

ROOSEVELT COUNTY ELECTRIC COOP., INC.

2012 INTEGRATED RESOURCE PLAN

Roosevelt County Electric Coop., Inc.

Integrated Resource Plan

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UTILITY BACKGROUND

Roosevelt County Electric Coop., Inc. (RCEC) is a rural utility headquartered in Portales, New Mexico. The Cooperative serves all of Roosevelt County and portions of Curry, Chaves and DeBaca Counties in New Mexico. In addition to serving rural areas, RCEC serves the towns of Arch, Causey, Dora, Elida, Floyd, Kenna and Milnesand and other small communities located within the service area.

RCEC's service area covers approximately 3,600 square miles and is located within the Southern High Plains district of New Mexico. The climate zone is semiarid with an average temperature of 57.7°F and an average rainfall of 16.28 inches per year.

As of December 2011, the Cooperative had 2,782 miles of distribution line and was serving 2,495 members (6,337 meters) in residential, commercial, irrigation and oil well pumping rate classes. Also included within the 6,337 meters are the various lighting classes served by the Cooperative: street lights, yard lights and commercial small lights. RCEC serves its members through ten Cooperative owned, distribution substations and has purchase contracts with Western Area Power Administration (WAPA), Southwestern Public Service Company (SPS), a subsidiary of XCEL Energy and Western Farmers Electric Cooperative (WFEC).

The Cooperative's peak demand for 2011 was over 35 megawatts, with energy sales exceeding 207 million kW hours. The Cooperative's growth rate for the ten-year time period 2001 – 2011 was 43% for energy. This growth is projected to slow down due to water supply issues. The decline in underground water supplies will continue to affect crop irrigation as well as the many dairies located within our service area.

To meet the future power needs of the members, RCEC shall continue to evaluate the most cost-effective way to provide for future power needs. The considerations will focus on demand-side resource programs and supply-side resources.

UTILITY PROFILE DATA (2011)

System Peak: 39,824	Date: August 2, 5:00 P.M.
Energy Sales:	207,394,988 (excluding losses)
Annual Load Factor:	59.4

Generation and Purchases:

A.	Energy generation of plants....	N/A
B.	Contract energy purchases....	
	1. Western Area Power....	15,497,181
	2. Southwestern Public Service Co....	215,403,891
C.	Total generation/purchase....	230,901,072
D.	System losses....	18,877,813
E.	System losses in percent....	8.34
F.	Total energy to customers....	207,389,886

Number of customers and energy delivered by customer class:

	<u>Customers</u>	<u>KWHs</u>
Residential....	3,705	50,346,988
Commercial....	1,142	62,302,664
Industrial....	4	14,531,489
Street Lighting....	4	79,200
Irrigation....	<u>1,448</u>	<u>80,129,545</u>
	6,303	207,389,886

LOAD FORECASTING INFORMATION

RCEC utilizes its historical data to project future load growth. Although there are several methodologies used in the electric industry to forecast load patterns, this method has been effective for RCEC.

RCEC's load profile is mainly composed of Residential, Commercial, Industrial and Irrigation services. The Residential class consists of all farm and home uses not provided for in a special class. Growth continues in both the number of services in this rate class as well as within the kWh consumption per customer. There are also seasonal loads (mainly pressure pumps and electric fences) within this rate class however these services have a very small usage and are turned on and off several times a year.

The Commercial rate class is separated into two groups, small commercial and large commercial. The small commercial class of consumers covers all services pertaining to small business, oil field pumping and other related services with a less than 50HP demand.

The large commercial class of consumers covers all services pertaining to large business, oil field pumping and other related services with a 50HP demand and greater. There has been significant growth in this class primarily because of the increasing number dairy operations in our service area.

There are four Industrial loads (greater than 1000KVA) on the Cooperative's system as of 2011.

The Irrigation class is composed of wells to pump water, center pivots to spread the water and booster pumps to boost the water where it is needed. The demand is dependent upon the annual precipitation and ground water levels. There is a major concern with the declining water level in underground water supplies and many area farmers are now utilizing water conservation techniques. In the latter part of 2000 and early 2001 there was a large number of irrigation services added to our system as a result of the high cost of natural gas and diesel. Since this time, we've converted several more wells as the price of diesel continues to increase.

