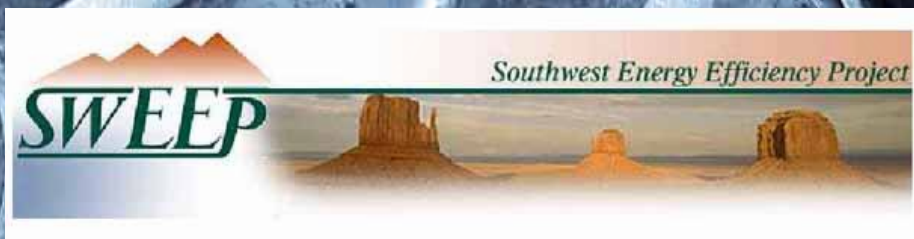




Southwest Utility Industrial Energy Efficiency Programs: Highlights and Best Practices

Neil Kolwey
Southwest Energy Efficiency Project

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Questions or comments about this report should be directed to Neil Kolwey, nkolwey@swenergy.org.

Neil Kolwey is Senior Associate in the Industrial Efficiency Program at the Southwest Energy Efficiency Project. Questions or comments about this report should be directed to Mr. Kolwey by email: nkolwey@swenergy.org.

The Southwest Energy Efficiency Project is a public interest organization dedicated to advancing energy efficiency in Arizona, Colorado, Nevada, New Mexico, Utah, Wyoming. For more information, visit www.swenergy.org.



Executive Summary

The industrial sector accounts for 30% of total energy consumption in the U.S. and 26% of total electricity consumption.¹ There are many opportunities for cost-effective energy savings in the industrial sector. The Southwest Energy Efficiency Project (SWEET) encourages utility DSM programs, including industrial programs, to aim for first year energy savings from DSM programs of 1% or more of annual energy sales. However, most utilities offer programs to both commercial and industrial customers without separately tracking participation or savings for each sector.

Table ES-1 highlights the commercial and industrial energy savings and energy sales for the largest southwest utilities. Three utilities in the region—Arizona Public Service Co. (APS), Tucson Electric Power (TEP), and Nevada Power Co. (NPC)—exceeded the benchmark of 1% energy savings from commercial and industrial programs implemented in 2010.

There are several model industrial energy efficiency programs in the Southwest. Rocky Mountain Power (RMP) offers a successful program in Utah called “*Energy FinAnswer*” that provides free energy assessments to help industrial facilities identify energy-saving measures. The assessments also include estimates of the amount of custom incentives customers are eligible to receive to help finance the measures. Xcel Energy (Xcel) in Colorado and RMP offer very effective self-direction programs, which require pre-approval of energy efficiency projects and follow-up measurement of energy savings (with some exceptions in the case of RMP).

Based on these model programs and best practices, we offer the following recommendations for utility industrial energy efficiency programs:

1. Utilities should establish separate goals and tracking systems for energy savings for industrial customers. Separate tracking would ensure that industrial programs are achieving savings in approximate proportion to the amount of industrial energy consumption, and ensure that the industrial sector is well-served by programs that all customers are paying for.
2. Utilities should consider offering free or subsidized energy assessments, including both walk-through/scoping and more detailed energy assessments to help customers identify energy efficiency opportunities. These assessments will be more effective when integrated with prescriptive and custom incentive programs, so that energy-saving measures have the greatest chance of being implemented.
3. Utilities should offer a combination of prescriptive and custom incentives, along with a self-direction opportunity in order to provide maximum flexibility and increase industry participation. Prescriptive incentives should be provided for a wide range of measures including compressed air equipment, energy management systems, and variable speed drives, in addition to the common incentives for high efficiency lighting and HVAC equipment. Custom incentives provide rebates for other types of energy efficiency projects not included under prescriptive incentives.

4. Self-direction programs allow utilities to reduce or eliminate their DSM surcharge in lieu of rebates if companies implement energy efficiency projects without utility assistance. Self-direction programs should include requirements for utility approval of projects and post-implementation verification of energy savings.

5. Finally, we recommend that utilities make a special effort to reach subsectors with very high energy consumption that are challenging to engage in standard utility efficiency programs. In particular, given the importance of the mining and oil and gas extraction sectors in the Southwest, SWEEP suggests that utilities in the region implement targeted programs for these sectors. RMP's pilot energy manager program in Wyoming and Xcel Energy's pilot technical assistance program in New Mexico are examples of such efforts.

Table ES-1: 2010 Commercial & Industrial (C&I) Energy Savings for Southwest Utilities

State	Utility	Total C&I Energy Savings ² (MWh)	Total C&I Sales ³ (MWh)	C&I Savings (% of C&I sales)	Industrial Energy Savings ⁴ (% of C&I savings)	Industrial Sales (% of total C&I sales)
AZ	Arizona Public Service Co. (APS)	174,000	14,673,963	1.2%	NA	14.8%
AZ	Salt River Project (SRP)	73,300	13,821,768	0.5%	25-30%	21.3%
AZ	Tucson Electric Power Co. (TEP)	65,100	5,422,243	1.2%	NA	59.3%
CO	Xcel/Public Service Co. of Colorado (PSCo)	160,000	19,165,316	0.8%	NA	33.0%
CO	Black Hills Energy	10,300	1,187,368	0.1%	NA	29.3%
NM	Public Service Co. of New Mexico (PNM)	28,836	5,732,347	0.5%	NA	25.3%
NM	Xcel/Southwestern Public Service Co. (SPS)	3,800	3,328,058	0.1%	<50%	54.2%
NV	NV Energy/Nevada Power Co (NVP)	135,600	12,180,456	1.1%	2.0%	5.6%
NV	NV Energy/Sierra Pacific Power Co. (SPPC)	33,878	5,359,937	0.6%	9.4%	46.3%
UT	PacifiCorp/Rocky Mountain Power (RMP-Utah)	119,400	15,893,843	0.8%	51.2%	49.3%
WY	PacifiCorp/Rocky Mountain Power (RMP-Wyoming)	15,400	8,616,499	0.2%	72.1%	82.3%

Sources: 2010 DSM reports, personal communications, and data from the Energy Information Administration (EIA).

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I. Southwest Utility Industrial Program Highlights

Different utilities have varying energy savings goals and financial incentives to achieve those goals. In the Southwest, the level of industrial activity also varies greatly from one utility service area to another. Not surprisingly, the levels of spending and effort focused towards industrial customers, as well as the resulting industrial energy savings achieved, varies quite a bit across the southwest utilities. (Note that in this report we focus on electric utility efficiency programs serving the industrial sector. Most large and medium-size industrial firms purchase their natural gas from wholesale suppliers or marketers and therefore in general are not eligible to participate in utility natural gas-related efficiency programs.)

Industrial Energy Savings Potential

For most southwestern states, industrial energy consumption represents a substantial opportunity to reduce total energy consumption, thereby reducing the need for new electricity generation and other costly energy infrastructure, and reducing environmental impacts. At the same time, energy efficiency helps industrial firms improve their profitability and competitiveness. A 2009 study by McKinsey estimates potential industrial energy savings of up to 18% by 2020, based on readily available, cost-effective technologies.⁵ Several utilities in the region have also completed studies of potential energy savings in their service territories, including the industrial sector. These studies can be very helpful in identifying the main types of industry sectors present and energy-savings opportunities available. Xcel Energy's potential study for its Colorado subsidiary, Public Service of Colorado (PSCo), identified economic potential energy savings of 605 GWh/yr by 2020, which is about 12% of PSCo's projected, business-as-usual industrial electricity consumption in 2020.⁶ Based on similar estimates of potential energy savings nationwide, the U.S. Department of Energy (DOE) has established a national goal for the industrial sector of improving energy intensity by 2.5% per year through 2020, which would result in approximately 25% energy savings in 2020, compared to the projected business as usual consumption.⁷

Industrial electricity consumption accounts for an average of 22% of total electrical consumption in the southwestern states.⁸ Rocky Mountain Power's operations in Utah and Wyoming and PSCo have the largest total industrial electrical sales, and RMP, TEP, and SPS have the highest percentages of industrial sales (see Table 1).

