Public Hearing

for the

Proposed Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling

September 16, 2009
Sacramento, CA

California Environmental Protection Agency
STATE WATER RESOURCES CONTROL BOARD

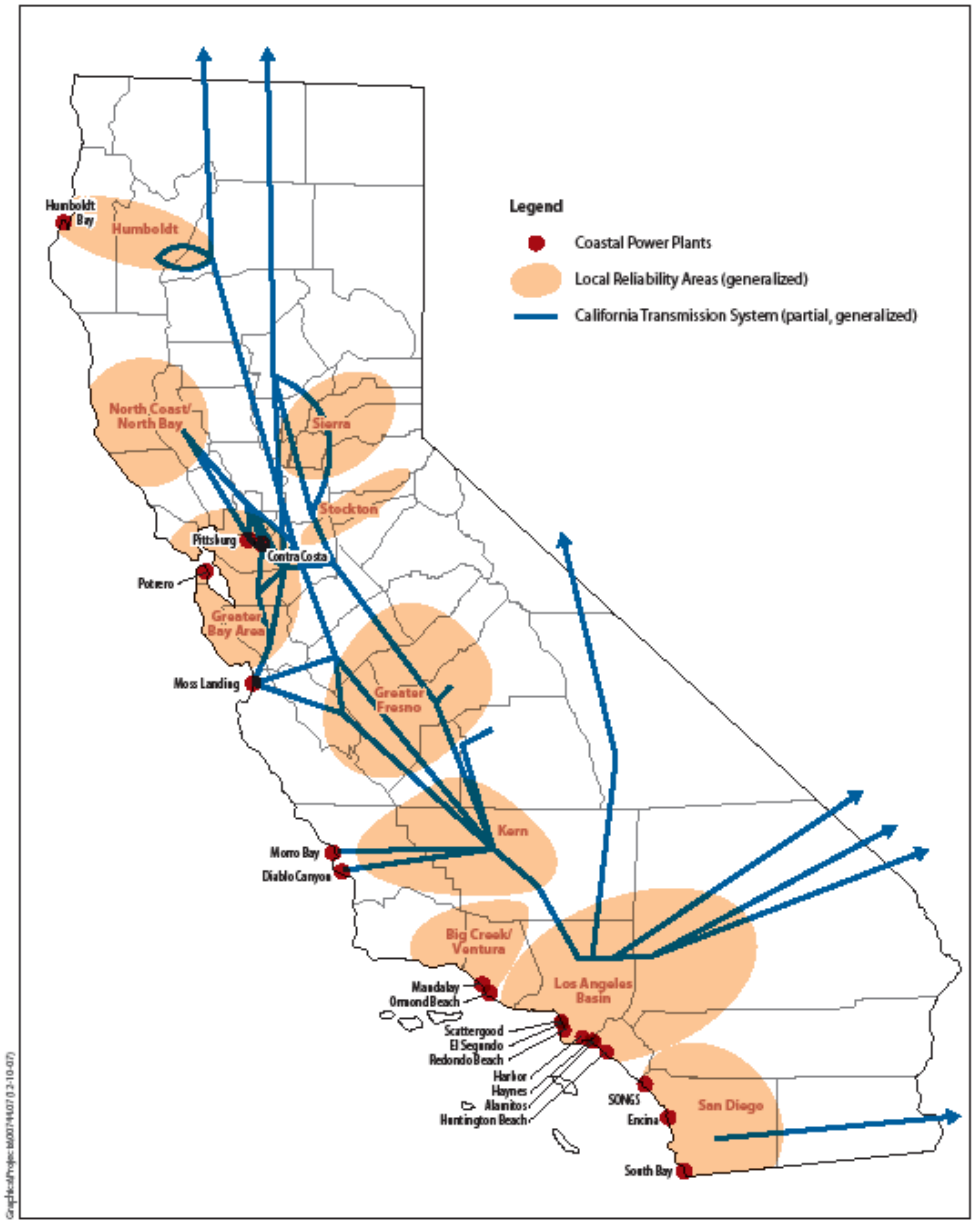
Our Goal

To develop a statewide policy to protect marine life from the adverse impacts of once-through cooling water intake structures, while ensuring continuity of the State's electrical grid.

