

RESOLUTION 13-02

A RESOLUTION APPROVING THE UTAH ASSOCIATED MUNICIPAL POWER SYSTEMS INTEGRATED RESOURCE PLAN.

WHEREAS, Hyrum City is a Member of Utah Associated Municipal Power Systems ("UAMPS") pursuant to the provisions of the Amended and Restated Agreement for Joint and Cooperative Action;

WHEREAS, UAMPS and Western Area Power Administration ("Western") have entered into Contract No. 87-SLC-0039, as amended (the "Integrated Contract") that provides for *inter alia*, the submittal by UAMPS of an Integrated Resource Plan (the "IRP");

WHEREAS, UAMPS and Hyrum City, along with other Members of UAMPS with allocations of CRSP power and energy, have formed the CRSP Project of UAMPS (the "CRSP Project") through the CRSP PROJECT POWER SUPPLY AGREEMENT BETWEEN UAMPS AND Hyrum City to provide for the coordinated management of the Integrated Contract, for the benefit of the Members;

WHEREAS, UAMPS pursuant to the direction of the Members of the CRSP Project requested and was approved for a filing status of an IRP Cooperative in order to file one joint IRP on behalf of the Members of the CRSP Project; and

WHEREAS, Western requires the participation and approval of each participant in the IRP Cooperative.

NOW, THEREFORE, BE IT RESOLVED by the [City Council, Town Council or Board of Directors] of Hyrum City as follows:

1. Hyrum City, as a Member of the CRSP Project of UAMPS, has participated fully in the development of the UAMPS' IRP through exchange of information, multiple review of draft documents and holding meetings for public participation.

2. Hyrum City has reviewed the final UAMPS IRP and finds that the data and conclusions accurately represent the planning needed under the requirements of the Western IRP Program.

3. Hyrum City approves the UAMPS IRP for submittal to the UAMPS Board of Directors and Western.

ADOPTED AND APPROVED this 7th day of February, 2013.

Hyrum City

W. Dean Howard
Mayor

[SEAL]

ATTESTED AND COUNTERSIGN

Stephanie Fricke
City Recorder



**2012
INTEGRATED
RESOURCE PLAN**



2012 INTEGRATED RESOURCE PLAN

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2012 INTEGRATED RESOURCE PLAN

EXECUTIVE SUMMARY

Utah Associated Municipal Power Systems (“UAMPS”), on behalf of its members¹ submits this Integrated Resource Plan (“IRP”) as required by Section 114 of the Energy Policy Act of 1992, Public Law 102-486, subject to completion of the Energy Planning and Management Program in October 1995, 60 FR 54151 (October 20, 1995) and as revised in 65 FR 16789 (March 30, 2000) by the Western Area Power Administration (“WAPA”). This IRP provides guidance to UAMPS’ members in meeting their objective of providing a reliable, least-cost, electrical energy supply portfolio for the next five to ten years. This IRP balances competition, rate structure, environmental effects, reliability, technical evaluation, public input, as to demand and supply-side alternatives. UAMPS submits this IRP in a time of rapidly evolving power supply markets and a volatile regulatory environment. Considering these conditions, UAMPS has assumed, for the purpose of this IRP that public sentiment and regulations will lean toward an emphasis in renewable generation, greenhouse gas (GHG) emission mitigation, demand-side management, efficiency practices and clean supply-side alternatives.

Since its inception in 1980, UAMPS has used integrated resource planning to maintain competitive rates and reliable service. Resource planning is a continuous and dynamic process which can not be frozen in time. Given these dynamics, this IRP only represents conditions as of this date. Many of the issues and assumptions presented will change as members’ needs and available resource options evolve.

Resource objectives for UAMPS include minimizing impacts on rates to members and portfolio integration costs, maintaining system reliability, ensuring flexibility while short-term and long-term needs are met with diversity in resource mix. These objectives will be influenced by several key issues such as Federal and State legislation and policy which will include GHG emissions. Other key issues include regional transmission infrastructure, load growth and the increasing cost of resource development.

In order to maximize efficiency of resource management, UAMPS gathers hourly data for each of its members and analyzes the data in a computer model that provides analysis of key factors. The resulting load forecasts are provided to each member for their review and confirmation. UAMPS aggregates member forecasts to provide a diversified system forecast.

¹Listed in Exhibit A

Because UAMPS is not an all-power requirements supplier to its members, UAMPS depends upon the member's load/resource portfolios to meet load requirements. The diversity of the UAMPS membership ranges from winter and summer peakers to those with long resource positions and those that are short resources. UAMPS utilizes surplus member resources to meet deficit member's loads, which are not sufficient to meet all members load. UAMPS meets resource deficits with appropriate supply-side and demand side resources through its projects.

Because of today's evolving power supply markets and a volatile regulatory environment, traditional approaches to power supply are inadequate. Therefore, UAMPS has adopted a demand-side approach to capture efficiencies in both load requirements and resource management. The approach begins with programs aimed at encouraging residential customers to use energy more efficiently by offering cash incentives. Additionally, UAMPS continues to search for cost effective avenues to provide efficiency programs to address the needs of commercial and industrial customers. UAMPS will aggregate these solutions to provide an economy of scale in the implementation. The end result from more efficient energy consumption will be lower energy cost and reduced GHG emissions.

UAMPS recognizes that the demand-side approach will not fully meet members' long-term resource needs. However, in its analysis of supply-side resources, an emphasis will be placed on renewable resources.

SECTION 1 – INTRODUCTION

UAMPS, through its CRSP and Resource Projects, has been charged to address resource planning for the joint benefit of its members. The planning horizon for this IRP is ten years with a focus on the first five years. It is expected that the near-term resource integration issues will impact long-term options. Uncertainty with the development of current UAMPS projects, as well as the uncertainty of future regulations complicates resource planning. However, these uncertainties necessitate thorough planning that estimates the effect of various internal and external factors.

This submittal represents a continuation of UAMPS' ongoing IRP process. This is a public document, available for review at each member's place of business.

1.1 Background on UAMPS Members

UAMPS members' electric systems, for the most part, were established in the first half of the last century. Pursuant to state law each member has the authority to generate, distribute and sell electric power within its geo-political boundaries. Information on each member's system is listed in Exhibit B.

Pursuant to UAMPS organizational agreements UAMPS has undertaken projects on behalf of its members, consistent with its purposes as set forth in its organization agreements. These projects are: 1) Colorado River Storage Project (CRSP), 2) Firm Power Supply, 3) Pool, 4) Craig-Mona, 5) Central-St. George; 6) Hunter, 7) San Juan, 8)

Intermountain Power (IPP), 9) Payson (Nebo), 10) Resource, 11) Member Services, 12) Government and Public Affairs, 13) Horse Butte Wind, 14) Natural Gas, and 15) Freedom Project.

Since its creation, UAMPS has sought to develop new electric power supplies for its members through the acquisition of interests in electric generating facilities, demand-side programs, wholesale market power purchases, and development of transmission access to power supply markets in adjacent states. Through a diversity of power supply resources and a diversity of load, UAMPS and its members are able to benefit from the least cost sources of power. This decreases reliance on any single source of electric power while stabilizing load profiles and increasing the capacity factor of the system.

UAMPS sells the capacity or service provided by each of its projects under contractual agreements with its members. Not all of the members participate in every project that has been undertaken. To the extent that UAMPS has issued bonds to finance the capital costs of a project (i.e. the Central-St. George; Craig-Mona (retired); Hunter (retired), Payson and San Juan), such bonds constitute special obligations of UAMPS and are secured solely by payments made to UAMPS by those members participating in the financing of the project.

The members serve residential, commercial, small industrial and several large industrial customers. The governing body of each member regulates electric service and rates to its customers. Rates of the members generally are comparable to the rates of neighboring utilities. The members maintain rates for electric service, sufficient to provide operating revenues, which include operating and maintenance expenses, debt service, renewals and replacements and distribution expansions.

1.2 **Resource Planning Objectives**

UAMPS' fundamental goal is to provide a reliable, cost-effective, electric power supply portfolio to its members. Objectives of this IRP, based on this goal, are:

- Minimize impacts on rates to members
- Minimize portfolio integration costs
- Maintain system reliability
- Ensure flexibility
- Ensure short-term and long-term needs are met
- Maintain diversity in resource mix

UAMPS will have to balance all these objectives to reach our goal. Demand side and supply side options, in various combinations, will compete for selection into UAMPS' resource portfolio. In order to evaluate resources to be included in UAMPS' portfolio the following selection criteria will be used.

1.2.1. **Financial**

The analysis of the impact on UAMPS' rates includes such factors as purchase costs, operating costs, financing costs, and other costs or revenues that may be unique to a specific resource.

1.2.2. **Operational**

All resources will be evaluated according to how well they meet UAMPS' and its members' load needs.

1.2.3. **Reliability**

Reliability is essentially a measure of how each resource meets its performance objective. For supply side resources, reliability measures the availability of the resource to operate. For demand side resources, reliability measures the reduction in demand over time.

1.2.4. **Environmental**

All resources must meet local, State and Federal environmental requirements. UAMPS expects environmental requirements to be the key factor in evaluating any project. Each resource will be judged and ranked according to their ability to meet environmental requirements.

1.2.5. **Flexibility**

Flexibility is a measure of how well a resource can adapt to changing requirements. For example, some supply side resources can be obtained only in discrete sizes so a purchase contract may be more appropriate to match exactly the needs of the requestor.

1.2.6. **Short-Term and Long-Term**

By its very nature, an electric utility has both short-term and long-term obligations to its customers. Both considerations are important when evaluating alternatives.

1.2.7. **Diversity**

Diversity in type and location of resources balances the risk during disruptive periods plus opens up additional market availability.

1.3 **Key IRP Issues**

In the process of developing this IRP several key and unique issues, both internal and external to UAMPS and its members, were considered. These issues, in no specific order, are:

- 1.3.1. Future regulatory uncertainty regarding GHG emissions.
- 1.3.2. The Energy Policy Act of 2005. The “Act” includes key requirements that will affect UAMPS and its members operations and planning. These provisions include sustainable resource development, specifically clean coal technologies, renewable energy and nuclear power. The Act encourages increased and efficient hydroelectric production and relicensing processes, the implementation of metering options including time of use and net metering and the establishment of mandatory reliability standards.
- 1.3.3. Additional load growth during the ten year planning period.
- 1.3.4. The existing regional transmission infrastructure.
- 1.3.5. The increasing revenue requirements needed to cover the costs of providing energy, including decommissioning costs associated with existing resources.
- 1.3.6. State and Federal laws and policies, including but not limited to, the Clean Air Act, the Clean Water Act, the Endangered Species Act, the marketing criteria of the Salt Lake Integrated Projects (SLIP), the Federal Power Act and the National Energy Policy Act.
- 1.3.7. UAMPS is a project-based, wholesale electric service entity. The members purchase cost-based wholesale electric services from UAMPS via project contracts. The members are solely responsible to meet their load requirements either through UAMPS or from any other source. Therefore, the UAMPS’ IRP is based on members’ input and aggregated in order to best optimize the utilization of all resources.
- 1.3.8. UAMPS, through its Resource Project, reviews all resource options available including demand side and renewable resources.