Summary of Southwest Utility Industrial Programs and Results

Electric utilities can play a very important role in helping industrial facilities improve their energy efficiency. All major utilities in the Southwest provide programs and services for industrial customers as part of their portfolio of demand-side management (DSM) programs. Table 2 provides a summary of the types of programs offered by utilities in the region. There are four main types of utility programs for industrial customers, and the most effective utility program portfolios include services or incentives in each of these areas:

- Prescriptive incentive programs
- Custom incentive programs

- Technical assistance/energy auditing services
- Self-direction programs

Table 3 provides an overview of savings and budgets for the southwest utilities' industrial and commercial programs. Because most utilities do not have separate data for savings from their industrial programs (Rocky Mountain Power is the only exception), the table presents energy savings data for commercial and industrial programs combined. Several utilities are achieving savings from business customers of about 1% per year or more, including Arizona Public Service, Tucson Electric, Nevada Power, Xcel in Colorado, and Rocky Mountain Power/Pacificorp in Utah. The last column shows the range of first year energy savings per dollar spent by the utility programs, which ranges from a high of 12.4 MWh/yr per \$1000 spent for Nevada Power, to a low of 2.4 MWh/yr per \$1000 spent for Xcel/Southwestern Public Service in New Mexico.

Table 1: 2010 Industrial and Total Electrical Consumption for Southwest Utilities

State	Utility	Industrial Sales ⁹ (MWh)	Total C&I Sales (MWh)	Total Sales (MWh)	Ind. Sales (% of total C&I sales)	Ind. Sales (% of total sales)
AZ	Arizona Public Service Co. (APS)	2,170,083	14,673,963	27,709,463	14.8%	7.8%
AZ	Salt River Project (SRP)	2,945,674	13,821,768	26,097,780	21.3%	11.3%
AZ	Tucson Electric Power Co. (TEP)	3,218,072	5,422,243	9,291,784	59.3%	34.6%
CO	Black Hills / Colorado Electric Utility Co. LP	347,674	1,187,368	1,815,920	29.3%	19.1%
CO	Xcel Energy / Public Service Co. of Colorado (PSCo)	6,328,128	19,165,316	28,298,643	33.0%	22.4%
NM	Public Service Co. of New Mexico (PNM)	1,452,431	5,732,347	9,092,828	25.3%	16.0%
NM	Xcel Energy / Southwestern Public Service Co. (SPS)	1,803,237	3,328,058	4,386,304	54.2%	41.1%
NV	NV Energy / Sierra Pacific Power Co. (SPCC)	2,482,684	5,359,937	7,548,314	46.3%	32.9%
NV	NV Energy / Nevada Power Co. (NPC)	686,195 ¹⁰	12,180,456	20,873,333	5.6%	3.3%
UT	Pacificorp / Rocky Mountain Power (RMP-Utah)	7,836,400	15,893,843	22,476,706	49.3%	34.9%
WY	Pacificorp / Rocky Mountain Power (RMP-Wyoming)	7,093,786	8,616,499	9,680,088	82.3%	73.3%
Total / Average %		43,347,799	105,381,798	167,271,163	41.1%	21.7%

Source: Except as noted, all the data is from Energy Information Administration (EIA).

Table 2: Summary of Industrial Programs Offered by Southwest Utilities

Utility	Technical Assistance (% of assessment costs covered)	Custom Incentives (rate for first year savings; cap on incentive amount)	Prescriptive Incentives (in addition to lighting, HVAC, refrigeration, and motors)	Self-Direction (rate for first year savings; cap on incentive amount)
Arizona Public Service (APS)	50%	\$0.11/kWh; 50% of project cost	Pumps, energy information systems	100% of project cost; 85% of annual payment to DSM fund
Salt River Project (SRP)	50-100%	\$0.11/kWh; 50% of project cost	Compressed air, VFDs	\$.11/kWh; 100% of annual payment to DSM fund
Tucson Electric Power (TEP)	None	\$0.12/kWh; 75% of project cost	Compressed air	No program
Black Hills Energy	None	\$0.25/kWh; 50% of project cost	NA	No program
Xcel Energy (CO and NM)	75%	\$400/kW; 60% of project cost	Compressed air, VFDs	\$.10/kWh or \$500/kW; 50% of project cost
Public Service of New Mexico (PNM)	None	\$0.06/kWh	NA	70% of annual payment to DSM fund
NV Energy ¹¹	100%	\$0.10/kWh for on-peak or \$.05/kWh for off-peak; 50% of project cost	NA	No program
RMP (UT and WY)	100%	\$0.12/kWh + \$50/kW; 50% of project cost or 1-yr payback	Compressed air	80% of project cost; 100% of annual payment to DSM fund

Source: Utility program web sites, personal communications.

Table 3: 2010 Commercial & Industrial Energy Savings for Southwest Utilities

State	Utility	Total C&I Energy Savings ¹² (MWh)	Industrial Energy Savings ¹³ (% of total C&I savings)	Total C&I Sales ¹⁴ (MWh)	C&I Savings (% of 2010 Sales)	Total C&I DSM Budget ¹⁵ (million \$)	C&I Savings (MWh/yr per thous \$ spent)
AZ	Arizona Public Service (APS)	174,000	NA	14,673,963	1.2%	\$19.8	8.8
AZ	Salt River Project (SRP)	73,300	25-30%	13,821,768	0.5%	\$8.0	9.2
AZ	Tucson Electric Power (TEP)	65,100	NA	5,422,243	1.2%	\$9.7	6.7
CO	Public Service Co. of Colorado (PSCo)	160,000	NA	19,165,316	0.8%	\$27.4	5.8
CO	Black Hills / Colorado Electric Utility Co. LP	10,300	NA	1,187,368	0.1%	\$1.7	6.1
NM	Public Service Co of New Mexico (PNM)	28,836	NA	5,732,347	0.5%	\$5.4	5.3
NM	Southwestern Public Service Co. (SPS)	3,800	<50%	3,328,058	0.1%	\$1.6	2.4
NV	NV Energy / Nevada Power Co. (NPC)	135,600	2.0%	12,180,456	1.1%	\$10.9	12.4
NV	NV Energy / Sierra Pacific Power Co. (SPPC)	33,878	9.4%	5,359,937	0.6%	\$3.8	8.9
UT	Rocky Mountain Power (RMP-Utah)	119,400	51.2%	15,893,843	0.8%	\$16.9	7.1
WY	Rocky Mountain Power (RMP-Wyoming)	15,400	72.1%	8,616,499	0.2%	\$2.0	7.7

Sources: 2010 DSM reports, personal communications, and EIA data.

II. Model Industrial Programs and Best Practices

Based on interviews of the southwest utility commercial and industrial (C&I) energy efficiency programs, The Southwest Energy Efficiency Project (SWEET) has identified several “best practices” in program design and delivery, as well as several model programs. Best practice programs achieve significant levels of energy savings, are cost-effective, and help satisfy the needs of industrial customers.

Separate Goals and Tracking for Industrial vs. Commercial Customers

Industrial customers’ needs and capabilities are different from those of commercial customers such as office buildings, retail facilities, schools and other public buildings. “Industrial” is defined by the Energy Information Administration (EIA) to include manufacturing, mining, agriculture, construction, and fishing and forestry establishments (Standard Industrial Classification (SIC) codes 01-39).¹⁶ For some industrial facilities energy is a significant portion of operating costs, and many that are less energy-intensive still use large amounts of energy overall (e.g., semi-conductor plants or food/beverage processors). Industrial customers also use energy differently than other commercial customers, typically having significant process-related consumption in addition to heating, ventilation and air conditioning (HVAC) and lighting loads. Although it varies quite a bit depending on the manufacturing sub-sector, the average manufacturing facility’s energy consumption for HVAC and lighting is only about 20% of total energy consumption.¹⁷ Therefore, it makes sense to design energy efficiency programs to serve the specific needs of the industrial sector, as well as programs to serve other business customers.

In addition, utilities and the public utilities commissions (PUCs) that regulate investor-owned utilities may be interested in knowing how DSM spending and energy savings are distributed among the various types of customers. We believe that it would be helpful for all utilities to develop separate energy-saving goals and energy savings tracking systems for industrial customers, and to include this information in annual DSM reports. SWEET encourages all utility DSM programs to aim for first year energy savings of 1% or more of annual energy sales. With the proper tracking in place, we encourage industrial programs to strive for this same goal.

