PacifiCorp

Large Commercial Energy FinAnswer

Profile #46

Executive Summary

Pacific/Utah Power, the electric generation and distribution divisions of PacifiCorp, is a forerunner in a new and innovative type of efficiency program in which customers repay the costs of their efficiency installations through monthly energy service charges on their electric bills. While the jury is still out on the effectiveness of this approach compared to more traditional rebate and other incentive programs, Pacific/Utah Power's pioneering efforts with financing energy services for its customers is a model that is being closely watched around the country.

Pacific/Utah Power classifies its DSM programs into one of two categories: Energy Service Charge (ESC) and non-ESC programs. The ESC programs provide customers with up-front capital to finance the incremental cost of efficiency measures which exceed current building code requirements or common practices. In return the participant pays a monthly energy service charge directly to the utility. The time period of the energy service charge varies and the interest rates are competitive with the market.

The Energy FinAnswer program is an "investment-based energy service charge program" which is currently offered by Pacific/Utah Power in seven states: Oregon, Utah, Idaho, California, Washington, Wyoming, and Montana. The Energy FinAnswer for large commercial customers, the focus of this profile, offers a wide range of services including modeling, financing, and performance verification. Since 1990, 74 buildings have signed energy service contracts with The Energy FinAnswer program, accounting for more than 4.5 million square feet of new and renovated commercial construction. The efficiency measures add value to the building through lower operating costs, as well as increasing comfort and aesthetics. The costs for the measures are actually repaid over time with money saved in operational expense.

The 74 buildings that participated in The Energy FinAnswer program from 1990 through December 31, 1992 are estimated to have total annual energy savings of 31,232 MWh. Cumulative energy savings are 37,879 MWh; lifecycle savings are projected to exceed 499,000 MWh. Average annual capacity savings for the program have progressed from 0.002 MW in 1990 to 0.942 MW in 1991, to 5.364 MW in 1992.

While many energy analysts continue to debate the virtues and potential pitfalls of the energy service charge concept in general and The Energy FinAnswer program in particular, the program, or what some consider an "experiment," is beginning to receive more and more attention. If the utility proves that it can maintain high levels of participation at low costs – essentially serving its customers with a low-cost financing coupled with key energy efficiency services – then the program mechanism will likely be widely sought and implemented across the country for the large commercial sector.

Energy FinAnswer

Utility:	PacifiCorp
Sector:	Large Commercial
Measures:	Installation of energy-efficient measures in new buildings.
Mechanism:	FinAnswer provides up-front capital for installation of energy- efficient equipment that exceeds code.
History:	Program began in 1989 as Design Advantage, evolved into Energy FinAnswer May 1991, and continues with 74 participants to date.

1992 Program Data

Energy savings:	24.6 GWh
Lifecycle energy savings:	393.8 GWh
Capacity savings:	5.4 MW
Total cost:	$9,458,300

Cumulative Data (1990 - 1992)

Energy savings:	37.9 GWh
Lifecycle energy savings:	499.7 GWh
Capacity savings:	6.3 MW
Total Cost:	$11,284,500

Conventions

For the entire 1993 profile series all dollar values have been adjusted to 1990 U.S. dollar levels unless otherwise specified. Inflation and exchange rates were derived from the U.S. Department of Labor's Consumer Price Index and the International Monetary Fund's International Financial Statistics Yearbook: 1991.

The Results Center uses three conventions for presenting program savings. **Annual savings** refer to the annualized value of increments of energy and capacity installed in a given year, or what might be best described as the first full-year effect of the measures installed in a given year. **Cumulative savings** represent the savings in a given year for all measures installed to date. **Lifecycle savings** are calculated by multiplying the annual savings by the assumed average measure lifetime. **Caution:** cumulative and lifecycle savings are theoretical values that usually represent only the technical measure lifetimes and are not adjusted for attrition unless specifically stated.

PacifiCorp, on the basis of energy revenues, is the largest investor-owned electric utility in the Pacific Northwest and the third largest west of the Rocky Mountains. PacifiCorp's service territory and power transmission system covers much of the western United States and stretches across climatic and ecological boundaries, from the rainforests of the Pacific Northwest to the deserts of the Southwest.[R#1]

PacifiCorp sells retail electricity through two operating entities, Pacific Power and Utah Power. Wholesale power production and sales take place under the name PacifiCorp. The Inner PacifiCorp division was created in 1984 to hold the stock of the company's two main subsidiaries, NERCO, a mining and resource development company, and Pacific Telecom, a telephone company serving Alaska and seven other western states. In 1991, PacifiCorp had 15,722 employees.[R#2]

PacifiCorp's huge service area is actually beneficial in meeting peak demands. The electric demand in the Pacific Northwest peaks in the winter, while the demand in the Southwest peaks in the summer as a result of air conditioning and irrigation. Thus surplus power from one region can be supplied to the other during periods of high demand.[R#1]

Pacific Power serves approximately 702,000 retail customers in service areas covering about 63,000 square miles in portions of six western states: Oregon, Wyoming, Washington, Idaho, California, and Montana. Its electric service territory is generally rural and suburban and principally agricultural. The existing industrial base is diversified. Pacific Power also provides service to several subregional business centers.[R#2]

Utah Power provides electric service to about 556,000 retail customers in a service area of approximately 90,000 square miles in portions of three states: Utah, Wyoming, and Idaho. The area served has a widely diversified industrial and agricultural economy and an abundance of natural resources.[R#2]

The geographical distribution of retail electric sales for PacifiCorp in 1991 was Utah, 36.4%; Oregon, 30.0%; Wyoming, 15.3%; Washington, 7.8%; Idaho, 6.2%; California, 2.7%; and Montana, 1.6%. PacifiCorp's total customer base of 1,258,000 breaks down into 1,093,000 residential customers, 146,000 commercial, 16,000 industrial, and 3,000 "other" customers.[R#1,2]

1991 PACIFICORP STATISTICS

Number of Customers	1,258,000	
Energy Sales	51,078	GWh
Energy Sales Revenue	$2,156	million
Summer Peak Demand	7,639	MW
Summer Generating Capacity	9,629	MW
Winter Peak Demand	7,710	MW
Winter Generating Capacity	9,316	MW
Reserve Margin	21	%
Average Electric Rates		
Residential	5.6	¢/kWh
Commercial	5.3	¢/kWh
Industrial	3.4	¢/kWh

[R#1]

The majority of electricity generated by Pacific/Utah Power in 1991 came from coal (78%), followed by hydro (6%), and other (1%), which includes one geothermal plant. Purchase and exchange contracts provide for the remaining 15% of electricity produced. In 1991, residential customers accounted for 22.2% of total kWh electricity sales at Pacific/Utah Power. Commercial customers accounted for 18.4%, industrial customers, 37.8%, government, municipal and other, 1.4%, and firm and non-firm sales for resale, 20.2%. Total 1991 electricity sales of 51,078.6 million kWh marked an increase of 1,320.3 million (2.7%) over the previous year.[R#1,2]

PacifiCorp had a 1991 summer peak demand of 7,639 MW and a summer generating capacity of 9,629 MW. The 1991 winter peak demand of 7,710 MW coupled with a winter generating capacity of 9,316 MW created a 21% reserve margin.[R#1]

Because The Energy FinAnswer program is offered to retail electric customers, the Company will be referred to hereafter as Pacific/Utah Power.

Utility DSM Overview

In 1992 Pacific/Utah Power spent $20,803,349 in funding and incentives for electric energy conservation and efficiency improvements. (Note that the table to the right presents only energy conservation measure funding, exclusive of administrative and other costs.) These DSM expenditures were roughly one percent of total retail electric energy sales revenues. The company's goal for resource acquisition over the next five years is to acquire 137 aMW at an expected cost of approximately $450 million, or roughly $3,300/kW.[R#9]

Because PacifiCorp has a relatively comfortable reserve margin (21%) it has the flexibility to offer programs such as The Energy FinAnswer which seeks to recoup all of the measure costs. Many utilities in the Pacific Northwest have a much smaller reserve margin and as a result pursue DSM programs that focus strongly on getting the maximum capacity savings as quickly as possible regardless of customer contributions.

