



Fernley Nevada Strategic Energy Plan



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CITY OF FERNLEY - STRATEGIC ENERGY PLAN

Table of Contents

EXECUTIVE SUMMARY

- A. Resolution
- B. Statement of Purpose
- C. Strategic Energy Plan Report: Focus and Development
- D. Fernley's Green Future
- E. Principles to live by
- F. Acknowledgements
- G. XL Energy, LLC Engagement Information

POWERING FERNLEY'S FUTURE

- A. Fernley's Vision for Energy Efficiency & Renewable Energy
- B. Energy in Context
- C. Climate Protection
- D. Energy Trends

STRATEGIC ENERGY RECOMMENDATIONS

- A. Website Design for the Energy Plan
- B. Energy Audits of City and Residential Buildings
- C. Strategic Implementation of Energy Efficiency in Public Buildings
- D. Improving Building Energy Efficiency within Target Market Sectors
- E. Renewable energy
- F. Energy Education



EXECUTIVE SUMMARY

Strategic energy planning is vital to the City of Fernley as it is for every American community. The City Council and staff have made energy planning a priority in reducing energy use, saving energy dollars and reducing their environmental impact. The choices made today will have positive or negative consequences in the years to come for all Fernley residents. The majority of current energy is harnessed from limited, nonrenewable resources. Finding ways to better manage urban energy demands today will ensure the energy needs of the future are not jeopardized. Strategic, sustainable energy policies encompass more than energy efficiency and conservation measures. They must be diverse, flexible and integrating (where appropriate) renewable energy systems.

For many city governments, including the City of Fernley, the management of utility costs has recently become a significant priority. Considering that energy and telecommunications costs can make up as much as 25 percent of a communities overall operating budget, energy cost reductions can significantly improve a communities bottom line and allow funds to be used for high priority projects.

In order to manage and control energy costs, the City of Fernley will look to manage and control energy costs through a systemized program that is both straight forward, meets the direction of the City Council and is scalable. This approach will provide:

- Data Collection
- Implementation & Monitoring
- Reporting to the City Council and constituents of Fernley
- Annual reviews of established priorities
- Evaluate the use of renewable energy on select City buildings and facilities
- Use of available Geothermal to heat/cool city owned facilities
- Provide energy education for residents, city staff and other stakeholders



Statement of Purpose:

The purpose of the Fernley Strategic Energy Plan is to create a community in which energy is generated and used in the most sustainable manner possible. It seeks to identify the ways and means to implement the energy and renewable goals of Fernley's energy vision for the future. This Plan lays out the efforts to develop an infrastructure that values energy conservation and efficiency, energy reliability, reasonable and predictable energy costs, and the creation and use of clean, local energy sources.

Strategic Energy Plan Report - Focus and Development:

The 2010 Strategic Energy Plan (Plan) focuses on energy use in the built environment and is an integral part of Fernley's Green future. It will assist all City departments, the community and other stakeholders to identify and create opportunities that encourage, incentivize and provide the City, residents and businesses with resources to incorporate energy saving practices and energy efficient technologies. Specific energy efficient strategies will encourage new residential, commercial and industrial developments to incorporate these strategies into their new construction and encourage older properties to invest in energy savings to increase profitability.

In developing this plan, the City has been guided by professional energy consultants and diverse City departmental staff. It has reached out to community stakeholders, citizens and various city departments. A key part of the plan is to reach out to the community for input into establishing priorities and in communicating the efforts of the City to reduce energy use and move toward the use of renewable energy. Additional outreach and comment from throughout the community will be garnered as part of the overall process. Interviews and subsequent input will help gauge the community's reception of energy efforts and concerns for the future of Fernley's energy needs. The Plan details the current and future risks surrounding Fernley's energy supply and purposes goals, policies and best practices that will reorganize those challenges. It is designed to compliment and update the 2008-2011 City of Fernley Strategic Plan as of March 8, 2010.



