

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

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IN THE MATTER OF RATEMAKING	)	
TREATMENT OF DEMAND-SIDE	)	DOCKET NO. 92-2035-04
RESOURCES AND THE ANALYSIS OF	)	
REGULATORY CHANGES TO ENCOURAGE	)	JOINT APPLICATION
IMPLEMENTATION OF INTEGRATED	)	
RESOURCE PLANNING.	)	

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The Division of Public Utilities ("Division"), the Committee of Consumer Services, PacifiCorp, dba Utah Power & Light Company, ("Company"), the Department of Natural Resources and the Environmental Intervenors, hereinafter collectively referred to as the "Parties", hereby apply to the Public Service Commission of Utah ("Commission") for an Order approving a Joint Recommendation, a copy of which is attached hereto as Exhibit A.

In support of this Application, the Parties state as follows:

1. In its June 18, 1992, Order in Docket No. 90-2035-01, the Commission stated:

"The Commission finds that demand-side resources, which includes end-use efficiencies, load management, and conservation, are more difficult to acquire than supply-side resources. Regulatory disincentives may exist. The Commission finds that currently there is no approved ratemaking treatment for DSR. Given the asymmetry of ratemaking treatment for DSR and the resulting uncertainty of cost recovery, the Commission questions whether the Company has sufficient financial incentive to pursue its IRP. Given the Commission's directive that DSR and SSR be treated on a comparable basis, the Commission finds that clarification of the regulatory treatment of DSR is necessary . . .

of which was filed with the Commission on August 31, 1993. described in the DSR Collaborative Report ("Report"), a copy conference/collaborative process ("Collaborative") were and alternatives. The results of this technical five months to an investigation and analysis of DSR issues resource ("DSR") programs, including the parties, devoted representatives of interests affected by demand-side

3. Based on the Commission's directive, issues to be presented in this docket. aid in the Commission's decision making process on the Conference/Collaborative process as a viable step to Commission supports the technical implementation of the Company's IRP . . . The analyze the issues surrounding DSR and the docket be investigative in nature with the objective to under the 92-2035-04. The Commission desires that this petitions for DSR cost recovery or incentive regulation "The Commission directs the parties to file any new

2035-07, the Commission stated:

2. In its February 12, 1993, Order in Docket No. 92-

group deems germane." revenues from profits and any other issues that the conservation acquisitions, and the decoupling of the granting of a cost advantage for efficiency or conservation, electric revenue adjustment mechanisms, service charges for efficiency improvements and treatment of DSR expenditures, approval of energy issues to be analyzed include: the ratemaking bring recommendations before the Commission. The the existing DSR task force to study these issues and cooperative task force or incorporate these issues into . The Commission directs the Division to establish a is warranted and establishes Docket No. 92-2035-04 . . . Therefore, the Commission concludes that further study

4. In the Participant Position Papers section of the Report, the Division expressed the view that, although the Collaborative had conducted a rigorous investigation of DSR alternatives, further investigation was required. The Division stated:

"We recommend that an interim trial policy be crafted and implemented for 1994. This interim approach includes DSR targets which would encourage a reasonable level of DSR activity during 1994. This trial period should include safeguards to insure that DSR costs are treated like SSR costs, and to limit the dollar risk to ratepayers. It should also allow for a collaborative to continue investigation of other solutions, and to evaluate and oversee the results. The Division will work with the other parties to see if a trial policy can be developed that accomplishes these goals.

5. On August 4, 1993, the Division invited all Collaborative participants to a meeting to discuss an interim trial policy for the Company's Utah DSR activities. After a series of meetings, the Parties have agreed on the interim trial policy which is described in the Joint Recommendation.

6. The Joint Recommendation establishes a framework for the regulatory treatment of the costs, including lost revenues, incurred by the Company during calendar year 1994 for DSR activities in Utah. The Joint Recommendation also establishes a framework for the evaluation, both during and after the trial period, of the results of the interim trial policy. Finally, the Joint Recommendation establishes a

framework for the ongoing evaluation of DSR issues and

alternatives.

