



May 20, 2008

Tam Doduc, Chair and Board Members
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814
Via Email: commentletters@waterboards.ca.gov

Re: Comments on "Scoping Document: Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling"

Dear Chair Doduc and Board Members:

The undersigned groups respectfully submit the following comments on the State Water Resources Control Board ("State Board") staff's preliminary draft scoping document on the Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling ("draft policy"). We thank the State Board and staff for their dedication to this issue. Staff has done a commendable job of improving upon the draft policy from its original draft in 2006. We also appreciate the State Board's ongoing coordination with the California Energy Commission ("CEC"), Ocean Protection Council ("OPC") and its member agencies, and other agencies in the continued development of this policy.

Multiple federal and state agencies, including the U.S. Environmental Protection Agency ("U.S. EPA"), CEC, OPC, and State Lands Commission ("SLC"), have recognized that once-through cooling ("OTC") causes significant, ongoing devastation to our valuable marine resources.¹ In June 2005, the CEC released a comprehensive staff report identifying OTC as a contributing factor to the degradation of California's fisheries, estuaries, bays and coastal waters.² The phase-out of OTC has multiple environmental benefits for the coast and for the State of California. By phasing out this destructive technology, the State would better protect its marine and estuarine ecosystems, while advancing to greener and more energy efficient energy production.

Once-through cooling has caused significant, ongoing harm to California's marine and estuarine ecosystems for decades. For example, all of the federally listed and imperiled salmon species that migrate in and out of the Sacramento and San Joaquin River watersheds, including the Chinook salmon, Coho salmon, and steelhead trout, must pass the intakes for two aging power plants on the San Francisco Bay-Delta Estuary (Pittsburg and Contra Costa) on their way

¹ Clean Water Act section 316(b); California Energy Commission, *Issues and Environmental Impacts Associated with Once-Through Cooling at California's Coastal Power Plants*: Staff Report, 2005; Resolution of the California Ocean Protection Council Regarding the Use of Once-Through Cooling Technologies in Coastal Waters (adopted April 20, 2006); Resolution By The California State Lands Commission Regarding Once-Through Cooling In California Power Plants (adopted April 17, 2006) ("SLC Resolution").

² California Energy Commission, *Issues and Environmental Impacts Associated with Once-Through Cooling at California's Coastal Power Plants*, Staff Report. June 2005.

in and out of the Delta. Records for both of these plants demonstrate that they illegally entrain and impinge endangered species, including the Delta smelt and the Chinook salmon.³ In bays such as the Santa Monica, Monterey, and San Diego, and estuaries such as the Elkhorn Slough, the impacts from OTC can be more pronounced due to the high biological productivity of these areas and the concentration of the power plants' impacts in light of the area affected. In Santa Monica Bay three power plants using OTC (Scattergood, El Segundo, and Redondo Generating Stations) cycle 13-percent of the Bay's water every six weeks.⁴

It has been over 35 years since the Clean Water Act ("CWA") first outlined requirements for power plant cooling technology. We are long overdue for a clear, consistent statewide policy that protects marine ecosystems and helps to move California towards a future with cleaner, more efficient energy production. We have reviewed the draft policy and, although we believe it is an improvement on the 2006 draft, a few important clarifications must be made in order to ensure that the policy will actually protect the beneficial uses of the state's coastal and estuarine waters. Brief comments and suggestions are outlined below; please refer to the attached comment letter that was submitted in 2006 in response to the first draft policy for more detail.

In brief, we make the following key points and requests below:

- All plants should be required to reduce entrainment by 90 percent.
- The compliance deadlines should be revised so that all plants achieve full compliance within 10 years.
- The calculation baseline should be based on generational flow, not on permitted maximum.
- Interim requirements should not distract from planning and compliance with the actual policy requirements.
- The Statewide Task Force should be used as a streamlining tool to facilitate the various permitting processes before the multiple agencies involved.
- Nuclear plants should not be exempted.

I. Track 1: Closed Cycle Cooling Is the Best Technology Available.

We support the language in this draft policy setting closed cycle cooling as the standard for best technology available. Under this policy, a plant could choose to either retrofit or repower to closed-cycle wet or air cooling.⁵ In 1972 the United States Congress recognized that once-through cooling was creating unnecessary adverse impacts on marine life and consequently enacted CWA section 316(b). Congress intentionally drafted language in the CWA to force

³ EPA 821-R-02-2002, Case Study Analysis for the Proposed Section 316(b) Phase II Existing Facilities Rule, Part E: San Francisco Bay/Delta Estuary, p. E3-15 (February 28, 2002).

⁴ California Energy Commission, *Issues and Environmental Impacts Associated with Once-Through Cooling at California's Power Plants*, California Energy Commission Staff Report Prepared in Support of the 2005 Integrated Energy Policy Report, June 2005, CEC Report No. 700-2005-013.

⁵ The Ocean Protection Council commissioned a feasibility study that found in most cases retrofitting to closed-cycle wet cooling is feasible, and some power plant operators have shown that in some cases repowering with air cooling is preferable. See Ocean Protection Council, *California Coastal Power Plants: Cost and Engineering Analysis of Cooling System Retrofits*, and Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project, CEC-800-2005-001-CMF, June 2007.

improvements in technology by requiring the best technology available to minimize adverse impacts.⁶ As the court articulated in *Riverkeeper, Inc. v. U.S. EPA*, 475 F.3d 83 (2d Cir. 2007) (“*Riverkeeper II*”), Section 316(b) of the CWA does not allow “second best” technology or any blanket exemptions to the best technology available requirement.

II. Track 2: All Plants Should Reduce Entrainment by 90 Percent.

In 2004 the California Legislature passed the California Ocean Protection Act (“COPA”) to protect and restore state coastal waters. COPA outlined several goals, including “provid[ing] a set of guiding principles for all state agencies to follow, consistent with existing law, in protecting the state’s coastal and ocean resources.”⁷ Through COPA the Legislature created the OPC and charged this body with the responsibility to “coordinate activities of state agencies, that are related to the protection and conservation of coastal waters and ocean ecosystems, to improve the effectiveness of state efforts to protect ocean resources...” in a manner “consistent” with the stated goals of COPA.⁸

The OPC exercised its responsibility under COPA in 2006 by passing a resolution regarding OTC, which officially resolved to “*urge the State Water Resources Control Board to implement Section 316(b) and more stringent state requirements requiring reductions in entrainment and impingement at existing coastal power plants and encourages the State to implement the most protective controls to achieve a 90-95 percent reduction in impacts.*”⁹ However, Track 2 in the draft policy falls short of this clear guidance set by the OPC. The current phrasing of Track 2 states that:

if an existing power plant owner or operator demonstrates to the Water Board’s satisfaction that Track 1 is not feasible, the power plant must reduce the level of adverse environmental impacts from the cooling water intake structure to a comparable level to that which would be achieved under Track 1, using operational or structural controls, or both. A reduction in environmental impacts under Track 2 will achieve a ‘comparable level’ if both impingement mortality and entrainment of all life stages of marine life are reduced to 90-percent or greater of the reduction that would be achieved under Track 1, using closed cycle wet cooling.¹⁰

According to the 2006 OPC study evaluating the feasibility of impingement and entrainment control technologies that can meet the 90-95% reduction goal in the most cost effective manner, “the most effective technology that can meet [these criteria] is closed-cycle cooling, commonly referred to as “wet” or “dry” cooling towers.”¹¹ The current phrasing of the

⁶ *Kennecott v. United States EPA*, 780 F.2d 445, 448 (4th Cir. 1985) found that it was the intention “of Congress to use the latest scientific research and technology in setting effluent limits, pushing industries toward the goal of zero discharge as quickly as possible.”

⁷ California Public Resources Code Section 35515 (a).

⁸ California Public Resources Code section 35615(a)(1).

⁹ Resolution of the California Ocean Protection Council Regarding the Use of Once-Through Cooling Technologies in Coastal Waters (adopted April 20, 2006) (emphasis added).

¹⁰ State Water Resources Control Board, *Scoping Document: Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling*, P. 84. (“Scoping Document”).

¹¹ Ocean Protection Council, *California Coastal Power Plants: Cost and Engineering Analysis of Cooling System Retrofits* (p. ES-1).

policy phrasing suggests that plants will have to achieve a 90 percent reduction of the reduction under Track 1; in other words, 90 percent of 90-95 percent, which is 81-85 percent. We urge the State Board to avoid actions that weaken the findings articulated in *Riverkeeper II*, and to instead follow the guidance sent by the OPC to reduce entrainment by 90 percent with no exceptions. Should the State Board retain the language in Track 2 as is, we ask that the staff report provide a clear explanation as to the reason that the draft policy does not follow the 90 percent reduction recommendation in the OPC's resolution.

III. The Timeline for Compliance Should Reflect Other State Efforts to Move California Towards Modern and Efficient Power Generation.

We support the intent of this draft policy to categorize the once-through cooled power plants into three classifications for a compliance schedule, rather than acting on a site-specific basis. Determination on a site specific basis would only further delay the process, and these dates are well within an attainable timeframe for all plants. Indeed, some dates are far off when compared with other compliance projections by agencies with expertise in this area. Accordingly, we recommend that the deadlines be revised so that all plants achieve full compliance within 10 years.

The deadline for compliance outlined in this policy is: 2015 for plants with capacity utilization rate of 20 percent or less, 2018 for plants with capacity utilization rates of 20 percent or more; and 2021 for nuclear facilities. However, in its 2005 Integrated Energy Policy Report, and again in testimony given by staff in 2007, the CEC called for studies to plan for the retirement of the coastal steam-powered plants by 2012, *a full 3 years earlier than the earliest deadline set in the proposed policy.*¹² Therefore, the proposed compliance schedule might actually artificially prolong the life of some of these aging plants. We recommend expediting the compliance schedule by adjusting the dates to: 2013 for plants with capacity utilization rates of 20 percent or less, 2015 for plants with capacity utilization rates of 20 percent or more, and 2018 for nuclear facilities. This is more than a reasonable time frame, as some plants are *already* transitioning away from OTC through repowering projects.¹³ For example, the proposed timeline for El Segundo Generating Station's repowering project before the CEC, which would convert two of its units to closed-cycle cooling, is four years.¹⁴

Extending the life of these antiquated power plants not only prolongs the damage to our coastal and estuarine ecosystems, but also extends the life of inefficient power generation in California. In its draft report on repowering and retiring once-through cooled plants, the California Independent System Operator ("Cal-ISO") noted that many of the older power plants

¹² California Energy Commission, *2007 Environmental Performance Report of California's Electrical Generation System*, Draft Staff Report, CEC Report No. 700-2007-016-SD, p 56-57 ("2007 Environmental Performance Report").

¹³ Since the *Riverkeeper II* decision in January 2007, four power plants, including El Segundo, Encina, Humboldt, and South Bay, have announced their intention to repower to combined-cycle operation without the use of once-through cooling. See 2007 Environmental Performance Report p. 55.

¹⁴ Petition to Amend Final Commission Decision for the El Segundo Power Redevelopment Project, CEC-800-2005-001-CMF, June 2007. El Segundo submitted their permit amendment to the CEC to repower using closed-cycle cooling instead of OTC in September 2007 and is scheduled to be finished and re-powered in 2011.

being analyzed tend to have “higher greenhouse gas emission rates and other pollutants than new generation sources.”¹⁵

Further, we encourage the State Board to clearly articulate how the capacity utilization rates for these plants will be calculated. Over the last several years, there has been a downward trend in the capacity utilization rate for the majority of the once-through cooled plants in California. According to the CEC, the total energy production from the coastal fleet decreased by 43 percent between 2001 and 2005.¹⁶ We recommend that the capacity utilization rate be calculated on an average of the last five years from the date that the policy is adopted.

IV. The Calculation Baseline Should be Based on Generational Flow Rather than Permitted Maximum and Take into Account the Seasonal Variability of Larvae to Ensure Actual Reduction in Entrainment.

We are particularly concerned that some of the options discussed in the scoping document for calculating reductions in impacts would result in *no* changes in operations for many of the plants, in direct contravention of the Clean Water Act and the intent of the draft policy itself. The State Board should provide clear direction on how to calculate the flow reductions required by Tracks 1 and 2 to truly reduce entrainment mortality. The goal of the policy is to reduce actual damages to marine life. Simply reducing flows based upon the permitted maximum flow as described in the draft policy will not actually achieve entrainment reductions at many once-through cooled plants in California, as most facilities operate well below their permitted maximum flows at what is commonly called, actual flow.

Furthermore, at many once-through cooled facilities in California, the actual flow is significantly greater than the generational flow, or the flow actually required to generate electricity. For example, generating Units 1 & 2 at El Segundo Generating Station ceased producing electricity in 2002; however the mean annual flow at Intake 001 after 2002 (which draws in cooling water for Units 1 & 2) continued at or above the level prior to 2002 in order to prevent biofouling.¹⁷ Therefore, if the State Board agrees to base entrainment reductions on permitted maximum flow or actual flow instead of generational flow, then the entrainment reductions may not actually be significant in reduction entrainment. A reduction from permitted maximum flow may not actually require a reduction in the intake of water if the plant (as most are) already operate well below permitted flow. If the entrainment reductions are based on actual flow, depending on how long it takes the policy to be adopted, facilities may elevate their actual flow levels beyond the necessary amount for generation to augment the baseline (yet still remain within their permitted flow levels). This would make it easier for generators to comply with the policy without actually achieving true entrainment reductions. Such an approach echoes similar problems with early efforts to reduce residential water use in the face of droughts – those overusing water when the baseline was set were “rewarded” while conservers punished. Therefore, we request that entrainment reduction be based on the generational flow in order to ensure a real and significant reduction in water intake, not just one on paper

¹⁵ California Independent System Operator, *Old Thermal Generation Retirement and Replacement of Once-Thru Cooling Long-Term Transmission Planning Study Version 2.0* p.1.

¹⁶ 2007 Environmental Performance Report, p 56.

¹⁷ El Segundo Generating Station flow data 1996-2004 (El Segundo Power, LLC), available at http://www.waterboards.ca.gov/losangeles/water_issues/programs/power_plants/index.shtml.

The policy should also be clear on the temporal scale used to calculate flow/entrainment reductions to avoid seasonal impacts. For example, in Southern California, peak larval abundance for most species in coastal waters coincides directly with peak energy needs – during the summer.¹⁸ The policy should avoid allowing facilities to calculate flow reductions on an annual basis, and instead calculate and assign reductions on a seasonal basis as needed to avoid impacts. If seasonal larval characteristics are not considered, facilities might reduce their intake flow during the winter, and continue using high flow rates in the summer to comply with flow reductions, which would not result in actual reduction of entrainment.

V. Calculation Baseline Determination and Monitoring Must Include Reference Sites.

A reference site approach is traditionally used in management to determine the extent of industrial impacts on marine and coastal resources. For example, the Hyperion Treatment and Joint Water Pollution Control Plants permits have historically and continue to require monitoring both within their impact zone and at reference stations to determine the impacts of sewage discharge to benthic community composition and species abundance.

The issue of already-depleted source water should also be considered when determining how to develop an appropriate baseline by which to calculate entrainment and impingement mortality under Track 2. Many of these plants have been operating for decades, and the adjacent ecosystems have suffered a long history of entrainment and impingement. This is especially true for once-through cooled plants located on enclosed bays and harbors, such as Haynes Generating Station and Alamitos Generating Station on Alamitos Bay. It is estimated that these power plants take in the entire volume of Alamitos Bay every five days.¹⁹ Based on this fact, it is likely that the abundance and community structure of life in Alamitos Bay has been significantly impacted by 30 years of water-intake. Therefore, we urge the State Board to take a reference site approach in determining the baseline to avoid establishing the baseline upon potentially depleted source waters surrounding each facility.