Fernley's Green Future:

The City of Fernley has a Green Vision for the future that is a comprehensive approach to achieving sustainability through new technology and innovation. In adopting their Energy Strategy they have established 10 goals to achieve within the next 12 years.

These goals are:

1. Receive 50% of the City of Fernley facilities energy from clean renewable sources.
2. Create a new clean tech and green jobs initiative
3. Reduce per capita energy use by 20%
4. Prioritize and retrofit appropriate City buildings to Green Building standards
5. Beneficially use available geothermal resources for renewable energy if practical
6. Design and adopt a comprehensive plan with measurable standards for sustainable development
7. Investigate using alternate fuels to operate City vehicles
8. Plant new trees and replace city owned streetlights with LED (or more efficient products if available).
9. Recycle or beneficially reuse of wastewater.
10. Investigate the use of solar, thermal, photovoltaic and wind energy on appropriate City buildings and other facilities such as the sewer treatment facility.



Principles to Live By:

To accomplish these goals within the next 12 years the City will;

1. Lead by example in pursuing the most efficient use of energy in City facilities.
2. Explore opportunities to improve energy reliability, supply and price stability to meet current and future needs.
3. Collaborate on energy issues by working with the local utility, the Nevada State Office of Energy, the United States Department of Agriculture Rural Development, the Department of Energy and other State and Federal entities to maximize available resources and entitlements.
4. Promote a cleaner and healthier environment, including improving air quality and reducing greenhouse emissions.
5. Encourage the development and use of renewable energy sources and alternative fuels as appropriate.
6. Meet with City officials, residents and other stakeholders annually to review the Plan, obtain input and disseminate information about the steps the City has taken to reduce energy use and continue to educate and encourage residents to use energy efficiently.
7. Strive to meet or exceed State and Federal mandates concerning the efficient use of energy.
8. Realize that economic vitality and environmental protection are not mutually exclusive. A healthy environment is integral to the long term economic interests of the City.
9. Develop and continually reevaluate its environmental priorities to ensure that it is making the best possible energy investments in the City of Fernley's future



10. Understand that an energy efficiency and renewable energy Plan is dynamic and must be reviewed annually. Priorities need to be reviewed and updated as new technology, revenue streams and other resources become available.

POWERING the CITY of FERNLEY'S FUTURE

Energy powers our lives. We depend on energy to run our days and illuminate our nights. It helps drive our economy and maintain our quality of life. Fernley recognizes the need to proactively shape its energy future by reduce spending for energy and looking at viable renewable energy. Most of the electricity used in Fernley is generated through the burning of fossil fuels, a nonrenewable resource. The current method of generating electricity with fossil fuels releases millions of tons of carbon dioxide and other greenhouse gases (GHG) into the atmosphere. In order to maintain Fernley's health, economic vitality, environment and quality of life, the City has chosen to act.

Fernley's Vision for Energy Efficiency & Renewables:

The use of renewable energy is progressing at a very rapid rate with new technologies and a substantial reduction in the cost of these systems. With the supply of traditional energy resources declining, the demand for sustainable energy is on the rise spawning innovative solutions to energy demands.

The future of clean, sustainable energy is bright. The City of Fernley will actively analyze all options and methods to increase the reliability and affordability of their energy supply, while at the same time, mitigating the impact to the environment.

Through current and future policies and ordinances, the City of Fernley has many opportunities to incentivize energy efficiency and curb emissions. The municipality regulates some of the larger sources of energy consumption through its land use policies, master planning, building permits and essential infrastructure. Through cooperation with residents and other stakeholders, the City of Fernley must serve as leaders in energy management. The Energy Plan to be developed by the City aims to put in place resources, practices and policies that will help make the Plan a reality.



The City of Fernley at a glance:

In Fernley, when it incorporated in 2001 it was determined the population was approximately 8,564 persons. Since that time, the population has grown by over 11,000 people, more than doubling to 19,609 people to become one of the largest cities in Nevada. It is currently projected to grow by another 50 percent in the next 11 years! Accommodating this projected growth in population will require strategic, sustainable energy planning.

