RESOLUTION ADOPTING A SUSTAINABLE ENERGY STRATEGY FOR THE CITY OF LAS VEGAS

WHEREAS, the City Council has adopted a Climate Protection Resolution (R-57-2006), making a commitment to be a leader in the reduction of greenhouse gas emissions; and

WHEREAS, the City's "Sustain Las Vegas" Policy promotes the environmentally-responsible, sustainable development of the City by reducing overall energy consumption, developing infrastructure to facilitate sustainable development, and supporting efforts to improve air quality and conserve non-renewable resources; and

WHEREAS, the City Council has accepted a Joint Workshop Report relating to its Workshop on Sustainability, establishing a strategic framework that introduces sustainability into City codes and policies, organizational practices, and community programs;

WHEREAS, a comprehensive sustainable energy strategy will implement the City's Climate Protection Resolution, the "Sustain Las Vegas" Policy, and the Joint Workshop Report by addressing energy conservation and renewable energy in City codes and policies, organizational practices and community programs; and

WHEREAS, such an energy strategy meets the value of "Innovation In Meeting the Present and Future Needs of the City," as set forth in the City's Strategic Plan, as well as the Strategic Priorities of the City Council, which include: to create, integrate, and manage orderly and sustainable development and growth of our community; manage costs and revenue resources to achieve efficient operations; support and encourage sustainability, livability, and pride in our neighborhoods; aggressively attract and retain diverse businesses; promote healthy lifestyles for all segments of the community; and provide a safe environment for our residents, businesses and visitors using a community oriented approach; and

WHEREAS, established City sustainability policy dictates that it is no longer acceptable to allocate public resources based solely on financial analysis, but rather that decisions on energy projects, policies and programs must also take into consideration environmental health, economic strength, and social well-being; and

WHEREAS, the City is facing the possibility of higher energy costs, and renewable

energy and energy efficiency can help meet growing energy demands while setting an energy conservation precedent for the region and State; and

WHEREAS, energy conservation and the development of renewable energy sources may have benefits for the community and region, including economic development, job creation, municipal cost savings, and improved air quality; and

WHEREAS, the City continues to demonstrate leadership in energy strategies by requiring new City buildings to meet or exceed LEED-Silver requirements; participating in EnergyStar programs; installing efficient lighting; managing mechanical systems in buildings; controlling use of machines and electronic equipment; and establishing sustainability committees and programs such as the Green Council, the CELEBRATE Committee, and the Green Building Program.

NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Las Vegas as follows:

1. To adopt the Sustainable Energy Strategy document that is attached to and incorporated into this Resolution;

2. To take action on renewable energy and energy conservation programs, consistent with established sustainability and climate protection policy; and

3. To make sure that any such action takes into consideration the following:

   A. The life-cycle costs and benefits to the environment;

   B. Quality of life;

   C. The well-being of citizens and employees;

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D. Overall livability as it pertains to the community; and

E. The local economy.

PASSED, ADOPTED, AND APPROVED this 3rd day of September, 2008.

CITY OF LAS VEGAS

BY _____
OSCAR B. GOODMAN, Mayor

ATTEST:

_____
BEVERLY K. BRIDGES, CMC
City Clerk

APPROVED AS TO FORM

Val Steed 8-25-08
Date

City of Las Vegas
Sustainable Energy Strategy
September, 2008

Introduction

America's carbon footprint is expanding. With a growing population and an expanding economy, America's settlement area is widening, and as it does, Americans are driving more, building more, consuming more energy, and emitting more carbon. Rising energy prices, growing dependence on imported fuels, and accelerating global climate change make the nation's growth patterns unsustainable.[1]

Cities have tremendous influence over growth and development patterns, and therefore cities have the opportunity to provide national and global leadership for these environmental and energy issues. This opportunity is especially pronounced for Las Vegas, a global city known for excess, to become a world leader in municipal energy strategies. Some opportunities and threats to Las Vegas, outlined below, provide insight into why a comprehensive energy strategy should matter to all members of the Las Vegas community today, and why action is called for now.

