

ROSHKA DeWULF & PATTEN



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ROSHKA DeWULF & PATTEN, PLC
ATTORNEYS AT LAW
ONE ARIZONA CENTER
400 EAST VAN BUREN STREET
SUITE 800
PHOENIX, ARIZONA 85004
TELEPHONE NO 602-256-6100
FACSIMILE 602-256-6800

ORIGINAL

February 20, 2009

Docket Control
Arizona Corporation Commission
1200 West Washington
Phoenix, Arizona 85007

RE: DOCKET NO. E-00000J-08-0314/G-00000C-08-0314

Dear Sir/Madam:

Enclosed please find the responses of Tucson Electric Power Company, UNS Gas, Inc. and UNS Electric, Inc. to questions set forth in Staff's January 30, 2009 letter filed in the above dockets.

Sincerely,

Michael W. Patten

MWP:mi
Enclosures

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**TUCSON ELECTRIC POWER COMPANY'S, UNS ELECTRIC, INC.'S AND UNS GAS,
INC.'S RESPONSES TO STAFF'S SECOND SET OF QUESTIONS FOR DISCUSSION
IN THE ENERGY EFFICIENCY WORKSHOP
DOCKET NOS. E-00000J-08-0314 / G-00000C-08-0314
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STF 2.1

Which energy efficiency programs and program strategies are most effective in assisting particular customer segments such as low and moderate income residential customers, households on fixed incomes, customers in existing homes (owner-occupied and rental), schools, local governments, small businesses, and large businesses?

RESPONSE:

Tucson Electric Power Company's ("TEP"), UNS Electric, Inc.'s ("UNS Electric") and UNS Gas, Inc.'s ("UNS Gas") (collectively referred to as the "Companies") current DSM portfolios include many of the most proven and cost-effective program designs to achieve efficiency savings across a spectrum of customer types. Specifically, direct install programs are generally the best delivery method for hard-to-reach markets, such as low-to-moderate income customers and small businesses.

These types of programs typically offer to install energy efficiency measures at no, or very low, incremental cost to the customer in order to gain access to markets that are not sophisticated energy users and have not historically participated in energy efficiency initiatives. These types of programs generally consist of installing a higher volume of measures that have relatively small energy savings on a per measure basis. Weatherization, hot water, and CFL measures generally dominate residential direct install programs, while linear fluorescent lighting dominates non-residential direct install programs.

Some programs are effective at targeting specific markets with specific technologies. For example, almost all convenience stores have refrigeration systems that contribute to a significant portion of energy used by this market. Programs designed to achieve energy efficiency in this market by retrofitting cooler condenser motors and cooler door antifreeze/anti-fog controls have proven successful in many areas. Programs that target larger customers tend to offer a broad range of lighting and HVAC measures, and frequently include incentives for both energy (kWh and therms) and demand (kW), depending on factors such as transmission constraints, peaking capacity, etc.

In the past several years, programs that target large customers including government entities, campuses, and industrial sites, feature both energy efficiency and demand response capability. For example, a government entity that operates multiple large buildings may benefit from a monitoring-based retro-commissioning program that promotes centralized energy management systems ("EMS") to monitor and maintain commissioning-based energy savings. This same EMS can be used to

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implement a cost effective automated demand response program that yields large load sheds as needed to meet system demands.

RESPONDENT: Denise Smith

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STF 2.2

What studies have the Arizona utility companies or other parties conducted over the past decade regarding the various energy efficiency options available in Arizona?

- a. Which options produced the best in energy savings/costs?
- b. Which produced the most energy efficient jobs?
- c. Please provide data for, but not limited to, the following options:
 1. Home Energy Audits;
 2. Solar water heater systems;
 3. Insulation/weatherization of residential properties and commercial properties;
 4. Incentives and rebates for Energy Star appliances; and
 5. Landscaping to provide shading and passive solar.

