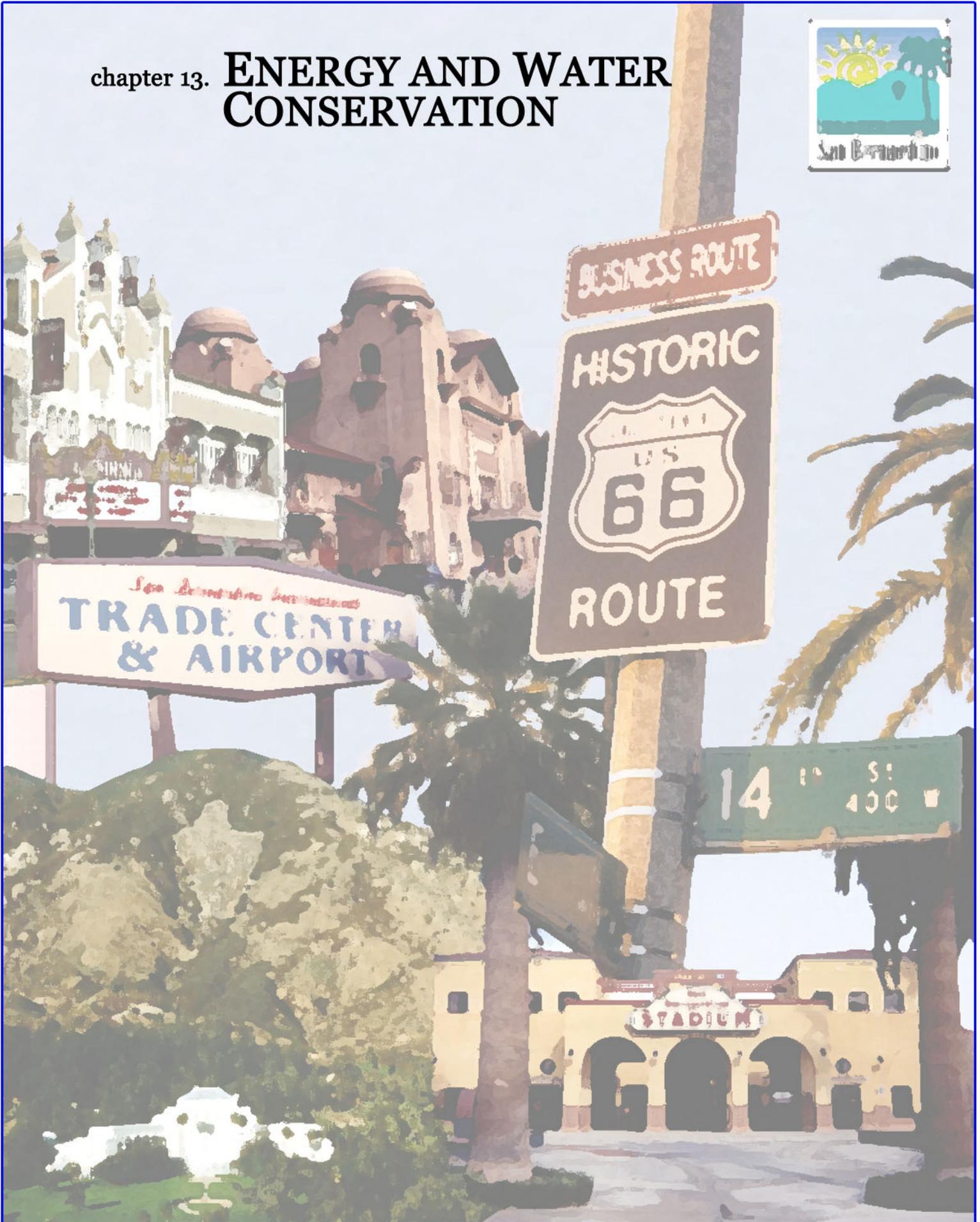


chapter 13. **ENERGY AND WATER
CONSERVATION**



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Chapter 13. Energy and Water Conservation

INTRODUCTION

San Bernardino imports almost all of its energy resources (natural gas, oil, and electricity) but is blessed by renewable geothermal and water resources. Despite the renewable resources, San Bernardino, like so much of America, is largely dependant on non-renewable energy sources, which result in reliance on unpredictable supplies that are outside of the City's control. In addition, our abundant water supply can be affected by variable periods of rain and drought as well as the demands of the rest of Southern California. Efficient use of these resources can reduce costs, help improve regional conditions, and be an economic benefit to San Bernardino.

Purpose

The Energy and Water Conservation Element provides policy guidance that addresses the efficient use and conservation of our valuable energy and water resources.