7. The Parties submit that the Joint Recommendation

will encourage the reasonable development of Commission

approved DSR in Utah during 1994, will allow the Commission

and other interested parties to acquire the requisite

information to formulate longer-term DSR policies and is

otherwise in the public interest.

WHEREFORE, the Parties respectfully request an order of

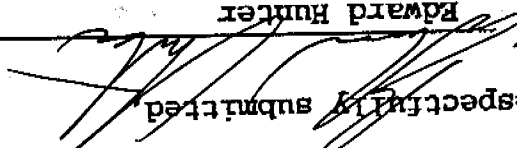
the Commission approving the Joint Recommendation and

authorizing the accounting and regulatory treatment

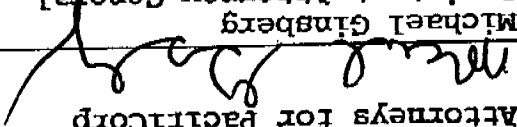
specified in the Joint Recommendation.

Dated this 18 day of October, 1993.

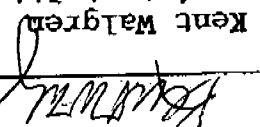
Respectfully submitted,

By  Edward Hunter

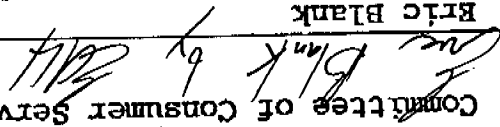
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EXHIBIT A

BEFORE THE PUBLIC SERVICE COMMISSION OF UTAH

IN THE MATTER OF RATE MAKING TREAT-  
 MENT OF DEMAND-SIDE RESOURCES AND  
 THE ANALYSIS OF REGULATORY CHANGES  
 TO ENCOURAGE IMPLEMENTATION OF  
 INTEGRATED RESOURCE PLANNING )  
 )  
 ) JOINT RECOMMENDATION  
 ) DOCKET NO. 92-2035-04  
 )

PacifiCorp, state regulators, and other interested parties have met for several months in

a collaborative setting to develop a mutually agreeable regulatory policy regarding demand-side resource investments. The parties have submitted a report to the Utah Public Service

Commission (PSC) stating their respective positions.

The Division of Public Utilities (DPU), PacifiCorp dba Utah Power (Company),

Committee of Consumer Services (CCS), Department of Natural Resources (DNR) and

Environmental Intervenor (EI) desire to move ahead with Commission approved demand side

resource programs in 1994. The parties realize that the concept of demand side resources

(DSR), the evaluation and measurement of DSR programs and the direction of regulatory

policy are still in the formative stages in Utah. Under these circumstances, an interim

approach which allows the Company, its customers, and regulators to gain experience in

evaluating and measuring the success of these programs is considered reasonable and in the

public interest.

The undersigned parties therefore propose an interim one year trial policy (Interim

Policy), coupled with further research, for the regulatory treatment of DSR programs in Utah.

The Interim Policy will be in effect January 1, 1994 through December 31, 1994 (Interim

Period). This Interim Policy does not establish a precedent for future DSR policy. The parties

agree that the Interim Policy detailed below is a reasonable short term alternative for addressing DSR cost recovery and program review issues in the State of Utah. This Joint Recommendation represents a compromise. It does not indicate that all parties agree that the Interim Policy provides either complete or incomplete cost recovery of DSR costs or that it equalizes the treatment of DSR and SSR resources.

## 1. NET LOST REVENUES

1.1 Attached as Exhibit 1 is a description of the Net Lost Revenue Formula (Formula) which the parties agree will be used by the Company to calculate net lost revenues (NLR) during the 1994 Interim Period. This Formula will not be subject to change during the Interim Period. As part of its responsibilities, a collaborative task force (defined in Section 4) will work to quantify the inputs to the Formula, and will issue a report to the Commission indicating areas of agreement by the parties regarding the amount of NLR in 1994, and any remaining NLR issues to be resolved by the Commission. The parties recommend that the Commission adopt the Formula for purposes of calculating NLR for 1994. The burden to show that the inputs to the Formula are reasonable rests with PacifiCorp.

