



ORIGINAL
NEW APPLICATION



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Sulphur Springs Valley Electric Cooperative, Inc.

A Touchstone Energy® Cooperative



311 E. Wilcox, Sierra Vista AZ 85635

June 1, 2011

HAND DELIVERED

Docket Control
Arizona Corporation Commission
1200 W. Washington Street
Phoenix, AZ 85007

E-01575A-11-0223

Re: In the Matter of the Application of Sulphur Springs Valley Electric Cooperative, Inc. ("SSVEC")
For Approval of its 2012 and 2013 DSM/EEE Implementation Plan ("2012-2013 DSM Plan")
Filed Pursuant to A.A.C. R14-2-2401, *et seq.*

Docket No. E-01575A-11-_____

To Whom It May Concern:

Pursuant to A.A.C. R14-2-2401, *et seq.*, SSVEC hereby submits for Arizona Corporation Commission approval its 2012-2013 DSM Plan.

All communications concerning this application should be sent to:

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Arizona Corporation Commission
DOCKETED

MAY 31 2011

DOCKETED BY nr

Respectfully Submitted,

David Bane
Key Account Manager

AZ CORP COMMISSION
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Cc Docket Control (Original plus 13copies)
Steve Olea, Director of Utilities





Sulphur Springs Valley Electric Cooperative, Inc.

A Touchstone Energy® Cooperative 

2012 and 2013

DSM/EEE

IMPLEMENTATION PLAN

Filed Pursuant to A.A.C. R14-2-2401, Et Seq.

Submitted by:

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Chief Member Services Officer

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June 1, 2011

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INTRODUCTION

Per the requirements of A.A.C. R14-2-2401, *et seq.*, Sulphur Springs Valley Electric Cooperative (“SSVEC” or “Cooperative”) hereby submits their 2012-2013 Demand Side Management/Electric Energy Efficiency Implementation Plan (“DSM Plan”). SSVEC requests the adoption of this Plan and the included waivers by the ACC.

Additionally, SSVEC requests that pursuant to A.A.C. R14-2-2409.D, once its DSM Plan is approved, that such DSM Plan supersede its current DSM Plan as well as all reporting and tariff filing requirements set forth in Arizona Corporation Commission (“ACC”) Decision No. 71274.

Background

Prior and Current ACC Approved DSM Programs.

SSVEC has had in place an ACC approved DSM Plan for well over twenty years. Prior to the Cooperative’s most recent rate case that was approved in 2009 (Docket No. E-01575A-08-0328; Decision No 71274), SSVEC reported to the ACC every six months the expenditures associated with these programs and upon ACC approval these costs were recovered through the SSVEC “fuel bank”. These programs included free residential and business energy audits, free rate analysis, advertising residential and energy business savings tips, and rebates for the purchase of specified appliances whose Seasonal Energy Efficiency Ratio (SEER) exceeded the national standards. In addition, and although not part of the earlier DSM Plan, SSVEC developed an aggressive load shedding program for our irrigation members through Commission approved SSVEC controlled irrigation rates. SSVEC currently controls approximately 15 megawatts of irrigation load and estimates that through the use of these rates have saved over \$21 million in energy purchases and upgrades to our electrical infrastructure. The program is funded from general funds and associated savings from power purchased as presented in the 2009 rate case.

As part of its 2009 rate case, the ACC also approved a DSM Plan for SSVEC. The approved DSM Plan included the following:

DSM Adjustor and Budget.

A DSM surcharge was set at \$0.00088 per kWh (to be reset as needed annually on June 1) Based on the test year, an annual estimated budget of \$704,500.00 was established. Actual collections for 2010 totaled \$855,898.00 which included a carryover from 2009 and repayments on loans during 2010. SSVEC filed a request for compliance to not increase the DSM adder in March 2010.

Residential Programs

Energy Efficient Water Heater Rebate. To be eligible for the rebate, the energy factor for the purchased water heaters must be greater than the federal standard for new manufacture. The rebate amount is \$100.00. The addition of Heat Pump Water Heaters with a rebate of \$500 is proposed in the new Plan.

Residential Energy Efficient Improvement Loan. This program was designed to improve the energy efficiency of residential members. In conjunction with free energy audits, as part of the ARRA grant, we help members determine which energy upgrades create the most value for each individual member. These loans are interest free. .

Touchstone Energy Efficient Home Program. This program encourages builders and residential members to construct their homes in a manner that exceeds local building codes and meets the requirements of the Touchstone Energy Efficient Home Program and will result in energy savings over the life of the home. The rebate amount for this program is \$1,500.00. The proposed yearly budget includes both builder incentives and inspections.

Residential Energy Management. This program is designed to assist our residential members through a variety of avenues to decrease energy consumption.

Energy Efficient Heat Pump Incentive: High Efficient Heat Pumps are the most effective source to heat and cool a home with electricity. They also have a large impact on SSVEC's system demand. Encouraging customers to install more efficient models than the least efficient allowed by Federal Standards, reduces the system impact and lowers the member's energy bills. A rebate of \$500 per heat pump has been very successful for SSVEC.

Commercial and Industrial Programs

Commercial and Industrial Energy Efficiency Improvement Loan. This program was approved as a pilot program for a period of 16 months. These loans are interest free and are not tied in any specific technology or improvement to give the members maximum flexibility to find a energy saving solution that works best for them.

Commercial and Industrial Energy Management. This program is designed to assist our commercial and industrial members through several avenues to decrease energy consumption.

Advertising Program

This program was designed to provide our members with energy savings tips and measures. SSVEC does this through advertising (radio, newspaper, and television), articles in Currents Magazine (our bi monthly magazine for members), pamphlets and brochures, and presentations at various community meetings.

Flexibility

As in its REST Plan, we are requesting that ACC grant SSVEC the flexibility to move monies between budget items if one item is being over spent and another item is being under spent. This flexibility has proven invaluable during this past year when new housing significantly declined while requests to make existing homes more energy efficient exceeded SSVEC expectations.

SSVEC submitted the results of its 2010 year DSM Plan to the ACC on March 1, 2011.

Reporting Requirements

Pursuant to A.A.C. R14-2-2418 SSVEC, will file its DSM Plan and any requests to modify the DSM Adjuster by June 1st in each odd year to cover a two year program period.

Combining the DSM Plan approval and the annual requests to modify the DSM Adjuster in one application will supersede and replace the March 1st Annual DSM Reporting and Adjuster filing requirement set forth in Decision 71274.

The Cooperative reserves the right to apply for a change in its DSM Adjuster at any time if necessary for the viability of the DSM Plan.

American Recovery and Relief (ARRA) Grant.

On August 6, 2009 SSVEC submitted an application to the Department of Energy (“DOE”) for a \$64.5 million Smart Grid Investment Grant under a joint effort, entitled Arizona’s Cooperative Grid Modernization Project with Southwest Transmission Cooperative (“SWTC”) and Mohave Electric Cooperative (“MEC”). SWTC assumed the lead role in the application and is considered the prime recipient. MEC and SSVEC are sub-recipients. The main reason for the joint effort is to leverage the integrated ownership, utilization and governance of SWTC as well as a unified application of cooperatives with their non-profit, rural nature, and member-owned structure. On May 14, 2010, the DOE executed a cost-share assistance agreement with an effective date of June 1, 2010 for \$64,488,970. The agreement is a grant and provides a reimbursement of 50% of monies expended in its approved projects. SSVEC’s total project value is \$44,287,637 and SSVEC anticipates \$22,143,819 in reimbursement provided projects can be completed within the three-year period of performance timeframe.

SSVEC has projected approximately \$5 million for Supply and Demand Side Management (“SDSM”) projects. SDSM funding may include projects in the following areas: home energy audits, in-home displays, programmable communicating thermostats, irrigation efficiency, mercury vapor change-outs, transformer efficiency, prepaid metering, meter data management systems and web portal access.

SSVEC has conducted an independent statistically valid survey of our members on programs that would work for them and has now since hired a consultant to translate the desires and opinions of our members into DSM programs.

Because these funds are based on a matching grant and are subject to approval by the DOE, the addition of these funds is not included in the DSM Budget but is used to multiply the DSM Budget funds where the two programs overlap.

Tab 13 provides descriptions of the proposed projects under the ARRA Grant.

2012-2013 SSVEC DSM Plan

The SSVEC 2012-2013 DSM Plan is based on the following:

- A statistically valid poll of our members conducted by the National Rural Electric Cooperative Association (“NRECA”) and Severson and Associates. This poll was conducted in August 2010. The Executive Summary for the NRECA poll can be found at Tab 1 and the Severson and Associates Report on Tab 14
- Ongoing input and feedback from our members through focus groups, community meetings, home energy audits and other contacts.
- Results and analysis of the prior and current ACC approved DSM programs.
- Federal DOE guidelines from our ARRA grant.

SSVEC is also submitting its 2012-2013 DSM Plan in two sections along with supporting documentation. The first section is the portion that deals with programs and surcharges that require ACC approval. The second section deals with the ARRA DSM Plan that is part of the grant obtained by SSVEC and is funded by the grant and funds from the long range work plan.

Request for a Waiver under A.A.C. R14-2-2419

SSVEC has had an ongoing DSM Plan which has been based on prescription standards and we have just recently begun to better quantify savings in the form of kWh and Therms. Based on the results of the 2010 DSM program year, we do not have sufficient data to make a ten year projection in what we can realistically achieve. Results to date suggest an achievable target of 4%-6% of prior year sales at the 2020 target year. SSVEC hereby requests that its EEE requirements for 2012 be at 0.58% of kWh prior year sales and for 2013 our EEE requirement be at 0.97% of total prior year kWh sales. We estimate that our current DSM program will result in a savings of approximately 0.33% of sales in 2011.

Because we have been actively promoting energy conservation for over 20, years our incremental cost to increase the percentage of energy saved (due to the law of diminished returns) would be contrary the cost effectiveness standards set forth in A.A.C. R14-2-2412.

When SSVEC submits the DSM Plan for the 2014 - 2015 time periods, we will have more baseline data to use in order to project what our achievable goal will be for the 2020 EEE target.

Based on the above, SSVEC requests a waiver under the provisions of R14-2-2419, from the goals set in R14-2-2418 for the Cooperatives, for the program years 2012 and 2013 with the approval and adoption of this DSM Plan by the ACC.

Requested ACC DSM Plan and Surcharges.

Programs and budgets from currently approved ACC DSM programs (Docket E-01575A-08-0328; Decision No. 71274) along with the requested budgets are as follows:

DSM adjustor and budget.

Based on the rate case test year (2007) a charge of \$0.00088 per kWh would provide an annual estimated budget of \$704,500.00. On March 1, 2011, SSVEC filed a request to leave the DSM adjuster at the same level as approved in the 2009 rate case. We have adjusted the proposed budget to: 1) reflect the carryover from 2010, 2) estimated collections in 2011 from the surcharge, and 3) projected repayments from loans issued in 2010 and 2011, for an estimated 2012 DSM collection total of \$1,187,000.00. Using the projected collection and redistribution of the costs to match program demands from the 2010 DSM program we developed a proposed operating budget for the 2012 - 2013 time periods. The details of the calculations for the adjustor and requested budget are found at Tab 2.

Residential Programs

Energy Efficient Water Heater Rebate. To be eligible for the rebate, the energy factor for the purchased water heaters must be greater than the federal standard for new manufacture and have include a graduated standard based on tank size. We propose to leave the \$100 incentive for resistive water heaters the same as before, but add a \$500 incentive for Heat Pump Water Heaters which are both more efficient and more expensive to purchase. The details of the water heater program are found at Tab 3.

Residential Energy Efficient Improvement Loan. This program was designed to improve the energy efficiency for residential members. These loans are interest free. The previous yearly budget was set at \$200,000.00. Based on the popularity of this program with its members, SSVEC is proposing that the budget be increased. As this is a "loan" program, our members, as they repay the loan (over 3 or 5 years depending on the loan amount) are replenishing the DSM budgets. The details of the residential loan program and the cost saving methodology calculations are found at Tab 4.

Touchstone Energy Efficient Home Program. This program began almost 20 years ago in the Good Cents Home program to educate the public and builders to build better more efficient homes. The purpose of the program is to encourage builders and residential members to construct their homes in a manner that exceeds local building codes and to meet the requirements of the Touchstone Energy Efficient Home Program which and will result in energy savings over the life of the home. The rebate amount is \$1,500.00. The 2010 budget was set at \$175,000.00. SSVEC is recommending that the rebate amount remain at \$1,500.00 but the budget, based on the new housing market projections, be reduced. The details of the Energy Efficient Home Program are found at Tab 5.

Residential Energy Management. This program is designed to assist our residential members through a variety of avenues to decrease energy consumption. The previous yearly budget was set at \$50,000.00. The details of the Residential Energy Management Program are found at Tab 6.

Commercial and Industrial Programs

Commercial and Industrial Energy Efficiency Improvement Loan. This program was approved as a pilot program for a period of 16 months. These loans are interest free. The yearly budget was set at \$150,000.00. SSVEC requests that program be continued through 2011 and based upon the success of the program, the program be continue it in 2012. The details of the Commercial and Industrial Loan Program are found at Tab 7.

Commercial and Industrial Energy Management. This program is designed to assist our commercial and industrial members through several avenues to decrease energy consumption. The details of the Commercial and Energy Management program are found at Tab 8.

Advertising Program

This program was designed to provide our members with energy savings tips and measures. SSVEC does this through advertising (radio, newspaper, and television), articles in *Currents Magazine* (our bi-monthly magazine for members), pamphlets and brochures, and presentations at various community meetings. The details of the advertising program are found at Tab 9.

Flexibility

As in its REST plan, SSVEC is requesting the ACC grant SSVEC the flexibility to move monies between budget items if one item is being overspent and another item is being under spent. This flexibility has proven invaluable during previously when new housing starts declined significantly while requests to make existing homes more energy efficient exceeded the expectations of SSVEC. SSVEC recommends that its future DSM plans also include this flexibility.

Reporting Requirements

SSVEC will follow the reporting requirements of A.A.C. R14-2-2409. These reporting requirements will supersede and replace the reporting requirements of Decision 71274 of Docket E-05775A-08-0328.

Additional Programs added in this DSM Plan subject to ACC approval**Adding Heat Pump Water Heater to Water Heater incentives:**

Heat Pump Water Heaters (HPWH) are the most efficient way to heat water with electricity. The higher cost over traditional water heaters is a barrier to using these more efficient units. SSVEC would like to encourage this technology because it reduces water heating costs for the customer and reduces system demand for SSVEC. The program would be advertised with the current water heater promotions and the \$500.00 incentive would be paid from the Heat Pump Incentive budget. The details and cost benefit ratio is detailed on Tab 3.

On-Demand Hot Water Circulating Pump:

Based on feedback from our members, Fort Huachuca, and local elected officials, SSVEC is proposing on adding an On-Demand Hot Water circulating pump (ODP) incentive. This device saves both energy (gas and electric) as well as water. SSVEC is proposing a rebate of \$150.00 for homes with electric water heaters and \$100.00 for homes with gas water heaters, with a yearly budget of \$20,000.00. The average installed cost of an ODP is \$925.00. The details of the ODP Incentive are found at Tab 10. This device would also qualify for the Residential Home Efficiency Loan if \$2,000.00 in thermal improvements have been made as part of the project.

C&I Lighting Incentive:

Not all C&I businesses can take advantage of the Zero Interest Loan program because of restrictions by law or tax implications, so we are proposing a C&I lighting incentive to help businesses that cannot take advantage of the other program. We are asking for a simple incentive based on the watts reduced by the lighting upgrade. The proposed program is detailed at Tab 11.

Refrigerator Recycling Program:

Based on the success of this type of program in APS and TEP service areas, the Cooperatives approached the contractor used by APS and TEP to obtain a bid to bring the program into the Co-ops areas. The proposed budget includes the base contract and the incentive paid to the customers. Details are on Tab 12.

Low Income Weatherization Pilot program:

Using the Residential Loan Budget and working with the Housing Authority of Cochise County ("HACC"), will provide \$25,000.00 per year to weatherize homes at no charge to the homeowners. HACC will administer the program. Details on Tab 4

Tab 1 NRECA Research Survey Executive Summary

In August 2010, NRECA Market Research Services completed a telephone survey of 500 randomly selected residential members of Sulphur Springs Valley Electric Cooperative (SSVEC). The key findings are highlighted below, followed by detailed results of the survey.