Pacific/Utah Power has offered various conservation programs to its customers since 1978, though the company has primarily provided weatherization programs to residential customers with limited commercial programs. In the past few years, Pacific/Utah Power has shifted its DSM efforts to the development and implementation of commercial and industrial programs.

Utility DSM Overview	Annual DSM Measure Funding Expenditure (x1000)	Annual Energy Savings (GWh)
1978	$523	1.1
1979	$12,339	28.8
1980	$17,356	44.1
1981	$9,269	19.8
1982	$5,144	15.5
1983	$1,831	27.6
1984	$9,502	12.9
1985	$8,521	12.0
1986	$1,501	5.7
1987	$975	6.4
1988	$1,497	7.3
1989	$2,399	10.4
1990	$4,432	16.7
1991	$12,974	35.6
1992	$17,937	59.9
Total	$106,200	302.8

[R#12]

PACIFIC / UTAH POWER DSM PROGRAMS

Residential

- Super Good Cents - New Construction
- Appliance Efficiency Programs
  - Water Heaters
  - Heat Pumps
- Low Income Customer Weatherization
- Residential Weatherization
  - Community Based Programs (ESC)
  - Zero Interest/Low Interest Programs
- Home Comfort Retrofit

Commercial

- **The Energy FinAnswer (ESC)**
- The Energy FinAnswer 12,000 (ESC)

Industrial

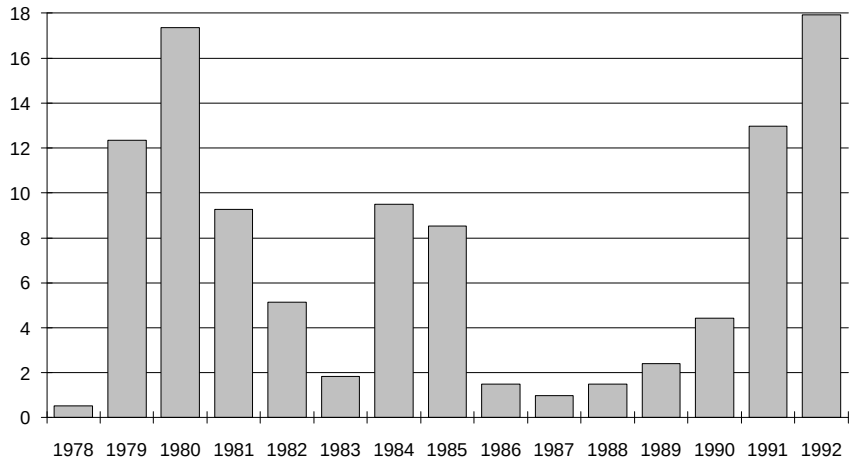
- Industrial FinAnswer (ESC)
- Irrigation Program

[R#10]

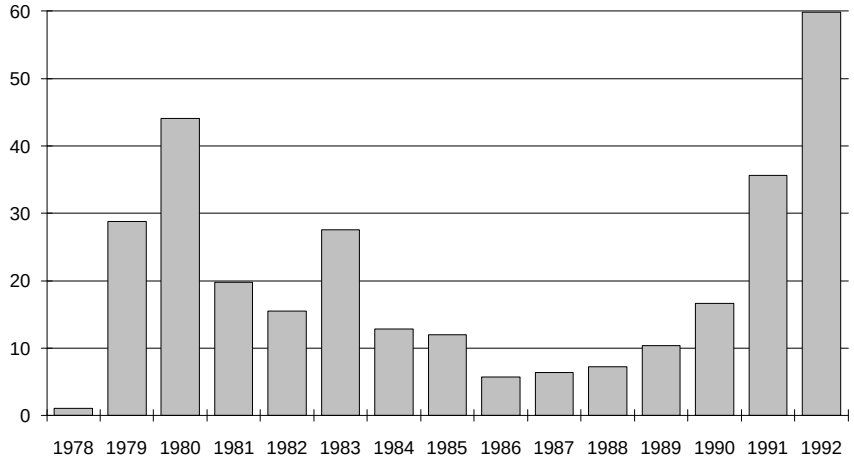
From 1978 through 1992 Pacific/Utah Power spent $106,200,000 on DSM measure funding. Measure funding has ranged from a low of $523,000 in 1978 to a high of $17,937,000 in 1992. Annual DSM energy savings for the same period total 302.8 GWh, with 59.9 GWh saved in 1992.[R#12]

Pacific/Utah Power classifies its DSM programs into two categories: energy service charge (ESC) and non-energy service charge. The energy service charge programs provide the customer with up-front capital to finance the full incremental cost of measures which exceed current building code requirements. In return the participant pays a monthly energy service charge directly to the utility. The time period of the energy service charge varies and the interest rates are competitive with the market. The non-energy service charge programs offered in the residential sector provide incentives, typically grants or rebates, to cover the incremental cost of installed measures.[R#9]

ANNUAL DSM MEASURE FUNDING EXPENDITURE ($1,000,000)



ANNUAL ENERGY SAVINGS (GWH)



The Energy FinAnswer is an umbrella name for several DSM programs:

The Energy FinAnswer 12,000 program is available to commercial buildings under 12,000 feet and focuses on prescriptive measures. The FinAnswer 12,000 began in Oregon in August 1992 and customers in Utah became eligible for the program in late 1992.

The Industrial Energy FinAnswer is an industrial component of the Energy FinAnswer umbrella which is geared primarily towards retrofits and expansion. The program began in June 1992, and by December 1992, seven industrial customers had participated.

The Energy FinAnswer Retro is a commercial program, still in the planning stages, designed for non-shell changeout retrofits of buildings 20,000 square feet and above.

For the remainder of this profile we will only be considering the large commercial component of The Energy FinAnswer program which is geared towards buildings that exceed 12,000 square feet. This program focuses primarily on new construction, but customers performing major retrofits are allowed to participate. Buildings qualify as major retrofits if the retrofit involves upgrading 50% or more of the windows or insulating 50% of the exterior walls. Hereafter this large commercial component of the program will be referred to as The Energy FinAnswer.[R#8]

Program Overview

The Energy FinAnswer program is implemented by Pacific/Utah Power to encourage building owners, developers, and designers to construct or perform major retrofits of buildings to be more efficient than the local/state energy code. New construction was specifically targeted by the utility's DSM program planners to minimize lost opportunities. When buildings are being designed or major remodels are being conducted, energy-efficient technologies can be installed at their incremental cost over conventional building technologies. The failure to construct or remodel buildings with efficiency built-in is considered a lost opportunity and locks customers into long-term inefficiencies.[R#3]

The Energy FinAnswer financing mechanism is novel and may represent a new direction for utility funding of DSM measures. At the very least it has attracted a lot of attention. The program provides up-front capital for the full incremental new construction costs to install measures that exceed energy code efficiency requirements. In addition, the program offers customers a wide range of services including building energy modeling, financing, and performance verification, thus positioning Pacific/Utah Power as an energy service provider. What's unique about the arrangement between the utility and its customers is that the utility recoups the costs of the measures directly from the customers who benefit from the program using an energy service charge. The energy service charge appears as a line item directly on the customer's monthly bill and is used to recover the costs of the energy conservation measures and other program services.