Fernley is well located for major manufacturing and distribution centers due to its proximity to Interstate 80, US Highway 50 and 95A and the Union Pacific Railroad's main line.

In fact, due to its most desirable location, Fernley, in recent years, has attracted many new major Companies to their City. Some of these include; Amazon.Com, Sherwin Williams Company, Trex Co., UPS Worldwide Logistics/ Honeywell, Quebecor World Printing, MSC Industrial Direct and Agru America. Fernley is uniquely set to become the distribution epicenter for the State and will continue to grow in importance with volumes of freight and manufacturing increasing over the next 30 years.

Energy in Context:

Most Americans are almost entirely dependent on an abundant and uninterrupted supply of energy for living and working. Today, Americans take for granted that energy is available whenever needed, but it is a key ingredient in all sectors of modern economies; therefore, the City of Fernley is committed to act with this energy strategy.

Clean Sustainable Energy:

Supporting “sustainable energy” ensures that we have enough energy to maintain our current standard of living into the future. The United States currently relies heavily on coal, oil and natural gas for its energy. Fossil fuels are nonrenewable, and draw on a finite resource that will eventually dwindle becoming too expensive or environmentally damaging to retrieve. In contrast, renewable energy resources such as wind and solar are constantly replenished and will not run out. As defined by the United States Government renewable resources include; biomass, solar,



thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave and ocean thermal or tidal current.

With this Strategic Energy Plan, the City of Fernley will look at all existing and future renewable energy resources including solar, wind and geothermal to better manage and conserve current energy resources for the built environment.

Energy in Nevada:

Fueled by population growth, the demand for electricity in Nevada is increasing rapidly. At the same time, local governments are anticipating future mandates from State and Federal governments to significantly decrease GHG emissions.

Last year, NV Energy provided energy to 2.4 million electric citizens as well as a state tourist population of more than 40 million people.

Additionally last year, NV Energy produced only 50% of the electricity it needed. The balance was bought and transported from other power producers in the state or throughout the western US. Unlike the national energy trends, natural gas is the main source for the State's electricity. However, a state mandated 25% renewable portfolio standard by 2025 has the utility looking to develop more of the abundant geothermal and solar resources in the State. The City of Fernley has several active geothermal power plants close by and the potential for using geothermal to generate power or heat/cool City properties will be a large part of the Plan.

Energy Trends:

The City of Fernley has targeted a reduction in energy use by 20%. To meet this goal, energy use will need to be reduced by 2.5 % per year for the next 12 years. Auditing and then putting an energy reduction plan in place to renovate existing and make new facilities energy efficient is a goal of the Plan.

Distribution and manufacturing is a major driver of the City of Fernley economy. It is the City's intention to advance its role as a major distribution epicenter in the State. This Energy Plan seeks to support and foster that spirit, find reliable, sustainable solutions to energy demands and continue to lead by example.



Energy efficiency is an integral component of clean technology. Clean, sustainable energy has the benefit of reducing energy costs, conserving the nonrenewable resources upon which the commercial sector relies, driving demand for new, innovative technology and stimulating green business growth and creating local jobs.

Nevada is leading the way with the rise of renewable energy including being the second largest producer of geothermal power in the country. Additionally, the State is in the top ten in the country in nearly every category in solar electric power as well. New utility scale wind and solar projects are under contract by the state's largest utility: NV Energy and the legislature has made substantial improvements to the small renewable energy program that provides incentives to customers who install solar, wind and water power renewable energy projects. NV Energy is also one of the recipients of funding for smart metering, consumption and emissions measurement technology. NV Energy recently received a \$138 million dollar grant from the DOE to help finance the \$301 million dollar program to replace electric meters in the state with smart meters to let ratepayers direct their energy use year-round, day and night, by moving consumption to times of the day when electricity costs less.