RESPONSE:

In 2008, an analysis of a portfolio of programs was performed at each of the Companies using research conducted by Summit Blue Consulting. In 2006, UniSource Energy Services performed a market assessment of the new home construction practices in Northern Arizona as well as Santa Cruz County. TEP has conducted two formal studies and several informal studies in the new home market over the past decade to determine the demand and energy savings from the "TEP Guarantee Home Program."

- a. Of the programs implemented during 2008, the Energy Star Lighting Program – a manufacturer's buy-down program - has experienced the greatest success, achieving 129% of the sales goal for the year within the first six months of program release. Additionally, the Small Business Program - a direct install program – was introduced late in the year and has generated a significant number of applications.
- b. Due to the recent implementation and refinement of many of the Companies' DSM programs, the Companies cannot determine which program(s) has produced the most energy efficient jobs.

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- c. 1. Home Energy Audits: For the last few years, TEP has offered customers an on-line Energy Analysis in order to provide our customers with a tool to manage their energy consumption. However, the Companies do not have any specific data from Home Energy Audits
2. Solar water heaters: With the implementation of the Renewable Energy Standard and Tariff ("REST") rules in June 2008, TEP has paid rebates on 171 residential solar water heaters.
3. Insulation/Weatherization of residential and commercial properties: The Companies have contributed over \$300,000 in 2008 to weatherization agencies to weatherize and insulate low-income households. The Companies do not have any other data as those agencies determine how these funds will be disbursed. However, the Companies understand that, as a stand-alone program, the installation of insulation or other weatherization measures in low-income residential homes is not always cost-effective.
4. Incentives for Energy Star Appliances: The Companies have had no experience to date in marketing energy star appliances, but are aware that programs modeled on this concept in the State of Arizona have had difficulty passing cost-effectiveness tests.
5. Landscaping to provide shading and passive solar: Since 1993 TEP and Trees for Tucson have jointly offered the Shade Tree Program to encourage planting low-water use trees that provide shading to reduce the cost of air conditioning in existing and new homes. TEP has been responsible for successfully planting over 61,000 shade trees since program implementation. This program also provides positive environmental impacts. Documented evidence of the benefit of shading is provided in the Desert Southwest Community Tree Guide by E. Gregory McPherson & James R. Simpson. TEP's Trees for Tucson is one of the most cost-effective programs in the Companies' portfolios with a Total Resource Cost test of over 3.

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STF 2.3

How can the energy efficiency efforts and programs be increased to provide even more benefits to customers? Specifically, how can the energy efficiency programs reach more customers and provide greater energy savings for each customer?

RESPONSE:

In order to increase energy efficiency benefits to customers, the Commission should remove the current disincentives and adopt revenue incentives for utilities, as discussed in the response to STF 2.13.

End user participation is generally tied to program awareness, and directly correlated to spending on marketing and outreach activities. It is likely that increasing funding for these activities above current levels will yield additional participation. Targeting vendor participation through training and vendor incentives can also help drive participation. In addition, increased customer incentives will result in increased participation. Incremental costs and free-ridership must be evaluated to confirm that incentive funds are achieving the desired market effects.

RESPONDENT: Denise Smith

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- STF 2.4**
- a. Are there additional cost-effective energy efficiency programs or enhancements of existing programs that should be implemented?
 - b. What new energy efficiency programs or measures, such as direct install, could be implemented to enhance energy efficiency for utility customers?