Existing Coastal Power Plants

The proposed Policy applies to the 19 power plants with the capacity to withdraw over 15 billion gallons per day of water from the State's coastal and estuarine waters using a single-pass system, also known as once-through cooling (OTC).

Humboldt Bay, RB1
Contra Costa, RB5
Pittsburg, RB2
Potrero, RB2
Moss Landing, RB3
Morro Bay, RB3
Diablo Canyon, RB3
Mandalay, RB4
Ormond, RB4
El Segundo, RB4
Scattergood, RB4
Redondo, RB4
Harbor, RB4
Alamitos, RB4
Haynes, RB4
Huntington Bch, RB8
San Onofre, RB9
Encina, RB9
South Bay, RB9



Jones & Stokes

Figure 1
Locations of Power Plants, Local Reliability Areas, and California's Major Transmission System

Impacts to Aquatic life from Once-through Cooling Water Systems

- **Impingement:** when larger aquatic organisms, such as fish, turtles, and mammals, become injured by or trapped against a facility's intake screens.
- **Entrainment:** when smaller aquatic organisms, such as plankton, fish larvae, and eggs, are drawn through the cooling system where they are subjected to high heat, rapid pressure changes, chemicals, and violent sheering forces.
- **Thermal Discharges**

Estimated Impacts to Marine Life

- Impingement mortality (**fish only**) is about 2.6 million annually; **84,000 pounds/yr**.
  - Based on 2000-2005 average data.
- Marine wildlife impacted – about **57** annually impinged (seals, sea lions, sea turtles).
- Entrainment mortality is about **19 billion fish larvae** annually.
  - Based on 2000-2005 average data.

The LAW

- **Clean Water Act Section 316(b):**
  requires “that the location, design, construction, and capacity of cooling water intake structures reflect the Best Technology Available for minimizing adverse environmental impact.”

- **California Water Code Section 13142.5:**
  requires new or expanded coastal power plants to use “the best available site, design, technology, and mitigation measures feasible . . . To minimize the intake and mortality of all forms of marine life.”

Background

- 316(b) rules are implemented through **NPDES permits**.
- USEPA issued Phase I Rule for **new** power plants in November 2001.
- USEPA issued Phase II Rule for **existing** power plants in July 2004, which was remanded in January 2007 (RiverKeeper II), and suspended in July 2007.
- No state or federal regulations, other than BPJ, currently exist on how to implement 316(b) for **existing** facilities.

Current Permitting Status

- Regional Water Boards must apply **Best Professional Judgment (BPJ)** when renewing permits for existing power plants.
- BPJ determinations are very complex and require significant Regional Water Board resources.
- The changing regulatory landscape adds further uncertainty to the OTC permitting process.
- Most OTC power plants have **expired permits** that have been administratively extended.
- The current approach leads to **inconsistency** in regulation of OTC power plants.

State Water Board Milestones

- State Board **Workshops** were held in 2005 and 2006.
- An initial **Scoping Document** was released in June 2006.
- A **revised Scoping Document** was released in March 2008, following Phase II's suspension.
- Two CEQA **Scoping Meetings** were held in May 2008.
- The **Expert Review Panel** was formed in 2008 and reviewed scientific aspects of the proposed Policy by August 2008.

State Water Board Milestones, cont.

- The **Inter-Agency Working Group** was formed in 2008 to develop realistic implementation plans and schedules that will ensure electric grid reliability.
- A **Draft Policy** and supporting **Substitute Environmental Document (SED)** were released for public comment by July 15, 2009.
- A Public Hearing has been scheduled and noticed for **September 16, 2009**.

The Proposed Policy

- The draft Policy proposes statewide **technology-based** requirements that would significantly reduce adverse impacts to aquatic life from once-through cooling water systems at power plants.
- The Policy would be implemented through an **adaptive management strategy** by which the standards can be achieved without disrupting the critical needs of the State's electrical generation and transmission system.
- The Policy would reduce the permitting burden on Regional Water Boards by providing statewide guidance and coordination.