RCEC in conjunction with WFEC uses the Power Requirement Study prepared for Rural Utility Service to project load forecasting. The Power Requirement Study is required every three years, but updated on an annual basis. The Long Range Forecast is also used for system planning needs. This is updated as needed. Recorded updates are in 1956, 1964, 1972, 1984, 1995 and 2011. As the system requires changes the forecast requirements are then updated also. This is reflected in our Work Plans that are prepared for Rural Utility Service.

EXISTING ENERGY RESOURCES

Reviewing RCEC's current energy sources, allocations, and pricing will be a good starting point when evaluating and comparing alternative supply and demand-side resources. RCEC has two separate purchase power contracts. Southwestern Public Service Company (subsidiary of XCEL Energy) is an all-requirements contract through 2015 but contains provisions for the Cooperative to obtain power from Western Area Power Administration. In 2010, RCEC signed a contract with Western Farmers Electric Cooperative (WFEC) that in time will remove the cooperative from under SPS' supply. From 2012 through 2026 RCEC will phase out its purchases from SPS and incrementally replace those purchases with WFEC. In 2026 RCEC will purchase all power requirements from WFEC under a contract that runs until 2050.

Western Area Power Administration

WAPA's current contract with RCEC has been extended through September 2024. The Cooperative's demand and energy allotment fluctuates depending upon water flows and other restrictions.

Listed below are RCEC's purchases for 2011:

2011 Off Peak Purchases:	
	<u>AHP</u> <u>Energy</u>
January	1,026,747
February	914,110
March	1,000,895
April	1,488,324
May	95,057
June	1,879,961
July	1,984,992
August	1,984,992
September	635,692
October	1,258,939
November	1,485,768
December	<u>1,741,704</u>
Totals:	<u>15,497,181</u>
AHP Energy charges:	\$0.01219

Southwestern Public Service Company

Southwestern Public Service Company has served RCEC since 1939. As mentioned earlier, purchased power will be provided from Western Farmers Electric Cooperative (WFEC) initially in increments and after 2026 in whole.

All scheduling of WAPA power and additional load requirements for RCEC are handled between WAPA and Southwestern Public Service Company personnel. This allows the Cooperative to utilize its resources more efficiently instead of having a full-time planner/power scheduler. There are so many unknown variables when trying to forecast loads that it can be financially disastrous for a utility if they miss a daily or hourly forecast. Southwestern Public Service Company's demand charge for customer shall be the sum of the non-coincident measured demands from all delivery points, but not less than 65% of the highest sum of the non-coincident measured demands established in the preceding 11 months. Energy is billed at a flat rate plus fuel cost adjustments.

Listed below are the 2011 purchases from Southwestern Public Service Company:

2011 Allocation:			
	<u>KW Billed</u>	<u>KW Delivered</u>	<u>Net Energy</u>
January	27,312	26,490	15,330,682
February	31,084	30,148	15,910,170
March	31,242	30,301	20,627,012
April	31,549	30,599	20,566,562
May	29,553	31,811	19,973,424
June	37,512	36,383	22,347,339
July	38,206	37,055	24,730,244
August	39,824	38,624	25,281,602
September	34,326	35,778	18,159,809
October	26,319	27,836	16,700,663
November	25,885	26,632	14,801,071
December	<u>25,885</u>	<u>24,429</u>	<u>14,116,295</u>
Totals:	<u>378,697</u>	<u>376,086</u>	<u>228,544,873</u>
Demand charge:	\$ 6.16 per kW		
Energy charge:	\$ 0.04341 per kWh		
Customer charge:	\$ 3,500.00		
Fuel Base Cost	\$ 0.03991 per kWh		

CURRENT RESOURCE OPTIONS

ERC Loan Program

RCEC's Energy Resource Conservation (ERC) loan program began in 1987 loaning funds to qualifying consumers at 5% for the installation of heat pumps, storm windows and doors and insulation. 352 members have taken advantage of this program totaling \$1,948,741. In 2007, the cooperative implemented its renewable energy and energy conservation program which allowed the cooperative to offer loans at 3% interest to qualifying consumers for the installation of higher energy efficient heat pumps, storm windows and doors and insulation. As of this date, 39 consumers have borrowed \$371,570 for higher energy efficient products. The total of both programs amounts to \$2,320,311. With the higher efficiency requirements, pay-back has dropped drastically to benefit consumers.