The Energy FinAnswer had its inception in 1989 when it was called the Design Advantage program. Design Advantage was based on Bonneville Power Administration's Energy Smart Design program (see Results Center Profile #37) and began by offering design assistance only, free computer modeling and engineering advice, for new commercial construction and major remodels. The program took effect in Oregon and Idaho early in 1990, in California in late 1990, and continued in all three states through early 1991. After limited experience with the design-only aspect of the program, feedback from customers convinced program managers that the key to selling the measures was not in convincing designers, architects, and engineers, but convincing the project owner's, who actually had to pay for the energy-efficient measures. As a result the program's marketing strategy focus shifted from technical to financial and Pacific/Utah Power modified the program to include financing for the recommended energy efficiency measures. (Incidentally this preceded the addition of the "Optional Services" component of BPA's Energy Smart Design program.) The payback to the utility was based on a shared-savings methodology.

In May 1991 the Oregon Public Utilities Commission approved a major change in the financing mechanism to a low interest loan approach whereby Pacific/Utah Power essentially provided the up-front capital in the form of a loan and then recovered its costs over time using the energy service charge. (Staff found that customers were much more receptive to a fixed loan amount — that they could relate to — than a shared savings approach.) The new program was approved by the other states' commissions and offered as an "investment-based energy service charge program." Later the name was changed, and services modified to automatically include building commissioning, and The Energy FinAnswer program is currently offered in Oregon, Utah, Idaho, California, Washington, Wyoming, and Montana.[R#3,5,10]

The Energy FinAnswer's funding mechanism has raised a good deal of attention and been the subject of much controversy. If requiring customers to repay the costs of energy efficiency over time discourages their participation, then the program's concept may be fundamentally flawed. On the other hand, if customers who directly benefit from the utility's services are willing to pay over time using the energy service charge mechanism, the program effectively avoids issues of cross subsidization of utility DSM programs and mitigates potential rate impacts.

Pacific/Utah Power believes that, if anything, program participation will actually be higher than achieved through more traditional rebate programs, because customers often have difficulty in raising their portion of the up-front costs for a rebate program even when an incentive is offered. Basically, the energy service charge mechanism affords customers with positive cash flow (i.e. lower bills) with no up-front cost, plus the guarantee that the right technologies are being implemented correctly.

As stated above, one of the key concerns with the program's funding mechanism is that participation might be limited because of the energy service charge. Pacific/Utah Power has focused the program to date on penetration of measures, not participation per se, but the program's success to date has quieted many concerns about participation. The overriding goal of The Energy FinAnswer program is to achieve a high level of penetration of the technical MWh savings potential. This goal differs from other utilities which might specify a participation goal in terms of number of projects, regardless of the depth of savings for each participant.

In 1992, the program's goal was to achieve 26% penetration of the MWh technical potential identified in the large new commercial market. The actual program penetration exceeded the goal dramatically, with approximately 43% of the technical potential for energy efficiency implemented. Furthermore, since 1990 74 buildings have signed Energy Service Contracts with The Energy FinAnswer program, accounting for more than 4.5 million square feet of new and major remodel commercial construction. Thus far from stifling participation, The Energy FinAnswer appears to be well on its way to providing Pacific/Utah Power's customers with a highly viable and successful DSM program design. In fact, in 1992 The Energy FinAnswer won the Common Goals Award for energy management programs from Edison Electric Institute, prevailing over 134 other entries.

Building commissioning is designed to test the effectiveness of energy conservation measure installation and ensure error-free ongoing operation. There is a wide range of definitions for commissioning. As a most basic definition, some installers consider commissioning simply to involve equipment start-up tests. At the other extreme is a definition including complete verification and documentation of the operation of all building systems and equipment.

As there is no set definition for building commissioning Pacific / Utah Power has chosen the following definition to be used in association with the Energy FinAnswer program: "Commissioning is a set of procedures, responsibilities, and methods involved in advancing a total system from a state of static physical installation to a state of full working order in accordance with the design intent. At the same time, the operating staff are instructed in system operations and maintenance."[R#11]

CASE STUDY: 1000 BROADWAY BUILDING PORTLAND, OREGON

The 1000 Broadway building in Portland is a 23-story Class A office building and retail structure that soars 345 feet above Portland's performing arts and entertainment district along Southwest Broadway Avenue. This multi-million dollar venture is a prime illustration of a comprehensive approach to energy efficiency in commercial high-rise construction. The Broadway building utilizes energy-saving components throughout its design which will yield overall energy savings of more than 30% above contemporary building design that meets the Oregon State energy code. Pacific/Utah Power provided the funding for the upgrade to state-of-the-art, energy-efficient equipment. The 1000 Broadway building received the 1991 Energy User News award for building management.

Four "packages" of energy conservation measures were identified and incorporated into the 1000 Broadway building design: windows, wall insulation, lighting, and heating/cooling.[R#5] The upgraded energy measures not only add value to the building through lower operating costs, but also increase comfort and aesthetics. The costs for the measures are actually repaid over time with money saved in operational expense.

Windows: The window package included replacement for code level insulated glazing of standard thermal performance (insulating value, U = 0.50; and shading coefficient, SC = 0.6) with improved performance reflective glazing (U = 0.29 and SC = 0.16).

Walls: This package included additional insulation (R-12.5 rather than R-11) in approximately 77,500 square feet of exterior wall, plus caulking of the exterior wall at each ceiling cavity.

Lighting: This package saves the most energy by using a control system which switches off the building lights at programmed hours. The tenant has the ability to turn the local lights back on if required. Commonly used 3-lamp fluorescent fixtures were replaced with Columbia 16-cell high efficiency specular parabolume fixtures with General Electric F40 SLX-SP-35 lamps (premium lamps with very high lumen output per watt and very high color rendering index). In the parking areas, high pressure sodium fixtures replaced standard fluorescent fixtures.

Heating/Cooling: The HVAC system upgrade included installation of an electronic control system in lieu of the standard time clock control system. Parallel fan-powered, variable-air-volume (VAV) terminal units with supplemental electric heating coils replaced standard VAV/electric reheat terminal units. The fan powered VAV system allows the use of heat in the return air through thermal sensing of conditions in office areas. An air-side economizer system replaced the water-side economizer for each floor-by-floor, self-contained air conditioning unit. This allows the use of outside air to both "purge" the building and condition the space.[R#4]

"The 1000 Broadway Building is probably the most maintainable building I've worked with in my 25 years in the business. The energy efficiency measures and control systems make operating the building easier and more cost effective. A computer monitors the tenant spaces and allows us to troubleshoot and make adjustments right from the terminal. This saves us time and extra labor. Also, the system is easy to learn and operate." *Dorrity Barry, Building Operator, Hillman Properties Northwest [R#4]*

MARKETING

Like many new commercial construction programs, The Energy FinAnswer's marketing strategies have begun with a general announcement, and then have been pursued using rather intimate and directed marketing efforts. When The Energy FinAnswer program first began, Pacific/Utah Power sent a direct mail piece to all commercial developers and owners eligible to participate in the program. This tactic was judged to be very effective in creating initial program awareness.

Since then, marketing for The Energy FinAnswer has relied mostly on Pacific/Utah Power's account managers who seek out new commercial construction projects using local contacts, refer to Dodge Dataline reports (a service that tracks new commercial construction), and use other leads generated through the building community to directly approach building owners.

Potential program participants are then contacted, shown a video, and given Energy FinAnswer promotional materials including a brochure which contains descriptive sheets covering topics such as answers to commonly asked questions. These include an explanation of energy service charges, a description of the DOE-2 computer modeling program, lists of approved modelers and commissioning agents, and a program implementation flow chart. Also included in the brochure are energy profiles describing various projects completed with The Energy FinAnswer program.[R#3]

Pacific/Utah Power is also constantly working on creating a solid relationship with trade allies, especially architects, engineers, commissioning agents and energy auditors and inspectors, with the hope that these allies will promote the program.[R#6]

Finally Pacific/Utah Power is considering a full-scale advertising campaign for The Energy Finanswer in 1993, including ads in trade magazines and business journals.[R#6]

DELIVERY: THE STEP-BY-STEP PROCESS

Getting Started: Building owners interested in participating in The Energy FinAnswer program sign a letter of intent (provided by the Pacific/Utah Power account manager) which formalizes a relationship between utility and customer. By signing the letter of intent, the owner is expressing a strong interest in the program and agrees to provide building plans and specifications to Pacific/Utah Power. In addition the owner agrees that if he or she does not participate in the program, he or she will pay a fee which covers a portion of the costs to Pacific/Utah Power for project studies.