RESPONSE: The Companies submit the following additions or enhancements to energy efficiency programs for consideration:

- a. Enhancement to existing programs:
 - 1. Increase funding to Small Business Program with 100% incremental costs;
 - 2. Increase funding to Large Business Program with 100% incremental costs;
 - 3. Increase funding for Commercial New Construction Program;
 - 4. Increase funding for both TEP's and UNS Electric's CFL Programs;
 - 5. Expand existing HVAC Program to include tune-up and duct repair (existing homes);
 - 6. Increase UNS Gas Commercial and Industrial Program to include more cooking measures; and
 - 7. Install CFLs in all Residential New Construction Program homes.
- b. Potential new programs:
 - 1. Window film for existing commercial customers;
 - 2. Window film for existing residential customers;
 - 3. Retro-commissioning for commercial customers;
 - 4. Efficient Products Program to focus on promotion of new energy efficient equipment (pool pumps, smart plug-load

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- strips clothes washers, room air-conditioners and electronics);
5. Direct buy-down option for commercial lighting products; and
 6. An early retirement and replacement program for residential and commercial HVAC systems.

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STF 2.5 Are there specific actions the Commission should take to support energy efficiency programs?

RESPONSE: Yes, there are a number of regulatory elements and constraints that the Commission could re-evaluate that would support the successful implementation of energy efficiency programs with respect to the design, and reporting of utility DSM programs.

Generally, it takes between 6 and 12 months from the time a utility files a new DSM program plan and the time the Commission approves the DSM program plan. There are a few items the Commission could consider to make the process more efficient:

1. In order to increase energy efficiency benefits to customers, the Commission should remove the current disincentives and adopt revenue incentives for utilities, as discussed in the response to STF 2.13.
2. Discontinue the process of re-calculating the total resource cost ("TRC") after utilities have already spent significant time and energy to conduct thorough cost-effectiveness tests and have provided details and results of all calculations to Staff. This is a duplication of effort that rarely changes the scope of the program. We suggest it would be best to establish a technical working group consisting of utility personnel and Commission Staff that would meet periodically, either in-person or via teleconference, to review the benefit-cost model we use, discuss inputs, and reach agreement on procedures and processes for calculating benefit-cost tests.
3. Allow utilities to implement programs based on the total program cost-effectiveness as measured by the TRC test, not individual measure cost-effectiveness. This flexibility will allow the utility a broader suite of efficiency measures to market to customers, which will lead to greater participation.
4. Allow utilities more flexibility on program implementation and spending after the programs are approved. Utilities should have the flexibility to shift funds appropriately as market conditions necessitate, including the increase of funding up to a pre-set percentage on a successful program.

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5. Reduce reporting requirements from semi-annual to annual filings, and limit the information required for participation, financial and savings statistics.
6. Add properly designed cost-recovery. Please see the response to STF 2.13.

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STF 2.6 Are there procedural options available to the Commission to accelerate progress towards increased energy efficiency?

RESPONSE: Please see the response to STF 2.5.

RESPONDENT: Denise Smith

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STF 2.7 Would an annual energy efficiency standard or goal heighten the utilities' incentive to manage energy efficiency programs to maximize results?

RESPONSE: At this time, the Companies do not believe that an energy efficiency standard is necessary for utilities to implement effective DSM programs in Arizona. A correctly designed performance incentive would be the best mechanism to heighten the utilities' incentive to manage energy efficiency programs to maximize results. (Please see the response to STF 2.13.)

However, if an energy efficiency standard is adopted, the Commission should consider the circumstances of each utility. There are a few items that concern the Companies, if such a standard is required:

- a. The Commission should remove the current disincentives and adopt revenue incentives for utilities, as discussed in the response to STF 2.13.
- b. Energy efficiency standard ramp-up: The Companies are on a different implementation time-line than other utilities. All DSM programs for the Companies began during the last half of 2008. The ramp-up (percent required by year) should consider where each utility is in the implementation cycle.
- c. Gas utilities: The opportunity to achieve savings for an electric utility is much higher than for a gas utility, simply due to the greater number of end-use electric appliances as compared to gas appliances. Therefore, gas utilities should be held to a lower percentage standard.
- d. Rural communities: The opportunity to achieve savings in rural communities is significantly less than opportunities that exist in the larger metro areas. Furthermore, the availability of resources, such as contractors, and the product supply is more limited.