VI. Interim Requirements Should Not Distract from Planning and Compliance with the Actual Policy Requirements.

We support the general intent of the interim requirements to immediately reduce negative impacts to our marine and estuarine ecosystems but are concerned that they will distract from planning and compliance with the actual policy requirements. If interim requirements are included in the final policy, we urge the State Board to clarify that compliance with the actual policy is of primary importance, and further refine the requirements for the interim measures to ensure streamlined compliance. We further urge the State Board to prohibit credit for past mitigation efforts as counting toward compliance with interim requirements. The general intent of the interim

¹⁸ AES Huntington Beach L.L.C., "Generating Station Entrainment and Impingement Study Final Report" (April 2005), prepared by MBC Applied Environmental and Tenera Environmental, *see* Section 4.3.1 Entrainment Results; "Southern California Time Series: SCOR WG125: Global Comparisons of Zooplankton Time-Series" (May 19, 2008), available at http://planktondata.net/time-series/calcofi-sc_us/index.html.

¹⁹ Tenera Environmental and MBC Applied Environmental Science, "Summary of Existing Physical and Biological Information and Impingement Mortality and Entrainment Characterization Study Sampling Plan," (September 28, 2005) p. 2.

requirements is meaningless if the State Board chooses to give credit to power plants for their past mitigation efforts through Coastal Commission or other permitting processes.

Technology to prevent the entrainment of organisms such as marine mammals and turtles (such as large organism exclusion bars) and restoration are beneficial measures in the interim, but neither will move the plants closer to the compliance goal of reducing impingement and entrainment by 90 percent. By comparison, NPDES permits often have interim requirements for certain constituents while a waste water treatment plant has to install new technology to improve effluent water quality, but neither these interim requirements nor any past actions count towards compliance with the final effluent limitations. There is no reason that power plants should be provided special treatment or credit for mechanisms employed to remediate the past and present environmental damages caused by OTC. Furthermore, the Second Circuit U.S. Court of Appeals specifically ruled that restoration measures may not be utilized as a compliance strategy with Clean Water Act section 316(b). This element of the *Riverkeeper II* decision stands, as it was not taken up by the U.S. Supreme Court in 2008. The focus of this policy needs to be on achieving ultimate compliance with 316(b) and not on interim measures which do not help in reaching this goal.

VII. A Statewide Policy Should Be Adopted and Implemented as Soon as Possible.

The State Board has been working on this policy for over two years, and still has not committed to a deadline for completion and implementation. We encourage the Board to move forward with adopting and implementing a policy with clear deadlines as soon as possible. In early 2007, directly after the Second Circuit Court of Appeals decision in *Riverkeeper II*, the U.S. EPA sent a memo to the Regional Administrators directing them to institute best professional judgment regarding permits under section 316(b) of the Clean Water Act.²⁰ Specifically, EPA headquarters directed the Regional Offices as follows:

With so many provisions of the Phase II [existing facilities] rule affected by the [*Riverkeeper II*] decision, the rule should be considered suspended In the meantime, all permits for Phase II facilities should include conditions under section 316(b) of the Clean Water Act developed on a Best Professional Judgment basis.²¹

“Best professional judgment” should be informed by the clear judicial review and holdings in *Riverkeeper II*. For example, the federal appeals court found that “after the fact restoration” cannot substitute for best available technology.

Despite this specific direction from U.S. EPA and the guidance provided by *Riverkeeper II*, the Regional Water Quality Control Boards (“Regional Boards”) have failed to properly reissue NPDES permits for power plants using OTC. Moreover, the State Board has denied petitions for review of improperly reissued permits, and in at least one case cited the imminence of the long-overdue and still non-existent state OTC policy as the reason. Out of the 19 plants currently using OTC, 11 have NPDES permits that have already expired; Regional Board staff has stated that they

²⁰ Memorandum from Benjamin Grumbles, Assistant Administrator, U.S. EPA to U.S. EPA Regional Administrators, “Implementation of the Decision in *Riverkeeper, Inc. v. EPA*, Remanding the Cooling Water Intake Structures Phase II Regulation” (March 20, 2007).

²¹ *Id.*; see 40 CFR § 401.14.

are waiting for the statewide policy to update these overdue permits. Three more plants have NPDES permits that will expire in 2008, which means *almost three-quarters of the plants using OTC will have overdue permits in 2008 because of the delayed policy.*

We support the conclusion articulated by Chair Doduc at the May 13, 2008 scoping meeting in Sacramento - that California can move forward with guidance to the Regional Boards *now* as opposed to waiting for any pending court decisions. U.S. EPA specifically directed the state to do so in the above-referenced BPJ memorandum. While U.S. EPA chose not to appeal the *Riverkeeper II* decision, industry continues to resist strict enforcement of 316(b) by making a "cost-benefit" claim. This is not surprising – industry's historical opposition to 316(b) is why it has taken over three decades to enforce this law. The State Board's mission and mandate, however, is quite different, and we urge the State Board to act both now and after the policy is adopted to incorporate appropriate conditions into NPDES permits to ensure compliance with 316(b). In addition to the U.S. EPA directive, California also has the authority under state law to implement stricter regulations than the minimum protections of 316(b) – regardless of what the U.S. Supreme Court decides. *Riverkeeper II* was instructional in defining what the minimum conditions must be. The final policy should meet and exceed that minimum as expeditiously as possible.

Finally, the industry also continually calls for delay based on their claim that California's grid reliability will be compromised if the state implements 316(b). This is simply not true. The State Water Board and the Ocean Protection Council commissioned a study on grid reliability that was recently released; it found that "...a phased in approach for enacting the Board's new rules could have a relatively modest impact on reliability, and these impacts could be effectively eliminated through proper planning."²² In 2006, California's Lt. Governor, State Controller and Director of Finance *all* concluded that "the elimination, or reduction to insignificance of the adverse environmental impacts, of once-through cooling technologies can be accomplished without threatening the reliability of the electrical grid."²³

VIII. The Statewide Taskforce Should be used to Streamline Permitting Processes.

We applaud the State Board for its coordination and partnership with other involved agencies. However, it is imperative that such coordination facilitates, rather than delays, this process. Therefore, we recommend further use of the Statewide Task Force as a streamlining tool to expedite the various permitting processes before the multiple agencies involved. At the May 8, 2008 scoping meeting, we heard testimony from industry that they are concerned that the compliance schedule is infeasible due to complex permitting requirements from other agencies, such as the CEC, for the plant upgrades that would be required by the draft policy. Since the relevant permitting agencies are members of the proposed Statewide Task Force, we recommend using this group to expedite and streamline any permit requirements from multiple agencies related to this policy.

²² California Ocean Protection Council and State Water Resources Control Board, *Electric Grid Reliability Impacts from Regulation of Once-Through Cooling in California*, p.57 available at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/power_plant_cooling/reliability_study.pdf

²³ SLC Resolution, *supra* note 1 (emphasis added).

VIII. Nuclear Plants Should Not Be Exempted

Although safety should always be a prime concern, facilities such as the Indian Point power plant in New York proved that a nuclear plant can safely comply with Section 316(b).²⁴ Further, in *Riverkeeper II* the court found that there was "adequate consideration by the EPA of the nuclear plants concerns" and upheld that Section 316(b) does apply to nuclear facilities.²⁵ Leaving the compliance determination solely to the operator is inappropriate. The Nuclear Regulatory Commission, the State Board and the plant owner/operator should all be part of the decision in order to ensure accountability, and the decision and information leading to it should be made available to the public. Furthermore, the State Board should clarify in its final policy what information is required for "appropriate documentation" to make any decision about safety and nuclear plant requirements under the policy.

We are long overdue for the state to embrace a policy on OTC that reflects Californians' demand for providing the utmost protection for our valuable marine and coastal resources, and for investing in a sustainable, environmentally sound future energy supply. California has consistently set high standards for the protection of the state's world-renowned coastal and marine resources, through the Marine Life Protection Act, the California Ocean Protection Act, and the Marine Life Management Act, among others. The State Board's policy on OTC should be consistent with these laws, with the Clean Water Act and Porter-Cologne, and with other state laws and policies that commit California to a sustainable energy path. We urge the State Board to expeditiously adopt and implement a state policy on OTC that charts an environmentally sustainable course for California's future.

Thank you for your consideration of our comments.

Sincerely,

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²⁴ The New York State Department of Environmental Conservation issued a draft NPDES permit in 2003 determining that closed cycle cooling was the best technology available for that nuclear plant. See New York State Department of Environmental Conservation Draft State Pollutant Discharge Elimination System Discharge Permit No. NY- 0004472.

²⁵ *Riverkeeper, Inc. v. U.S. EPA*, 475 F.3d 83 (2nd Cir. 2007).

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Attachment.

September 15, 2006

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Re: Comments on "Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations"

Dear Chair Doduc and Members:

The undersigned groups respectfully submit the following comments with respect to the State Water Resources Control Board ("State Board") staff's proposed policy ("draft policy") on once-through cooling ("OTC"). We thank the State Board and staff for its dedication to this issue. Staff has done an excellent job engaging the public through workshops and expeditiously preparing a draft state policy that implements state law and represents a much-needed, and legally required, improvement over the federal Clean Water Act section 316(b) regulations. We also appreciate the State Board's ongoing coordination with the California Energy Commission ("CEC"), Ocean Protection Council ("OPC") and its member agencies, and other agencies in the continued development of this policy.

Multiple federal and state agencies, including the Environmental Protection Agency ("EPA"), CEC, OPC, and State Lands Commission ("SLC"), have recognized that once-through cooling causes significant, ongoing devastation to our valuable marine resources. In June of 2005, the CEC released a comprehensive staff report identifying OTC as a contributing factor to the degradation of California's fisheries, estuaries, bays and coastal waters.¹ The SLC, which includes the Lt. Governor, Director of Finance and State Controller, unanimously adopted a recent resolution opposing the continued use of OTC, finding that "the Governor's Ocean Action Plan calls for an increase in the abundance and diversity of aquatic life in California's oceans, bays, estuaries and coastal wetlands, a goal which can best be met by prohibiting, phasing out, or reducing to insignificance the impacts of once-through cooling."² The SLC's resolution contained a number of findings, including that "once-through cooling significantly harms the environment by killing large numbers of fish and other wildlife, larvae and eggs as they are drawn through the screens and other parts of the power plant cooling system" and that "once-through cooling also significantly adversely affects marine, bay and estuarine environments by raising the temperature of the receiving waters, and by killing and displacing wildlife and plant life."³

Similarly, through a resolution adopted in April 2006, the OPC, representing the Secretaries of the Resources Agency and Cal-EPA and the Chair of the State Lands Commission, unanimously urged the State Board to go beyond the federal rule and implement "more stringent state

¹ California Energy Commission (2005) Issues and Environmental Impacts Associated with Once-Through Cooling at California's Coastal Power Plants: Staff Report. Available at: www.energy.ca.gov/2005publications/CEC-700-2005-013/CEC-700-2005-013.PDF. Accessed 8.2.06. ("CEC Staff Report").

² Resolution By The California State Lands Commission Regarding Once-Through Cooling In California Power Plants (adopted April 17, 2006) (emphasis added). Available at: archives.slc.ca.gov/Meeting_Summaries/2006_Documents/04-17-06/ITEMSANDEXHIBITS/R71ExhA.pdf Accessed 8.2.06 ("SLC Resolution").

³ *Id.*

requirements requiring reductions in entrainment and impingement at existing coastal power plants.” The OPC further encouraged the State Board to “implement the most protective controls to achieve a 90-95 percent reduction in impacts.”⁴ Through both resolutions, **the top elected and appointed officials in the State, including officials overseeing the health of the state’s economy, agreed that: (a) once-through cooling causes significant, devastating impacts to California’s coastal and estuarine ecosystems, and (b) this antiquated technology needs to be phased out on an expeditious schedule that reflects the state’s strong commitment to a healthy coast and ocean.**

In a state where over 86% of our total economic activity is fueled by the health of our coastal resources, and in a state leading the nation in a strong commitment to sustainable energy, there is no question that California has the right and responsibility to move beyond the minimum standards outlined in section 316(b) of the Clean Water Act (“CWA”).⁵ Accordingly, **we support the draft policy’s stated goal of 90-95% reductions in impacts**, language that follows the guidance in the OPC’s and SLC’s Resolutions, and that reflects the leadership asserted by the Governor in support of policies that steer California towards both a sustainable energy infrastructure and a sustainable environment. We also support the proposal to disallow economically-based exceptions in the draft policy, which similarly underscores California’s dedication to protecting our marine and coastal environment by minimizing impingement and entrainment in our waters.

We encourage the State Board to continue along this path and adopt a final policy that effectively and fully prevents impacts from OTC to California’s marine and estuarine environment. Any interim industry steps to evaluate or potentially implement methods to comply with the federal requirements of CWA section 316(b) regulations (which are under legal challenge in the U.S. Court of Appeals for the Second Circuit, *Surfrider Found. v. U.S. EPA*, No. 04-6692) should not deter the State Board from pursuing its own policy on OTC that reflects state law and state needs, as such steps can serve as the basis for plans to comply with the pending state policy.

We provide the following recommendations and comments to address potential loopholes and implementation gaps in the draft policy that may impede progress towards the stated goals. In particular, **to ensure the goal of 90-95% reduction in impacts is achieved rather than thwarted, we urge that, among other things, the draft policy be amended to:** (a) include all plants (rather than exempting the numerous plants impacting our environment and generating little electricity), (b) ensure that the method for calculating the reductions is based on the flow needed to actually generate electricity, (c) narrow the definition of what a “feasible” reduction to prevent a rush to seek exemptions from required prevention of impacts, (d) avoid use of restoration, mitigation and credits in place of actual prevention of impacts, (e) put responsibility for nuclear safety issues on the Nuclear Regulatory Commission, and (f) set clear deadlines for action and for achieving the stated goals. Only if these and other loopholes and gaps are addressed will the policy be effective at protecting the beneficial uses of the waters of the state from OTC’s devastating impacts.

These comments are further delineated in the following pages as outlined below:

⁴ Resolution of the California Ocean Protection Council Regarding the Use of Once-Through Cooling Technologies in Coastal Waters (adopted April 20, 2006). Available at: resources.ca.gov/copc/docs/060418_OTC_resolution_LH2_adopted_2006-4-20.pdf Accessed 8.1.06. (“OPC Resolution”).

⁵ National Ocean Economics Program (July 2005) California’s Ocean Economy: Report to the Resources Agency, State of California, p.1. Available at: resources.ca.gov/press_documents/CA_Ocean_Econ_Report.pdf Accessed 9.12.06.