Rocky Mountain Power, in both Utah and Wyoming, has established separate energy savings goals for industrial and commercial customers, and tracks spending and energy savings for industrial customers separately in order to achieve these goals. RMP is the only southwestern utility that separately tracks energy savings from industrial customers on a routine basis. (For this report, NV Energy reported energy savings from industrial customers for 2010, by manually reviewing the savings data and sorting it by customer class. However, NV Energy does not routinely track savings separately in this way.) In 2010, RMP achieved 51.2% of its total C&I energy savings from industrial customers, while industrial customers account for 49.3% of the total C&I energy consumption.¹⁸ This energy savings data helps RMP provide better service to industrial customers, and helps the utility justify its DSM spending and energy savings for each customer class when it seeks program approvals from the PUC.

Developing systems to separately track savings from industrial customers (based on SIC codes) is not that difficult. However, the EIA definition of industrial also states, “the utility may classify industrial

service using the SIC codes, or based on demand or annual usage exceeding some specified limit. The limit may be set by the utility based on the rate schedule of the utility.”¹⁹ To be consistent, utilities that rely on rate classes or use an electricity demand or annual consumption limit for reporting their annual industrial electricity sales to the EIA should use the same definition of industrial in tracking energy savings. However, we believe the separation of customers by SIC codes would be more useful towards addressing the differing needs of industrial customers, as discussed above. In any case, utilities should clearly state which definition of industrial they are using.

Model Technical Assistance and Custom Rebate Programs

Most of the utilities in the southwest offer a custom rebate program to complement the prescriptive rebates, and several of these also offer free or subsidized energy assessments to help companies identify energy efficiency opportunities. These programs are most effective when integrated, so that the assessments identify projects that qualify for the custom rebates, which help move the projects to implementation. It is also helpful to consider incentive structures that encourage customers to implement projects identified in energy assessments.

Without a free or subsidized energy assessment, it is difficult for many companies to identify energy efficiency projects on their own and to evaluate the potential savings in order to complete the application for custom rebates. On the other hand, without the utility’s follow-up support (e.g., assistance with applying for custom rebates, and providing a list of vendors or consultants to help with implementation), many energy assessment reports merely end up on shelves, leaving significant potential energy efficiency measures ignored.

There are a few shining examples of the smooth integration of technical assistance and rebate programs among the southwestern utilities. The *Energy FinAnswer* program of Rocky Mountain Power (RMP) in Utah features a fully integrated process of technical assistance and custom incentives. Following is a brief summary of the key steps of this program²⁰:

1. The customer contacts RMP for assistance, and both parties sign a letter of intent, clarifying issues such as confidentiality.
2. RMP provides a free scoping assessment (through a consultant) to identify potential energy efficiency opportunities. The customer then discusses the opportunities with RMP and indicates which ones it is most likely to implement. Based on the scoping assessment, RMP’s consultant develops a proposal for a more detailed assessment to further develop the savings opportunities.
3. RMP provides the customer a free detailed energy analysis of the measures identified in the scoping assessment, including refined estimates of energy savings, and the amount of utility incentives to be paid for the projects if implemented, and any commissioning requirements. The follow-up assessment is tailored in length based on the amount of potential energy savings. RMP’s consultants try not to exceed \$.04 in assessment costs/kWh of potential energy savings,

which is easier for projects involving larger potential savings.²¹ The custom incentives are based on the rate of \$0.12/kilowatt-hour (kWh) plus \$50/kilowatt (kW) average monthly demand savings. The incentive amount is capped at 50% of the project cost or the amount of incentive that would reduce the simple payback period to one year, whichever is less. The two parties sign an incentive agreement form before the company proceeds with any purchase orders for the equipment. RMP allows up to two years for customers to implement the projects.

4. The company implements the projects, completes any required commissioning, and submits a final breakdown of costs for the projects.
5. RMP completes a post-implementation inspection and documents final energy savings, and writes a check to the company for the incentives.

This program has been very successful. In 2010, the *Energy FinAnswer* program achieved energy savings from industrial customers of 39,090 MWh, or 57% of the total energy savings for RMP's industrial programs and 29% of total energy savings from RMP's C&I programs.²² In general, customers are very satisfied with this program. However, some customers complain that RMP's approval process takes too long, especially if the project involves replacement of failed equipment with a more energy efficient model. The approval process can take several months, including the time for the assessment and report, and up to three weeks for RMP's third-party review of the consultant's assessment report.²³

Xcel Energy's *Process Efficiency* program is another good example of the integration of technical assistance and incentive programs. The *Process Efficiency* program is available to industrial customers with "energy conservation potential" of at least 2 GWh (which usually translates to total annual electricity consumption of at least 20 GWh.) The steps involved in this program are similar to those for RMP's *Energy FinAnswer*, with the following main differences:

- The free scoping assessment also includes a free assessment of the customer's strategic energy management program (using EnVinta *One-2-Five* or other similar tools), with recommendations for improvement. The support for the customer's strategic energy management can help the customer achieve on-going energy savings. However, these "behavioral improvements" can be difficult for the utility to quantify.
- The customer must pay for 25% of the cost of the detailed follow-up energy assessment, up to \$7500.
- After the detailed assessment is completed, Xcel Energy and the customer sign an agreement that specifies which projects the customer will implement, the time frame for implementation, and the amount of incentive that Xcel will provide, based on the rate of \$400/kW of peak demand reduction. Xcel Energy encourages the customer to agree to complete projects within a year, but allows longer time frames if needed.²⁴

Xcel Energy reported only 2,640 MWh of energy savings through this program in Colorado in 2010, with preliminary results of 6,600 MWh of savings in 2011.²⁵

Salt River Project’s (SRP) *Custom Business Solutions* program provides preliminary and comprehensive assessments and custom incentives. The payment structure for the comprehensive assessments provides a strong incentive for customers to implement measures identified through the assessment. For comprehensive energy assessments, SRP will pay 50% of the cost, up to \$15,000 (out of a total maximum assessment cost of \$30,000). In addition SRP will pay for the other 50% of the assessment if the customer implements at least one “significant” recommendation from the study. The customer is required to pay its 50% share of the assessment cost up front, and agrees in writing to implement one or more significant measures in order to get reimbursed for the other 50%. (“Significant” means the three or four larger measures on which the study typically focuses.) The assessment includes an estimate of the amount of rebates that SRP will provide, which are based on the rate of \$.11/kWh of energy saved per year (for the first year). Table 4 compares results for the technical assistance and custom incentive programs of Rocky Mountain Power, Xcel Energy, and Salt River Project.

Table 4: Energy Savings and Cost-Effectiveness of Three Model Technical Assistance and Custom Incentive Programs

Utility	Program	Industrial Energy Savings (MWh/yr)	Benefit-Cost Ratio (TRC)
RMP-Utah	Energy FinAnswer	35,100	2.2
PSCo	Process Efficiency	6,600	2.0
SRP	Custom Efficiency	5,600	2.0

Note: SRP’s savings shown are based on assuming that industrial savings are 27% of its total commercial and industrial savings for 2011. RMP’s savings shown are for industrial customers only for 2010, and for Xcel’s Process Efficiency program the results are preliminary for 2011 for industrial customers.

Self-Direction Programs with Clear Requirements

Generally, self-direction programs allow large customers to keep some of the DSM fees that the customers would pay to the utilities, as long as the customers spend the money on eligible energy efficiency projects. In this way, self-direction programs provide a meaningful incentive for large customers to implement more energy efficiency projects. However, the utility provides no further technical or financial assistance for efficiency projects implemented under the self-direction option.

From the utility’s point of view, self-direction programs can be very cost-effective if there are clear rules and requirements for approving (or denying) EE projects. The best utility self-direction programs review and evaluate these projects in the same manner as projects implemented through other DSM programs. The energy savings from projects implemented through self-direction programs are then counted towards the utility’s energy savings goals or requirements.