STRATEGIC ENERGY RECOMMENDATIONS

As the City of Fernley strives to save energy, reduce spending on energy and increase energy efficiency they must lead by example in their own buildings, while engaging their community to meet the challenge as well in their homes and businesses.

Through working with energy professionals to establish realistic goals, the City of Fernley will use a systematic and flexible approach to using the process below as a guideline to realize significant energy savings through energy improvement efforts.

- Lead by example by evaluating City owned buildings and facilities
- Establishing goals and challenging the Community to meet those goals.
- Reaching out to the community to initiate energy efficiency initiatives
- Recognize successes in the community.



Website Design for the Energy Plan:

When City governments are constantly being asked to do more with less, the Internet is playing a vital role in allowing government to better serve all of its citizens and allows the citizens to remain informed and current on issues. The Internet is dramatically changing the way that American government serves the public. Taking advantage of new technology, many State and local governments are using the web to offer citizens a host of services.

Education is paramount with energy efficiency. The City of Fernley intends to design a new website for the purpose of educating and updating the residents and stakeholders of Fernley with future energy plans and results of the Plan's recommendations.

By designing a website specifically for the Energy Plan the stakeholders and citizens of Fernley will know and realize that the City Officials are committed to saving energy in the City and it will likewise encourage them to do the same. This website will:

- Allow feedback from the citizens
- Advertising of green jobs
- Actively communicate the Plan to residents and other stakeholders
- Demonstrate actions being taken by the city to save the tax payers money
- Update information to the public easily and quickly
- Educate the citizens and stakeholders of Fernley on the value of energy efficiency and conservation.

Energy Audits of City and Residential Buildings:

Energy audits by professional, Building Performance Institute (BPI) trained building analysts or trained Residential Energy Services Network (RESNET) auditors can pinpoint areas in commercial and residential buildings where energy can and should be saved. In that light, the City of Fernley is committed to evaluate their buildings and other facilities to assist with developing their Energy Plan. The first priority is the auditing of the City Hall for energy upgrades along with evaluating the use of large south facing roof for a photovoltaic and solar thermal installation. Based on the specific buildings and structures, the City of Fernley



will look at all structures for energy use and determine an energy strategy for each based on its use, the life of the structure, condition, existing equipment or processes and identify the short and long term energy upgrades for each. Then based on this study, set a priority and schedule for using available funding for financing the appropriate energy upgrade.”

Strategic Implementation of Energy Efficiency Improvements:

This activity is a program under which the City of Fernley will improve the energy efficiency of city owned buildings and other facilities.

- 1. Benchmark Energy Performance** — The City may begin by collecting key building and other infrastructure operational characteristics and energy use data to assess and understand the current energy performance.
- 2. Identify Underperforming Buildings** — Using energy audit analysis software modeling, it will compare energy performance levels in buildings and other facilities to identify under-performing City of Fernley owned facilities which will be targeted for energy efficiency improvements. The initial results will establish the baselines for measuring progress for energy efficiency improvement projects over time.
- 3. Implement Best Operating Practices and Energy Efficiency Improvements**
Through audits of existing facilities, the City of Fernley will identify which operational and maintenance strategies and equipment retrofit opportunities for improving energy efficiency in the target buildings and other facilities identified in Step 2 above. Drawing upon industry guidance, and the auditor’s models, City of Fernley staff will implement efficiency improvements to lighting systems, supplemental loads, air distribution and/or heating and cooling systems, motors and pumps and control systems, as indicated by the facility audit results.
- 4. Track Progress over Time** — Facility staff will track progress using the software tracking established by the energy auditors and monitor variations in energy consumption and as appropriate associated greenhouse gas emissions.
- 5. Verify and Document Results** — Working with the energy auditors, design and maintain a tracking database to provide a level of accountability and



generate performance indicators, including energy use intensity, energy efficiency improvement over a baseline, EPA's Performance Rating (where applicable), and greenhouse gas emissions associated with building energy use. The information may then be used to report energy use and greenhouse gas reduction results.