- I. The Policy Goal of 90-95% Reduction in Impingement and Entrainment Impacts is Appropriate for California
 - A. It Is Well-Established that Once-Through Cooling Systems Significantly Impact Surrounding Ecosystems
 - B. The Goals Set by the Policy Are Consistent with State and Federal Law
 - C. The Proposed Reductions Are Technologically and Economically Practical
 - D. The Draft Policy Is Consistent with California's Energy Action Plan
 - E. The Role of the Expert Review Panel Should Be Expanded to Include Review of All Technical Analyses Required by the Policy
- II. Potential Loopholes in the Draft Policy Should Be Closed to Ensure that 90-95% Reduction in Impacts from Existing Power Plants Is Actually and Expeditiously Achieved
 - A. All Plants Must Be Included in the Policy
 - B. "90-95% Reduction from What?" The Calculation Baseline Must Be Set to Ensure that Required Reductions Are Achieved
 - C. There Must be Limits Governing Determinations of "Feasibility"
 - D. Credits Should Be Allowed Only to Reward Decisions Intended to Reduce Impacts
 - E. The Policy Must Include Seasonal Protections for Larval Organisms to Effectively Meet Entrainment Reductions
 - F. Existing Facilities that Repower or Retool Must Be Classified as "New" Facilities.
 - G. The Policy Should Provide a Well-Defined and Expeditious Compliance Deadline
- III. Restoration and Mitigation Are Not Effective Substitutes for Preventing Impacts
 - A. Compliance Alternatives that Rely on Restoration And Mitigation Should Not Be Included in the State Policy, as the Use of Restoration Cannot Achieve the Goals of the Clean Water Act and Porter-Cologne
 - B. A Rigorous Analysis of All Feasible Technological and Cooling Alternatives, Including Use of Treated Wastewater as Coolant, Should Be Conducted at Each Facility
- IV. Nuclear Safety Questions Should Be Addressed to the Nuclear Regulatory Commission
- V. The Policy Must Include Needed Details to Ensure Consistent Implementation
 - A. The Plants Required to Conduct Cumulative Impact Studies Should Be Explicitly Identified
 - B. The Monitoring Provisions Must Be Further Specified to Ensure Consistent Implementation and to Characterize Compliance Accurately
- VI. Conclusions

The State Water Board would never approve a state policy that allowed chemical pollutants to continually destroy fish, wildlife and habitats impacted by a Clean Water Act-regulated facility. Similar commitment to the Clean Water Act and Porter-Cologne is needed to control impacts associated with once-through cooling. Accordingly, we applaud the goals of staff's proposed policy as not only implementing the letter and intent of state and federal law, but also California's strong commitment towards a sustainable environment and energy future. We urge the Board to make the changes outlined in these comments in order to effectuate those goals most closely. With the amendments suggested below, the State Board will have a policy that finally protects the state's long-suffering coastal waters and habitats from the enormous local and regional impacts associated with once-through cooling.

I. THE POLICY GOAL OF 90-95% REDUCTION IN IMPINGEMENT AND ENTRAINMENT IMPACTS IS APPROPRIATE FOR CALIFORNIA

As noted above, we support the draft policy's proposed requirements that impingement be reduced by 95% from the calculation baseline, and entrainment by up to 90% but not less than 60% of the calculation baseline. These goals reflect the significant, ongoing damage caused by once-through cooling systems, and are consistent with both California's commitment to a healthy coastal ecosystem and to a sustainable energy policy.

A. It Is Well-Established that Once-Through Cooling Systems Significantly Impact Surrounding Ecosystems

After a thorough review of the comprehensive rulemaking record for implementation of section 316(b) of the Clean Water Act, the U.S. EPA determined conclusively that there are multiple types of undesirable and unacceptable environmental impacts associated with once-through cooling technology. Specifically, the EPA found the impacts to include entrainment and impingement; associated reductions of threatened and endangered species; damage to critical aquatic habitats and organisms, including important elements of the food chain; diminishment of a population's compensatory reserve; losses to populations including reductions of indigenous species populations, commercial fisheries stocks, and recreational fisheries; and stresses to overall communities and ecosystems, as evidenced by reductions in diversity or other changes in system structure and function.

The CEC has come to similar conclusions. In its comprehensive June 2005 staff report on OTC, the CEC identified OTC as a contributing factor to the degradation of California's fisheries, estuaries, bays and coastal waters.⁶ The CEC further found that in addition to the entrainment and impingement impacts, once-through cooling technology causes damage to the nearby aquatic ecosystem through thermal impacts from the discharge of cooling water; this harm is especially damaging in more enclosed water bodies and in areas that are subjected to cumulative effects from closely sited plants.

The SLC and the OPC also both recognized and confirmed the serious impacts OTC has on our marine and estuarine environment in their resolutions, both unanimously passed in April 2006. In addition, the OPC's April Resolution noted that, contrary to industry's assertions in the August 2006 State Water Board workshop, the full negative impacts of OTC have yet to be fully assessed, stating:

a recent report by the California Energy Commission found that, of the 21 Californian coastal power plants that use once-through cooling, only seven have recent studies of entrainment impacts that meet current scientific standards; and all these studies have found that adverse impacts occur due to entrainment of aquatic organisms; impingement and entrainment result in changes to community structure; thermal impacts from the discharge of cooling water may be significant, particularly in enclosed water bodies; and the possible cumulative impacts of entrainment and impingement are currently unknown.

⁶ CEC Staff Report, *supra* note 1, p.1.

This daily assault on California's valuable coastal environment causes ongoing, serious harm. As exhibited in the recent Los Angeles Times 5-part series, *Altered Oceans*, our marine and coastal environments are under incredible amounts of stress and threatened, both globally and locally, by a diverse array of impacts.⁷ The decrease of biodiversity in the world's oceans and declining populations of commercially and non-commercially important marine species are well documented.⁸ Recreational fish landings in the Southern California Bight have decreased from an annual mean of 4.25 million fish in 1963 to 2.5 million fish in 1998.⁹ Many marine populations, including certain species of rockfish and abalone, are at strikingly low levels, and some species which were common decades ago are now rare off the coast of California. The perilous state of California's coastal and ocean ecosystems make a meaningful OTC policy all the more important.

Some examples of the local and regional impacts of OTC are instructive. Michael Foster from the **Moss Landing Marine Laboratory estimates that 50 million marine and estuarine fish are entrained by coastal power plants each day in California.**¹⁰ The California Energy Commission has also stated in testimony before the State Water Board that "[o]nce-through cooling is a major, ongoing environmental issue with California power plants," with "potentially widespread" cumulative effects in Santa Monica Bay and the SF-Bay Delta Estuary in particular.¹¹ Three facilities – Scattergood, Redondo Beach and El Segundo Generating Station - located within the same six-mile stretch of the Santa Monica Bay consume 13% of nearshore waters in the Bay every six weeks.¹² Even more astonishing is the impact of the facilities on Alamitos Bay; **Haynes and Alamitos Generating Stations turn over the entire Alamitos Bay every five days.**¹³ The resulting indiscriminate take of plankton, fish, invertebrates, and other marine life help deplete commercially and recreationally important species; decrease species diversity; and cause further threat to species at risk of extinction and fisheries at risk of economic collapse. **The combined impingement from power plants south of Point Conception amounts to up to 30% of the recreationally caught fish in this region each year.**¹⁴ These impacts can no longer be justified at coastal facilities, given that technologies to reduce these impacts have existed for decades and are used at non-coastal power facilities in California.

Nowhere has OTC's severe impacts on the California coastal environment been more well-documented than at the San Onofre Generating Station. The intake of this plant is estimated to have destroyed over 200 acres of kelp forest (approximately 59,000 kelp plants).¹⁵ This, in turn, caused

⁷ Weiss, Ken and McFarling Usha Lee (July 30 – August 3, 2006) *Altered Oceans: A five-part series on the crisis in the seas*, *Los Angeles Times*. Available at: <http://www.latimes.com/news/local/oceans/la-oceans-series.0.7842752.special>. Accessed 8.12.06.

⁸ Myers and Worm (May 2003) Rapid worldwide depletion of predatory fish communities, *Nature*, vol. 423; Hutchings and Reynolds (April 2004) Marine Fish Population Collapses: Consequences for Recovery and Extinction Risk, *BioScience*, vol. 54, no. 4.

⁹ Dotson and Charter (2003) Trends in the Southern California Sport Fishery, *CalCOFI Rep.*, Vol. 44, 2003, p.94.

¹⁰ Foster, Michael, Presentation to the SWRCB (Sept. 26, 2005) http://www.swrcb.ca.gov/npdes/docs/wrkshp_laguna2005/pres_mosslandingfoster.pdf Accessed 8.10.06.

¹¹ CEC, Presentation to SWRCB (Sept. 26, 2005), http://www.waterboards.ca.gov/plnspols/docs/pres_cemckinney.pdf.

¹² CEC Staff Report, *supra* note 1, p.37.

¹³ Tenera Environmental and MBC Applied Environmental Science (October 2005) Summary of Existing Physical and Biological Information and Impingement Mortality and Entrainment Characterization Study Sampling Plan for Haynes Generating Station, p.2

¹⁴ CEC Staff Report, *supra* note 1, p.31.

¹⁵ UN Atlas of the Oceans, Foster, S. and Shiel, David, "The Ecology of Giant Kelp Forests in California: A Community Profile" (1985), <http://www.oceansatlas.org>. Accessed 9.10.06.

the displacement or death of thousands of individuals from numerous other species. In total, the kelp fish population in the water surrounding San Onofre Generating Station is estimated to have declined by 80%.¹⁶ To understand the magnitude of these kelp losses, one need only compare the plant's destruction of 200 acres (0.3125 square miles) of kelp forest with all existing stands of kelp forest along the entire Southern California mainland coast (3.7 square miles, according to the California Department of Fish & Game's Living Marine Resources Status Report).¹⁷ In other words, this single power plant alone destroyed almost 10% of the kelp forests along Southern California's mainland coast, forests that cannot come back while OTC is in use. These calculations do not even include the associated losses of fish, invertebrate, and other marine life, as well as the ongoing destruction that occurs from the other coastal power plants using OTC. For example, a fish kill due to entrainment in the San Onofre cooling system in August 2005 wiped out over five tons of anchovies in a single event.¹⁸

OTC also has significant impacts on estuarine environments. For example, a pair of Contra Costa County power plants that have killed up to tens of millions of fish a year are being scrutinized by researchers investigating potential causes of the ecological crash in the Delta.¹⁹ Regulators say that while the pumping stations at Byron and Tracy that deliver water to the San Joaquin Valley and Southern California are heavily scrutinized, **the Mirant pumps in Contra Costa County are almost completely ignored, even though the power plants take water out of more sensitive habitat, "right in the heart of [endangered] Delta smelt area."**²⁰

At the State Water Board's Sacramento workshop on July 31, 2006, industry consultants alleged that these decreasing fish populations and other negative resource trends have not been occurring in regions around coastal power plants, and specifically stated that recreational catch per unit effort in and around the waters of the Diablo Canyon nuclear plant has not changed since before the plant was built.²¹ These claims are misleading. Both recreational effort and catch in the waters adjacent to Diablo Canyon have been declining since the late 1980s.²² Concurrently, commercial landings from nearshore rocky habitats in this region have been declining since the late 1990s, and Morro Bay landings have been in decline over the past 15 years.²³ For example, recent studies show that some recreationally and commercially important and threatened fish, including rockfish, croaker, and rock crabs, are among the most abundant species entrained by Diablo

¹⁶ *Id.*, see also CA Department of Fish and Game, "California's Living Marine Resources: A Status Report" (Dec. 2001) ("Marine Resources Report").

¹⁷ Marine Resources Report, *supra* n. 16, at 279.

¹⁸ NC Times, San Onofre Reports Fish Kill (August 22, 2005)

http://www.nctimes.com/articles/2005/08/23/news/top_stories/82205191806.txt Accessed 9.10.06.

¹⁹ See Taugher, Mike, "Mirant plants attract attention in Delta crisis," *Contra Costa Times* (March 15, 2006), http://www.sfbayjv.org/news_summaries/2006/march/Mirant_plants_attract_attention_in_Delta_crisis.html Accessed 9.14.06.

²⁰ *Id.*, Statement by Jerry Johns, Deputy Director, California Department of Water Resources.

²¹ Oral comments given at the Proposed Statewide Policy for Once-Through Cooling [Clean Water Act 316(b) Regulations] Public Scoping Meeting on July 31, 2006 by John Steinbeck, Tenera Environmental

²² Starr, Richard M, et al. (2002) Trends In Fisheries and Fishery Resources Associated with the Monterey Bay National Marine Sanctuary from 1981 – 2000. Available at: <http://montereybay.noaa.gov/research/techreports/fisherytrends.pdf>. Accessed 9.10.06

²³ California Coastal Commission (February 2, 2001) Periodic Review of the San Luis Obispo County LCP: Preliminary Report (As revised to incorporate errata/clarifications of the July 12, 2001 action). Available at: <http://www.coastal.ca.gov/recap/slo/slo-ch11.pdf> Accessed 9.10.06; Starr, Richard M, et al. (2002) Trends In Fisheries and Fishery Resources Associated with the Monterey Bay National Marine Sanctuary from 1981 – 2000. Available at: <http://montereybay.noaa.gov/research/techreports/fisherytrends.pdf>. Accessed 9.10.06

Canyon.²⁴ Although many factors contribute to species decline, OTC is an unnecessary and significant added stressor that can be controlled by a meaningful state policy.

Moreover, **the impacts from OTC are likely far more extensive than determined to date.** For example, as stated in our February 23, 2006 letter (Attachment A), the state policy must consider environmental impacts beyond just entrainment and impingement of small organisms. Neither CWA § 316(b) nor Porter-Cologne § 13142.5 make any distinction as to the type or size of marine organism impacted by once-through cooled facilities. In fact, voluntary reporting from marine mammal rescue personnel continues to illustrate that protected species including sea lions, harbor seals, and some sea turtles are “taken” by these facilities.²⁵ Nevertheless, Regional Boards do not appear to gather data consistently on the impacts of cooling structures on larger, non-fish species, such as marine mammals and sea turtles, although they have been documented to be caught in power plant intakes.²⁶ The state policy should change this practice and require permit applications to include information on cooling systems’ impacts on larger organisms, including number and type of species swept into plant forebays, as well as those impinged against intake screens. This is all the more important because, despite long-standing mandates in the Endangered Species Act, Marine Mammal Protection Act, and other authorities, the National Oceanic and Atmospheric Administration also has not formally collected data on the impact of these power plants on larger organisms.²⁷ **Impacts on marine mammals, sea turtles, and other larger organisms, in addition to fish and invertebrates must be evaluated.** Although the scoping document addresses the need to minimize impacts to threatened, endangered, and protected species, this concept is not reflected in the draft state policy itself. We encourage the State Board to incorporate into the policy directorial language requiring evaluation of these species in any permit reviews.

B. The Goals Set by the Policy Are Consistent with State and Federal Law

Both federal and state law mandate the use of the best technology available for minimizing environmental impacts. For the past thirty years, closed-cycle recirculating cooling has been in wide use globally and achieves the 90-95% reductions called for by the draft policy. Also in wide use for many years are technologies that reduce impacts even further, including dry cooling and hybrid cooling systems. The applicable laws do not distinguish among power plants based on capacity factors or particular combustion types. Nor do the statutes speak to cost-benefit analysis or economics; rather, the statutes reflect decades of successful mechanisms intended to ensure the use of modern technology across the state.²⁸

²⁴ CEC Staff Report, *supra* note 1, p. 15.

²⁵ See, e.g., 67 Fed. Reg. 61 (Jan. 2, 2002), “Small Takes of Marine Mammals Incidental to Specified Activities; Taking of Marine Mammals Incidental to Power Plant Operations,” <http://www.epa.gov/fedrgstr/EPA-IMPACT/2002/January/Day-02/i32238.htm> Accessed 9.10.06 (Letter of Authorization granted pursuant to Marine Mammal Protection Act to take certain number of harbor seals, gray seals, harp seals, and hooded seals from in power plant operations).

²⁶ “Radioactive Leak Reaches Nuclear Plant’s Groundwater,” Los Angeles Times (Aug. 18, 2006), available at: http://www.latimes.com/news/local/la-me-radioactive18aug18.0.1132872.print_story?coll=la-home-local Accessed 9.10.06. (“Radio Active Leak Reaches Nuclear Plant’s Groundwater”).

²⁷ Voluntarily reported data is collected for the Marine Mammal Stranding Network by the National Marine Fisheries Service Southwest Regional Office. This data includes take information from only a subset of plants.

