Date of Hearing: April 16, 2007

ASSEMBLY COMMITTEE ON NATURAL RESOURCES
Loni Hancock, Chair
AB 719 (DeVore) – As Introduced: February 22, 2007

SUBJECT: Nuclear power plants.

SUMMARY: This bill repeals the "moratorium" on the construction of new nuclear fission power plants in California.

EXISTING LAW:

1) Declares the policy of the state to encourage the use of nuclear energy, wherever feasible, recognizing that such use has the potential of providing direct economic benefit to the public, while helping to conserve limited fossil fuel resources and promoting clean air. (Chapter 1299, Statutes of 1970)

2) Prohibits any new nuclear fission power plant until the California Energy Commission (CEC) has determined that technologies exist for the reprocessing of nuclear fuel rods and the disposal of high-level nuclear waste. (Chapters 194 and 196, Statutes of 1976)

THIS BILL:

1) Makes various findings regarding the benefits of nuclear energy as they relate to reduction of greenhouse gas emissions.

2) Repeals the 1976 statute prohibiting any new nuclear fission power plant until the CEC has determined that technologies exist for the disposal of high-level nuclear waste.

FISCAL EFFECT: Unknown

COMMENTS:

1) Climate change and nuclear energy

   The terms "global warming" and "global climate change" refer to the rise in the average temperature of the earth's climate due to an accumulation of "greenhouse gases" in the atmosphere. Greenhouse gases include carbon dioxide (CO_2), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride.

   California has seen a modest increase in greenhouse gas emissions over the last decade. This increase is the consequence of several divergent forces within California, some leading to increases in greenhouse gas emissions, and others negating those increases.

   Several key California industries emit only moderate amounts of carbon dioxide. With a relatively temperate climate, California uses relatively less heating and cooling energy than other states. As a leader in implementing aggressive efficiency and environmental programs,

California has been able to reduce CO_2 emission rates in all sectors, as well as reducing energy demand and air pollution emissions. However, California leads the nation in vehicle miles traveled. As a result, CO_2 emissions from the transportation sector are increasing.

California uses fossil fuels differently than the United States as a whole. Compared to most other states, California uses less fossil energy to generate electricity. This lower reliance on fossil fuels is due to the availability of hydroelectric and nuclear power, and the continuing and growing use of renewable energy. The predominant fossil fuel for electricity generation in California is natural gas, which emits relatively less greenhouse gases than oil or coal, the predominant fuel in many other parts of the country. As a fraction of its total fossil fuel use, California uses more fossil fuels (primarily gasoline) in the transportation sector.

A 2002 CEC report, "Inventory of California Greenhouse Gas Emissions and Sinks: 1990-1999," suggests that the most significant reductions in CO_2 emissions can be achieved through: 1) continued energy efficiency programs in all sectors, including electricity generation; 2) further developing and integrating renewable energy resources into electricity supplies; and, 3) promoting transportation energy efficiency strategies.

Although it would curb growth in CO_2 emissions compared to natural gas, the CEC did not suggest additional nuclear generation. In 1976, the Legislature enacted a moratorium on new nuclear fission power plants until the CEC determined that technologies exist for the reprocessing of nuclear fuel rods and the disposal of high-level nuclear waste. The location slated by the U.S. government to store the bulk of U.S. nuclear waste, Yucca Mountain in Nevada, is not permitted to do so because of fierce opposition from Nevada residents and politicians.

2) Status of nuclear power in California

Of the four nuclear power plants developed in California by electric utilities, two continue to operate. The two in operation, PG&E's Diablo Canyon plant and the San Onofre Nuclear Generating Station (SONGS) jointly owned by Southern California Edison and San Diego Gas and Electric, supply a total of over 4000 megawatts of electricity, about 8% of statewide peak electricity demand.

The other two, PG&E's Humboldt Bay plant and SMUD's Rancho Seco plant, have been decommissioned (shut down). Developed in the early 1960's, Humboldt Bay was shut down in 1976 for refueling and never restarted due to seismic and cost issues. Developed in the early 1970's, Rancho Seco was shut down in 1989 in response to voter referendum. Like Diablo and SONGS, the high-level waste from the decommissioned plants' operation is still stored on site.