LEPA Loan Program

RCEC's Low Energy Precision Application (LEPA) loan program began in 1997. As of 2011, \$1,001,566 has been loaned for LEPA sprinkler systems. These sprinkler systems show 97% efficiency due to a significant reduction in losses from evaporation and wind drift. As a result these systems save significant amounts of energy compared to other irrigation application methods. They also promote water conservation by reducing water losses from about 40% down to about 5% when compared to conventional furrow irrigation using underground pipe.

The table shows the following irrigation system inputs that were used in comparing a typical center pivot system with one using LEPA technology.

	LP Center Pivot	LEPA
application efficiency	.80	.97
kWh/ac-ft	5128	4229
hp	36.5	19.5
gpm	546	450
operating pressure	35 psi	13 psi

Interruptible Rate

Up until 2011, RCEC had an interruptible rate available for commercial small, irrigation, dryer service, commercial large and oil well pumping with a load factor greater than 50% during the months of June through August.

Annual rebates for this rate were \$11.00 per KW or \$8.21 per horsepower controlled. This rebate was paid in October of each year.

Interruptions were permitted from June through August from 12:00 noon to 10:00 PM. A maximum of 120 hours per year of interruption is possible. There was an initial three-year contract required, with year-to-year extensions until the member provided RCEC with a three-month notice of cancellation.

IDENTIFYING OTHER RESOURCE OPTIONS

Having reviewed RCEC’s current resources, the next step in the process would be to identify other resources that would compliment RCEC’s current resources and provide continued reliability at a competitive price.

There are several supply-side and demand-side options to consider and each option needs to be evaluated to determine cost effectiveness. RCEC has been able to compare various supply-side and demand-side options to determine which resources would be most cost effective for the Cooperative. Along with financial issues there are environmental issues, societal issues, and concern regarding future natural resources which issues must be considered in planning for the future.

From a supply-side standpoint, the Cooperative reviewed both conventional and renewable resources. From a demand-side perspective, the Cooperative considered what would be best for the customer and the utility. In reviewing these two types of resources, RCEC will need to consider the various issues that affect our society as a whole, as well as determining the economics of pursuing these resources as viable and long-term alternatives.

Supply-Side Options

Combustion Turbine (CT)

Combustion turbines in the past have been used primarily for peaking generation because of low capital cost despite high fuel cost. With increased natural gas availability and lower wholesale prices, natural gas is viewed as a viable fuel option when considering combustion turbine generation. Installing units smaller than 25MW are not considered as economical as larger units, although as efficiencies improve so will products. Listed below is a breakdown of the expected cost as previously determined:

Expected Operating Costs:	
Leveled Annual Plant Investment	\$ 548,200.00
Leveled Annual O&M and Fuel Cost	\$2,548,702.00
Total Leveled Annual Costs	\$3,096,902.00
Average Capacity Factor Over Service Life	65%
Average Annual Generation (kWh)	56,940,000
Installed Capacity (kW)	10,000
Leveled Unit Cost (mills/kWh)	54.39

These estimated figures, when compared to RCEC's wholesale power cost, present an uneconomical option at the present time.

Biomass (Municipal Solid Waste MSW):

A feasibility study was performed in 2005 regarding open-loop anaerobic digestion and biogas production for electrical power generation. It was determined that the methane gases produced can be captured and used as a fuel source to create electrical power at an estimated cost range of \$0.03 to \$0.045 per kW. No further studies have been performed in this area since then.

Demand-side Options

Since Demand Side Management (DSM) programs are designed to reduce the demand for power, many utilities in need of additional capacity and energy consider DSM programs as an alternative to increased generation. The reason for this is some DSM programs are more cost effective when compared to the cost of new generation. Less generation will result in fewer air pollutants and will help preserve natural resources for future generations. Less generation also means less revenue for utilities.