- While residential members are satisfied with the service they receive from Sulphur Springs Valley Electric Cooperative, there remains room for improvement. Half rate the co-op a nine or ten on a ten-point scale and few (6%) give SSVEC low (“1” to “4”) ratings. The challenge is to increase satisfaction among those somewhat satisfied with the co-op. Members are looking for the co-op to help them be more efficient in their electricity use and to promote renewable energy.
- SSVEC members are taking energy conservation and renewable energy seriously-almost six in ten feel they make a dedicated effort to conserve energy in their home, primarily by turning off lights and/or unplugging vampire loads, and adjusting their thermostat. In addition, approximately half are willing to pay an additional monthly amount for electricity generated from renewable energy sources, with one-quarter willing to pay an additional \$10 or more per month.
- There remains significant room for growth in members’ participation in current SSVEC services and programs, especially free home energy audits, solar panel installation rebates, and use of the co-op’s website to obtain energy savings information. Much of this low usage can be attributed to members’ lack of awareness of these programs. SSVEC has been effective raising awareness of the co-op’s interest-free weatherization loan program that began in May of this year. To date, while not many have utilized this program, more indicate they are likely to pursue it in the future.
- Most of SSVEC’s residential members are aware that electric costs can vary by season and times of the day. Yet, only half of those interviewed express interest in signing up for time of use rates.
- It is not surprising that members are most interested in the least invasive approaches to monitoring and managing how much electricity they use at given times of the day, whether that is through an information-only approach or through a member-programmed automatic thermostat. Verbatim comments show a strong opposition to passing any control out of the homeowners’ hand.
- Still, there appears to be enough interest in Sulphur Springs controlled devices for the co-op to pursue a pilot test program. Fourteen percent chose this system as their preferred approach for managing electricity use. Additionally, 34% indicated an interest in being considered to participate in a pilot test program. Still, a number of verbatim comments indicate that some members were concerned that a co-op controlled device would pass all control to SSVEC.

Tab 2: Report on the 2010 DSM Collections and Expenses

| 2010 Budget | |
|---------------------------------|-------------------|
| Touchstone EE Homes Inspections | \$ 120,000 |
| Residential - audits | \$ 50,000 |
| C&I - audits | \$ 4,500 |
| DSM - Admin | \$ 25,000 |
| DSM - Program Development | \$ 25,000 |
| Expenses | |
| Advertising | \$ 80,000 |
| Misc | \$ 5,000 |
| Rebates | |
| Water Heater | \$ 25,000 |
| Heat Pump | \$ 20,000 |
| Loan Programs | |
| Residential Loans | \$ 200,000 |
| Commercial Loans | \$ 150,000 |
| Budget Totals | \$ 704,500 |
| | |
| 2010 DSM Collections | |
| YTD Collected | \$ 855,898 |
| YTD Budget | \$ 728,673 |
| | |
| Expenses | |
| Touchstone EE Homes | \$ 17,555 |
| Residential Audits | \$ 49,394 |
| C&I Audits | \$ 3,060 |
| DSM - Admin | \$ 29,213 |
| DSM - Program Development | \$ 10,020 |
| Expenses | |
| Advertising | \$ 128,969 |
| Misc | \$ 11,580 |
| Rebates | |
| Water Heater | \$ 5,900 |
| Heat Pump | \$ 77,500 |
| Loan Programs | |
| Residential Loans | \$ 259,058 |
| Commercial Loans | \$ - |
| Expense Total | \$ 592,249 |
| | |
| DSM Program Balance = | \$ 263,649 |

2010 Income Summary

| | |
|-----------------------|-------------------|
| Carry over from 2009 | \$ 125,675 |
| 2010 Collections | \$ 721,273 |
| Loan Repayments | \$ 8,951 |
| Total for 2010 | \$ 855,898 |

DSM Surcharge and the 2012-2013 Budget

SSVEC requests to leave the DSM surcharge (adder) at the current \$0.00088 per kWh to provide an estimated annual funding level of \$1,010,000 for 2011 and the funding below for 2012 and 2013, as follows:

| Proposed Budgets | 2012 | 2013 |
|----------------------------|---------------------|---------------------|
| Touchstone EE Homes | \$ 30,000 | \$ 50,000 |
| Residential - audits | \$ 80,000 | \$ 80,000 |
| C&I - audits | \$ 12,000 | \$ 12,000 |
| 2nd Refrigerator Recycling | \$ 65,000 | \$ 65,000 |
| Low Income Weatherization | \$ 25,000 | \$ 25,000 |
| DSM - Admin | \$ 60,000 | \$ 60,000 |
| DSM - Program Development | \$ 10,000 | \$ 10,000 |
| Expenses | | |
| Advertising | \$ 75,000 | \$ 77,000 |
| Misc | \$ 10,000 | \$ 10,000 |
| Rebates | | |
| Water Heater | \$ 30,000 | \$ 32,000 |
| Heat Pump | \$ 150,000 | \$ 165,000 |
| On-Demand HWP | \$ 20,000 | \$ 20,000 |
| C&I Lighting | \$ 70,000 | \$ 70,000 |
| Loan Programs | | |
| Residential Loans | \$ 375,000 | \$ 400,000 |
| Commercial Loans | \$ 175,000 | \$ 175,000 |
| Budget Totals | \$ 1,187,000 | \$ 1,251,000 |

Income Projections

| Estimated | 2012 | 2013 |
|---------------------|---------------------|---------------------|
| Carry over | \$ 250,000 | \$ 250,000 |
| Collections | \$ 857,000 | \$ 901,000 |
| Loan Repayments | \$ 80,000 | \$ 100,000 |
| Total Budget | \$ 1,187,000 | \$ 1,251,000 |

Program note: The revolving nature of loan fund allows SSVEC to continue to expand its energy savings programs without having to increase the DSM adjuster from the amount approved as part of the 2009 rate case.

Tab 3 Energy Efficient Water Heater Rebate.

To be eligible for the rebate, the energy factor for the purchased water heaters must be greater than the federal minimum standard for new units. The rebate amount is \$100.00.

The following table outlines the requirements, based on the Supplemental Testimony by Steve Irvin, Public Utilities Analyst IV, to the Utilities Division of the Arizona Corporation Commission on May 22, 2009, who recommended these changes to the SSVEC Energy Efficient Water Heater Program with our next program submission. All other portions remain the same.

Incentives for Energy Efficient Water Heaters (resistive) will be based on the following table:

| Rated Storage Volume (gallons) | Minimum Standard | Minimum Rating to receive Incentive |
|--------------------------------|------------------|-------------------------------------|
| 30 | 0.93 | 0.94 |
| 40 | 0.92 | 0.93 |
| 50 | 0.90 | 0.92 |
| 80 | 0.86 | 0.88 |

The cost benefit analysis performed by ACC Staff determined that the Energy Efficient Water Heater program as presented by SSVEC produced a benefits to cost ratio of 1.2.

Heat Pump Water Heaters (proposed addition to the program)

With the emergence of Heat Pump Water Heaters into the main stream market (available now at most large retail outlets) we propose to add them to the rebate program. Heat Pump Water Heaters use 62% less energy than standard resistive electric water heaters. These water heaters are substantially more expensive than resistive water heaters and providing an incentive will help defray the higher cost. We propose a \$ 500.00 incentive for Heat Pump Water Heaters (~50% of the incremental cost increase). This technology creates lower monthly demands for SSVEC and saves up to \$165.00 per year (@\$5.50 per kW of system demand charges).

Cost comparison:

| | |
|--------------------------|---|
| 50 gal HP water heater | \$1,399.99 (lower energy costs of \$320 per year) |
| 50 electric water heater | \$389.99 |

Cost benefit ratio: Savings (for the Customer and SSVEC) / Cost of Incentive

Savings:

$$\frac{\$320 \text{ (Customer Energy)} + \$400 \text{ (tax credit)} + \$165 \text{ (SSVEC demand)}}{\$500 \text{ Incentive Cost}} = 1.7 \text{ benefit ratio}$$

Tankless Water Heaters

Tankless Water Heaters do eliminate the standby losses of a standard water heater. These savings are more than offset by the increased demand (18+ kW compared to 4.5kW) costs to the utility and do not qualify for any incentives from SSVEC. This was supported in the testimony of Mr. Steve Irvin in his May 22, 2009 review of the current DSM program.

Budget:

We are requesting a budget of \$30,000.00.

Tab 4 Residential Energy Efficient Improvement Loan

This zero interest loan program was a launched in 2010 to improve the thermal efficiency of older homes. The program has been very popular which is why we are requesting to increase the annual budget to \$375,000.00.

How the program works:

Customers contact local contractors to perform an initial inspection and to prepare a bid for upgrading the attic insulation, replace non-conforming windows, seal cracks and penetrations, and in some cases adding insulation to the exterior walls. If the customer spends at least \$2,000.00 on the above items they may also replace non-conforming HVAC systems. Resistive electric furnaces and evaporative cooling systems do not qualify for the zero interest loans. All work must be done by licensed contractors with permits as needed. The contractor completes a certification form listing the conditions found and the improvements made to the home. SSVEC makes random spot checks to verify the certification by the contractors. SSEC uses this data to estimate the energy savings using heat loss and gain calculations with the local Heating Degree Days and Cooling Degree Days to quantify the savings.

In our 2010 DSM report we showed that the 19 projects had the following benefits:

| (iii) Estimated Cost Savings to Participates | | |
|---|-------------|---------------------------------|
| Btu Reduction = | 408,088,293 | |
| Heating Cost Reduction = | \$ 4,603 | |
| Cooling Cost Reduction = | \$ 2,345 | |
| Estimated Reduction in Gas Purchases = | 3,219.05 | therms |
| Estimated Reduction in kWhPurchases = | 19,272.27 | |
| (v) Estimated Environmental Impact | | |
| CO2 (1.844 lb. Per kWh) | 35,538 | pounds of CO2 emissions reduced |
| SO2 (.00342lb Per kWh) | 66 | pounds of SO2 emissions reduced |
| NOx (.0052 lb. per kWh) | 100 | pounds of NOx emissions reduced |

Program Thermal Guidelines:

- Attic insulation to be increased to a minimum of R38 but not more than R-44
- New Windows must have a U-Value of .58 or better
- Exterior Doors must have an R-Value of R-5 or better
- Exterior Walls must have an incremental R-Value increase of at least R-5

HVAC Improvements (after completing at least \$2,000 of thermal improvements)

REQUIREMENTS:

| GAS Forced Air | Existing Gas | Replacement Gas |
|----------------|--------------|---------------------|
| Efficiency of | 60% or less | between 80% and 88% |

(due to our short heating season 90+% units don't qualify for zero interest loans from SSVEC)

| Heat Pumps | Existing HP | Replacement HP |
|----------------------------|-------------|------------------------|
| SEER | 8 or less | 13 or higher |
| Electric Resistive Furnace | Existing | Replacement Unit |
| Non fuel specific | Any | HP or Gas FAF as above |

Evaporative Cooling can be replaced with A/C or HP with a SEER of 13 or higher

Methodology used to quantify savings:

Using the following methodology from the Manual J Load Calculation, we estimated the savings in Gas and Electricity with these formulas.

Heating Season Requirements by building components

$$\frac{\text{Heating Season Requirement}}{\text{(in Btu's)}} = \frac{\text{Surface Area X Heating Degree Days X 24 hrs}}{\text{R-Value of Surface}}$$

$$\text{Cost of Heating} = \text{Heating Btu's} \div \text{Efficiency of Furnace X Cost per Therm}$$

Cooling Season Requirements by building components

$$\frac{\text{Cooling Season Requirement}}{\text{(in Btu's)}} = \frac{\text{Surface Area X Cooling Degree Days X 24 hrs}}{\text{R-Value of Surface}}$$

$$\text{Cost of Cooling} = \text{Cooling Btu's} \div \text{Efficiency of A/C X 3125 (Btu per kWh) X \$ per kWh}$$

*Lifestyle and differences in perceived comfort are not included in the estimates and HDD and CDD assume a constant temperature setting.

The following assumptions were used:

| | |
|-----------------------------------|-------------------------|
| • Heating Degree Days | 1399 |
| • Cooling Degree Days | 2836 |
| • Cost of Natural Gas | \$1.43 per therm |
| • Cost of Electricity | \$ 0.1217 per kWh |
| • A/C Co-efficient of Performance | 2.5 |
| • Btu's per kWh of electricity | 3125 |
| • Old Furnace | 60% efficient |
| • New Furnace | 80% efficient |
| • Old Windows | U-Value of 1.1 |
| • New Windows | U-Value of at least .58 |
| • Old Doors | R1.79 |
| • New Doors | R5 or better |

Improvements to the homes by sealing cracks and openings in the walls and ceilings (infiltration) will also lower the costs above but there is not a reliable method to calculate the costs other than an estimated 10-20% improvement in heating and cooling costs. Infiltration improvements are not included in the cost savings listed above.

Budget Considerations:

We are requesting a \$375,000.00 budget. In 2010 we made 19 loans with an average loan amount of \$10,206.00. This budget will allow us to improve over 36 homes in 2012.

Weatherization Grant Pilot Program for 2012

Working with the Housing Authority of Cochise County, the Cooperative would fund out of the DSM budget, a \$25,000.00 grant to improve the thermal performance for low income homes up to Touchstone Energy Standards for attic insulation, windows, and doors at no charge to the customer. To qualify for this pilot program the customer must live in the Cooperative Service Area, must be a Cooperative Member in good standing, must reside in the project home as a full time year round resident, and must meet the federal description/guidelines of low income consumer.

Tab 5 Touchstone Energy Efficient Home Program.

This program is to encourage builders and residential members to construct their homes in a manner that exceeds local building codes and to meets the requirements of the Touchstone Energy Efficient Home Program and will result in energy savings over the life of the home.

Program benefits based on the following;

| Touchstone Energy Efficient Home Program | | | | |
|---|---------------------------|-----------------------|---------------------------------|----------------------|
| Assumptions | | | | |
| kWh Savings per home | \$ 311.19 | per year | | |
| Fuel Savings per Home | \$ 660.66 | per year | | |
| kWh Savings per HP | \$ 83.36 | 685 kWh per year = | \$ 83.36 | |
| kWh Savings per WH | \$ 120.00 | per year | | |
| | | | | |
| | kWh Consumption | | Gas Consumption (Therms) | |
| Base Year | Gas Heat & A/C | All Elect w HP | Gas Heat & A/C | HP and gas WH |
| 1994 | 11,640 | 17,237 | 1,375 | 377 |
| 1998 | 8,914 | 8,863 | 788 | 377 |
| 2000 | 8,863 | 10,907 | 832 | 377 |
| 2002 | 7,867 | 9,699 | 634 | 377 |
| 2006 | 7,228 | 9,014 | 605 | 377 |
| | | | | |
| Savings (kWh / Therms) | 4,412 | 8223 | 770 | 0 |
| Savings in Dollars | \$ 536.94 | \$ 1,000.74 | \$ 1,101.10 | \$ - |
| Market Share | 60% | 30% | 60% | 30% |
| Cost Savings | \$ 322.16 | \$ 300.22 | \$ 660.66 | \$ - |
| kWh Savings | 2647 | 2467 | 462 | |

The current standards for the Touchstone Home Program can be found on the SSVEC website at:

<http://www.ssvec.org/documents/TSEHomeProgramStandards2008.pdf>

The rebate amount is \$1,500.00. The previous yearly budget was set at \$175,000.00. SSVEC is recommending that the rebate amount remain at \$1,500.00 but the budget, based on the new housing market projections, be reduced to \$30,000.00.

Tab 6 Residential Energy Management.

This program has two components. The first component is to respond to customer requests for usage information and to help reduce or manage their energy bills in the form of an energy audit. The second component is the DSM portion of the ARRA Smart Grid Grant that allows us to hire residential and small business auditors for home audits. When tied with the zero interest home efficiency loans, there should be a real impact on lowering customer consumption and increase in customer comfort.

The \$80,000.00 budget amount does not include the refunds (50/50 matching funds) from the ARRA Smart Grid Grant. The Grant is used as a multiplier of funds to expand the program without the increasing of the current DSM Surcharge.

There is no logical way to quantify the results on an audit when there is no way to verify or validate if the customer made the recommended changes in behavior or made the physical improvements. The quantity of audits performed is proportional to the change in seasons when the bills are higher than prior months.

We have found some helpful guidelines in DOE reports that estimate savings from behavior modification from audits. These guidelines will be used to quantify the savings from the audits from 2011 forward.

In 2010 our two residential auditors received over 1,400 usage inquiries (phone calls) and performed over 400 physical site visits.