²⁸ See, e.g., Lisa Heinzerling, *Statutory Interpretation in the Era of OIRA*, 33 Fordham L. J. 101 (2006).

1. The Clean Water Act

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”²⁹ To effectuate this goal, in 1972, Congress fundamentally reformed the Act in what this Court has described as a “sea change” in this country’s water pollution control strategy.³⁰ As amended, the Act prohibits all discharges of pollutants to waters of the United States, except as permitted in a National Pollutant Discharge Elimination System (NPDES) permit.³¹ NPDES permits, issued by State agencies or EPA’s regional offices, transform the generally applicable effluent limitations and other standards into specific obligations borne by the individual discharger.³² These obligations were determined by Congress’s focus on uniform technology standards in the 1972 amendments, which “predicated pollution control on the application of control technology on the plants themselves....”³³ These national technology standards, moreover, become more stringent over time. **As the Supreme Court has recognized, the potential for economic consequences does not dampen these mandates.**³⁴ Indeed, with the passage of time and the tightening of the standards, cost considerations were to be relegated to a more peripheral role in the selection of best technology.³⁵

2. Clean Water Act Section 316(b)

“[W]ell aware of the dangers posed to aquatic life by the withdrawal of large volumes of water through cooling water intake structures”³⁶ and of the availability of alternatives (such as closed-cycle cooling), Congress included section 316(b) in the 1972 Act as part of its technology-based framework. Section 316(b) provides:

Any standard established pursuant to [CWA §§ 301 or 306] and applicable to a point source shall require that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impact.³⁷ (Emphasis added.)

²⁹ CWA § 101(a), 33 U.S.C. § 1251(a).

³⁰ *Riverkeeper, Inc. v. EPA*, 358 F.3d 174, 184 (2d Cir. 2004) (“*Riverkeeper*”). The Act defines “pollution” broadly to include aquatic mortality caused by power plants: “The term ‘pollution’ means the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.” CWA § 502(19), 33 U.S.C. § 1362(19).

³¹ CWA §§ 301, 402, 33 U.S.C. §§ 1311, 1342.

³² *EPA v. California, ex rel. State Water Res. Control Bd.*, 426 U.S. 200, 205 (1976).

³³ *Hooker Chemicals*, 537 F.2d at 623. Water quality standards were retained in the 1972 Act as a supplementary mechanism that can be used to set limitations stricter, but not more lenient, than technology-based limitations. *Riverkeeper*, 358 F.3d at 184 n.10.

³⁴ *EPA v. National Crushed Stone*, 449 U.S. 64, 80 (1980) (“Comments in the Senate debate were explicit: ‘There is no doubt that we will suffer some disruptions in our economy because of our efforts; many marginal plants may be forced to close.’”).

³⁵ *NRDC v. EPA*, 822 F.2d 104, 110 (D.C. Cir. 1987); see also *Riverkeeper*, 358 F.3d at 185 citing cases (EPA “should give decreasing weight to expense as facilities have time to plan ahead to meet tougher restrictions.”).

³⁶ In re Brunswick Steam Electric Plant, USEPA, Decision of the General Counsel, EPA GCO 41 at 3 (June 1, 1976). During CWA debate, Senator Buckley cited with approval newspaper articles reporting a decision to require closed-cycle cooling at Hudson River power plants to abate massive fish kills caused by their cooling water intake structures. *Id.* at n.10, citing Senate Com. on Public Works, “A Legislative History of the Water Pollution Control Act Amendments of 1972,” 93d Cong., 1st Session, at 196-197.

³⁷ For a comprehensive discussion of section 316(b)’s legislative history, see Karl R. Rabago, *What Comes Out Must Go In: Cooling Water Intakes and the Clean Water Act*, 16 Harv. Envtl. L. Rev. 429, 445-455 (1992).

Although they govern withdrawals rather than discharges, section 316(b)'s limitations are "technology-based performance requirements analogous to those derived for point sources under sections 301 (existing sources) and section 306 (new sources)."³⁸ Congress's use of "best technology available" (BTA) language in section 316(b) – which is textually similar to "best available technology" (BAT)³⁹ and "best available demonstrated control technology" (BADCT)⁴⁰ – and its explicit cross-reference to sections 301 and 306, illustrates its intent to incorporate cooling water standards as an integral component of the NPDES program. In fact, regulations issued under section 316(b) are also promulgated under section 301 and 306.⁴¹ As the Fourth Circuit explained in *VEPCO*, section 316(b) "requires § 301 and § 306 standards to deal with cooling water intake structures."⁴² *VEPCO* cited *Bethlehem Steel*⁴³ as support for its conclusion that section 316(b) regulations are "closely related to the effluent limitations and new source standards of performance of §§ 301 and 306" and distinguishable from "state-imposed water quality standards under § 303."⁴⁴

Section 316(b) requires the "best technology available to minimize adverse environmental impact." Section 301, pursuant to which the Rule was also issued, requires the "best available technology economically achievable" (BAT).⁴⁵ BAT should represent "a commitment [by an industrial category] of the maximum resources economically possible to the ultimate goal of eliminating all polluting discharges."⁴⁶ The most critical aspect of BAT is that it is a "technology forcing" standard, compelling polluting industries to meet ever more stringent limitations on the path towards complete elimination of water pollution.⁴⁷ Sections 316(b) and 301 therefore require EPA to select the technology that both minimizes impact and represents the maximum commitment of industry resources economically achievable.

Finally, Section 316(b) creates a mandatory duty for EPA to promulgate standards for cooling water intake structures within the time limits of sections 301 and 306.⁴⁸ Thus, EPA was required to promulgate section 316(b) regulations for new facilities by January 18, 1974,⁴⁹ and for existing facilities by July 1, 1977.⁵⁰

³⁸ 66 Fed. Reg. 65255, 65285 (Dec. 18, 2001).

³⁹ See CWA § 301(b)(2); 33 U.S.C. § 1311(b)(2).

⁴⁰ See CWA § 306(a)(1), 33 U.S.C. § 1316(a)(1).

⁴¹ *Riverkeeper*, 358 F.3d at 185, citing *Va. Elec. and Power Co. ("VEPCO") v. Costle*, 566 F.2d 446, 449-50 (4th Cir. 1977); *Cronin v. Browner*, 898 F. Supp. 1052, 1059 (S.D.N.Y. 1995).

⁴² *VEPCO*, 566 F.2d at 450.

⁴³ *Bethlehem Steel Corp. v. EPA*, 538 F.2d 513, 515 (2d Cir. 1976).

⁴⁴ *VEPCO*, 566 F.2d at 450-51 & n.17.

⁴⁵ CWA § 301(b)(2)(A), 33 U.S.C. § 1311 (b)(2)(A).

⁴⁶ *NRDC v. EPA*, 863 F.2d 1420, 1426 (9th Cir. 1988).

⁴⁷ *NRDC v. EPA*, 822 F.2d 104, 123 (D.C. Cir. 1987).

⁴⁸ *Cronin*, 898 F.Supp. at 1059.

⁴⁹ See CWA §§ 306(b)(1)(A), (B) (requiring new source performance standards no later than one year and ninety days after October 18, 1972); see also *Riverkeeper*, 358 F.3d at 185-86 ("When the EPA 'established' new source performance discharge 'standard[s]' pursuant to section . . . 306, it ought *then* to have regulated new intake structures because, by virtue of section 316(b), section 306's standards 'shall require that . . . cooling water intake structures reflect the best technology available.") (emphasis in original).

⁵⁰ See CWA § 301(b)(1)(A), (B) (effluent limitations for existing sources no later than July 1, 1977).

3. *California Constitution and the Public Trust Doctrine*

California has a duty, mandated by the state Constitution and a long line of state Supreme Court cases, to hold coastal lands in trust for the people of California. Historically, this Public Trust Doctrine provided for the public our waterways for "commerce, navigation, and fisheries." Later court rulings added hunting, fishing, swimming and recreational boating, and in 1971 expanded the list to include "preservation of those lands in their natural state," in order to protect both scenic and wildlife habitat values. The California Supreme Court held that the State has an "affirmative duty to take the public trust into account" in making decisions affecting public trust resources, and also the duty of continuing supervision over these resources, which allows and may require modification of such decisions.⁵¹

The Court found in *City of San Diego v. Cuyamaca Water Company*⁵² that the public trust doctrine does not allow authorities to make concessions to individuals for the perpetual and exclusive use of portions of the waters without reference to the needs of other inhabitants. Such concessions would be a clear abuse of the public trust. Failure to set stringent regulations for use of once-through cooling by coastal power plants would amount to a grant of such a perpetual and exclusive use of portions of public trust waters, since these plants are destroying coastal resources on a daily basis. **Allowing these plants to use these outdated technologies unfettered, when less harmful technologies are feasible, and giving them a competitive advantage over inland plants by allowing them to use billions of gallons of publicly held seawater each day essentially for free, arguably is an abuse of the public trust that would be recognized by the courts.**

The State Water Board should take strong and decisive action to exercise its public trust responsibilities, by implementing stringent regulations for these coastal plants, in order to protect the interests of its coastal residents and other industries that have made California by far the country's biggest coastal treasure and economy.

4. *California Law Governing Protection of Coastal and Marine Resources*

Numerous authorities have been enacted in California to provide increasing protection, enhancement, and restoration of the State's coastal and marine resources. The California Coastal Act, Marine Life Protection Act and the Marine Life Management Act are models for the nation. Most recently, the Governor's *Ocean Action Plan*, California Ocean Protection Act (signed into law in 2004), and Ocean Protection Council again put California in the forefront of ocean and coastal management nationwide. These initiatives symbolize the Golden State's recognition of the many values of its world-renowned marine and coastal environment, a recognition that should be considered in developing a policy to protect those resources from the devastating local and regional impacts of once-through cooling.

5. *Porter-Cologne Water Quality Control Act*

In continuing to develop the statewide policy, it is imperative that the State Board recall Water Code section 13142.5, which mandates that the "best available site, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of

⁵¹ *National Audubon Society v. Superior Court*, 33 C.3rd 419 (1983).

⁵² *City of San Diego v. Cuyamaca Water Company*, 209 Cal. 105 (1930).

marine life.” Given the inherently destructive nature of once-through cooling systems, anything less than best available technology would fail to meet Porter-Cologne’s mandate to protect the beneficial uses of the waters of the state.

The regulated community has attempted to extricate itself from the requirements of Porter-Cologne by arguing in public workshops that other OTC should not be regulated to the required extent of the law because other threats to marine life, such as fishing, have greater impacts than OTC. This argument is specious on both the facts and the law. First, by making sweeping generalizations about entire ocean ecosystems, this argument ignores the clear facts of the severe localized and regional impacts of OTC, particularly on unique coastal ecosystems such as National Estuarine Research Reserves, among others.

Second, there is no legal support for the regulated community’s argument that some threats to beneficial uses can be ignored or minimized because of the mere existence of other threats to the same beneficial uses. If that were the case, Porter-Cologne would never be implemented. For example, by that logic a municipal POTW could discharge wastewater doused with enough chlorine to kill virtually every living thing in the vicinity of the discharge pipes without penalty, simply because fishing is also a threat to marine life. **It is a rare comment letter where we must emphasize that Porter-Cologne does not allow for unfettered impacts to California’s waters; we urge the Board to reject this argument and to implement the mandates of Porter-Cologne fully in order to protect the waters of the state.**

C. The Proposed Reductions Are Technologically and Economically Practical

Despite the unsupported, sweeping generalizations by some in the regulated community that the proposed, legally required reductions in impacts are “technologically impossible,” **the proposed reductions are both technologically and economically practical**, as has been proven time and again around the country. Steam plants in other states such as New York have been successfully retrofit to updated cooling technology without harm to their energy supply. A nuclear plant in Michigan has also been safely retrofit with updated cooling technology.⁵³

In addition, although many coastal plants in California might claim that there is not enough space to build cooling towers as an alternative cooling technology, this is simply untrue. For example, many coastal steam plants are considering the co-location of desalination plants. Any steam plant with space available for a large desalination plant generally has adequate space for a wet cooling tower retrofit.⁵⁴ A review of aerial photographs of San Onofre and Diablo Canyon nuclear plants indicates there should be adequate space at both facilities for wet towers.⁵⁵ To

⁵³ EPA Federal Clean Water Act 316(b) Phase II Technical Development Document, Chapter 4 - Cooling System Conversions at Existing Facilities (April 2002) p. 4-3. Available at: <http://www.epa.gov/waterscience/316b/devdoc/ch4.pdf#search=%22michigan%20nuclear%20retrofit%20once%20through%22> (“EPA 316(b) Phase II TDD Ch.4”)

⁵⁴ For example, a 50 million gallon/day desalination plant is under evaluation for an 11-acre site at the AES Huntington Beach steam plant. (City of Huntington Beach, “Seawater Desalination Project at Huntington Beach - Draft Recirculated EIR,” May 2005, p. 3-1.) Units 3 and 4 steam units at Huntington Beach, a total of 450 MW, were recently repowered. (CEC, Huntington Beach Project Description, available at: <http://www.energy.ca.gov/sitingcases/huntingtonbeach/index.html> accessed 9.1.06) Less than 2 acres of land would be needed for inline wet towers for Units 3 and 4. (“CEC Huntington Beach Project Description”).

⁵⁵ For example, San Onofre has two reactors and sits on a 257 acre site. (Utilities Service Alliance, San Onofre webpage: <http://www.usainc.org/sanonofre.asp>.) The cooling tower for each 1,100 MW reactor would require from 2 to

address more directly these and other industry claims of technological “impossibility,” the California Coastal Conservancy, as directed by the Ocean Protection Council in its April 2006 Resolution, is currently undertaking a six-month study that will “analyze each of the existing coastal plant’s conversion to alternative cooling technologies or installation of best technology available.”

Conversion and/or phase-out of aging OTC systems can occur concurrently with modernization of coastal steam plants with high efficiency, gas turbine combined-cycle plants, which is a stated goal of California’s Energy Action Plan and recent California energy legislation that supports California’s progress toward reducing greenhouse gases.⁵⁶ There are currently 13,000 MW of new power plants under construction (960 MW), approved for construction (7,643 MW), or under formal review by the CEC (approx 4,500 MW).⁵⁷ This compares to approximately 14,000 MW of existing aging OTC steam boilers along the California coast.⁵⁸ Most steam plants are 30 to 50 years old and at or beyond their expected service life.⁵⁹ The MW capacity of these aging OTC plants could be replaced almost entirely by projects already approved or about to be approved by the CEC.

The overall cost of power production of coastal plants would decline over time as more fuel-efficient combined-cycle plants displace steam plants and OTC technology is replaced at those converted plants, as the cooling system is a small part of the overall cost of a new power plant. There is very little difference in the cost of a new combined-cycle plant whether it incorporates OTC, closed-cycle wet cooling, or dry cooling.⁶⁰ At plants that are not converted, the cost of power production related to an OTC retrofit would increase by not more than 3 to 4 percent.⁶¹

6 acres of land, depending on whether an inline or round cooling tower is used. Inline wet cooling towers can provide 500 to 600 MW of steam plant cooling per acre (210 feet by 210 feet area). (Powers, William, direct and rebuttal testimony, Danskammer Power Station draft permit proceeding – SPDES NY-0006262, October 2005 and December 2005.) Testimony describes design basis for retrofit plume-abated tower measuring 50 feet by 300 feet for 235 MW of steam plant capacity. Only 2 to 4% of the San Onofre site would be needed for the towers.