RCEC is dependent on utility sales to maintain financial stability and to provide many services to the membership that would otherwise not exist without certain subsidies. Therefore, RCEC is faced with the difficult decision of considering DSM programs that are cost effective yet having to deal with the issue of lower revenues. Raising rates is one way to compensate for the lost revenue but that does not always benefit the majority. The following presents four basic perspectives to consider when evaluating DSM programs.

Participant's Perspective

Consumers must weigh the initial capital cost, ongoing operation and maintenance expenses, and any removal cost for old equipment. The benefits are lower utility bills and rebates from utilities, if any.

Ratepayer Perspective

This affects those ratepayers who choose not to participate as they could see electric rates increase to support DSM programs, and as all ratepayers of RCEC are also member/owners, even if rates do not rise, program costs will affect all members through the capital credit allocation process. The costs are revenue losses from the programs, utility cost for operating the program, and rebates paid, if any. The benefit to ratepayers comes from the reduction in capacity and energy purchases. Also, if DSM programs help reduce wholesale power costs and improve overall system load factor, all members will benefit from wholesale power cost reductions.

Utility Perspective

This perspective deals with the financial impact on the utility. Loss of energy sales and reduced revenues not only from program activities directly, but also consumers who choose an alternative fuel source for certain applications including irrigation, and home heating systems, could yield economic hardship for the Cooperative. Lost revenue is not considered because it will be made up through higher rates. Benefits are avoided capacity and energy cost.

Total Resource Cost Perspective

This looks at the overall cost and benefit to society. The environmental effects of generation are estimated to be a ten percent external factor that is added to the cost of generation. The costs are the program cost, participant's cost, and supply cost, if any. The benefits are reduced capacity and energy cost, plus the ten percent external factor for the environmental affects of generation.

The goal is to have all perspectives benefit from DSM programs, although in many cases, the ratepayer perspective does not benefit because not everyone participates in the program. Non-participants could be affected negatively with rate increases to help cover lost revenues. In reviewing the various DSM options, RCEC wanted to identify programs that had a short payback period and would benefit customers. There are engineering estimates, manufacture's data, technical data from utilities, and other general assumptions which are used to help filter through DSM programs.

For member conservation programs, RCEC continues to advertise and promote several construction and insulation rebate programs scaled for residential and commercial facilities. This program holds the greatest rewards for those members who choose to utilize energy conserving construction methods, as well as high efficiency heat pumps for home heating and cooling. In addition the Cooperative encourages and promotes energy conservation in homes and businesses through the use of information programs, including a monthly newsletter and interactive programming on the Cooperative's website, www.rcec.coop. Members are also encouraged to use floor and attic insulation, storm windows, storm doors, caulking and weather-stripping.

The following six programs are aimed at reducing energy losses. No industrial programs were included in this evaluation.

- Residential water heater blanket and pipe insulation
- Residential water heating low flow fixtures
- Residential compact fluorescent lights
- Residential ground source heat pumps
- Commercial compact fluorescent lights
- Commercial electronic ballast and T8 lamps.

In 1996 RCEC added to its industrial rates an interruptible rate. For year ending 2011, this rate reduction alone saved the qualifying members \$20,155.55.

Residential Water Heater Blankets and Pipe Insulation

This program is for customers with electric water heaters. Each water heater would have an insulation wrap placed around the water heater. Also, the hot water pipe exiting the water heater would have a piece of pipe insulation wrapped around the first five feet of pipe above the water heater.

Residential Water Heating Low Flow Fixtures

Low flow showerheads for the shower and faucet aerators for kitchen and bath sink. These products impede the flow of hot water.

Residential Compact Fluorescent Lights

The light output per watt of power for fluorescent lighting when compared to incandescent lighting is four times greater. Compact fluorescents are made to fit into incandescent medium base sockets.

Residential Ground Source Heat Pumps

The Ground Source Heat Pump is one of the most efficient residential heating and cooling systems available today with heating efficiencies 50 to 70% higher than other heating systems and cooling efficiencies 20 to 40% higher than available air conditioners.

Commercial Compact Fluorescent Lighting

This is the same technology as the residential program, but it is used in commercial applications.