Tab 7 Commercial and Industrial Energy Efficiency Improvement Loan.

The C&I zero interest loan program was designed with flexibility in mind. Our C&I rate class has a many different types of businesses and corresponding energy savings opportunities. The purpose of the program is to help fund any type of energy project that shows a reasonable return on investment from the savings of energy. As a pilot program approved in our 2009 rate case and the subsequent downturn in the economy the program is still moving slowly with our first project completed in January of 2011.

C&I Energy Efficiency Zero Interest Loan Program first project

The most obvious place to improve energy savings was in the lighting buildings. The lighting had never been upgraded since the building was built and had 2 and 4 lamp T12 lamps with magnetic ballasts.

Lighting Savings:

The customer replaced old T12 lamps with magnetic ballasts with T5 fixtures with electronic ballast. The project consisted of changing 120 interior and 8 exterior fixtures. The Chamber is only open weekdays only so the monthly hours of operation is about 200. Similar projects for a business that is open 6 or 7 days a week with extended hours will have even higher savings.

Efficient lighting results in a reduction of kWh and in monthly demand since lighting is coincident with the monthly peak. The HVAC savings is calculated by taking the cooler operating ballast with the electronic ballast into consideration.

Improvements in efficiency by the increased quality of light are not measured in the analysis.

| Monthly Savings Analysis | | | | | |
|---------------------------------|----|--------|----------------------|----|--------|
| kW Reduction | | 12.41 | Direct Savings | \$ | 371.35 |
| kWh Saved / Month | \$ | 282.95 | HVAC Savings | \$ | 74.27 |
| kW Demand Saved | \$ | 88.40 | Total Savings | \$ | 445.62 |

| Environmental Impact | | | |
|-----------------------------|-------|--|--|
| CO2 (1.844 lb. Per kWh) | 5,943 | pounds of CO2 emissions reduced each month | |
| SO2 (.00342lb Per kWh) | 11.0 | pounds of SO2 emissions reduced each month | |
| NOx (.0052 lb. per kWh) | 16.8 | pounds of NOx emissions reduced each month | |

Source:Arizona Electric Power Cooperative, 1993 & 1994 emissions compliance test results.

C&I Energy Efficiency Zero Interest Loan Program first project

HVAC replacement:

The Sierra Vista Chamber of Commerce had HVAC equipment that was over 25 years old and the contractor estimated an effective SEER of 4-6. Using a third party website provided energy savings estimates; based on the efficiency of the old equipment compared to the new, size of building, current rates, Heating Degree Days, and Cooling Degree Days, provided the following savings summary using the Heating and Cooling Degree Days for Sierra Vista (five year history and average)

Determination of Savings:

Heating and Cooling Degree Days is a way to estimate the cost of heating and cooling a building when it is not practical to survey the building to calculate the heat gain/loss. The table on the right shows the Heating Degree Days (HDD) and Cooling Degree Days (CDD) for Sierra Vista for the last five years and then calculates a five-year average.

Third Party Model:

In the search for a model to use to estimate the savings we found a website that had a worksheet that allowed SSVEC to input the efficiency of the units, size of the units, size of building, equipment type, local energy costs, and both the HDD and CDD to estimate the operating costs.

The following assumptions were made:

3,000 SqFt of building

Electric Costs at 7.7 cents (kWh charge only)

Natural Gas Costs at \$1.43 per therm (from SW Gas website)

Operational Savings estimate from HVACOPCOST.com

| Old Equipment | | | Estimated Operating Cost | |
|--------------------|------|-------------|--------------------------|-------------|
| Quantity | Tons | Est. SEER | Cooling | Heating |
| 1 | 6 | 5 | \$ 2,270.00 | \$ 1,060.00 |
| 1 | 5 | 5 | \$ 2,270.00 | \$ 1,060.00 |
| 1 | 2 | 5 | \$ 1,336.00 | \$ 549.00 |
| Replacements | | | Estimated Operating Cost | |
| Quantity | Tons | SEER | Cooling | Heating |
| 1 | 5 | 13 | \$ 857.00 | \$ 938.00 |
| 1 | 5 | 13 | \$ 857.00 | \$ 938.00 |
| 1 | 3 | 13 | \$ 514.00 | \$ 493.00 |
| Electric Savings = | | \$ 3,648.00 | kWh Savings= | 47,377 |
| Gas Savings = | | \$ 300.00 | NG (therms) Savings= | 210 |
| Annual Savings = | | \$ 3,948.00 | | |

If we look at the percentage of improvement rather than the estimated costs the Chamber could expect a 62% reduction in cooling costs and a 10-12% reduction in heating costs.

Environmental Impacts:

The table on the right shows the estimated reduction in Emissions based only on the kWh consumption of the HVAC units.

| Emissions Reductions | | |
|--|--------|--------------|
| CO2 | 87,362 | lbs per year |
| SO2 | 162 | lbs per year |
| Nox | 247 | lbs per year |
| Source: Arizona Electric Power Cooperative, 1993 & 1994 emissions compliance test results. | | |

Program Recommendations:

Based on the first project, SSVEC requests that we be allowed to continue this program as is through December 31, 2011, and file with Staff a program update no later than April 1, 2012 with a request to continue, modify, or delete the program. It is our hope that the economy will improve and give our small businesses confidence to invest in capital improvements. No additional funding is requested.

Budget is \$175,000.00 per year

Tab 8 Commercial and Industrial Energy Management.

The Commercial and Industrial Energy Management Program (also known as the Key Account Program) has been in place for over 11 years. The program is managed by the Key Account Manager who monitors and provides detail energy reports to approximately 50 of the largest customers and monitors over 350 individual accounts for these large customers. These detailed energy reports (see table 8.1) presents a multi-year usage history in a numeric table and also graphically which allow the Key Account Manger and the customer to identify problems and validate energy saving measures. These reports (in an Excel Spreadsheet) are e-mailed to the customer each month and modified to meet the desires of each customer.

The program also includes a service called Questline which provides an e-mail newsletter 14 times per year that promotes energy savings concepts and new technologies (see Table 8.2). The service also has a research function where the businesses may ask a wide range of technical questions and Questline will research and provide answers back to the customer within 24 to 72 hours at no charge to the customer.

The Key Account Manger is also available to all businesses to perform energy audits, bill analysis, rate analysis, and customer relations.

Budget:

| | |
|-----------------------------------|---------|
| Questline Services | \$5,000 |
| Program Administration and Audits | \$7,000 |

Table 8.1 Sample Key Account Report

| Sulphur Springs Valley Electric Cooperative, Inc. | | | | | | | | |
|---|----------|--------|--------|--------------|--------------|-----------------|-----------------|------------------|
| Usage History for ACCME Store Q-735-01 | | | | | | | | |
| Read Date | kWh Used | kVA | | Power Factor | Monthly Bill | Days of Service | Average kWh/Day | Average Cost/Day |
| | | Actual | Billed | | | | | |
| 9-Jan-02 | 125,184 | 345.6 | 345.6 | 0.91 | \$ 10,182.63 | 33 | 3,793.5 | \$ 308.56 |
| 7-Feb-02 | 107,520 | 344.1 | 291.8 | 0.92 | \$ 9,080.56 | 29 | 3,707.6 | \$ 313.12 |
| 7-Mar-02 | 107,904 | 344.1 | 299.5 | 0.92 | \$ 9,104.28 | 28 | 3,853.7 | \$ 325.15 |
| 5-Apr-02 | 118,656 | 345.6 | 345.6 | 0.91 | \$ 9,779.27 | 29 | 4,091.6 | \$ 337.22 |
| 6-May-02 | 140,928 | 361.0 | 361.0 | 0.89 | \$ 11,261.63 | 31 | 4,546.1 | \$ 363.28 |
| 7-Jun-02 | 162,432 | 380.2 | 380.2 | 0.90 | \$ 12,723.07 | 32 | 5,076.0 | \$ 397.60 |
| 11-Jul-02 | 193,920 | 426.2 | 426.2 | 0.90 | \$ 14,987.24 | 34 | 5,703.5 | \$ 440.80 |
| 8/12/2002 | 167,808 | 449.3 | 449.3 | 0.00 | \$ 13,533.13 | 32 | 5,244.0 | \$ 422.91 |
| 9/11/2002 | 162,048 | 449.3 | 449.3 | 0.88 | \$ 13,177.22 | 30 | 5,401.6 | \$ 439.24 |
| 10/7/2002 | 129,024 | 430.1 | 430.1 | 0.88 | \$ 11,003.93 | 26 | 4,962.5 | \$ 423.23 |
| 11/6/2002 | 130,944 | 426.2 | 426.2 | 0.89 | \$ 11,096.03 | 30 | 4,364.8 | \$ 369.87 |
| 9-Dec-02 | 132,864 | 430.1 | 430.1 | 0.90 | \$ 11,241.20 | 33 | 4,026.2 | \$ 340.64 |
| 10-Jan-03 | 114,432 | 430.1 | 430.1 | 0.90 | \$ 10,102.31 | 32 | 3,576.0 | \$ 315.70 |
| 7-Feb-03 | 105,600 | 295.7 | 359.4 | 0.91 | \$ 9,068.14 | 28 | 3,771.4 | \$ 323.86 |
| 10-Mar-03 | 113,280 | 303.4 | 359.4 | 0.91 | \$ 9,542.69 | 31 | 3,654.2 | \$ 307.83 |
| 8-Apr-03 | 112,512 | 311.0 | 359.4 | 0.90 | \$ 9,495.24 | 29 | 3,879.7 | \$ 327.42 |
| 7-May-03 | 119,424 | 334.1 | 359.4 | 0.89 | \$ 9,922.33 | 29 | 4,118.1 | \$ 342.15 |
| 6-Jun-03 | 148,608 | 384.0 | 384.0 | 0.88 | \$ 11,895.50 | 30 | 4,953.6 | \$ 396.52 |
| 10-Jul-03 | 185,088 | 422.4 | 422.4 | 0.88 | \$ 14,415.04 | 34 | 5,443.8 | \$ 423.97 |
| 8-Aug-03 | 155,136 | 418.6 | 418.6 | 0.87 | \$ 12,537.78 | 29 | 5,349.5 | \$ 432.34 |
| 8-Sep-03 | 158,592 | 399.4 | 399.4 | 0.87 | \$ 12,943.49 | 31 | 5,115.9 | \$ 417.53 |
| 7-Oct-03 | 138,624 | 361.0 | 361.0 | 0.88 | \$ 11,403.22 | 29 | 4,780.1 | \$ 393.21 |
| 7-Nov-03 | 138,240 | 357.1 | 357.1 | 0.89 | \$ 11,352.18 | 31 | 4,459.4 | \$ 366.20 |
| 8-Dec-03 | 124,416 | 311.0 | 344.1 | 0.88 | \$ 10,379.27 | 31 | 4,013.4 | \$ 334.82 |
| 8-Jan-04 | 117,504 | 307.2 | 337.9 | 0.90 | \$ 9,895.47 | 31 | 3,790.5 | \$ 319.21 |
| 6-Feb-04 | 103,680 | 288.0 | 337.9 | 0.91 | \$ 9,012.73 | 29 | 3,575.2 | \$ 310.78 |
| 4-Mar-04 | 96,384 | 295.7 | 337.9 | 0.91 | \$ 8,546.84 | 27 | 3,569.8 | \$ 316.55 |
| 5-Apr-04 | 129,792 | 341.8 | 341.8 | 0.89 | \$ 10,706.65 | 32 | 4,056.0 | \$ 334.58 |
| 7-May-04 | 134,784 | 361.0 | 361.0 | 0.00 | \$ 11,158.02 | 32 | 4,212.0 | \$ 348.69 |
| 8-Jun-04 | 152,832 | 395.5 | 395.5 | 0.88 | \$ 12,549.17 | 32 | 4,776.0 | \$ 392.16 |
| 8-Jul-04 | 152,064 | 384.0 | 384.0 | 0.88 | \$ 12,582.13 | 30 | 5,068.8 | \$ 419.40 |
| 6-Aug-04 | 147,072 | 445.4 | 445.4 | 0.00 | \$ 12,682.37 | 29 | 5,071.4 | \$ 437.32 |
| 8-Sep-04 | 162,048 | 426.2 | 426.2 | 0.88 | \$ 13,521.98 | 33 | 4,910.5 | \$ 409.76 |
| 8-Oct-04 | 139,776 | 380.2 | 380.2 | 0.88 | \$ 11,757.89 | 30 | 4,659.2 | \$ 391.93 |
| 4-Nov-04 | 113,664 | 341.8 | 356.4 | 0.00 | \$ 9,898.33 | 27 | 4,209.8 | \$ 366.60 |
| 6-Dec-04 | 121,728 | 307.2 | 356.4 | 0.89 | \$ 10,421.83 | 32 | 3,804.0 | \$ 325.68 |
| 7-Jan-05 | 119,808 | 299.5 | 356.4 | 0.91 | \$ 10,297.20 | 32 | 3,744.0 | \$ 321.79 |
| 4-Feb-05 | 102,528 | 291.8 | 356.4 | 0.91 | \$ 9,175.40 | 28 | 3,661.7 | \$ 327.69 |
| 4-Mar-05 | 99,840 | 295.7 | 356.4 | 0.91 | \$ 9,000.90 | 28 | 3,565.7 | \$ 321.46 |
| 5-Apr-05 | 119,424 | 318.7 | 356.4 | 0.90 | \$ 10,272.26 | 32 | 3,732.0 | \$ 321.01 |
| 4-May-05 | 123,648 | 337.9 | 356.4 | 0.00 | \$ 10,546.48 | 29 | 4,263.7 | \$ 363.67 |
| 8-Jun-05 | 164,352 | 403.2 | 403.2 | 0.89 | \$ 13,512.45 | 35 | 4,695.8 | \$ 386.07 |
| 7-Jul-05 | 155,136 | 399.4 | 399.4 | 0.88 | \$ 12,887.64 | 29 | 5,349.5 | \$ 444.40 |
| 5-Aug-05 | 153,600 | 391.7 | 391.7 | 0.88 | \$ 12,734.89 | 29 | 5,296.6 | \$ 439.13 |
| 6-Sep-05 | 154,752 | 387.8 | 387.8 | 0.92 | \$ 12,956.90 | 32 | 4,836.0 | \$ 404.90 |
| 6-Oct-05 | 152,448 | 387.8 | 387.8 | 0.90 | \$ 12,804.77 | 30 | 5,081.6 | \$ 426.83 |
| 4-Nov-05 | 141,312 | 322.6 | 322.6 | 0.91 | \$ 11,618.33 | 29 | 4,872.8 | \$ 400.63 |
| 6-Dec-05 | 145,536 | 307.2 | 322.6 | 0.90 | \$ 11,742.48 | 32 | 4,548.0 | \$ 366.95 |
| 6-Jan-06 | 132,864 | 280.3 | 322.6 | 0.87 | \$ 10,919.25 | 31 | 4,285.9 | \$ 352.23 |
| 8-Feb-06 | 135,168 | 276.5 | 322.6 | 0.85 | \$ 11,068.91 | 33 | 4,096.0 | \$ 335.42 |
| 7-Mar-06 | 111,360 | 261.1 | 322.6 | 0.00 | \$ 9,522.24 | 27 | 4,124.4 | \$ 352.68 |
| 6-Apr-06 | 112,896 | 303.4 | 322.6 | 0.84 | \$ 10,799.59 | 30 | 3,763.2 | \$ 359.99 |
| 8-May-06 | 135,936 | 318.7 | 322.6 | 0.89 | \$ 12,536.71 | 32 | 4,248.0 | \$ 391.77 |
| 8-Jun-06 | 171,648 | 399.4 | 399.4 | 0.91 | \$ 15,760.00 | 31 | 5,537.0 | \$ 508.39 |
| 7-Jul-06 | 190,080 | 445.4 | 445.4 | 0.91 | \$ 17,468.15 | 29 | 6,554.5 | \$ 602.35 |
| 4-Aug-06 | 193,152 | 491.5 | 491.5 | 0.91 | \$ 18,018.24 | 28 | 6,898.3 | \$ 643.51 |
| 6-Sep-06 | 228,864 | 505.7 | 505.7 | 0.92 | \$ 20,808.94 | 33 | 6,935.3 | \$ 630.57 |
| 4-Oct-06 | 193,536 | 423.9 | 423.9 | 0.91 | \$ 17,580.11 | 28 | 6,912.0 | \$ 627.86 |
| 3-Nov-06 | 187,392 | 430.8 | 430.8 | 0.90 | \$ 17,612.96 | 30 | 6,246.4 | \$ 587.10 |
| 5-Dec-06 | 167,040 | 397.8 | 404.6 | 0.91 | \$ 15,848.27 | 32 | 5,220.0 | \$ 495.26 |
| 4-Jan-07 | 154,752 | 360.2 | 404.6 | 0.00 | \$ 14,892.43 | 30 | 5,158.4 | \$ 496.41 |
| 5-Feb-07 | 153,984 | 341.8 | 404.6 | 0.94 | \$ 15,651.31 | 32 | 4,812.0 | \$ 489.10 |
| 5-Mar-07 | 141,312 | 362.1 | 404.6 | 0.93 | \$ 14,598.21 | 28 | 5,046.9 | \$ 521.36 |
| 4-Apr-07 | 170,112 | 398.6 | 404.6 | 0.00 | \$ 17,659.03 | 30 | 5,670.4 | \$ 588.63 |
| 3-May-07 | 163,968 | 410.5 | 410.5 | 0.00 | \$ 17,165.20 | 29 | 5,654.1 | \$ 591.90 |
| 5-Jun-07 | 208,896 | 487.3 | 487.3 | 0.93 | \$ 21,605.95 | 33 | 6,330.2 | \$ 654.73 |
| 5-Jul-07 | 215,424 | 503.4 | 503.4 | 0.90 | \$ 22,285.53 | 30 | 7,180.8 | \$ 742.85 |
| 3-Aug-07 | 203,136 | 511.1 | 511.1 | 0.90 | \$ 21,269.24 | 29 | 7,004.7 | \$ 733.42 |
| 6-Sep-07 | 240,768 | 510.3 | 510.3 | 0.91 | \$ 24,538.93 | 34 | 7,081.4 | \$ 721.73 |
| 4-Oct-07 | 186,624 | 488.8 | 488.8 | 0.90 | \$ 19,679.18 | 28 | 6,665.1 | \$ 702.83 |
| 2-Nov-07 | 201,216 | 544.5 | 544.5 | 0.90 | \$ 21,333.99 | 29 | 6,938.5 | \$ 735.65 |

Store expanded in July of 2006 and added a large grocery section which is reflected in the kWh and Demand graphs.