1.2 The amount of NLR calculated under the Formula described in Exhibit No. 1 and ordered by the Commission will begin to be amortized on January 1, 1995, over the average life, as approved by the Commission, of measures within the specific DSR program which created them. PacifiCorp will continue to work with the DSR Collaborative (as defined in Section 4) during 1994 and

- 1995 to update estimates of 1994 energy and capacity savings (net of load building impacts) based on monitoring and evaluation (M&E) results. These estimates will form the basis for PacifiCorp's NLR calculation. When PacifiCorp files its next general rate case, the amortization of 1994 NLR and program costs, the unamortized balance of NLR and program costs, and energy service charge revenues will be included in the Utah jurisdictional revenue requirement.
- 1.3 This Interim Policy applies only to NLR from DSR measures installed in 1994. The parties agree that the Formula will be evaluated by the Collaborative for reasonableness and ease of measurement in order to determine whether or not it provides an appropriate basis for NLR calculation in the post-1994 period.
- 1.4 NLR for any DSR measure will not be annualized during the Interim Period, but will be recoverable only for that portion of the Interim Period remaining after the installation of that measure is complete. The total amount of NLR calculated for all Utah measures installed in calendar year 1994, based on the Formula, and approved by the Commission, shall not exceed the lesser of:
- a. The amount derived by applying the Formula described in Exhibit 1 to the DSR program measures installed in 1994; or
  - b. \$2,000,000
- 1.5 NLR will be calculated monthly by the Formula during the Interim Period. Following program evaluations and determination of the final amount of NLR for 1994 by the Commission, any adjustment to the NLR calculated by the Formula shall not exceed 25%.



2. TARGET FOR 1994 DSR ACTIVITY

- 2.1 The 1994 DSR target will insure an adequate level of DSM activity in order to provide sufficient data to evaluate and measure the success of the demand side programs in Utah.
- 2.2 Therefore the minimum energy and capacity target for 1994 DSM activity in Utah will be 40,000 MWh and 5.9 MW, respectively, on an annualized basis. It is the intent of the parties to gain information on a wide variety of DSR programs. Therefore, PacifiCorp agrees to complete at least 20% of each customer class's near term action goals as stated in RAMMP III.

3. DEMAND-SIDE-RESOURCE PROGRAM COSTS

- 3.1 For the purposes of this Interim Policy the parties concur that program evaluation, monitoring and reporting costs will be expensed in the year incurred. Non-program specific advertising costs will also be expensed in the year incurred. All other DSR program costs, including costs associated with conservation contracts resulting from the bidding process, will be capitalized with amortization beginning January 1, 1995 and continuing over the life of the program measure. This treatment is consistent with the practice in other PacifiCorp jurisdictions.
- 3.2 The Company will capitalize DSR program costs, including NLR, and will accrue carrying charges at the current AFUDC rate on DSR program costs until the amortization of those costs begins on January 1, 1995. The capitalization of the program costs, NLR, and related carrying charges will be booked to

expenses. These costs will be capitalized with a carrying charge, at the current that is reasonable to support cost-recovery for PacifiCorp of the consultant will be funded by ratepayer monies provided by PacifiCorp. The parties agree provide an impartial review of PacifiCorp's M&E activities. The consultant new Collaborative. The Collaborative will retain a qualified consultant to Technical Conference/Collaborative on cost recovery will be subsumed into the the PSC. The existing DSR Evaluation Task Force and the former DSR examine the Interim Policy and report its conclusions and recommendations to by Commission order. The primary focus of this Collaborative will be to DNR, EI, the PSC, and other interested parties, shall be formed prior to 1994 (Collaborative) consisting of representatives from PacifiCorp, the DPU, CCS, disputes to arise. To help reduce this potential, a new collaborative task force under the terms of this joint recommendation, there may be a potential for investments. However, since NLR recoveries will be tied to the M&E results information necessary to make appropriate decisions in regard to DSR