⁵⁶ See, e.g., AB 32 (Nuñez), passed by the Legislature Sept. 2006 to address greenhouse gas emissions; see also AB 1576 (Nuñez, 2005), which authorizes utilities to enter into long-term contracts for the electricity generated from the replacement or repowering of older, less-efficient electric generating facilities.

⁵⁷ California Energy Commission Power Plant Fact Sheet (August 9, 2006), Attachment D, bar chart on p. 3. Also available at http://www.energy.ca.gov/sitingcases/FACTSHEET_SUMMARY.PDF Accessed 9.9.06. (“CEC Power Plant Fact Sheet Attachment D”)

⁵⁸ California Energy Commission comment letter to SLC dated April 12, 2006, p. 3. MW capacity for each coastal plant category in 2004 (steam, nuclear, combined-cycle, combustion turbine) is calculated from data provided in table on p. 3. Total MW for all four plant categories is calculated at 20,650 MW.

⁵⁹ California Energy Commission Staff Paper (July 2003), *Aging Natural Gas Power Plants in California*, Table 1. Available at: http://www.energy.ca.gov/reports/2003-07-17_700-03-006.PDF#search=%22Aging%20Natural%20Gas%20Power%20Plants%20in%20California%22 Accessed 9.12.06. (“CEC *Aging Natural Gas Power Plants in California*”).

⁶⁰ John Maulbetsch presentation on cost of cooling technologies to the State Water Resources Control Board at State Board Workshop in Oakland on December 7, 2005. Available at: http://www.swrcb.ca.gov/npdes/docs/wrkshp_oakland2005/pres_jmaulbetch.pdf Accessed 9.8.06.

⁶¹ See fn. 19 (xix) of Attachment B (Fact Sheet on Energy and OTC) for calculation. Retrofitting to a wet tower is fundamentally simple - the OTC pipes going to and from the ocean are rerouted to a cooling tower. At facilities that have been retrofit, the hook-up of the new cooling system has generally been carried-out without requiring an extended unscheduled outage. The cost to retrofit 800 MW Palisades Nuclear (MI) to wet towers was \$68/kW (1999 dollars). The cost to retrofit 750 MW Pittsburg Unit 7 (CA) was \$46/kW (1999 dollars). EPA 316(b) Phase II TDD Ch.4, *supra* note 53.

The power industry estimates that the capital cost to retrofit all existing facilities, approximately 20,700 MW of capacity, ranges from \$2.0 billion for wet cooling to \$2.5 billion for dry cooling.⁶² The complete retrofit of the existing fleet of aging coastal steam plants, which represents 14,000 MW of the 20,700 MW total, is not a credible scenario. In reality only the two nuclear plants and a few of the steam units that have recently been upgraded are likely to still be operational in 2020. It is probable that all other steam plants will have converted to combined-cycle using closed-cycle wet or dry cooling technology or been retired by that time.

It is useful, however, to use the industry retrofit cost figure to determine the cost impact of a closed-cycle conversion at California's two coastal nuclear power plants. A large capital investment like a wet tower retrofit would be amortized over 20 to 30 years. Industry estimates the cost to retrofit 20,700 MW of coastal power plant capacity with wet towers at \$2 billion, or \$100 million per 1,000 MW of capacity. Assuming 30 years and 7% interest, the payment per year on the \$100 million capital cost would be \$8 million per year. Nuclear plants are baseload units with high usage levels, typically 90 percent of potential output or greater. The relative cost impact of a wet tower retrofit at nuclear plants would be low relative to natural gas-fired boiler plants due to the very high usage rates, and associated revenue streams, of nuclear plants. Each reactor at SONGS and Diablo Canyon generates approximately 1,000 MW. At a 90 percent annual capacity factor each reactor will produce approximately 8 million MW-hr of electricity per year. The average price of wholesale power in California in 2005 was in the range of \$70/MW-hr.⁶³ Each reactor would generate a revenue stream of approximately \$550 million per year at a 90 percent capacity factor and current wholesale electricity rates.⁶⁴ **The annual capital cost expense of a wet tower retrofit at either SONGS or Diablo Canyon would be in the range of 1.5 percent of annual revenue using industry's own generic wet tower retrofit cost estimate of \$100 million per 1,000 MW of capacity.**⁶⁵

Another cost issue that industry has raised as justification for not retrofitting nuclear plants is the revenue that would be lost during the outage required for the hook-up of the closed-cycle cooling system. However, nuclear plants are characterized by periodic extended outages. If the retrofit hook-up is coordinated with one of these extended periodic outages, **no unplanned downtime** will be caused by the hook-up of the closed-cycle cooling system. As the EPA states:⁶⁶

The Agency learned that for 2000 the industry mean nuclear refueling outage was approximately 40 days (Nucleonics Week, January 18, 2001). In addition, NUREG-1437 shows that nuclear plants undergo periodic and predictable outages for inspections. The following excerpts from NUREG-1437 explain the NRC's view of outages at nuclear plants:

⁶² Letter from CCEEB to State Lands Commission, "Comments on Proposed Staff Resolution" (March 24, 2006).

⁶³ Energy News Data – Western Price Survey, 2005 weekly archives: <http://www.newsdata.com/wps/archives.html> Accessed 8.2.06.

⁶⁴ Nuclear Energy Institute 2006. Nuclear Energy Fact Sheet. Available at: www.nei.org Accessed 9.1.06.

⁶⁵ The industry estimate of \$100 million per 1,000 MW of capacity is equivalent to \$100/kw. Capital costs are typically presented in the "\$/kw" format in the power industry. The capital cost of the one closed-cycle retrofit carried out on a U.S. nuclear power plant, the Palisades Nuclear Plant in Michigan, was \$68/kw in 1999 dollars. EPA 316(b) Phase II TDD Ch.4 *supra* note 53, p.4-6. The industry estimate is conservative, though reasonable, in the context of the actual cost to retrofit the Palisades Nuclear Plant in Michigan.

⁶⁶ Nuclear Energy Institute 2006. Nuclear Energy Fact Sheet. Available at: www.nei.org Accessed 9.1.06.

From Section 2.2.6- Nuclear power plants must periodically discontinue the production of electricity for refueling, periodic in-service inspection (ISI), and scheduled maintenance. Refueling cycles occur approximately every 12 to 18 months. The duration of a refueling outage is typically on the order of 2 months. Enhanced or expanded inspection and surveillance activities are typically performed at 5- and 10-year intervals. These enhanced inspections are performed to comply with Nuclear Regulatory Commission (NRC) and/or industry standards or requirements such as the American Society of Mechanical Engineers Boiler and Pressure Vessel Code. Five-year ISIs are scheduled for the 5th, 15th, 25th, and 35th years of operation, and 10-year ISIs are performed in the 10th, 20th, and 30th years. Each of these outages typically requires 2 to 4 months of down time for the plant. For economic reasons, many of these activities are conducted simultaneously (e.g., refueling activities typically coincide with the ISI and maintenance activities).

Many plants also undertake various major refurbishment activities during their operational lives. These activities are performed to ensure both that the plant can be operated safely and that the capacity and reliability of the plant remain at acceptable levels. Typical major refurbishments that have occurred in the past include replacing PWR steam generators, replacing BWR recirculation piping, and rebuilding main steam turbine stages. The need to perform major refurbishments is highly plant-specific and depends on factors such as design features, operational history, and construction and fabrication details. The plants may remain out of service for extended periods of time, ranging from a few months to more than a year, while these major refurbishments are accomplished. Outage durations vary considerably, depending on factors such as the scope of the repairs or modifications undertaken, the effectiveness of the outage planning, and the availability of replacement parts and components.

In fact, both SONGS and Diablo Canyon have received authorization from the CPUC to conduct boiler replacement projects. The cost at each facility will be approximately \$700 million.⁶⁷ One ideal time to convert SONGS and Diablo Canyon to closed-cycle cooling would be at the time the boiler replacement projects are underway. This approach would eliminate any issues associated with downtime or construction in the vicinity of an operating reactor.

In sum, substantial evidence from both government agencies and the industry itself indicates that the proposed 90-95% reductions in impacts are both technologically and economically practical, and should be adopted and implemented.

D. The Draft Policy Is Consistent with California's Energy Action Plan

California's Energy Action Plan calls for California to move towards cleaner, more efficient technology. The overarching goal is for "California's energy to be adequate, affordable, technologically advanced, and environmentally-sound," and for our energy to be reliable and

⁶⁷ *Id.*

“provided when and where needed and with minimal environmental risks and impacts.”⁶⁸ In order to reach this goal, the Energy Action Plan calls for the establishment of “appropriate incentives for the development and operation of new generation [sic] to replace the least efficient and least environmentally sound of California’s aging power plants.”⁶⁹ The Energy Action Plan outlines specific actions needed to achieve electricity adequacy, reliability, and infrastructure including “significant capital investments” to “augment existing facilities, replace aging infrastructure, and ensure that California’s electrical supplies will meet current and future needs at reasonable prices and without over-reliance on a single fuel source.”⁷⁰

Many of the coastal steam plants are 30-50 years old and are beyond their expected lifetimes.⁷¹ It would be inconsistent with state environmental and energy policy to artificially prolong the life of these antiquated, inefficient, polluting power plants with a weak OTC policy. It is not the province of the State Board to facilitate re-licensing of energy plants or to preserve antiquated technology. In fact, California state law mandates the opposite. Moreover, the required changes necessary for power plants to comply with the law would in no way threaten California’s energy supply. According to the CEC website, there is a total of 4056 MW of new energy capacity currently under review by the CEC, some of which include renewable energy developments.⁷² Further, the state has a backup of licensed but not-yet-built capacity.⁷³

We strongly encourage the State Board to consult with the expert staff at the CEC to answer any questions about the State’s demonstrated, strong support for a sustainable, environmentally-friendly energy supply. The alarmist claims made by industry of power shortages resulting from the draft 316(b) policy can be soundly resolved through careful consideration of all of the facts. Please see Attachment B’s “Energy and OTC Fact Sheet” for more information and supporting documentation.

Modernization of coastal steam plants with newer technologies such as high efficiency, gas turbine combined-cycle plants is not only consistent with California’s Energy Action Plan - it is also consistent with recent California energy legislation and with the state’s clear commitment towards reducing greenhouse gases, as evidenced by, among other things, the recent enrollment by the Legislature of AB 32.⁷⁴ As stated by Lt. Governor Cruz Bustamante, “new technology [can] provide a way to resolve both our economic issues, our energy issues, as well as the environmental issues. I don’t buy the idea that we have to continue to degrade the environment and do business. I think you can do good environmental work and still have good business.”⁷⁵

⁶⁸ California’s Energy Action Plan II, p. 1 (emphasis added). Adopted by the CA Public Utilities Commission and the CA Energy Commission on September 21, 2005. Available at: http://www.energy.ca.gov/energy_action_plan/2005-09-21_EAP2_FINAL.PDF accessed 8/30/06.

⁶⁹ *Id* at p. 7.

⁷⁰ *Id*.

⁷¹ CEC *Aging Natural Gas Power Plants in California*, *supra* note 59.

⁷² See CEC Expected and Disclosed Energy Facility Projects in Review 8/9/06, Attachment C. Table created from data available at: www.energy.ca.gov/sitingcases/all_projects.html Accessed 8.8.06. (“CEC Projects in Review 8/9/06, Attachment C”)

⁷³ CEC Power Plant Fact Sheet Attachment D, *supra* note 57.

⁷⁴ See also AB 1576 (2005) - authorizes utilities to enter into long-term contracts for the electricity generated from the replacement or repowering of older, less-efficient electric generating facilities.

⁷⁵ Lieutenant Governor Cruz Bustamante, February 9, 2006, speaking at State Lands Commission Hearing regarding the State Lands Commission Resolution regarding Once-Through Cooling.

California's Lt. Governor, State Controller and Director of Finance all concluded that "the elimination, or reduction to insignificance of the adverse environmental impacts, of once-through cooling technologies can be accomplished without threatening the reliability of the electrical grid."⁷⁶ We urge the State Water Board to follow their leadership, and adopt a strong state 316(b) policy that protects the environment consistent with the state's commitment to a sustainable energy supply.

E. The Role of the Expert Review Panel Should Be Expanded to Include Review of All Technical Analyses Required by the Policy

We commend the State Board for proposing to convene an Expert Review Panel to assess the entrainment and impingement impact studies and advise the State Board on technical issues related to OTC. Given the technical focus of the draft policy, we encourage the State Board to expand the role of this Panel to assess additional technical analyses required for the implementation of, and compliance with, the state policy. For example, in addition to the responsibilities of the panel outlined in the draft policy, the Expert Review Panel should also evaluate how the calculation baseline is determined for each plant; how the capacity utilization factor is determined for each plant; the feasibility analyses of alternative technologies (including the use of wastewater for cooling) conducted by each plant; and the design, results, and interpretation of the cumulative impact studies. Expanding the role of this group will maximize the use of its collective technical expertise and assure that the implementation of, and compliance with, the policy is a truly science-based process. Broadening the purview of the Expert Review Panel will also ensure that the analyses conducted by industry consultants for compliance with the policy are given adequate review.

Although we support the State Board's efforts to identify a balanced expert panel to review the technical aspects required by the policy, we have concerns surrounding the structure of this group. The draft policy proposes that the panel be comprised of three academic members, two technical experts representing industry, two environmental group representatives, and one consulting scientist. However, the role and background of the single consulting scientist is not outlined in the draft policy. Without better characterizing this representative, there is potential that the final composition of the panel will be unbalanced. The single consulting scientist may be biased toward industry or the environmental groups. Instead of featuring an unspecified consulting scientist, we recommend this seat be filled by a member from the CEC staff. Including a member from the CEC staff on the Expert Review Panel would provide additional technical expertise regarding capacity utilization rate, feasibility analyses, and other technical assessments, as well as facilitate further collaboration between the State and Regional Water Boards and CEC.

II. POTENTIAL LOOPHOLES IN THE DRAFT POLICY SHOULD BE CLOSED TO ENSURE THAT 90-95% REDUCTION IN IMPACTS FROM EXISTING POWER PLANTS IS ACTUALLY AND EXPEDITIOUSLY ACHIEVED

In order to ensure that the policy's appropriate goal of 90-95% reduction in impacts is achieved, the loopholes and potential implementation gaps in the draft policy must be closed and filled. These are described in detail below.

⁷⁶ SLC Resolution, *supra* note 2. (emphasis added).

A. All Plants Must Be Included in the Policy

Loopholes created for little-used, inefficient plants must be closed. Entrainment standards should apply to all power plants, not just those with a capacity utilization rate greater than 15%. As the draft policy is written, plants that have a 15% or less capacity utilization rate will not be subject to the entrainment standards. According to data presented by the CEC at the State Board workshop on July 31, 2006 ("Sacramento workshop"), nine of the old coastal steam powered "peaker" plants operate at a capacity utilization rate less than 15% and so would be exempted from the proposed entrainment standards. Taking into account the recent and upcoming closures of some coastal plants, this means that about 40% of the coastal steam plants potentially affected by this policy would be excused from complying with the new entrainment standards.⁷⁷ This exemption was simply lifted from the federal CWA section 316(b) regulations (which, as noted above, are under legal challenge by numerous groups). Yet according to CEC staff, it is difficult to understand why this exemption should apply to California.⁷⁸

California's coastal power plants are old and inefficient, and should not be given artificial life support through harmful and unsupportable exemptions. Industry claims that such exemptions are essential to the energy grid, but as described in detail above, this is simply not true. It is important to remember that these outdated, now little-used "peaker" plants are only one part of the electrical grid, and they do not operate in a vacuum. According to the CEC, there are new energy projects currently under review that would bring online more capacity using state of the art, cleaner technology. The CEC website shows that fourteen new projects are currently under review, totaling 4,506 MW capacity.⁷⁹ Of these new projects, eight are designed as "peaking" plants, and would provide 2,238 MW of peaking capacity.⁸⁰ Not only is there new peaking capacity coming on line, but many of these plants are owned by the very same companies that own the coastal, now-"peaking" plants that are using outdated and harmful cooling technology. For example, the CEC is currently reviewing a request by subsidiary company of Southern California Edison to develop two 500 MW "peaker" plants that use new, cleaner technology.⁸¹ Companies with coastal "peaker" plants clearly already are planning for and implementing new generating capacity with more efficient and less polluting inland plants they already own or are building.⁸²

The State Board should not encourage the continuance of impacts caused by outdated, polluting, inefficient plants through loopholes. Instead, the loopholes should be eliminated so that the market runs its course and these plants are replaced as needed with more efficient, cleaner, technologically superior alternatives, as was recently done with the Humboldt and Encina power plants. Exempting extremely low capacity plants from the rule makes no sense, as they are the most inefficient of all of the once-through cooled plants and also cause significant environmental

⁷⁷ Oral Comments given at State Water Resources Control Board on July 31, 2006 by California Energy Commission Staff.

