

## Nuclear Energy in California

July 2009

### California's Electricity Generation

Nuclear	16.3%
Coal	2.1%
Oil	0.1%
Gas	59.3%
Hydro	9.3%
Renewable and Other	13.0%

Source: U.S. Energy Information Administration (EIA), 2008



### Nuclear Power Plants in the State

	City	Capacity (MW)	2008 Generation (MWh)	2006-2008 3-year Average Capacity Factor (%)
Diablo Canyon 1	Avila Beach	1,122	9,838,642	96.9
Diablo Canyon 2	Avila Beach	1,118	7,251,885	86.6
San Onofre 2	San Clemente	1,070	8,856,813	84.9
San Onofre 3	San Clemente	1,080	6,535,011	78.4
<b>Total</b>		<b>4,390</b>	<b>32,482,351</b>	<b>86.7</b>

Source: EIA

### Clean Air and Economic Benefits

#### Economic Growth and Emission-Free Electricity

California has experienced an average growth in gross state product of 2 percent per year over the past five years. To keep California's economy growing, the state will need new sources of power. At the same time, parts of California must deal with poor air quality. Emission-free sources, like nuclear power plants, supply safe, reliable and affordable power to meet the state's economic growth without polluting the air.

#### Status of the State's Air Quality

Counties in nonattainment for the U.S. Environmental Protection Agency's new eight-hour ozone standard make up the Los Angeles, San Francisco and San Diego areas and cover most of the San Joaquin Valley. Ozone contributes to smog, which can lead to asthma attacks and respiratory impairment in young children and the elderly. Diablo Canyon and San Onofre supply emission-free power to California and help improve the air quality.

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*Page 2 of 2 – July 2009*

## ***Nuclear Energy Prevents Emissions***

Generating electricity with nuclear energy prevents the emission of pollutants like sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) and greenhouse gases like CO<sub>2</sub> associated with burning fossil fuels. The nuclear power plants in California avoided the emission of 1,900 tons of SO<sub>2</sub>, 10,170 tons of NO<sub>x</sub> and 16.7 million metric tons of CO<sub>2</sub> in the year 2008 (*Source: NEI/EPA*). Emissions of SO<sub>2</sub> lead to the formation of acid rain. NO<sub>x</sub> is a key precursor of both ground-level ozone and smog. Greenhouse gases like CO<sub>2</sub> contribute to global warming.

For perspective, the 10,170 tons of NO<sub>x</sub> avoided by the nuclear power plants in California is the amount of NO<sub>x</sub> released in a year by 532,000 passenger cars. There are 20 million cars registered in the state of California.

## ***Potential Uprates at Nuclear Plants***

With additional capital investment, more emission-free power can be generated at most existing nuclear power plants. This process of increasing power output capacity is called an “uprate.” According to an analysis performed for the U.S. Department of Energy, uprates at Diablo Canyon and San Onofre could supply 4 percent more electricity and avoid annual emissions of 280 tons of SO<sub>2</sub>, 1,100 tons of NO<sub>x</sub> and 730,000 metric tons of CO<sub>2</sub>.

## ***New Nuclear Plants***

The U.S. Energy Information Administration predicts that demand for energy will grow 21 percent by the year 2030. To meet this growing electricity demand in a manner that is cost effective and protects our air quality, energy companies are planning to build nuclear power plants to provide affordable electricity to consumers and prevent greenhouse gases.

## ***Economic Growth & Job Creation***

Nuclear energy is one of the few bright spots in the U.S. economy because it creates more high-paying jobs than other sources of electricity and helps stimulate the economy. On average, a nuclear power plant creates 1,400-1,800 high-paying jobs during construction, with peak employment estimated as high as 2,400 jobs during that period, and yields 400-700 jobs during the operation of the plant. Additionally, the average nuclear plant generates approximately \$430 million a year in total output for the local community and nearly \$40 million per year in total labor income.

*This fact sheet is available at [www.nei.org](http://www.nei.org), where it is updated periodically.*