SECTION 2 - LOAD FORECASTING

2.1 Forecasting Process

UAMPS prepares its forecasts, through proprietary computer modeling, by analyzing the individual historical hourly meter readings of its members, adjusted and normalized for system outages, data outliers, other unexplainable data points and average weather temperatures and data sources. Individual member forecasts are aggregated into a UAMPS system load. UAMPS identifies growth trends from the historical data and validates them with known load events and other factors that would influence load profile or growth rate. Individual members are involved throughout the process so that their local knowledge and load assumptions are incorporated into the forecasting process. The computer model allows for sensitivity analysis by adjusting the data and other model inputs. Assumptions can be modified independently for energy usage and peak demand based on high load and low load energy needs and various other scenarios that may arise in the forecast period. The member's aggregated forecasts are presented to the members and the UAMPS Board of Directors for approval.

2.2. Data Sources

Data sets used for analysis and assumptions are obtained from a variety of sources. Historical hourly load data from group and individual meter points is obtained and maintained by UAMPS. Demographic information is provided by the State of Utah Office of Planning and Budget, economic development agencies and local Chambers of Commerce. Long-term forecasts of economic data as well as price escalators are obtained from the Annual Economic Report to the Governor of Utah and various regional and national sources. Analysis of raw data, assumptions and data presentation is performed by UAMPS.

SECTION 3 - LOADS AND RESOURCES

3.1 Load and Resource Analysis

UAMPS' current resource portfolio includes: a long-term hydroelectric Power Purchase Agreement (PPA) with Western Area Power Administration (WAPA), two (2) long-term power purchase agreements from two different wind resources, a medium-term market purchase, partial ownership in two coal-fired power plants, total ownership of a combined-cycle, gas-fired power plant, and several short-term market-based power purchases. Also, UAMPS incorporates power purchases that some members procured outside of UAMPS. Additionally, members make available to UAMPS their power purchase agreements in Units 1 and 2 of the Intermountain Power Project (IPP). UAMPS members also make available their own diesel and gas-fired generating units, small hydroelectric projects, demand-side programs, renewable and other distributed generation resources. Each of these resources is forecasted into the future, based on the contractual terms and the scheduled or estimated availability of such resource. A cumulative stack of projected resources is then compared to the anticipated load and energy requirement for

each UAMPS member for the forecasted period. Potential new resources are analyzed by the economic impact to member rates, the load needs of UAMPS' members, and how well they integrate into the existing resource portfolio.

3.2 **Load Characteristics**

UAMPS' load is an aggregated composite of all the individual members. The diversity of the group provides a composite load characteristic that is the sum of the members energy needs but is less than the sum of the members' peaks. This load profile is less volatile and more predictable than that of any one individual member.

Several of UAMPS' members faced exceptional high load growth during recent times of economic prosperity, most notably the members in Utah within Utah and Washington Counties. However, due to the recession following 2008, load growth has stalled in the last several years. UAMPS' weighted load growth, while somewhat tempered by the slower growth of some of the smaller, rural members, was once growing at a rate exceeding historical averages. Again, this has been slowed by economic factors and it is expected to fall to the lower or middle range of historical average. However, Utah and the West in general is somewhat insulated from severe economic shocks due to several factors, not limited to a young, highly educated workforce, more competitive wages, relatively low energy rates, lower regulatory and other operating costs, strong emigration from other states and generally, robust economic development in the high-tech, energy and manufacturing industries. Load growth is expected to increase in residential and commercial growth stemming from a relatively better economy, national and regional migration into members' cities, building trends that incorporate large homes, central air conditioning and increasing home electronics and appliances purchases.

3.3 **Load and Resource Mix**

UAMPS identifies three categories of load and resource characteristics: base, intermediate and peaking. Obtaining the correct resource to serve each of these three characteristics provides a least-cost resource portfolio.

Base load is that amount of total load that is in demand 100% of the time. A base load resource is ideal to meet this characteristic.

A base load unit is designed to yield maximum operating efficiency at continuous operation for periods of 20 or more years. This optimization is normally accomplished by a considerable initial capital investment in order to yield lower relative operational expenses. Examples are hydroelectric facilities, coal and gas-fired generation, geothermal resources, wind and demand side programs.

Intermediate load is that portion of the load profile that is greater than base load up to the average peak. Intermediate load is generally present from the early morning to the late evening or approximately 50% of the time.

An intermediate load unit is designed to start up and shut down on a regular basis, generally daily or seasonally to operate between a minimum and maximum load while in operation to follow the load curve. Examples are combined cycle natural gas-fired generation, solar generation and demand side programs.

Peak load is that portion of the load profile this is greater than average peak amounts. Peak load is present in the early morning and the late evening for relatively short durations or approximately 20% or less of the time.

A peaking unit is designed to come on line and be shut down in a short time frame to accommodate short duration electric demand. Examples are natural gas combustion turbines, reciprocating engines fueled by natural gas, diesel or residual fuel oil, and demand side programs.

3.4 **Resource Needs of UAMPS**

UAMPS' resource availability to load requirement has been negative on average resulting in the need to rely on short-term power purchases. UAMPS has a forecasted future resource need, primarily due to member system growth and replacement of expiring long-term power supply contracts. Proposed criteria for screening demand and supply side alternatives were established in section 1.2 of this IRP.

UAMPS and its members are currently investigating a vast number of resource options under the umbrella of its Resource Project. These options vary widely, but are mostly renewable in nature and include small hydroelectric, wind generation, geothermal power, waste-heat capture technologies, solar energy, and include energy efficiency and demand side management programs. Larger, base to intermediate resources are almost exclusively gas-fired technologies. Political uncertainty, carbon legislation and aggressive regulatory mandates have made new coal generation difficult to consider. There is a desire to investigate new, small nuclear technologies; however, more political certainty would be beneficial. UAMPS will consider all power resources, provided they meet established criteria; generally being safe, low-cost, and reliable in nature.

SECTION 4 - RESOURCE ASSESSMENT

The following sections describe current resource positions as well as potential resource possibilities.

Member Owned Resources

In the near-term UAMPS is nominally surplus base-load capacity from IPP Units 1 and 2. UAMPS administers these member's Power Sales Contracts and exercises certain rights and provisions available through the Excess Power Sales Agreement. Under the agreement available surplus is sold to four (4) California cites with specific provisions to "call back" capacity to serve members load for both short-term and long-term periods.

UAMPS intends to exercise these rights to this surplus power to meet the growth of its members.

Independent of UAMPS, some of its members proactively pursue the development of their own resources and projects. The primary purpose of generation projects internal to a UAMPS' members system is reliability, and not necessarily economic cost. Peak load needs in the summer, voltage support, transmission system requirements and other reliability needs specific to the area are some of the needs that member-owned generation can help meet. Member-owned generation is directly interconnected to the member-owned distributions system and can meet the reliability needs for their own system or for their customers such as hospitals, government facilities or certain industries that need the assurance of reliable electric power. Member-owned generation is typically small hydro between 100 kW and 2,000 kW and small thermal facilities that include gas and diesel reciprocating engines and small gas turbines between 650 kW and 13,500 kW.

Several UAMPS members have evaluated larger gas projects to meet needs specific to their individual system. Specifically, UAMPS members in the Washington County load pocket have installed gas-fired generation to meet the load growth rate. Also, given their relative location in Southwest Utah, they have load factors and load profiles that are extremely "peaky" due to the heavy use of air conditioning in the summertime.

Small renewable projects, such as small hydro, solar and especially landfill gas, are typically tied to resources locally available to a specific member. Many UAMPS members have several of these resources, not limited to small rivers, local landfills, specific canyon winds or solar sources. Projects associated with these resource options are generally financed and developed at the member's local level.

Long-Term Power Purchase Contracts

UAMPS receives two seasonal allocations of hydroelectric capacity and associated energy from WAPA. Through the Firm Power Supply Project UAMPS provides long-term market purchases and other PPAs, most notably a wind-powered PPA.

Through the recently developed Horse Butte Wind Project, UAMPS solely managed the construction and has entered into a long-term PPA for 100% of the output.

UAMPS has several power purchase contracts. In the short-term, there is competitively priced power available for purchase with various terms and structures. Suppliers are eager to enter into market sales for these various terms and structures. Market conditions, given the state of the economy on loads and load growth, along with the supply of relatively cheap natural gas, generally support market buyers.

UAMPS Ownership

UAMPS has ownership in the coal-fired Hunter and San Juan projects and the gas-fired Payson Project power plant.

Natural Gas Generation

The Payson Project in Payson, Utah, a gas-fired combustion turbine with a duct-fired heat recovery steam generator (“HRSG”) and a dual-pressure steam turbine, to provide a nominal combined cycle generating capacity of 140.5 MW was completed and operating commercially as of May of 2004. The gas turbines and duct burners are fueled solely by natural gas. It is designed to be operated as either a base load, intermediate or peaking unit although the economics change for each configuration.

Because of the rapid growth by this project’s participants and evolving ownership structure, and the economics of the power market, the Payson Project is operating closer to intermediate/base load plant, running most of the time during the daytime hours.

As a significant source of clean and reliable power, UAMPS will continue to investigate the use of natural gas-fired power as a potential resource to meet its future needs.

Coal Generation

UAMPS has ownership interests in two coal-fired power plants, Hunter #2 and San Juan #4. Also, twenty-three UAMPS members have power purchase agreements in Units 1 and 2 of the IPP Project of which UAMPS administers on their behalf. The development of the third unit mentioned in the prior IRP submittal was abandoned during the last IRP period.

UAMPS will continue to investigate the latest, most acceptable “clean coal” technologies that will benefit its members by means of reliability and low cost, provided there is economic and regulatory certainty associated with those technologies.

Wind Energy

As a result of the last IRP process, UAMPS has investigated and acquired a second wind resource through a PPA with the Horse Butte Wind Project. UAMPS solely developed the project wind generation facilities. Due to the nature of the financing of the Project, UAMPS sold the asset to a partner and then entered into a PPA for the total output of the project. Provided the project meets or exceeds certain operational and economic parameters, UAMPS will have the option to purchase the project in 5 years with additional economic benefits to its members.