Xcel Energy/Public Service Co. of Colorado (PSCo) has implemented an excellent self-direction program with very clear guidelines. The program is available to customers with annual consumption of at least 10 GWh and demand of at least 2 MW (aggregated from all the customer's Colorado facilities). Xcel requires pre-approval of the projects, provides estimates of the rebates to be provided, and requires post-implementation verification reports. Most self-direction customers hire consultants to help with the applications and measurement and verification (M&V) requirements.²⁶

PSCo's self-direction program will provide rebates of \$0.10/kWh saved or \$525/kW demand reduction (whichever is greater), and the rebate amount is capped at 50% of the incremental cost of EE projects.²⁷ Unlike many other self-direction programs, PSCo's program has no cap on the amount of incentive the customer can receive relative to its annual DSM charges. PSCo's self-direction program achieved total savings in 2010 of 8,965 MWh, with a benefit-cost ratio using the Total Resource Cost (TRC) test of 2.2.²⁸ PSCo allows eligible customers the option to choose to participate in self-direction or custom efficiency programs for any given project. Generally, the advantage of self-direction is that it pays higher rebates. The disadvantage is that the customer (or its consultant) must do its own analysis of measures prior to implementation, and its own M&V of project savings post-implementation.

Rocky Mountain Power (RMP) implements a very successful self-direction program in Utah. RMP's program is more flexible and more generous to customers than PSCo's program. RMP will pay 80% of the total project (incremental) cost for projects with a pre-rebate payback period of between 1 and 5 years, and does not specify a rate (e.g., cents per kWh of savings) for the rebates. The amount of rebate available to the customer in any given year is limited to the amount the customer pays in DSM charges. However, the rebate payments can be extended over several years until the 80% project cost limit is reached. RMP reviews all projects prior to approving the rebates, and recommends but does not require that projects be approved prior to implementation. RMP also requires post-implementation commissioning/verification reports, except when the amount of energy savings from the project is clear or obvious (i.e., for "non-dynamic" projects).²⁹

RMP's large industrial customers in Utah implemented 176 projects under the self-direction program during 2004-2009.³⁰ In 2010 RMP's self-direction program achieved total savings of 18,190 MWh through implementation of 13 additional projects. The benefit-cost ratio for industrial customers using the TRC test in 2010 was 2.9.³¹ This is more than double the amount of savings achieved through Xcel Energy's self-direction program, and with a higher benefit-cost ratio. One large company in Utah (that prefers to remain anonymous) told SWEEP that it was able to implement 3 additional energy efficiency projects in 2010 through participation in Rocky Mountain Power's self-direction program. The company stated that these projects would not have been implemented without RMP's incentives. Table 5 compares the main features and results of the self-direction programs of RMP and Xcel Energy.

Table 5: Comparison of Self-Direction Programs of RMP-Utah and PSCo

Utility	RMP-Utah	PSCo
Project pre-approval required?	Approval required (not necessarily pre-implementation)	Yes
Max % of project cost covered	80%	50%
Payback period limits	1-5 years, pre-rebate	none
Incentive rate	NA	\$.10/kWh or \$525/kW (whichever is greater)
2010 energy savings	18,200 MWh	8,970 MWh
Benefit-cost ratio (TRC)	2.9	2.2

Prescriptive Rebates for Industrial Measures

Most utility C&I programs offer both custom and prescriptive rebates for energy efficiency measures. It is helpful to offer a variety of prescriptive rebates to make it as easy as possible for customers to obtain the rebates and to implement these types of “standard measures.”

For prescriptive rebates, the list of eligible measures and rebate amounts are specified in advance, which makes it very easy for companies to plan qualifying projects, analyze cost effectiveness, and receive the rebates. Custom rebates, on the other hand, are open to a variety of projects and provide needed flexibility as well as a “systems” approach, but applying for custom rebates generally requires much more effort than prescriptive rebates.

PSCo has numerous measures for which prescriptive rebates are available, including many measures applicable to industrial customers:³²

- High efficiency motors and variable speed drives
- Integrated variable frequency drive air compressors
- High efficiency cooling equipment
- Building energy management systems
- Lighting efficiency improvements

As one example of the relative importance of prescriptive rebates compared to custom rebate programs, Rocky Mountain Power in Utah achieved 15% of its total industrial energy savings in 2010 from prescriptive rebates, compared to 57% for the custom rebate and technical assistance program (*Energy FinAnswer*), and 28% from the self-direction program.³³

Reaching Challenging Sectors

The most effective utility industrial energy efficiency programs develop different approaches for the different types of companies or different sectors they serve. Typically, the oil and gas industry has been a challenging sector for utilities to reach for participation in DSM programs. Xcel Energy/Southwestern Public Service Co. (SPS) has developed a program to offer free energy assessments to oil and gas drilling

and processing operations. SPS completed eight of these assessments in 2010, offered through a consultant/contractor that is experienced in working with this sector. The assessments have identified numerous energy-saving opportunities, such as controllers to regulate the motors on the lift rods for the oil and gas wells. There are also opportunities in gas processing facilities, which have compressors and other types of equipment. There are no implemented projects yet, but SPS is optimistic that recommended measures will begin to be implemented in early 2012. For example, a large variable-frequency drive project has received pre-approval and is in the implementation process.³⁴

RMP is also reaching out to the oil, gas and mining sectors (and large customers in a few other sectors) in Wyoming through a new program to finance full- or part-time “energy project managers” for large customers. The idea of this program is to provide these customers with trained staff that can devote time to identifying and managing energy efficiency projects, and achieving enough energy savings to essentially pay for their salaries and make the program cost-effective. RMP has no results yet, but this program is an innovative way to reach out to this challenging sector. Similar energy project manager programs have achieved good results for Bonneville Power Administration and British Columbia Hydro.³⁵

III. Recommendations

Based on our review of the utility industrial energy efficiency programs in the region, the Southwest Energy Efficiency Project (SWEET) offers the following recommendations to help utilities achieve greater energy savings, higher participation, and better cost-effectiveness in their energy efficiency programs aimed at industrial customers.

1. Develop systems to separately track energy savings for industrial customers vs. commercial customers. Tracking industrial programs separately will help utilities to ensure that their programs are serving industrial customers well. We also suggest that utilities consider developing industrial advisory groups to ensure that energy efficiency programs are meeting industrial customers' needs. Separate tracking of industrial savings will also help ensure that utilities achieve energy savings in proportion to industrial electricity sales and/or the industrial sector's contribution to funding utility efficiency programs.
2. Consider setting an energy savings goal for the industrial sector of at least 1% of annual industrial sales. This is consistent with SWEET's suggested energy savings goal for all utility programs of saving at least 1% of total sales each year.
3. Offer a wide range of programs to industrial customers, including technical assistance, custom incentives, prescriptive incentives, and self-direction:
 - a. *Technical Assistance:* Technical assistance programs, including both walk-through/scoping and more detailed energy assessments, can be very helpful in helping customers identify efficiency opportunities. Assessments will be more effective when integrated with custom (and prescriptive) incentive programs. Assessment reports should include clear estimates of rebates available for the measures identified, without requiring the customer to complete separate rebate applications.
 - b. *Custom and prescriptive incentives:* In addition to lighting, HVAC systems, and motors, which are very common elements of prescriptive incentive programs, other industrial-oriented measures should be considered, including high efficiency compressed air equipment, variable speed drives, and energy management systems for industrial facilities. Because prescriptive incentives are more user-friendly for the customer than custom incentives, adding more types of prescriptive measures will help the utility achieve greater energy savings.
 - c. *Self-direction:* For larger industrial customers, self-direction programs can be a useful complement to custom incentive programs, and can be very cost-effective for the utility if properly designed.

- i. The utility should approve all self-direct projects, before implementation as much as possible, to provide customers with estimates of the incentive payments they will receive, and to ensure that projects meet cost-effectiveness and other requirements.
 - ii. The utility should require the customer to measure and verify the project's savings after the project is implemented.
 - iii. To maintain cost-effectiveness and fairness, we suggest the amount of the incentive be capped at 75% of the project cost, or at the level that would bring the project's payback period down to one year, whichever is less. Also to ensure project cost-effectiveness, we suggest placing an upper limit on the project's pre-incentive payback period, such as such as 5-7 years, or by offering a fixed rate of incentive per kWh of first-year savings. With these limits in place, we think it is reasonable to allow customers to use self-direction bill credits to offset up to 80% of their annual DSM surcharge; i.e., all industrial customers should make some contribution towards paying for administrative and other costs associated with the utility programs. Unused self-direction credits in any one year should carry over to the following year, and customers should be allowed to aggregate their funds for several years in order to fund larger projects.
 - iv. Large customers will achieve more energy savings if the utility allows them the flexibility to choose between prescriptive and custom incentive programs or the self-direction program for any given project.
4. Consider developing targeted programs for industrial sub-sectors that are challenging to engage in traditional energy efficiency programs, such as mining operations and oil and gas extraction/processing. Rocky Mountain Power's pilot energy manager program in Wyoming and Southwestern Public Service's pilot technical assistance program to the oil and gas sector are good examples of these types of efforts.