⁷⁸ *Id.*

⁷⁹ CEC Energy Projects in Review 8/9/06, Attachment C, *supra* note 72.

⁸⁰ *Id.*

⁸¹ *Id.*

⁸² See, e.g., California Energy Commission, "In the Matter of: Application for Certification, AES Highgrove Power Plant Project" (Aug. 16, 2006), http://www.energy.ca.gov/sitingcases/highgrove/notices/2006-08-16_notice_pubhring_sitevisit.html (describing construction by AES of 300 MW inland peaking power plant).

damage. The law does not allow them to continue to damage the public's resources and kill marine life, particularly when peaking power can be generated using more efficient technology.

Finally, a significant related loophole is that the draft policy considers capacity at the plant, not the unit, level. This perspective would enable generators to include old or retired units in the calculation of annual capacity factor. In other words, plants operating over 15% capacity utilization rate may have some inactive units. These plants may factor their idle units into the calculation of capacity utilization rate to reduce it to 15% or less. Given that the average capacity utilization rate of each coastal steam plants is less than 20%, this provision could provide a significant loophole for virtually all of the coastal plants.⁸³ Calculating capacity utilization rate at the unit, rather than plant level would also more closely correlate with actual generational flow, which we urge the State Board to use as the basis for determining calculation baseline (further explained below). Thus, **the final policy should be revised to require capacity utilization rate to be calculated at the unit, not plant, level.**

B. "90-95% Reduction from What?" The Calculation Baseline Must Be Set to Ensure that Required Reductions Are Actually Achieved.

As described in detail above, and as documented in years of U.S. EPA, CEC, and other agency records, the persistent use of OTC at coastal power plants clearly has contributed to the loss of biodiversity and the documented population decline of many marine species over the past 50 years. The draft state policy on once-through cooling appropriately improves upon the federal regulations by requiring facilities to implement reductions in impacts at the upper ends of the performance standards in the federal rule. The approach for calculating these reductions in impacts is critically important to whether these reductions are actually achieved in the environment. In other words, **the baseline from which the 90-95% reductions in impacts is calculated – the "calculation baseline" – must be set to actually achieve reductions, rather than mask inactivity by the regulated community.**⁸⁴

However, the discussion of how exactly the calculation baseline should be determined and reductions measured remains vague in the draft policy. Without explicit direction, there is significant risk that the calculation baseline will not be determined in a consistent manner for each facility in the state and great potential for confusion among Regional Boards, facilities, and the public surrounding this issue. More significant than inter-state inconsistency, however, is the real risk that use of varying assumptions in such calculations will result in little to no real reductions in impacts. We urge the State Board to provide detailed direction regarding the determination of

⁸³ Letter from CEC to SLC (April 12, 2006), p.3. MW capacity for each coastal plant category in 2004 (steam, nuclear, combined-cycle, combustion turbine) is calculated from data provided in table on p. 3. Total MW for all four plant categories is calculated at 20,650 MW.

⁸⁴ The baseline is also significant in that para. 2.d. of the draft policy ties the baseline to the requirement to reduce intake flow when energy is not being produced. Specifically, the draft policy states that entrainment must be minimized when electrical energy will not be produced for two or more consecutive days, by reducing the intake flow to "ten percent of the baseline flow rate." The more the policy allows the baseline flow to be set over the amount actually needed to produce electricity, the less likely it will be that this necessary shut-down measure will be implemented. [CA State Water Resources Control Board, "Scoping Document: Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations (June 13, 2006)," Appendix I, p.2. Available at: http://www.swrcb.ca.gov/npdes/docs/cwa316b/316b_scoping.pdf Accessed 9.1.06].

calculation baseline in the revised policy, one that ensures that the reductions in impacts are actually achieved. Our recommendations of how to provide this direction are further delineated below.

1. *The relationship between generational and actual flow should be explored and if differences exist, the calculation baseline should be determined using generational flow rather than actual flow*

We support State Board staff's effort to improve on the federal rule by requiring that facilities use flow other than the permitted maximum flow to determine calculation baseline. Although intuitively the actual flow, which is the proposed basis for the calculation baseline in the draft policy, appears to reflect the flow required for a facility to operate, **in many cases the actual flow is significantly greater than the flow required to generate electricity** (*i.e.*, the "generational flow"). For example, generating Units 1 & 2 at El Segundo Generating Station ceased producing electricity in 2002; however the mean annual flow at Intake 001 (which draws in cooling water for Units 1 & 2) continued at or above the level prior to 2002. Industry has argued these high flow levels – which, at El Segundo range from 50 to over 200 million gallons per day - are needed to control biofouling for maintenance of pipes.⁸⁵ However, the regulated community has provided no support for such an assertion. Indeed, numerous other options either exist or are in active development to address fouling that are far more environmentally sound than running the pumps almost continuously, with no regard for whether the plant is generating electricity.⁸⁶ **Thus, we urge the State Board to identify the true volume of water actually needed at each facility before making any decisions to base entrainment and impingement reductions on actual flow.**

Moreover, if the baseline for reductions is calculated using actual flow, then depending on how long it takes the policy to be adopted, facilities may be able to elevate their flow levels beyond the necessary amount for generation to augment the baseline. This would make it easier for generators to comply with performance standards without actually making real reductions (similar to problems with early efforts to reduce residential water use in the face of droughts – those over-using water when the baseline was set were "rewarded" while conservers punished). Accordingly, we also urge the State Board to consider how to set a **fair and meaningful time frame** for determining the calculation baseline.

We understand that researching this issue as needed will require cooperation among the State Board, Regional Boards, and CEC. However, CEC staff representatives at the State Water Board's July workshop affirmed that determining the relationship between actual and generational flow will provide valuable information for the State Board's policy development and implementation process. The CEC staff also offered their assistance in researching this relationship. We encourage the State Board staff to work with CEC staff to develop a process for determining the calculation baseline that will best implement the goal of 90-95% reduction in impacts. At a minimum, **we urge the State Board to revise the draft policy to require that the calculation baseline be determined according to generational flow.** We also encourage the State Board to explore the use of deterrents, such as a negative credit that lowers the baseline, to ensure that facilities do not seek creative compliance avoidance strategies.

⁸⁵ El Segundo Generating Station Report flow data 1996-2004 (El Segundo Power, LLC), available at http://www.swrcb.ca.gov/rwqcb4/html/permits/316b_Issues.html. Accessed 8.1.06.

⁸⁶ See, e.g., http://www.onr.navy.mil/sci_tech/3t/transition/tech_tran/stories/adv_fouling/ Accessed 9.12.06; see also <http://www.epri.com/portfolio/product.aspx?id=1160> . Accessed 9.12.06.

2. Reference sites should be used in determining the calculation baseline to reflect the true impacts power plants have on marine and coastal resources

In our February letter to the State Board regarding OTC policy development (see Attachment A), we raised the concern that allowing facilities to establish a calculation baseline derived solely from historic levels of intake, entrainment, and impingement, as well as potentially depleted source waters surrounding the facility, will generate biased results that produce no meaningful environmental improvement. To reconcile this problem, we recommended that the policy require facilities to be responsible for past entrainment and impingement damages at their sites by using reference sites to assist in determining the calculation baseline. Although the staff has considered these comments in the draft policy by giving discretion to the Expert Review Panel to determine whether or not reference sites are appropriate, the draft policy fails to commit to the use of reference sites in determining the calculation baseline.

The scientific community broadly accepts the use of reference sites in study design to determine the extent of environmental impacts. These studies typically use a control, or reference site, to provide the data necessary to make comparisons between an impacted and unimpacted site and quantify the ecosystem effects of an environmental stressor.⁸⁷ In addition to academic studies, reference sites have historically been used in management to determine the extent of industrial impacts on marine and coastal resources. For example, both Hyperion Treatment Plant's and the Joint Water Pollution Control Plant's permits have historically and continue to require monitoring both within their zone of initial impact and at reference stations to determine the impacts of discharging primary sewage to benthic infaunal, demersal fish, and macroinvertebrate community composition and species abundance.⁸⁸

Taking a reference approach to determining the calculation baseline would help account for the years of degradation that has occurred in waters adjacent to power plant facilities. This approach is consistent with sections 13142.5(c) and (d) of the Porter-Cologne Act, which raise concerns about the coastal region's ecological balance. The reference studies we recommend align with the "independent baseline studies" foreseen by the Legislature, which to date have been largely ignored. Additionally, community composition and population structure have likely changed since the establishment of coastal power plants decades ago. This reference approach will help provide current data at a site that is undisturbed by OTC for which to compare the ecological structure of marine life at coastal power plant facilities.

We uphold the recommendations outlined in our February letter and strongly urge the state to take a sound scientific approach by incorporating the use of reference sites to determine the calculation baseline. This approach will avoid the possible confounding effects from potentially depleted source waters caused by historic impingement and entrainment at each facility. For example, the facilities on Alamitos Bay - Haynes and Alamitos Generating Stations - are located in close proximity to one another, and both impact the same small body of water. Based on circulation

⁸⁷ Schroeter *et al.*, "Detecting the Ecological Effects of Environmental Impacts: A Case Study of Kelp Forest Invertebrates," *Ecological Applications*, Vol. 3, No. 2., May 1993; Osenberg *et al.*, "Detection of Environmental Impacts: Natural Variability, Effect Size, and Power Analysis," *Ecological Applications*, Vol. 4, No. 1, Feb 1994.

⁸⁸ Thompson, SCCWRP, "Hyperion Monitoring Report"

http://www.lacity.org/SAN/EMD/products/pdf/SMB_Reports/2001_02/Chapter1.pdf. Accessed 9.10.06

and volumetric relationships, the combined OTC systems of these two power plants consume all of the water in Alamos Bay every five days, and have done so for decades.⁸⁹ It is very likely that organisms living in Alamos Bay have been severely depleted by the operation of these two power plants. It is imperative that a reference approach be used in situations like Alamos Bay to determine the true baseline for facilities.

In this reference approach, we recommend the State Board convene an independent technical working group (through the Expert Review Panel or otherwise) to collaboratively select a series of reference sites that represent habitats characteristic of each facility, but are not impacted by cooling water intake systems. Monitoring should be conducted at both reference sites and power plants. The team should be charged with developing and implementing a monitoring plan to characterize the composition, abundance and diversity of marine life that are entrained or impinged at each power plant and compare the data to monitoring conducted at reference sites.

Although this approach does not provide baseline data from before establishment of coastal power plants, it does provide data from sites that have not suffered decades of damage from entrainment and impingement. Thus, taking a reference approach indirectly addresses these ongoing impacts because samples are not limited to a potentially depleted source water area (as they are in the currently outlined Proposal for Information Collection report and Comprehensive Demonstration Studies). Such a process is essential if the state foresees continued use of once-through cooling.

C. There Must be Limits Governing Determination of "Feasibility"

Porter-Cologne section 13142.5(b) requires application of the best available technology "feasible" to "minimize the intake and mortality of all forms of marine life." It is important to note that the interpretation and application of this state law cannot be less stringent than federal law, which calls for the "best technology available for minimizing adverse environmental impact."

However, the draft policy defines "feasible" in a way that almost eviscerates the BAT standard in the Clean Water Act. Specifically, the draft policy defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors."⁹⁰ This definition is vague to the point of being unimplementable, allocating practically unbridled discretion to the Regional Board staff responsible for implementing the policy. For example, the draft policy arguably would allow a plant operator simply to demonstrate (to no particular identified standard) that no combination of operational and structural controls can feasibly achieve the 90% entrainment standard, at which point the operator would become eligible to use restoration measures to meet the standard (further discussion is provided below on the significant limitations of restoration or mitigation to address the impacts of OTC). Just examining, for example, economics: how is staff to know when economic factors make a project infeasible? Is it when the cost of a certain measure decreases annual profits by a certain proportion? When that cost exceeds the cost of air pollutant reduction technology?

⁸⁹ Tenera Environmental and MBC Applied Environmental Science, "Summary of Existing Physical and Biological Information and Impingement Mortality and Entrainment Characterization Study Sampling Plan," (September 28, 2005) p. 2.

⁹⁰ CA State Water Resources Control Board, "Scoping Document: Proposed Statewide Policy on Clean Water Act Section 316(b) Regulations (June 13, 2006)," Appendix I, p.4. Available at: http://www.swrcb.ca.gov/npdes/docs/cwa316b/316b_scoping.pdf Accessed 9.1.06. ("Scoping Document").

When that cost makes financing impossible? When that cost cannot be passed on to ratepayers? When that cost exceeds the cost of fuel for operating the plant? These questions do not even address how the other factors are to be measured, much less compared to the economic factor. Indeed, the questions left open by this definition could fill pages of this comment letter.

Because of how it is presently defined, the interpretations of "feasible" by Regional Board staff are likely to be extremely divergent. Implementation of the policy will result in a hodgepodge of compliance measures determined mainly by the persuasiveness of industry representatives at the regional level, rather than by consistent and fair application of the performance standards across the state. Such inconsistency is all the more nonsensical in the contemporary market, where merchant generators compete against one another to sell electricity on the open market.

But most importantly, the definition transports the policy dangerously away from the requirement in both state and federal law that plants adopt the "best available technology." **The practical effect of the current "feasible" definition is essentially to provide a wide-open, site-specific compliance loophole.** This clearly is inconsistent with the draft policy's express prohibition of the site-specific options.⁹¹ It is also inconsistent with established policy in the State of New York, which "will not consider a 'site-specific' alternative BTA determination."⁹²

A better definition of "feasible" would follow the generally-accepted definition of "capable of being done or carried out."⁹³ This is the definition being applied in New York State, which defines "feasible" as "'capable of being done' with respect to the physical characteristics of the facility site but does not involve consideration of cost."⁹⁴ Application of this accepted definition of "feasible" allows Regional Board staff to apply objective technical knowledge and focus on technological infeasibility. Moreover, since application of the term could have large consequences for statewide consistency, the state policy could vest the Expert Review Panel with review and approval of feasibility determinations that are in question. The State Board would be on solid legal footing with these changes, because applicable law certainly does not require the State Board to carve such large loopholes into the state policy.