Table 8.1 continued Sample Key Account Report

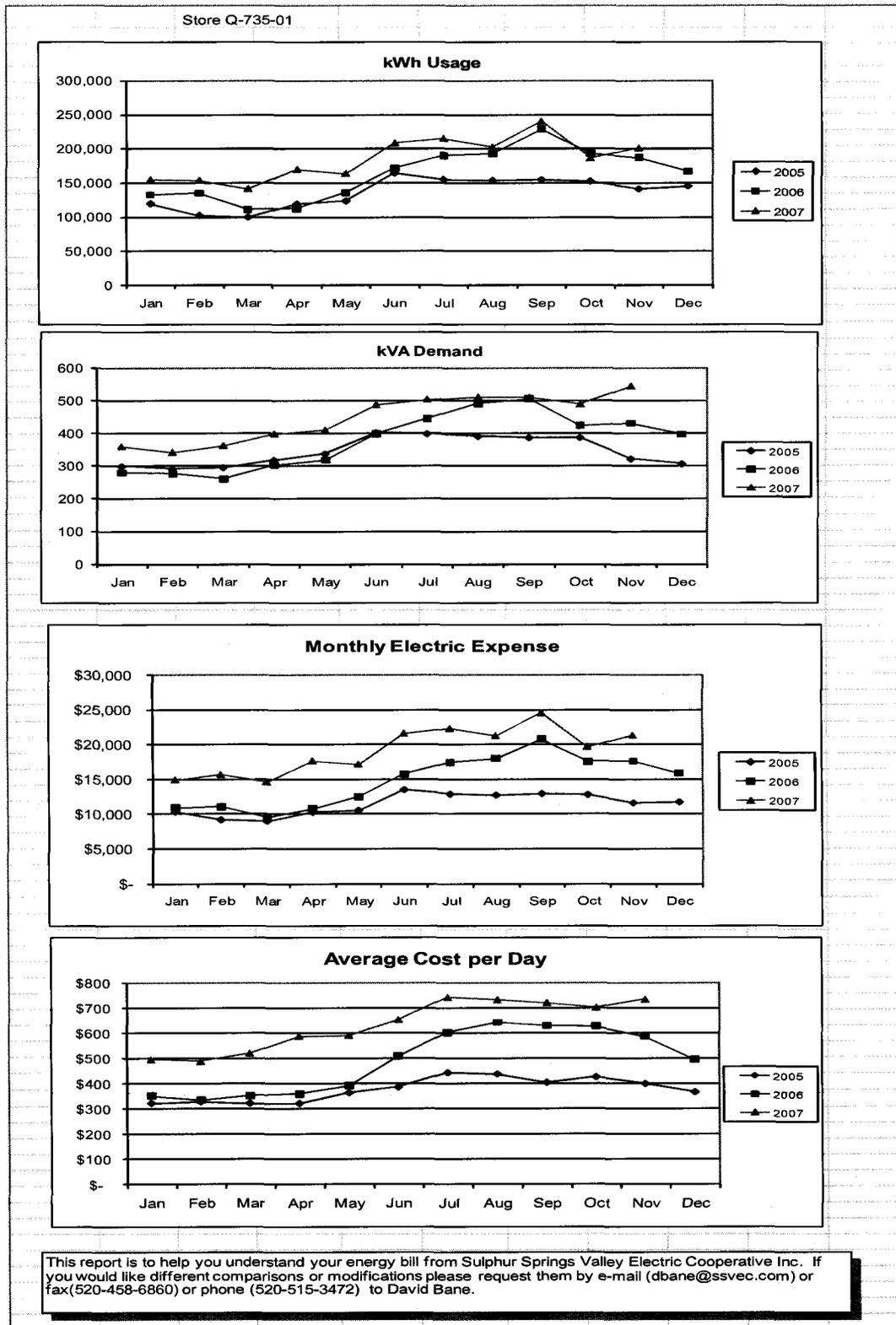


Table 8.2 Sample Questline News Letter

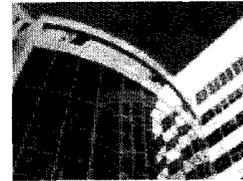


**Sulphur Springs Valley
Electric Cooperative, Inc.**
A Touchstone Energy® Cooperative

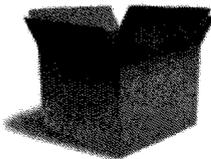
March 01, 2011

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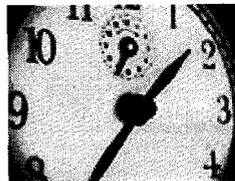
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This message was sent by Sulphur Springs Valley Electric Cooperative - 311 East Wilcox Drive - Sierra Vista - AZ - 85635

Tab 9 Projected Advertising for 2012/2013

- A. Co-op Connection – Monthly bill insert produced by SSVEC. Information related to DSM – energy conservation/management.

| | |
|--------------------------------|------------------|
| Production Costs | \$ 200 |
| Printing Costs | <u>\$ 10,500</u> |
| Total Bill Insert Costs | \$ 10,700 |

- B. Currents Magazine
SSVEC is responsible for developing and providing pages for the Currents publication, which is mailed to all SSVEC members.

| | |
|-----------------------------|------------------|
| Total Currents Costs | \$ 18,000 |
|-----------------------------|------------------|

- C. Media Advertising
Media campaign consisting of the Energy Audit Program, Touchstone Energy Efficient Home Program, and various incentive programs.

| | |
|---------------------------------|-------------------------|
| Print Advertising | \$ 15,000 |
| Radio Advertising | \$ 10,000 |
| TV Advertising | <u>\$ 21,300</u> |
| Total Media Advertising | \$ 46,300 |
| <u>Total Advertising</u> | <u>\$ 75,000</u> |

Again it is hard to quantify the savings from advertising, third party vendors (OPOWER and others) who have made presentations to provide this type of advertising to promote energy efficiency through customer awareness and behavior modifications claim a 1.5% to 3.5% decrease in energy consumption.

Sample of Advertising

Co-op CONNECTION

News and Information from SSVEC

August 2010

Calendar

September 6
SSVEC offices
closed for
Labor Day Holiday
 See below for the emergency,
 after-hours phone number.

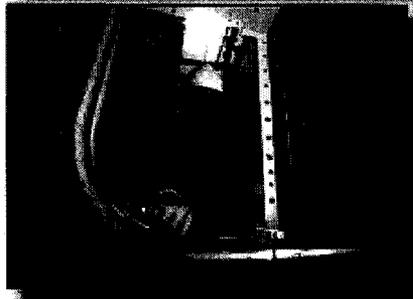
September 22
SSVEC Board of
Directors Meeting
 9:30 a.m. at the SSVEC
 boardroom at 350 N. Haskell
 Avenue in Wilcox, Arizona.
 Call to members is at 9:35
 a.m.

Mark your calendars for the
Santa Cruz County Fair,
September 17-19 and the
Cochise County Fair,
September 23-26

October 20
SSVEC Board of
Directors Meeting
 9:30 a.m. at the SSVEC
 operations facility at 1557
 Cooperative Way in Benson,
 Arizona. Call to members is at
 9:35 a.m.

November 11
SSVEC offices
closed for Veterans
Day Holiday
 See below for the emergency,
 after-hours phone number.

Emergency After-Hours
Phone Number
for SSVEC
(800) 422-3275



photos courtesy of NRECA

Photographs of Co-op Employees at Work

In early May, the National Rural Electric Cooperative Association (NRECA), a trade association for nearly 1,000 electric cooperatives across the nation, conducted a photo shoot of SSVEC employees at work. In an effort to upgrade their collection of stock photos for brochures, displays and presentations, NRECA contracted with a professional photographer to take photos at several cooperatives including Trico Electric Cooperative (Marana, Arizona) and cooperatives in Vermont, Minnesota and North Carolina.

Each cooperative has permission to use the pictures for in-house projects as well. Wayne Crane, public relations manager for SSVEC, said, "The images are excellent. These photos will be a great resource for SSVEC to use for projects such as our annual report, print ads and PowerPoint presentations."

Top photo: Apprentice Lineman Stanley Post completes line work on the co-op's transmission line alongside Interstate 10 west of Wilcox.

Bottom photo: SSVEC Journeyman Lineman Tommy Lancy at work at the Hawes Substation in Sierra Vista.

Save electricity and stay cool this summer in two easy steps

1. Remember to regularly change out the filter in your air conditioner or heat pump.

When filters become clogged, your heat pump or air conditioner must work harder (and use more energy) to keep you cool. Generally experts recommend checking and changing out filters monthly, but depending on the air quality in your home, it may be necessary to do so more often.



2. Turn off fans when you leave a room.

Fans move air which causes a cooling effect on the skin *if people are in the room*. This air movement does not lower the actual air temperature.



If you'd like more information on saving energy, contact your local SSVEC office and enter extension 5510. We'll send you a free copy of the booklet titled "Energy Savings Guide."

Plugged In

Using Electricity Safely and Efficiently

Pack Up Energy Savings

When taking a vacation, do you think about giving your meter a break, too?

By Pam Blair

It's easy to forget about conserving electricity when you and your family pack up the car to head off on vacation or a lengthy trip. But if you don't think about it before you leave, you could face an unpleasant—even irritating—surprise when you return.

While it seems to make no sense, your energy bill can be the same or even higher when your home is unoccupied. Some equipment, motors and electrical devices use power, whether or not anyone is home.

Let your meter know you are gone by preparing your home before you leave. Then you can enjoy your vacation knowing you are not wasting energy—or your money.

Preparing the Home for Your Absence

Air conditioning and heating are the top users of electricity. Before you pull out of the driveway, you turn the thermostat to its lowest possible setting, thinking you have effectively turned off the system.

In reality, you have only turned it to the lowest setting—generally 55 degrees. That means it will come on each time the temperature inside the house

drops below 55 degrees. In the fall, winter and even spring, that could be every day. The same principle applies to your air conditioning system.

To really disable your heating and cooling system, shut them off at the breaker panel. Before you do that, though, make sure the house won't get so cold your plumbing is at risk.

If you fail to shut off the breaker, your heating costs could actually rise when you are not home. That is because clothes drying, cooking, bathing and human activity give off heat that contributes to a home's temperature. Without a human presence, the heating system must work harder.

The second-biggest user of electricity is your water heater. Because it is out of sight, it is easy to forget. If you will be gone for more than two days, turn the heater off at the breaker. Left on, the water heater will work to keep all 50 or more gallons of water in the tank heated to 120 to 140 degrees, 24 hours a day.

Refrigerators and freezers draw electricity to keep your food cold and frozen in your absence. If you will be gone for a prolonged time, empty them out, shut them off at the breaker and prop open the doors to prevent mildew from growing inside.

Anything that uses clocks, memory, remote control, microprocessors and instant-on features—such as televisions and VCRs—consume small amounts of electricity even when turned "off." Unplug those items before you leave.

Rather than leave lights on all day, use a timer.

Detecting Other Reasons for High Bills

Staying home and trying to figure out what is behind an increase in your electric bill? Consider these possible causes:

- Did your bills go up dramatically at the beginning of summer or winter, when you regularly began running the air conditioning or electric heat? Perhaps temperatures are extreme. Your system also may need help. Change filters and check window caulking. If that doesn't stabilize your bill, call your utility or a heating/air-conditioning professional for help with more complicated things, such as thermostat operation and compressor cycling.

- A defective water heater thermostat can prevent the heating element from cutting off, causing

What's Up With My Electric Meter?

Often consumers faced with higher-than-usual bills wonder if their meter is wrong, if it was read improperly or if it has a short and is running fast.

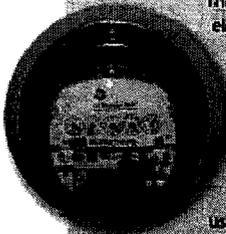
While those things can happen, they are rare.

Your electric meter is a finely calibrated device that is almost always within the plus or minus 2 percent tolerance range. Meters are regularly tested to ensure accuracy.

High bills rarely are due to a faulty, fast-running meter. In fact, a meter tends to gradually slow with age, benefiting the consumer.

The most common cause of high bills is an increase in electrical usage.

When you are home, you use electricity for lighting, heating and cooling, cooking, cleaning, operating electronics and powering your computer. But the electricity is on even when you are gone, powering your water heater, refrigerator, pumps and all of those electronics that have a built-in clock and automatic "on" function. They are "phantom" power users, drawing a small amount of electricity whenever they are plugged in, regardless of whether they are turned on.



Tab10 On-Demand Hot Water Circulating Pump:

The on-demand pump moves water at a high flow rate in a building's plumbing system – it does not heat hot water. The homeowner controls the pump by any number of activating mechanisms (at or away from the pump) as to when hot water is needed. The pump reduces both wasted energy and wasted water simultaneously in a home with:

standard plumbing, or in a home with a dedicated hot water recirculation loop.

A pump is normally installed at the most distant hot water fixture from the hot water heater. When activated all hot water fixtures on the main (trunk) line then have hot water available.

The on-demand pumps of interest for this rebate must meet the operational and safety test standards of paragraph 6.5 of PS115-2007 (or the most recent update) as prescribed by the International Association of Plumbers and Mechanical Officials. As an aside, in November 2010 an official request was made to the EPA to establish an Energy Star category for these pumps.

Two rebates are proposed, one for electric hot water heaters and one for natural gas hot water heaters. The cost benefit ratios are shown separately. Input values to the rebate requests come from an extensive independent modeling effort to include official inputs from Sierra Vista city government. Because energy and water are inextricably linked, the cost benefit ratio is comprised of model outputs from both.

| | Electric | Natural Gas |
|---------------------------------------|---------------|---------------|
| Annual wasted energy costs | | |
| No pump | \$ 183 | \$ 116 |
| On-demand pump | \$ 76 | \$ 48 |
| Savings | \$ 117 | \$ 68 |
| Annual wasted water costs | | |
| No pump | \$ 20 | \$ 20 |
| On-demand pump | \$ 3 | \$ 3 |
| Saving | \$ 17 | \$ 17 |
| Annual wasted water (gallons) | | |
| No pump | \$ 8,800 | \$ 8,800 |
| On-demand pump | \$ 1,200 | \$ 1,200 |
| Savings | \$ 7,600 | \$ 7,600 |
| Effluent treatment savings / 7600 gal | \$ 17 | \$ 17 |
| Total Annual Savings | \$ 151 | \$ 101 |
| Rebate proposed | \$ 150 | \$ 100 |

Cost Benefit Ratios:

| | |
|----------|---|
| Electric | $\frac{\text{Energy } (\$117) + \text{Water } (\$17) + \text{Effluent } (\$17)}{\text{Rebate } (\$150)} = \frac{\$151}{\$150} = 1.01$ |
| Gas | $\frac{\text{Energy } (\$68) + \text{Water } (\$17) + \text{Effluent } (\$17)}{\text{Rebate } \$100} = \frac{\$102}{\$100} = 1.02$ |

Estimated System and Installation Costs:

| | |
|-------------------------------------|--------------------------------|
| ACT D'mand systems cost | \$500.00 (pump and connectors) |
| Labor (plumber) | \$200.00 |
| Labor (electrician) | \$200.00 |
| Watts Instant Hot Water system cost | \$250.00 |
| Labor (plumber only) | \$200.00 |

Both products can be consumer installed if the consumer is handy with tools.