IV. Southwestern Utility Industrial Efficiency Program Descriptions

Each utility program in the southwest region has some of the types of industrial efficiency programs described above. Each program has some unique qualities, and here we provide descriptions of all the programs designed to serve industrial customers, as well as the overall energy savings, program spending levels, and benefit-cost ratios. For the following program descriptions, we start with Utah and Wyoming, and move around the region in a clockwise order (Colorado, New Mexico, Arizona, and finally Nevada).

Pacificorp/Rocky Mountain Power (RMP) – Utah and Wyoming

Rocky Mountain Power (RMP) is the main electric utility in Utah and Wyoming, serving a total of about 800,000 customers in Utah and 140,000 customers in Wyoming.³⁶ There are a variety of industrial sub-sectors operating in Utah, and in Wyoming there is a significant amount of oil and gas extraction and processing as well as mineral and coal mining. RMP has a model program for providing technical assistance and custom rebates to industrial customers (*Energy FinAnswer*), and a very effective self-direction program. RMP is also the only utility in the region that routinely separates out spending and energy savings for industrial customers vs. other business customers. RMP exceeded its goals for energy savings from industrial customers in Utah in 2010.³⁷

Technical assistance and custom rebates

RMP has a technical assistance and custom incentive program called *Energy FinAnswer*. The program provides free energy assessments, which are fully integrated with the custom rebate program. There are several advantages to this integration (see best practices section above). After the completion of the assessment, RMP signs an agreement with the customer, estimating the amount of the custom incentive. RMP then adjusts the incentive amount as needed after implementation of the project, based on actual costs and measured savings. The amount of the custom incentive is \$.12/kWh of first year energy savings plus \$50/kW of peak demand reduction, and the incentive amount is capped at 50% of project cost or the amount that brings the simple payback period down to one year, whichever is less.³⁸

Self-direction program

RMP's self-direction program will pay (through utility bill credits) 80% of the incremental cost for approved projects. Projects must have a pre-rebate payback period of between 1 and 5 years. RMP does not specify a fixed incentive rate (e.g., cents per kWh of savings). RMP recommends but does not require pre-approval of projects, and does not always require post-implementation commissioning/verification reports. RMP's large industrial customers in Utah implemented 176 projects under the self-direction program during 2004-2009.³⁹ In 2010 RMP's self-direction program achieved total savings 16,910 MWh from industrial customers through implementation of 13 additional projects.⁴⁰

RMP allows industrial customers the option to choose between the self-direction program and the custom rebate program for any project, and customers appreciate this flexibility. The advantage of the self-direction program is that the amount of the rebate is larger (80% of project cost compared to only 50% under the custom program). The advantage of the custom rebate program is that RMP will provide assistance in identifying the project, estimating the initial costs and energy savings, and verifying the savings after the project is implemented.

Prescriptive rebates and other programs

To complement the custom incentives of the *Energy FinAnswer* program, RMP offers prescriptive incentives through its *FinAnswer Express* program, which includes incentives for lighting, HVAC, refrigeration, building shell, motors, and compressed air projects. This program accounts for about 15% of total energy savings from RMP's industrial customers in Utah.

Savings and budgets

Savings and spending levels are provided in Table 6. Budgeted spending levels for 2011 are shown in Table 7.

Table 6: RMP-Utah – 2010 Energy Savings and Spending for Industrial Programs

Program	Energy Savings at Generator (MWh)	Spending (thous \$)	Benefit-Cost Ratio (TRC)	Benefit-Cost Ratio (UCT)
Energy FinAnswer	35,090	\$4,524	2.2	4.4
FinAnswer Express	9,050	\$1,019	1.7	3.7
Self- Direction	16,910	\$330	2.9	3.1
Total	61,050	\$5,873	2.3	3.9

Source: Rocky Mountain Power.⁴¹ Benefit-cost ratios are for C&I customers combined. TRC is the total resource cost test; UCT is the utility cost test.

Table 7: RMP – Commercial and Industrial Program Budgets

Program	2010 Actual Expenditures	2011 C&I Budget	Percentage Change, 2010-2011
UT	\$16,926,055	\$19,355,933	14%
WY	\$1,954,739	\$2,206,132	13%
Total	\$18,880,793	\$21,562,065	14%

Marketing of programs

Rocky Mountain Power markets its programs to industrial customers through a number of channels:

- Larger customers have an assigned account manager who works directly with them on all business related to the company including demand-side management (DSM) programs. Each account manager has a designated DSM project manager to support DSM projects with their customers.
- Project managers and engineering consultants work with program participants to identify and develop future projects, through the *Energy FinAnswer* program or self-direction programs.
- Trade allies who market the programs, especially *FinAnswer Express*, as part of their business.
- Advertising including print and radio ads.
- RMP's *Business Solutions Team* and web-based *Business Solutions Toolkit* provide tips and other information to all business customers (the focus is small and mid-size business customers).
- Company-sponsored outreach events.

<i>For more information, contact:</i>
Chris Helmers Energy Efficiency Program Manager Rocky Mountain Power / PacifiCorp chris.helmers@pacifiCorp.com 801-220-4439

Xcel Energy / Public Service of Colorado (PSCo)

Xcel Energy/Public Service of Colorado (PSCo) is the main electric utility in Colorado serving a total of about 1.4 million customers.⁴² PSCo offers subsidized energy assessments and custom rebates, including a very comprehensive program for large industrial customers called *Process Efficiency*. PSCo also has a well-designed self-direction program, and offers prescribed rebates for a wide range of measures. PSCo did not quite achieve its goal for energy savings from its commercial and industrial programs in 2010, falling short by 3.6%, and the company faces a challenging task as these goals continue to increase over the next five years. PSCo does not break out savings by sector for its business programs.

Technical assistance and custom rebates

PSCo funds energy studies of several types, including compressed air, refrigeration, or a more detailed study of several potential custom efficiency projects. For the more customized studies, PSCo will pay for 75% of the study, up to a maximum of \$25,000. For the compressed air studies, PSCo will pay for 75% of the study, up to \$15,000, and the customer must agree to fix at least 50% of leaks and “waste” identified in the study.

After funding a customized study, PSCo helps the industrial customer apply for custom rebates for the identified options that the company would like to pursue. The consultant completing the study may assist with this application by providing, for example, equipment specifications and estimates of initial costs and energy savings. PSCo offers a rebate of \$400 per kW of demand reduced through implemented projects, with the rebate capped at 60% of the project cost. Projects with a simple payback period (before the rebate) of one year or less are not eligible.

PSCo’s *Process Efficiency* program is available to industrial customers with annual consumption of at least 20 GWh. The first step is a free energy management assessment and walk-through audit to identify the largest energy-saving opportunities. The second step is a more detailed engineering study, for which the customer pays 25%, up to \$7500. The third step involves the customer implementing projects or system optimization packages, for which the customer receives the standard rebates plus potential bonuses if targets are met. (See the Best Practices section above.)

Self-direction program

PSCo’s self-direction program is available for customers with peak demands of at least 2 MW and annual consumption of at least 10 GWh. The customer (or its consultant) does all the design, engineering, measurement and verification, which allows PSCo to pay higher rebates than those of the custom incentive program. The rebate is \$525/kW or \$0.10/kWh, whichever is greater. This is about 30% greater than the rebate available through the custom incentives program. (See Best Practices section above.)

Prescriptive rebates and other programs

PSCo offers prescriptive rebates for a wide variety of measures including lighting, motors, compressed air, HVAC, etc. Most of the energy savings achieved by Xcel in the C&I sectors come through the prescriptive rebate programs.

