

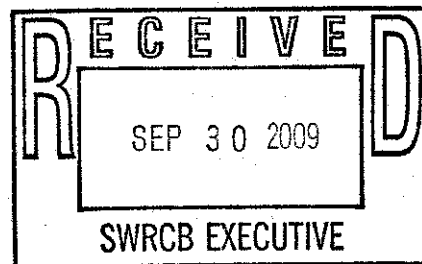
Environmental Law Clinic

Crown Quadrangle  
559 Nathan Abbott Way  
Stanford, CA 94305-8610  
Tel 650 725-8571  
Fax 650 723-4426

September 30, 2009

Via Facsimile and E-Mail

Jeanine Townsend, Clerk to the Board  
State Water Resources Control Board  
1001 I Street, 24th Floor  
Sacramento, CA 95814  
Fax: (916) 341-5620  
Email: [commentletters@waterboards.ca.gov](mailto:commentletters@waterboards.ca.gov)



**Comments on the Proposed "Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling"**

Dear State Water Board Staff and Members:

We appreciate this opportunity to provide comments on the Proposed "Statewide Water Quality Control Policy on the use of Coastal and Estuarine Waters for Power Plant Cooling" (hereinafter "Policy"). The comments below are based on our observations and experience over the last decade in connection with the proposed repowering and Clean Water Act permitting for several coastal power plants that use once-through cooling systems, including those located in Moss Landing, Morro Bay, El Segundo, Huntington Beach, Carlsbad-Encina, Contra Costa, and Pittsburg. We focus here on one issue that has been particularly problematic – the availability of a "wholly disproportionate" cost-benefit exemption from the otherwise applicable standard of performance mandated by the Policy. If this exemption is not either eliminated entirely or significantly narrowed and clarified, it may well undermine the State Board's efforts to achieve clear, uniform, and environmentally protective guidance for Regional Board permit writers.

**A. The Final Policy Should Not Incorporate the "Wholly Disproportionate" Exemption or, at most, Should Limit Its Application to Nuclear Facilities.**

Although the Supreme Court recently held that section 316(b) of the Clean Water Act allows EPA to consider costs in the permit decision process,<sup>1</sup> California can and should set a higher standard of protection. Under the cooperative federalism approach built into section 510 of the Clean Water Act, 33 U.S.C. § 1370, it is undisputed that California has the ability to set more stringent water quality standards to protect its

<sup>1</sup> *Entergy Corp. v. Riverkeeper, Inc. et. al.*, 556 U.S. [129 S. Ct. 1498] (2009).

coastal resources.<sup>2</sup> Additionally, California's Porter-Cologne act mandates that the Board minimize the negative impacts of once-through cooling on all forms of marine life.<sup>3</sup> And, of course, California's robust public trust doctrine imposes on all state agencies the most exacting fiduciary obligations to preserve and protect the public's collective interest in our precious but increasingly imperiled marine resources. Thus, the State Board not only has the authority to adopt its own, more protective regulations to implement section 316(b) of the Clean Water Act, it has an affirmative state law mandate to ensure that water quality regulations and resulting permits minimize impacts to all living coastal resources. The Board should use its expansive legal authority to remove, or at the very least significantly improve upon, the "wholly disproportionate" cost-benefit exemption.

Our experience in watching Regional Boards as they attempt to implement the "wholly disproportionate" exemption at existing facilities strongly suggest that the approach is conceptually flawed. By their nature, the true environmental benefits of employing an alternative technology – or put differently, the ecological costs of utilizing once-through cooling – cannot be monetized or quantified with any degree of precision or certainty. As a society, we simply have not yet figured out how to accurately or adequately capture the inherent complexities of ecological functions and ecosystem services in an "environmental benefit" calculation, especially in the marine realm. Thus, in applying a "wholly disproportionate" test, permit writers are forced to improvise by using speculative surrogates for ecological value that systematically undervalue the true ecosystem services and benefits. When the highly questionable results of this process are then weighed against the very precise compliance cost estimates provided by the permit applicant (and generally not questioned, documented, or verified by the permit writers), the inevitable conclusion is that costs exceed benefits. In this way, the "wholly disproportionate" exemption becomes a de facto loophole for every single facility at which it is applied.

Accordingly, we urge the Board to delete the "wholly disproportionate" exemption altogether from the final Policy or, at the very least, to limit its potential application to the two nuclear facilities where retrofit costs may be somewhat more problematic due to design and safety constraints. There is no evidence before the State that such a significant and easily manipulated regulatory loophole is warranted for any of California's gas-fired coastal power plants. One by one, these plants are being or will soon be repowered (or shuttered) using state-of-the-art generating technology. Several of them already have committed to alternative cooling technologies for their repower projects. There is no compelling justification for the State regulatory regime to place those facilities that have committed to reducing their environmental footprint at a

<sup>2</sup> See 60 Fed. Reg. 41,582 (July 9, 2004) (acknowledging in the section 316(b) regulations that section 510 of the Clean Water Act "reserve[s] for the States authority to implement requirements that are more stringent than the Federal requirements under State law").