Societal Benefits

The annual average kWh saved per household incorporating an on-demand pump is 888 kWh based on \$117 cost avoidance. A National Renewable Energy Laboratory dated November 2003, *Consumptive Water Use for U.S. Power Production*, reported two gallons of water are consumed per kWh produced nationally or 7.85 gallons per kWh when produced in Arizona. Hence, one on-demand pump can also avoid water consumption of between 1,776 and 6,971 gallons per home due to reduced energy demand in the home. This is "invisible water" that is saved.

One kWh of electricity produced emits, on average, 1.297 pounds of CO₂. Therefore a home with an on-demand pump installed reduces its carbon footprint by 1150 pounds of CO₂ annually.

The municipal water utilities examined in the independent modeling effort, based on 7,600 gallons saved per household, equated to \$3-\$5 annually for the electrical cost avoided by lifting and moving water from the local aquifer to meet homeowner water demands. This \$3-\$5 annual savings were not included in the cost benefit calculations.

Power is required for the pump. Installation of an on-demand pump requires no modification to existing plumbing, to dry wall or any other surface material, nor any penetration of load bearing or other walls. Pump installation can be a do-it-yourself project with just a few common tools. To supplement the balance of the installation cost, if the customer has at least \$2,000.00 of thermal improvements they can use the Residential Energy Efficiency Loan Program to help pay for the pumps.

Budget set to \$20,000.00 per year for incentives.

Tab 11 C&I Lighting Incentive:

The proposed incentive is based on the reduction in demand on the SSVEC power purchases.

Under the latest wholesale power rate, SSVEC’s Monthly Demand is \$5.50 per kW. We propose a \$0.20 per watt incentive for lighting upgrades. This incentive level is based on the demand savings as seen by SSVEC. The customer also receives savings from reduced kWh purchases and demand charges on their monthly bill. Customers receiving an incentive for efficient lighting would also be eligible for the Zero Interest C&I Loan program.

Basing the incentive on watts reduced allows the Customer to choose which lighting technology (HID to CFL or Florescent to LED) makes the most economic sense for their business.

Sample project:

Business has 75 fixtures with 4-34 watt T12 lamps and magnetic ballast (144 watts ea.)

Replacements: 75 fixtures with 2-32watt T8 lamps and electronic ballast (86 watts ea.)

Existing demand watts = 10.8 kW (75 X 144 watts)

New demand watts = 6.45 kW (75 X 86 watts)

Reduction of 4.35 kW at \$0.20 per watt = \$870 incentive.

Cost Benefit Ratio:

| | | |
|----------------------------|---------------------------|---------------|
| Customer Savings (annual): | Demand reduction | \$ 402 |
| | kWh Savings (@ 2,860 hrs) | \$ 690 |
| SSVEC Savings (annual) | Demand reduction | <u>\$ 287</u> |
| | Savings Total | \$1,379 |

1379 ÷ 870 = 1.6 cost to benefit ratio

Budget set to \$70,000.00 for incentives

Tab 12 Refrigerator Recycling Program

The goal of this program is to either remove or prevent old refrigerators from the home that become a "backup" or "extra" refrigerator when a new energy efficient model is purchased as the main refrigerator. Analysis provided by JACO the Contractor for Program

| Appliance Recycling Program (ARP) Summary Cost Analysis Sulphur Springs Valley Electric Cooperative (SSVEC) | | | | | | |
|--|------------------|--|------------------|--|-------------|--|
| Program Assumptions | | | | | | |
| Market Penetration (Program Volumes) | | | | | | |
| Total Electric Service Account Base | 40,000 | data per John Wallace, GCSECA, 4/13/10 | | | | |
| Residential Fraction | 100% | standard JACO assumption (if residential sector counts not available) | | | | |
| Total Residential Electric Service Account Base | 40,000 | calculated value | | | | |
| PY 2012 | | | | | | |
| Annual Harvest Rate (AHR) | 1.0% | scenario assumption | | | | |
| Units | 400 | calculated value | | | | |
| PY 2013 | | | | | | |
| Annual Harvest Rate (AHR) | 1.0% | scenario assumption | | | | |
| Units | 400 | calculated value | | | | |
| Measure Savings Attributes: Refrigerators | | | | | | |
| Refrigerator Fraction of Total Program Volumes | 90% | JACO experience at Arizona-based utility service territories (APS, SRP, etc.) | | | | |
| Refrigerator Net Energy Savings (annual kWh/unit) | 825 | adjusted value from ADM study of California 2004-05 ARP for SCE: (1,656 gross value - 414 adj. (-25%) for increased avg efficiency rel. to 2004-05) * .664 NTG = 825 net; available from Calmac web site as study # SCE0219.01 | | | | |
| Refrigerator Net Demand Savings (avg kW) | 0.09 | based on net energy savings value and 8760 hr/yr | | | | |
| Measure Savings Attributes: Freezers | | | | | | |
| Freezer Fraction of Total Program Volumes | 10% | JACO experience at Arizona-based utility service territories (APS, SRP, etc.) | | | | |
| Freezer Net Energy Savings (annual kWh/unit) | 686 | adjusted value from ADM study of California 2004-05 ARP for SCE: (1,265 gross value - 316 adj. (-25%) for increased avg efficiency rel. to 2004-05) * .723 NTG = 686 net; available from Calmac web site as study # SCE0219.01 | | | | |
| Freezer Net Demand Savings (avg kW) | 0.08 | based on net energy savings value and 8760 hr/yr | | | | |
| Measure Savings Attributes: Weighted Net Avg (Refrigerator/Freezer) | | | | | | |
| Wtd. Avg. Net Energy Savings (annual kWh/unit) | 811 | calculated based on above assumptions | | | | |
| Wtd. Avg. Net Demand Savings (avg kW) | 0.09 | based on net energy savings value and 8760 hr/yr | | | | |
| Measure Life (applic. to refrigerators and freezers) | | | | | | |
| | 8 | Kema, "Residential Refrigerator Recycling Ninth Year Retention Study", Study ID's 546B, 563; prepared for Southern California Edison, 7/22/2004; available from Calmac web site as study # SCE0130.01 | | | | |
| Per-Unit Implementation Cost Assumptions | | | | | | |
| Direct Implementation | \$ 100.00 | comprehensive implementation services - including collection, transportation, recycling, CFC-11/HFC-141b destruction, and infrastructure (including call center, web site, incentive check fulfillment, database/reporting, QA/QC, and project mgmt) | | | | |
| Advertising, Marketing and PR | \$ 20.00 | logically consistent with assumed unit volumes and AHR; allowance; provided by utility | | | | |
| Incentive | \$ 30.00 | identical to incentive levels applicable at APS and SRP | | | | |
| Total Implementation Cost | \$ 150.00 | total of above | | | | |
| Macroeconomic Assumption | | | | | | |
| Discount Rate | 5.5% | JACO estimate for municipal utility systems | | | | |
| Annual and 3-Year Total Program Metrics (note: PY = "program year") | | | | | | |
| | PY 2012 | PY 2013 | PY 2014 | 3 PY Totals | | |
| Unit Volumes (refrigerators and freezers) | 400 | 400 | 400 | 1,200 | | |
| Program Costs (excl. Prog. Admin and EM&V) | | | | | | |
| Direct Implementation | \$ 40,000 | \$ 40,000 | \$ 40,000 | \$ 120,000 | % of Total | |
| Marketing | \$ 8,000 | \$ 8,000 | \$ 8,000 | \$ 24,000 | 13% | |
| Incentive | \$ 12,000 | \$ 12,000 | \$ 12,000 | \$ 36,000 | 20% | |
| Total | \$ 60,000 | \$ 60,000 | \$ 60,000 | \$ 180,000 | 100% | |
| Net 1st Year Load Impacts | | | | | | |
| Annual kWh | 324,333 | 324,333 | 324,333 | 648,666 | | |
| avg mW | 0.04 | 0.04 | 0.04 | 0.11 | | |
| Detailed Year-by-Year Analysis for 2-Year Total Program Levelized Cost Calcs (assumes all units in PY X begin accruing benefits on Jan 1 of PY X) | | | | | | |
| | PY 2012 | PY 2013 | PY 2014 | PV of Sum for 2 PY's | | |
| Program Costs | \$ 60,000 | \$ 60,000 | \$ 65,000.00 | \$ 175,271 | | |
| Net Annual kWh Load Impact Info | | | | | | |
| | PY 2012 | PY 2013 | PY 2014 | Sum for 3 PY's | Cumulative | |
| 2012 | 324,333 | | | 324,333 | 324,333 | |
| 2013 | 324,333 | 324,333 | | 648,666 | 972,998 | |
| 2014 | 324,333 | 324,333 | 324,333 | 972,998 | 1,945,997 | |
| 2015 | 324,333 | 324,333 | 324,333 | 972,998 | 2,918,995 | |
| 2016 | 324,333 | 324,333 | 324,333 | 972,998 | 3,891,993 | |
| 2017 | 324,333 | 324,333 | 324,333 | 972,998 | 4,864,991 | |
| 2018 | 324,333 | 324,333 | 324,333 | 972,998 | 5,837,989 | |
| 2019 | 324,333 | 324,333 | 324,333 | 972,998 | 6,810,988 | |
| 2020 | 324,333 | 324,333 | 324,333 | 648,666 | 7,459,653 | |
| 2021 | | 324,333 | 324,333 | 324,333 | 7,783,986 | |
| Total Net Annual kWh Impacts, 2012-2021 | 2,594,662 | 2,594,662 | 2,594,662 | 7,783,986 | | |
| PV of Net Annual kWh Impacts, 2012-2021 | | | | 5,969,095 | | |
| Overall 2011-2012 Program Levelized Costs (\$/kWh) | | | | \$ 0.029 (excl. prog. admin & EM&V) | | |
| | | | | Cost per kWh credit received = \$ 0.0225 | | |

Tab 13 Smart Grid SDSM projects**Home Energy Audits**

SSVEC has hired part-time, temporary employees to conduct energy audits. These energy auditors will visit a member's home or place of business upon request and conduct an in-depth analysis and make specific recommendations on what the home or business owner can do to decrease electric consumption. These auditors also promote SSVEC's DSM program and helps the member to determine which programs will provide them with the most help.

In-Home Display/Home Area Network Pilots

SSVEC anticipates that it will conduct a 300-member pilot program using Landis+Gyr Zigbee-enabled meters to enable programmable communicating thermostats (PCTs) and load control switches. A 300-participant pilot program is expected to cost approximately \$550.00 per participant. Measurement and Verification (M&V) will be obtained on an hourly basis from the TS2 meter and will be stored in the organization's head end system.

Programmable Communicating Thermostats

SSVEC anticipates that it will conduct a 300-member pilot program using programmable thermostats (PCTs). This pilot will be without the engagement of a Zigbee-enabled smart meter. PCTs allow the selection of a target ambient temperature for a building that can be maintained for a set number of hours, and which can be allowed to be lower during the remainder of the day. Once the thermostat is programmed, no further intervention by the building occupant(s) is required. A 300-participant pilot program is expected to cost \$325.00 per participant. Measurement and Verification (M&V) will be obtained on an hourly basis from the TS2 meter and will be stored in Command Center.

Irrigation Efficiency

SSVEC anticipates that it will conduct a thorough analysis of irrigation efficiency. Currently there are over 600 irrigation load control devices installed across the service territory yielding a summer peak demand reduction of approximately 14 MW. SSVEC currently has approximately 28MW of irrigation control as well as approximately 8MW of Distributed Generation (diesel generators of local greenhouse). Additionally, SSVEC has 1-2 MW (depending on time of year and conditions) of supply-side management. While SSVEC's demand response program is effective for peak time demand reduction, new developments have created drivers and opportunities to improve some key functional areas of the program. These new developments include: (a) the deployment of smart meters and time of use rates; (b) new policy drivers to promote customer awareness and customer empowerment through information on energy consumption and energy management tools; and (c) various emerging technological advances based on two way communications, the deployment of home-energy-management systems and smart appliances.

Mercury Vapor Change-outs

SSVEC anticipates completion of its mercury vapor light replacement program over the next few months. The MV light replacement program is expected to reap savings resulting from the installation of higher efficiency HPS replacement lights. That is, a 175 watt MV light produces 6,000 lumens. The equivalent HPS light wattage is 100 watt, producing 8,000 lumens. Therefore, after replacement, more foot-candles are produced resulting in more light from less power consumption.

Transformer Efficiency

SSVEC anticipates the development of a forecasting tool to estimate future avoidable purchased power costs to the extent SSVEC develops and implements demand-side programs including the use of smart grid technologies and demand response and energy efficiency measures. Avoided purchased power costs are assumed to be the marginal wholesale power cost that would not be incurred by SSVEC if the proposed measures were put in place. The marginal wholesale power cost includes both avoided wholesale power purchases from third party suppliers (over and above the power available from AEPCO) and avoided wholesale transmission and ancillary services purchased from SWTC and others.

Prepaid Metering & Remote Connect/Disconnect

SSVEC plans to propose a prepaid metering option to members who have two-way communicating meters. SSVEC hopes to present a pilot program to the ACC in year 2 of the grant award. Simultaneously, SSVEC will study an option for remote connect and disconnect in its northern territory.

Meter Data Management

SSVEC continues to deploy one-way and two-way communicating smart meters and as it nears 100% deployment, the organization will evaluate the use of an integrated meter data management system (MDMS). This evaluation will include the consideration and use of operational analytics as well as the integration with other software applications in the organization.

Energy Efficiency & Web Portal Access

SSVEC is seeking to further engage its members with energy efficiency by helping them to learn more about their own personal usage and to compare and contrast their usage with other homogenous customers. SSVEC currently has a web portal for online bill paying and will seek to enhance that portal with more relevant and personal-use data such as with customized energy consumption details, charts and graphs, and neighborhood comparisons. SSVEC is also exploring social media avenues for dispersion of personalized messages.

**RECOMMENDATIONS BASED ON SSVEC'S
RESIDENTIAL MEMBER SURVEY
August, 2010**

DEMAND SIDE MANAGEMENT OPTIONS

The effort to get a substantial number of SSVEC members to undertake meaningful efforts to curb their demand faces daunting obstacles:

- The members are very protective of their control of energy usage, some angrily so;
- Their monthly bills are not high enough to prompt behavioral changes;
- Six in ten feel they have already made a dedicated effort to curb their energy use, while four in ten have not.
- The amount of money they need to save each month before they're willing to "go to the next level" may perhaps be beyond the range that we can deliver;
- They are not as well informed about their options as they need to be;
- They are not inclined to spend money up front to save more in the long run.

In sum, anything that requires them to spend money or alter their lifestyle will be a hard sell. As one respondent told us, "Sulphur Springs should not be telling me how much electricity I can use as long as I am paying my bills."

There is plenty of room for improvement, but there is no silver bullet, no one-size-fits all solution. Instead, *we recommend a multi-faceted approach that targets the best prospects for each of the major DSM options and that takes the form of a comprehensive pilot test.*

Of all of the options we discussed in the poll, the single most popular one was the option to participate in a pilot test. An astounding one-third of the members said they would like to be "considered as one of the homes to pilot test new energy efficiency programs." Bear in mind, though, that it takes a 25-minute-long one-on-one personal interview to get them there, and a pilot test sounds like it doesn't require a long-term commitment.

The idea of a comprehensive pilot test should be equally attractive to SSVEC's board and management. It allows you to avoid long-term commitments until you find out how much you can afford to subsidize each of the various DSM measures, and it prevents you from inadvertently pushing your margins off a cliff. When your goal is to spend money to encourage people to buy less of your product, it makes sense to be careful until you have enough data to forecast the results.