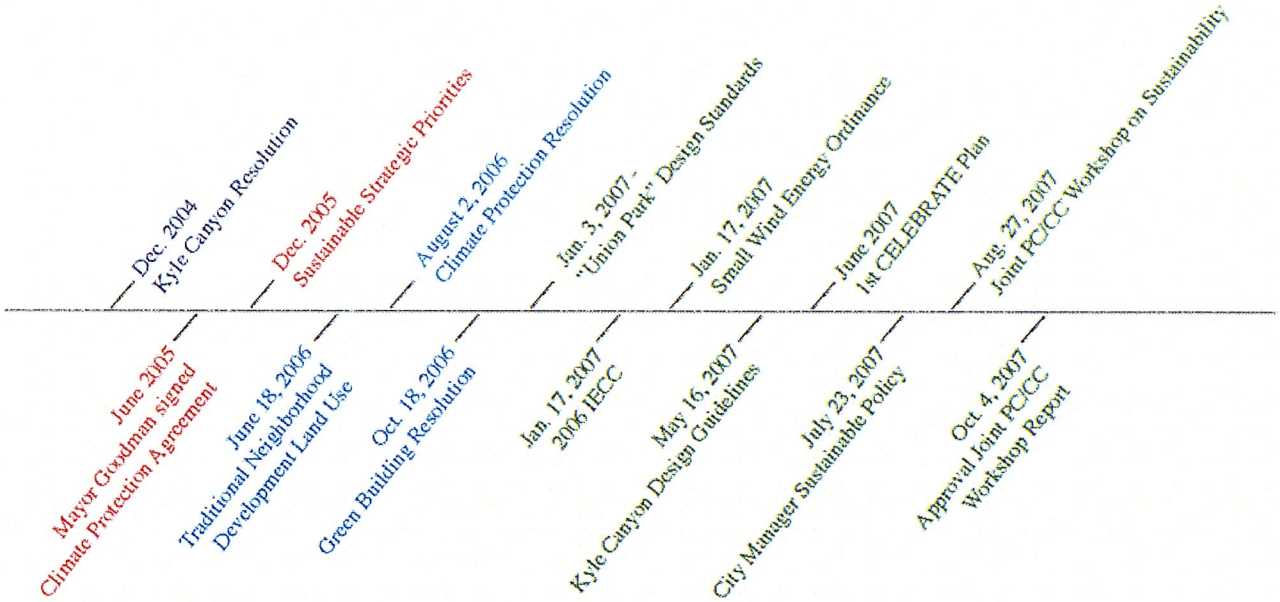
- **Tourism**. Perhaps one of the biggest climate change challenges is to alter the perception that Las Vegas is an unsustainable city. The reality is that Southern Nevada is a leader in solar energy, energy efficient buildings and use of cleaner burning alternative fuels for transportation, and the city of Las Vegas is becoming known as one of America's leading sustainable cities. Promoting the city's sustainability could have a positive impact on tourism. According to a 2007 study conducted by the BBC, greater than 70% of people in developed countries believe major steps should be taken to address climate change. A 2007 study in the U.S. conducted by the Yale Center for Environmental Law and Policy found that 83% of Americans believe global warming is a serious problem, and 81% believe they have a responsibility to reduce the impacts of global warming. These numbers are trending up rapidly, and could impact attitudes and perceptions about spending tourist dollars in Las Vegas. Becoming known as a world leader in energy conservation and renewable energy will turn this threat into opportunity as people from around the world come to see, experience and learn from Las Vegas.
- **Economic Growth**. "Green-collar" jobs – including engineers, architects, project managers and consultants - are expected to experience explosive growth at a rate of 1.3 million per year through 2030, creating the best opportunities for college graduates since the dot-com boom of the 1990's. The American Solar Energy Society reported that renewable energy and energy efficient industries created nearly 8.5 million jobs in 2006, expected to grow to 40 million by 2030, including support jobs such as accountants, truck drivers and computer analysts. However, most of the green economy jobs, according to Green for All, an organization that promotes green job training for the poor, will be weatherizing homes and offices, installing solar panels and retrofitting factories with energy-efficient technologies. "This is not an

[1] Shrinking the Carbon Footprint of Metropolitan America, The Brookings Institution

eco-elite, eco-chic movement for people who can afford to buy hybrid cars and shop at Whole Foods...The green economy to come is going to be a broad-shouldered, mass movement of American labor." Investing in renewable energy and energy conservation in Las Vegas will help diversify the economy and create opportunities for on the job training for skilled labor and for graduates of the University and Community College System of Nevada. Failure to act will place Las Vegas at a competitive disadvantage for jobs growth.