RESPONDENT: Denise Smith

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STF 2.8

What energy savings goals or standards should be set to increase energy efficiency in Arizona? How should an energy efficiency standard or goal be based (for example, on load or total resources), and at what level?

RESPONSE:

Across North America, comparative benchmarking research of DSM programs shows that, in general, the more aggressive DSM programs are investing approximately 2% of gross revenues and achieving savings equivalent to approximately 1% of sales. The most aggressive DSM programs in the country are spending upwards of 3-4% of revenue on DSM and achieving slightly less than 2% of sales (e.g., Vermont, California).

At this time, the Companies do not believe that an energy efficiency standard is necessary for utilities to implement effective DSM programs in Arizona. A correctly designed performance incentive would be the best mechanism to heighten the utilities' incentive to manage energy efficiency programs to maximize results.

RESPONDENT: Denise Smith

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STF 2.9 How should the results of energy efficiency programs be publicly reported so that Arizona consumers can easily assess the effectiveness of those programs?

RESPONSE: Utilities already prepare semi-annual and annual reports for Commission review. The Commission could host a web-site and post specific tables from each utility's semi-annual and annual DSM program results.

RESPONDENT: Denise Smith

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STF 2.10 What are the likely impacts on utility companies of increasing energy efficiency?

RESPONSE: The positive impacts on utility companies of increasing energy efficiency will be avoided power plant costs, avoided purchased power, positive environmental impacts, and a positive impact on public relations.

One negative impact on utility companies from increasing energy efficiency will be higher costs for customers from the increase in the adjustor mechanism with the off-set of the above factors. Customers bear the additional costs for not only energy efficiency but also for renewable energy, even if they do not personally benefit from program offerings.

The second negative impact on utility companies from increasing energy efficiency will be lost revenue. Unless a process is developed to assist utilities recover lost revenue from successful energy efficiency programs, utilities will experience a reduction in operating capital and a reduction of shareholder value. As such, we believe these issues are worthy of significant attention and that mechanisms to make the utility whole, including the opportunity to earn a reasonable rate of return, is essential to develop more comprehensive and robust energy efficiency programs.

RESPONDENT: Denise Smith

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STF 2.11 What role can or should decoupling play in efforts aimed at energy efficiency?

RESPONSE: Decoupling, by design, is intended to remove the motivation of the utility to increase sales as a way to assure recovery of cost and an opportunity to earn a reasonable return. By negotiating a process to recover costs that are essentially fixed and an opportunity to earn a reasonable rate of return that is not dependent on actual quantities of kWh or therms delivered, the load growth incentive is minimized. As such, the role of decoupling or any other such policies or mechanisms must be enacted in order to increase energy efficiency.

RESPONDENT: Dallas Dukes

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STF 2.12

In addition to decoupling, what other incentives, such as performance incentives, could be used to counter the disincentive of reduced sales that arise from energy efficiency programs?

RESPONSE:

Performance incentives have become a common feature of efficiency programs across the United States. The most aggressive DSM programs almost always include some type of performance-based incentive to advance efficiency goals and motivate utilities to achieve results.

Performance-based incentives, if properly designed and monetized, can achieve multiple goals. If results are achieved, the utility is rewarded with a cash incentive large enough to off-set the lost sales revenue and provide a return on assets. (Please see the response to STF 2.13.)

RESPONDENT:

Dallas Dukes

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STF 2.13

How should a performance incentive be structured?