The pilot test should:

- As much as possible, target members who are influencers of opinion in their community so that their successful experience can be converted into positive word of mouth;
- Target prospects who seem likely to have the most potential energy savings available;
- Include at least one entire peak season;
- Last long enough to measure the effect once the novelty wears off;
- Be used aggressively as an opportunity to raise awareness and interest among all members about the importance of energy conservation and what SSVEC has to offer.

As rates rise, as the word spreads, and as the technology gets easier to use, participation will scale up. For now our goal should be to engage a few thousand selected members to participate in the comprehensive pilot test. The poll gives us a lot of insight about who to target and how to persuade them to join the effort.

The major components of the comprehensive pilot test would include:

- A trial implementation of aggressive time-of-use TOU rates for pilot test participants;
- A very simple information-only in-home-display (IHD), or perhaps both the simplest and a more advanced display that contains more information;
- User programmable thermostats;
- SSVEC-controlled installations;
- An aggressive program of home energy audits as the vanguard of weatherization, rebate, old refrigerator removal, and consumer education efforts;
- An upgrade of SSVEC's online energy management tools.

I did not include solar water heater rebates, since you already have a five-year waiting list. You could certainly add an expansion of that effort to this list, or perhaps add an upgraded effort to measure their effectiveness, if you wish.

"THE GROUND"

Civil War generals were preoccupied with what they called "the ground," the topography and circumstances that determine the outcome of the battle. Here are some insights about the ground we're starting on.

- SSVEC needs to improve its ratings for "helping you be more efficient in your use of electricity." 38% of the members give you poor or average ratings, while 58% give you positive ratings.

- To get a sense of why I suggest these ratings could be better, compare the above to your rating for reliability: 78% positive to 21% poor or merely average.
- There is a likewise relatively weak rating for "operating with concern for the environment," but some of that is due to fewer people knowing what you do. A quarter of members give you negative or merely average ratings, while 60% give you positive ratings.
- Ditto for "Promoting renewable energy" – 35% give you negative or merely average ratings while 54% rate you positively.

So, they need to learn that we are now taking those things very seriously. They need to know that cutting demand is a big problem we have to address, and why.

They do not understand that there are limitations coming that may limit how much energy they will be able to use in the future. As nearly as they know, the future contains an abundance of relatively-cheap electricity.

According to NRECA's focus groups, most consumers don't see the cost of power going up faster than inflation, so there's no big rush to change habits.

A majority (58%) of SSVEC members claim they make a dedicated effort to conserve energy in the home. For 63% of those folks that effort consists of turning off lights and unplugging appliances. Half that say they adjust the thermostat, 25% said they're using CFL/LED lights. A scattering of other efforts. It's not a stampede to save energy.

More significantly, 41% admitted that they aren't doing much, if anything. When people answer questions like this in a survey, they know what they're supposed to say. They overstate their interest and effort. The fact that 41% willingly admit to doing little is quite telling.

If history at the gasoline pump has taught us anything, it's that people don't alter their energy consumption until their pocketbooks feel the pain. So:

- Only 7% say their current monthly bill poses an extremely serious problem for their budget. 60% basically say "no problem."
- Before a majority will say that some kind of TOU rate and display or controller is worth the trouble, it needs to save them at least \$30 a month. Note that SSVEC's membership is a bit more affluent than the average co-op.

Interestingly, those interested in SSVEC-controlled systems require less potential savings. What motivates them? Convenience and their own forgetfulness.

You're not going to get widespread adoption of any of these measures until the neighbors begin selling it to each other. The more choices you give them, the better your chances. And once you get them in the tent, sell them the next thing.

SSVEC's rates are stable and look good for a while (knock wood). However, it means that the big economic motivator just isn't there (except for some, of course). This in turn means that *SSVEC is going to have to do all the work, do all the pushing, and make things as convenient and painless as possible*. Your people know they're supposed to be saving energy, and they'll go along with you, but you're going to have to go out there and get 'em.

They're not going to beat a path to your door in anything like enough volume to make a dent in the ACC's 16.6% demand reduction goal. Early in the survey, when they were read a list of the energy-saving information and options you currently offer, 57% said "no thanks" to everything on the list.

PLAN OF ATTACK

If you want to damage your credibility in a hurry, a good way to do it would be to promote new programs faster than you can fulfill the orders for them.

If 500 people demanded a home energy audit tomorrow, how long would it take you to get them done with your current resources?

If 1000 people wanted a simple IHD, how long would it take to get them ordered and installed, and how long does it take to put in place the infrastructure you need?

One virtue of a pilot test approach is that it allows you to manage expectations while you scale up your ability to get the work done.

The poll has given us the names of 170 pilot test volunteers and all of their answers to the 25-minute interview. Here's just a little of what we know about them:

- Their electric bills present a greater family budget hardship than is the case for the overall membership;
- 108 say they'd be likely to sign up for TOU. 68 prefer approach #1, 51 take #2, and 35 choose #3;
- A large majority of them (112) are not troubled by SSEVC privacy concerns;
- 152 own their homes, 131 are in single family homes, 31 in mobile/manufactured;
- 72 have central air. 130 have electric clothes dryers;
- Almost all (141) have high speed internet and a smart phone (87) or cell phone (56);
- 123 have been on SSVEC lines less than 7 years;
- 101 have no children at home, 61 do;
- They are evenly distributed across the income and age spectrums;
- 98 live in Sierra Vista districts.

So, that's a place to start. Another point about the above list is to show how you can use data to select the best prospects so you can get them signed up.

Taking it the next step, here's something to consider. You can purchase data about your consumers and append it to your customer billing file to expand your prospecting beyond these 170 volunteers (which you will need to do because obviously not all of those 170 will follow through and actually sign up, and even if they did you no doubt need many more on board to get any of these systems or options out there in enough quantity to matter).

Here's a sampling of the kind of data that's available for purchase and can be appended to your customer file:

- Age
- Age of the home
- Approximate family income
- Marital status
- Household composition (how many, kids, etc.)
- Voting history, political party (indicator of civic participation)
- Approximate market value of the home
- How long they've lived there (you also have connect date already)
- Likely presence of broadband in the home
- Ethnic background
- What magazines they read, whether they have hunting licenses, whether they give money to environmental causes
- Etc. etc. etc.

When you add that data to your customer billing file, you can then apply the criteria the poll gives us for identifying the best prospects for any given option and use it to produce a list of members who match the criteria. Include the data you already have on them (usage, billing history, credit ranking, etc.) You can also devise point systems to weight the importance of each of those criteria so that you can rank order the list. You can build prospect lists for each product or build a list that contains the best prospects for a combination approach.

Let me suggest that the size of the monthly bill should be a major factor in those equations, the theory being that those who use the most electricity probably also are wasting more energy than the little old lady with one toaster, two light bulbs, no vampires, and a monthly bill of \$42. The Willie Sutton principle. Asked why he robbed banks, he replied, "Because that's where the money is."

Whatever the criteria and the weighting, the next step is to begin working the rank-ordered prospect lists from the top down, making personal contact. Perhaps an introductory letter or phone call, followed by an in-home visit (for IHDs, controllers, weatherization, and so forth). That's why I suggest an aggressive home energy audit program as the vanguard of the effort.

This targeted approach will be far more effective and speedy than spraying some advertising out there, putting a benign checkbox on the website, slipping some blurbs into the newsletter, adding a statement stuffer or two, and then sitting back to wait for the phone to ring. You should do those things, of course, but they are the icing on the cake.

It's possible to refine those formulas as experience dictates, and it's also possible to make it too elaborate and complicated. In any event you are much more likely to produce bigger results faster if you target and work a few thousand of the hottest prospects rather than trying to convert all 50,000 members at once.

This pilot test approach also allows you to pace your targeting with the scale of your ability to get the work done, and since you're calling it a pilot test it gives you more flexibility to adjust pricing midstream.

You will need to modify this approach for residential accounts in rental units or military housing. Your plan should include a role for contractors (HVAC), plumbers, electricians, home improvement contractors, and retailers (appliance rebates) in the process of either attracting leads or helping fulfill them.

Near the end of the interview, after we'd gone through all the options at length, we asked people which of the various ideas for conserving energy they liked the best. See page 65 of the NRECA report. Note that the top two were "give me free money." The next three chosen amounted to a passive "Give me some information."

This underscores the notion that, at the moment anyway, people are not going to spend a lot of effort or money on energy conservation. The other point to draw is that no one approach shines through as the be-all, end-all.

YOUR PROSPECTS

In this section, we will provide some thoughts about where to begin with each energy-saving option that we asked about. We'll also give you an estimate of how many members might be reasonably expected to sign up for each of those options in the near future. The purpose is to give you some idea of the approximate scale of things for your planning purposes.

Knowing that there have been some questions about the validity of polling or the accuracy of this poll in particular, let me begin by putting some warning labels on the information that follows.

- Any poll is a snapshot in time. Customers change their minds every day. New events occur that influence their opinion. They get a shocker of a bill or a six-hour outage and they go from being friendly to being hostile toward their co-op. A neighbor tells them something he heard on the radio. Just because 6% told us in August that a home energy audit is their favorite idea doesn't mean that number will be the same a year from now.
- Indeed, the purpose of a marketing program and co-op operations is to CHANGE those numbers.
- Regardless of what any poll says, management decisions should be guided by what makes sense and what is right for the members. Members always tell us in polls that they want clean power, 100% reliability, environmentally-friendly generation, and cheap power. To people in the business, those demands appear to be contradictory, maybe even irrational. From the consumer's point of view, however, it is completely rational to want more good things for less money. The goal is to find a workable balance. A poll is merely one of the tools to help guide management.
- None of the following estimates depend upon the poll's margin of error. That is, if 47% of members asked for vanilla and 53% preferred chocolate, we're not recommending chocolate only. We're recommending that you offer both flavors.

Please bear in mind that the people we interviewed stayed in focus on the issue of energy conservation for a 25 minute interview, which is probably longer than most of them had ever done on this subject. The other 35,400 active residential members have not had the benefit of that extended conversation, and so one wants to be conservative when looking at the following estimates. Regard these estimates as maximum potential rather than as minimum potential. More on that in a moment.

Recall that we asked people whether they would be extremely likely, somewhat likely, somewhat unlikely, or very unlikely to adopt a given idea. Experience at other co-ops has demonstrated that a reasonable expectation is that half of those who call themselves "extremely likely" and a third of those who called themselves "somewhat likely" will actually follow through and eventually take that action, if pushed to do so, but there are some big IFs: Are they aware that the program exists? Is the price right? What was their friends' experience with it? Do the savings appear to make it worthwhile? Did someone take the time to explain it to me? Do I still have a job?

Using that rule of thumb, it is possible to estimate approximately how many people we might reasonably expect to sign up for the various options in the next year or two, given an aggressive marketing effort (but always remember the above warning labels).

We interviewed 500 residential members out of 35,916 active residential accounts. That means that each member interviewed theoretically represents 72 members. The crosstab data not only shows percentage distributions of attitudes and demographics, it also shows the number of people in each cell on the table. Those are the numbers to which we will apply the 72 multiplier.

People were generally asked twice or more about each of the possible energy conservation measures. Some of the measures were included when we asked people which, if any, of SSVEC's current offerings they'd be likely to sign up for in the next six months. Some of the measures, such as thermostats and controllers, were asked about in specific questions. At the end, people were again asked to say which they liked the most of all the ideas they'd heard in the previous 20 minutes. Those different ways of asking set up a range of prospect numbers.

As you look at these numbers, bear in mind that they are nothing more than approximations of what is reasonable to expect if in real life you matched the givens and expectations in place when these people were interviewed.

We are knowingly doing some damage to statistical purity for the sake of providing rough estimates. The goal is to create ballpark ranges for your planning. Weigh these estimates against what common sense tells you. Does a given number seem to make sense or is there reason to suspect it's way off? Use these estimates to evaluate where, in rough terms, you want to put the priorities. Evaluate which combination might offer the best path to the most demand reduction/control.

HOME ENERGY AUDITS

We'll begin with home energy audits. It's an opportunity to have an in-depth, face to face discussion with the consumer. It creates baseline data for measuring the effectiveness of the effort and the cost/value ratio for the consumer and for SSVEC. It creates a personal relationship for following up once the novelty wears off. It moves the conversation from abstract principles about energy independence into their living rooms to touch their pocketbooks.

As Congress moves forward with energy conservation/efficiency legislation, the probability increases that electric utilities will, one way or another, be doing millions of home energy audits in the years to come.

In the poll we asked about audits twice. Early in the survey we asked which of the current SSVEC offerings people would be most interested signing up for in the next six months. Near the end, we asked which of all the ideas discussed they like best.

Following our rule of thumb, we divided in half the number who said they'd be interested in the next six months (the first question), then scaled it up by 72. That produced 2586 prospects.

At the end of the survey, which of the various ideas do you like best, we had 32 takers, which would scale up to 2299 prospects.

It seems reasonable to set a goal of 2000 to 2500 home energy audits. This number also fits nicely in the range of possibilities for in-home displays (IHDs), weatherization loans, and rebates.

About half of the prospects for an audit report that their current monthly bill poses some degree of budgetary hardship. About half have central air. Almost all have high speed Internet. About half have children at home. Most heat water with gas and dry their clothes with electricity.

Among that universe of 2586 prospects, 1006 favor approach #1, 898 chose #2, and 503 would chose #3. Because #3 is probably the best way to go from SSVEC's point of view in terms of the degree of its ability to control the load, an aggressive program of home energy audits is recommended as a way to get more of these controllers installed. It is clear from the survey and from the informal feedback you've heard that you are not going to get very far with #3 unless you have some serious "face time" with the members individually. Then, assuming they like the result, you need to have them tell their stories to friends and neighbors to promote wider adoption.

Home energy audits are also an excellent vehicle for moving weatherization loans and appliance rebates, getting rid of garage refrigerators, pushing website usage, getting email subscriptions, and distributing energy-saving information.

Since no two homes and no two families are identical, this hands-on customized approach is the best bet to get the most people "into the tent" with the combination of energy-saving options that works best for them.

You might have two teams: one that does the evaluation, and a second that delivers the report and recommendations and attempts to sign the member up to take as many steps as they can. Scouts and closers.

Your home energy audit program should include a deliberate effort to sample rental properties through an arrangement with landlords, along the lines of a key accounts program, to determine what potential energy savings would be applicable and how to configure a method to implement them.

I trust you can readily identify owners of the larger complexes. In addition, however, 7% of single family dwellings and 14% of mobile/ manufactured dwellings are renter-occupied. This category may be more difficult, since ownership of those rental units is likely to be scattered among a large number of onesey-twosey property owners.

Among those who rent a place to live, 40% are in single family dwellings, 6% in townhouse/condo, 35% in an apartment, and 18% in trailer homes.

As I understand it, you are currently able to do about 500 audits per year and promised DOE that you would have concluded 2500 audits by the end of three years. Serendipitously, the poll finds that you have a universe of prospects right in that range.

To meet this goal, you need to ramp up your capacity for doing home energy audits. Consider having Bryan Singletary conduct a training workshop for co-op retirees or others who might be well suited to become auditors either part-time or full-time over the next few years. Hire them on a contract or piecemeal basis rather than making them permanent employees, and use your current auditors to mentor the trainees in the field. You may also need to add temporary help to encourage people on the prospect list to sign up for an audit and to get them scheduled.

Whether it's a quick audit to do \$25 worth of fast and easy stuff or a more detailed audit to set up a weatherization loan or one of the in-home devices, auditors should gather a common set of baseline data so that engineers can track the changes in demand.

TIME OF USE RATES

Members do not want to lose control of their energy use to SSVEC.

Three-quarters of the membership is aware that electric costs vary by time of day and season of the year.

As I understand it, though, under your current TOU rate people have to move something like 70% of their consumption off-peak before there is sufficient incentive, and that's a tall order. I gather you don't have many takers. Having a neat gizmo in the house without a good incentive means people won't use it, especially given the passive, under-motivated attitude your members have at the moment.

If the ACC allows you to experiment with TOU rates in a pilot test, you should include that experimentation in your plan.

In the survey we asked how many would be interested in a time-of-use rate that would save them 10% of their monthly bill if they could cut peak usage in half. 21% said they would be very likely, or 107 respondents, and 151 said they would be somewhat likely. Applying the rule of thumb to scale it up, that means a universe of 7422 potential adopters, half of whom fall in

the very likely category. About 2800 of the group would be game for system #1, 2500 for #2, and 1350 for #3.