Commercial T-8 Lamps With Electronic Ballast's

Major improvements have been made in lighting technology. More efficient ballast and lamps are available to help reduce lighting and improve lighting quality.

PROGRAM ASSUMPTIONS

The following results are based upon estimates and assumptions used by a study done by Southwestern Public Service Company to determine energy and demand consumption for its New Mexico customers. Utilities recognize that each resident and business is different in their energy usage and habits. In order to validate energy and demand usage, as well as savings, some standardization must be applied. Therefore, the figures below will be based on SPS' data and standard utility practices to estimate energy and demand usage, and savings per customer class and customer.

Utilities look at how each customer class impacts the total system. Energy sales for each customer class are divided by the total system sales to see what percentage each customer class is contributing to the total system. Those percentages are then used to estimate the kW demand for each customer class and how it relates to the total system peak demand. The total energy sales for each customer class are then segmented into various sectors. For example, the residential class would have lighting, cooling, heating, cooking, miscellaneous items, etc. These sectors would then have estimated annual energy consumption for that particular end-use product. There are other factors used to help evaluate programs such as, estimated appliance consumption, appliance saturation, residential sales by end use, demand impact, applicability, marketability, feasibility, potential energy savings, potential demand savings, and cost versus benefits.

RESIDENTIAL PROGRAMS

It is estimated that there are around 1650 electric water heaters in the RCEC's service area, so the first two programs would benefit only a small portion of our residential customers. The lighting program would benefit all residents if they chose to participate. Listed below are the technologies and the figures associated with the individual residential programs.

Residential Water Heater Blanket and Pipe Insulation Program

• Estimated annual energy savings per home	127.7 kWh
• Estimated number of electric water heaters	1650
• Estimated annual energy savings	210,705 kWh
• Cost of Measure per	\$16.12
• Life of Measure (Years)	5
• Cost of Conserved Electricity	\$0.03/kWh

Based on the electric water heater rates of \$0.071 the estimated annual savings would be \$14,960.06.

The estimated cost for the heater blanket and five-foot pipe insulation would be \$16.12 for a cost of \$26,598.00.

Marketing, administration, and evaluation cost would be about 20% of the technology cost or \$5,319.60.

Total DSM program cost would be \$31,917.60 or \$19.34 per customer.

Based on the projected estimates and assuming everything being equal, the customer would realize a savings after 26 months using a simple pay back method.

Residential Water Heater Low Flow Fixtures

Much of the technical information is the same as above except the feasibility of installing the new fixtures onto old existing fixtures is not considered 100%, but is estimated to be around 95% since there would be situations where new fixtures could not connect to old style fixtures.

- Annual Energy Savings per Home (kWh) 204.09
- Number of Eligible Homes 1650
- Total Annual Energy Savings (kWh) 336,748 kWh
- Cost of Measure per Home \$24.63
- Life of Measure (Years) 10
- Cost of Conserved Electricity \$0.03

Based on the kWh (from 2011 financial form) electric water heater rates of \$0.071 on the kWh reduction, the annual savings would be \$23,909.14.

The estimated cost for a showerhead, kitchen and bathroom sink aerator is about \$24.63 for a total cost of \$40,639.50.

Marketing, administration and evaluation cost would be about \$8,127.90. If the program was combined with the water heater blanket program the cost could be blended together to lower overall cost.

Total DSM program cost would be \$48,767.40 or \$29.56 per customer.

Again, assuming everything being equal, the projected savings would give the customers a payback within 56 months.

Aside from the energy savings, water conservation is another important issue.

Residential Compact Fluorescent Lighting

- Annual Energy Savings per Home (kWh) 175.2
- Number of Eligible Homes 2,808
- Total Annual Energy Savings (kWh) 491,962
- Cost of Measure per Home \$16.63
- Life of Measure (Years) 12.5
- Cost of Conserved Electricity \$.012

The estimated annual energy savings on average (from 2011 financial form) residential rates of \$0.071 cents per kWh would be \$34,929.30.

Estimated cost for the program based on every household purchasing one compact fluorescent would be \$16.63 or \$46,697.04.

Marketing, administration, and evaluation cost would be around \$9,339.41.