Technology-based Requirements

- **Closed-cycle wet cooling is selected as Best Technology Available (BTA).**
- **Track 1:**
  Permittees must reduce the **intake flow rate** at each power-generating unit to a level commensurate with that which can be attained with closed-cycle wet cooling system.
  - A **93% reduction** is required compared to the design intake flow rate.
  - The through-screen **intake velocity** must not exceed **0.5 feet per second**.

Compliance Alternative

- **Track 2:**
  If a permittee demonstrates to the Regional Water Boards' satisfaction that compliance with Track 1 is not feasible, the permittee must reduce impingement mortality and entrainment of all life stages of marine life for the **facility, as a whole**, to a comparable level to that which would be achieved under Track 1, using operational or structural controls, or both.
  - A "comparable level" is a level within 10 % of the reduction in impingement mortality and entrainment achievable under Track 1.

Track 2 Monitoring Provisions

- **Monitoring is not needed for Track 1 compliance.**
- **Impingement Impacts:**
  - A 12-month baseline impingement study to accurately characterize the species currently impinged and their seasonal abundance shall be performed (unless prior studies are deemed satisfactory)
  - After Track 2 controls are implemented, another impingement study to evaluate effectiveness of the controls shall be performed.
  - Other studies as necessary.
- **Entrainment Impacts:**
  - A 12-month baseline entrainment study to determine larval composition and abundance shall be performed (unless prior studies are deemed satisfactory)
  - After Track 2 controls are implemented, another entrainment study to evaluate effectiveness of the controls shall be performed.
  - Other studies as necessary.

Immediate and Interim Requirements

- **No later than one year after the Policy's effective date:**
  - permittees with an offshore intake shall install large organism exclusion devices having a distance between exclusion bars of no greater than nine inches (or equivalent devices).
  - Power-generating units that are not directly engaging in power-generating activities, or critical system maintenance, shall cease intake flows, unless the permittee demonstrates to the Regional Water Board that a reduced minimum flow is necessary for operations.
- **Beginning five years after the effective date of this Policy and continuing until final compliance:**
  - The permittee must implement measures to mitigate interim impingement and entrainment impacts.

Special Provisions for Nuclear Facilities

- **Safety Clause:**
  If the permittee demonstrates that compliance with Track 1 or Track 2 requirements would result in a conflict with a safety requirement established by the Nuclear Regulatory Commission, the Water Board will make a site-specific determination of best technology available for minimizing adverse environmental impact that would not result in a conflict with the Commission's safety requirement.
- **Independent Special Study:**
  To investigate the feasibility and cost of compliance alternatives.
  - Review Committee

Wholly Disproportionate Demonstration

- **Eligibility:**
  - Nuclear facilities
  - Power-generating units with a **heat rate** of **8500 BTUs** or less.
- The **burden is on the permittee** to provide data and demonstrate to the Regional Water Board's satisfaction that **costs** (in $/MWhr) of compliance with Track 1 or 2 are wholly disproportionate (WD) to the environmental **benefits** to be gained.
- The permittee must **reduce impacts** (operational and/or structural controls) to the extent practicable (as shown by the WD demonstration).
- Remaining impacts must be **mitigated**.

Implementation Strategy

- The Policy would be implemented through an **adaptive management strategy** to avoid disrupting the electrical grid:
  - An advisory committee (SACCWIS) will be convened to review the progress of Policy implementation and report back to the State Water Board every two years.
  - The State Water Board will consider SACCWIS's recommendations and make modifications to the Policy as appropriate.
  - The Regional Water Boards will reissue or modify the NPDES permits to conform with the Policy.

Implementation Schedule

Fossil-fueled facilities:

- Permittees must submit a proposed implementation plan to the Water Boards within six months.
- SACCWIS will review the implementation schedule(s) within one year, and report to the State Water Board with recommendations.
- Each facility has its own deadline for compliance. Permittees must meet their deadline as soon as possible, with considerations of grid reliability.

State Water Board Schedule

- **Comment period ends on September 30, 2009**
- Response to Comments
- Board Workshop in Fall 2009
- Adoption of Final SED and the Policy in **December 2009**
- Final approval (OAL) obtained by **March 2010**.

Comments or Questions?