The more generous the savings or the lower the peak-avoided threshold required to get the savings, the more participation you will have. You could set up tests of those variables and recruit from among the pilot test volunteers who indicated a strong interest in TOU rates and who selected one of the three approaches.

60% of the most likely prospects are clustered in the range of bills from \$50 to \$150 and about half report some degree of difficulty with that bill.

Next we'll take a look at what the potential might be for each of the three different devices that accompany a TOU rate. As we do, here are a few things to bear in mind:

- 75% of the households report that a person or pet is present during work or school hours;
- The more passive the system (the less control SSVEC has), the greater the savings have to be to get people to sign up. Said the other way, the more control SSVEC is given, the less the savings have to be.
- The verbatim responses about why people chose each of the three different display/controller options should be required reading for anyone working on this project. By verbatim response, we mean the word-for-word transcription of their answers to the open-ended question, "Why did you choose that one?" Flip to page 83 of the NRECA report.

APPROACH #1

Approach #1 is the information-only in-home display. People were given a choice between a very simple display and one that provides more detailed information.

The overwhelming reason people chose the first approach was that they want to remain in control of their energy use. As one respondent said, "I pay the bill, so no one is going to control it but me." They understand that if they use more, they pay more.

A second theme that emerges from their verbatim responses is that they feel they are already managing their energy use responsibly. A look at their actual behavior might dispute that, but perception is reality. To their credit, some did admit they need more information about how to use energy wisely.

The survey design took five shots at seeing how many people would sign up for each of the three approaches (six if you filter for interest in TOU rates).

1. After a brief description of all three approaches, they were asked which they would choose;

2. We asked how much money they would have to save;
3. We asked how many would sign up if they had to pay \$100;
4. If they were not interested in paying \$100, we asked how many would sign up if SSVEC paid the entire cost;
5. After all the DSM questions had been asked and answered, we asked which of all of approaches discussed they like the best.

Taking that last one first, at the end of the survey 45 respondents indicated that Approach #1 was the best idea they'd heard in the previous 20 minutes of the interview. That would put the universe at about 3,200 homes.

Using the rule of thumb method, at a \$10 monthly savings you have 1,400 takers for Approach #1. At a \$30 monthly savings, 5400 takers.

If they have to pay \$100 to put the unit in, enthusiasm declines. Using that rule of thumb on this criteria, you have about 2,800 takers. If SSVEC pays the total cost, the total jumps to 4,200 units.

By a 2:1 margin, members preferred a device that kept it extremely simple over one that provided more detailed information. As you would expect, older people are more inclined to the extremely simple model while those under age 45 are evenly split between two display choices. I suggest you use the extremely simple model for this part of the pilot test and move anyone interested in a more detailed display to a programmable thermostat.

As you do the pilot test program, make sure to provide easy to use instructions, phone assistance, and tutorials when setting up the devices.

Target groups for this part of the pilot should include retirees and other households with a person or pet in the home most of the day. If you go with an extremely simple model such as the orb which glows red or green, consider a program to get schoolchildren fired up to pay attention to it.

APPROACH #2

This approach, a programmable thermostat, came in second place among the three options. It was described as a unit that would automatically change temperatures at different times and could turn off appliances, all user-controlled settings.

People liked it because they would be in control. Reading the verbatims, I also sense that it appealed to some because it seemed the middle-of-the-road among the three options. There is some concern about getting the device set up correctly, so be sure that installers have the patience and time for a good tutorial session (personal experience speaking here, too).

That final "what's your favorite?" question after all the DSM questions indicated a potential 2,600 in the universe for approach #2, which is 20% fewer than those who chose the information-only display.

Scaling it up, if 100% did what they said they'd do for a savings of \$10 or less a month, there are perhaps 800 takers out there. If they could save \$30 a month, there could be 3,500 takers.

If they had to pay \$100 to get it, about 2,100 would be a reasonable expectation. Making it free would put the number at 2,900.

For approach #2, we told people that they could change room temperature by as little as 2 degrees or as many as 10, then asked how many degrees of room temperature they'd program their thermostat to adjust.

14% said 2 degrees

9% said 3 degrees

9% said 4 degrees

30% said 5 degrees

11% said 6-7 degrees

5% said 8-9 degrees

15% said 10 degrees or more

This means that at least half would allow you to change the room temp by 5 degrees or more.

It's hard to say whether those who chose 5 degrees or more were just picking a mid-range number and do not realize that 5 degrees can make a big difference in comfort. Those who say they've made a dedicated effort to conserve electricity are distributed along the degree-adjustment spectrum about the same as those who've made a mild effort. Having central air or not does not appear to alter the distribution, either, though the sample size is small enough that it's just an approximation. With that same caveat, it does appear that seniors are a bit more likely to keep it under a 5-degree adjustment.

The NRECA focus group results suggest targeting the smart thermostat to people who are out of the home most of the day (with the exception of pet owners) and those who are tech savvy (those with high speed internet, cell phones, etc.). They like the "set and forget" nature of the smart thermostat and the possibility of changing the thermostat settings remotely in response to critical peak warnings from power company.

APPROACH #3

This approach was described as one that "allows Sulphur Springs to change a consumer's thermostat by a few degrees and turn off major appliances like the water heater or clothes dryer during peak times." It was explained that this option probably saves the most money and explained that consumers get to decide the settings and would have manual override capability.

Approach #3 came in toward the bottom of the list in that summary question about which of all ideas was one they like best, chosen by half as many who picked the information-only display. People who choose #3 have slightly higher overall customer satisfaction ratings with SSVEC.

Scaling up, about 1,600 found this the best idea. At a \$10 monthly savings, there are 575 takers. At a \$30 savings, there are 2,400 takers. If they have to pay \$100 for it, there are 1,100 takers and if SSVEC pays for the unit, that jumps to 1,300.

In their verbatim responses when asked why they chose #3, I expected to see environmental motivation front and center. While there was some of that, a striking number spontaneously volunteered that they preferred SSVEC control to compensate for their own forgetfulness. They also like having fewer knobs and controls to fiddle with.

As expected, the ability to override SSVEC control is a required feature. Still, there is an interesting psychological shift here. The onus shifts from requiring the member to be pro-active about conservation to requiring the member to be pro-active to consume more. Likewise note that the amount of money they'd need to save before paying careful attention to when they use electricity decreases as the amount of consumer control decreases. The more of the work you'll do, the less they need to save before they'll sign up.

As we did with the second approach, we asked how many degrees (between 2 and 10) they'd allow the controller to adjust:

- 8% said none
- 11% said 2 degrees
- 16% said 3 degrees
- 13% said 4 degrees
- 35% said 5 degrees
- 5% said 7 to 8 degrees
- 2% said 8 to 9 degrees
- 11% said 10 or more degrees

As with the second approach, half would allow you to change room temperature by 5 degrees or more.

A key thing you'll want to track in the pilot test is the range of temperature changes you can make in the home without causing folks so much discomfort that they bail on the program. Keep track of when people hit the override switch. Revisit homes where there has been little or no change in usage. It may be they don't like the room temperature, but it may also be that they pushed the wrong button.

If the unit you promote for Approach #3 requires a high-speed Internet connection, bear in mind that three-quarters of the membership does have high-speed Internet, including those who selected Approach #3 over the other two approaches. While 54% of those whose monthly bill is \$50 or less have high-speed Internet, among those whose bill is \$200 or more 92% have a high speed Internet connection in their homes. In the Sierra Vista area, it's 81% of members.

We asked which appliances they'd be willing to let SSVEC cycle during peak times. Washers and dryers were most popular, followed by dishwashers and water heaters.

As you would expect, members who selected #3 are distinctly less concerned about a system that gives SSVEC extensive information about their energy use. While 17% of all members said that issue would be a major concern and 58% said it would not, among those who chose #3 only 6% said it would be a major concern while 77% said it would not be much of a concern.

Even though this was the least popular of the three options, there does appear to be enough interest to say that approach #3 should definitely be included in the pilot test. Perhaps your TOU rate should offer more generous incentives to those who allow SSVEC some degree of control.

THREE APPROACHES SUMMARY

We asked a number of questions to determine how many people might reasonably be expected to sign up for each of the three approaches, including:

- Which do they choose right after the three options were explained to them?
- After all energy-saving ideas had been discussed, which one did they like best?
- How many would be interested at various levels of savings on the monthly bill?
- How many would pay \$100 for the unit?
- How many would take the unit if SSVEC paid for it?

In the first row on the following table, we assumed that only half of those who said they would be extremely likely to pay \$100 for the unit would do so, then scaled that up to represent the entire body of active residential members (1 poll respondent = 72 members).

That row probably represents the minimum reasonable expectation and might be the minimum parameters for a pilot test: 862 information-only units, 682 programmable thermostats, 251 SSVEC-controlled units.

Next on the list is how many you would have if 100% of those who said they'd sign up for a savings of only \$10 per month.

Third on the list you'll see what happens when you combine half of those who said they'd be extremely likely to sign up and pay \$100 for the unit and a third of those who said they'd be somewhat likely.

The "best idea" number represents those who picked that approach as their favorite among all options discussed.

The next row shows how many might be installed if 100% of those who said they'd take the unit if you paid for the whole thing.

The bottom row shows how many units you could install if 100% of the people who indicated they'd need to save at least \$30 a month did indeed sign up.

| | #1 | #2 | #3 |
|--|-------|-------|-------|
| Extremely likely: customer pays \$100 | 862 | 682 | 251 |
| \$10 savings per month | 1,437 | 790 | 575 |
| Combined: customer pays \$100 for unit | 2,806 | 2,105 | 1,152 |
| Best idea | 3,232 | 2,586 | 1,580 |
| SSVEC pays for unit | 4,223 | 2,866 | 1,274 |
| \$30 savings per month | 5,387 | 3520 | 2442 |

If you filter out the renters, the above numbers decrease slightly, generally less than 10%.

For each of the three options we asked how much money they'd have to save every month before they'd make it a special point to pay careful attention to using energy at less expensive times. Respondents gave an exact dollar amount, and we compared that to their actual average monthly bills over the past 12 months (after excluding people who named an amount higher than their total bill or whose bills were under \$50 per month or who had less than a month's time on your lines).

- Among those who approach #1, it would take a 32% reduction in monthly bills before they'd make it a special point to use electricity at less expensive times;
- For approach #2, a 28% savings;

- For approach #3, a 26% savings.

If these numbers seem discouraging, remember what I said at the outset of this report: there's just not enough pain in those monthly bills to motivate people into a vigorous pro-active energy-conservation mode. If you imposed on all members a TOU rate with sharp teeth, that would change things, of course. As rates go up, so will interest in conservation and efficiency. However, as things stand right now, you'd need to offer \$30 monthly savings to get a third of members to put in one of these units, and only one in five of them would let you touch that dial.

The following table shows how many members would adopt one of the three approaches at varying levels of savings (assuming that 100% of those who said so did so). The numbers are cumulative as you read down the columns.

| | #1 | #2 | #3 |
|-------------------|-------|------|------|
| Save \$10 or less | 1440 | 792 | 576 |
| \$11 to \$20 | 3672 | 1944 | 1728 |
| \$21 to \$30 | 5400 | 3528 | 2448 |
| \$31 to \$50 | 8712 | 6048 | 3672 |
| More than \$50 | 10800 | 6840 | 4032 |

The fact that a best-case scenario puts you at only a fraction of your membership agreeing to a TOU unit of some kind argues strongly for a multi-faceted approach to raise their energy consciousness, upgrade the inventory of appliances, weatherize more homes, and put more energy-saving information into their hands.

(Note that the percentage distributions on some of the crosstab tables do not correspond exactly with the distributions shown elsewhere. The difference is that the columns in the crosstab tables reflect the distribution among those who answered the question, excluding those who were not asked the question or did not offer a response.)

SOLAR WATER HEATERS

When asked which of all the options discussed was the one they personally liked most, solar water heaters were the most popular, followed by rebates for purchasing Energy Star appliances. Given how much you've promoted solar water heat and given all the publicity you've received for it, that level of interest is not surprising.

You already have 300 members on the waiting list for solar water heaters. An expansion of that effort makes sense because it is a well-received, successful program. Three-quarters of your members are aware of its availability.

However, note that there is an upper limit for the solar water heaters as a limiter of overall electrical demand, since two-thirds of your members heat water with gas.

Using the same method as before, a reasonable expectation is that you could move another 900 of these units by offering a \$2000 rebate. When you add the \$1500 tax credit on top of the rebate, an additional 2,600 would be a reasonable expectation. Presumably these numbers include some of the people who are already on the waiting list, but if you got all 3,500 of these prime prospects installed, you'd be one-third of the way toward getting all of your residential electric water heating converted to solar.

WEATHERIZATION

Since your weatherization program is merely a few months old, it is not surprising that 72% of members are unaware of it.

Weatherization fared well in the follow-up question that asked people to name the idea they liked the best, beating the SSVEC-controlled unit and tying with approach #2, the programmable thermostat. This is noteworthy because only a minute earlier in the interview, they'd heard the caller say that the cost of weatherization is usually somewhere between \$2,000 and \$10,000.

Four percent of the members indicated they'd already weatherized their home (with or without an SSVEC loan), which would indicate that merely 1,300 of the 36,000 active residential homes have taken this step.

When told that weatherizing could pay for itself via lower electric bills in three to five years, 9% of the members who are homeowners said they'd be extremely likely to get an interest-free loan from SSVEC and 24% said somewhat likely. That extremely likely category scales up to 1,332 prospects, and when somewhat liklies are added it becomes 3,852.

When those numbers are compared to the number of prospects for any of the three IHD/controller approaches, it is clear that marketing interest-free weatherization loans should be on a par with that effort.

Once again, an aggressive program of in-home visits and energy audits would be the recommended vehicle.

APPLIANCE REBATES

You are a long way from having a majority of the appliances out there being Energy Stars. Two-thirds of members say they have at least one Energy Star appliance, most often a refrigerator, while 42% of your members have two or fewer Energy Star appliances.

We asked respondents which appliance they are most likely to replace next. For each one we then offered a 25% rebate on the approximate cost of the appliance they chose, then asked how likely they would be to purchase that appliance in the next six months if the rebate were offered.

The following table shows how many takers one might reasonably expect for each appliance, along with the item's cost and the amount of rebate offered in the poll question:

| Appliance | cost | 25% rebate | Prospects |
|----------------------------|---------|------------|-----------|
| Refrigerator | \$1,000 | \$250 | 1296 |
| Water heater | 400 | 100 | 948 |
| Washing machine | 800 | 200 | 912 |
| Dishwasher | 600 | 150 | 792 |
| Clothes dryer | 840 | 210 | 396 |
| Central air system | 7,000 | 1,750 | 192 |
| Swamp/evaporative | 1,000 | 250 | 192 |
| Furnace or electric heater | 1,200 | 300 | 192 |
| Freezer | 700 | 175 | 144 |
| Heat pump | 7,000 | 1,750 | 84 |

Since free money is always a popular offer and you can give it away as fast as you can print it, this becomes another argument for some kind of in-home visit or energy audit, to help make sure you put rebate money where it will do the most good. Try to use the free money as a hook to get other energy-saving action from the homeowner. Consider offering a lower rebate on a widespread basis but withhold the 25% rebates for those who do the audit and/or agree to an IHD or controller as part of the package and/or agree to let you haul away an old refrigerator.

Since refrigerators are far and away the most popular next appliance purchase, it is significant that 42% of the members said they have a second refrigerator in their home or garage, and 51% of members said they would be likely to let you haul away their old refrigerator in exchange for a \$30 check. For those who already have two and replace one, perhaps you should offer a bounty for that second old refrigerator.

COMMUNICATION

While SSVEC scored below national co-op norms on "helping members be more efficient in their energy use," by the time you're done with the DOE program, that will have changed dramatically.

Once you have decided on the key features of a comprehensive pilot test, you can use poll data and purchased data to target market. Your ongoing mass media messages should shift their content to support that effort.

MESSAGING

We read people a list of reasons for saving energy, other than saving money, and asked which one was most important to them personally. Not surprisingly for such a conservative area, 37% chose helping make America more energy independent.

Note that when you take the greenish reasons offered and lump them together, the total slightly exceeds energy independence as a motive. Green jobs and a green economy were the most popular in this set, followed by reducing pollution from power plants, avoiding the need to build new power plants, reducing carbon footprint, and combating global warming.

You can talk all day long about avoiding the need to build more power plants, reducing pollution from power plants, and promoting new (green) jobs without fear of tar and feathers. Point out that those efforts also help the pocketbook. You don't have to mention climate change, but know that for one in six members that is the motive – and for those people it's a strong one -- so don't trash it.