<sup>3</sup> Cal. Water Code § 13142.5(b).

competitive disadvantage vis-à-vis other coastal plants that would be allowed under the proposed Policy to invoke a cost-benefit exemption – or vis-à-vis inland plants that do not have free access to public trust waters. All facilities should be required to address the significant environmental externalities created by their antiquated cooling systems with installation of the best technology available to minimize environmental degradation, as required by state and federal law.

The efficiency argument articulated in the draft Policy for this exemption is not persuasive. While the particular gas-fired facilities identified as the targets of the “wholly disproportionate” exemption generally are newer and thus somewhat more efficient, they nevertheless continue to pump hundreds of millions of gallons of public trust marine resources through their cooling systems every single day and to destroy billions of marine organisms every year. Because these newer facilities are operating at higher efficiencies, they already are more competitive in the energy market than their older counterparts. There is, therefore, no reason why they cannot amortize any necessary retrofit costs in the same way that older or later repowered facilities will be required to do under the Policy.<sup>4</sup> Indeed, in our view, the public policy arguments cut exactly the other way. These newer, more efficient units were constructed at a time when there could be no question that closed-cycle cooling was “best technology available.” The fact that their owners knowingly chose to construct the new units in very recent years using an outdated, somewhat less expensive but enormously more environmentally destructive cooling technology, sometimes over strenuous public opposition, cannot possibly justify giving these units a “pass” from the best technology requirements for the next several decades over which they will continue to operate.

**B. Any “Wholly Disproportionate” Exemption Should Significantly Narrow and Clarify the Regional Board’s Discretion**

If the Board retains the “wholly disproportionate” exemption for any facility, the final Policy should significantly clarify and constrain the circumstances under which it can be employed. The open-ended wording of the draft Policy invites manipulation, controversy, and litigation at each step. To protect the uniformity of the permitting process and the integrity of our marine resources, the Policy will need to substantially reduce the permit writer’s discretion in several ways.

First, the Policy should craft a more robust and scientifically defensible approach to valuing ecological benefits. For the reasons we explain in more detail below, the “habitat production forgone” – or HFP – methodology called out in the draft Policy is

<sup>4</sup> And certainly, the lower heat rate facilities should not be allowed to bootstrap a “wholly disproportionate” exemption for their older, less efficient units. If the Board retains the potential exemption for any gas-fired facilities, the final Policy should clarify that the exemption applies on a generating unit-by-generating unit basis, not on a facility-wide basis.

entirely insufficient to this task. The Board should not sanction the HFP approach because it does not capture ecological impacts in a meaningful way. Other agencies, such as the Environmental Protection Agency ("EPA"), the National Marine Fisheries Service, and the U.S. Geological Society, continue to work on developing and refining more sophisticated and scientifically defensible ecological valuation models. The final Policy, to the extent it retains a "wholly disproportionate" standard of any kind, should therefore clarify that the HFP methodology currently used by some Regional Boards is not sufficient to justify an exemption and that more sophisticated modeling methodologies must be employed. Moreover, the Board should specify that the burden of showing that the methodology employed reflects the best available science rests on the Regional Board considering the exemption.

Second, our experience is that Regional Board staff do not have the requisite expertise to evaluate the ecological valuation – or frankly, the cost estimates – provided by the permit applicant and its paid consultants. Staff's deferral to the applicant's data and analysis will continue to be the subject of controversy and litigation that may stall repowering efforts unless more accountability and transparency are built into the review process. To that end, we recommend that the Policy incorporate procedural protections in the form of both expert peer review and public review and comment. Expert peer review of the analysis should not include participation by either the applicant's representatives or an outside academic or other party who is funded in any way by the applicant or who has a vested interest in promoting the HFP model, as has been the case in past permit review processes. Peer review means objective, third party analysis by experts who do not have any interest in the outcome. Additionally, the public should be allowed a full and fair opportunity to provide comment on and input into the valuation methodologies used by the Regional Board.

Third, to the extent that the Policy sanctions any valuation methodology that relies upon an acreage restoration calculation, the Board should articulate clear standards for how costs per acre will be calculated. As the Board is likely aware, there is considerable controversy around the threshold scientific question of whether wetlands restoration is a viable strategy for project mitigation. Many coastal wetlands restoration projects have been quite unsuccessful. Thus, if restored acreage is utilized as a metric for impact/benefit, the Policy should account for the risk posed by such restoration efforts by an enhancement factor. For instance, if the valuation calculations suggest that the environmental benefit of closed-cycle cooling would be equivalent, in an idealized world, to 50 acres of productive wetlands habitat, the Board should presume that it will take 100 acres of restored wetlands (or some other scientifically defensible number) to achieve the same result. And if the Board were to adopt some form of an HFP approach, it should establish a fixed value for those restored acres that is not dependent on local land appraisal values. The environmental benefits of closed-cycle cooling are tied to intake reductions, not to theoretical restoration models.