Modeling/Scoping Meeting: Then Pacific/Utah Power bids out and awards the project to a modeler who works with the owner's design team and the Pacific/Utah Power account manager. The modeler uses a sophisticated computer modeling program (DOE-2) to estimate energy savings for the building and recommend appropriate energy conservation measures from a list of proven technologies. The decision on which measures to model is made during a scoping meeting with the owner, the owner's design team and modelers. The modeling consultant is necessary because energy modeling is quite complex, requiring simulations of several energy conservation measures operating individually, as well as simulations of the interactions between recommended measures and systems already specified for the building. The utility takes care to insure that the energy modeling will not delay the project's construction schedule.[R#3,4]

Preliminary Results: Within 30 days of receiving the information from the design team, the owner is presented with a preliminary report of the energy measure savings, costs, and financing offer.

Estimating incremental costs is a collaborative process between Pacific/Utah Power's energy modeling consultant and the owner's design team. An agreement is reached which represents the cost difference between measures that would be installed in a code baseline building and the higher efficiency equipment selected.

The funded measures fall into two categories for determining the interest rate applied: resource and supplemental. Resource funding applies to that portion of the conservation payment which falls within the company's avoided cost-based measure funding limits. Supplemental funding is the balance of the conservation payment which has no electrical savings attributable to it. The energy service charge includes the repayment of the investment plus a melded interest rate, computed from separate rates applied to the two portions of funding. The rate for the resource portion is prime and the supplemental portion is prime plus three percent. Total funding cannot exceed twice the resource funding amount.[R#4]

All final design, energy conservation measure, and financing term decisions rest with the building owner.

Final report with financing provisions and terms: A final report and an energy services contract are then prepared. This contract provides for the innovative funding package for investment and repayment of the energy conservation measures.

The energy services contract is based on a term no longer than the energy saving weighted life of the energy conservation measures or 20 years, whichever is shorter. Customers can opt for a shorter term with a higher payment; typical contract terms span 10 to 20 years. With the contract, customers receive 100% funding for the estimated incremental increase in the energy-efficient measures purchased and installed. The package of measures must save at least 10% of the building's electric energy compared to an energy code-based building.

The building owner maintains the option of buying out the contract at any time. The buyout amount equals the present value of the balance of principal payments remaining.

Construction begins and measures are installed: After the energy services contract is signed, construction proceeds and measures are installed. During construction the building is inspected by a utility contractor to verify that measures are installed correctly.

Building commissioning: Once mechanical measures and controls are installed, they are tested to ensure that they are functioning according to design intent. This type of testing is known as commissioning. At this point, if measures were improperly installed or balanced, the contractor is responsible for making appropriate corrections before the energy conservation measures are funded.

Payment to the building owner: The energy service contract spells out the amount of funding for each energy conservation measure and Pacific/Utah Power pays that amount directly to the owner upon satisfactory inspection or commissioning of each installed funded measure.[R#3,4]

Attaching the energy service charge to the customer's bill: Once the building's permanent electric meter is installed and a majority of energy conservation measure funding payments are made to the customer, the energy service charge is added to the owner's electric bill.

Auditing the building after one year to verify savings: After one year of building occupancy and billing data gathering, a final audit and as-built modeling are used to verify savings. Finally, if necessary, the energy service charge is adjusted to reflect actual as-built savings. If the as-built energy savings are less than originally predicted, future energy service charges are reduced accordingly, and credit is given for any overpayment.[R#3,4]

MEASURES INSTALLED

Installed measures are grouped into six "packages" by Pacific/Utah Power for evaluation purposes: lighting, insulation, windows, HVAC, controls, and other measures. Some buildings are fitted with several measures and some have multiple measures from the same package, e.g. different types of lighting. Most buildings implement measures from all six packages. Of course there are more specific energy conservation measures than packages. The most popular measures installed are compact fluorescent lighting, T8 lamps with electronic ballasts, exit signs, airside economizers, occupancy sensors, roof insulation, variable speed drives, and energy management systems that feature sweep lighting controls.

STAFFING REQUIREMENTS

The Energy FinAnswer program is administered by two program managers. Jim Haberman is responsible for securing contracts while Rachel Yoder is in charge of building commissioning. The program managers devote 100% of their time to the program. Each manager has one full time assistant. Marilyn Williamson, the Commercial Sector Manager, oversees the work of both program managers along with the other commercial DSM programs (The Energy FinAnswer Retro and the Energy FinAnswer 12,000). Approximately 1/3 of her time is devoted to The Energy FinAnswer for new, large commercial construction.

There are 22 modeling firms involved with the program which are used on an as-needed and competitively bid by project basis. In addition there are 19 commissioning agents and 34 inspectors participating in The Energy FinAnswer.

MONITORING

At pivotal points in the construction process, site visits are conducted by Pacific/Utah Power contractors to verify that measures are properly installed. Once construction is completed, installed measures are tested (commissioned) by Pacific/Utah Power contractors to ensure that they are functioning according to design specifications. The owner's contractors are responsible for any adjustments necessary. Pacific/Utah Power also provides training support for operations and maintenance personnel. After successful commissioning and one year of building occupancy and billing data gathering, a final audit and "as built" modeling are used to verify savings. Through a collaborative effort with the buildings' operators, Pacific/Utah Power documents energy performance and uses the information to compare the energy savings estimated by the DOE-2 modeling with the actual energy savings after the building is completed and occupied.[R#3,5]

EVALUATION

Pacific/Utah Power's Commercial Energy FinAnswer Annual Evaluation Report from September 15, 1992 [R#3] is a comprehensive evaluation document that emphasizes program process (design and delivery) and presents program impacts based solely on engineering estimates. In terms of impact evaluation, Pacific/Utah Power is interested in MWh impacts along with individual measures' cost effectiveness. DOE-2 models are built for individual buildings during the design phase. Models are calibrated to match the characteristics of buildings as-built. Then energy conservation measures are removed from the as built model to estimate a "base-line" usage for the building. The difference between the two is the as-built energy savings.[R#3]

Several surveys were conducted in order to evaluate program process. The Energy FinAnswer Architect/Engineer Evaluation Study, performed by Market Decisions Corporation, tested the awareness and use of the program by independent architects and engineers involved in the design of new commercial buildings. The awareness testing showed that 44% of those surveyed were aware of The Energy FinAnswer program, and the financial aspects of the program were considered its greatest advantage.[R#3]

J.D. Shearer and Associates interviewed customers who had participated in The Energy FinAnswer or Design Advantage programs over the past two years. These interviews were the basis for two distinct surveys. The 1991 survey included participants who had their initial energy analyses before August 1991. The 1992 survey follows up with customers having completed their energy studies between August 1991 and May 1992. Comparison of the two surveys revealed a positive attitude change toward the financial restructuring of the program and considerable improvements in the development of the trade ally network. Overall customer reaction to the program was positive.[R#3]

In addition, program staff discussed process issues with evaluators. A primary concern is the effectiveness of the modeling process. Since the program requires contractors to bid on modeling jobs, the job is usually awarded to the low bid. Quality is hopefully assured by setting minimum specifications. Some modelers not comfortable with the competitive bid process have expressed reservations about the process. Their concern is that the low bids are the result of modelers who expect to conduct a less thorough job. Program staff are working hard to make sure that the most important efficiency measures are carefully considered by all modelers.[R#3]

Finally, program management regularly communicates with Pacific/Utah Power's Energy Services field staff and contracted commissioning agents. A newsletter summarizes program refinements. Meetings are held semi-annually with modelers, staff, and program management. Ongoing discussion is encouraged between the program manager and each of the energy modeling contractors.[R#3]

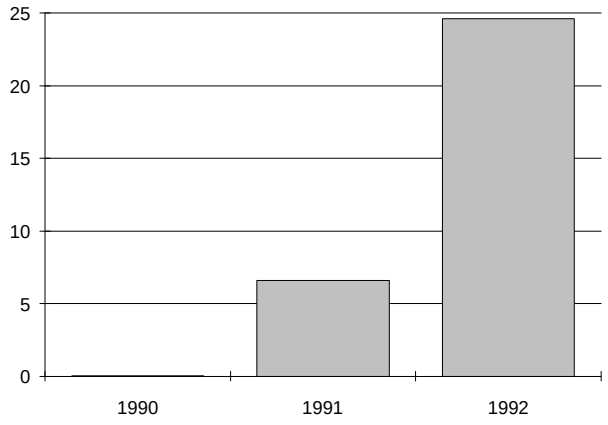
The data presented in the following sections were reported to The Results Center by Pacific/Utah Power staff based on monthly program tracking and supersede the data in the evaluation discussed above.