UAMPS also has a long-term PPA with Iberdrola Renewables for about 10% of the output of the Pleasant Valley Wind Plant located near Evanston, Wyoming.

Wind has an important role in power generation and UAMPS is working to integrate wind resources with operational and cost attributes that compliment UAMPS' resource mix.

Geothermal

UAMPS investigates proposed geothermal resources when offered by developers. While the relative cost is still the most likely barrier to development, it is a resource option that several members have shown a preference in pursuing.

Demand Side Programs

Demand side programs are an important part of UAMPS' resource mix. While these programs cannot fulfill the entire long-term need of an additional resource, successful implementation of these programs can often times be sufficient to meet short-term load growth and some peaking needs. UAMPS launched three demand side programs aimed at residential customers in June 2009. The Home Energy Savings Program offers incentives for Energy Star appliances. The Cool Cash Program aims to reduce summer peak load by offering customers incentives for high efficiency central air conditioning equipment and evaporative coolers. The See Ya Later, Refrigerator Program pays customers incentives for recycling refrigerators and freezers. Demand side programs are described in more detail in Section 5.

Other Considerations for New Resources or Purchases

4.9.1 Transmission

If UAMPS were to acquire more resources, additional transmission capacity may be required across constrained transmission paths.

UAMPS has been participating in various forums in the Western interconnection region over the last ten years to develop a reliable transmission grid. Currently, UAMPS is participating as a founding member of the Northern Tier Transmission Group ("NTTG") with PacifiCorp, Idaho Power Company, Northwestern, Portland General Electric and Deseret Power. The purpose of NTTG is to administer regional transmission planning and construction with all stakeholders, including transmission owners, transmission customers, and State and Federal regulatory entities. UAMPS envisions that NTTG will provide a forum to incorporate all of the Load and Resource forecasts and plans within its footprint and neighboring regional planning organizations and develop a comprehensive, least cost transmission plan that satisfies to the extent possible all stakeholders needs. There already have been major transmission projects announced by NTTG which will have a major impact on the resource planning of UAMPS and others.

4.9.2 Environmental

UAMPS complies with all State and Federal regulations and statutes. UAMPS is taking into consideration the impact that possible new regulation of greenhouse gases in its analysis of new resource options.

SECTION 5 – DEMAND SIDE MANAGEMENT PROGRAMS

5.1 Demand Side Management Overview

With the increase of wholesale power prices, UAMPS sees an opportunity to reduce its exposure to the market through an effective Demand Side Management (DSM) program. DSM not only puts off the need to enter into supply side options, but it will add a number of environmental benefits including reduced air emissions, water usage and land use. Reducing energy consumption through efficiency and conservation will reserve and extend the life of limited energy resources and mitigate future costs associated with transmission and generation infrastructure.

UAMPS has long believed that DSM was best undertaken by its members however, evolving conditions in the energy markets and developing CO2 debate have cause UAMPS to propose a group based DSM program. To this end, UAMPS has made DSM a priority by exploring and encouraging all potential demand side programs.

In the past, each individual member of UAMPS has determined their individual demand side endeavors that best work for the size and scale of their individual system. Individual member programs are generally a function of the relative size and the distinct load characteristics that determine the effectiveness of different programs. The size and composition of the customer base or local weather patterns may make some demand side programs more effective than others.

UAMPS makes Demand Side Management Programs available to its members through its Resource Project. UAMPS feels that there is the ability to leverage the organizational structure and experience to help all members regardless of size implement and maximize DSM programs across the entire membership and make a measurable impact on aggregate loads.

5.2 UAMPS Demand Side Activities

UAMPS continues to work with its membership, environmental consultants, state agencies, and other stakeholders to define and implement the most effective DSM programs to its membership.

UAMPS developed comprehensive residential demand side programs modeled after Rocky Mountain Power's Home Energy Savings Program, Cool Cash, and "See Ya Later, Refrigerator" programs. Launched in June 2009, residential customers of participating UAMPS' member utilities are eligible to receive cash incentives and long-term energy and cost savings.

Home Energy Savings Program: Customers can receive incentives ranging from \$20 to \$75 by purchasing ENERGY STAR clothes washers, refrigerators, dishwashers, room air conditioners, lighting fixtures, and ceiling fans, as well as qualifying electric water heaters from participating retailers. The incentives will be available regardless of who installs the product.

Cool Cash: Cool Cash encourages installation of evaporative cooling systems, and/or the proper sizing and installation of high efficiency central air conditioning equipment. Customers who choose the evaporative cooling option can buy new or replacement evaporative coolers from any source they prefer but the equipment must meet specific efficiency standards. Customers may install the evaporative cooler themselves, and do not need to purchase professional installation services. Customer incentives for evaporative coolers range from \$100 to \$1,000 and dealer incentives range from \$25 to \$300. Customers who choose central air conditioning must purchase new, UAMPS-approved equipment. To qualify for the incentive, customers must also work with a participating vendor to ensure the unit(s) are sized and installed correctly. Customer incentives for central air conditioning systems range from \$50 to \$150 and dealer incentives range from \$25 to \$75.

See Ya Later Refrigerator: Older refrigerators use excessive amounts of energy, but hauling them off and properly disposing of them can be difficult. The "See Ya Later, Refrigerator" enables customers to schedule a pick-up of their working refrigerators or freezers. The old appliances are recycled and hazardous materials are disposed of properly and safely. Customers receive a \$30 cash incentive.

UAMPS has also established a collaborative relationship with the State Energy Program of the Office of Energy Development of the State of Utah for the purpose of implementing effective DSM program strategies for its members. The State Energy Office is targeting Federal dollars that are specifically allocated to the acquisition and implementation of DSM programs.

In April 2010, UAMPS received an award under the Energy Conservation Block Grant Program (EECBG), as part of the American Reinvestment and Recovery Act (ARRA), to replace standard High Intensity Discharge (HID) streetlights with Light Emitting Diode (LED) units in fourteen member communities. The project was awarded through the Utah Office of Energy Development and enabled UAMPS members to purchase 2,096 LED street light units. All UAMPS members in the Resource Project who did not receive EECBG Formula Grants were eligible and invited to participate. Additionally, participating UAMPS members pledged to reinvest the energy cost savings in additional LEDs for a period of three years.

The demand side activities currently administered by UAMPS are described in this section. "Exhibit C" of this IRP contains a detailed summary of the members' demand side activities and energy efficiency programs.

5.2.1 **Interruptible Loads**

UAMPS and members with their own generation have developed an interruptible load program. This program allows members to enter into an agreement with industrial customers of 1 MW or larger to become interruptible loads on the UAMPS system. The member must be able to shed the interruptible load within ten minutes of notification by UAMPS based on a firm need for other UAMPS loads or an economic decision by the industrial customer and member.

5.2.2 **Energy Audits**

The Member Services Project makes available an infrared camera and heat trace gun. These tools help the members audit their own system infrastructure and also that of their large industrial, small commercial and, sometimes, residential customers. The members use these items to identify energy losses and inefficiencies within their system. Once identified, the members can act to mitigate the cause of the problems that leads to energy losses. System improvements help ensure better energy efficiency in their transmission and distribution systems. These upgrades typically yield the high nominal energy savings.

5.2.3 **Power Factor Modification**

UAMPS and its members have analyzed closely and reviewed their power factors and the effect on the loads. Almost every UAMPS member has worked on correcting their power factors and spent significant sums of money on power factor studies, capacitors and other system improvements to increase the power efficiency of their systems. Considerable system improvements have been implemented. For example, the Central-St. George Transmission Project located in Washington County has experienced difficulties dealing with rapid growth. Power factors have been critical in avoiding outages during the summer peak and the Project has committed to install capacitors to improve system reliability. Such power factor improvements and coordination help ensure that system outages are avoided and lower overall cost.

5.2.4 **Load Shedding**

UAMPS has developed in coordination with the members, a load shedding program during excessive system peak periods. Several advertisements and newsletters have been published, encouraging customers to cut down their use of electricity over their system peak. UAMPS also participated in PowerForward, a Utah State government sponsored program to encourage customer awareness regarding voluntary shedding load over critical system times.

UAMPS sees significant additional opportunities in the area of voluntary and economic load reduction measures. UAMPS intends to further promote peak

energy demand reduction with residential and large commercial and industrial customers.

SECTION 6 - PUBLIC PARTICIPATION

6.1 Public Involvement Plan and Schedule

Public involvement in this IRP development was a part of the process.

6.1.1 Most members participated in a joint public hearing held at UAMPS' offices. Some members conducted their own individual public participation process with support from UAMPS on an as-requested basis.

6.1.2 Members will be primarily responsible for addressing demand side programs associated with the plan.

6.1.3 The goal of the public participation process is not necessarily to reach consensus, but rather to inform the governing bodies by providing information and balancing input from all affected interests.

6.1.4 Each of the Members' governing board will approve the IRP with the UAMPS Board of Directors making the final decision regarding this IRP.

6.2 Public Comment Meetings

Public Hearings were held by each of the Members during the months of November and December of 2012, and January of 2013.

6.3 Results of Public Comment Meetings

No specific changes were recommended from any public meeting.

6.4 Summary

No comments were received from the public as a result of the public hearings held thus far. However, this IRP attempts to address the concerns received in relation to prior public polling and IRP processes, namely that the public desires to keep rates low and stable, while mitigating negative environmental impacts.

SECTION 7 – ALTERNATIVES AND RECOMMENDATIONS

7.1 Analysis of Available Alternatives

UAMPS has identified two categories of alternatives in response to the need of additional resource. The first category is to reduce energy demand. The second category is to acquire an additional resource.

7.1.1 Reduce Energy Demand

As described earlier, UAMPS has implemented a number of residential demand side programs specifically targeted to reducing energy demand and peak load to minimize the need for new resources by targeting three areas:

7.1.1.1 Energy Efficiency

By continuing to invest in technological measures and practices that improve the rate of energy usage, it is possible to deliver an equivalent or improved level of service with less energy waste.

7.1.1.2 Energy Conservation

Conservation avoids the use of electricity without eliminating its need, usually at the expense of service. Conservation measures generally take the form of appeals to the public to curtail energy usage voluntarily. UAMPS anticipates using education along with other incentives to reduce or avoid demand.

7.1.1.3 Load Management

- Net Metering
- Small wind
- Residential and Commercial Solar
- Other demand-side programs.

7.1.2 Acquire Additional Resource

UAMPS has a forecasted need for additional capacity and energy with the 10 year forecast period. This need is a result of number of factors the directly affect UAMPS resource portfolio including but not limited to the following:

- Load growth assumptions in the last IRP period were exceptionally high. Those assumptions will be tempered this period due to lower growth and stagnant economic conditions. Establish DSM and energy efficiency programs have

partially mitigated resource needs during the last IRP period. Due to difficult economic conditions during the last IRP period, load growth assumptions have effectively been put off by five years. However, moving forward there is a need to add capacity, although a much more tempered pace.

- Political and regulatory uncertainties of coal and the economic costs associated with clean air compliance of aging coal assets, have forced UAMPS to reevaluate additional coal ownership and also to consider replacing existing coal-fired resources with other sources of power generation.
- UAMPS does foresee rigorous reliability standards that may require more installed system capacity for reliability purposes.

Therefore, UAMPS will likely need to acquire additional system resources to provide energy and capacity. These resources may include any combination of the following:

7.1.2.1 Renewable resources; geothermal or additional wind

Renewable resources meet many of the selection criteria but may not be available in the quantity or quality to reliably meet forecasted load growth. Preference is given to geothermal because of the reliable nature of generation, but cost a possible barrier. Wind energy is acceptable, but the intermittent nature is may not provide the necessary capacity or energy for load and reliability. Geothermal resources are difficult due to extremely high capital and operating costs. Solar has an attractive generation profile, but despite the precipitous decline in panel costs, cost still is often prohibitively high.

7.1.2.2 Coal-fired power

Low variable cost, fuel availability, reliability and the economy of scale are the primary drivers of coal. UAMPS sees coal as an integral part of meeting future load growth. Future environmental regulation risks appear surmountable with the continual development of “clean” coal technologies. High capital costs are overcome by low fuel costs and the nature of base load operations.

7.1.2.3 Additional gas-fired power

Natural gas generation is an excellent option for meeting intermediate and peak load growth will providing the capacity that is necessary to meet potential reliability standards. Natural gas generation can be built in numerous sizes and configurations based on the organizational needs. Higher fixed costs are often mitigated by lower variable cost and the operational flexibility of the plants. Relatively low forecasted gas prices due to exploration and drilling technologies and the

availability of long-term, low-cost fuel supply make gas-fired generation an attractive resource.

7.1.3.4 Market-based Power Purchases

Power purchases are good option to meet short-term needs but usually lack operating flexibility. Market power purchases are usually an excellent way to meet short-term base load needs and to bridge needs until a long-term solution is in place.

7.2 Recommendations

The following recommendations intend to fit within the objectives of providing a reliable, least-cost, electrical energy supply portfolio for the next five to ten years. Each recommendation outlines the general directions that UAMPS should follow in order to meet these objectives. Accordingly, each recommendation provides guidance to UAMPS and its members and should be followed up with additional detailed analysis and planning before the recommendations can be fully implemented.

7.2.1 Recommendation 1 – Demand Side Programs

UAMPS and its members should implement a comprehensive Demand Side Management Plan. The plan should take into account cost-effective measures that will reduce the growth of member peak demand, encourage efficient use of electricity resources while keeping rates low, maintaining reliability and enhancing services to the Members' customers. The intent of this program is to reduce demand and act as additional resources to meet the Members immediate needs to serve existing system loads.

UAMPS' members have already taken the first step by directing UAMPS to focus on demand-side management. UAMPS' members have recently put in place DSM programs which effectively encourage energy efficiency, promote conservation and effectively reduce energy demand.

UAMPS' members are encouraged to exercise the broad authority they possess to the extent they can, to educate, implement, and enforce any DSM program recommended by UAMPS.

7.2.2 Recommendation 2 – Additional Resources

UAMPS should pursue the development of additional resources with an emphasis on renewable resources in the form of wind geothermal and landfill gas power. Specific qualitative and quantitative criteria should be established and adopted by the resource committee for evaluating additional renewable resources. UAMPS

should also pursue options for acquiring additional base, intermediate and peaking resources for future energy and reliability needs.

UAMPS will encourage the development of renewable thermal generation to incorporate as a base load resource in its portfolio. UAMPS will also continue to pursue the development of additional wind generation to the extent it meets selection criteria.

Members will continue to review renewable resource alternatives within their service area. At this time, small hydroelectric, biogas, and solar energy technologies appear to have good potential.

In view of the growth and the associated increase of peak loads, along with the potential needs of capacity for reliability purposes, UAMPS should consider additional gas-fired resources. Additional gas-fired generation will help meet forecasted intermediate and peaking needs for its members. These resources would also provide the capacity that potentially may be needed to meet reliability standards that may be imposed on UAMPS.

UAMPS will continue to evaluate new base load resources to meet the long-term shortfall in resources.

The intent of additional base, intermediate and peaking resource acquisitions is to meet the member's long-term needs associated with forecasted system load growth. The timing of decisions on specific resources will be determined by the UAMPS Board of Directors

7.3 **Conclusion**

This IRP was completed to present an approach for ensuring continued cost effective, reliable and environmentally sensitive service to UAMPS and its members and to gather additional public input on the planning process. This IRP was presented to the members. UAMPS and its members plan to continue this joint planning process and will likely build upon and update this IRP on an annual basis.

EXHIBIT A

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BASIN

EXHIBIT B

UAMPS MEMBERS SYSTEM INFORMATION

Beaver City has 1,807 customers. Beaver had a 2010-11 peak of 7,676 kW. Beaver has a service territory of 6.8 square miles, owns 70 miles of transmission and distribution lines.

Blanding City has 1,626 customers. Blanding had a 2010-11 peak of 5,697 kW. Blanding has a service territory of 4 square miles and owns 25.3 miles of transmission and distribution lines.

Bountiful City has 16,463 customers. Bountiful had a 2010-11 peak of 75,359 kW. Bountiful has a service territory of 13.46 square miles and owns 228.51 miles of transmission and distribution lines.

Central Utah Water Conservancy District (CUWCD) has no retail customers. It provides a small amount of power to pump water for their projects. CUWCD only purchases its CRSP Resource allocation wholesale. The remainder of their power is purchased on a retail basis.

Enterprise City has 600 customers. Enterprise had a 2010-11 peak of 1,994 kW. Enterprise has a service territory of 9.7 square miles and owns 25 miles of transmission and distribution lines.

Ephraim City has 1,941 customers. Ephraim had a 2010-11 peak of 6,851 kW. Ephraim has a service territory of 16 square miles and owns 34 miles of transmission and distribution lines.

Fairview City has 774 customers. Fairview had a 2010-11 peak of 1,954 kW. Fairview has a service territory of 1 square miles and owns 10 miles of transmission and distribution lines.

Fillmore City has 1,149 customers. Fillmore had a 2010-11 peak of 6,332 kW. Fillmore has a service territory of 8.5 square miles and owns 50 miles of transmission and distribution lines.

Holden Town has 215 customers. Holden had a 2010-11 peak of 447 kW. Holden has a service territory of 5 square miles and owns 3.2 miles of transmission and distribution lines.

Hurricane City has 5,545 customers. Hurricane had a 2010-11 peak of 31,315 kW. Hurricane has a service territory of 39.1 square miles and owns 112.7 miles of transmission and distribution lines.

Hyrum City has 2,469 customers. Hyrum had a 2010-11 peak of 14,508 kW. Hyrum has a service territory of 4.75 square miles and owns 75 miles of transmission and distribution lines.

Kanosh Town has 257 customers. Kanosh had a 2010-11 peak of 582 kW. Kanosh has a service territory of .65 square miles and owns 10.5 miles of transmission and distribution lines.

Kaysville City has 8,293 customers. Kaysville had a 2010-11 peak of 39,332 kW. Kaysville has a service territory of 10.5 square miles and owns 141.5 miles of transmission and distribution lines.

Lehi City has 14,360 customers. Lehi had a 2010-11 peak of 65,193 kW. Lehi has a service territory of 26.7 square miles and owns 492.5 miles of transmission and distribution lines.

City of Logan has 18,561 customers. Logan had a 2010-11 peak of 92,166 kW. Logan has a service territory of 17.97 square miles and owns 230.9 miles of transmission and distribution lines.

Meadow Town has 175 customers. Meadow had a 2010-11 peak of 517 kW. Meadow has a service territory of 2 square miles and owns 10.4 miles of transmission and distribution lines.

Monroe City has 1,016 customers. Monroe had a 2010-11 peak of 2,413 kW. Monroe has a service territory of 23 square miles and owns 34 miles of transmission and distribution lines.

Morgan City has 1,553 customers. Morgan had a 2010-11 peak of 4,533 kW. Morgan has a service territory of 5 square miles and owns 20.7 miles of transmission and distribution lines.

Mt. Pleasant City has 2,181 customers. Mt. Pleasant had a 2010-11 peak of 4,154 kW. Mt. Pleasant has a service territory of 80 square miles and owns 1,075 miles of transmission and distribution lines.

Murray City has 16,775 customers. Murray had a 2010-11 peak of 97,490 kW. Murray has a service territory of 9.9 square miles and owns 206 miles of transmission and distribution lines.

Town of Oak City has 272 customers. Oak City had a 2010-11 peak of 723 kW. Oak City has a service territory of 6 square miles and owns 26 miles of transmission and distribution lines.

Town of Paragonah has 259 customers. Paragonah had a 2010-11 peak of 473 kW. Paragonah has a service territory of 2 square miles and owns 25 miles of transmission and distribution lines.

Parowan City has 1,436 customers. Parowan had a 2010-11 peak of 3,223 kW. Parowan has a service territory of 6 square miles and owns 75 miles of transmission and distribution lines.

Payson City has 5,851 customers. Payson had a 2010-11 peak of 26,123 kW. Payson has a service territory of 9.7 square miles and owns 85 miles of transmission and distribution lines.

City of Santa Clara has 2,053 customers. Santa Clara had a 2010-11 peak of 13,201 kW. Santa Clara has a service territory of 4.5 square miles and owns 32 miles of transmission and distribution lines.

Spring City has 566 customers. Spring City had a 2010-11 peak of 1,016 kW. Spring City has a service territory of 5 square miles and owns 26 miles of distribution and transmission lines.

Springville City has 10,256 customers. Springville had a 2010-11 peak of 55,422 kW. Springville has a service territory of 24.30 square miles and owns 218.38 miles of distribution and transmission lines.

South Utah Valley Electric Service District (f.k.a. Strawberry) has 3,192 customers. Strawberry had a 2010-11 peak of 12,691 kW. Strawberry has a service territory of 100 square miles and owns 333 miles of distribution and transmission lines.

Washington City has 5,775 customers. Washington had a 2010-11 peak of 29,000 kW. Washington has a service territory of 20 square miles and owns 115 miles of distribution and transmission lines.

Weber Basin Water Conservancy District (Weber) has no customers. Weber provides the electricity for their wells, pumps and treatment facilities. Weber had a 2010-11 peak of 7,541kW. Weber owns 1.5 miles of distribution and transmission lines.

EXHIBIT C

MEMBERS' INDIVIDUAL PROGRAMS

BEAVER CITY

Beaver City's Hydro Electric Plant has had the following upgrades to their electric transmission and distribution systems which help manage the electric demand on their system:

1. Installed a demand control device on hydro plant so the demand won't fall back on Rocky Mountain Power and stays above a certain number.
2. Upgraded transmission lines to city substation from West Beaver.
3. Have eliminated transmission bottle necks in the secondary substation.
4. Beaver City is in the process of upgrading their main substation to 10vk/14. It will be in place by Spring, 2013.
5. The old mechanical meters are being replaced by new digital meters which will make the electric monthly readings more accurate.
6. The turbines in the power plants have been upgraded increasing the ability to use more water and generating more power.

BLANDING CITY

1. Blanding City is a participant in the Horse Butte Wind Project in southeastern Idaho with a 505 KW entitlement.
2. Blanding City is currently requesting bids to develop a System Master Plan to upgrade our distribution system for a more stable and energy efficient operation.
3. Blanding City has an ongoing program to periodically offer incentives to total electric heat customers to convert to Blanding's Natural Gas System which reduces our peak and energy growth rate.
4. Blanding City completed a remodel of the City Office building and added new energy efficient light fixtures, additional insulation to the exterior walls of the building, new energy efficient windows, and high efficiency heating and cooling systems.
5. Blanding City added solar panels to the Visitor Center; 44 – 245 Watt solar modules mounted on pole ground mounts which has almost completely replaced all the electricity used at the facility.
6. Blanding City added solar panels to the newly constructed Wellness Center; 370 – 245 Watt modules to the south facing roof of the facility which provides much of the electricity necessary to run the lighting and the pool system pumps for the facility.
7. Blanding City is a participant in the UAMPS Smart Energy Program offering incentives for energy saving devices to the consumers.
8. Blanding City includes periodic energy saving tips in the monthly utility bills.

BOUNTIFUL CITY

Bountiful City Light & Power (BCLP) has an ongoing plan to supply our customers with reliable service at the lowest cost possible. The BCLP has an ongoing program to limit losses, supply reliable power, and lower its overall electrical needs.

The City has the following programs and projects:

Residential Lighting, Compact Florescent Lights

We have a compact florescent light (CFL) program for our customers. Although we encourage our customers to purchase the lights on their own, we continue to offer CFL lights on a monthly lease basis.

Street Light Upgrades

We have an ongoing program to replace our mercury vapor streetlights with more efficient high-pressure sodium (HPS), induction, or LED lights. This is an ongoing program to upgrade and replace outdated less efficient streetlights.

Traffic Signals

The City has replaced all of the traffic signal lights and crossing lights to high efficient LED lights.

System Capacitors

We continue to monitor and make use of capacitors on our system to aid in providing better quality, more efficient power to our customers. The capacitors have been placed throughout the system to reduce system losses.

Interruptible Industrial Customer

Our only large industrial customer is Air Products Manufacturing Corporation, which operates at-the-ready and knows that we can interrupt their load at any time for the good of our system. This option is very seldom used by us and we have not been able to quantify any savings that may result.

Consumer Education

We will continue to educate our customers through periodic articles in the Bountiful City newsletter on conservation topics. Also, our customers benefit from the Power Forward program that the state of Utah promotes.

Transformer Sizing and Losses

BCLP has installed demand meters on all commercial customer connections. This allows the City's staff to use the database to install properly sized transformers to reduce transformer losses and potentially increase the life of the transformers.

We also analyze the total owning cost before purchasing new power transformers. The total owning cost is calculated by adding the purchase price to the cost of losses over the expected life

of the transformer. A low loss, high efficiency transformer is then purchased accordingly. Low loss, high efficiency transformers reduce distribution losses and provide lower energy costs.

We currently have upgraded five substation transformers and purchase approximately 200 distribution transformers a year. We have purchased transformers using this total owning method for over 15 years.

System Upgrades

We are currently involved in the upgrading of our 46 KV transmission system. This upgrade and re-conducting project will increase the system reliability and lower our system losses.

Net Metering Program

BCLP has a net metering program in place that supports solar panels and purchases the excess power at our retail rate to encourage citizens to participate in the program.

Power Plant Upgrade

BCLP has upgraded its local natural power generation gas plant and has installed three gas-fired turbines. This local generation increases the local system reliability, while lowering system losses, by putting the generation closer to the load and matching the power needs of the customers.

Tree Trimming

BCLP has an active tree trimming program to clear trees from the system. The tree trimming program has increased system reliability by reducing tree-related interruptions. It has eliminated the need for additional trips by linemen to respond to outages.

Infrared Camera

Twice a year, the BCLP inspect all of our substations, generation plants, large commercial loads, and random sampling of customer connections. This program identifies potential hot spots, which helps in efficiency and reliability.

SCADA System

BCLP operates a SCADA system to monitor system load, breaker operation and power factor. This information is used to monitor the need to install additional capacitors, balance systems, and transformer operating temperatures.

CENTRAL UTAH WATER CONSERVANCY DISTRICT

CUWCD has no retail customers. The Duchesne Valley Water Treatment Plant (DVWTP) has been rebuilt. The new pumps and motors which requires the largest electrical demand and energy use, replaced older and less efficient equipment. The overall demand has increased with the larger plant but the efficiency per ac-ft treated has increased.

CITY OF ENTERPRISE

System DSM programs include:

1. We continue to monitor our power factor and install capacitor banks where needed.
2. With the SCADA system for our water dept., we have been able to run City wells on off peak time.
3. Have continued to encourage the use of high efficiency lighting.
4. We have put in place net metering.
5. We are continuing to spend much time and money on the process of upgrading transmission line and substation to improve line losses and reliability.
6. We participate in the UAMPS Smart Energy appliance and cool cash rebate programs.
7. We have changed most all of our street lighting fixtures to LED fixtures and will install LED fixtures from now on.

EPHRAIM CITY

ENERGY SAVING EFFORTS BY EPHRAIM CITY

Ephraim City is moving forward to increase hydro effectiveness by automating all control features with ladder logic computer control, thereby using all water possible to produce hydroelectric power, and conserving fossil fuels.

Ephraim City encourages all Ephraim Power Customers to use compact fluorescent lights where possible.

Ephraim City has ongoing Street-light change out program to high pressure sodium.

Ephraim City Power and Light has implemented a city-wide tree trimming plan. This program helps prevent the number of outages experienced, as well as shortening the length of time customers are out of power.

Ephraim City is in the planning and engineering stages of a new 46 KV line feeding the new substation located at 50 West 700 North. The new 7 MVA substation will provide a reliable electric source for existing houses and future growth.

Ephraim City also supports and participates in the UAMPS Smart Energy programs:
Home energy savings program – cash back for purchasing qualifying appliances
Cool Cash – Incentive to install efficient evaporative or central air cooling systems
See “ya” later refrigerator – Incentive to recycle inefficient refrigerators or freezers

Ephraim City Power and Light’s Demand Side Management Program is an evolving work in progress. New ideas are embraced, with a constantly improving system. Ephraim is a dynamic utility always open to conservation programs.

FAIRVIEW CITY

FILLMORE CITY

Fillmore City electric department has made several improvements to increase system efficiency. The city made the change from 2400 to 7200 volts recently. Several years of planning and work went into this project and it was nice to finally complete.

The city also has been involved in changing the street lights to LED's. This project is ongoing and approximately 75% of the lights in the city have been replaced. Work on this project will be completed next year.

HOLDEN TOWN

Electricity Demand Side Management Program

A "Demand Side Management Program" is a program designed to provide assistance to end-users to help reduce the electricity demand for the Residential, and Commercial (including Industrial) sectors. Holden Town Corporation encourages its Residential and Commercial customers to conserve energy through a variety of recommendations that, when followed, will reduce the overall electric usage of the system and save customers money on their energy bills.

Holden Town will assist customers in the demand side management recommendations by helping customers to find providers/suppliers of recommended equipment and/or services.

Residential Electricity Conservation Programs

The following is a list of Residential Demand Side Management recommendations offered to help reduce electricity consumption:

Lighting

- Customers are encouraged to replace 'traditional' light bulbs with Compact Florescent Light bulbs.

Appliances

- Customers are encouraged to replace older appliances, with newer High Efficiency Appliances (Energy Star rated)

HVAC (Heating, Ventilation & Air Conditioning)

- Customers are encouraged to utilize:
 - Programmable Thermostats
 - High Efficiency HVAC units

Windows

- Customers are encouraged to minimize energy loss through windows by utilizing:
 - High Efficiency Windows
 - Window Treatments (sunscreens, reflective or spectrally selective film, tinted windows, high performance glass)

New Construction

- Customers and home builders are encouraged to design and build more comfortable and energy efficient "state-of-the-art" homes (Energy Star Homes). More information is available at www.energystar.gov

Additional Resources

- Customers can learn how to use energy more efficiently and wisely by utilizing an "on-line" energy audit at www.energyguide.com, or by ordering a CD-ROM EnergySmart software package.

Commercial Electricity Conservation Programs

The following is a list of Commercial (including Industrial) Demand Side Management recommendations offered to help reduce electricity consumption:

Lighting

- Customers are encouraged to utilize:
 - Compact Florescent Lights
 - LED Exit Signs
 - Occupancy Sensors

HVAC (Heating, Ventilation & Air Conditioning)

- Customers are encouraged to utilize:
 - Programmable Thermostats
 - HVAC Repair and Diagnostics to keep equipment running efficiently

Windows

- Customers are encouraged to minimize energy loss through windows by utilizing:
 - High Efficiency Windows
 - Window Treatments (sunscreens, reflective or spectrally selective film, tinted windows, high performance glass)

Office Equipment

- Customers are encouraged to utilize:
 - High Efficiency Office Equipment

New Construction

- Customers and builders are encouraged to design and build more comfortable and energy efficient "state-of-the-art" buildings. More information is available at www.energystar.gov

Additional Resources

Customers can learn how to use energy more efficiently and wisely by utilizing an "on-line" energy audit at www.energyguide.com, or by ordering a CD-ROM EnergySmart software package.

HURRICANE CITY

Hurricane City participated in an EECBG which was applied for and received through UAMPS Smart Energy Program. The grant money was used to purchase LED street lights to replace less efficient HPS technology street lights. Hurricane replaced 298 cobra head style 250W and 400W HPS fixtures with the new energy efficient LED fixtures. The saving in energy use was calculated and some the savings was used to invest in the Horse Butte Wind Project. Other portions of the savings went to purchasing retro-fit decorative street light fixtures. 79 decorative 250W HPS fixtures were retro-fitted with 50W HPS fixtures.

To date, Hurricane has either retro-fitted over 60% of our HPS streetlights to LED or have drastically lowered the HPS wattage.

Hurricane participates in an appliance rebate program administered through UAMPS Smart Energy. Our customers have benefitted from this program with a check in their pocket and savings on their power bill.

Hurricane has a Net Metering Policy which allows residential customers connection of their solar panels to the grid. Hurricane gives rebates for the installation and buys back any excess generation at full retail rate. Currently five customers have installed solar panels under this policy with a combined connection of 22.5KW to the grid.

Due to the difficulty of maintaining proper power factor, Hurricane has installed a SCADA operated capacitor control program. Switched capacitors have been automated and open and close through a SCADA signal sent via radio to the controller. Also, some additional capacitors were added and others relocated on the feeders to better control the system's power factor.

Hurricane City hired a Generator Tech qualified and experienced on our Caterpillar Reciprocal Generators. The investment in the Generator Tech has paid off with much better heat rate of the engines leading the better efficiency of the power plant.

HYRUM CITY

Hyrum City has instituted or is currently working on the following demand side programs.

1. Net Metering – Hyrum City has approved a resolution for customers to install interconnections for Renewable Energy Sources such as solar, etc.

2. Renewable wind energy – Hyrum has approved a resolution for customers to subscribe for renewable energy provided by Pleasant Valley and Horse Butte Wind Projects.

3. Inclining Block Electric Rates – To help encourage conservation Hyrum City has approved inclining block rates for residential customers. These rates are the First 500 KWH – 0.084560, next 250 KWH – 0.110295, and all over 750 KWH - 0.137648

4. Building a 46 kV Transmission Line – We have been building a new 46kV transmission line from 1700 East Highway 101 to 500 South Hammer Road for a new Substation that is being built. There are 5 steel pole structures in the project, 4 of the 5 have been installed and the 5th pole is scheduled to be installed this November. Ninety percent of the wire has been pulled and is in place. With the down trend to the economy this project has been spread out over a number of years and most of the work has been completed by city crews. Project Start Date – October 2007 Estimated Completion Date – August 2015.

5. New Hammer Substation – We have been building a new 10MV Substation at 500 South Hammer Road to provide a reliable electric source for existing houses and future growth. The substation was moved to this location to meet the future needs of a new industrial park that has been approved in this area. The grounding grid has been installed as well as all the cement piers and cement pads. The substation transformer that we had bought and stored since 2009 has been put in place. This next year we have budgeted to install all the bus material and switches. The next year we plan installing the SCADA system and all the internal wiring. With the down trend to the economy this project has been spread out over a number of years and most all of the work has been completed by city crews. Project Start Date – January 2009 Estimated Completion Date – August 2015.

6. New SCADA System – After we complete the Hammer Substation Project we wish to budget and install a new SCADA system in the Center Street, 800 East, Hammer Substations and the OCB metering station. This will give us better control and be able to monitor and evaluate our electrical system faster and better. Project Start Date – July 2015 Estimated Completion Date – May 2017.

KANOSH TOWN

Kanosh Town has installed LED street lights on Main Street. As more money is available the entire town will be changed over.

KAYSVILLE CITY

KAYSVILLE CITY POWER AND LIGHT DEMAND SIDE MANAGEMENT PROGRAM

Kaysville City Power and Light has implemented some new plans to help manage the demand put on our system. In Kaysville we are purchasing, installing and utilizing excellent equipment including low loss transformers in all residential and commercial applications. Infrared cameras are run 2-3 weeks per year in order to help find, identify and repair problems areas in which line loss or inefficiencies could create an issue. Capacitor banks are also visible around town near the end of lines where they are needed to help keep the power factor up in an efficient range. Recently Kaysville City Power and Light completed a new substation including a 10.4 m W transformer to further balance our load throughout town.

Kaysville City Power and Light has a system that is constantly improving. An extensive tree trimming plan is being executed. This program helps limit the number of outages as well as shortening the length of time customers are out of power. The older part of Kaysville's system is 4KV; this part of town is undergoing a continual rebuild to upgrade the system to 12KV. Studies are also being performed throughout the system to help break up and balance circuits, also preventing line loss and overloading. Kaysville is replacing a 7,500KVA 4160 Volt Substation Transformer with a 10,000KVA 12,000 Volt Substation Transformer as part of ongoing voltage upgrades to improve line losses and voltage and reliability.

In order to encourage Kaysville residential customers to conserve energy in the future a rate adjustment has been adopted. The first 1000 Kwh the customer is charge \$.090/kwh. All additional power used is \$.1085/kwh. Kaysville has a bi-annual newsletter specifically for Power and Water conservation, the newsletter offers tips and suggestions for our customers in order to help them conserve energy and save money.

Kaysville City currently participates in the UAMPS Smart Energy programs:

- Home energy savings program – cash back for purchasing qualifying appliances
- Cool Cash – Incentive to install efficient evaporative or central air cooling systems
- See “ya” later refrigerator – Incentive to replace inefficient refrigerators or freezers

Kaysville City also signed up with Enerlyte to publish energy efficiency and energy conservation data on all utility bills comparing usage to those in the community with similar demographics encouraging conservation.

Kaysville City Power and Light's demand side management program is an ever evolving work in progress. New ideas are welcomed and rewarded. Kaysville is a dynamic utility, focused on forward movement and always open to conservation programs

LEHI CITY

Lehi City has been focusing in the following areas for our ongoing Demand Side Management (DSM) program:

- Participates in the UAMPS Smart Energy program
 - Home energy savings program – cash back for purchasing qualifying appliances
 - Cool Cash – Incentive to install efficient evaporative or central air cooling systems
 - See “ya” later refrigerator – Incentive to recycle inefficient refrigerators or freezers

- Participates with Enerlyte to publish energy efficiency and energy conservation data on all utility bills comparing usage to those in the community with similar demographics encouraging conservation

- Planning to install capacitors on all distribution circuits over the next two years in order to provide voltage support and maintain a 95% power factor

- Replacing street lighting bulbs with lower more efficient lights
 - Replace 400 W Metal Halide with 250 W High Pressure Sodium
 - Replace 250 W High Pressure Sodium with 150 Watt Induction

- All new transformers are evaluated on total owning cost resulting in the purchase of low loss, high efficiency transformers

- Adopted a net metering rate schedule that encourages installation of intermittent power supplies by crediting power produced at the retail rate

CITY OF LOGAN

Overview

The goal of Logan City Light and Power Department, a municipal owned utility, is to supply our customers with reliable service with affordable price. With this goal in mind, we did an integrated resource planning, which evaluates many different options from both the supply and demand sides for meeting future electricity demands and enable us to select the optimal mix of resources that minimizes the cost of electricity supply while meeting reliability needs.

Logan City is finishing up construction on a new substation that connects us to the 138kV Transmission System Provider (Rocky Mountain Power). This substation will provide our distribution system more redundancy as well as provide for continued expansion to the north and west sides of Logan City.

A future distribution substation located on the south end of Logan City is in the preliminary planning stages. This will allow better voltage levels as well as provide for expansion on the south end of Logan City.

Demand Side Management

We realized that demand side management measures take advantage of opportunities to increase the efficiency of energy service delivery to mobilize cost effective savings in electricity and peak demand. Our Demand Side Management Plan includes the following:

Energy Conservation Education

The Light and Power Department has worked with the City Council to implement a 1% across the board rate increase to fund a more aggressive energy conservation program.

This fund has been used to purchase and install a 20kW capacity PV farm. We are currently ordering the equipment to double this installation. We added a 150 kW capacity micro hydro generation facility, using the hydro energy from city's culinary water line, to our renewable energy portfolio in 2011. This project was jointly funded by Logan City's conservation program and a federal grant

This fund is also used to update and improve other renewable energy generation facilities that Logan City currently has in its portfolio, such as improving the efficiency of our hydro generation located in Logan Canyon. We are also looking at other opportunities for conservation and generation.

Logan City Light & Power hosts an Annual Public Power Awareness Week to encourage public participation.

We have in place an Energy Wise Incentive program which pays for the disposal of older less efficient appliances when customers replace them with Energy Star qualified appliances. We

also have a lighting replacement program. This pays recipients to replace less efficient lighting fixtures with more energy efficient fixtures. The estimated energy saving for the life of the appliances and the light fixtures is 7,752 MWh.

In the last two to three years, Logan City has changed out over 1200 street lights from mercury vapor and high pressure sodium to more efficient induction lighting. The energy usage of the street lights has dropped by 1/3 to 3/4 depending on the fixture.

Energy Audits

No cost energy audits are available to commercial and industrial customers. Our metering division helps those customers improve their power factor in order to conserve energy. We also supply our industrial customers with software to monitor their energy consumption directly from the meter to help them with load management.

We installed 16,000 AMI meters with capabilities of pulling hourly data for real time monitoring to encourage energy conservation. We also provide free Kill-A-Watt meters to residential customers through library loans to monitor their appliance energy usage.

Electric Rates

Logan City currently implements inclining block rates for both energy and demand rates to promote efficiency and conservation during peak season. We also provide net metering rate schedule for customers with solar panels.

Logan City is currently involved in a rate case study in order to provide the service and reliability at a competitive price that is sustainable for the City. Part of the rate case study is to provide a block rate to Logan residents for the purchasing of the solar energy from the City's solar farm.

Tree City

Logan City has been awarded as a "Tree City, USA" from the National Arbor Day Foundation for past 20 years. Logan City Light and Power Department sponsored or planted about 150 trees a year along city streets, parks and other public areas.

MEADOW TOWN

Meadow Town recently made improvements to its water system. Strange as it may seem it helped the electric system because the wells that supply water to the town had motor improvements. Also the storage tank size was increased so the pump motors don't run as often.

MONROE CITY

MORGAN CITY

MT. PLEASANT CITY

Mount Pleasant City has been focusing in the following areas for our ongoing Demand Side Management (DSM) program:

- Participates in the UAMPS Smart Energy program:
 - Home energy savings program – cash back for purchasing qualifying appliances
 - Cool Cash – Incentive to install efficient evaporative or central air cooling systems
 - See “ya” later refrigerator – Incentive to replace inefficient refrigerators or freezers

MURRAY CITY

The goal of demand side management (DSM) is to promote the efficient use of energy, ultimately benefitting both the customer and the utility. While there are many ways of achieving this goal through different DSM programs, Murray City Power has chosen to concentrate much of its DSM effort and resources on energy education. Murray City Power believes that customers who are well informed about energy use are more likely to use energy more efficiently than customer who are not and more likely to pass those behaviors on to future generations. Most energy education programs are directed at Murray's school age children; however, residential and commercial customers have also benefitted from education efforts.

In addition to energy education, Murray City Power has promoted several other DSM programs during the past five years, including residential and commercial energy audits, efficient compact fluorescent light giveaways, a community tree planting program, and electric rates that promote conservation and efficiency.

This report summarizes Murray City Power's current DSM efforts.

ENERGY EDUCATION

Murray City Power has adopted a simple philosophy regarding the stewardship of our country's energy resources and the environment; "If we expect our children to use energy wisely when they become adults, we must be involved in their education today". This important idea has been embraced by city and school district leaders and has been the foundation for building a strong educational partnership between Murray City Power, the National Energy Foundation, and Murray School District, which consists of seven elementary schools, two junior high schools, one high school, and an alternative high school. Significant financial resources have been committed for sponsoring quality energy and environmental education in our schools and community. Bill stuffers and various brochures with energy saving tips are also used to keep information flowing to our customers.

Kid Power – Murray City Power's *Kid Power* energy program has completed sixteen years of implementation in the Murray City School District. Through our partnership with National Energy Foundation (NEF), many creative and challenging energy education programs have been achieved. These programs have reinforced energy awareness, helped to foster conservation, and helped students to be better stewards of our earth. Teachers K-12 are provided opportunities to receive professional development training, educational materials, classroom presentations, and participate in school-to-home components.

Energy and Our Environment – Junior High School students participate in a hands-on presentation showing the impact of choices they make regarding energy use, such as changing incandescent lights form compact fluorescents (CFL). Students learn about the impact their actions have on saving natural resources, reducing emissions, and saving money, especially when everybody does it. This educational program also allows students to compare the physical energy needed by each type of light by pedaling a generator-bicycle to provide the power. Students receive their own CFL to take home.

In addition, Murray City Power annually purchases 1,500 CFLs for giveaways at special events and energy audits. Any customer requesting a CFL can receive one at no cost.

Earth Day Conservation Campaign – In celebration of Earth Day, Murray Schools receive presentations focusing on energy conservation, including an Energy Action Challenge for K-3 students. This take-home piece is designed to engage student and parent/guardian in assessing energy usage within the home. In addition, Murray City Power, in cooperation with Murray City Parks and Recreation, annually sponsors an Earth Day event at Murray City Park. School children and the community participate in programs and numerous environmental-themed presentations.

Powerlines Newsletter - Murray City Power publishes four or five Powerlines Newsletters each year. The newsletter often contains energy saving tips and techniques, along with other useful energy and utility related information. Each newsletter is mailed as a bill stuffer to approximately 16,000 residential and commercial customers.

Internet Toolbox – In August 2012, Murray City Power implemented an online program for residential customers aimed at raising awareness of personal energy consumption and personalizing recommended energy conservation and efficiency measures. The program integrates consumption data with county demographic information, including size and age of the customers' homes. This creates an opportunity for customers to compare their consumption with others who have similar demographics. Customers can fine tune information about their homes, including expansions and upgraded appliances, windows, insulation and HVAC equipment, providing more accurate reporting. Customers also have an option to compare their consumption with that of the average for all of Murray's residential customers. Customers also have the ability to create online Energy Challenges with other individuals or groups to engage in competitions to reduce energy consumption.

The program lets customers view up to three years of historical consumption graphs, adjusted for variations in weather and number of days in billing periods, providing valuable trending information.

Also included with the online experience is an energy audit function. Customers enter detailed information about their home and personal lifestyles or behaviors that affect energy consumption. This information, along with historical energy consumption and known demographics provide a comprehensive audit result with customer-specific recommendations for conservation and improved efficiencies.

The program also includes an appliance calculator with built in electric rates for accurately assessing cost to operate appliance and other electrical devices.

ENERGY AUDITS

Murray City Power's no-cost energy audit program is available to all residential and commercial customers. Large commercial customers requiring a comprehensive energy may be referred to a third party energy services company.

During a typical walk-through energy audit, Murray City Power's certified energy analyst identifies areas of energy waste and opportunities for improved efficiencies. Customers receive a follow-up report with results of the audit and recommendations for a variety of energy-saving and demand-cutting measures. Customers also receive a historical energy analysis of their account. The analysis includes graphs and data which are useful in identifying energy use trends and providing comparisons of energy consumption.

ELECTRIC RATES

Murray City Power has seasonal, inclining block rates to promote efficiency and conservation during the peak summer season. Residential customer cost per kilowatt-hour increases after the first 600 kWh. Commercial customers pay a higher demand charge (cost per kW) during the peak summer season.

In 2006, Murray City Power began offering a Net Metering electric rate to customers who desire to produce their own electricity from renewables, including solar and wind. If a customer produces more electricity than they consume, the excess is credited to their bill in the form of kWhs. During months in which the customer uses more electricity than they produce, any accumulated kWh credits can be used to offset their shortfall. Credited kWhs are valued the same as the retail rate.

TREE POWER

Murray City has long recognized the benefits of planting trees along city streets, in city parks, and on public properties. In addition to the natural beauty and aesthetics they offer, trees decrease electrical demand by providing windbreaks to reduce heating loads in the winter and provide cooling in the summer through shading and natural evapo-transpiration. A well-designed landscape can lower the temperature of air surrounding a building by as much as 10 degrees.

In 1991, Murray City Power Department joined in a nationwide program sponsored by the American Public Power Association called “Tree Power.” The Power Department pledged to plant one tree for each customer to demonstrate its commitment to energy conservation, aesthetics, and environmental concerns. By the year 1998, the planting goal had been met, with over 15,000 trees planted within Murray’s boundaries. The American Public Power Association awarded Murray City Power with the coveted Golden Tree Award. Murray City Power was also awarded the Millennium Arbor Day Award by the White House Millennium Council in 2000.

By 2012, the total number of trees planted Murray City Power for the Tree Power program has reached nearly 21,000. Additionally, in 2012 Murray City received its 35th consecutive “Tree City, USA” award from the National Arbor Day Foundation for meeting stringent minimum requirements for urban forestry management. Murray City was the first city in Utah to receive the award.

DISTRIBUTION SYSTEM

An ideal transformer would have no energy losses, and would be 100% efficient. In practical transformers, energy is dissipated in the windings, core, and surrounding structures resulting in losses of two to four percent. Energy losses at the transformer can be reduced up to 50% by purchasing higher cost low-loss transformers. Over the last several years, Murray City Power has routinely, but not exclusively, purchased low-loss transformers for the city’s distribution system. Cost analysis is performed for each transformer purchase to determine transformer type.

TOWN OF OAK CITY

Five Year Summary of IRP Activities 2007-2012

The Town of Oak City is a small, rural community which owns and operates a municipal electric utility with approximately 270 customers. Because of the community's size and location, there are no industrial loads and no major commercial or agricultural customers. The majority of the system load is residential.

During the past five years, the municipal utility has implemented a number of DSM programs. The most significant of these was in 2009-2010, involving the complete replacement of all municipal street lighting from 150- & 250-watt HPS to LED technology. Oak City used a combination of municipal utility funds and Energy Efficiency and Conservation Block Grant (EECBG) dollars from the Utah State Energy Program to accomplish the conversion. It is estimated that the Town reduced energy and maintenance costs for street lighting between 40-60%. Oak City is the first community in Utah to completely convert to LED technology for street lighting. The conversion also had a positive environmental impact by drastically reducing night-time light pollution.

Oak City began participating in the UAMPS Smart Energy Initiative, which offers several programs aimed at reducing consumer electric usage. The Town currently participates in the Cool Cash (air conditioning), See Ya Later Refrigerator, and Home Energy Savings Program (energy efficient appliances). The utility is evaluating how to better inform customers of these programs in order to stimulate participation.

In early 2012, Oak City commissioned a power system study. The results of the study have not been presented to the utility at the time of this writing. However, the study will include recommendations for Power Factor and distribution line improvements. The utility expects to improve electric reliability and efficiency in the coming years by implementing the recommendations provided in the study.

In the past five years Oak City investigated several new supply side resources, including wind, gas, coal and waste-heat projects, but determined that current resources remain adequate for the foreseeable future.

Oak City is committed to continue to evaluate options and opportunities for both supply-side and demand side projects or programs.

TOWN OF PARAGONAH

Paragonah is now hooked up to Rocky Mountain Power. We are still in the process of replacing transformers and working on shortening lines to provide better service to our customers. Our goal is to eventually get the entire town on a 7200 system.

PAROWAN CITY

Since reporting in 2007 Parowan City has completed the following:

- Up-graded the system distribution voltage from 2400 Delta to 7200/12,470.
- Rebuilt 60% of its primary distribution system using larger conductors.
- Built a new double-bay Substation replacing two old substations.
- Replaced all of its aging distribution transformers with new low loss transformers.
- Replaced eighty-nine (89) old High pressure sodium street lights with LEDs.
- Implemented a net metering policy for solar homes in Parowan.
- Started to rebuild a hydro plant that had been shut down and going through decommissioning.

PAYSON CITY

Existing Programs to be continued:

Street light change out. Payson City has completed changing 228 MV and HPS fixtures to LED street lights saving \$ 17, 955.00 in energy per year. Payson will continue to change HPS to LED at 5 per year.

Payson City demand rate is using a KVA demand instead of KW to encourage power factor correction from our customers.

Complete cutover. Payson City has been upgrading the power system from 4160/2400 volts to 12,470/7200 volts with new substations and distribution lines. Payson is now 90% complete. Payson City has been awarded a “Tree City, USA” from the National Arbor Day Foundation. This has helped with using the trees to shade homes to cut air conditioning load during our summer peak.

Payson continues to use Low loss, high efficiency Transformers.

New Programs:

Payson City has instated a Net meter rate and has set 5 Net Meters in Payson. Our customers have installed Solar Panels and Wind Mills.

Payson City uses Enerlyte’s behavioral modification programs to engage customers in learning more about their electricity consumption and Payson’s other energy efficiency programs.

Enerlyte’s programs are successful in reducing residential electricity consumption by providing customers with new insights into how they use the energy provided by the utility relative to other consumers. The program in the first year has saved 1,278,900 KWH’s and \$ 149,000.00 The Enerlyte program also provides personalized tips for using electricity more efficiently. In Payson’s experience, Enerlyte’s programs have reduced participating customer electricity consumption by about two percent annually compared to a control group. (The control group comprises about ten percent of Payson’s residential customers.)

There are four key elements to Enerlyte’s Behavioral Modification Program:

- 1. The most interesting utility bill in the industry.** For most utility companies, the utility bill is the only communication with which customers are consistently engaged. Enerlyte redesigned Payson’s utility bill to include interesting reports, charts, graphs and targeted energy saving advice right on the face of the utility bill. This is a vital part of a sustainable engagement platform.