3) Status of high-level nuclear waste disposal solution

According to the CEC, the federal government is responsible for providing for the permanent disposal of high-level radioactive waste and spent nuclear fuel and is required to begin accepting spent nuclear fuel from nuclear power plants by January 31, 1998. However, although Congress selected the Yucca Mountain site in Nevada for a permanent deep geologic repository for the disposal of spent nuclear fuel, the federal waste disposal program has been plagued with technical and legal challenges, managerial problems, licensing delays,

persistent weaknesses in quality assurance for the program, and increasing costs. A Massachusetts Institute of Technology study, the "Future of Nuclear Power," concluded that successful geologic disposal of high-level radioactive waste has yet to be demonstrated. The most recent estimate for when this repository might become available is 2017, although the program director for the federal waste disposal program recently said that date is likely to slip and a retiring veteran U.S. Nuclear Regulatory Commissioner said the Yucca Mountain program is deeply flawed and that it may be time to rethink the project.

The CEC's 2005 Integrated Energy Policy Report (IEPR) reaffirmed the CEC's findings made in 1978 that a high-level waste disposal technology has been neither demonstrated nor approved. The CEC also found that reprocessing (the separation of spent fuel into high-level wastes and reusable fuel) remains substantially more expensive than waste storage and disposal and has substantial adverse implications for the U.S. effort to halt the proliferation of nuclear weapons.

The 2005 IEPR concluded that, given the high-level of uncertainty surrounding the federal waste disposal program, California's utilities will likely be forced to indefinitely retain spent fuel in storage facilities at currently operating nuclear plant sites. The report recommended that the state should evaluate the long-term implications of the continuing accumulation of spent fuel at California's operating plants, including a case-by-case evaluation of public safety and ratepayer costs.

The federal waste disposal program is paid for by the nuclear electricity generators and waste owners. Under the provisions of the federal Nuclear Waste Policy Act of 1982, as amended in 1987, utilities pay regular fees to the Nuclear Waste Fund to pay for siting, construction and operating a federal waste repository. Utilities have paid over $28.9 billion into this Nuclear Waste Fund, of which California ratepayers have paid over $1.3 billion. The 2005 IEPR recommended that some portion of these funds paid by California ratepayers be returned to the state to defray the cost of long-term onsite spent fuel storage resulting from the lack of a permanent disposal solution.

4) Faulty premise?

This bill is entitled the "California Zero Carbon Dioxide Emission Electrical Generation Act of 2007." To the extent any evidence is offered to support ending California's nuclear moratorium, it can be found in the bill's findings. The findings do not speak to the central issue of the moratorium – the availability of a safe and permanent disposal method for high-level nuclear waste. Instead, the bill relies on a seemingly more persuasive argument for the development of nuclear power – that it will produce environmental benefits, combating climate change by reducing relative CO_2 emissions.

While nuclear power plants do not emit carbon dioxide as they operate, they do emit cooling water, a source of coastal pollution, and radioactive waste, the disposal of which presents an environmental health hazard. Nuclear power also produces small amounts of greenhouse gas emissions. According to the CEC's 2002 report, nitrous oxide (a greenhouse gas) is generated as a by-product of nitric acid production. Small quantities of nitric acid are used in nuclear fuel processing. A 2007 report by Oxford Research Group finds that the steps necessary to produce nuclear power, including the mining of uranium and the storing of

waste, result in substantial amounts of CO_2 emissions. The association of the term "zero emission" with nuclear power production may be a misnomer.

5) Is the California moratorium to blame for the lack of nuclear power development?

Proponents of nuclear power must consider the array of reasons that only one nuclear power plant has been licensed, and none have proceeded to construction, in the U.S. since before the accident at Three Mile Island.

Many other states enacted conditions, moratoria or bans (e.g. Connecticut, Illinois, Kentucky, Maine, Massachusetts, Minnesota, Montana, New Jersey, Oregon, West Virginia, Wisconsin) in response to the economic and environmental problems plaguing nuclear power in the 1970's. However, nuclear power has not thrived in the many states without any legal limitations on its development.

Among the many reasons, in addition to lack of public acceptance, is the fact that nuclear power has not been the choice of the market during the past 30 years of increasing deregulation and competition in the electric utility industry. Cost, financial risk, and need for government/public support for insurance and waste management/disposal all suggest that nuclear power is more suited for centrally-planned, monopolistic approaches to electricity supply, such as the model employed in France.

REGISTERED SUPPORT / OPPOSITION:

Support

None on file

Opposition

Alliance for Nuclear Responsibility
California Public Interest Research Group
Committee to Bridge the Gap
Environment California
Friends of the Earth
Global Green USA
Greenwood Earth Alliance
Natural Resources Defense Council
Peace Resource Center of San Diego
Physicians for Social Responsibility
San Francisco Electric Vehicle Association
Sierra Club California
116 individuals

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