Program Savings

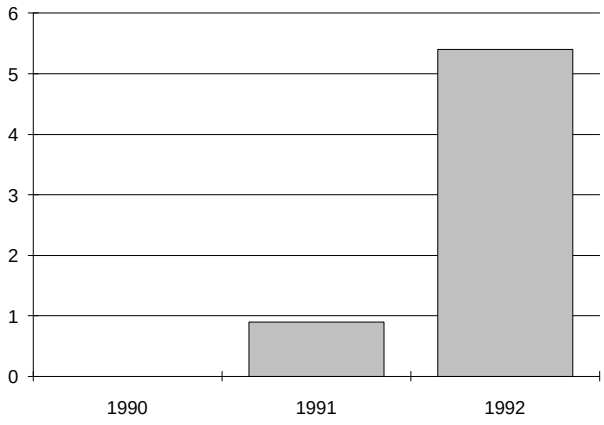
Savings Overview Table	Annual Energy Savings (MWh)	Cumulative Energy Savings (MWh)	Lifecycle Energy Savings (MWh)	Annual Capacity Savings (MW)	Cumulative Capacity Savings (MW)
1990	25	25	400	0.002	0.002
1991	6,597	6,622	105,552	0.942	0.944
1992	24,610	31,232	393,760	5.364	6.308
Total	31,232	37,879	499,712	6.308	

[R#8]

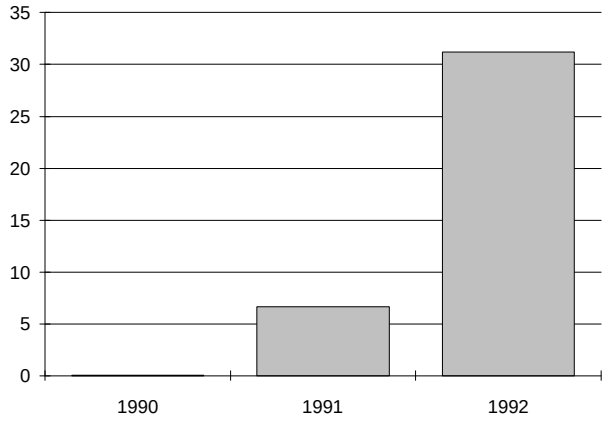
ANNUAL ENERGY SAVINGS (GWH)



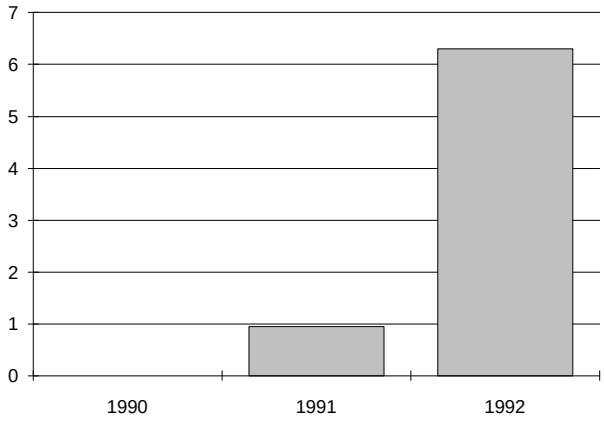
ANNUAL PEAK CAPACITY SAVINGS (MW)



CUMULATIVE ENERGY SAVINGS (GWH)



CUMULATIVE PEAK CAPACITY SAVINGS (MW)



DATA ALERT: Please note that all energy savings numbers are based on engineering estimates. In addition, all savings numbers are annualized projections. As of December 31, 1992, 14 projects ("Path B" projects) had turned down funding after receiving preliminary reports, but these customers still opted for some of the recommended energy conservation measures in the absence of program financing. Thus their projected savings are included as a part of the 1992 program savings. While capacity savings for The Energy FinAnswer are not the basis of savings verification, they are projected for the customer for cash flow purposes. Finally, since savings are not derated for factors such as free ridership, the savings expressed in this section can be considered "gross" savings values.[R#8,10]

Overall, the 74 buildings that participated in The Energy FinAnswer program from 1990 through December 31, 1992 are estimated to have total annual energy savings of 31,232 MWh. Cumulative energy savings are 37,879 MWh and lifecycle savings are projected to exceed 499,000 MWh. The growth in annual savings shows how fast the program has ramped up in its short history. Estimated annual energy savings for buildings joining the program in 1990 are 25 MWh, while savings for 1991 building projects are 6,597 MWh. Buildings joining the program in 1992 are projected to have annual energy savings of 24,610 MWh! The tremendous increases in projected annual energy savings are related to a large increase in program participation each year. Similarly, average annual capacity savings for The Energy FinAnswer program range from 0.002 MW in 1990 to 0.942 MW in 1991, and 5.364 MW in 1992.[R#8]

PARTICIPATION RATES

DATA ALERT: The participation figures reflecting percentage of new commercial square footage and percentage technical MWh savings potential include The Energy FinAnswer 12,000 projects along with the "Path B" projects. In addition, these participation calculations are based on the assumption that market size and savings per square foot remained constant for each year.

Participation Table	Participants	Annual Energy Savings per Participant (kWh)
1990	2	12,500
1991	15	439,800
1992	57	431,754
Total	74	

[R#8]

Since the program began in 1990, 18 buildings have completed construction under the program and a total of 74 building owners have signed energy service contracts. Pacific/Utah Power defines program participants as the number of projects where an energy service contract has been signed, thus program participation totals 74 buildings which constitute over 4.5 million square feet of space. Types of buildings participating in the program include offices, schools, lodging, grocery stores, retail and wholesale stores, and hospitals and other health care buildings.[R#8]

ANNUAL ENERGY SAVINGS PER PARTICIPANT (KWH)

In 1992 there were 57 buildings that joined the program, accounting for over 2.4 million square feet of building space. Annual energy savings per participant for

1992 are estimated to be 432 MWh.[R#8]

Instead of measuring participation in terms of the simple number of buildings involved in the programs, it is more indicative to estimate program participation in terms of the percentage of technical MWh savings potential or percentage of new commercial square footage. In 1992 the program participation goal for both percentage of technical MWh potential and new commercial square footage was 26%. Actual 1992 participation based on technical MWh was 43%, and participation measured as a percentage of new commercial square footage was 25%.[R#10]

The five-year goal of the Energy FinAnswer program on a state-by-state basis is to achieve 85% of technical MWh savings potential in commercial buildings upgraded by the program.[R#5]

FREE RIDERSHIP

To the extent that current building practice exceeds code, free ridership is a concern. While it is possible that some owners may have their buildings constructed to levels exceeding code, others may have their buildings constructed to levels below code. To a certain degree, the latter situation will reduce the effect of free riders. Many developers are already aware of the economic benefits of energy-efficient lighting. As a result, the lighting savings calculated for the program may include some "partial free riders".