Savings and spending

The energy savings for various C&I programs implemented by PSCo in 2010 are shown in Table 8. PSCo was not able to estimate the percentage of the savings which can be attributed to industrial customers. *Process Efficiency* is an industrial program, while the self-direction and compressed air programs are mostly industrial. The custom incentive motor programs are a mix of commercial and industrial. Table 9 shows that PSCo's overall budget for these mostly industrial programs decreases by 10% in 2011 compared to the budget for 2010. The reduction in budget is due mainly to high initial implementation costs to get a program up and running, along with lower maintenance costs once it is established.⁴³

Marketing and trends

In addition to the key account managers for larger customers, PSCo has assigned "trade ally managers" to help provide outreach to business customers, including industries. The trade ally managers coordinate presentations and workshops for vendors, suppliers and consultants. This education and awareness process helps the customers in several ways. The vendors help make the customers aware of studies and rebate programs. In addition the vendors and consultants are then better equipped to provide customers with the best information about energy efficiency opportunities for their plants, and to help them complete custom rebate applications, which typically require detailed information about equipment specifications.⁴⁴

Table 8: PSCo – 2010 Energy Savings and Spending for Programs Targeted to Industrial Customers

Program	Net Energy Savings at Generator (MWh)	Spending (thous \$)	Benefit-Cost Ratio (TRC)
Custom incentives	7,404	\$1,833	2.9
Process efficiency	2,642	\$1,025	2.0
Self- Direction	8,965	\$1,888	2.2
Motors and drives	29,628	\$3,912	5.0
Compressed air	3,142	\$552	2.7
Total	51,781	\$9,210	3.9

Source: PSCo.⁴⁵ Note: PSCo uses the "modified" TRC ratio.

Table 9: PSCo – Commercial and Industrial Program Budgets

Program	2010 Budget (thous \$)	2011 Budget (thous \$)	Percentage Change, 2010-2011
Custom incentives	\$3,085	\$2,224	-27.9%
Process efficiency	\$1,575	\$1,198	-23.9%
Self- Direction	\$654	\$1,015	55.2%
Motors and drives	\$2,832	\$2,889	2.0%
Compressed air	\$1,209	\$1,101	-8.9%
Total	\$9,355	\$8,427	-9.9%

For more information, contact:

Kenny Romero
 Commercial DSM Product Manager
 Xcel Energy
kenny.romero@xcelenergy.com
 303-294-2466

Black Hills Energy – Colorado

Black Hills Energy serves a total of about 94,000 customers in southern Colorado. The utility offers prescribed and custom rebates for industrial customers.

Technical assistance and custom rebates

Black Hills partners with Colorado State University’s Industrial Assessment Center to offer one-day walk-through assessments to small and medium-size industrial customers. Custom rebates are available at the rate of 50% of the project’s incremental cost, or \$.25/kWh of first year energy savings, whichever is less.

Prescriptive rebates

Black Hills also offers industrial customers prescriptive rebates for energy-efficient lighting upgrades, high efficient unitary HVAC systems (rooftop units), and National Electrical Manufacturers Association (NEMA)-certified premium electric motors.

Savings and spending

As shown in Table 10 below, Black Hills is planning a large increase in spending for its commercial and industrial programs in fiscal year 2012. This increase corresponds with increased goals for energy savings. Black Hills’ budget for C&I programs stayed about the same from 2010-2011, but will increase by 24% from 2011-2012.

Table 10: Black Hills – FY 2010 Energy Savings and Spending for Programs for Industrial Customers

Program	Energy Savings (MWh)	Spending (thous \$)
Custom incentives	5,000	NA
Prescriptive incentives	5,300	NA
Total	10,300	\$1,700

Marketing and trends

Black Hills markets its programs to industrial customers through its key account managers, direct emails, periodic energy efficiency workshops, and through its trade allies.

To improve its industrial EE programs, Black Hills is considering more educational outreach geared towards specific technologies and processes such as heat recovery, motors, variable frequency drives (VFD), and HVAC systems. In the past several years, Black Hills has hosted educational outreach activities for its large C&I customers, including energy management training and technical training on lighting and motor systems.

For more information, contact:

Gene Mantei
Regional DSM Manager
Black Hills Energy
gmantei@blackhillscorp.com
719-546-6478

Public Service Company of New Mexico (PNM)

Public Service Company of New Mexico (PNM) is the main electric utility in New Mexico serving a total of about 500,000 customers. The utility offers a *Commercial Comprehensive* program, which includes prescription and custom rebates for C&I customers. PNM does not target any programs specifically to its industrial customers, nor does it track participation and energy savings separately for industrial and commercial customers.

Technical assistance and custom rebates

The commercial comprehensive program includes prescribed rebates for improvements to HVAC systems, lighting, refrigeration, and motors, as well as custom rebates for other, more system-wide efficiency improvements. Custom rebates are provided for pre-approved projects at the rate of \$.06/kWh for first year savings. The commercial comprehensive program does not include free or subsidized energy assessments.

Self-direction program

PNM has a self-direction program with defined rules. Customers with annual consumption of more than 7 GWh are eligible to participate in the program by applying for rebates for energy efficiency projects. The projects must have a payback period between one and seven years, and must be approved, but not necessarily in advance. For these approved projects, customers are eligible to receive rebates of up to 70% of the amount of the DSM fees paid by the customer in any one year. The DSM rider is 2.5% of the customers' electricity charge. There were no participants in the self-direction program 2010.

PNM spent nearly the same amount in 2011 as in 2010, and expects the amount of spending to increase by about 10% in 2012.⁴⁶

Table 11: PNM – 2010 Energy Savings and Spending for Programs Targeted to Industrial Customers

Program	Energy Savings (MWh)	Spending (thous \$)	Benefit-cost ratio (TRC)
Commercial Comprehensive	26,104	\$4,954	2.1
Easy Savings (small business)	2,390	\$433	4.0
Total	28,494	\$5,387	2.3

For more information, contact:

Steve Bean
Energy Analytics Manager
PNM
steven.bean@pnm.com
505-241-4475

Xcel Energy / Southwestern Public Service Co. (SPS) – New Mexico

Southwestern Public Service Company (SPS) serves about 110,000 customers in southeastern New Mexico. (SPS also serves customers in Texas.) SPS has a large customer technical assistance and custom rebate program, a self-direction program, and has begun offering energy assessments to the oil and gas industry.

Technical assistance and custom rebates

Beginning in 2011, SPS has a “large customer C&I study” program, similar to Xcel Energy’s *Process Efficiency* program in Colorado, which offers subsidized energy assessments and custom incentives for large customers.

Most of SPS’ largest industrial customers are oil and gas producers, which can be difficult to engage in energy efficiency programs. In 2011 SPS launched a new program for this sector and conducted free energy assessments for ten oil and gas operations. The assessments, valued at approximately \$10,000 each, identified a variety of energy-saving opportunities. SPS plans to conduct more assessments for the oil and gas sector in 2012, and expects to begin to see results from projects identified in 2011.

Self-direction program

SPS also has a self-direction program, similar to Xcel/PSCo’s program.

Table 12: SPS – 2010 Energy Savings and Spending for Programs Targeted to Industrial Customers

Program	Energy Savings⁴⁷ (MWh)	Spending (thous \$)	Benefit-Cost Ratio (TRC)
Custom efficiency	111	\$105	1.2
Motor and drive (prescriptive)	524	\$109	2.8
Total	635	\$214	2.5

For more information, contact:

Kenny Romero
Commercial DSM Product Manager
Xcel Energy
kenny.romero@xcelenergy.com
303-294-2466

Arizona Public Service Company (APS)

APS is the largest electric utility in Arizona, serving a total of about 1.1 million customers. Under its non-residential programs, APS has a *Large Existing Facilities* program, which includes both prescriptive and custom incentives. APS also offers technical assistance/studies, and has a self-direction program. APS does not track energy savings for industrial customers separately from other commercial customers.

Technical assistance and custom rebates

APS provides support for energy studies, which could be a comprehensive audit or a study of a specific system. APS will pay for 50% of the study costs, up to \$10,000. The studies include analysis of the first costs of energy efficiency measures, amount of potential incentives, net costs, and estimated energy and dollar savings. For implementation assistance, APS refers companies to its trade allies, a group of more than 300 qualified contractors and consultants listed on its web site. APS provides custom incentives of \$.11/kWh, up to 50% of the incremental project costs.