- **Cost of Energy**. World electricity generation is projected to double between 2006 and 2030, fossil fuels will account for 70 percent of the growth. The nation's electricity transmission facilities are estimated to require $1.6 trillion in investment to keep pace with demand. Add to that a growing commitment among the nation's leaders to regulate carbon emissions, and upward pressure on electricity prices will remain strong as it has since 2000. During the period 2000 to 2008, average retail price per kilowatt hour of electricity for all sectors in Nevada has increased by just over 59 percent, compared to an increase of 32 percent nationally. By comparison, during the 1990s average retail price per kilowatt hour of electricity for all sectors in Nevada increased by 14 percent. During the 1990's Nevadan's paid on average 13 percent less for electricity than the national average, whereas since 2000 Nevadan's have paid 10 percent more than the national average. Investing in renewable energy and energy conservation in Las Vegas will protect the City from escalating electricity costs.
- **National Security**. America taxpayers have spent trillions of dollars, and more importantly thousands of American lives have been lost, securing oil interests in foreign countries. The largest transfer of wealth in history, $700 billion annually and growing, is occurring now between the U.S. and unstable middle eastern countries whose interests are not aligned with ours. The U.S. imports 70% of its oil today, compared to 24% in 1970. American policy needs to move towards an energy independent future to create jobs and wealth in the U.S., save lives and money, and reduce green house gas emissions. Las Vegas, with its abundant solar resources, and demonstrated leadership with cleaner burning domestically produced and renewable alternative fuels, can provide leadership by reducing its reliance on foreign oil and non-renewable energy.

The Mayor and City Council have demonstrated a commitment to sustainability by adopting a body of public policy aimed at reducing the City's carbon footprint, supporting a strong economy and improving the quality of life for current and future generations of Las Vegans and those who come to visit. The City Manager has adopted a sustainability policy for the organization, in alignment with Council policy, that is changing professional practices and organizational culture. As a result, the City is reducing the cost of delivering public services while reducing the organization's carbon footprint.



The Sustainable Energy Strategy is one implementation measure of those policies. It is a comprehensive strategy that recommends investments in energy conservation and renewable energy based on a framework developed at the 2007 City Council – Planning Commission Workshop on Sustainability. The framework was approved by the City Council in a report presented during a subsequent public hearing. There are three components to the framework: city operations; city codes and policies; and community involvement.

In a recent study by the Brookings Institution, Las Vegas ranked 18th best among the 100 largest metropolitan areas for carbon emissions from transportation and energy use. This is a reflection of sound public policy. Las Vegas must continue to be progressive and invest in renewable energy and energy conservation to remain among the nations leading cities.

Energy Strategy Goals

City Operations

- By 2009, 100 percent of decisions on major capital projects and new City programs will be made after considering life cycle financial, environmental and social costs and benefits using the Sustainability Action Map.
- By 2011, invest in 3 megawatts of renewable energy, and 7 megawatts by 2015.
- Invest 100 percent of cost savings from renewable energy projects in energy conservation and additional renewable energy projects.
- By 2011, 10 percent reduction to the City's carbon footprint, 20 percent by 2020, and 30 percent by 2030.
- By 2011, reduce rate of electricity consumption per unit by 5 percent.

- By 2011, achieve 10 percent renewable energy portfolio standard, 20 percent by 2020, and 30 percent by 2030.
- By 2009, implement preferential purchasing policy for products that are certified to be environmentally friendly.
- By 2010, 90 percent of fuel consumed will be cleaner burning, domestically produced alternative fuel.
- By 2010, adopt contracting policy consistent with NRS that considers sustainable practices as criteria for awarding contracts.

City Codes, Regulations and Policies

- By 2010, adopt form-based sustainability zoning code.
- By 2011, adopt an energy code that is 30 percent more efficient than the current energy code.
- By 2009, work with Green Council to revise the Green Building Program to include mandates and incentives.

Community Involvement

- By 2009, participate in creating regional Home Performance energy audit and conservation program, and provide incentives to City residents who enroll in the program.
- By 2009, have fully implemented residential solar rebate program.
- By 2009, implement indoor water conservation program.

Triple Bottom Line Decision Making

"We cannot solve our problems with the same thinking we used when we created them."
~Albert Einstein

Investing in long-term strategies to conserve energy and increase energy from renewable resources requires a new approach to decision making. Financial accounting can no longer be the only bottom line. In order to successfully implement sustainability policies and reduce the city's carbon footprint, the "triple bottom line" must be considered. This approach, also known as "people, planet, profit" requires decision makers to take action based on a proposal's life-cycle impact on financial resources, natural resources and the environment, economic development, community livability and social health. For example, evaluating alternative investments in renewable energy technologies with equal energy generation and financial paybacks of 2, 5 and 10 years has to be measured against ongoing maintenance costs, potential impacts on air quality, reduction in greenhouse gas emissions and job creation throughout the life of the project.

Other less tangible measures such as community perception and leadership must also be taken into account when a community evaluates energy investment alternatives. As the world shifts to a clean or green economy, the economic scales will be tipped towards those cities marked by innovation and leadership; cities that make sustainability a priority and invest in renewable energy to secure their energy future. Those cities will attract skilled and educated workers and growing businesses looking to invest in, and associate

with, communities that are reducing their carbon footprint while creating a high quality of life.