Your communication should also emphasize that change is coming. One of the main reasons your members are not motivated to take pro-active steps is that they evidently assume that cheap electricity is theirs to enjoy well into the future. Key messages would be that mandates are coming both federally and from the state, and they, along with normal cost drivers, are going to push rates up. People need to understand what the ACC is asking you to do, and why. Position SSVEC as trying to get ahead of the curve and solicit their participation in the effort.

YOUR WEBSITE

Newer, younger members with kids at home, employed, and more affluent members are the most likely to have used the website. 90% on those who have been on your lines for 20 years or more have not been to the site. As you would expect, there is also an age fault line. 88% of seniors have never been to the website, while 42% of those under age 45 have. Web site visitation rises as income rises, too.

I've already sent along a number of suggestions for upgrading the website as a tool for promoting energy conservation and understand that work is underway.

Some suggestions, such as making it convenient for members to track their real-time or historic usage, may have to wait until smart grid implementation is further along, but you should begin immediately to put those tools in place. Consumer knowledge of their current usage and historic trends -- member by member -- is critical if you hope to alter behavior enough to have a prayer of reaching a substantial demand reduction. You have an entire younger generation of members who are comfortable with such tools.

COMMUNICATING ONLINE

For a while longer, the newsletter will remain your best vehicle for communicating about energy conservation and the smart grid, particularly among the older members. It is far and away the most-used source of energy-saving information to date.

Over time, however, as older members die off, more and more of your communication with members will happen in cyberspace.

Since 60% of your members report that they check their email daily, capturing their email addresses should become a priority. There should be an aggressive plan to build a database of emails by every available means, including statement stuffers, bills, postcard mailings, new member signups, etc. Offer to mail them outage alerts in the interest of pet safety.

You need to ask explicit permission to use email to contact them. You should also set it up so that email addresses are linked to the customer billing file and the email address database is cleaned and updated regularly.

You should also consider a Facebook presence, which can in part be used to drive traffic to your improved website. Facebook's growth is astounding. Half a billion people worldwide now use it. 42% of your members use it at least some of the time, and 20% use it very often. 82% of your members have a cell phone and 37% of your members have smartphones (which are Facebook and Twitter-capable).

Consider initially rolling out a Facebook fan page to promote energy saving information and perhaps another fan page for the pilot test. There are some risks involved, since members can insert comments, links, and other content, but increasingly the advantages outweigh those risks.

Avoid corporate-speak and straight-out puffery in your social media. Make it conversational, friendly, and upbeat. Be polite to critics: the class act always wins in these forums. Adversaries often shoot themselves in the foot by being too angry or obsessed. Let them.

One purpose is to begin a dialogue directly about these topics with as many members as possible. As the pilot test unfolds, use Facebook to tell the story about how much John Doe and Sally Roe saved and how convenient it was.

The other main purpose for social media -- whether via email, Facebook, or Twitter -- is to establish an instant channel for notifying as many people as possible about an approaching peak or expensive (or cheap) period of use.

Social media can also be used for outage information, including notification of planned outages. Be careful not to overdo it and target outage information only to those directly affected, lest everyone conclude it's a daily occurrence at SSVEC.

As the pilot test moves along, use all of the traditional methods of pushing information out the door and engaging members with it, such as hardware store displays to promote weatherization week. We've had some success robocalling your members; robocall surveys might be a very quick way to gather names for various test elements.

Once you have selected the IHD and controller displays you will include in the pilot test, consider inviting people to a meeting or workshop or an energy expo.

BILLS

As smart meters appear, it would be good to add time-of-use data and cost, even for those who are not currently participating in any sort of smart grid program. It will help lay some groundwork.

Take a look at how you can add information to the bill that will show people the payback they are receiving for their efforts. Make it possible for them to separate the effects of their conservation from the effects of rising rates.

PREPAID METERS

Prepaid meters underscore how much power is costing them each month, and that would help them pay more attention to energy conservation. The poll found 6% of the membership interested in the idea of prepaid meters, and a third of them said they were extremely interested. Using our rule of thumb method, there are reasonable prospects of 876 people switching to a prepaid meter. About a third of them are renters.

THE JANUARY POLL

You asked for a comparison of this poll with the one we took in January on the Sonoita line.

Overall Satisfaction

So as to access NRECA national norms in the August poll, we changed the way we asked about overall satisfaction from the way we asked it in the January, 2010 poll about the T-7 transmission line.

In January, we asked people to say whether they were very satisfied, somewhat satisfied, neither satisfied nor dissatisfied, somewhat dissatisfied, or very dissatisfied. We used words rather than numbers on a five point spectrum. In August we used a 10-point scale, where 10 is very satisfied and 1 is very dissatisfied.

There was no change in the share of members who chose the middle or lower ranges in both polls. The total who gave you a positive satisfaction rating (very or somewhat satisfied in January, or all who were 6 or higher on the 10-point scale in August) remained unchanged, too.

However, there was a slight shift downward in the August poll when you look at the top end. The difficulty in saying how much depends upon whether you think a grade of 8 means very satisfied or somewhat satisfied when you translate the 10-point number scale into the five-point word scale. If you count half of the somewhat as an 8, then there is no difference between the two polls. If you count none of them, saying in effect that only a 9 or 10 count as very satisfied, then there was a 10-point drop at the very top end. The truth probably lies between somewhere.

Your satisfaction ratings are a bit lower than national norms, particularly at the top end. Both the national comparison and the possible dip at the top end are normal for a co-op that has been through a bruising political battle. I've seen many emerge in far worse shape. Your negative ratings remain tiny and unchanged. You're in strong shape with the fundamental drivers of satisfaction – rates and reliability. It takes a little time for the toxin to work its way out of the system after a battle like the one you've been through. That's probably all that's going on here.

Blinks

These scores also went down slightly from January's poll. However, only 5% of the "excellent" scores dropped to "pretty good" from January to August with the remaining ratings remaining basically the same.

Good stewards/concern for the environment

Very slight uptick favoring the environment in August's poll, but given the margin of error the numbers are considered the same.

Age

There were 4% more members polled in January who were 44 years old and younger and those who were 55 years old and older changed only slightly from 61% to 62%. The percentage of members age 45-54 remained the same in both polls. The August poll did contain more people who declined to offer their age category.

Tenure

Tenure is difficult to compare as the January poll had four category divisions and the August poll contained five category divisions. However, it appears that the August poll (in which the pollster was using a quota system to assure the proper cross section of SSVEC members by tenure) contains a significantly higher percentage of those who have only been members for seven years or less. In fact, two thirds, or 67% of SSVEC members with tenures of seven years or less were interviewed for the August poll. Below is a table for easier comparisons between the two polls.

| January 2010 Survey | | August 2010 Survey | |
|---------------------|-----|--------------------|-----|
| 2008 and after | 26% | 2 years or less | 30% |
| 2005-2007 | 23% | 3 to 7 years | 37% |
| 1998-2004 | 23% | 8 to 10 years | 7% |
| 1997 and before | 28% | 11 to 20 years | 16% |
| | | more than 20 yrs | 10% |

Such a large jump in the percentage of lower tenure members from the January poll to the August poll is at least a partial explanation of the decline in overall satisfaction scores from one poll to the next. People who have been members for the least amount of time are generally not as knowledgeable or as happy with their electric provider as the members who have been with their cooperative longer.

Household Income

A few of the income categories had some slight change from the January poll to the August poll. In the two income categories between \$25,000 and \$75,000, approximately 9% fewer members were interviewed in the August poll compared with January's. Also, members interviewed who have incomes between \$75,000 and \$100,000 went up by 3 percentage points. Other categories were basically the same from one poll to the next. Some of the movement can be explained by examining the percentages who chose to not answer the question. In January, 18% refused while August's poll has 25% declining to answer this question, a full 7% difference.

Employment Status

Employment status in both polls is nearly identical. No numbers changed more than the margin of error.

Gender

The percentages of men and women interviewed for the two polls changed some because in January we had caller quotas for gender and in August we did not. In January, more men were interviewed than women with a 51-49% lead. August saw those numbers change by seven percent each giving women a 44-56% edge.

PARTING THOUGHTS & A FEW CONCLUSIONS

This report covered only residential users. Your effort on the C&I side should be dovetailed into your residential programs and messaging. Likewise, SSVEC should work with builders and state and local government to ensure that new housing and commercial structures are built to higher energy-efficient standards.

A lifetime's consumption habits born of abundant, cheap electricity will not be changed overnight, barring catastrophic rate increases.

This means that you are in for the long haul. It means that you will need a highly personalized, one-on-one approach to change the mindset of the cooperative's membership one by one until momentum begins to build by word of mouth. Fortunately, that sort of personal approach is natural in a cooperative.

No one method stands out as best, and not one would have a remote chance of single-handedly achieving the desired 16% demand reduction, which means you should have a multi-faceted pilot test consisting of:

- A more rewarding time of use rate;
- An extremely simple TOU display unit;
- A programmable thermostat that can be overridden;
- An SSVEC-controlled unit that can be overridden;
- More weatherization loans;
- More solar water heaters;
- A pre-paid meter option;
- A targeted, aggressive rebate program and stepped-up refrigerator haul away program;
- A more interactive website that educates and attracts participation in energy saving;
- More usage, historic, and comparative data on the monthly bill;

- A systematic effort to track results...

...all driven by a stepped up communication program and thousands of in-home visits by trained efficiency reps who can pick and choose from the above list (at a minimum) and make each member feel like they got a great deal.

Tab 15 Survey Cross Tabs

| * Denotes significant differences | Approach #1 | Approach #2 | Approach #3 |
|---|-------------|-------------|-------------|
| Overall satisfaction | 8.22 | 8.02 * | 8.58 * |
| Operating with concern for the environment | 3.98 | 3.85 * | 4.19 * |
| Helping members be more efficient in their use of electricity | 3.71 | 3.53 | 3.70 |
| Promoting renewable energy | 3.78 | 3.62 | 3.88 |
| Electric Bill | | | |
| \$50 or less | 10% | 8% | 13% |
| \$51 - \$100 | 29% | 32% | 29% |
| \$101 - \$150 | 29% | 28% | 35% |
| \$151 - \$199 | 11% | 19% | 9% |
| \$200 or more | 19% | 13% | 14% |
| Extent electric bill affects family budget | | | |
| Extremely serious problem | 7% | 5% | 4% |
| Somewhat serious problem | 29% | 38% | 32% |
| Not much of a problem | 34% | 38% | 29% |
| No problem at all | 29% * | 19% * | 34% * |
| Trouble paying electric bill on time | 13% | 17% | 16% |
| Efforts to conserve the use of electricity | | | |
| Dedicated effort | 56% | 60% | 60% |
| Mild effort | 39% | 37% | 35% |
| Not much effort | 5% | 3% | 4% |
| Use/used budget billing | 14% * | 16% | 25% * |
| Age of home | | | |
| 5 years or less | 19% | 15% | 19% |
| 6-15 years | 26% | 26% | 25% |
| 16-30 years | 26% | 31% | 29% |
| More than 30 years | 26% | 24% | 19% |
| Type of air conditioning | | | |
| Heat pump | 15% | 17% | 19% |
| Central air | 40% * | 52% * | 46% |
| Window air | 3% | 3% | |
| Evap. Cooler | 10% | 8% | 12% |
| None | 29% * | 18% * | 24% |
| House occupied during school/work hours | 79% * | 67% * | 73% |
| Type of water heater | | | |
| Gas | 64% * | 77% * | 57% * |
| Electric | 34% * | 23% * | 40% * |
| Home ownership | | | |
| Own | 90% | 87% | 84% |
| Rent | 10% | 13% | 15% |
| Dwelling type | | | |
| Single family | 81% * | 78% | 65% * |
| Townhouse/Duplex | 1% | 2% | 4% |
| Apartment/Condo | 3% | 5% | 7% |
| Mobile/Manufactured home | 15% | 15% | 24% |
| Has Energy Star appliances | 71% | 70% | 60% |

| | | | |
|---|-------|-------|-------|
| Replace next appliance | | | |
| Next six months | 18% | 11% | 14% |
| Next 12 months | 19% * | 38% * | 36% * |
| Next two years | 30% | 27% | 24% |
| More than two years | 27% | 20% | 12% |
| Likelihood of signing up for time of use rates | | | |
| Very unlikely | 29% * | 19% * | 16% * |
| Somewhat unlikely | 15% | 10% | 13% |
| Somewhat likely | 31% | 39% | 32% |
| Very likely | 17% * | 26% | 34% * |
| Privacy concerns | | | |
| Major concern | 18% * | 13% | 6% * |
| Somewhat of a concern | 23% | 23% | 18% |
| Not much of a concern | 56% * | 63% * | 77% * |
| Has high speed Internet | 76% | 85% * | 72% * |
| Frequency of email use | | | |
| Daily | 59% * | 71% * | 65% |
| Several times a week | 13% * | 12% * | 4% * |
| Just occasionally | 10% | 5% | 9% |
| Not at all | 17% | 13% | 19% |
| Visited website | 28% | 33% | 29% |
| Has cell phone | 85% | 89% * | 75% * |
| Area type | | | |
| Town | 41% * | 52% * | 38% |
| Close to town/suburban | 20% | 18% | 12% |
| Rural area | 39% | 30% * | 50% * |
| Household size | | | |
| One | 18% | 16% | 25% |
| Two | 46% | 47% | 41% |
| Three | 11% * | 20% * | 12% |
| Four | 11% | 8% | 12% |
| Five | 9% * | 4% * | 4% |
| Six or more | 5% | 5% | 6% |
| Number of children under 18 | | | |
| None | 72% | 72% | 77% |
| One | 9% | 11% | 6% |
| Two | 9% | 11% | 8% |
| Three | 7% * | 2% * | 3% |
| Four or more | 4% | 4% | 6% |
| Employment status | | | |
| Work full-time | 40% | 38% | 30% |
| Work part-time | 8% | 10% | 5% |
| At home family caregiver | 5% | 5% | 3% |
| Retired | 42% | 42% | 49% |
| Student | | | 3% |
| Not employed, not looking | 3% | 2% | 8% |
| Not employed, looking | 2% | 3% | 3% |

| | | | |
|-----------------------|-------|-------|------|
| Age | | | |
| 18-34 | 7% | 5% | 5% |
| 35-44 | 14% | 19% | 15% |
| 45-54 | 17% | 13% | 20% |
| 55-64 | 25% | 25% | 18% |
| 65 or older | 37% | 37% | 42% |
| Income | | | |
| \$25,000 or less | 18% | 15% | 29% |
| \$25,001 - \$50,000 | 18% * | 35% * | 29% |
| \$50,001 - \$75,000 | 28% * | 16% * | 21% |
| \$75,001 - \$100,000 | 18% | 19% | 12% |
| \$100,001 - \$150,000 | 13% | 12% | 8% |
| Over \$150,000 | 6% | 4% | 2% |
| Service tenure | | | |
| 2 years or less | 29% | 27% | 37% |
| 3-7 years | 36% | 38% | 37% |
| 8-10 years | 9% | 7% | |
| 11-20 years | 16% | 19% | 12% |
| More than 20 years | 10% | 9% | 15% |
| District | | | |
| 1 | 4% | 2% | 7% |
| 2 | 3% | 4% | 2% |
| 3 | 6% | 4% | 3% |
| 4 | 3% | 2% | 6% |
| 5 | 7% | 10% | 16% |
| 6 | 8% | 8% | 10% |
| 7 | 5% | 4% | 4% |
| 8 | 9% | 7% | 6% |
| 9 | 9% | 10% | 6% |
| 10 | 15% * | 12% | 6% * |
| 11 | 6% * | 14% * | 12% |
| 12 | 13% | 14% | 13% |
| 13 | 12% | 10% | 9% |

No Significant Differences Between Approaches:

- Q8. Interest in pre-paid meter
- Q10. Free home energy audits
- Q10. Rebates for installing solar panels
- Q10. Energy-saving tips in newsletter
- Q10. Energy saving info on website
- Q11. Interest in signing up in next 6 months
- Q12. How much willing to pay for green power
- Q16. Type of clothes dryer
- Q26. Aware that peak time is more expensive
- Q40. Frequency of checking energy use online
- Q41. Likelihood of installing solar water heater (with or without tax credit)
- Q42. Awareness of weatherization loans
- Q43. Likelihood of getting weatherization loan
- Q44. Method like the most (just one has a sig. diff.)
- Q45. Reason for saving energy