APS teams with the local chapter of the Association of Energy Engineers (AEE) to offer a variety of energy efficiency technical training classes. The Certified Energy Managers (CEM) training, a semester-long class, is offered once a year. In addition, APS provides a variety of one-day technical training classes on topics such as energy studies, motors, pumps, HVAC, and energy simulation.

Self-direction program

The self-direction program is available to customers that consume over 40,000 MWh/yr of electricity. Currently, only one large customer participates in this program. APS provides incentives for approved projects up to 85% of what the customer pays to the DSM program, or 100% of the project cost. Projects must meet the societal cost test (SCT), but there are no other specific thresholds such as a one-year payback period. As a result, APS' self-direction program costs about 50% more per kWh saved than other APS energy efficiency programs.

Prescriptive rebates and other programs

In addition to lighting, HVAC systems, and high efficiency motors, APS provides prescriptive rebates for energy information systems and refrigeration systems. APS also has a special program for large pumping systems, which mainly applies to agricultural irrigation systems, and water and wastewater treatment facilities. In this program, contractors evaluate the performance of pumping systems and make energy efficiency recommendations, which can include prescriptive measures such as variable frequency drives (VFDs) and more efficient pumps/motors, as well as custom measures.

Savings and spending

APS achieved 117,000 MWh of savings in 2010 through the *Large Existing Facilities* programs described above. The total non-residential program savings for 2010 was 174,000 MWh, which is more than 1% of total C&I sales for 2010. Table 13 shows the energy savings for APS programs with a strong industrial

orientation for 2010. The budget for the *Large Existing Facilities* program, the main program targeted to industrial customers, increased by 27% from 2010-2011.

Table 13: APS – 2010 Energy Savings and Spending for Programs Targeted to Industrial Customers

Program	Net Savings (MWh)	Spending (thous \$)	Benefit-Cost Ratio (SCT)
Large Existing Facilities	117,260	\$11,570	4.0
Energy Information	620	\$60	3.3
Total	117,880	\$11,630	4.0

Note: APS uses the societal cost test (SCT) rather than the total resource cost test (TRC).

Marketing of programs

For facilities with loads of more than 1 MW, APS markets its *Large Existing Facilities* program through its key account managers (called “relationship managers”) and through its trade allies.

Future enhancements

APS is considering new programs targeting compressed air systems and refrigerated warehouses, as well as a technical assistance and incentives program targeting combined heat and power (CHP) applications.

In addition to these specific programs, APS would like to do a better job with segmentation of its industrial customers, and is considering how to design programs to better meet the needs of the industrial sector.⁴⁸

For more information, contact:

Wayne Dobberpuhl
 Senior Account Executive
 Arizona Public Service
wayne.dobberpuhl@aps.com
 602-250-2535

Salt River Project (SRP)

Salt River Project (SRP) is a publicly-owned utility serving about 940,000 electricity customers in the Phoenix, Arizona area. SRP offers prescriptive and custom rebates, technical assistance, and has a self-direction program for its larger customers.

Technical assistance and custom rebates

SRP's *Custom Business Solutions* program provides custom rebates and both preliminary and comprehensive facility assessments to SRP's large C&I customers. SRP pays up to \$3,000 for preliminary studies, and will pay 50% of the comprehensive assessment cost, up to \$15,000. In addition, SRP will pay for the remaining 50% of the assessment if the customer implements at least one "significant" recommendation from the study. Typically, the customer is required to pay its 50% share up front, and agrees in writing to implement one or more significant measures in order to get reimbursed. ("Significant" means one of the three or four larger measures that the study identifies.) SRP also pays the custom rebate of \$.11/kWh for first year savings for measures identified and implemented through the assessments. Custom rebates are capped at 50% of the cost of the measure (or incremental cost for equipment replacement projects). SRP also offers a compressed air assessment and equipment rebate program.

As of FY 2011, the *Custom Business Solutions* rebate program now includes custom rebates, technical assistance (formerly "large business solutions"), self-direction, and compressed air. SRP feels that this consolidation provides more focus to its C&I programs, simplifies participation processes for the customer and administrator, and allows better marketing of the program.

Self-direction program

SRP offers a self-direction program which offers the same incentives as the custom rebate program, with a larger cap on total incentives. Self-direction customers can receive rebates up to the total amount the customer contributes to the energy efficiency program fund over a given two-year period. The two-year period allows customers to pool the money for larger projects than a one-year period would allow. (Self-direction customers are exempt from the annual rebate cap for other C&I programs of \$200,000 per program or \$300,000 per customer for all SRP C&I programs.)

Prescriptive rebates

SRP offers prescriptive incentives through its *Standard Business Solutions* program for measures including lighting, HVAC systems, compressed air equipment, select motors, refrigeration systems, and VFDs.

Total savings and budgets

The estimated 2010-2011 savings for C&I programs targeted to industrial customers are shown in Table 14 below, and budgets are shown in Table 15. Budgets and savings goals are increasing; SRP's Board has

approved a goal of achieving a 20% sustainable portfolio (combination of energy efficiency and renewable energy) by 2020.⁴⁹ So far, SRP’s overall sustainability budget is allocated at about 50% energy efficiency and 50% renewable energy.

Table 14: SRP – FY 2011 Energy Savings for Programs Targeted to Industrial Customers

Program	Total Energy Savings (MWh)	Benefit-Cost Ratio (TRC)
Standard Business	40,500	4.2
Custom Business Solutions (including self-direct and technical assistance)	20,900	2.0
Compressed air	2,700	3.0
Total	64,100	3.3

Table 15: SRP – Budget for C&I Programs

FY 2010 Budget (million \$)	FY 2011 Budget (million \$)	FY 2012 Budget (million \$)	Percentage Increase, 2011-2012
\$5.4	\$8.0	\$11.1	39%

Marketing and trends

The C&I programs for industrial customers are mainly marketed through trade allies and the 2-3 key account managers that support its large industrial customers. SRP tries to bring quality trade allies to the table. Nexant, the consulting firm which administers SRP’s C&I programs, has brought in many qualified trade allies, such as specialists in compressed air systems experts for mines, to serve industrial customer’s specific needs.

<i>For more information, contact:</i>
Dan Dreiling Commercial DSM Program Manager Salt River Project Daniel.Dreiling@srpnet.com 602-236-8833

Tucson Electric Power (TEP)

TEP, a subsidiary of Unisource, is an investor-owned electric utility serving about 400,000 customers in the Tucson, Arizona area.

Prescriptive and custom incentive programs

TEP offers prescriptive and custom rebates through its *Large Business* program. In 2012 TEP will increase the custom incentives from \$.10/kWh to \$.12/kWh of first year savings, and will allow incentives to cover up to 75% of the project costs (up from 50%). TEP does not offer any technical assistance or subsidized energy assessments.

Pilot programs

TEP launched two pilot programs in 2011. The *Bid for Efficiency* program allows TEP to receive bids from energy service companies (ESCO's) or consultants who can aggregate projects from smaller customers. The program could also involve some large industrial customers. The Combined Heat and Power (CHP) pilot is a joint program with Southwest Gas Company. TEP provides outreach and marketing support to Southwest Gas, which also provides incentives for CHP projects. TEP will pay up to 10% of project design costs for CHP projects.

Table 16: TEP – 2011 Energy Savings and Spending for Programs Targeted to Industrial Customers

Program	Projected Energy Savings (MWh)	Spending (thous \$)
C&I Comprehensive program	29,600	\$4,040
Bid for Efficiency (pilot)	2,000	\$400
CHP Joint program (pilot)	7,900	\$75
Total	39,500	\$4,515

For more information, contact:

Jeff Hunter
Commercial Program Manager
Tucson Electric Power
jhunter@tep.com
520-918-8336

NV Energy

NV Energy serves about 830,000 customers in southern Nevada, including Las Vegas, operating as Nevada Power Co., and 320,000 customers in northern Nevada operating as Sierra Pacific Power Co. Sierra Pacific Power serves several large mining companies, while there is very little industrial activity in Nevada Power's service territory.

