	2	2	Aug ‘98 Aug '99 May '00
PY94	Automatic Ingot Loaders w/ Rotary Accuater	1	3	3	3	Nov ‘97 Sep '99 June '00
PY94	4FO32/1B4T8-4L	26	1,363	1,363	1,363	Dec ‘97 Aug-Oct '99 Apr-June '00
PY94	Molding machine insulating blankets	1	30	30	30	Aug ‘98 Sep '99 May '00
PY94	Repaired Compressed Air System Leaks	1	N/A	N/A	N/A	Oct ‘97 Nov '99 July '00
PY94	2FO32/1B4T8-2L/1R4-D1	15	2,261	2,261	2,261	Dec ‘97 Aug-Oct '99 Apr-Sep '00
PY95	Hi eff multistage air compressors	1	2	2	2	Apr ‘98 Nov '99 July '00
PY95	Crossover Piping	1	1	1	1	Apr ‘98 Nov '99 July '00
PY95	Compressed Air System Enhancement	1	1	1	1	Apr ‘98 Nov '99 July '00
PY95	Electric Aqueous Degreasers	1	2	2	2	Apr ‘98 Sep '99 Aug '00

Program Year	Measure	# of Customers in Program	# of Installations in Program	# of Measures Installed in Program	# of Measures in Sample Frame	Date of Retention Studies
PY95	New Copper Compressed Air Piping System	1	1	1	1	Apr '98 Aug '99 Apr '00
PY95	T-8 El Bal (4ft/2la)	46	8,203	8,203	8,203	Apr-Jun '98 Aug-Dec '99 Apr-Aug '00
PY95	Exit Sign Kit (LED)	41	1,376	1,376	1,376	Apr-Jun '98 Aug-Dec '99 May-Aug '00

2. DATABASE MANAGEMENT

a. Data sources:

The data came from the following sources:

- Customer name, address, phone number, installed measures, and participation date from the program tracking database
- Measures were determined to be in place and operable by the on-site data collection described in the section of the report entitled Sampling and Data Collection.

The data were merged together to form the dataset for the econometric analysis leading to the estimated Effective Useful Life

b. Data Attrition:

There was no data attrition. A census of all participants was achieved.

c. Data Quality Checks:

The data sets for the analysis were merged in SAS by the appropriate key variables. Counts of the data sets before and after the merges were verified to ensure accurate merging.

d. Unused data collected

The census taken for each program year yielded unacceptably uneven failure results across observation years, something that would not be unexpected in an industrial context. Accordingly, a particular observation year was used for estimation, for each measure and program year: whichever year of observation yielded the highest rate of failure for the program year and measure. The table below in section 3.c. describes the results.

3. SAMPLING

a. Sampling procedures and protocols:

The sample was a census– all participants with the measures in question were contacted.

b. Survey information:

A copy of the Survey is attached at the end of the report. The survey completed response rate was 100% for both PY94 & PY95.

c. Statistical Descriptions:

Measure	Independent or dependent failure analysis (see report)	Variable Designation (see report)	Sample Size (observations or failures)	Age of failure (months)
2FO32/1B4T8-2L/1R4-D2	Dependent* (Comm-PY 94, Observed 1997)	n	54	Not applicable
		n^Q	5	47
T-8 El Bal (4ft/2la)	Dependent* (Comm-PY 95, Observed 1998)	n	128	Not applicable
		n^Q	15	39
2FO32/1B4T8-2L	Dependent* (Comm-PY 94, Observed 1997)	n	67	Not applicable
		n^Q	8	47
2FO32/1B4T8-2L/1R4-D1	Dependent* (Comm-PY 94, Observed 1997)	n	16	Not applicable
		n^Q	2	47
Exit Sign Kit (LED)	Dependent* (Comm-PY 95, Observed 2000)	n	45	Not applicable
		n^Q	4	64
4FO32/1B4T8-4L	Dependent* (Comm-PY 94, Observed 1999)	n	36	Not applicable
		n^Q	3	68
*A group of measures is said to have undergone "dependent failure" if the number of failures is more than 40% of the group. A typical set of dependent failures is 100% of the group. For dependent failures, n is the number of groups, not the number of measures in the group.				