Futhermore, **if economic factors remain in the policy (a position with which we strongly disagree), consideration of economic data must be comprehensive and transparent.** The policy must place the burden on the permit applicant, who alone holds all the economic data for a facility, to spell out, among other things, how the cost of the purportedly infeasible technology was calculated; over what time period the plant would have financed the technology; and how this cost relates to investments in other pollution-reduction technologies (including, for example, the use of selective catalytic reduction), other plant costs including fuel and capital expenditures, gross revenues, etc. All data must be presented for public review, and Regional Board staff must explain thoroughly and transparently how the conclusion on infeasibility was derived.⁹⁵

These protections are essential in light of expected actions based on past experience in this area. For example, the Stanford Environmental Law Clinic's experience with Moss Landing was

⁹¹ *Id.* Appendix I, p.3

⁹² *Id.* Appendix II, "Memorandum from Lynette Stark, NY Department of Environmental Conservation to Benjamin Grumbles U.S. EPA", (Jan. 24, 2005). p.4.

⁹³ Merriam-Webster OnLine, <http://www.m-w.com/dictionary/feasible>.

⁹⁴ Scoping Document, *supra* note 90, Appendix II at p.4.

⁹⁵ Requiring this type of cost information is also consistent with the New York policy. *See id.*

that the company's own estimates of the cost of OTC relative to other forms of cooling changed by \$20 million over four years, to serve the company's changing goals.⁹⁶ In addition, when determining the amount of money to put in a "restoration fund," the company valued the land in the restoration plan around the plant at \$18,000 per acre, when all estimates in the record showed such land to be worth between \$60K and \$260K per acre. Had the company simply valued the land appropriately and contributed proper funding, OTC plus the restoration plan would have been more expensive than alternative technologies, which should have been adopted based on a complete and accurate economic analysis.⁹⁷ Finally, the company said that the total commercial value of the marine life that its OTC system would kill was \$2,900 over 30 years. The Moss Landing Plant alone cycles 1.224 billion gallons per day at maximum permitted capacity. This represents over a quarter of the volume of the adjacent Elkhorn Slough (a National Estuarine Research Reserve) and Moss Landing Harbor, cycled through the plant each and every day.⁹⁸ It is extremely unlikely that the value of coastal, estuarine, and marine life and habitats affected by the Moss Landing plant amounts to less than \$100 a year, or the current market value of seven pounds of wild-caught salmon.

In addition, if economic factors remain in the policy, generators should not be allowed to use the potential for co-located desalination at their facilities to evade compliance with impingement and entrainment reductions through the "feasibility loophole." In other words, generators may argue that the potential loss of product water from the co-located desalination facility should be a factor in the cost of transitioning to the best technology available. Several coastal generators considering proposals for co-located desalination facilities have been on notice that these facilities need to be analyzed as "stand alone" plants, in part because of the pending state regulation of OTC.⁹⁹ Given clear notice, both the desalination projects as well as the co-located generators should not be allowed to prematurely create circumstances that undermine state policy.

Similarly, generators may assert that they do not have sufficient space to upgrade to alternative technologies because they anticipate building a co-located desalination facility at their site. However, as previously stated, steam plants with space available for a large-scale desalination plant generally have space for a wet cooling tower retrofit.¹⁰⁰ Furthermore, arguments of infeasibility based on the potential future of co-located desalination at a site should be discredited; the policy should apply only to the structural configuration of existing facilities at the date of approval for the final policy. Lastly, it should be noted that viable alternatives such as beach well intakes allow development of desalination facilities without connection to OTC facilities.

In contrast to these arguments, which selectively apply the rules of economics to bolster the status quo, the economics of alternative cooling technologies make sense for California. Look no further than the prosperity of inland power plants, for which using OTC is simply not an option. In sum, economics should not be considered in the definition of "feasible," but if they are, a

⁹⁶ Testimony of Ben Rottenborn, Stanford Law School Environmental Law Clinic, before the State Water Resources Control Board (Dec. 7, 2005, Oakland, CA).

⁹⁷ *Id.*

⁹⁸ Available at <http://www.energy.ca.gov/sitingcases/mosslanding/documents/index.html>. Accessed 9.1.06.

⁹⁹ May 26, 2005 California Coastal Commission letter to the City of Huntington Beach regarding the Draft Recirculated Environmental Impact Report No. 00-02 – Proposed Poseidon Corporation Desalination Facility SCH#2001052092 http://www.ci.huntington-beach.ca.us/files/users/planning/state_agencies.pdf

¹⁰⁰ CEC Huntington Beach Project Description, *supra* note 54.

comprehensive, publicly-heard review of all the economic data is absolutely essential to thoughtful, careful decision-making.

Finally, the State Board should make it immediately clear to affected generators that there will be no allowance for "feasibility" factors that are created by coastal generators between now and the time of implementation of this policy. To do otherwise would create incentives for the affected generators to prematurely undermine the intent of reducing entrainment and impingement.

D. Credits Should Be Allowed Only to Reward Decisions Intended to Reduce Impacts

The draft policy on once-through cooling loosely allows facilities to receive credit towards achieving performance standards for past efforts to reduce impingement and entrainment. However, it fails to clearly expound which measures would be appropriately considered impingement and entrainment reduction strategies, and how the appropriate credits would be determined. Identifying a consistent and justifiable approach to assigning credits would be an arduous task for staff. Thus, **we urge the State Board to eliminate the opportunity for facilities to receive credits from the policy.** Removing the credit provision from the policy would considerably streamline its application and implementation.

If the State chooses to move forward with this element of the policy, credits should only be allowed in cases where operational and/or structural controls were implemented for the primary (i.e. not incidental) purpose of reducing environmental impacts. Credits should not be given for designs that were not originally intended for environmental protection. Furthermore, power plants should bear the burden of proof in demonstrating the motive behind each measure to be considered for credit. In the absence of clear and convincing proof, the State Board should presume that such measures and controls have been implemented exclusively or primarily for business or other non-environmental purposes, and facilities should not be awarded credits.

The federal regulations (which, as noted, are being challenged as inconsistent with the Clean Water Act) allow for a variety of credits towards impingement and entrainment reductions that are not likely to be consistent with state law or facts, or even the current version of the draft policy. For example, the federal rule allows facilities to receive credit towards the performance standards for intake pipes located within the water column, because it characterizes the calculation baseline relative to impingement and entrainment that would occur at the sea surface. This type of credit should not be allowed in the state policy. Most facilities along the coast of California have submerged intake pipes. There is no evidence that this structural design was originally intended to reduce entrainment. Instead, plants were most likely designed in this fashion solely for practical purposes. I.e., if intake pipes were placed along the surface, they would impede boat traffic, suffer potential damage from storms and wave action, have functionality restricted by tidal fluxes, etc. Although submerged intakes may have less impact on the planktonic community than surface intakes, there is substantial evidence that even with submerged intakes, OTC has significant adverse environmental impacts.¹⁰¹ Instead of contemplating various sleight-of-hand scenarios like plants moving their intakes from the water column to the surface in order to avoid mandatory reductions, the intention and application of a new state policy must be to promote real reductions in environmental impact.

¹⁰¹ CEC Staff Report, *supra* note 1; Michael Foster (September 26, 2005) Presentation at State Water Board 316(b) Laguna Beach workshop.

As currently outlined in the draft policy, the language addressing the assignment of credits for already-implemented impingement and entrainment reductions is vague and potentially misleading. We urge the State Board to strengthen the policy by eliminating the opportunity for facilities to receive credits, which would be a difficult and time-consuming exercise that would take up staff time better suited to implementing reductions. At a minimum, however, the policy should clarify in what cases, and how credits will be allotted, and ensure that credits are allowed only for past actions clearly, demonstrably and specifically taken to protect the environment. The State cannot weaken the law by adopting a policy that allows credits for actions not demonstrably and specifically intended to reduce OTC's environmental impacts.

E. The Policy Must Include Seasonal Protections for Larval Organisms to Effectively Meet Entrainment Reductions

As previously stated, it is the intent of both state and federal law to protect marine and coastal species from impacts associated with entrainment and impingement. However, as currently written, the draft policy would allow for continued high levels of entrainment because it fails to provide detailed guidance for how entrainment reductions should be calculated. Although the policy proposes using flow as a proxy for entrainment, it does not specify whether these flow reductions should be calculated on a daily, monthly, annually, or some other basis. Without such specification, it is likely that policy implementation will not be consistent throughout the state. For example, facilities that choose to calculate flow reductions on an annual basis may not provide necessary protection to critical fish eggs, larvae and plankton in some areas of California.

In southern California, peak larval abundance coincides directly with peak energy needs in the state – during the summer. Because of the ambiguity of the proposed policy, facilities may choose to calculate flow reductions on an annual basis. In doing so, facilities might reduce their intake flow (shutting down the pumps or reducing them to the minimum intake necessary) during the winter, and continue using high flow rates in the summer. While such a practice could technically meet the flow reduction standard as written, it would not reduce the entrainment impacts in southern California. The relative abundance of fish larvae and eggs is so great during the summer in southern California that if operations were restricted to only the summer months, it would still account for the majority of year-long entrainment impacts.¹⁰² Thus, it is imperative that the policy include protections for seasonally abundant organisms to truly achieve the intended entrainment and impingement reductions. **We recommend that impingement and entrainment reductions be calculated on a monthly basis, rather than leaving these calculations unspecified, in order to ensure real reductions in entrainment impacts.**

F. Existing Facilities that Repower or Retool Must be Classified as “New” Facilities

State Board staff should amend the proposed definition of “new power plant” to include all existing facilities that repower and retool. A “new power plant” must comply with

¹⁰² AES Huntington Beach L.L.C. Generating Station Entrainment And Impingement Study Final Report (April 2005) Prepared by MBC Applied Environmental and Tenera Environmental, see section 4.4.3 *Entrainment Results*; Ichthyoplankton and station data for California Cooperative Oceanic Fisheries Investigations survey cruises, CalCOFI website: <http://swfsc.nmfs.noaa.gov/FRD/CalCOFI/On-LineDataSystem/documentation.htm#data>.

the federal Phase I rule mandating performance equivalent to closed-cycle wet cooling towers or better. The proposed definition of “new power plant” in the draft policy currently reads:

a) Any power plant that is issued an NPDES permit and which commenced construction after January 17, 2002, or b) any power plant that was in operation prior to January 17, 2002 but, as of the effective date of this Policy, has undergone or will undergo a major modification, such that its electrical production capacity will increase and its intake flow rate will increase.¹⁰³

The scoping document states that the definition was intended to “capture as a new power plant modifications to the plant that fall short of construction of a greenfield or stand-alone facility as long as the modifications increase both the plant’s electrical production capacity and the design capacity of the existing intake structure.”¹⁰⁴

As currently worded, it could be argued that the definition of “new power plant” does not apply to plants going through repowering (a process in which the generation units are replaced) or retooling (applying to lesser modifications including replacing burners), because such changes might not be “major modifications” under the definition. These modifications might not increase electrical production capacity (repowering upgrades combustion facilities to state-of-the-art technology but does not always increase production capacity) and/or flow rates. However, it is obvious that repowering and retooling are major modifications in any sense of the term. Both require an elaborate proceeding at the CEC. Retooling and especially repowering involve the expenditure of up to hundreds of millions of dollars and significant disruption to plant generation and site logistics—the very same kind of expenditures and site disruption occurring during development of a greenfield facility. The implicit justification for a different policy governing new versus non-new facilities is the assumption that retrofit costs are higher than newly-built costs; importantly, however, the State Board has cited no evidence to buttress this assumption. Moreover, simple common sense prompts the question: how are costs different where there is nothing on the land after an old facility is razed and removed (as is sometime the case in repowering) and where there is nothing on the land to start with (as in greenfield development)? In addition, the disruption and investment associated with repowering and retooling make that an ideal time to implement changes in cooling systems needed to prevent impacts to the beneficial uses of impacted waters.

Thus, staff should revise the definition of “new power plant” to clearly capture repowering and retooling facilities, as there is no rational basis for why these facilities should be upgrading to state-of-the-art generation and air pollutant-reducing technology without also upgrading their antiquated cooling systems. Moreover, such an approach would be consistent with the CEC staff recommendation from its June 2005 report on once-through cooling, which recommends disallowing the use of OTC for any repower or replacement project unless there is no other viable alternative. In that report, the CEC staff suggested a policy whereby the CEC would “approve once-through cooling by power plants it licenses, or for licenses it amends related to cooling system modifications, only where alternative water supply sources or alternative cooling technologies are shown to be both environmentally undesirable and economically unsound.”¹⁰⁵

¹⁰³ Scoping Document, *supra* note 90, Appendix I, p. 4.

¹⁰⁴ *Id.* at p. 20.

¹⁰⁵ CEC Staff Report, *supra* note 1, p.4.

G. The Policy Should Provide a Well-Defined and Expedient Compliance Deadline

At present the draft policy does not provide an ultimate deadline by which power plants must be in compliance with entrainment and impingement reductions. Instead, the draft policy directs the Regional Boards to implement the policy when a permit for an existing plant is first reissued (after the effective date of the policy) or when the permit is reopened, whichever occurs first. This implementation strategy fails to account for frequent administrative delays in reissuing permits by some Regional Boards. For example, the most recent reissuance of the Potrero's NPDES permit was delayed for more than 10 years.¹⁰⁶ Due to these delays, **a circumscribed deadline is necessary to ensure that this policy is robust and enforceable.**

In determining this deadline, the State Board should consider the timeline for compliance under the federal rule. Under the Phase II schedule, Comprehensive Demonstration Studies examining impingement and entrainment at each facility will be finished at the latest in January 2008. Thus, actions towards compliance at the state level should reasonably begin by no later than mid-2008. Accordingly, **we urge the State Board to require implementation within the first permit cycle immediately following the effective date of the final policy, or when the permit is reopened, or no later than five years after adoption of the policy, whichever occurs first.**

III. RESTORATION AND MITIGATION ARE NOT EFFECTIVE SUBSTITUTES FOR PREVENTING IMPACTS

A. Compliance Alternatives that Rely on Restoration And Mitigation Should Not Be Included in the State Policy, as the Use of Restoration Cannot Achieve the Goals of the Clean Water Act and Porter-Cologne

The draft policy allows restoration to be used when the facility operator proves that operational and structural controls cannot "feasibly" (see above discussion regarding "feasible") be used to achieve the required 90% reduction in entrainment. In such cases, the draft policy states that the facility may use restoration to achieve the required 90% reduction in entrainment (of course, the policy requires that a minimum of 60% reduction in impacts be achieved in any event, a position that we strongly support).

Compliance alternatives that rely on restoration (or, for the same reasons, mitigation) should not be included in the state policy, which instead should require the 90-95% reductions be achieved through prevention, as encouraged by the OPC and SLC. The plaintiffs in both the Phase I and Phase II federal lawsuits (including California Coastkeeper Alliance and Surfrider) have consistently argued that restoration is not allowed under the language of CWA section 316(b). This argument was successful in the Phase I case regarding new power plants.¹⁰⁷ Among other things, the court in that case said that **restoration measures are "plainly inconsistent with the statute's text and Congress's intent in passing the 1972 amendments."**¹⁰⁸ The court added that:

¹⁰⁶ New permit issued May 10, 2006 retrievable at <http://www.waterboards.ca.gov/sanfranciscobay/Agenda/05-10-06/mirantfinalorder.pdf>.

¹⁰⁷ *Riverkeeper*, *supra* note 30, 358 F.3d at 189-191.

¹⁰⁸ *Id.*, at 189 (emphasis added).

[restoration measures,] however beneficial to the environment, have nothing to do with the location, the design, the construction, or the capacity of cooling water intake structures, because they are unrelated to the structures themselves. Restoration measures correct for the adverse environmental impacts of impingement and entrainment; they do not minimize those impacts in the first place.¹⁰⁹

The court concluded that “we find that the EPA exceeded its authority by allowing compliance with section 316(b) through restoration methods, and we remand that aspect of the Rule.”¹¹⁰ A decision in the Phase II case is likely in the next year.