Total estimated DSM program cost would be \$56,036.45 or \$19.96 per customer. Compact fluorescent average life is 10,000 hours.

A payback would depend upon the wattage difference and the daily hours of operation.

Residential Ground Source Heat Pumps

The estimated annual energy savings based on a \$0.071192 rate would be around \$196,577.63.

Estimated cost for the program based on every household purchasing one ground source heat pump would be \$20,000 or \$23,560,000.

Marketing, administration, and evaluation cost would be around \$471,200.

Total estimated DSM program cost would be \$24,031,200 or \$20,400 per customer. A ground source heat pump's average life is 10 years with an expected ground loop life estimated to be 20 years.

For a typical 2,500 square foot home with good insulation and a high efficiency heat pump, the anticipated annual energy savings are broken into three criteria: heating, cooling and hot water. The combined savings per home would be \$301 + \$243 + \$271 for a total of \$815 annually. This would require a payback of 25 years.

COMMERCIAL PROGRAMS

The two commercial DSM programs deal strictly with lighting and retrofitting incandescent bulbs with compact fluorescents and changing standard ballast and T12 lamps for electronic ballast and T8 lamps. The estimated total kWh sales for commercial lighting are 82,222kWhs. These totals are divided between the two technologies. Because of demand charges and the tiered rate structure for energy, it is difficult to calculate actual savings for each business without knowing the number of lamps, wattage of lamps, and hours of operation.

Commercial Compact Fluorescent Lighting (CFL)

Based on an energy rate of \$0.0828 cents per kWh, the annual savings would be around \$7,238.79.

Program cost would depend on the number of participating businesses and this number of fixtures available for retrofit. The estimated cost per CFL is around \$16.63.

Commercial Electric Ballast and T8 Lamps

• Annual Energy Savings per Customer (kWh)	18.72
• Number of Eligible businesses	499
• Total Annual Energy Savings (kWh)	9,341 kWh
• Cost of Measure per business (100 fixtures per consumer)	\$24.63
• Life of Measure (Years)	20
• Cost of Conserved Electricity	\$0.078
• Demand Reduction (kW)	1.3

The estimated annual energy savings based on a \$0.0828 rate would be around \$773.43.

The savings would result from lower power consumption per light fixture. The payback time would depend upon the businesses' hours of operation. For example, a standard ballast and lamp combination consumes 192 watts per hour of operation. A new electronic ballast and T8 lamps consumes around 120 watts per hour. Fluorescent lamps have an average life of 20,000 hours, so over the life of the lamp there is long term energy savings. Assuming an average life of T8 lamp to be 18,000 hours. The estimated life based on 50 hours/week X 52 weeks would be 6.92 years.

RCEC continues to focus on other programs aimed at reducing energy losses on a distribution-wide system level as well. These programs consist of upgrading substation equipment, transmission and distribution feeder circuits, monitoring system power factor and improving street and security lighting.

Upgrading Substation Equipment, Transmission and Distribution Feeder Circuits

The Cooperative's current four-year work plan, 2010 – 2013, calls for rebuilding and upgrading approximately 18.5 miles of distribution line to support the system load growth. In addition, the cooperative plans to build nine miles of new three-phase transmission line to reduce the voltage drop on its transmission loop during peak load. The total estimated cost for these upgrades is \$2,045,000. Also in this work plan, two new substation transformers will be purchased to replace older units that currently reside in two substations. These improvements will not only reduce loading on distribution circuits thereby reducing line loss values, they will increase system reliability, improve service to existing consumers and provide for new load growth.

Monitor System Power Factor for Optimal Performance

RCEC continues to monitor power factor system-wide. Distribution upgrades/rebuilds have helped to improve power factor and the system continues to operate at greater than 97 percent lagging power factor under normal operating conditions.

Street and Security Lighting Improvements

RCEC has discontinued installation of new mercury vapor lighting systems. As an alternative, the Cooperative offers a 100-watt high-pressure sodium fixture to replace the 175-watt mercury vapor. This replacement fixture produces 1,600 more lumens while consuming twenty less kWh per fixture. Also, the Cooperative offers a 250-watt high-pressure sodium fixture to replace 400-watt mercury vapor, producing 4,000 more lumens while consuming seventy less kWh per fixture.