Fourth, the final Policy should provide strict sideboards for interpreting the term "wholly disproportionate." The nomenclature suggests that the burden on the applicant or Regional Board staff invoking the exemption is high, but our experience at Moss Landing and other facilities is that the Regional Board has expressly applied the exemption where it believes that costs of compliance are "unreasonable" as compared against monetized environmental benefits. The invocation of the exemption should be reserved for circumstances where costs are truly extraordinary compared to the fully valued environmental benefits and out-of-line when compared to the costs incurred by similarly situated facilities to achieve compliance. A cost-benefit exemption from BTA should not be allowed simply because a particular Regional Board or individual staff member believes compliance is "unreasonable." Instead, the Policy should articulate a clear and high bar for use of the exemption (e.g., "truly extraordinary circumstances," "where costs exceed benefits by an order of magnitude," "where costs exceed benefits by a factor of ten," etc.). Unless the Policy clarifies the applicable legal standard, it is likely that each grant of a "wholly disproportionate" exemption will be challenged in court, throwing the proposed repowering schedule into considerable chaos.

**C. The Habitat Production Forgone Model Does Not Accurately or Adequately Quantify Ecological Benefits.**

For an accurate cost-benefit analysis, the regulations must ensure that the environmental benefit calculations capture the full ecological impact of once-through cooling to the greatest extent possible, not just the immediate impact on commercial and recreational species. To that end, using only the HPF method to measure impacts is insufficient. EPA has found that where, as here, the environmental assessment focuses on impacted fish species alone, "the analysis is likely to lead to a potentially significant underestimate of baseline losses and, therefore lead to understated estimates of [the] regulatory benefits" from a closed cycle system.<sup>5</sup> This underestimation is due to several factors.

- There is substantial uncertainty surrounding the accuracy of entrainment and impingement monitoring data. The facilities which provide this biological data usually focus on only a subset of commercial and recreational fish species, leading to an underreporting of the mortality of all other affected species.<sup>6</sup> Thus, the impacts of taking non-commercial fish species, as well as invertebrate species, out of the ecosystem are not accounted.

<sup>5</sup> 67 Fed. Reg. 17,122, 17,192 (Apr. 9, 2003).

<sup>6</sup> *Id.* at 17,192-193.

- The cumulative, ecosystem-wide effects are entirely ignored in the HPF formula. In the National Benefit-Cost Analysis that EPA prepared in connection relation to the section 316(b) Phase II requirements, the agency noted it was not able to monetize the benefits associated with 98.2% of the marine life that would be saved by compliance with the Phase II regulations. Thus, the benefits estimate “represents the benefits associated with less than 2% of the total [organisms] lost due to impingement and entrainment by cooling water intake structures and should be interpreted with caution.” Moreover, EPA has recognized the cumulative effects that multiple coastal power plants can have and has stated that “this type of cumulative impact is largely unknown and has not adequately been accounted for in evaluating impacts.”<sup>7</sup> If the impacts are impossible to calculate, so, too, would be the benefits of avoiding such impacts. The HPF methodology does not in any way capture or measure such benefits.
- As evident from the State Board’s March 2008 Scoping Document, the HPF methodology fails to consider the effects of fish kills on the rest of the food web, e.g., on invertebrates or on fish-eating birds and mammals which depend on them as a food source. The interrelated nature of climate, habitat, predator-prey relationships, and other environmental factors make it difficult to credit an environmental benefit directly to a reduction in once-through cooling, even if such a reduction would dramatically improve the health of an ecosystem. In addition, because of the dynamic nature of ecosystems, it may be difficult to attribute any proportion of a change in a population to the operation of a cooling water intake structure. The cumulative result of this uncertainty is that the ecological benefits are extremely difficult to quantify under any methodology. The HPF model, in particular, makes no attempt to grapple with these issues, ensuring that facilities will vastly underestimate the benefits of closed-cycle cooling systems and overstate (relatively) the costs.

The “considerable uncertainties” inherent in the simple HPF method render it wholly incapable of reliably measuring ecological processes and benefits for these complex marine systems. Thus, even though this methodology is attractive because the cost of restoring or enhancing a certain acreage of habitat can be quantified, the estimate becomes meaningless if the ecological impact is inaccurate or incomplete. The Board should specify that all species be monitored for impingement and entrainment, not just those which are commercially and recreationally important. Furthermore, the Policy should require that facilities attempting to invoke “wholly disproportionate” exemption using an HPF model must supplement their valuation estimates using other methodologies to better capture the non-use value of the ecological impact from once-through cooling.

