



## ANALYSIS

## CALIFORNIA PUBLIC UTILITIES COMMISSION

### **SB 42 (Corbett)** **As Amended April 14, 2009**

#### **SUMMARY**

This bill would impose a ban on new power plants that use once-through cooling after January 1, 2010. This bill would also require the State Water Resources Control Board, no later than March 1, 2010, to implement a statewide policy on once-through cooling at coastal and estuarine power plants in consultation with the California Energy Commission and other relevant agencies. Further, it would require the State Water Resources Control Board to assess a fee for each gallon used in once-through cooling.

#### **CPUC POSITION AND SUPPORTING ARGUMENTS**

**OPPOSE.** The CPUC recognizes the author's environmental and marine life concerns associated with once-through cooling systems. However, SB 42 states that the "prompt phasing out of once-through cooling systems ... [is] in the best interest of the state" without any consideration of the impact on the reliability of the state's electrical system, the costs to electric utility ratepayers, or the state's economy. These considerations must be part of any statewide policy on once-through cooling. The Commission is also concerned about the impact of the per gallon fee on electricity rates.

#### **ANALYSIS**

- The SWRCB has jurisdiction over water use permits for power plants and is presently developing once-through cooling (CWA 316(b)) regulations. In May 2008, the SWRCB created an Inter-Agency Working Group to advise it on the development of an implementation plan for proposed once-through cooling (OTC) regulations. That group, including representatives from the California Independent System Operator (CAISO), California Energy Commission (CEC), and the CPUC, is focused on eliminating OTC system use in power plants without disrupting the reliable delivery of electric power.
- There are currently nineteen power plants using OTC systems. These plants provide approximately 20,800 megawatts of electric capacity. This represents approximately one third of the capacity the state needs during times of peak electric load. Most of these power plants are located close to population centers, meaning replacing the OTC power plants with power plants using renewable fuels (wind, solar, etc) would require significant new transmission lines. Planning, permitting, designing/engineering, and constructing major transmission lines takes approximately 7 years if not delayed or cancelled because of the California Environmental Quality Act or local concerns.



- The CEC has authority to permit new power plants with a capacity of 50 MW or more. The last power plant project to be constructed using OTC initiated service in 2000, Moss Landing Units 1 and 2 provide 1080 MW of capacity. The CEC has indicated it will not permit any new power project using OTC and has not done so in recent years.
- The CAISO is responsible for operating the transmission grid that serves most of California. The CAISO performs transmission studies, identifying power plants that are needed to maintain system reliability under Western Electricity Coordinating Council standards. The CAISO has performed studies identifying transmission and generation projects that would be needed to close two power plants using OTC, Potrero and South Bay. CAISO preliminary studies indicate to replace OTC power plants in the Los Angeles Basin with transmission to resources outside the Los Angeles Basin would require the construction of a major transmission line and two major substations at a cost of over \$4.5 billion. It is anticipated that there will be major opposition to new transmission construction within the Los Angeles Basin, which will require a great deal of public outreach and time to inform the local population about these issues.
- Based on the CAISO's transmission study for 2009, the CPUC has determined that the LA Basin needs 10,500 MW of in-basin electric generation to meet reliability standards. Currently there is 12,000 MW of generation in the LA Basin of which 7,800 MW uses OTC. Of that group, approximately 4,500 MW have capacity factors less than 20 percent. Not considering the operational capabilities of the generation, closing generation with capacity factors of 20 percent or less that use OTC requires over 3,000 MW of new transmission or replacement generation to be built. Unfortunately, grid operations require generation that can follow changes in load. This need has greatly expanded as more wind and solar generation is added to the system.<sup>1</sup> Most of the generation using OTC is quickly able to adjust to changes in electric demand, requiring more flexible resources if the OTC plants are to close.
- In the alternative, plants using OTC could replace their cooling systems. The Ocean Protection Council commissioned Tetra Tech to study the cost and feasibility of replacing cooling systems. Plant owners have not universally supported the feasibility and cost numbers of the study, and have stated that the cost of replacing cooling systems exceeds the benefits on older plants.
- The South Coast Air Quality Management District oversees an air management plan to limit the air pollutants in the Los Angeles Basin. Current litigation concerning South Coast Air Quality Management District's air permits will prevent the construction of new gas-fired generation for the next few years.
- In addition, the CPUC recently approved steam turbine replacement for California's two nuclear generation stations. San Onofre and Diablo Canyon provide over 4,000 MW of reliable, GHG emissions-free power. A conservative estimate is that to replace the two nuclear power plants with the most efficient natural gas combined cycle plants would increase GHG emissions by approximately 16 million tons per year.