4.1 The fundamental objective of PacifiCorp's M&E efforts will be to develop the

4. COLLABORATIVE TASK FORCE

account 182.3 (Other Regulatory Assets). Amortization of these amounts will be booked to account 456 (Other Electric Revenue). The NLR calculation will not be annualized. Customer payments resulting from the energy service charge will be recorded in accounts 124 (Other Investments, for loan principal) and 451 (Miscellaneous Service Revenues, for interest income).

AFUDC rate, in account 182.3 until amortization over a 5 year period begins January 1, 1995. Although the work of the consultant will be directed by a steering committee of collaborative participants, the primary objective of the consultant's work is to analyze PacifiCorp's M&E efforts, data, methods, and results on behalf of the Collaborative and non-utility parties.

4.2 In early 1994 PacifiCorp agrees to provide M&E plans for each DSR program for Collaborative review. These plans will include estimates of the NLR for calendar year 1994. PacifiCorp will keep the Collaborative informed relative to its ongoing M&E activity.

4.3 In addition to its primary task described in section 4.1, the Collaborative will examine several other issues. First, the Collaborative will run a one year numerical experiment with the statistical recoupling program that was proposed by the EI. The purpose of this experiment is to determine what would have happened in calendar 1994 if the Commission had adopted statistical recoupling. Second, the Collaborative will develop options for a shared savings incentive plan and a total factor productivity incentive plan<sup>1</sup>. Third, the Collaborative will assess the price impact of DSR on non-participants in DSR programs. Fourth, the Collaborative will develop performance standards for Commission consideration in determining post-1994 program eligibility for cost recovery. The parties agree that these standards should apply

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<sup>1</sup> Total Factor Productivity is a technique that measures a utility's overall efficiency. Incentives can be applied to reward utility measures that improve this efficiency and thus minimize ratepayer cost.

defenses and rights and shall otherwise not be prejudiced by the terms of the which elects to withdraw, shall be entitled to proceed having its full claim, without being bound by its terms in this, or any other proceeding. Any party of the Commission's order, to withdraw from this Joint Recommendation written notice to the Commission and all other parties within 5 days of the date modified or rejected by the Commission, each party reserves the right, upon Accordingly, in the event any part, or all, of this Joint Recommendation is document and recommend that the Commission adopt it in its entirety.

5.1 The parties have agreed to this Joint Recommendation as an integrated

5. JOINT RECOMMENDATION

- (a) the results of the Interim Policy, and make recommendations for a DSR cost recovery policy to be effective in 1995;
- (b) the results of the numerical experiment with statistical recoupling;
- (c) the options regarding a shared savings incentive program and a total factor productivity incentive program;
- (d) the price impact of DSR programs on non-participants;
- (e) the development of performance standards; and
- (f) quantification of 1994 NLR using the Formula.

to, the following subjects:


4.4 The Collaborative's report to the Commission shall include, but not be limited


by the Commission.

prospectively only to program activity undertaken subsequent to their adoption

Joint Recommendation. The parties respectfully request that the Commission  
adopt this Joint Recommendation.

