

CHAPTER 6

ENERGY

- **ENERGY CONSERVATION**
- **GREEN BUILDING OPPORTUNITIES**
- **PUBLIC FACILITIES AND FLEETS**
- **SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES**

ENERGY

ENERGY CONSERVATION

All new residential and non-residential buildings within California must meet minimum energy efficiency standards contained in Title 24, Part 6 of the California Code of Regulations. New 2005 standards were recently adopted by the California Energy Commission and the Building Standards Commission. These new standards become effective October 1, 2005, and will reduce energy demand from all new development, translating into emission reduction benefits. The Energy Commission estimates the standards will save \$57 billion by 2011. The previous 2001 standards have already saved more than \$20 billion in electricity and natural gas costs.

New development consumes energy in several ways. Gas-fired combustion equipment such as water heaters, pool heaters, space heaters, furnaces, boilers, steam generators, internal combustion engines, etc. are used throughout the South Coast basin in the residential, commercial, and industrial sectors. Residential uses of natural gas include space heating, water heating, laundry, cooking, dishwashers, and pool/hot tub heaters. The largest demand for natural gas from this sector is from space and water heating. Natural gas in the commercial sector is used for space heating, water heating, process heating, cooling, and food preparation. The industrial sector includes a wide range of manufacturing and industrial processes that use natural gas in a variety of processes such as steam generation, curing and drying processes, metal melting, and heat treatment.

Implementation policies in this chapter promote full implementation of Title 24 and, where possible, voluntary energy conservation beyond Title 24 to reduce emissions. Local governments may provide incentives to developers and proponents of facilities to incorporate energy efficiency measures to improve air quality.

GREEN BUILDING OPPORTUNITIES

Projects may be voluntarily designed to exceed energy efficiency standards established by Title 24 of the California Code of Regulations. Local governments have the voluntary option to provide incentives to implement energy-saving measures for projects, and energy performance targets beyond those required by Title 24 as appropriate. A comprehensive approach to energy conservation in building construction is known as “green building”. Green building techniques integrate energy efficiency and sustainable building practices into the design and construction phases. Municipal buildings that follow green building design principles not only help create healthy workplaces, but also reduce the city’s energy demand. This results in cost savings and a reduction in air pollution associated with energy production. There are several private and government rating systems for green buildings. One system for example, is the voluntary LEED

(Leadership in Energy and Environmental Design) standard developed by the U.S. Green Building Council, which has been extensively used to date for commercial projects. LEED standards have been adopted nationwide by federal agencies, state and local governments, and interested private companies as the guideline for sustainable building. Another example of a “green building” program is a voluntary program developed by the Building Industry Institute for residential development called the California Green Builder Program. Developers of Green Builder projects select measures that reduce energy consumption to levels that are 15 percent below Title 24 requirements.

Where opportunities exist to go beyond Title 24 energy efficiency requirements, those techniques and features that best fit the nature and economics of the development may be selected. Examples of energy conservation features incorporated into LEEDS and California Green Builder projects include the following:

- more energy efficient lighting, heating and cooling systems and appliances
- landscape treatments that reduce energy consumption use (e.g., planting of deciduous trees)
- use of passive daylight and heating (i.e., sun light)
- use of photovoltaic systems (solar energy)
- use of lighter colored building and roofing materials and coatings
- installation of recharging outlets for electric and hybrid vehicles
- remote sensors that adjust heating, cooling and lighting when rooms are occupied
- bicycle lockers and paths, preferred parking spaces and bus turnouts to encourage alternative modes of transportation

AQMD staff plan to establish a website that will provide examples of green building practices and policies.

PUBLIC FACILITIES AND FLEETS

Energy conservation efficiency and generation operations should be considered when building, acquiring, or retrofitting public facilities. Also, alternative-fuel vehicles are in operation in many local jurisdictions in the air district which help reduce mobile source emissions (see Chapter 3 -Transportation).

SUGGESTED GOAL, OBJECTIVES AND POLICIES/STRATEGIES

Goal 5 Reduction in air pollution resulting from greater energy efficiency and conservation, and the use of renewable resources

Objective 5.1 Increase energy efficiency of city facilities and private developments

Suggested Policies/Strategies Related to Energy Conservation:

- AQ 5.1.1** Utilize source reduction, recycling and other appropriate measures, to reduce the amount of solid waste disposed in landfills.
- AQ 5.1.2** Develop incentives that encourage the use of energy conservation strategies by private and public developments.
- AQ 5.1.3** Promote energy-efficient design features, including appropriate site orientation, use of lighter color roofing and building materials, and use of deciduous shade trees and windbreak trees to reduce fuel consumption for heating and cooling.
- AQ 5.1.4** Promote or provide incentives for “Green Building” programs that go beyond the requirements of Title 24 of the California Administrative Code and encourage energy efficient design elements as appropriate to achieve “green building” status.
- AQ 5.1.5** Promote the use of automated time clocks or occupant sensors to control central heating and air conditioning.
- AQ 5.1.6** Utilize all available renewable energy sources to reduce fuel consumption and demand on the power grid.
- AQ 5.1.7** Replace vehicles in the local government fleet with the most fuel-efficient vehicles that are commercially available.*

*Potential funding for these policies has been identified in Appendix E.