LEAST-COST OPTIONS

Supply-side options

Deregulation was anticipated for quite some time but the New Mexico legislature has decided that for utilities in New Mexico this would not benefit all those involved.

In previous years, SPS attempted to breach specific contract provisions but RCEC has vigorously stood-up and defended the existing all-requirements contract. SPS' goal was to utilize restructuring laws in New Mexico as a means to breach the wholesale contract and begin charging market-based rates.

In recent past years, RCEC along with three other Eastern New Mexico cooperatives began the search for an alternate source of power supply. After a vigorous search, many meetings and various discussions it was decided that Western Farmers Electric Cooperative out of Oklahoma was the best solution. RCEC over the next fourteen years will begin transitioning from SPS to WFEC in defined increments. Having reviewed current supply-side resources and comparing the cost, and the feasibility of the new resources to the cost of our existing and transitioning wholesale contracts, it appears that the best resource choice for RCEC at the present time is to maintain its current position contractually.

Demand-side options

Over the past several years many utilities across the country have spent millions of dollars in products and rebates for customers toward demand-side management programs. Today a lot of the same utilities have ceased their rebate programs because the utility industry is changing.

The purpose of DSM programs is to help utilities lower loads because of the lack of available capacity and energy, avoid the high cost of new generation, and help to preserve natural resources. No one really knows what will happen to the electric industry and how it will affect utilities in the long run. Whatever happens in industry, RCEC as a player in the market, needs to consider what is best for the utility and its customers. The DSM programs listed above do have a positive benefit to cost factor, but are customers willing to spend the extra money to purchase the more efficient equipment if the utility doesn't provide rebates?

IRP ACTION PLAN

Traditionally, utilities have relied upon 20-year planning horizons in their decision-making process. The days of long-term power planning are over and utilities are not faced with a new set of rules that have not been completely outlined. With this uncertainty, power planning and utility decision-making for the future is very difficult since everyone is treading into unknown waters.

As a means of minimizing the uncertainty utilities are facing, integrated resource planning has been introduced to help utilities recognize their strengths and weaknesses more clearly in an era of unprecedented change. Understanding where the utility is positioned in terms of current and future resources, the price of those resources, and the reliability of those resources will help the utility prepare itself to meet future load requirements in an economical and environmentally safe manner.

Having an action plan as a road map will help RCEC meet the needs of its customers. With all the anticipated changes in the industry, RCEC has been submitting an annual and a five-year plan as a means of planning for the future. These plans are intended to test the residential and commercial markets with technologies that will save customers money over time.

Short-Term Planning

A two-year plan will consist of the following goals and objectives:

RCEC will continue to rely upon existing purchase power contracts to meet current and future power needs. This decision is based upon the following reasons:

1. RCEC's WAPA resource is a low-cost renewable resource. RCEC's WAPA resource contract has been extended to September 2024. The New Mexico Legislature in the Electric Utility Restructuring Act of 1999 specifically recognized this pertinent resource.
2. The Southwestern Public Service Company contract when compared to other resources is low cost and diverse in nature utilizing coal, natural gas and off-system purchases when economically advantageous.
3. Power reliability has been good with Southwestern Public Service Company and they also handle all of RCEC's scheduling and power needs. This allows RCEC to forego having to have a full-time forecaster and planner/scheduler for daily and hourly power requirements and to transition over to Western Farmers Electric Cooperative.
4. RCEC's current contract with SPS is effective through 2026. Afterwards WFEC will sell their power to RCEC through 2050.
5. Due to the uncertainties in both the state and federal restructuring efforts, RCEC values its current contracts, as the best sources of protection for ensuring power delivery to its consumers.

RCEC will continue to expand its ERC program to adopt the Rural Utility Service (RUS) ERC program which has greater capabilities and allows for members to obtain energy savings loans (for heat pumps – 16 SEER and above, insulation, etc.) at a 3% rate for up to ten years (maximum of \$15,000 per loan). For consumers interested in ground source heat pumps, RCEC offers 0% interest on outside ground loops for up to twenty years at \$2,000 per ton

RCEC plans to continue to expand its "Interruptible Rate" industrial program to other consumers. This program seems to produce the greatest amount of savings and has the greater impact on the supply side management.