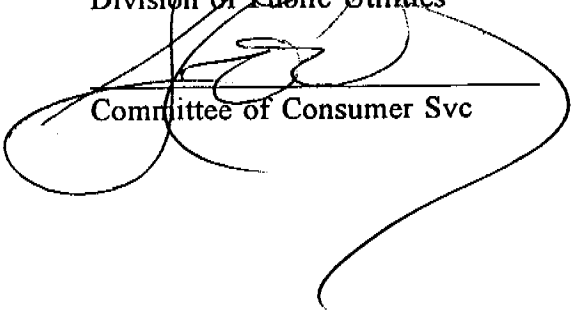
Dated this 7<sup>th</sup> day of October 1993

  
PacifiCorp

  
Dept of Natural Resources

  
Environmental Intervenors

  
Division of Public Utilities

  
Committee of Consumer Svc

For purposes of the Interim NLR shall be the sum of lost energy revenue and lost demand revenue. Both an energy and demand component will be calculated for each rate schedule. The formulas for these calculations are defined below:

Energy : 
$$\text{Net Lost Revenue (energy)} = ( R - AC ) \times ( ES - LG )$$

where:  
 R = Tail block rate per kWh for the customer class per the current tariff.  
 AC = Monthly short-run avoided costs per kWh based on modeled production costs. Adjusted for sales for resale credit and average line losses.  
 ES = kWh energy savings actually incurred or estimated by engineering analysis for conservation measures during the Interim Period. Engineering analysis will be updated with the most current evaluation information through 1995. Such evaluation shall include the appropriate treatment of free riders, free drivers, snapback and persistence of savings (See Exhibit 2) to the extent such elements can be quantified. (see note 1)  
 LG = kWh sales increase related to load building impacts of DSR programs. This component will be based on engineering analysis and will be updated based on program evaluation through 1995. Load growth related to DSR programs in the new construction area will be included in this component of the Formula.

Demand: 
$$\text{Net Lost Revenue (demand)} = ( DC - ADC ) \times ( NCP_g - LG_p )$$

where:  
 DC = Demand charge per kW for the customer class based on the current tariff.  
 ADC = The identified avoided demand cost savings for 1994 that result from DSR programs. This component will be adjusted to an NCP basis and will be adjusted for line losses.  
 NCP<sub>g</sub> = Non-coincident peak (kW) savings at the sales level produced by energy conservation measure. The non-coincident peak savings will be based upon engineering analysis. In the event that engineering analysis of the non-coincident peak savings is not available, the NCP<sub>g</sub> component will be estimated based on the best available data.  
 LG<sub>p</sub> = The impact on the NCP of load building affects of DSR programs. This component will be based on engineering analysis and will be updated based on program evaluation through 1995.