4. DATA SCREENING AND ANALYSIS

a. Outliers and Missing Data Points:

No outliers and no missing data.

b. Background Variables:

NA

c. Screened Data:

None.

d. Model statistics:

See M&E Protocol Table 6.

e. Specification:

Measure	Specification for dependent failures	Specification for independent failures	Mixed estimation
2FO32/1B4T8-2L/1R4-D2	Exponential	NA	None
T-8 El Bal (4ft/2la)	Exponential	NA	None
2FO32/1B4T8-2L	Exponential	NA	None
2FO32/1B4T8-2L/1R4-D1	Exponential	NA	None
Exit Sign Kit (LED)	Exponential	NA	None
4FO32/1B4T8-4L	Exponential	NA	None

1). Heterogeneity: See section of the report entitled "Econometric Framework."

2). Omitted Factors: None omitted.

f. Error in Measuring Variables:

NA.

g. Influential Data Points:

None.

h. Missing Data:

None.

i. Precision:

The calculation for the standard error is based on the expectation of the second-derivative matrix for the log-likelihood function.

MEASURE RETENTION SURVEY

FOR

INDUSTRIAL ENERGY EFFICIENCY INCENTIVES PROGRAM

SIXTH YEAR RETENTION EVALUATION

MARCH 2001

STUDY ID NO. 928 & 964

SDG&E Industrial Survey for PY94 & PY95

SDG&E PY94 & PY95 Industrial EEI Program
Measure Retention Survey

Site_nbr: [ ] **Site_sec:** [ ] **PART:** [ ]
Site_nm: [ ]

Rank: [ ] **Address:** [ ]
Site_Cty: [ ]

Bldg_sz: [ ] **Bldg_lgt:** [ ]

ENDUSE:

Site Contact (DB): ________________________
Contact Ph: ________________________

Alternate contact name: ____________________
Alternate contact phone: ____________________

Surveyor: ______________________________
Suvey Date: ______________________________

Contract	MSR #	NEW DESC	kWh Sav.	kW Red.	Th. Sav.	MSR LOC	Ins. Qty	Run Hrs	Ver. Schedule (incl.date of change in schedule)

SDG&E PY94 & PY95 Industrial EEI Program

Measure Retention Survey

Site nbr: [ ] **Site sec:** [ ] **PART:** [ ]
Site nm: [ ]

Rank: [ ] **Address:** [ ]
Site Cty: [ ]

Bldg sz: [ ] **Bldg lgt:** [ ]

ENDUSE:

Site Contact (DB): _______________________
Contact Ph: _______________________

Alternate contact name: __________________
Alternate contact phone: __________________

Surveyor: ____________________________
Suvey Date: ____________________________.

SURVEY DISPOSITION

Audit Completed?: [ ]Yes [ ]No (check one)

Reason for not completed: [ ]
1 = Unable to reach/contact.
2 = Changed mind about participation in study.
3 = Premise closed/not operating.
4 = Site/contact info incorrect and could not find alternate contact.
5 = Requested to call back, could not complete call.
6 = Rescheduled upon arrival at site.
7 = Other: Describe:

DISCREPANCIES

Reason for discrepance in counts (check one and describe if necessary)
[ ]=Removed, not replaced (include date of rernoval:,
[ ]=Never installed
[ ]=Exceeds tracking system counts (describe reasons for additional eqmt, eg, retrofits part of SDG&E Program in 1995).
[ ]=Removed, replace with more efficient equipment
[ ]=other, describe situation fully

Description/Comments:

SDG&E PY94 & PY95 Industrial EEI Program

Measure Retention Survey

Site_nbr: [ ] **Site_sec:** [ ] **PART:** [ ]
Site_nm: [ ]