The energy service charge clearly diminishes concerns about equity between program participants and non-participants, and to a great extent wipes away concerns about free ridership. Analysis indicates that program cost effectiveness is maintained even if a free ridership level of up to 10% existed. Program modelers were aware of the possibility that current practice may exceed code for certain measures, and energy consumption and savings were simulated accordingly.

Some program participants are "free drivers" in that they would not have constructed to code standards (or above) in the absence of The Energy FinAnswer program. Because the program requires code compliance as a baseline, energy savings associated with full compliance are added benefits which are not reflected in the savings calculations. Overall, Pacific/Utah Power views the possible number of free riders as minimal, ranging from 5% to 10% of participants.[R#3]

MEASURE LIFETIME

Pacific/Utah Power assigns a 15-year lifetime to lighting measures, a 30-year lifetime to insulation, a 20-year lifetime for windows, a 15-year lifetime for HVAC equipment, a 10-year lifetime for controls, and a 15-year lifetime for all other energy conservation measures. Pacific/Utah Power has calculated a weighted average lifetime of 16 years. The Results Center used this 16 year lifetime to determine lifecycle savings and the cost of saved energy for all years the program has been operational.[R#3]

PROJECTED SAVINGS

Projected lifecycle savings for the program are roughly 500,000 MWh. Estimated total annual energy savings have exceeded program goals as savings estimates total 31,232 MWh while program goals totaled 23,742 MWh.[R#4]

Costs Overview Table	Total Cost of Program (x1000)	Cost per Participant	Revenues (Annualized ESC x1000)	Cumulative Revenues: Energy Service Charge (x1000)	Net Cost of Program to Date (x1000)	Ultimate Utility Cost (x1000)	Ultimate Cost per Participant
1990	$153.4	$76,699	$1.0	$1.0	$152.43	$98.90	$49,449
1991	$1,672.7	$111,515	$302.2	$303.2	$1,369.56	$385.56	$25,704
1992	$9,458.3	$133,216	$862.4	$1,165.6	$8,292.7	$714.19	$10,059
Total	$11,284.5		$1,165.57	$1,469.74	$9,814.72	$1,198.65	

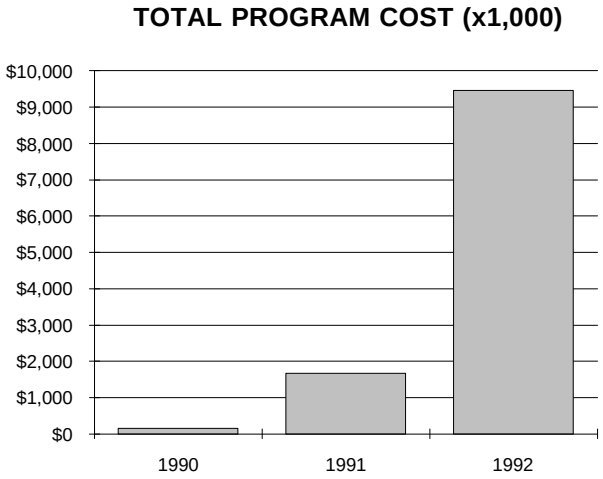
[R#8]

DATA ALERT: Program revenues reflect annualized energy service charge values, not actual dollars. The other program cost components (energy conservation measures, program management, modeling, commissioning, advertising, and the architects & engineers stipends) reflect money that has actually been spent.

Note that the costs presented are based on three economic perspectives: total program costs, net costs of the program to date, and ultimate utility costs. Total program costs reflect energy conservation measure expenses plus program management, modeling, commissioning, advertising, and architect & engineer stipend costs. The net costs of the program to date equal total program costs minus cumulative program revenues. Each year, Pacific / Utah Power will receive payments from program participants until the total cost of the energy conservation measures is recovered. The "ultimate" utility costs are theoretical costs reflecting total program costs that will not be recovered through energy service charges. These costs are calculated by subtracting energy conservation measure costs from total program costs. The "ultimate" costs are based on the assumption that all the costs of energy conservation measures, projected over time, will be recovered.

Cost per participant calculations for 1992 include the 14 "Path B" projects.

Total program costs to date for The Energy FinAnswer are $11,284,500, ranging from a low of $153,400 in 1990 to $1,672,700 in 1991, to $9,458,300 in 1992. The program



began on an extremely small scale in 1990, picked up steam in 1991, and reached a more standard level of operation in 1992.[R#8]

Net costs of the program through 1992 total $9,814,720. In 1990 Pacific/Utah Power's net costs were $152,430, increased to $1,369,560 in 1991, and reached $8,292,700 in 1992.

The ultimate costs of the program to Pacific/Utah Power total $1,198,650. Ultimate utility costs were lowest in 1990 at $98,900, reached $385,560 in 1991, and totaled $714,190 in 1992.

COST EFFECTIVENESS

Pacific/Utah power calculates the program to be cost-effective from the Total Resource, Utility Cost, and Participants' Cost perspectives. The Total Resource Cost benefit/cost ratio is projected to be roughly 1.06. Energy conservation is projected to be acquired at 3.9 ¢/kWh from a Total Resource Cost perspective, and at 1.8 ¢/kWh from a Utility Cost (net of energy service charge) perspective. [R#3]

The Results Center has calculated the cost of saved energy for The Energy FinAnswer from three different cost perspectives: total program costs, net costs of the program to date, and ultimate utility costs. From all three perspectives, the cost of saved energy at a 5% discount rate in 1990 was very high. It is important to note that while startup costs were not especially high in 1990, there were only two program participants accounting for minimal program energy savings. In the following years the cost of saved energy dropped dramatically to more representative levels.

In 1991 the cost of saved energy at a 5% discount rate based on total program costs was 2.34 ¢/kWh. Based on net program costs to date the cost of saved energy was

Cost of Saved Energy Table (¢/kWh)	Discount Rates						
	3%	4%	**5%**	6%	7%	8%	9%
Total Program Cost							
1990	48.85	52.66	56.62	60.72	64.95	69.32	73.82
1991	2.02	2.18	2.34	2.51	2.68	2.86	3.05
1992	3.06	3.30	3.55	3.80	4.07	4.34	4.62
Net Cost of Program to Date							
1990	48.54	52.32	56.26	60.33	64.54	68.88	73.35
1991	1.65	1.78	1.92	2.05	2.20	2.35	2.50
1992	2.69	2.90	3.11	3.34	3.57	3.81	4.06
Ultimate Utility Cost							
1990	31.49	33.95	36.50	39.14	41.88	44.69	47.59
1991	0.47	0.50	0.54	0.58	0.62	0.66	0.70
1992	0.23	0.25	0.27	0.29	0.31	0.33	0.35

Costs Breakout Table	Energy Conservation Measures (x1000)	Program Management (x1000)	Modeling (x1000)	Commissioning (x1000)	Advertising (x1000)	Architects & Engineers Stipends (x1000)	Total Cost of Program (x1000)
1990	$54.5	$70.0	$14.9	$9.0	$5.0	$0.0	$153.4
1991	$1,287.2	$191.6	$103.1	$36.3	$38.3	$16.3	$1,672.7
1992	$8,744.2	$232.3	$351.4	$78.9	$13.9	$37.7	$9,458.3
Total	$10,085.8	$493.9	$469.3	$124.2	$57.3	$54.0	$11,284.5

[R#8]

1.92 ¢/kWh, and using ultimate utility costs the 1991 cost of saved energy was 0.54 ¢/kWh. For 1992 the cost of saved energy at a 5% discount rate ranged from 3.55 ¢/kWh using total program costs, to 3.11 ¢/kWh using net program costs to date, to 0.27 ¢/kWh using ultimate utility costs.