Energy Trends

Investments in energy conservation and renewable energy projects are often evaluated based on a simple financial payback. A major factor in that calculation is the projected change in the cost of energy. For example, investing in a 1 kilowatt solar panel will cost approximately $8,000. Assuming a 1 kilowatt solar panel generates 2,000 kilowatt hours of energy annually and energy costs $0.10 per kilowatt hour, the value of energy delivered for a 1 kilowatt system is $200 annually. It will take 40 years to payback the initial $8,000 investment. To make the calculations simple and to isolate the effect of changing energy prices on payback calculations, other factors such as changes in system performance over time, maintenance costs, and the potential earnings from investing the $8,000 dollars are ignored. Using this simple payback model, if the price of energy increases by 3% annually, the payback on the 1 kilowatt solar system is reduced from 40 years to just under 27 years. Energy prices in Nevada have increased by 59% in the last eight years.

Three trends leading to higher future energy costs are:

Global Demand

According to a report published by the Energy Information Administration (EIA) "International Energy Outlook 2008", global demand for energy (including all forms of energy) is projected to grow by 50 percent by 2030. The report also projected energy costs to increase as much as 37 percent in constant dollars by 2030. This projection considers rising cost to build energy infrastructure, rising global demand for natural resources, rising temperatures, regulatory limitations on carbon emissions and development of power plants and transmission facilities.

Aging Energy Infrastructure

According to the American Society of Civil Engineers, aging and overburdened infrastructure threatens the economy and quality of life in every state, city and town in the nation. The U.S. power transmission system is in urgent need of modernization. Growth in electricity demand and investment in new power plants has not been matched by investment in new transmission facilities. Existing transmission facilities were not designed for the current level of demand, resulting in an increased number of "bottlenecks," which increase costs to consumers and elevate the risk of blackouts. To cure this problem, $1.6 trillion investment is needed over a five-year period. This will increase the cost of power to households and businesses in Las Vegas. Investing in renewable energy at city facilities will lower demand on transmission facilities and save money for taxpayers.

Carbon Emissions Regulations

National policy is moving towards some form of regulation on carbon emissions. The two leading proposals are taxation and cap-and-trade. Either program will increase the cost of generating and delivering energy. In establishing a cap-and-trade program, policymakers would create a new commodity: the right to emit CO_2. The Congressional Budget Office estimated that by 2020, the value of CO_2 allowances could total between $50 billion and $300 billion annually (in 2006 dollars). Investing in renewable energy will reduce the risk to the City of paying for carbon emissions, and create a commodity that can be sold to further offset the initial investment.

Climate Change

Nevada Climate Change Advisory Committee

The Governor's Climate Change Advisory Committee provided a general overview of potential impacts to the state of Nevada from a change in the climate. Data was provided that indicated forecasted climate changes would have an undesirable impact on public health, the environment, and the economy in the Silver State:

- High temperatures could result in direct public health concerns with heat sickness, increased troposphere ozone pollution and increased dust and particulate matter concentrations.
- Increased drought conditions in the southern part of the state.
- Less snowfall but more precipitation (Sierras) increasing flooding.
- Decreasing water reserves.
- More forest and wild land fires with potential greater intensity and devastating consequences.
- Disappearance of some native species of fauna and increased invasive weed species.
- Agriculture practices and recreation opportunities in Nevada could also be negatively impacted.

Intergovernmental Panel on Climate Change (IPCC)

The IPCC was set up by the World Meteorological Organization and by the United Nations Environment Program. Its role is to assess on a comprehensive, objective, open and transparent basis the latest scientific, technical and socio-economic literature produced worldwide relevant to the understanding of the risk of human-induced climate change, its observed and projected impacts and options for adaptation and mitigation.

At continental, regional and ocean basin scales, numerous long-term changes in climate have been observed:

- Changes in arctic temperatures and ice,
- Widespread changes in precipitation amounts, ocean salinity, wind patterns, and
- Aspects of extreme weather including droughts, heavy precipitation, heat waves and the intensity of tropical cyclones.

Comparative Analysis: Cities Respond to Climate Change

In response to threats from climate change, many leading cities around the country have adopted policies to reduce their greenhouse gas emissions.

- Seattle, WA – reduce GHG emissions 7 percent below 1990 levels by 2012.
- Portland, OR - reduce CO_2 emissions to 10 percent below 1990 levels by 2010.
- San Francisco, CA - reduce GHG emissions by 20 percent below 1990 levels by 2012.
- New York City, NY - 30 percent reduction in emissions made by city operations by 2017 and a 30 percent reduction in emissions citywide by 2030.
- Denver, CO - by 2012 reduce its emissions of greenhouse gases by 10 percent per capita relative to 1990 levels.
- Phoenix, AZ - a statewide goal to reduce Arizona's greenhouse gas emissions to the 2000 emissions level by the year 2020, and to 50 percent below the 2000 level by 2040.