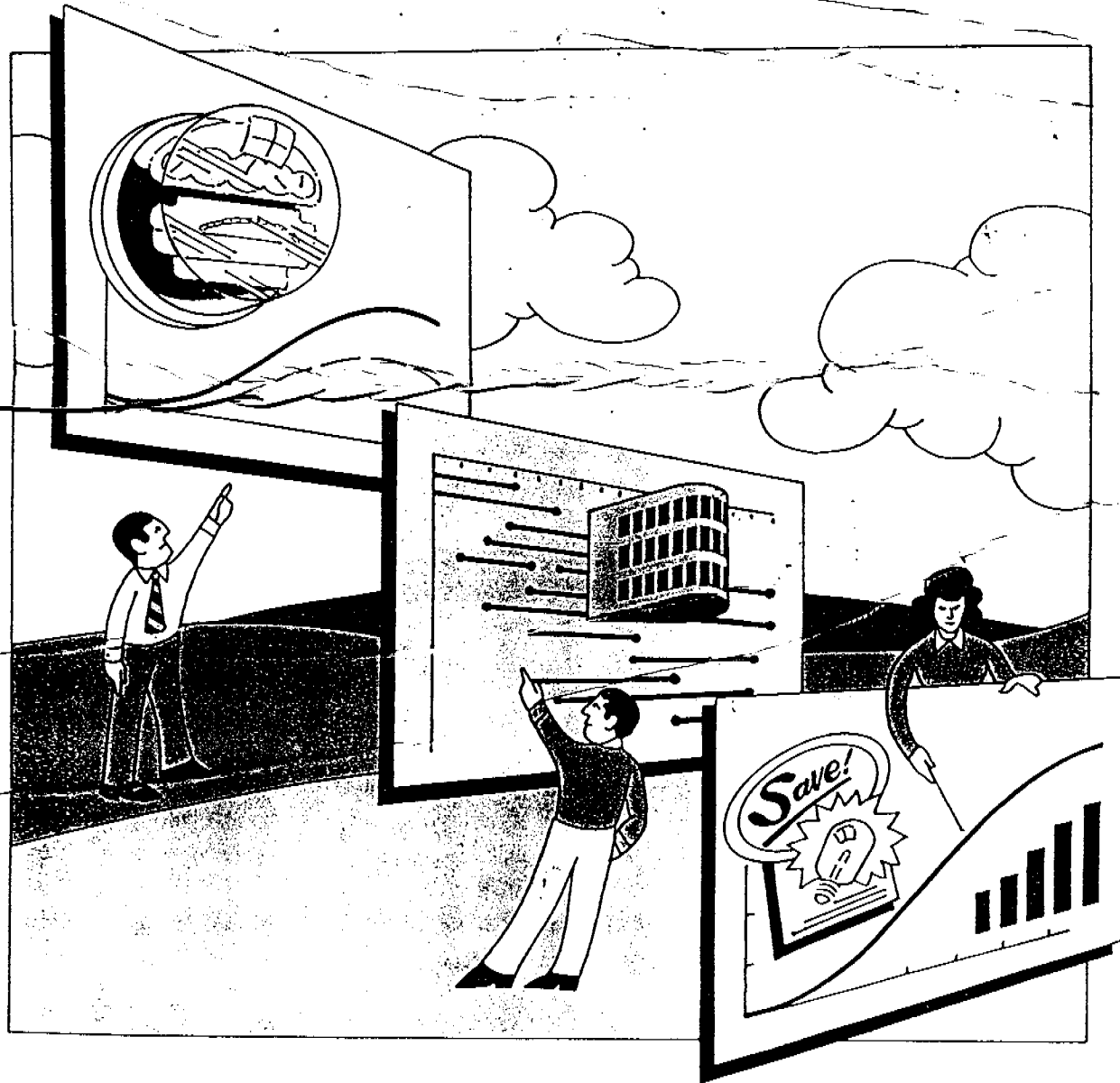
Note 1 Initial engineering analysis employed for purposes of NLR calculation will be those used contractually between the Company and the customer related to conservation savings. Such engineering analysis will be updated based on program evaluation. Some conservation measures do not involve a specific contract between the Company and the customer. The NLR for these measures will be based on the engineering analysis included in the program design. Certain DSR programs may include a combination of DSR activities and increased electrification. The energy savings of such programs will be the efficiency increment (based on engineering analysis) over the "base line" of what the customer would have installed absent the Company's involvement.

Formula for Calculation of Net Lost Revenue

# Impact Evaluation of Demand-Side Management Programs

## Volume 1: A Guide to Current Practice

Prepared by  
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Boulder, Colorado



ELECTRIC  
POWER  
RESEARCH  
INSTITUTE

**Disturbance Term:** A random (i.e., stochastic) variable which is used to explicitly capture all influences on the statistical model for which there are no data, as well as small errors in functional form.

**DOE-2.1:** A complex, hourly, building simulation program.

**EER:** Energy efficiency ratio: A commonly used means of rating the performance of small residential and commercial air conditioning equipment. Expressed in terms of BTU-per-hour output per watt of input power (mixed units).

**Efficient:** An estimator whose sampling distribution has the smallest variance.

**End-use Metering:** Direct measurement of electricity consumption for a specific end use, e.g., a refrigerator, at one house, building, or industrial process.

**Endogenous:** A term meaning the variable is determined within the model; hence, it is contemporaneously correlated with the disturbance term.

**Energy:** The amount of power (kW) used by a customer over a specified period of time. Measured in kilowatt-hours (kWh).

**Energy Utilization Index:** Energy use per unit of floor area.

**Equipment Efficiency Rating:** Measure of useful appliance energy to input energy includes EER, SEER, COP, kW/h and nominal load efficiency.