This program helps create sustained energy savings and job retention by reinvesting energy cost savings into the City of Fernley energy management program over time. Energy efficiency improvements that result in cost savings will help lower the overall City of Fernley budget and encourage continuous benchmarking, monitoring, analysis, and performance upgrades into the future for further energy savings.

The City of Fernley will, through a mix of advertising and normal communication channels, encourage home owners and business owners in the City to also complete energy audits. The City may consider offering incentives through an established program to encourage homeowners and business owners to perform energy audits and complete energy upgrades both where they work and where they live.

The benefits of energy audits and energy upgrades will:

- Save money on utility bills
- Reduce energy use
- Make buildings quieter
- Improve the overall comfort of the building
- Lower greenhouse gas emissions
- Reduce respiratory irritants and improve livability
- Improve fire safety

Improving Building Energy Efficiency within Target Market Sectors:

The City of Fernley will establish a marketing campaign with technical and/or financial assistance to increase awareness and accelerate energy efficiency improvements by owners and managers of commercial and industrial buildings community wide. As part of this program, the City of Fernley will leverage financial resources to encourage building owners to take the necessary and appropriate steps to identify cost-effective opportunities to reduce energy use.



The program will consist of a campaign to benchmark and reduce energy use by considering and implementing specific and measurable programs including but not limited to:

- 1. Outreach and promotional activities** — By soliciting partnerships with the local utility and State of Nevada Energy Office, the City of Fernley may conduct outreach and promotional activities to encourage participation by local residents, businesses and organizations, and educate constituents about the benefits of energy efficiency. These activities may include such activities as an energy awareness event, educational information for local schools and other educational venues by partnership with such groups as the Green Power program.
- 2. Technical Support** — Residences and business owners will be directed to technical assistance opportunities through information on the City of Fernley web page on online training resources, financial calculators, no-cost, low-cost and added cost do-it-yourself information and other incentive programs offered by local utilities and other state agencies. Additional performance improvement assistance may include resources for energy audits and improvements.
- 3. Incentives** — The City of Fernley will investigate using funding sources including grants, loans, and local recognition to encourage and accelerate the implementation of energy efficiency improvements.
- 4. Locally Focused Recognition** — The City of Fernley will look at acknowledging and celebrating improvements to City owned facilities along with recognizing business leaders and residents have met the energy efficiency targets and goals of City wide initiatives and who meet specific targets such as Energy Star label or who might otherwise achieve a high level of energy performance through targeted improvements.

Renewable Energy

The City of Fernley averages 80% sunshine or 292 days per year that are conducive to solar power. With the cost of solar PV systems dropping



significantly and the available state and Federal incentives, installing PV on City buildings once energy efficient measures have been completed is a priority.

Wind energy is another consideration for those locations which demonstrate a significant wind resource.

The city is surrounded by substantial resources of geothermal energy including several operating geothermal electric generating plants. The City has set a priority to investigate the potential of geothermal resources in heating and powering City owned facilities and in encouraging businesses and residential developments to consider geothermal in the design of new buildings.

Energy Education:

The City of Fernley will look at supporting educational efforts, including partnering with the local utility, to educate the community as to why it is important to conserve energy and why it is valuable to generate energy by renewable sources.

In this light, the City will investigate and recommend establishing an energy website for education and outreach purposes by providing residents with up to date information on energy conservation and new and evolving renewable technologies.

The Energy Plan will assist the City of Fernley in establishing a prioritized plan of energy efficiency upgrades, implementation of renewable energy as appropriate for city owned facilities and help educate its residents and other stakeholders.

The City of Fernley is being proactive in developing a Plan to reduce their energy use and evaluate the use of renewable energy that could save the City thousands of dollars per year in reduced energy bills. Securing funding is the key component of this effort.