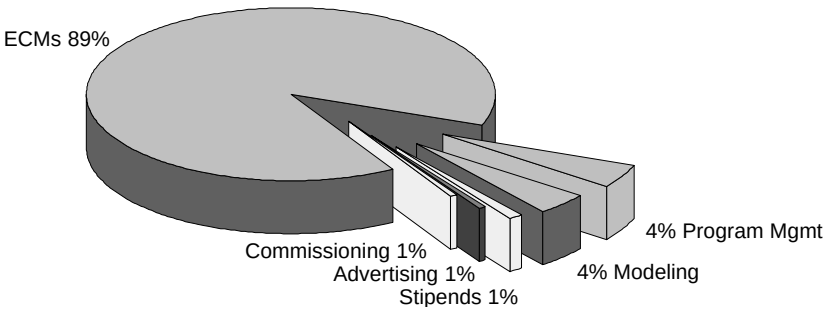
COST PER PARTICIPANT

The Results Center has calculated cost per participant based on both total program costs and ultimate utility costs divided by the number of participants. Based on total program costs, the cost per participant to Pacific/Utah Power has steadily increased from $76,699 in 1990 to $111,515 in 1991, and $133,216 in 1992. Based on ultimate utility costs, Pacific/Utah Power's cost per participant was $49,449 in 1990, $25,704 in 1991, and $10,059 in 1992.

The customer cost per participant (based on the annualized energy service charge divided by the number of participants) was a very low $486 in 1990, $20,151 in 1991, and $15,129 in 1992.

COST COMPONENTS

Between January 1990 and December 31, 1992 Pacific/Utah Power spent $10,085,800 (89% of total costs) on energy conservation measures, including labor. Program management accounted for $493,900 (4%), and modeling costs were $469,300 (4%). Commissioning costs totalled $124,200 (1%), and advertising expenditures were $57,300 (1%). Stipends to the building owner's architects and engineers for their time spent reporting data to Pacific/ Utah Power total $54,000 (<1%).[R#8]



Environmental Benefit Statement

Marginal Power Plant	Heat Rate BTU/kWh	% Sulfur in Fuel	CO2 (lbs)	SO2 (lbs)	NOx (lbs)	TSP* (lbs)
Coal	**Uncontrolled Emissions**					
A	9,400	2.50%	81,667,000	1,938,000	392,000	39,000
B	10,000	1.20%	87,084,000	750,000	253,000	188,000
	Controlled Emissions					
A	9,400	2.50%	81,667,000	194,000	392,000	3,000
B	10,000	1.20%	87,084,000	75,000	253,000	13,000
C	10,000		87,084,000	500,000	250,000	13,000
	Atmospheric Fluidized Bed Combustion					
A	10,000	1.10%	87,084,000	229,000	125,000	63,000
B	9,400	2.50%	81,667,000	194,000	157,000	12,000
	Integrated Gasification Combined Cycle					
A	10,000	0.45%	87,084,000	154,000	25,000	63,000
B	9,010		78,334,000	56,000	19,000	4,000
Gas	**Steam**					
A	10,400		47,500,000	0	108,000	0
B	9,224		41,250,000	0	258,000	12,000
	Combined Cycle					
1. Existing	9,000		41,250,000	0	158,000	0
2. NSPS*	9,000		41,250,000	0	75,000	0
3. BACT*	9,000		41,250,000	0	10,000	0
Oil	**Steam--#6 Oil**					
A	9,840	2.00%	68,750,000	1,042,000	123,000	117,000
B	10,400	2.20%	72,917,000	1,033,000	155,000	75,000
C	10,400	1.00%	72,917,000	148,000	124,000	39,000
D	10,400	0.50%	72,917,000	433,000	155,000	24,000
	Combustion Turbine					
#2 Diesel	13,600	0.30%	91,251,000	182,000	282,000	15,000
Refuse Derived Fuel						
Conventional	15,000	0.20%	108,334,000	279,000	368,000	82,000

Avoided Emissions Based on 37,879,000 kWh Saved (1990-1992)

In addition to the traditional costs and benefits there are several hidden environmental costs of electricity use that are incurred when one considers the whole system of electrical generation from the mine-mouth to the wall outlet. These costs, which to date have been considered externalities, are real and have profound long term effects and are borne by society as a whole. Some environmental costs are beginning to be factored into utility resource planning. Because energy efficiency programs present the opportunity for utilities to avoid environmental damages, environmental considerations can be considered a benefit in addition to the direct dollar savings to customers from reduced electricity use.

The environmental benefits of energy efficiency programs can include avoided pollution of the air, the land, and the water. Because of immediate concerns about urban air quality, acid deposition, and global warming, the first step in calculating the environmental benefit of a particular DSM program focuses on avoided air pollution. Within this domain we have limited our presentation to the emission of carbon dioxide, sulfur dioxide, nitrous oxides, and particulates. (Dollar values for environmental benefits are not presented given the variety of values currently being used in various states.)

HOW TO USE THE TABLE

1. The purpose of the previous page is to allow any user of this profile to apply Pacific/Utah Power's level of avoided emissions saved through its Large Commercial Energy FinAnswer to a particular situation. Simply move down the left-hand column to your marginal power plant type, and then read across the page to determine the values for avoided emissions that you will accrue should you implement this DSM program. Note that several generic power plants (labelled A, B, C,...) are presented which reflect differences in heat rate and fuel sulfur content.

2. All of the values for avoided emissions presented in both tables include a 10% credit for DSM savings to reflect the avoided transmission and distribution losses associated with supply-side resources.

3. Various forms of power generation create specific pollutants. Coal-fired generation, for example, creates bottom ash (a solid waste issue) and methane, while garbage-burning plants release toxic airborne emissions including dioxin and furans and solid wastes which contain an array of heavy metals. We recommend that when calculating the environmental benefit for a particular program that credit is taken for the air pollutants listed below, plus air pollutants unique to a form of marginal generation, plus key land and water pollutants for a particular form of marginal power generation.

4. All the values presented represent approximations and were drawn largely from "The Environmental Costs of Electricity" (Ottinger et al, Oceana Publications, 1990). The coefficients used in the formulas that determine the values in the tables presented are drawn from a variety of government and independent sources.

*** Acronyms used in the table**

TSP = Total Suspended Particulates
NSPS = New Source Performance Standards
BACT = Best Available Control Technology

LESSONS LEARNED

Overall The Energy FinAnswer program has greatly exceeded Pacific/Utah Power's expectations for 1991 and 1992 in terms of percent penetration of the MWh technical potential. The program has been successful, clearly above its skeptics' wildest imaginations!

One important issue surrounding the program is the question of whether participation in this type of energy-efficiency program is maximized with the existing funding provisions or could be increased by offering a rebate or similar incentive. Pacific/Utah Power maintains that participation in The Energy FinAnswer program is not affected by the absence of a rebate.

Pacific/Utah Power also believes that the customer's primary motivation for participating is the potential to lower operating costs which translates into greater profitability or more competitive lease rates or better lease income. The customer is also motivated by other factors, such as a more attractive business place, reduced maintenance and improved operating efficiency. These benefits are emphasized when Pacific/Utah Power submits a proposal to the customer.

Pacific/Utah Power is also well aware of participation barriers and has designed their program accordingly. The customer does not have the time to review contractor bids or design studies. Many customers have difficulty raising the up-front funding needed to participate in a rebate program. The customer needs a one-stop process that handles all the design details and provides full up-front financing. Many customers have commented on the value they perceive in the utility's ability to commission the installation: it's a service that is not available elsewhere.

So far participation in FinAnswer compares favorably to participation rates for rebate programs run by other utilities. BPA's Energy Smart Design program (Results Center Profile #37) originally attempted to influence the installation of energy conservation measures solely through offering no-cost energy design assistance. However when actual installation of recommended measures did not meet expectations, BPA introduced an accompanying rebate program which was successful in stimulating ECM installations. BPA's experience, however, may not be directly applicable to the FinAnswer program, as by offering financial assistance to customers, the FinAnswer program is already providing an incentive to install measures, where BPA's original Energy Smart Design program did not have any tangible financial incentives.