<sup>7</sup> 69 Fed. Reg. 41589 (July 9, 2004).

In its Guidelines for Preparing Economic Analyses, EPA recommends simultaneously conducting three broad types of economic impact analyses – benefit-cost, economic impact and equity assessment, and cost-effectiveness – in order to determine a particular policy's impact.<sup>8</sup> In the same way, the Board should require facilities to provide more than one measurement of the ecological impacts from their once-through cooling operations. While HPF is a convenient and quantifiable method of valuing certain species loss, it does not provide a full picture of the impact of once-through cooling. Thus, this measurement should be supplemented using estimates from other market-based approaches, revealed preference methods, or stated preference methods.<sup>9</sup> Over the past decade, federal agencies and non-profits have been hard at work developing best practices for valuing difficult-to-measure ecosystem impacts.<sup>10</sup> The Board should specifically require facilities to use some of these recommended methodologies when providing regional water boards with their cost-benefit analysis of incorporating new technology.

As EPA noted in the Phase II Final Rule, because of the difficulty of quantifying non-use benefits under methods such as HPF, "any such analysis will be a partial measure of benefits with a complete measure of costs; therefore the results must be interpreted with caution."<sup>11</sup> As the draft Policy now stand, the results of the cost-benefit analysis will not be interpreted with caution. Facilities will be allowed to present an incomplete and inaccurate picture of the benefits of implementing better technology,

<sup>8</sup> Environmental Protection Agency, Guidelines for Preparing Economic Analyses 175-177 (2000); available at <http://yosemite.epa.gov/EE/Epa/eerm.nsf/vwSER/DEC917DAEB820A25852569C40078105B?OpenDocument>.

<sup>9</sup> Environmental Protection Agency, Appendix A: Current State of Agency Practice of Ecological Benefit Assessments, Ecological Benefits Assessment Strategic Plan A-3-A-5 (2006), available at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/EcologBenefitsPlan.html>.

<sup>10</sup> See, e.g. Environmental Protection Agency, Appendix A: Current State of Agency Practice of Ecological Benefit Assessments, Ecological Benefits Assessment Strategic Plan (2006), available at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/EcologBenefitsPlan.html>; Environmental Protection Agency, Appendix B: Past and Current EPA Efforts To Improve Ecological Benefit Assessments, Ecological Benefits Assessment Strategic Plan (2006), available at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/EcologBenefitsPlan.html>; Environmental Protection Agency, Guidelines for Preparing Economic Analyses (2000); available at <http://yosemite.epa.gov/EE/Epa/eerm.nsf/vwSER/DEC917DAEB820A25852569C40078105B?OpenDocument>; National Marine Fisheries Service, Guidelines for Economic Analysis of Fishery Management (2000), available at [http://www.nmfs.noaa.gov/sfa/domes\\_fish/OperationalGuidelines/OGeconomicanalysis\\_d.htm](http://www.nmfs.noaa.gov/sfa/domes_fish/OperationalGuidelines/OGeconomicanalysis_d.htm); National Research Council, Valuing Ecosystem Services: Toward Better Environmental Decision-Making (2004), available at <http://yosemite1.epa.gov/ee/epa/wpi.nsf/b41f4b80106cc97885256a7e00606469/a0a2882d40d57fc185256f3b005a130a!OpenDocument>.

<sup>11</sup> 69 Fed. Reg. 41,576, 41,666 (July 9, 2004)

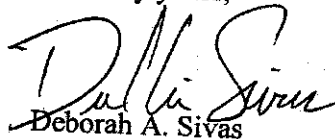
Jeanine Townsend, Clerk to the Board  
State Water Resources Control Board  
September 30, 2009  
Page 8

thereby rendering the costs, by default, "wholly disproportionate" to the benefits. The wholly disproportionate standard will thus amount to a regulatory loophole, allowing facilities to avoid implementing the best technology available as required by section 316(b) and undoubtedly leading to protracted litigation as to the legitimacy of the cost-benefit analysis.

In sum, the "wholly disproportionate" exemption is unworkable as currently conceived. Not only does it leave the State with the same problem that it currently has – squandering resources on the evaluation of complex technical and biological issues and leading to inconsistent power plant regulation – but it will also lead to the persistence of once-through cooling and further environmental degradation. Given the dire state of our ocean and coastal resources, we urge the Board to close this egregious loophole.

We appreciate the consideration of our comments and look forward to the Board's finalization of this important step in protecting our irreplaceable coastal resources.

Sincerely yours,



Deborah A. Sivas

Robb Kapla

Molly Loughney