RESPONSE:

DSM is often discussed as a resource addition to the utilities' portfolio mix. If DSM and energy efficiency are to be taken seriously, the Commission should adopt incentives similar to the traditional return utilities recover on assets. The intended result of any energy efficiency program is the reduction of energy consumption and/or demand. While the reduction of energy consumption reduces the variable and/or fixed costs of producing energy for an electric utility, it also reduces the revenue derived from energy consumption based rates. This reduces the opportunity for the utility to earn a return on assets. There are three basic financial concerns regarding the utilities' implementation of energy efficiency programs:

- a. Timely and transparent recovery of program costs – This is an essential factor in effective utility energy efficiency programs. TEP, UNS Electric and UNS Gas all have DSM adjustor mechanisms which are adjusted for under/over recovery from the previous year, plus the estimated spending for the current year. This estimated cost is then divided by the corresponding billing determinates. The current adjustor mechanism allows for new cost-effective programs to be implemented between rate cases. Timely and transparent recovery through the adjustor mechanisms is necessary, but does not allow utilities recovery of lost revenue. Therefore, an adjustor mechanism alone is not sufficient to encourage aggressive implementation of energy efficiency programs due to lost revenues and the need for a performance incentive.
- b. Recovery of lost revenues – Utilities should be able to recover these lost revenues between rate cases. This could be done in the form of decoupling or other policies such as an enhanced performance incentive as discussed below.
- c. Performance incentive – If DSM is to be taken seriously as a resource then the utilities must gain an equivalent return to their investment in utility plant. TEP's performance incentive is shared, with customers at 90 percent and TEP at 10 percent of the overall net benefits of its DSM Portfolio. The performance incentive also has a cap of 10 percent of DSM spending.

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Significantly raising the cap on the net benefits and spending cap would send an enhanced signal to utilities to more aggressively implement additional DSM programs.

RESPONDENT: Denise Smith

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STF 2.14 How can funding mechanisms be modified to increase utilities' incentive to more fully engage in energy efficiency programs?

RESPONSE: Please see the response to STF 2.13. An increased performance based incentive can facilitate more successful DSM delivery.

RESPONDENT: Denise Smith

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STF 2.15 Is additional funding needed for energy efficiency programs and, if so, what level of funding would produce the most benefits in relation to the cost?

RESPONSE: Additional funds would allow some existing programs to achieve greater savings and allow utilities to expand program offerings. Because the existing UNS Gas and UNS Electric portfolios are relatively new overall, it is uncertain which programs would benefit the most. This uncertainty is the focus of ongoing measurement, evaluation and research.

RESPONDENT: Denise Smith

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STF 2.16 If the Federal Economic Recovery package is adopted and includes significant funding for energy efficiency programs, how best should these monies be spent to enhance energy efficiency in Arizona?

RESPONSE: If the Federal Economic Recovery package is adopted and includes significant funding for energy efficiency programs, the Companies would concentrate on those programs outlined in STF 2.4, as utilities are in the best position to develop, implement and manage individual programs.

The Commission, using validated energy saving reports that show the impact of energy efficiency programs on lost revenue, should provide utilities a mechanism to recoup lost revenue created by programs funded by the Federal Economic Recovery package.

RESPONDENT: Denise Smith

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STF 2.17 What specific energy efficiency programs, measures or delivery mechanisms would produce the most results from additional funding?

RESPONSE: For residential DSM programs, the most cost-effective opportunities remain with residential lighting. Even though CFL awareness and saturation continues to increase, significant market opportunities remain, especially in the TEP territory where the promotion of CFLs is still relatively new. Additionally, CFL technologies continue to improve, which will allow for more confident and wide-spread promotion of specialty CFL bulbs, such as dimmable and three-way bulbs. The TEP marketplace has the potential for significantly higher investment in CFL promotion, and the existing TEP CFL Buy-down Program will benefit from increased funding.

For commercial DSM programs, the most significant cost-effective opportunity is also commercial lighting. The Companies believe that with larger budgets, increased program promotion and trade ally participation, significantly higher DSM savings from commercial lighting can be achieved. Increased investment for motors and variable frequency drives, as well as for compressed air systems, will also yield highly cost-effective savings. New programs will be designed as direct install, when appropriate, to encourage higher participation and the creation of new jobs.

RESPONDENT: Denise Smith