Relationship to Other Elements

The Energy and Water Conservation Element is closely linked with the Land Use, Natural Resources, Public Facility, and Utility Elements. Together, these Elements provide direction for the responsible and efficient use of our resources.

ACHIEVING THE VISION

Our continued and future activities are dependent on conservation of existing and development of new water and energy resources. Urban patterns that reduce the reliance upon the automobile, efficient distribution systems, reduced reliance on non-renewable energy resources,



conservation of the resources we currently use, and structural designs that reduce energy use are essential as conservation techniques. More directly, conserving water and energy also reduces costs and saves money.

If used efficiently and developed appropriately, our local resources, such as geothermal, solar, reclaimed water, and water, can be used as commodities to help improve our overall standard of living.

The Energy and Water Conservation Element is responsive to our Vision because it represents our desires to:

- ◆ Create additional water storage facilities to meet the demands of additional growth and accommodate economic development;
- ◆ Capitalize on our water and reclaimed water resources;
- ◆ Be responsible stewards of our energy and water resources; and
- ◆ Discover and implement conservation of our water and energy resources.

GOALS AND POLICIES

The following presents the goals and policies for energy and water conservation related issues in the City of San Bernardino planning area.

Energy Conservation

Most traditional energy resources consumed by San Bernardino are imported. There are no local wells producing oil or natural gas, coal deposits, refineries and processing facilities, or electrical generating stations within the City of San Bernardino planning area. Our natural gas is imported by the Southern California Gas Company and our electrical energy is provided by the Southern California Edison Company. Energy conservation of these non-renewable resources is a comprehensive process, involving efficient use of appliances, new technologies, building design and construction.

Due to its location near several earthquake faults, San Bernardino is fortunate to have access to geothermal wells and springs. This renewable source of energy is currently utilized for space heating in over 35 businesses and offices, including the Civic Center and National Orange Show. The City of San Bernardino Municipal Water Department (SBMWD) operates two geothermal production wells and a distribution system that serves the central portion of the City. Additional discussion and policies are found in the Utilities Element.

Energy efficient building practices and standards are a relatively recent phenomenon, but are becoming widespread nationally. Energy efficient buildings can not only save users on utility bills, but also satisfy several community goals at once by improving air quality and water conservation, and reducing urban runoff and solid waste reduction. The City is committed to reducing its consumption of energy by 10% and encourages local businesses to join in this effort.

Goal 13.1 Conserve scarce energy resources.

Policies:

- 13.1.1 Reduce the City’s ongoing electricity use by 10 percent and set an example for residents and businesses to follow.

Energy Efficiency

Excerpt from "Energy-saving drive gains power" by Lee Hanson. The Business Press June 14, 2004

“According to the Department of Energy, the portion of America's \$440 billion annual energy bill spent on heating, cooling, and lighting could be cut by 80 percent if off-the-shelf resource-saving products replaced existing stock in buildings. Further gains would come with top-to-bottom design of buildings for energy-efficiency.

To promote such high-performance construction and operation, an organization called the U.S. Green Building Council has developed a rating system called "Leadership in Energy and Environmental Design" (LEED). LEED applies a rigorous 69-point protocol to assess buildings in six areas: siting; water use; energy and atmosphere; materials and resources; indoor environmental quality; and design innovation.

Buildings are ranked in one of four categories reflecting greater efficiency: Certified (26 - 32 points); Silver (33 - 38 points); Gold (39 - 51 points); and Platinum (52+ points). Standards for the lowest LEED rating don't too greatly exceed what's required by California's current building code. But efficiency gains from higher LEED ratings can range from 18 to 40 percent over conventional buildings.

Studies show that upfront costs of energy-efficient features to make LEED-Silver are around two percent of construction costs. For Platinum it's below seven percent. Thus, at the Silver level, \$100,000 spent on energy-efficient features in a \$5 million office building could mean \$1 million in current dollars in energy savings over the building's lifespan.