Commissioning has become an increasingly important topic in DSM circles in recent years. Pacific/Utah Power has learned many valuable lessons relating to commissioning from The Energy FinAnswer program. Training and technical review of commissioning agents has been essential. Commissioning scoping meetings with contractors have proven very useful. In order to keep commissioning costs down, flexibility is needed when establishing the scope of a commissioning job.[R#4]

There are several issues when evaluating the success of commissioning. Does commissioning typically identify significant problems in the building and are the savings resulting from commissioning significant to owners and occupants? The commissioning program will be considered successful when building owners and contractors consider the commissioning agent an ally and not another inspector. The commissioning program will also be successful if the cost of the program does not exceed the value of the resulting energy savings.[R#4]

Some participants and potential participants have voiced concerns about various program components. A few participants felt that the entire process was too time consuming. Similarly some customers felt the process of releasing money needed smoothing out. A few customers who rejected the program claimed that Pacific/Utah Power offered no new ideas, and others were not impressed with the financing arrangements.[R#4]

TRANSFERABILITY

While the jury is still out on the innovative financing mechanism used by The Energy FinAnswer, many analysts are beginning to give it more and more credence. If Pacific/Utah Power proves that it can maintain high levels of participation at low costs – essentially serving its customers as a low cost bank, plus providing key energy efficiency services – then the program mechanism will be widely sought and implemented across the country for the large commercial sector. (Note that the usefulness of the FinAnswer mechanism for the residential sector is highly questionable.) Should the DSM program design and evaluation community accept Pacific/Utah Power's FinAnswer program as a success, its basic financing structure will be easy to replicate in other areas.

Traditional utility ratemaking, where each and every kilowatt-hour sold provides profit, is a major barrier to utilities' implementation of energy efficiency programs. Several state regulatory commissions and their investor-owned utilities have been pioneers in reforming ratemaking to a) remove the disincentives in utility investment in DSM programs and lost revenues associated with these programs, and b) to provide direct and pronounced incentives so that every marginal dollar spent on DSM provides a more attractive return than the same dollar spent on supply-side resources.

The purpose of this section is to briefly present exciting and innovative incentive ratemaking mechanisms where they've been applied. This we trust, will not only provide some understanding to the reader of the context within which the DSM program profiled herein is implemented, but the series of these sections will provide useful snapshots of incentive mechanisms being used and tested across the United States.

Pacific/Utah Power provides electric service in seven states, complicating this section and the regulatory treatment of Energy FinAnswer. It is our intent nevertheless, to present Pacific/Utah Power's general sentiment regarding regulatory reform and then to provide a quick overview of the diverse regulatory changes on a state-by state basis that affect Pacific/Utah Power.

Perhaps the most intriguing aspect of Pacific/Utah Power's stance in regard to DSM incentives is that the utility does not automatically regard incentives as a good thing. Shareholder incentives can be a liability to a utility concerned about increasing rates in an increasingly competitive environment. (The greater the shareholder incentives the greater the potential rate impacts.) Pacific/Utah Power is concerned about maintaining customers, particularly large customers, who will likely have the opportunity to shop for power or natural gas in the future, and who will inevitably choose their least cost option. Thus if Pacific/Utah Power cannot maintain a competitive edge, they may ultimately lose customers, a situation far more severe in the long term than the potential benefits from shareholder incentives in the short term.(Note that Pacific/Utah Power has been successful at keeping rates flat for five years.)[R#13]

Second, Pacific/Utah Power believes that the utility's least cost plan is its most prudent business strategy and direction. Thus additional incentives may simply be unnecessary. Thus in no cases has Pacific/Utah Power requested incentives without commission instruction to do so.[R#13]

What Pacific/Utah Power does want in each of the states in which it operates, is full cost recovery. Using the utility's definition of cost recovery, this includes the ability to ratebase DSM expenditures and to recover lost revenues associated with DSM programs. Cost recovery, in the view of Pacific/Utah Power, allows the utility to be rewarded fairly for its DSM investments and for its opportunity cost of capital.[R#13]

OREGON

Pacific/Utah Power first provided its Energy FinAnswer program in the State of Oregon. In 1989, the Oregon Public Utilities Commission authorized special accounting for DSM programs. All eligible conservation program expenditures can be deferred and amortized over the useful life of the assets placed in service (i.e. ratebased). Other DSM expenses, such as advertising, are expensed annually.

In 1990 the Commission allowed Pacific/Utah Power to recover the costs of investments in energy efficiency directly from the customers who benefit from the programs. Thus Pacific/Utah Power designed the energy service charge program which was allowed by the Commission in May of 1991. (Note of course that the energy service charge provision minimizes the need for, and contentious area of, cost recovery from non-participating customers.)

Finally, lost revenues associated with Energy FinAnswer are not currently eligible for recovery in Oregon. Pacific/Utah Power has proposed shareholder incentives and is developing a decoupling mechanism as required by the recent Commission order.

CALIFORNIA

California is a leading state in terms of regulatory reform, and in particular in the area of providing shareholder incentives for DSM activities. Despite this climate of regulatory reform, Pacific/Utah Power has rejected ERAM in California due again to customer unrest regarding rate impacts. Already Pacific/Utah Power's rates in California are higher than in other parts of its system, and the utility has elected to request no regulatory treatment

that might adversely impact these rates further.

That said, California is the one state in which Pacific/Utah Power does have a shareholder incentive for its DSM costs. In California, the utility is able to keep the first 12 monthly energy service charges collected from customers as an incentive for shareholders. Furthermore, the utility is entitled to the same "expense plus 5" mechanism used for some of PG&E's programs. Under this mechanism the utility earns a return on its expenses plus 5% of certain categories of expenses if it meets certain performance targets.

WYOMING

Wyoming has approved Pacific/Utah Power's energy service charge tariff but very little regulatory reform has taken place in the state. The Wyoming Public Service Commission appears to be moving in the direction of allowing for DSM cost recovery but no specific action has been taken on behalf of Pacific/Utah Power. To date, Wyoming, like several other western states, has no lost revenue adjustment or decoupling mechanism.

UTAH

The Utah Public Service Commission has also approved tariffs for Pacific/Utah Power's energy service charge structure. The tariffs allow Pacific/Utah Power to recover DSM expenditures, or more accurately pilot program costs, but does not specifically allow for recovery of lost revenues or a shareholder incentive. Nevertheless, the Utah commission is currently considering cost recovery and decoupling mechanisms. (The Commission did allowe Pacific/Utah Power to collect energy service charges for four new commercial construction projects in the program's first year.)

WASHINGTON

In the State of Washington, Puget Power has been the leading utility in terms of regulatory reform, moving the Washington Utilities and Transportation Commission to approve initial shareholder incentives. This, however, is not the case for Pacific/Utah Power which does not have shareholder incentives in Washington.

Similarly, the state already allows DSM costs to be recovered (including lost revenues) either by expensing or ratebasing these costs. Pacific/Utah Power currently expenses DSM program costs, but expects to transition to ratebase treatment of these costs. Currently Pacific/Utah Power is not able to collect lost revenues in Washington.

IDAHO

Utilities in Idaho are allowed to capitalize DSM program expenditures and earn the rate of return on rate base earned by supply-side investments. The commission approved tariff sheets to Pacific/Utah Power's energy service charges in 1990, but no incentive mechanism has been put in place. Pacific/Utah Power is able to recover lost revenues associated with Energy FinAnswer in Idaho.

MONTANA

State law in Montana has allowed utilities to capitalize and amortize DSM expenditures for some time and the Montana Public Service Commission has statutory authority to award a higher rate of return on ratebased DSM. (A bonus of 2% additional return for the utility is allowed.) No provision for lost recovery exists in state statutes or regulations and no decoupling mechanism exists in Montana.

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Special thanks to Marilyn Williamson, Jim Haberman, and Ken Anderson for their support and guidance with the development of this profile.