Commercial retrofit incentive program

Both Sierra Pacific and Nevada Power offer a commercial retrofit incentive program, which features custom and prescriptive incentives. NV Energy pays custom incentives at the rate of \$.10/kWh for on-peak reductions and \$.05/kWh for off-peak reductions, capped at 50% of incremental project costs.

NV Energy also offers technical assistance in the form of free walk-through assessments or analysis of potential energy efficiency projects. NV Energy does not have a self-direction program, and currently does not have any specific programs targeted to industrial customers.

Energy savings and spending

Table 17 provides energy savings and spending for the commercial retrofit program in 2010. NV Energy expects the C&I budget to decrease slightly in 2012.

Table 17: NV Energy – 2010 Savings and Spending for Programs Targeted to Industrial Customers

Utility / Program	Energy Savings ⁵⁰ (MWh)	Industrial Savings ⁵¹	Spending (thous \$)	Benefit-cost ratio for all C&I programs (TRC)
SPPC commercial retrofit incentives	30,316	10.2%	\$3,065	2.3
NPC commercial retrofit incentives	108,410	2.5%	\$7,530	2.7
NV Energy Total	138,730	4.2%	\$10,595	2.6

For more information, contact:

Michele Lindsay
Commercial DSM Program Manager
NV Energy
mlindsay@nvenergy.com
702-402-5420

Endnotes

- ¹ U.S. Energy Information Administration (EIA), State Energy Data System, table C1, http://www.eia.gov/state/seds/hf.jsp?incfile=sep_sum/html/sum_btu_1.html, and Electricity Data, Table 5.1,
- ² 2010 DSM reports of the utilities listed. For TEP, the number listed is estimated savings for 2011, based on TEP's projected savings for 2011 and 2012 combined.
- ³ EIA, Electricity data, Industrial and commercial sectors by state and utility, Energy Information Administration, <http://205.254.135.7/electricity/data.cfm#sales>.
- ⁴ 2010 DSM report for Rocky Mountain Power; for others, the estimated percentages (if shown) are based on personal communications with the C&I DSM program managers.
- ⁵ "Unlocking Energy Efficiency in the U.S. Economy," McKinsey & Company, July 2009, <http://www.mckinsey.com/USenergyefficiency>.
- ⁶ "Colorado DSM Market Potential Assessment," KEMA, 2010, Figures 5-2 and 5-4. Note that the 12% savings potential by 2020 is based on cumulative potential savings from 2010-2020, or in other words potential first year savings of about 1.2% per year.
- ⁷ State and Local Energy Efficiency Action Network, Industrial Energy Efficiency and Combined Heat and Power Working Group, U.S. Department of Energy, http://www1.eere.energy.gov/seeaction/combined_heat_power.html.
- ⁸ EIA, Electricity Data, <http://www.eia.gov/electricity/data.cfm#sales>.
- ⁹ EIA, Electricity data, Retail sales of electricity to ultimate customers, by end-use sector by state and utility, <http://205.254.135.7/electricity/data.cfm#sales>
- ¹⁰ Michelle Lindsay, personal communication, January 10, 2012. There is an apparent error in the EIA's data for industrial electricity consumption for Nevada Power, so we obtained data on industrial consumption directly from Ms. Lindsay.
- ¹¹ For NV Energy, technical assistance provided is mainly walk-through assessments targeted to commercial facilities.
- ¹² 2010 DSM reports of the utilities listed. For TEP, the number listed is estimated savings for 2011, based on TEP's projected savings for 2011 and 2012 combined.
- ¹³ 2010 DSM report for Rocky Mountain Power; for others, the estimated percentages (if shown) are based on personal communications with the C&I DSM program managers.
- ¹⁴ EIA, Electricity data, Industrial and commercial sectors by state and utility, Energy Information Administration, <http://205.254.135.7/electricity/data.cfm#sales>.
- ¹⁵ 2010 DSM reports for the utilities listed.
- ¹⁶ EIA, electricity terms, <http://www.eia.gov/cneaf/electricity/page/glossary.html#ij>.
- ¹⁷ Manufacturing Energy Consumption Data tables, Table 5.4, 2006, <http://38.96.246.204/emeu/mecs/mecs2006/2006tables.html>
- ¹⁸ See Tables 1 and 2 and associated references.
- ¹⁹ EIA, electricity terms, <http://www.eia.gov/cneaf/electricity/page/glossary.html#ij> (italics added).
- ²⁰ "Energy FinAnswer," <http://www.rockymountainpower.net/bus/se/epi/utah/ilc/ef.html>
- ²¹ Jim Crockett, personal communication (Dec. 30, 2011), Salt Lake Engineering Manager, Nexant, jcrockett@nexant.com, 801-639-5603.
- ²² "2010 Energy Efficiency and Peak Reduction Report - Utah," Rocky Mountain Power, http://www.swenergy.org/news/news/documents/file/RMP_2010_UT_DSM_Annual_Report.pdf, p. 6.
- ²³ Jim Crockett, personal communication (Dec. 30, 2011), Salt Lake Engineering Manager, Nexant, jcrockett@nexant.com, 801-639-5603.
- ²⁴ Dominic Kennedy, personal communication (Nov. 29, 2011), Associate Product Portfolio Manager, Xcel Energy, email dominic.w.kennedy@xcelenergy.com.
- ²⁵ "Public Service of Colorado Preliminary 2011 DSM Savings and Annual Goals," Xcel Energy.
- ²⁶ Kenny Romero, personal communication (Nov. 30, 2011), Commercial DSM Product Manager, Xcel Energy, email Kenny.romero@xcelenergy.com.
- ²⁷ "Self-direct Custom Efficiency," Xcel Energy, http://www.xcelenergy.com/Save_Money_&_Energy/For_Your_Business/Customized_Solutions/Self_Direct_-_CO.

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- ²⁸ “2010 Demand Side Management Annual Status Report,” Xcel Energy/Public Service Company of Colorado, April 2011.
- ²⁹ Christopher Helmers, personal communication (March 8, 2012), Energy Efficiency Program Manager, Rocky Mountain Power, email christopher.helmers@pacificorp.com.
- ³⁰ H. Geller, J. Bumgarner, and D. Dent, “The Utah Story: Rapid Growth of Utility Demand-Side Management Programs in the Intermountain West,” Proceedings of the 2010 ACEEE Summer Study on Energy Efficiency in Buildings, American Council for an Energy-Efficient Economy, Washington, DC.
- ³¹ “Energy Efficiency and Peak Reduction Report,” Pacificorp,
http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2010_UT_DSMAnnualReport_9-12-11.pdf.
- ³² “Equipment Efficiency Directory,” Xcel Energy,
http://www.xcelenergy.com/Save_Money_&_Energy/For_Your_Business/Equipment_Efficiency.
- ³³ “Energy Efficiency and Peak Reduction Report,” Pacificorp,
http://www.pacificorp.com/content/dam/pacificorp/doc/Energy_Sources/Demand_Side_Management/2010_UT_DSMAnnualReport_9-12-11.pdf
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- ³⁵ Jennifer Eskil, “Boots on the Ground: Overcoming staff shortages to work with utilities and industries,” ACEEE Summer Study on Energy Efficiency in Industry conference proceedings, <http://aceee.org/proceedings>.
- ³⁶ U. S. EIA, Electricity Data, Table 10 – Class of ownership, number of consumers, sales, revenue, and average retail price by state and utility, <http://205.254.135.24/electricity/data.cfm#sales>
- ³⁷ “2010 Energy Efficiency and Peak Reduction Report - Utah,” Rocky Mountain Power,
http://www.swenergy.org/news/news/documents/file/RMP_2010_UT_DSM_Annual_Report.pdf, p. 16. In 2010 RMP exceeded its goals for the Energy FinAnswer program (for which most of the savings come from industrial), and for the self-direction program.
- ³⁸ “Energy FinAnswer Program,” Rocky Mountain Power,
<http://www.rockymountainpower.net/bus/se/epi/utah/ilc/ef.html>
- ³⁹ H. Geller, J. Bumgarner, and D. Dent, “The Utah Story: Rapid Growth of Utility Demand-Side Management Programs in the Intermountain West,” Proceedings of the 2010 ACEEE Summer Study on Energy Efficiency in Buildings, American Council for an Energy-Efficient Economy, Washington, DC.
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