- 13.1.2 Ensure the incorporation of energy conservation features in the design of all new construction and site development in accordance with State Law. (LU-1)
- 13.1.3 Consider enrollment in the Community Energy Efficiency Program (CEEP), which provides incentives for builders who attain energy savings 30 percent above the National Model Energy Code, the Energy Star Program, which is sponsored by the United States Department of Energy and the Environmental Protection Agency and encourages superior energy efficiency by residents and businesses, or the State's Energy Efficiency and Demand Reduction Program, which offer rebates and incentives to agencies and developers who reduce energy consumption and use energy efficient fixtures and energy-saving design elements. (EWC-1)
- 13.1.4 Require energy audits of existing public structures and encourage audits of private structures, identifying levels of existing energy use and potential conservation measures. (EWC-3)
- 13.1.5 Encourage energy-efficient retrofitting of existing buildings throughout the City. (EWC-1)
- 13.1.6 Consider program that awards incentives to projects that install energy conservation measures, including technical assistance and possible low-interest loans. (EWC-1)
- 13.1.7 Ensure that new development consider the ability of adjacent properties to utilize energy conservation design. (LU-1 and EWC-1)
- 13.1.8 Educate the public regarding the need for energy conservation, environmental stewardship, and sustainability techniques and about systems and standards that are currently available for achieving greater energy and resource efficiency, such as the U.S. Green Building Council's "Leadership in Energy and Environmental Design" (LEED) standards for buildings.
- 13.1.9 Encourage increased use of passive and active solar and wind design in existing and new development (e.g., orienting buildings to maximize exposure to cooling effects of prevailing winds, daylighting design, natural ventilation,

space planning, thermal massing and locating landscaping and landscape structures to shade buildings). (LU-1)

- 13.1.10 Consider adopting an ordinance relating to energy conservation, environmental stewardship, and sustainability for new development that incorporates the LEED standards. (A-1)

Water Conservation

San Bernardino gets 100% of its water from an underground aquifer called the Bunker Hill Basin. The aquifer is filled from rain and snows that filter down through our local mountains. 60 wells, some of which reach as far as 1,200 feet deep, tap into the aquifer and 551 miles of water mains deliver it to more than 40,000 service connections.

Unfortunately, we need to do more to prevent leaks, reduce waste, and use the resources we have more efficiently. We waste a lot of water in our daily lives. For instance, use of our toilets account for almost 30% of our home water use; laundry accounts for roughly 22% of our home water use; and showers account for 20% of our home water use. Simple measures can be taken to reduce the amount of water that is wasted during these activities.

Fortunately, San Bernardino has a head start in water conservation through a reclamation program. The Water Department's Water Reclamation Plant and Rapid Infiltration and Extraction Facility reclaims 30,000 million gallons of water each day that are used for landscaping, commercial, and agricultural purposes. In this manner, our reclaimed water acts as a commodity that is used to our economic benefit.

It is also important that we control discharges into our waterways to protect our water quality and the integrity of our groundwater. As detailed in the Utilities Element, any new construction and development in the City must comply with several regulations aimed at reducing discharges or runoff into our waterways including the National Pollutant Discharge Elimination System (NPDES) and Clean Water Act. New projects must incorporate appropriate Best Management Practices (BMPs) to control the discharge of point source (these are the readily identifiable inputs where waste is discharged to the receiving waters from a pipe or drain) and non-point source (discharges that occur over a wide area and are associated with particular land uses, such as urban and agricultural uses) pollutants both during construction and for the life of the project.



Excess reclaimed water is currently discharged into the Santa Ana River where it contributes to other existing water flows and adds to the habitat for several kinds of fish and birds.

Goal 13.2 **Manage and protect the quality of the City's surface waters and ground water basins.**

Policies:

- 13.2.1 Coordinate and monitor the City's water conservation efforts on an annual basis and modify or expand them as necessary to ensure their effectiveness. (EWC-1)
- 13.2.2 Require that development not degrade surface or groundwater, especially in watersheds, or areas with high groundwater tables or highly permeable soils. (LU-1)
- 13.2.3 Consider the establishment of incentives, funding programs, or a rebate program for projects that implement water conservation measures, such as replacing aging, leaking, and/or inefficient plumbing with more efficient, water-saving plumbing. (EWC-1)
- 13.2.4 Require the use of reclaimed water for landscape irrigation and other non-contact uses for industrial projects, golf courses, and freeways. (LU-1)
- 13.2.5 Mitigate degradation of the groundwater basins that may have already occurred by existing commercial, industrial, and other uses.
- 13.2.6 Require the replacement of existing septic systems with connections to a sanitation collection and treatment system as a condition of reconstruction or reuse. (LU-1)
- 13.2.7 Require that new development incorporate improvements to channel storm runoff to public storm drainage systems and prevent discharge of pollutants into the groundwater basins and waterways. (LU-1)
- 13.2.8 Require that Best Management Practices (BMPs) are implemented for each project to control the discharge of point source and non-point source pollutants both during construction and for the life of the projects to protect the City's water quality. (LU-1)

- 13.2.9 Require that new construction on a site that is at least one acre comply with the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit 99-08-DWQ)). (LU-1)
- 13.2.10 Require that development in the City's watersheds incorporate adequate landscape and groundcover to prevent slope erosion and significant sedimentation of canyon drainages. (LU-1)
- 13.2.11 Continue to inform the public about water conservation, techniques and available water conservation programs they can utilize.



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