Rank: [ ] **Address:** [ ]
Site_Cty: [ ]

Bldg_sz: [ ] **Bldg_lgt:** [ ]

Site Contact (DB): ________________________
Contact Ph: ________________________

Alternate contact name: ___________________
Alternate contact phone: ___________________

Surveyor: ____________________________
Suvey Date: ____________________________

Facility Tenancy/Ownership:

Have Tenant and Owner remained the same? [ ] Yes [ ] No (check one)
If NO, what best describes the situation [ ] (select one, describe below)

1. New tenant-same owner.
2. Same tenant-New owner
3. New tenant-New owner
4. Premise closed.

Description/Comments:

Building/Facility Configuration:

Check one box that represents the facility layout (check all that apply, describe below):
[ ] Same as time of installation.
[ ] Same tenant, had tenant improvements
[ ] Same tenant, increased floorspace
[ ] Same tenant, decreased floorspace
[ ] New tenant, no tenant improvements
[ ] New tenant, and had tenant improvements
[ ] New tenant, increased floorspace
[ ] New tenant, decreased floorspace, ie, there is empty floorspace.

Description/Comments:

RETROACTIVE WAIVER

FOR

INDUSTRIAL ENERGY EFFICIENCY INCENTIVES PROGRAM

SIXTH YEAR RETENTION EVALUATION

MARCH 2001

STUDY ID NOS. 928 & 964

SAN DIEGO GAS & ELECTRIC
RETROACTIVE WAIVER FOR
1994 RAEI-REFRIGERATOR, CEEI, IEEI, and NRNC PROGRAMS
(Study ID Nos. 915, 924/960, 927/963, and 936/972)
(Study ID Nos. 916, 925/961, 928/964, and 937/973)

Approved by CADMAC on January 24, 2001

REQUEST

SDG&E is requesting a waiver for the PY94 RAEI-Refrigerator, CEEI, IEEI, and NRNC Programs identification of fourth and sixth or ninth year retention measure studies required by Table 9A of the Protocols. Protocol Table 9A defines retention study measures as "the top ten measures, excluding measures that have been identified as miscellaneous (per Table C-9), ranked by net resource value or the number of measures that constitutes the first 50% of resource value, whichever number of measures is less." SDG&E is requesting that (1) commercial measures for PY94 be identified by the top 50% of the "incentive basis" (IB) as defined in the shareholder mechanism in place at that time; and (2) that residential refrigerator measures be identified as the top 50% of gross kWh savings.

BACKGROUND

For PY94, SDG&E's project tracking system did not carry resource values (and could not be constructed due to changes in data systems), but rather the "incentive basis" (IB) as defined in the shareholder mechanism in place at that time. IB was a calculated as follows: IB = Benefits – (Administrative Costs + (.25 * Incentive Costs) + (.5 * Equipment Costs)). SDG&E ranked the PY94 measures by descending IB. PY94 residential programs did not carry the IB value; the refrigerators were ranked by percent of program gross kWh savings. SDG&E believes that the measures required to be included for the fourth and sixth or ninth year retention studies are most likely identified by the substitute criteria. By identifying the top 50% of IB, the measures constituting the greatest shareholder earnings are being evaluated. The number of measures, percentage of non-miscellaneous program IB/kWh savings, and program earnings are presented in the following table.

Program	Number of Retention Study Measures	Percent of Non-Miscellaneous IB	Program Earnings (Millions of $$)
CEEI	8	51.4%	3.413
NRNC	6	54%	1.110
IEEI	11	69%	1.707
RAEI-Refrigerators	1	52%of kWh	.65

CONCLUSION

SDG&E believes that it is reasonable to assume that the identified measures constitute the top 50% of program net resource value. This is a one-time request, has no effect on earnings, and does not affect future earnings claims. Therefore, SDG&E is requesting that it be granted this waiver to identify retention measures for the PY94 CEEI, NRNC, IEEI and RAEI-Refrigerator Programs as described above.