Although the electric heater and pipe insulation program indicated a short-term payback, RCEC feels that it represents such a small portion of its membership that it would not be worth the additional time and effort to see the program through.

As for the compact fluorescent lighting, RCEC no longer advertises or stocks these items but RCEC will obtain them and sell them on a net cost basis as a part of our energy efficiency marketing program.

RCEC will continue to monitor and support the development of renewable energy projects in New Mexico, particularly within our service area. If RCEC deems it to be economically feasible, RCEC will work with SPS and WFEC to incorporate additional renewable resources.

Long-Range Planning

Preparing a five-year plan is done with much conservatism. Several different load forecasts have been prepared based on different growth scenarios.

1. These forecasts would need to be updated and reviewed.
2. Assuming no dramatic changes occur during the next five years, RCEC would want to review current supply-side options and compare them to existing contracts.
3. It is anticipated that the above projects will become viable programs and implemented as DSM measures. This will require ongoing program review.
4. In the event customer and utility needs change during this period, existing programs would need to be re-evaluated to determine if they are achieving the desired results. If not, then other customer programs would need to be evaluated.

Electric utility restructuring at both the state and federal level will certainly affect future planning. In addition, further development of renewable energy projects and state and federal renewable energy portfolio standards will affect supply-side issues. RCEC's long-range plan will continue to focus on the same issues as noted in the short-term, while monitoring the electric industry.

VALIDATION AND EVALUATION

Each of the projects above will require different methods to validate present consumption versus projected savings. The ERC loan project will require reviewing the customers' monthly utility bills and determining the energy savings effectuated from the installation of energy efficient improvements (i.e. energy star appliances and heat pumps). Performing an energy audit of the customers' residence will help to examine the different benefits. Many assumptions will still have to be made regarding the energy usage of various electric devices and consideration for the length of time items are on. Predicting the savings will be based upon manufacturer data estimates and comparing it to previous usage patterns. This will require ongoing program review.

The interruptible rate program will require continuous monitoring to determine the number of incidents consumers are interrupted and determine their overall savings.

In the event customer and utility needs change during this period, existing programs would need to be re-evaluated to determine if they are achieving the desired results. If not, then other customer programs would need to be evaluated.

ENVIRONMENTAL EFFECTS

In addition to the power contract with WAPA, RCEC has a long-term, all-requirements contract with Southwestern Public Service through 2026 and then with Western Farmers Electric Cooperative thereafter until 2050. WAPA power comes from hydro generation that is renewable and very environmentally friendly. It would be reasonable to assume that the bulk of RCEC's power purchase from Southwestern Public Service Company comes from fossil fuels (coal and natural gas) and is, therefore, considered unfriendly to the environment. Southwestern Public Service Company has been very aggressive in resource acquisitions of traditional fossil fuels, renewables, and alternative generation sources. Because of the vast amount of resources which Southwestern Public Service Company possesses, it is difficult to determine from which generation source RCEC power needs are being met.

In an effort to comply with Western's requirements to minimize adverse environmental effects, Southwestern Public Service Company located in Amarillo, Texas, was contacted about Southwestern Public Service Company's efforts regarding air quality and environmental issues. Their response was "Southwestern Public Service Company is doing everything it can to minimize the effects of CO₂." He explained they (Southwestern Public Service Company) are "doing everything they can to comply with federal and state mandate regarding atmospheric pollutants. SPS now has some of the cleanest fossil fuel plants in the nation."

GOVERNING BODY APPROVAL AND PUBLIC PARTICIPATION

RCEC scheduled and published a date for a public meeting on the morning of October 12, 2012 in the Portales News Tribune regarding this integrated resource plan. Copies of the document were made available to the public before the meeting. In addition, the Cooperative's Board of Trustees will receive a report of this IRP planning process on the afternoon of October 23, 2012.

There was no public input and the Cooperative's General Manager approved the Integrated Resource Plan.

Jerry W. Partin
General Manager

Date: