STRATEGIC PLAN

2009 - 2014



Power Director's Message:

Today, the electrical industry is changing dramatically. These changes are re-defining the industry and will continue to do so over the next decade or longer. In order to better serve the needs of our citizens, we as a utility, need to be pro-active and prepared for change by investigating new resource options, using creative strategies, focusing on excellent customer service, and evaluating and adapting to the challenges of a competitive market. It is my intention to use the principles outlined in this strategic plan, to guide us into the future as we prepare to face these significant challenges. I believe Washington City Power is well prepared. We have a strong pro-active and supportive governing body, administrative staff, excellent, well-trained, dedicated employees and a tremendous wealth of experience and knowledge to support us through our involvement with Utah Association of Municipal Power Systems (UAMPS). These attributes will not only allow us to address the challenges we face, they will allow us to make informed, cost-effective, wise and creative decisions. I feel our dedication and commitment to our citizens and administration, as public service employees of this utility, are captured in our vision and mission statements, as well as our strategic plan.

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Washington City Power

VISION STATEMENT:

Washington City Power is dedicated to becoming the most desirable, advanced, and reliable electric utility in the nation.

MISSION STATEMENT:

Washington City is dedicated to being the city of choice. We will build upon the foundation of our traditional pioneering spirit and strive to enhance the quality of life while providing the most reliable, innovative, efficient and courteous service.

In keeping with the City's mission statement, Washington City Power continues to strive to **B**ring superior service to Washington City by providing a **R**eliable source of energy and promoting Innovative thinking for our **G**rowing community, while ensuring **H**igh standards and quality through **T**eamwork. Washington City Power is **BRIGHT**.

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THE PAST:

Washington City Power is a public power provider in operation since 1987. The driving force behind the acquisition of the utility was frustration from our governing body, City leaders and the community with a combination of poor quality energy delivery, riddled with continuous and extended outages and an extreme lack of customer service. Outages lasted hours or days without explanation, justification or attempts to improve service by the existing electric utility provider. The commitment to purchase the system was a major decision and investment for a city the size of Washington and took a number of years to accomplish.

At the time of the purchase, the system was small and served less then 1,600 accounts, including commercial customers. Electric energy was delivered from one substation. We had 30 miles of distribution lines and transmission delivery of energy was metered at our single substation. Our governing body at the time, made a commitment to take every action possible to improve upon the situation and quality of service to the City. They negotiated a long term resource contract with Idaho Power and reduced rates. They also joined forces with other utilities and invested in the upgrade of transmission delivery facilities into the County. Over the years, they continuously budgeted for distribution system upgrades and improvements.

Beginning in late 1990's, the energy market experienced unprecedented changes due to customer load growth, lack of external infrastructure upgrades, poor dealings among marketing firms, and decisions within the industry. This affected rates across the nation, at levels never before seen. These issues led to the electric industry re-structuring and in some areas, deregulation was implemented. Through this period of instability, decisions made by our governing body and City leaders protected Washington City, to some degree, from the fallout and impact of these poor choices.

From this time to the present, we have experienced tremendous growth. In 2003, a Capital Facilities Master Plan was presented to the City Council regarding the infrastructure required to meet this rapid growth. The plan was adopted and bonded for by the Council, and as of February 2009, after five years of construction and substantial investment, the majority of our infrastructure is in place and operational. The remainder of the plan is included in our future capital projects, which will be constructed and paid for through the collection of impact fees from additional growth. At the end of 2007, our long term base load resource contract expired. This put the City in the position of having to acquire a more expensive base load resource for our portfolio. This was accomplished in cooperation with UAMPS members and although retail rate adjustments were required, the impact could have been far more substantial due to current market prices.

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With Council's approval, we as a utility, recently made the decision to participate with other local utilities in distributed local generation as a hedge against market priced power, which can have a detrimental effect on our ability to control rates. This investment has proven itself to be a wise and timely move, in a market of instability and volatility driven by the economy, environmental issues and other influences within the industry. In the long term, this decision will continue to be a significant asset to the community.

THE PRESENT:

Today, Washington City enjoys the long term investment, commitments and at times difficult decisions made by our past and present governing body. This investment is reflected in the form of a strong, reliable distribution system, dedicated, knowledgeable staff and a diverse mix of resources. Each of these attributes provides for a stable and affordable electric rate for our customers. At present we serve over 6,000 electric accounts through 6 substations, 35 miles of transmission, and 120 miles of distribution lines, both overhead and underground.

In years gone by, outages were the norm and a part of daily life. Presently, even minor outages within our local distribution system are rare, yet when they do occur, they are responded to and remedied in a timely manner. This speaks volumes to the decisions and investments made in the past, as well as the follow through, dedication and commitment of our governing boards and well trained staff. In addition, the initial investment made in the beginning has multiplied twenty fold, and has become a major financial asset to the community. With proper management, strong strategic planning and follow through on commitments, it will continue to be of increasing value in a number of ways. Now is the time to accelerate, expand and extend our vision, mission and commitment to the future by establishing clear objectives to guide the City through the difficulties which lie ahead of our electric utility.

THE FUTURE:

The future provides significant challenges in a variety of forms, which need to be addressed. State and Federal legislation can and will have a significant impact on our decisions. As we continue to seek out affordable resources, environmental concerns will primarily effect our cost and availability of resources. In order to provide for the future needs of our community, continued economic growth and superior energy delivery will require close monitoring and careful long term planning to ensure the various resources, generation, distribution and transmission facilities are in place. Demand side management, energy savings programs, new technologies and incentives need to be investigated, implemented and expanded to meet our objectives. Education within the public sector, our governing body and staff will become an important part in understanding and accepting our future decisions. Attention will be given to economic issues, to provide continued quality growth and job stability for future families. We will focus

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on creative ideas to improve, advance, and become a major attraction in our community's economic development. Financial stability within the utility is a key factor in our success. It is the means to continue forward, as we plan for and address future needs, and improve our system reliability. These factors, along with competition, provide the necessary drive to focus intensely on excellent customer service. As we address these challenges, it is important to strike a balance and maintain flexibility through all aspects of our plan.

As we explore new ideas and resources, we must maintain levels of service which meet or exceed our customers expectations. This will distinguish us from other electric utility providers, while continuing to attract new business with the highest standard of reliable energy delivery and excellent customer service. The attached strategic plan establishes very ambitious objectives for Washington City Power. Achieving these objectives will require commitment, dedication and adaptability to changes within the industry and our environment from all levels of operation. The commitments and values outlined will position us to accomplish our plan, and ultimately, be recognized as a utility dedicated to its vision and mission statements.

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Executive Summary

This strategic plan is the first comprehensive effort for Washington City Power and represents a specific direction for continued success of the department. Our strategic planning efforts consist of four specific strategic areas of improvement over the next five years. The areas of focus are customer service, system reliability, diverse energy portfolio and financial stability.

The strategies mentioned are the definition of our position and the objectives contained within, are the measures we will use to determine our success. The vision and mission statements, along with the commitments and values contained, set a standard for successful execution of this strategic plan for both current, and future employees. Part of this planning process will include an annual review and report, in order to adjust our focus on key issues and industry trends. The contributing staff will be invited to participate in the annual review and provide comment for the report to the City Council.

These strategies and their objectives outline the direction we intend to take the department and represent a commitment by the employees to guide our utility towards the future and meet the demands outlined within. Washington City Power has a very bright future.

Respectfully,

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Kelly Carlson Director of Power Washington City

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STRATEGIC OBJECTIVES:

Washington City, like other utilities, is facing significant changes currently and as we move forward. The real challenge is to move to that future without undermining our current success. Some refer to today's electrical industry turmoil as "The Perfect Storm". The strategies selected, will position Washington City at the crest of the wave created by this storm, and bring us into the future of electrical energy delivery as a leader among others. Washington City Power has identified four principal strategies for future success. These objectives provide targets for this effort and will serve as a measure of our success.

Objective:

The first and most important is **Excellent Customer Service**.

We intend to take action which will position Washington City for competitive service, without undermining our current success and provide a level of overall satisfaction within our customer base. Customer service, is broad and encompasses many elements. General items of service include, but are not limited to, pricing, billing, meter reading, system reliability, quality of service and customer responsiveness. Other issues to address are rebate and energy efficiency programs and the customer's perception of the overall service provided by Washington City Power.

- Washington City recognizes an organization cannot have satisfied and loyal customers, without a satisfied and loyal workforce. As part of our excellent customer service strategy, we will work with the Human Resource Department and management to implement an employee satisfaction survey. We will use this annual survey as a benchmark to measure our rate of success with our employees. The four primary areas to be addressed will be (1) employee satisfaction, (2) workforce alignment, (3) workforce development and (4) workforce safety.
- A significant percentage of the workforce at Washington City Power will retire within the next 5-10 years. Planning is necessary to ensure the next generation is trained to handle utility work in generation, transmission, substation, meters/revenues, customer care, and support. The objective is to retain and improve the knowledge and special skills required by the utility, and improve customer satisfaction by providing better-trained and knowledgeable employees.
- In order to improve and support our customer service strategy, we will be budgeting for, expanding, drafting and implementing a variety of rebate programs including energy efficient windows, insulation upgrades, refrigerator, freezer and heat pump rebates. Once approved by City Council, rebates will be available to Washington City Power customers. With respect to economic development, we will draft an energy efficiency impact fee rebate program for residential and commercial accounts willing to partici-

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pate in the Energy Star Programs. This rebate will be based on the efficiency of new homes and buildings, which must meet specific Energy Star ratings.

- We will expand our public celebrations and education programs for our citizens. This will include providing educational materials and safety demonstrations to our elementary schools and other organizations or governing bodies such as the Washington City Council, Planning Commission, Chamber of Commerce, and home owners associations. The more informed our community is on energy efficiency, the better we can work together to conserve.
- We will be providing training for our staff in dealing with difficult situations, and direct them to go the extra mile to make sure the customers, in any situation, are well-informed, satisfied and whenever possible, pleased with the result.
- We will provide surveys to our customers to determine how well our customer service plan is performing and where we need to improve. Customers will be surveyed annually and at random to determine their satisfaction with the service they receive. Responses received from these surveys, will help to improve our service.
- We will approach all the above mentioned objectives with honesty, integrity, and transparency. As more information is available and provided to the public, the City will be able to better answer questions or concerns to assist them.
- We will work with the Utilities office and our IT department to ensure our customer service objectives are understood and implemented at every level of customer contact.

Objective:

Our second strategy is Exceptional System Reliability.

This will support our Excellent Customer Service strategy. Our goal is to be at or above the industry standard, in all levels of reliable service nationwide, within the next five years. An outdated and overloaded U.S. transmission grid is the main electrical infrastructure problem we see today. Delivery into Washington County will likely be exacerbated by the growing gap between electrical demand and transmission capacity. The North American Electric Reliability Council (NERC) estimates the demand for electricity, in the U.S., will increase more than three times faster than transmission capacity between 2009 and 2014. Currently, there is proposed legislation on both State and Federal levels which may help ease this bottle neck and expedite the construction of new transmission facilities. Locally and through UAMPS, Washington City Council approved a Joint Operation Agreement (JOA) with all utilities in the County, to share the costs of upgrades on the Central to St. George 138 Transmission line. Completion is scheduled for June 2012. In addition, the local utility task force, which includes members of these utilities, continues to plan well into the future and have agreed on a long term plan for additional transmission capacity into the County, by no later than 2019. Currently, we are trying to fast track this schedule to provide for increased reliability with a secondary transmission feeder, in the event of a line failure. The plan is being drafted for presentation to governing bodies through-out Washington and Iron Counties, in order to obtain input, acceptance and requirements for rights-of-way and permitting, as well as provide a unified effort to expedite this plan to improve electrical delivery.

System Reliability is a vital part of our business. The most cost effective investments will be made in the distribution system, such as increased use of feeder ties, new switchgear, tree trimming, electronic reclosers used as sectionalizers, capacitor installation, Supervisory Control and Data Acquisition (SCADA) system monitoring, and other system capacity enhancements. Advancing reliability of the system adds to customer satisfaction, and is becoming essential to businesses, such as Internet-based sales and biotechnology firms. Improved dependability will place Washington City in a better position to attract new business to the area, thereby sustaining our economic growth and improving our financial stability.

- Transmission issues need to be monitored closely to meet specific and critical time frames in system growth and available capacity in the near and long term future. Transmission is currently the number one threat to our system reliability. We are pushing the limits of transmission capacity within the County, and will continue to do so until completion of Phase 3 of the JOA. Governmental education and support, on all levels and all divisions, is one way we can resolve the transmission and energy production issues we face.
- Today our distribution system is at the highest standard of reliability it has ever been. As we move into the future, we need to continue to budget for system upgrades and replacements to maintain and improve upon our reliability. We do not want to revisit the past when lines and equipment were so over loaded, they failed at a significant rate.
- We have implemented a software program referred to as Reliability Tracker. The software sets an industry standard for outages and rates our utility on various levels. This software shall be used to establish a base line and measure improvements in our reliability performance annually.
- We will continue the work towards expanding our local generation and build a facility to house our existing and future generation units, to ensure continued and reliable service for our customers.
- We will continue to improve upon our tree trimming program to reduce the number of outages caused by storms and reduce system line losses.

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• With our new SCADA system, we will monitor the system and use this equipment to provide the highest level of quality and efficiency available in electrical power delivery for our customers.

Objective:

Our third strategy is a **Diverse Energy Portfolio**.

Under this strategy Washington City will seek long term contracts, project ownership, base load resources, renewable energy and conservation solutions to meet our customers long term needs. In keeping with our diversified approach, we will not commit to unproven technologies. However, we will pursue a leading position which will allow Washington City to readily identify, evaluate and implement projects and resources which are, sustainable, cost effective and protect our customers from volatile market prices. A Diverse Energy Portfolio is vital to minimize cost, while maintaining as much flexibility as possible to respond to changes in customer demand and energy markets. Technological advances, fuel and power price volatility will play an important role in our future and will require constant monitoring, in order for us to make sound and educated decisions. Currently, our portfolio consists of a number of the resources detailed in the UAMPS White Paper. (See Exhibit A).

The following is an overview of our current resource projects.

Our base load resource comes from the Intermountain Power Project, also known as IPP, which is a coal fired plant located in Delta, Utah. Base load power is the energy we need for the system twenty-four hours a day seven days a week. We have secured contracts with a number of Utah cities, through UAMPS, to provide up to 8.5 Mega Watts (MW) of this resource, until the year 2012. In time we will need to secure a new contract to replace this resource. Currently, this accounts for about one third of our peak power needs during the summer. This is a unit contingent resource, which means if the one or both of the units go offline, for any reason, we become exposed to market price replacement for power.



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We have a small allocation of the Colorado River Storage Project, known as CRSP, located at Glen Canyon Dam. This is a Federally supplied hydro electric resource, which we have a contract for until 2024, after which it will be re-allocated. This is our least expensive base load resource which is firm, meaning delivery is guaranteed. However, due to environmental issues, additional hydro electric production facilities will no longer be built in the U.S..

This resource accounts for less then 1 MW of our peak power needs.

The Payson Power Project, known as Nebo, is a natural gas fired plant. Through UAMPS, we have secured ownership in this resource up to 7.5 MW, when the plant operates. This accounts for about onethird (1/3) of our peak power needs during the summer. The plant is very efficient and normally will run against the market, however, it is unit contingent and subject to price volatility based on natural gas prices.

The Pleasant Valley Wind Energy Project (PVP) is a wind power project in Wyoming. We have contracted for capacity out of this project until 2025. This resource accounts for less then one-half (1/ 2) MW of our current resource needs. It is subject to the force of the wind and is not a strong, reliable resource within our portfolio.



UAMPS has established a project called the All-In Pool. This project allows members of UAMPS to use resources other members do not need during any hour of the day. This method covers all

costs associated with an individual resource, and provides the available resource at a lower cost which, protects the City and other UAMPS members to some degree, against a higher priced market. This has proven to be a very valuable resource for Washington City.

UAMPS also has a project called, The Pool. This project is a market based project which provides for additional power when our resources do not cover our hourly needs. This also functions as a resource replacement if a unit or resource becomes unavailable.

Locally, we have partnered with other electric utilities to install our own gas fired generation. We currently have three 2 MW gas fired units, 6 MW in total. These units can run at any time, when the price for generation is less than purchasing from the market. These units are also subject to natural gas price volatility and are unit contingent. They, however, have proven to be excellent protection against the market by providing the opportunity to purchase gas in advance and secure, or hedge, our position against unforeseen fluctuations in the electrical or gas market.

Other projects we are involved in, which make up our current rate structure are, upgrades on the Central to St. George 138 transmission project (JOA), transmission delivery costs to Rocky Mountain Power, Government and Public Affairs and the UAMPS Resource project.

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The following chart represents our current energy resource portfolio.



Energy Resource Mix

The Resource Project is where UAMPS investigates future resources. Through the project, a qualified committee evaluates, researches and recommends potential sources for diversified capacity and energy which will support and compliment the UAMPS and member's resource mix. The following are ways Washington City Power will improve our Diverse Energy Portfolio.

• Currently we are investigating a wind project in Idaho, and a natural gas fired plant in Nevada. These are being studied and will not move into construction until this phase is completed, costs for construction and operation are compiled, participants are in place and financing secured. Both of these options will provide for project ownership.

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- We participate in a Natural Gas Project, which will be used to provide a lower cost of fuel for our gas fired generation. The intent is to use this project to purchase fuel months ahead when the market price is low, thereby avoiding price fluctuations and protecting the existing rates for our consumers peak power needs.
- Other resources under consideration are a wind and a nuclear plant, both of which are being considered in Utah. These are both in the feasibility study stage, and will take about a year to determine if the projects are a viable resource. If these are determined to be viable, they will be long term construction/ ownership projects.
- Coal fired plants still provide for a very reliable, valuable, base load resource, but current environmental uncertainty has virtually stopped any planned expansion or new construction of these resources. However, we will continue to monitor the status regarding this resource and react to the situation as the opportunity presents itself.
- Outside of UAMPS, Washington City is actively investigating long term base load contracts to ensure we have replacement resources, when the current contracts expire. Managing our resource portfolio now, and into the future, is a critical function of our utility and requires a great deal of time, dedication and deliberation to ensure the needed resources are available, reliable and affordable.
- Demand Side Management and energy efficiency are other resources in our energy portfolio. Energy efficiency programs can help utilities and customers reduce purchase costs and bills, reduce peak demand and defer new generation, while showing environmental leadership. We will work with our commercial and residential customers by providing educational information and energy savings programs, which will assist them in reduction of energy consumption.

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The chart below represents our energy load growth for the last ten years. This provides a picture of the challenges we face as we move forward into the future.



kWh Consumption by Year

This customer load growth represents a 250% increase in consumption over this ten year time frame.

Objective:

Our forth strategy is Financial Stability.

This works in conjunction with our other strategies. Without financial stability and continued economic development, none of the aforementioned objectives can be implemented on any level. There are a number of ways we can achieve financial stability over the next five years. Financial stability is the link in the chain of our strategic plan, which binds our vision statement, mission statement, commitments and objectives into a solid and accomplishable plan. There are several ways to ensure financial stability, the most significant of which is credit rating. Currently Washington City Power holds a credit rating of Baa1 by Moody's Investment Service. These credit rating criterion are very broad and cover the entire spectrum of business activity, from regulation to strategy to operations to financial performance. The following criterion are used to evaluate the creditworthiness of an entity:

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- Business and Financial Strategy
- Competitive Position and Rates
- Financial Performance
- Legal Provisions
- Management
- Markets Regulation
- Operations
- Service Area Economy and Demographics

Attributes of a high grade investment rating for public power require an experienced management team. Included in this criteria are a supportive governing body, competitive retail rates, consistently strong financial performance, a well-defined and achievable business strategy, sound financial and operating policies, favorable cost structure, willingness and flexibility to respond to fuel price increases, sound risk management practices and financial flexibility. These attributes are all reflective of a utility which has effectively managed its exposure to industry risk.

- We intend to move our credit rating, over the next five years, to an Aaa1. In order to achieve this higher credit rating, Washington City Power will have to evaluate the aforementioned credit rating criterion to determine what improvements are needed to strengthen our credit rating. We will work with the City Manager, Finance department, financial institutions and their representatives to achieve this objective.
- A key item to focus on are fuel price increases which may, to some degree, be controlled by a Power Cost Adjuster (PCA), or can be managed through long term supply contracts, a layered or diversified gas portfolio or other options such as well head gas ownership or gas purchase displacements through our Natural Gas Project. We will investigate all of these options and provide the most cost effective solutions to the problem.
- Another key item is financial performance. Based on the recommendation and expectation at the time we were rated by Moody in 2004, we established a Rate Stabilization Fund (RSF), which Council approved through the budgeting process. The Cost Recovery Charge (CRC), which was retired in 2003, became the RSF. This fund needs to remain ear marked as a Rate Stabilization Fund reserve and be managed and invested well. At times and when possible, we also need to invest larger amounts into this fund, in order to meet a five year objective of 60 days emergency cash reserves and an additional 60 days contingency reserves. To achieve our five year plan, our finance team, management and governing

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body should establish a percentile investment amount into this fund from net margins by the end of the fiscal budget 2009.

- We will continue to monitor the costs associated with our UAMPS projects and make informed and wise decisions regarding the budgeted funds and ways to use these more efficiently and effectively.
- Regarding City projects, we will continue to provide quality project management, cooperation and budget oversight regarding all projects. Many City projects outside of the electrical department will have an effect on the budget and need to be planned for, and communicated thoroughly between departments to maintain financial stability.
- We will continue to budget wisely and conservatively for both revenues and expenditures and continue to monitor expenses on a monthly basis, in order to detect and correct items of concern well in advance of any substantial financial impact to the department.

The strategic plan itself is another way to improve our financial stability. By obtaining all of our objectives, and keeping our commitments within this strategic plan as a result, our financial stability will also improve. Overall, each and every item within our plan is dependent and complementary of one another.

Listed below are major threats to Washington City Power.

THREATS.

Fuel pricing volatility.

Transmission delivery.

Long term base load resources.

Accidents, natural disaster, terrorism.

Local economy, recession, recovery time.

Stagnant economic development.

Federal and State regulatory actions.

Climate change and environmental issues.

Competition.

Loss of skilled workforce.

Potential lack of financial stability.

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These threats are varied and have grown in number. Our strategic plan addresses the complex issues facing Washington City, and yet it retains the flexibility we need for the future of our utility.

IMPLEMENTATION.

The process for implementation of our strategic plan is to provide the draft to department staff for review, additions, deletions, comments, refinement and acceptance of the content, directions and goals outlined. After this process the document will be provided to the City Manager and key department managers for the same review and acceptance, after which the document will be presented to the Mayor and Council for review, direction and acceptance. Once the document is finalized, it will then become a vital part of performance measurements for the whole department. Each person or department that plays a role in the success of these goals, will be provided a final version and assigned certain tasks individually or as a team to ensure efforts are made to accomplish each objective. Each participant will be asked to take part in an annual progress review. Following the review, the progress report will then be provided to the Mayor, Council and City Manager for their review and direction. Everyone involved in the implementation and acceptance of our strategic plan will be considered a member of our implementation team and will follow the guidelines provided under our commitments and values, to work towards the higher end of our objectives. This five year plan has the flexibility to change direction over the years ahead. It is a living document and very likely will be modified or adjusted to move our focus to areas of greatest concern.

COMMITMENTS:

- A commitment to our community to provide excellent customer service on every level of business.
- A commitment to support economic development which compliments our utility and community, supports our tax and rate base, provides the best in quality jobs, and availability for our future work force.
- A commitment to safe, reliable, affordable electric delivery, service and rates using a diverse energy portfolio.
- A commitment to annually review our planning objectives and adjust our focus in view of a rapidly changing utility environment.
- A commitment to handle our business with the highest level of integrity, transparency, and to treat people with honesty, respect and kindness.
- A commitment to maintain financial stability and protect our citizens from market volatility using a number of strategies.

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As we move forward with the implementation of our strategic plan we will not only honor our commitments, we will conduct our business with the following set of values.

VALUES:

Cooperation: We will continue to be cooperative in our department, administrative and public relationships as we grow and face new challenges.

Dedication: We will continue to demonstrate our dedication and concern for our customers, the community and each other.

Diversity: We value and embrace the diversity of our workforce, citizens and business relationships, which enable us to make wise decisions in accomplishing our goals.

Education: We will ensure our staff maintains the highest level of training and education for peak performance, and will continue to expand our education and training programs into the public sector.

Integrity: We will conduct ourselves truthfully, honestly and with respect for city staff, citizens, and business partners, as we deal with day to day operations.

Innovative: We will continue to share ideas, seek new techniques and innovations, which complement the efforts of our strategic plan.

Ownership: We will approach our jobs, decisions and results with a sense of pride and ownership in our utility, which will be shared among staff, the governing body and our citizens.

Quality: We will strive to provide the highest levels of quality within the industry, in every aspect of our jobs, for the benefit of our customers.

Safety: We will continue to educate our staff and citizen's, to maintain the highest level of safety within the work environment and with delivery of electric energy.

Teamwork: We will continue to work as a team by creating new ideas and strategies internally, and through external sources, to accomplish our goals and provide our customers with the highest standards in customer service and reliability.

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CONCLUSION:

As previously stated, these are detailed and ambitious goals for a utility the size of Washington City. With the quality of our staff, and the dedication and commitment to success they display for the department, there is no doubt these objectives will not only be accomplished, but will probably exceed expectations. We are a strong and supportive team, and as a team, we will use internal and external resources to accomplish the objectives we have outlined. We take pride and ownership in the positions we hold as public utility workers and the future of our utility.

Contributing Staff:

La Pargo L. Jall

Loronzo Lott

Power Superintendent

Jeannette Davis

Projects Manager

Jake Bennett

Journeyman

Kelsen Fieldtal Kelsey Fielsted

Third Step Apprentice

Dean Shiner

Master Electrician

Je Warrow Joe Warren

Groundsman

Mm

Mike Ruesch

Building Inspector II

Roger Carter

City Manager

Alysha Byington

Alysha Byington

Customer Service Representative

Jim McGuire

Economic Development Director

Additional contributions made by Washington City Mayor and Council.



EXHIBIT A

The following is a summary of the diversity of energy resources adapted from the UAMPS White Paper and our Smart Energy campaign which was launched Fall 2008. Each of the energy resource options listed will be considered within our future Diverse Energy Portfolio. The driving forces will be stable, affordable rates, as well as Federal and State mandated requirements placed upon our utility and directives given by City Council.

Coal:

Coal is a sedimentary rock; in its purest form, it is primarily composed of carbon and hydrogen. The energy in coal comes from the energy stored in plant remains, buried by mud and water deep below the earth's surface for millions of years. Coal, currently the largest source of fuel for electricity generation worldwide, is extracted using two different methods. Surface mining is used when coal is located less than 200 feet underground and underground mining is used when coal is located deeper in the ground. The majority of coal used in the U.S. is mined via surface mining because surface mining is more cost effective than underground mining. Once the coal has been extracted using either method, it is transported to power plants. The coal at this point costs approximately 1.2 cents/kWh of the total costs. Once at the power plant, the coal is pulverized and injected into a high heat and pressure boiler to make steam. The steam is run through a series of high to low pressures turbines, which drive an electric generator. This process costs approximately 1 cent/kWh, for a total cost of 2.2 cents/kWh. Taking into account the capital and financial costs brings the total cost to approximately 4 cents/kWh. This is not the end of the story. The waste products, combustion gases, ash and heat, from the above process must be captured and disposed. The Clean Air Act requires each combustion gas be identified and removed in a specified amount. Land use permits require the solid waste products of the combustion cycle, mainly ash, be captured and stored, such that they never leave the plant site. Heat remaining in the water is piped to cooling towers and evaporated into the atmosphere. This increases the cost of the electricity by another 0.5 cents/kWh, bringing the cost of the electricity to 4.5 cents/kWh.

Advantages of Coal:

From an economic perspective, coal fired generation can be provided at a lower cost to the consumer when compared to other resources. The U.S. has the world's largest known coal reserves with an estimated 276.9 billion short tons (Energy Information Administration (EIA) 2008). The abundance of coal reserves in the United States contributes to the stability of cost over time. The technology to covert coal to electricity is well advanced, thus there are numerous vendors in this market to insure competitive pricing. The design of coal plants are based upon continuous use for 30 to 50 years. Coal fired generation will con-

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tinue to be a large part of our energy portfolio given new advances in clean coal technology intended to further reduce environmental impacts and increasing efficiencies of the resource.

Disadvantages of Coal:

Coal is a rock and therefore, requires approximately half of its corresponding electric costs to be in capital investment. The physical plants endure a lot of wear and tear because of this rock and therefore, require constant up keep and replacement. Future air quality requirements will increase the current 0.5 cents/ kWh in an exponential manner if carbon dioxide and other greenhouse gases are regulated.

Coal plants are designed to run 24 hours a day for years, thus they do not integrate well with intermittent wind and solar resources. (United States Department of Energy (USDOE) 2007) Coal works best as base load given its relatively low cost and consistent availability.

Natural Gas:

Natural gas is a fossil fuel formed in a geologic process similar to that forming coal, in which the organic matter that existed in ecosystems millions of years ago is compressed under the pressure of the earth. Natural gas is found one to two miles below the earth's crust (USDOE 2007) and is odorless, colorless, and tasteless. Once seismic surveys determine the location of a source of natural gas, drilling begins and the gas is extracted. Refining is then required to separate the pure methane gas from petroleum liquids and contaminants (Natural Gas Supply Association 2004). After refining is complete, the natural gas is transmitted through a network of pipelines to the power plant. The cost of electricity from the natural gas at this point is approximately 5 cents/kWh. Gas fired generation comes in two forms: simple cycle and combined cycle. Simple cycle means that the natural gas is ignited under pressure and directed through a hot gas turbine, which in turn drives an electric generator. Combined cycle starts as a simple cycle but, the resultant hot exhaust is captured in a steam boiler to produce electricity in the same manner as coal generation discussed above. This process adds about a penny per kilowatt-hour. The waste product from natural gas generation is primarily heat, thus no incremental costs. Adding in the capital and financing costs the price of electricity is 7 cents/kWh.

Advantages of Natural Gas.

A new natural gas plant can be constructed in a relatively short time and at about half the cost of a coal project. Natural gas burns cleaner than other fossil fuels, such as oil or coal. The combustion of natural gas emits roughly 30% less carbon dioxide than oil and just under 45% less than coal (Natural Gas Supply Association 2004). California has exempted natural gas generation in its latest environmental laws. The clean nature of burning gas allows gas-fired generation to be placed closer to load centers thus avoiding

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transmission investment. Current IRS rules allow for financial management of price volatility unlike coal. Gas plants integrate well with coal, wind, and solar resources.

Disadvantages of Natural Gas.

The price of natural gas is subject to wide fluctuations in price. Price volatility is often due to high demand. According to the Energy Information Administration (EIA), natural gas prices will increase sharply after 2016 when the cost of developing the remaining natural gas reserves increase sharply (EIA 2008). Gas plants are not designed to last as long as coal plants, creating cost increase over time. Natural gas may be used to serve all load needs but, given its cost, it is best as an intermittent or peak load supply. Cost/kWh is \$0.05–\$0.07 (ERCOT 2005). In 2007, volatile gas markets and demand pushed the cost of production above \$0.15.

Wind.

Wind is actually a form of solar energy in that irregularities in the earth's surface and the rotation of the earth cause uneven heating of the atmosphere by the sun. The direction and speed of the wind is influenced by the earth's terrain, bodies of water, and vegetation. The generation of electricity occurs when wind turbines transfer kinetic energy in wind to mechanical power or electricity. As the wind turns the blades, a shaft in the turbine spins, which connects to a generator that transfers the electricity. The amount of electricity generated by the turbine is dependent on the density and speed of wind. Estimates of wind resources are expressed in terms of wind power classes ranging from 1 to 7. Each class represents a range of mean wind-power density or equivalent mean speed at specified heights above ground. Wind-power density,volatility measured in watts per square meter, signifies the amount of energy potential for energy conversion by a wind turbine at the site. The standard for measuring wind speed is based on sea level conditions. To maintain the same wind-power density as that found at sea level, wind speed generally increases 5% for every 5,000 feet of elevation gain (American Wind Energy Association 2007). Areas designated as having a wind-power class of 4 or greater are suitable for wind-generated electricity using today's technology. Utah has very few sites that obtain a class rating above a 3.

Advantages of Wind.

Wind power is one of the least expensive renewable energy sources available today. The initial investment in wind technologies is similar to that for coal at \$2,000–\$2,500 per kW. Wind power is beneficial because it is a renewable energy source without emissions. Wind power can be an economic benefit to rural areas because the turbines, which have relatively small footprints, can be built on farms and ranches while still allowing for traditional farming and ranching practices. Wind and gas fired generation can be integrated into a beneficial relationship.

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Disadvantages of Wind.

When compared to thermal energy-generating sources wind power may not be as cost competitive. This is due to the amortization of the capital investment over low annual output. Wind produces approximately one third the amount of energy that a coal plant does given almost identical capital costs. Because the wind does not blow consistently and predictably, it cannot always be relied upon to meet demands when electricity is needed. Wind energy is best suited to accommodate intermittent loads. Cost/kWh is \$0.04–\$0.06 (USDOE 2005a).

Hydropower.

To understand hydropower it is important to first know some basic principles behind the hydrologic cycle. Solar energy heats up water, which causes it to evaporate. The water vapor condenses into clouds and falls back to the earth's surface in the form of precipitation. The water flows back into rivers and oceans where it evaporates and begins the cycle once again. The energy from flowing water can be channeled and transferred into mechanical energy. The amount of available energy is determined by the flow and gradient of the flowing water body. More energy is available when flows and gradients are higher and steeper, respectively. Hydroelectric facilities convert the energy from flowing water into electricity by pushing water through a pipe (increasing the pressure) to deliver it to turbines, which rotate electric generators (Idaho National Laboratory 2005).

Advantages of Hydropower.

Similar to wind energy, hydropower is generated domestically so there is no reliance on overseas providers. Hydropower plants have low maintenance and operation costs, and hydropower is generally available when needed. The flow of water through the turbines can produce electricity on demand. Hydropower is a renewable energy source because the water cycle is endless and constantly recharged. Another environmental advantage is that hydropower is a clean energy source that produces no emissions.

Disadvantages of Hydropower.

While maintenance and operation costs are relatively low and stable over time, the initial construction of a hydroelectric plant can be costly. Costs can vary widely depending on the location of the plant, ability to transfer generated electricity to the end user, and environmental mitigation requirements. There are no new sites to develop. Hydroelectric power can be used to accommodate base, intermediate and peak loads because it is generally accessible on demand. Cost/kWh is \$0.07–\$0.10 (Hunter 2008).

Solar.

Light energy from the sun is converted to electric energy through photovoltaic (PV) technologies and thermal collectors. The PV cells are made of semiconductor material, and when connected together they form PV modules, which range in size and power output (USDOE 2005b). Together with electrical connections, mounting hardware, and batteries that store solar energy when the sun is not shining, the modules create a PV system that transfers light energy into electrical electricity.

Advantages of Solar.

The generation of solar power does not depend on fuel; therefore, there is no fuel cost to generate power in areas that are off-grid. Other economic advantages include investment credits, rebates, and sales and property tax waivers that exist in 48 states to encourage consumers to use solar energy (USDOE 2005b). Recent increases in development of new solar-generated power technologies have employed over 20,000 people. These jobs are high-tech and high-value, and this number could increase as the demand for solar power also increases (USDOE 2005b). Like wind and hydropower, solar power produces no emissions or byproducts. In fact, every kilowatt of PV electricity produced annually offsets 16 kilograms of nitrogen oxide, 9 kilograms of sulfur oxide, and 2,300 kilograms of carbon dioxide (USDOE 2005b). From a land-use perspective, solar plants can be built in "brown-fields," on rooftops, in parking lots, and on vacant lands in otherwise-congested urban environments.

Disadvantages of Solar.

The initial investment in the materials to generate solar electricity is costly. The levelized cost per kWh (approximately \$0.30) is considerably higher than those of fossil fuels and other renewables (USDOE 2006a). Solar electricity is dependent on weather and location, often precluding large-scale use in areas that do not have consistently clear weather patterns. Also, large amounts of land are required per unit of generation when compared to other resources. The manufacturing of PV cells involves the use of toxic materials and chemicals. Solar PV power works best as for intermittent loads and can also offset peak load times, especially in summer months. Cost/kWh is \$0.30 (USDOE 2006a).

Geothermal.

Geothermal energy is generated at the earth's core approximately 4,000 miles below the surface as the slow decay of radioactive particles release heat. Most of the geothermal reservoirs are found along major plate boundaries where earthquakes and volcanoes are concentrated, especially in an area called the Ring of Fire, which rims the Pacific Ocean. The majority of geothermal reservoirs in the United States are located in Alaska, Hawaii, and Western states. California generates the most geothermal electricity (EIA 2008). Geothermal reservoirs are accessed by drilling wells that measure one mile or more into the earth.

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The energy from the steam and hot water (usually between 122 degrees and 482 degrees F) is extracted from the earth by production wells and is used to generate electric power using traditional power-plant technologies including turbines, generators, and heat exchangers (USDOE 1998).

Advantages of Geothermal.

Given the low cost per kWh, geothermal power is priced competitively with non-renewable energy sources. Geothermal energy is responsive and available 24 hours a day. Geothermal power plants have average abilities to generate power 90 percent of the time or higher. Comparatively, coal plants generate power 75 percent of the time (USDOE 2006b). Because the power is produced domestically, our dependency on foreign oil is minimized. Geothermal energy is a renewable resource because there is an almost unlimited amount of heat generated at the earth's core. As with other renewables, geothermal energy is extracted without burning fossil fuels and produces very few emissions. Geothermal fluids produce one sixth the carbon dioxide that a natural gas-fueled power plant produces and very little sulfur bearing gases or nitrous oxide (USDOE 2006b). Geothermal power plants have small environmental footprints. Land requirements are minimal compared to coal, wind, and solar facilities. Once wells and associated power plants have been completed, other land uses can occur within the same area. For example, the Imperial Valley in Southern California produces 400 MW at 15 geothermal plants and is one of the most productive agricultural areas in the world (USDOE 2006b).

Disadvantages of Geothermal.

The geology in the United States is such that only a few sites exist with temperatures high enough to allow for geothermal power production. Once determined feasible, the initial construction costs of geothermal facilities are high. The initial cost for the field and power plant would be approximately \$2,500 per installed kW for a larger plant and \$3,000–\$5,000 for a smaller plant (USDOE 2006b). Some geothermal plants produce solid material waste that requires disposal in approved sites. Some of the extracted solids (zinc, silica, and sulfur) are sold on the market, making the extraction of the energy resource more economical. Land subsidence can occur upon extraction of large amounts of fluid from beneath the earth's surface. However, the spent geothermal fluids can be re-injected to help prevent land instability. Geothermal energy is best used as a base load. Cost/kWh is \$0.08 – \$0.12 (USDOE 2006c).

Nuclear.

Nuclear might very well be making a come back in the US energy market, particularly in light of environmental issues and legislative actions. Although the price of production is very inexpensive the cost of construction and the time frame to build a plant are tremendous. Environmental concerns over waste storage, siting and terroristic threats are major issues as well.

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