- 2. An online portal with a great user experience and interface.** Enerlyte's web portal is branded to appear as a part of Payson's web-based applications. Customers can access their kWh usage history, see their energy use broken down into major end-use categories, see their consumption in relation to homes of similar size and age, see their weather-adjusted consumption, set goals, update contact and communication preferences, and even start competitions to save energy with friends and family in Payson's service territory.
- 3. A cell phone application for today's mobile demographic.** The Enerlyte cell phone application can be used to notify Payson's customers of abnormal consumption, give simplified access to web portal features, and give more real-time feedback to customers about their current kWh consumption.

All three elements of the Enerlyte system work in conjunction and support each other to improve the customer experience and to maximize the consciousness Payson's customers have around their electricity use. Having electricity usage more top-of-mind means customers use kWh more carefully and are more likely to participate in traditional energy efficiency programs.

Payson City will continue with this program.

CITY OF SANTA CLARA

Santa Clara City purchases transformers with low impedance losses which improves efficiency. This has increased our cost for transformers by double. We've added capacitors within the City which improves efficiency. We have increased the size of power lines within the city to improve efficiency. Substations have been improved to better handle load and efficiency. Santa Clara has installed 4 megawatts of natural gas generation in Santa Clara at the cost of 4 million, to follow our high load hours which improves our efficiency of the system. Santa Clara is also in the process of purchasing more renewable resource in the Nebo power plant in Payson Utah. Santa Clara supports and participates in the UAMPS Smart Energy programs:

- Home energy savings program – cash back for purchasing qualifying appliances
- Cool Cash – Incentives to install efficient evaporative or central air cooling systems
- See “ya” later refrigerator – Incentives to recycle inefficient refrigerators or freezers

We, along with all the members of UAMPS, are looking for ways to improve our demand side management.

SPRING CITY

Spring City does not have a demand side program. However, the city is involved in a major voltage upgrade to 7200/12470 from 2400/4160 which will reduce line losses. With the voltage change, we are installing new low load loss transformers.

SPRINGVILLE CITY

Springville City Electric Department focuses on three areas of Demand Side Management (DSM).

1. Rate Stability and Customer Choice Empowerment
2. Conservation and Efficiency
3. Net Metering and Interruptible Load Management

Rate Stability and Customer Choice Empowerment

Springville City has a residential tiered rate structure that encourages and empowers the customer to review their consumption and make efforts to conserve energy. The tiered rate structure is designed to incentivize those customers who actively conserve energy (kWh) and stay below certain levels. The energy rates are tiered at 401 kWh and 1,001 kWh as a signal to the customer that greater demand for energy will cost more. At these two signal points in the tiered rate there is a static monetary step increase. If the customer stays under these values they are rewarded with the lower rate associated with the each tier. Customers can actively take control of their energy costs by reviewing their current usages to historical usages that are a part of the monthly printed bill which they receive. The rate structure is designed to capture costs from those customers who impact the system with high power demands and reward those who conserve and flatten the system load demand requirement.

Along with rates the resource plan includes continuing participation in renewable projects. The City has a vested interest in a Biomass Project and Wind project that will provide stability to the other base-load resources and intermediate projects as part of the portfolio.

Conservation and Efficiency

Springville City as a member of UAMPS participates through the Member Services Project in the SmartEnergy Program. This program allows the City to fund rebates for the customer to purchase energy efficient appliances, high efficient home cooling systems and the elimination of old inefficient refrigerators.

The City participated in a SmartEnergy grant and replaced all of the old mercury vapor street light fixtures with new state of the art LED fixtures for high efficiency operation. The City continues to fund a LED project annually to move forward in reducing energy consumption by street lighting. The department also annually audits the usage at city owned facilities and participates in a matching grant with the Art Museum to replace gallery lighting with LED fixtures.

The Electric Department has installed solar panels at its Electric Operations Center as part of an ongoing plan to reduce parasitic load at the Center through clean, efficient renewable resources. A plan is in place with money budgeted currently to continue to install solar panels at several of the hydro facilities.

The Distribution Division continues to loss evaluate all distribution transformers and substation power transformers for optimum performance and energy efficiency along with best economic return on development fees and long-term system losses as it relates to cost of service for rate stability.

As part of the system capital and renewal and replacement plans all main feeders are evaluated for conductor sizing and load. A plan is in place to replace overhead and underground conductor for optimum efficiency.

The City has been recognized and rewarded with the “Tree City, USA” award from the National Arbor Day Foundation for the last 30 years. The Electric Department coordinates tree planting with the Parks department as well as maintains tree trimming specifications for optimum clearance to reduce energy loss and provide quality tree canopy for shade and cooling.

The Electric Department Metering and Customer Service staff provides energy audits to all customers at no cost. As needed monitoring equipment is used to profile load and provide recommendations for increased efficiency.

The Electric Department holds an annual Power Week during which the facilities are open for customers to view operation of generation and distribution processes. Along with the public invitations an invite is provided to all local Elementary school 5th Grade classes to visit and participate in electrical safety and conservation education. This is well attended with approximately 600 students participating annually.

Net Metering and Interruptible Load Management

The City currently offers a Net Metering application policy for all residential customers the might choose to install solar or wind renewable projects per city building codes on their properties. This allows the customer to interface with the system and provide personal energy management and conservation. There are several solar and wind systems currently installed and operational.

As part of the City’s Rate Structures a Large Commercial Interruptible Rate is available for a customer to do onsite internal generation to offset rate costs as well as allow the system operator to interrupt their load for system peak management and resource costs control.

DEMAND SIDE MANAGEMENT PROJECTS

1. Annual Tree Trimming Programs \$30K
 - a. Removal, Replace, Resize
2. 25 year old Arrestor Replacement Program \$77K
3. Home & Business Energy Efficiency Program
 - a. Customer Service (Time Management)
4. Smart Reclosure Program \$260K
 - a. Retrofitting “ALL” 125 kV circuits with SR
 - b. SCADA (radio) controlled – 5 Substations @ \$10K each
5. Rates
 - a. Conversation “Block” Rates

WASHINGTON CITY

Washington City is pleased to submit the following as our demand side management program.

Energy Conservation:

As a partner in the Smart Energy program we provide rebates to our customers for the installation of energy efficient appliances to reduce losses. We have also implemented the Enerlyte, home energy analysis program, which is a web based program provided directly to our customers to assist them in saving energy by providing historical usage data and energy saving tips.

Loss Evaluated Transformers:

All transformers installed in our system are loss evaluated, low impedance transformers in order to reduce system losses over the life of the transformer.

Net Metering:

We have adopted a Net Metering program, which provides rebates to customers interested in the installation of solar or wind power at the end user level. We have also participated in a power purchase agreement for wind power as well as construction of the Horse Butte Wind project and adopted a rate schedule to provide our customers the option of purchasing Green Power.

Public Education:

Once a year we provide the schools with educational training in energy conservation and safety around power lines. We also participate in the national public power week during the month of October and offer drawings to our electric customers that include free CFL light bulbs and other energy saving products.

System Maintenance:

We perform an infrared scan of our system on an annual basis to prevent outages and reduce losses on the system. We perform semi-annual tree trimming which is done in the spring and fall to reduce line loss.

System Upgrades:

We have been upgrading our 69kV and 12kV systems to larger conductor to reduce line losses and provide greater reliability and capacity on our system. We are also using SCADA to determine when capacitor banks need to be switched on and where new capacitors need to be installed to maintain optimum system power factor for energy efficiency.

Street Lighting:

All street lights in residential subdivisions are required to be 250 Watt or less high pressure sodium.

Rate Structure:

Washington City changed its rate structure to a three-tiered rate for all electric customers to promote energy conservation and reduce peak load needs.

WEBER BASIN CONSERVANCY DISTRICT

Demand Side Management Program for District Power

The District generates power through three hydropower generation plants. Having no electricity customers, the District utilizes its power generation for its own system requirements then supplements additional power needs through other sources or sells excess power to Western Area Power Administration (WAPA).

Optimization of District power use is being pursued through the following means:

- Rehabilitation of hydropower generation units. During scheduled down time, units are inspected, dismantled and rehabilitated to optimize power generating capabilities.
- As new pumping plants are wells are equipped and as existing pumps are upgraded, high efficiency (93% +) motors are specified.
- As existing and new facilities are upgraded/constructed, high efficiency fixtures are specified.
- Where operational schedules require fluctuating water flows on pumped systems, variable frequency drives are considered to minimize power usage through unnecessary flow recirculation.
- Twice each year key electrical facilities are inspected with the help of an infrared camera to identify potential power inefficiencies that can be resolved.
- District operator training and educational training sessions will be regularly help aid in optimizing power usage through scheduling of high power loads during off-peak hours where possible.

EXHIBIT D
MEMBERS PUBLIC HEARINGS

BEAVER CITY

BLANDING CITY

BOUNTIFUL CITY

**CENTRAL UTAH WATER
CONSERVANCY DISTRICT**

CITY OF ENTERPRISE

EPHRAIM CITY

FAIRVIEW CITY

FILLMORE CITY

HOLDEN TOWN

HURRICANE CITY

HYRUM CITY

KANOSH TOWN

KAYSVILLE CITY

LEHI CITY

CITY OF LOGAN

MEADOW TOWN

MONROE CITY

MORGAN CITY

MT. PLEASANT CITY

MURRAY CITY

TOWN OF OAK CITY

TOWN OF PARAGONAH

PAROWAN CITY

PAYSON CITY

CITY OF SANTA CLARA

SPRING CITY

SPRINGVILLE CITY

SOUTH UTAH VALLEY ELECTRIC SERVICE DISTRICT

WASHINGTON CITY

WEBER BASIN CONSERVANCY DISTRICT

EXHIBIT E
MEMBERS AUTHORIZING RESOLUTIONS

BEAVER CITY

BLANDING CITY

BOUNTIFUL CITY

**CENTRAL UTAH WATER
CONSERVANCY DISTRICT**

CITY OF ENTERPRISE

EPHRAIM CITY

FAIRVIEW CITY

FILLMORE CITY

HOLDEN TOWN

HURRICANE CITY

HYRUM CITY

KANOSH TOWN

KAYSVILLE CITY

LEHI CITY

CITY OF LOGAN

MEADOW TOWN

MONROE CITY

MORGAN CITY

MT. PLEASANT CITY

MURRAY CITY

TOWN OF OAK CITY

TOWN OF PARAGONAH

PAROWAN CITY

PAYSON CITY

CITY OF SANTA CLARA

SPRING CITY

SPRINGVILLE CITY

SOUTH UTAH VALLEY ELECTRIC SERVICE DISTRICT

WASHINGTON CITY

WEBER BASIN CONSERVANCY DISTRICT