ACKNOWLEDGEMENTS:

City of Fernley:

- Greg Evangelatos, City Manager
- Fred Turnier, Community Development
- Keith Penner, Parks, et al
- Leslieann Hayden, Grants Administrator

US Department of Energy – National Renewable Energy Laboratory

Nevada State Office of Energy

Home Performance with Energy Star – DOE

NV Energy

City of Berkley, California Weatherization Program

City of Austin, Texas

Wind Energy Resource Atlas of the US

City of San Jose, California

City of Sparks, Nevada

City of Reno, Nevada

State of Nevada Housing Division





An Earth First Company

Engagement Information

Purpose and Experience

XL Energy Solutions, LLC has assembled a team to deliver technical, political and regulatory support, energy audits and recommendations, energy efficiency improvement support and construction project management. The principals of XL Energy have substantial experience providing technical and administrative services along with program management for energy efficiency and renewable energy programs both in Nevada, Utah and California. XL Energy Solutions, LLC is a minority, woman owned business, formed in 2009 with offices in Las Vegas and Reno. The purpose of the Company is to consult with clients concerning their current and future energy demands. XL Energy Solutions is strategically aligned with a long standing firm that has a long history of energy consulting and auditing.

This project requires highly experienced energy efficiency staff, with extensive renewable and program management experience as well as the ability to look for additional resources to support the energy plan presented. Individual qualifications and responsibilities are described below.

Program Management and Political/Regulatory Assistance

Larry Burton has over 28 years of experience in construction management, energy efficiency and renewable energy. In 2001, Larry started Burton Consulting, LLC to provide energy conservation and construction management services for utilities and the construction community. Larry has managed numerous demand side management programs in Nevada, Utah and California. Program Management includes the Energy Star Lighting and Appliance incentive, low-income weatherization programs in addition to leading the program development of the SolarGenerations program, the highly successful program which provides incentives to customers who install solar, wind or small hydro incentives to utility customers in Nevada. In addition, Larry has assisted with the program development and implementation of the Utah solar incentive program for PacifiCorp. Larry has worked on numerous energy-upgrade, renewable energy, and commercial projects and currently is the Program Director of the RenewableGenerations program and provides political, regulatory and administering services for the program. Larry has a Civil Engineering degree from the University of Nevada.



PROFESSIONAL CERTIFICATIONS & AFFILIATIONS:

Home Energy Rating Certification (HERS) 2003
Association of Energy Services Professionals (AESP)
U.S. Green Buildings Council, Reno Chapter
DRI Renewable Energy Lab Committee
Truckee Meadows Renewable Energy Curriculum Advisory Board
Solar Energy Industries Association (SEIA)
Member of the Nevada Wind Powering America Program
Member of SolarNV, Las Vegas
Sunrise Sustainable, Reno

Program Administration

Bill Root has over 34 years of experience in the construction industry and renewable energy. He has managed construction projects throughout Nevada. In 2005 he started a general construction company and sold it in 2008. Later in 2008, Bill accepted a position as business development manager for LVI Environmental Services, an international remediation firm. In 2007, Bill partnered with Burton Consulting to provide field services to contractors and customers participating in the RenewableGenerations (formerly SolarGenerations) program in southern Nevada; a role he continues today. The program provides incentives to customers who install distributed solar and wind systems. Bill has completed training in energy efficiency and is awaiting his Building Performance Institute (BPI) accreditation and certification a national standards development and credentialing organization for residential energy efficiency retrofit work Bill received his degree from the University of Nevada in Business Administration.

PROFESSIONAL CERTIFICATIONS & AFFILIATIONS:

Building Performance Institute – BPI Auditors Certification (pending)
Southern Nevada Building Performance Professionals member
Member US Green Building Council (USBGC), Las Vegas Chapter
Society of Military Engineers Las Vegas, member
Member of the National Association of Industrial and Office Properties (NAIOP)