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<sup>1</sup> Wind and solar generation can not be easily adjusted up and down to follow changes in demand and actually increase the need for flexible resources to firm production variations inherent with wind and solar generation.



- Southern California Edison Company does not believe it is feasible to engineer a cooling system to replace the current OTC system at the San Onofre Nuclear Generating Station. It is on a small plot of land between the ocean, Interstate Highway 5, and protected beach/United States Marine Corps Base. If space was available, Southern California Edison estimates the cost would be over \$2.3 billion.
- Similarly, Pacific Gas and Electric Company does not believe the Diablo Canyon Nuclear Power Plant can be easily retrofitted with a replacement cooling system. Their preliminary estimates for a system are over \$2.4 billion.

#### **PROGRAM BACKGROUND:**

- The CPUC, through its procurement process required by Public Utilities Code Section 454.5, has been pursuing policies to reduce the need for older electricity generation using OTC.
- The CPUC is required by Public Utilities Code Section 380 to establish and maintain a program to ensure resource adequacy is maintained at the planning reserve and reliability criteria of the Western Electricity Coordinating Council. The CPUC, in coordination with the CAISO and CEC, evaluates the resource needs of the Investor Owned Utilities and authorizes the utilities to contract for new resources in order to maintain minimum reliability standards. As part of this process, the CPUC has authorized the state's independently owned utilities to contract for new power plants that would reduce the need for old, inefficient power plants, including those using OTC. At the same time, the CPUC has been facilitating the development of energy efficiency programs, renewable generation, and demand response programs.
- The CPUC's Long Term Planning Process requires analysis of the reliability in the utilities' service territories. The analysis of Southern California Edison's service territory indicated a need to plan for retirements of 5,350 MW by 2013 in order to maintain reliability.
- Currently, Southern California Edison has contracted for 2,550 MW of new gas-fired generation in addition to renewable generation, demand response resources, and energy efficiency. Of that, 1,750 MW has been stalled by an inability to obtain air permits in the South Coast Air Quality Management District. Pending litigation concerning South Coast Air Quality Management District's air permits will prevent the construction of new gas-fired generation that would have allowed some of the older generation using OTC to retire.
- In 2004, the CPUC authorized Pacific Gas and Electric Company to construct 2,000 MW of new generation and in 2007 authorized the construction of 1500 MW of new generation. Pacific Gas and Electric Company contracted to construct seven power plants in response to the 2004 authorization, two in the City of Hayward. If constructed, these power plants would have reduced the need for the Contra Costa and Pittsburg power plants using OTC. One proposed 116 MW plant failed to obtain a CEC permit and was cancelled. A second 600 MW plant was significantly delayed in permitting, but is expected to be complete by 2013. A third plant, Gateway (580 MW), began operation in February 2009, reducing the need for the Contra Costa

Power plant. Pacific Gas and Electric Company is currently in the process of contracting for up to 1500 MW of new generation.

- As part of the 2004 authorization, Pacific Gas and Electric Company has entered a contract to repower the Humboldt power plant and eliminate its use of OTC. It is also constructing the trans-bay transmission cable that will eliminate the need for the Potrero unit using OTC.
- San Diego Gas and Electric Company is finishing construction of the Otay Mesa power plant and is beginning construction of the Sunrise transmission project. When these two projects are complete the South Bay plant, using OTC, will no longer be needed for reliability.
- In short, the relevant agencies for electricity generation and transmission in the state are working together on a transition away from OTC use.

#### **LEGISLATIVE STAFF CONTACT**

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