**Equivalent Full Load Hours (EFLH):** The number of hours of operation at full load by a cooling unit which results in the same energy consumption as a unit operating under its typical load profile.

**Exogenous:** A term meaning the variable is determined outside the model. Hence, it is contemporaneously uncorrelated with the disturbance term.

**Expected Value:** Weighted average of a random variable's possible values, where the weights are the associated probability. Equivalent to the mean of the variable.

**Free Driver Savings:** The decrease in energy consumption from customers who do not participate in the program, but where the utility's DSM efforts can be viewed as causing the savings. See moving the market.

**Free Riders:** Those individuals who would have undertaken the conservation actions promoted by the program, even if there were no program.



**Natural Conservation:** The energy conservation that participants would have undertaken had the program not been implemented.

**NBECS:** Nonresidential Buildings Energy Consumption Survey.

**Net Impacts:** The change in participants' electricity consumption which is directly attributable to the program.

**Net-to-Gross Impacts:** Indicates the degree of program induced behavior.

**New Construction Programs:** Programs designed to induce customers to use energy efficient practices when constructing a new building.

**Normalized Annual Consumption:** Annual electricity consumption that has been weather normalized for weather conditions.

**Ordinary Least Squares:** An estimation technique which minimizes the sum of squared residuals (i.e., the difference between the predicted value and the actual value of the dependent variable.)

**Panel Data:** Data for a group of customers over a period of time, also referred to as longitudinal data or pooled time-series/cross-sectional data.

**Participation Bias:** A bias which can occur if the savings estimates for a population are based on the savings of early DSM program participants, and the early participants are customers who will benefit the most from programs and this might not be representative of the population.

**Payback:** The period of time required for the energy savings to equal the cost of the conservation action. For example, if a conservation action costs \$240 and saves \$10 a month, the payback is 24 months.

**Peak Demand:** The greatest amount of demand that occurs during a specified time period.

**Persistence:** Refers to any decline in energy-saving effectiveness that may take place over a conservation measure's life. This is a function of both consumer behavior and equipment degradation.

**Pre- and Post-Program Analysis:** An analysis that compares data from before the program is implemented with data from after program implementation. Simple comparison or econometric techniques can be used to relate the two.

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**Response Bias:** A bias which can occur when customers who respond to a survey do not complete all the questions and the non-respondents are systematically different for the respondents.

**Retrofit Programs:** Programs designed to induce customers to change their existing types of energy-using equipment for more efficient ones.

**Sample:** A sample is a subset of the population which exhibits characteristics of the population.

**Sample Bias:** A bias which results when the sample is not representative of the population.

**Sampling Distribution:** The probability distribution of an estimator or of a test statistic.

**SC: Shading Coefficient --** The fraction of solar heat gain transmitted through a particular type of glass relative to single-thickness, double strength glass.

**Sectional Variation:** Variation in energy and use and weather response due to sector characteristics.

**Selectivity Correction:** This approach to correcting for self-selection bias views the bias as an omitted variables problem and corrects it by adding to the energy use equation an estimate of the omitted variable.

**Self-Selection bias:** Systematic differences between the control group and the participant group as revealed by the participants choosing to participate in the program and the control group choosing not to participate (i.e., the participation variable is endogenous.)

**SIC:** Standard industrial classification.

**Simple Comparison:** Comparing the mean energy consumption of a control group (or pre-participation consumption) to the mean energy consumption of participants.

**Snap-back Effect:** The argument that by undertaking conservation actions, customers perceive a lowered (relative) price for energy and, therefore, purchase more of the commodity in terms of comfort or appliance use. Also referred to as the tuck-back or rebound effect. Includes the productivity effect.

**Simulation Model:** A type of model which incorporates a series of feed back or reaction loops which allows the model to capture the responses of consumers to price changes, technological innovation, and economic shifts.