As the United States Court of Appeals for the Second Circuit held in reviewing EPA’s national cooling water intake structure regulations, section 316(b) of the CWA requires facilities to minimize, i.e. prevent, environmental impacts, rather than attempt to make up for them after they occur. It is for this reason that the New York policy does not consider restoration as an appropriate or acceptable best technology available, stating that restoration is inconsistent with Clean Water Act section 316(b) because “such measures merely attempt to correct for the adverse environmental impacts of impingement and entrainment; they do not minimize those impacts in the first instance.”¹¹¹ California should follow suit.¹¹² Additionally, California Water Code section 13142.5 mandates that all new or expanded power plants (and industrial installations) use the best available site, design, technology, and mitigation measures *feasible to minimize the intake and mortality of all forms of marine life*. For the same reasons as restoration, mitigation cannot be viewed as a substitute for preventing impacts from occurring in the first instance, most importantly because the “best technology available” is capable of exceeding the high-end of the entrainment and impingement performance ranges.

Thus, we urge the State Board to eliminate restoration as a compliance alternative under the draft policy, just as New York State has done. However, if the state policy does include a restoration component, it should be considered the exception, not the rule, and should be only the minimum amount necessary to achieve the required 90% reduction in entrainment impacts. In particular, the policy should more carefully define the hierarchy of restoration measures and exactly when a plant might derogate from the top-level priority of in-kind, on-site restoration to lower priorities (which should be severely discouraged). We further recommend the State Board assign the Expert Review Panel to assess and approve any limited situations where restoration may be acceptable to achieve the 90% reduction goal, and validate acceptable restoration actions that can be taken to comply with the policy.

Additionally, the scoping document for the draft policy states that the State Board will require the “habitat production foregone” methodology to be used when assessing entrainment losses to apply towards restoration.¹¹³ This methodology places all entrainment losses in the same context – acres of damages done. However, the habitat production foregone method was not

¹⁰⁹ *Id.*

¹¹⁰ *Id.* at 191.

¹¹¹ Scoping Document, *supra* note 90, Appendix II at p. 6 (emphasis added); see also *Riverkeeper*, 358 F.3d at 189-192.

¹¹² It should be noted that the Second Circuit’s decision in *Riverkeeper* is binding nationwide. The decision confirms that restoration measures are not authorized under section 316(b) for new facilities. The question of whether restoration measures are authorized under section 316(b) for existing facilities is presently under review by the Second Circuit in *Riverkeeper, Inc. v. EPA*, 04-6692-ag(L), which was transferred to the Second Circuit by the Ninth Circuit.

¹¹³ Scoping Document, *supra* note 90, p.18.

originally developed for restoration purposes, and consequently no mitigation ratio was built into the development of this model. Thus, solely using habitat production foregone to determine restoration needs would only achieve a mitigation ratio of 1:1, which is not sufficient and is rarely if ever used in practice in other restoration situations. If the State Board continues to include restoration in its policy, a mitigation of 3:1 to 5:1 or greater should be required to account for the high level of uncertainty surrounding whether or not restoration actually mitigates for any of the environmental damages caused by OTC. This approach would be consistent with other restoration requirements, as the Coastal Conservancy and other agencies have historically required mitigation ratios of 3:1 and higher for habitat loss.

B. A Rigorous Analysis of All Feasible Technological and Cooling Alternatives, Including Use of Treated Wastewater as Coolant, Should Be Conducted at Each Facility

In the past, restoration and mitigation options (or worse, minimal one-time “payments” in lieu of actual restoration or mitigation) have been quickly turned to, with little to no analysis of alternatives that would actually prevent the impacts that such restoration and mitigation ostensibly would address. A far more rigorous analysis of alternatives to once-through cooling technology should be conducted at each site to ensure that beneficial uses are best protected. While the scoping document cites the availability of less damaging, alternative cooling technologies to once-through systems,¹¹⁴ the policy should go further to ensure the mandates in the Clean Water Act and Porter-Cologne are achieved. It should specify that, in permitting proceedings, applicants must analyze and report on the potential for adoption of alternative cooling technologies at their facilities. In turn, Regional Board staff should consider these reports and state the basis for adopting or rejecting any given technology. In making these determinations, Regional Board staff could consider the results of a forthcoming report from the OPC concerning the potential of such alternative cooling technologies at each site. This requirement would improve consistency of State Board decisions with the resolutions passed by the SLC and OPC earlier this year, inform the feasibility demonstration that facilities must make to gain approval for restoration measures (if such a provision is included in the final policy), and bolster the Regional Board staff’s interpretation of Cal. Water Code 13142.5 and implementation of Clean Water Act section 316(b). As with our suggestion regarding feasibility determinations, we also recommend that the Expert Review Panel review staff determinations concerning adoption of alternative cooling technologies, to ensure consistency with state and federal law across the state.

Similarly, the draft policy only requires plants to “consider” the use of “treated wastewater” for plants that are “in close proximity” to POTWs.¹¹⁵ State law and policy strongly encourages the use of recycled water (*see, e.g.*, Cal. Water Code sec. 13142.5(e); State Board “Water Quality Control Policy on the Use and Disposal of Inland Waters Used for Powerplant Cooling” (1975)¹¹⁶; “Recycled Water Task Force Final Report” (June 2003)¹¹⁷). Accordingly, **the State Board’s policy should impose a presumption that where the use of treated/recycled wastewater is technically feasible, a facility must demonstrate with clear and convincing evidence why an alternative source of water is superior.**

¹¹⁴ *Id.* at p.27

¹¹⁵ *Id.* at Appendix I, p. 3.

¹¹⁶ This policy states clearly that “[i]t is the Board’s position that from a water quantity and quality standpoint the source of power plant cooling water should come” first from “wastewater being discharged to the ocean” over all other sources of water.” This policy should be reflected clearly in the Board’s 316(b) policy.

¹¹⁷ Available at: <http://www.owue.water.ca.gov/recycle/docs/TaskForceReport.htm>. Accessed 9.1.06.

IV. NUCLEAR SAFETY QUESTIONS SHOULD BE ADDRESSED TO NUCLEAR REGULATORY COMMISSION

The nuclear plants account for well over half of the once-through cooling water flow currently used in the state. It is noteworthy that while the California nuclear power plants utilize once-through cooling with significant impacts on the marine environment, other nuclear plants around the country use closed-cycle cooling effectively and safely.

Despite using the majority of once-through cooling water in the state, the draft policy gives the nuclear facilities a virtually blanket exemption from complying with the impingement and entrainment standards. If the owner or operator simply "demonstrates that implementation of operational and/or technological measures for the reduction of impingement and entrainment will conflict with safety requirements instituted by the Nuclear Regulatory Commission," then according to the current draft policy they are exempt from the operational or structural controls.¹¹⁸ Because neither "demonstration" nor "conflict with safety requirements" are defined in the draft policy, this provision would allow for almost any statement by an owner or operator of a nuclear facility to opt out of the policy on the allegation that there was a "safety conflict." Given the overall contribution of the nuclear facilities to the damages associated with once-through cooling, if they were exempt from compliance, the proposed policy would provide significantly less environmental protection for our marine environment.

Safety is obviously important. However, the people of the state and the state's resources would be better protected if resolution of any safety questions raised by the owner or operator were left to the Nuclear Regulatory Commission ("NRC"), which is charged with the oversight of such matters. The NRC has shown that it will properly interject if it sees a potential safety issue. For example, the NRC became closely involved immediately in the recent discovery of a radioactive leak from the San Onofre Nuclear Generating Station that had reached local groundwater.¹¹⁹ NRC officials said "they were concerned because the contamination was found in a place 'it should not be'."¹²⁰

The draft policy should be rewritten to put the responsibility for resolving safety issues back on the NRC, not on the power plants, who might benefit from any "demonstration" of a claimed "safety conflict."

It is also important to note that the EPA thoroughly examined the issue of retrofitting nuclear power plants in its CWA 316(b) Phase II Technical Development Document (TDD), and at no time did the EPA identify retrofits at nuclear plants as infeasible due to safety issues. The two issues raised in the TDD that distinguish nuclear plants from fossil fuel boiler plants are the potential sensitivity of nuclear plants to excavation in the vicinity of the reactors, and an increased safety margin in the upgrading of surface condensers at nuclear plants.¹²¹ The EPA addresses these possible safety issues appropriately by adding a cost premium for excavation and surface condenser upgrades at nuclear plants.

¹¹⁸ Scoping Document, *supra* note 90, Appendix I, p. 2, para. 2.c.

¹¹⁹ See, e.g., "Radioactive Leak Reaches Nuclear Plant's Groundwater" *supra* note 26.

¹²⁰ *Id.*

¹²¹ EPA 316(b) Phase II TDD Ch.4, *supra* note 53 pp. 2.31, 2.35.

Conversions at nuclear plants have been shown to be feasible and safe for some time. The Palisades Nuclear Generating Plant in Michigan, for example, successfully and safely carried out a conversion from once-through cooling to closed cycle cooling in 1974.¹²² Additionally, the owner (Entergy, Inc.) of the 2,000 MW Indian Point nuclear power plant on the Hudson River in New York carried out an extensive wet tower retrofit design assessment as a component of the plant's NPDES permit renewal process in 2003. The wet tower evaluated, a 500-foot diameter round tower in hilly terrain, required extensive blasting and excavation of granite near the operational reactors. One element of the retrofit analysis conducted by Entergy was determination of the effect of the blasting on the reliable operation of the reactors.¹²³ The result of the study was that the extensive blasting presented no safety concerns if conducted as planned and would have no impact on the operational reliability of the reactors. It is unlikely that such significant disturbances would be necessary at either SONGS or Diablo Canyon due to the coastal sedimentary geology of these two sites. Even if such disturbances were necessary, the Entergy study would indicate that such disturbances in the vicinity of a nuclear power plant can be done in a safe fashion, and in no way represents an automatic technical or safety impediment to a wet tower retrofit at a nuclear power plant. **The NRC, which has expertise in safety issues raised and resolved around the country, is the most appropriate arbiter of potential safety concerns,** more so than a local plant facing regulation under section 316(b). Coordination can be undertaken with the Expert Review Panel and the State Water Board to ensure full public vetting of such issues.

V. THE POLICY MUST INCLUDE NEEDED DETAILS TO ENSURE CONSISTENT IMPLEMENTATION

A. The Plants Required to Conduct Cumulative Impact Studies Should be Explicitly Identified

We support the requirement in the draft policy that power plants with overlapping intake water source areas conduct a cumulative ecological study analyzing their collective impacts, even when the closely-sited plants fall under the jurisdiction of different Regional Water Boards. Although we support this provision, however, we are concerned that the phrase "overlapping intake water source areas" is too vague. The draft policy does not clearly establish how facilities should determine whether or not they have "overlapping intake water source areas." To clarify this section of the policy, we recommend the State Board or Expert Review Panel specify which facilities are required to conduct a cumulative impact study. For example, facilities on the same enclosed bay (such as Alamitos and Haynes Generating Stations on Alamitos Bay) and those closely located along the coast (for example, the three power plants in Santa Monica Bay) should be defined as having overlapping intake water source areas. Given that there are only 21 coastal power plants in California, this should be a relatively simple task that will streamline implementation by circumventing potential arguments raised by various facilities to the State Board as to whether or not a cumulative impact study is required at their power plants.

¹²² *Id.* at p. 3.

¹²³ Calvin Konya, PhD, *Indian Point Blasting Feasibility Study*, prepared for Enercon Services (consultant to Entergy), May 22, 2003, Appendix 6A to June 2003 Enercon report "Economic and Environmental Impacts Associated with Conversion of Indian Point Units 2 and 3 to a Closed-Loop Condenser Cooling Water Configuration."

B. The Monitoring Provisions Must Be Further Specified to Ensure Consistent Implementation and to Characterize Compliance Accurately

The draft policy outlines impingement and entrainment monitoring provisions to be completed as part of permitting following adoption of the policy. This monitoring is essential for policy implementation, as its results will be used to determine compliance. Thus, it is imperative that this monitoring generates results that accurately reflect impingement and entrainment at each facility. It is also vital that monitoring be consistent for all power plants, so that impacts of entrainment and impingement can be examined on a statewide basis.

As currently written, the monitoring provisions within the draft policy are too open-ended and need more detail. For example, prior to permit issuance or renewal, the draft policy requires a year-long impingement and entrainment characterization study, but no sampling frequency is determined. We recommend that both impingement and entrainment sampling be conducted at least once monthly, to account for changing facility and ocean conditions. Furthermore, after the permit is effective, the draft policy requires "periodic" impingement sampling; however the term "periodic" is not defined. This and other indistinct terms should be explicitly characterized to streamline implementation and ensure that the policy is interpreted consistently across all facilities. The draft policy also states that the need for new impingement studies must be evaluated at the end of a permit period, but does not define who will conduct this evaluation. We recommend that an entity separate from the power plants or their hired consultants determine the level of future impingement studies that are necessary, and suggest that the State Board, in consultation with the Expert Panel, take on this role.

The proposed monitoring provisions also discuss the need for ongoing entrainment studies and state that entrainment studies shall be performed "unless the permittee demonstrates that prior studies accurately reflect current impacts." It is unreasonable and unrealistic for the permittee to determine accurately whether or not past studies accurately reflect current conditions. The ocean is a dynamic system, and entrainment should be continually monitored to ensure that progress towards policy compliance is made and once met, compliance continues. Furthermore, as reflected in the recent CEC report, many of the past entrainment studies are no longer valid because they are outdated and/or inconsistent sampling techniques were employed.¹²⁴ Power plants should not be allowed to use these studies to gauge whether or not they are meeting current entrainment reductions. The current language in the draft policy provides a potential loophole for power plants to neglect entrainment sampling, and should be revised. Unless structural changes (*e.g.* dry cooling) are made that assure unequivocally that entrainment standards are met, ongoing entrainment studies are necessary to evaluate compliance at each facility. These studies also should continually monitor entrainment during the peak annual period of larval density, to test the efficacy of the structural or operational compliance strategies implemented to achieve needed entrainment reductions.

¹²⁴ CEC Staff Report, *supra* note 1; see *e.g.* pages 3, 14, and 71. For example: "The review showed that because of problems with study designs and analyses, and lack of current information, the accuracy of the described impacts of over half of these plants (13) is unknown" (p.3); and "To evaluate that argument, Energy Commission staff carefully reviewed [the Scattergood study] and found it had 'a number of serious scientific problems,' particularly with sampling methods, and concluded most concentration estimates for larval fish used in the Scattergood analysis are highly unreliable" (p.71).

VI. CONCLUSION

The time is ripe for the state to embrace a policy on once-through cooling that reflects Californians' demand for providing the utmost protection for our valuable marine and coastal resources, and for investing in a sustainable, environmentally sound future energy supply. California has consistently set high standards for the protection of the state's world-renowned coastal and marine resources, through the Marine Life Protection Act, the California Ocean Protection Act, and the Marine Life Management Act, among others. The State Water Board's policy on once-through cooling should be consistent with these laws, and with similar state laws and policies that commit California to a sustainable energy path. We urge the State Water Board to adopt and implement a state policy on once-through cooling that charts a course for California's future, consistent with the Clean Water Act and Porter-Cologne.

Thank you for your consideration of our comments.

Sincerely,

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Dominic Gregorio, Division of Water Quality, State Water Resources Control Board
Tom Luster, Environmental Specialist, California Coastal Commission

Attachments

- A. Coalition Letter to the SWRCB dated February 23, 2006
- B. Fact Sheet on Energy and OTC
- C. CEC Expected and Disclosed Energy Facility Projects
- D. CEC Power Plant Fact Sheet August 9, 2006