

September 30, 2009

Public Hearing (9/16/09)  
Once Through Cooling  
Deadline: 9/30/09 by 12 noon

VIA E-MAIL & U.S. MAIL

Jeanine Townsend, Clerk to the Board  
State Water Resources Control Board  
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**RE: Comment Letter – OTC Policy**

Dear Ms. Townsend,

Southern California Edison (SCE) respectfully submits its comments on two documents issued by the State Water Resources Control Board (Board): (1) the Draft Proposed Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (Policy) dated June 30, 2009; and (2) the Draft Substitute Environmental Document (SED) dated July 2009.<sup>1</sup>

**I. Introduction**

Based on SCE's review of the Policy and SED, we believe the Board should take the following actions:

1. Adopt a definition of the term "feasibility" that: (a) recognizes that insuperable physical and regulatory obstacles may be present at many existing generating facilities that use ocean water in once-through-cooled (OTC) systems, and (b) provides a mechanism for realistic relief in such circumstances. (Section II)
2. Perform a statewide economic analysis of the Policy to evaluate whether a statewide policy would result in costs that are wholly disproportionate to its benefits as required by California law. If costs are disproportionate to benefits, "best technology available" (BTA) should be defined as a suite of technologies to reduce impingement and entrainment to the maximum extent that is feasible and cost-beneficial. A technical study by National Economic Research Associates (NERA) suggests the present-value cost of the Policy is more than 90 times its benefit. To the extent that maximum reduction through BTA is not feasible or results in a

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<sup>1</sup> We respectfully request that the Board include all prior comments (written and oral), and attachments thereto, on the Policy or prior versions of the Policy, or scoping documents, to be included in the administrative record of this Policy. We have attached SCE's prior comments as Exhibits A, B, and C. SCE incorporates the contents of those letters by reference.

wholly disproportionate cost compared to benefit at specific sites, the Regional Water Quality Control Boards (Regional Boards) should require full compensation of remaining impacts in the form of restoration or mitigation. (Sections III and IV)

3. Craft a once-through cooling (OTC) policy that protects electric system reliability. Specifically, the Policy should acknowledge that OTC generation capacity cannot be retired until the replacement capacity needed for reliability is operational. (Section V)
4. Revise and re-circulate the SED to address California Environmental Quality Act (CEQA) requirements, including preparing a complete alternatives analysis, cumulative impacts analysis, and evaluation of the myriad significant environmental impacts identified in this comment letter and a technical review prepared by ENVIRON. (Section VI)
5. Revise the “special study” provision. (Section VII)

**II. The Policy should be revised to define the term “feasible” to allow for realistic relief when compliance cannot be implemented successfully given physical and regulatory constraints.**

- A. The Board should revise the Policy to provide the opportunity for relief when implementation cannot be implemented successfully given physical and regulatory constraints.*

The Policy provides two tracks for compliance. Track 1 requires reducing intake flow rate “to a level commensurate with that which can be attained by a closed-cycle wet cooling system.”<sup>2</sup> Track 2 purports to provide relief from Track 1 when an owner or operator of an existing power plant demonstrates “that compliance with Track 1 is not feasible.”<sup>3</sup> The term “feasible” is not defined.

SCE believes it is unreasonable for the Board to adopt an OTC Policy that cannot be implemented successfully in light of engineering capability, a site’s physical constraints, and reasonably foreseeable regulatory or permitting conflicts. Clearly, the Policy is intended to provide a reasonable means of compliance by allowing regulated entities to petition for relief when Track 1 is not “feasible.” To do otherwise puts the Board in the position of demanding that regulated entities achieve closed-cycle cooling performance in the face of insuperable barriers. For purposes of the Policy, the term “feasible” should be defined as “capable of being implemented successfully without

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<sup>2</sup> State Water Resources Control Board, *Draft Proposed Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling*, June 30, 2009, § 2(A)(1)

<sup>3</sup> *Id.* § 2(A)(2).

contradicting proven facts, laws, or circumstances.”<sup>4</sup> This definition provides reasonable opportunity for relief when Regional Boards accept that barriers (physical or regulatory) cannot be overcome through any reasonable effort on the part of the owner/operator of an existing OTC generation plant.

***B. Due to the unique circumstances at SONGS, closed-cycle cooling is infeasible.***

SCE believes that implementing closed-cycle cooling at the San Onofre Nuclear Generating Station (SONGS), which SCE operates, is infeasible as defined above. A retrofit with a closed-cycle cooling system would face unparalleled and truly one-of-a-kind engineering challenges, insuperable permitting obstacles, and adverse environmental impacts likely greater than those associated with OTC.

**1. Land use constraints**

The land use issue represents a significant obstacle to the conversion of SONGS to meet a closed-cycle cooling performance standard. The conversion would involve tunneling beneath Interstate 5, construction of six hybrid cooling towers at the Mesa Complex<sup>5</sup> east of Interstate 5, and the creation of hot- and cold-water reservoirs immediately adjacent to each unit’s turbine building. The likelihood of obtaining the permitting necessary for the construction of cooling towers is questionable at best. Because the size of a cooling tower is directly proportional to the amount of heat that must be rejected, and the heat loads at SONGS are relatively large, the cooling towers would need to be relatively large. Given the site constraints, meteorological conditions, and the necessary use of saltwater for makeup water, three linear hybrid cooling towers per unit would be needed. Sufficient space for the six required towers is not available in the area of the SONGS facility located between Interstate 5 and the Pacific Ocean (i.e., the SONGS Coastal Complex) because certain areas are protected by Coastal Commission conditions, and the remaining land leased to SCE by the Department of the Navy is too small. Therefore, cooling towers would have to be located east of Interstate 5. The footprint of each of the six towers would be approximately 55 feet wide, 50 feet high, and over 700 feet long, directly impacting at least 14 acres of land just for tower placement.

The location of the hybrid cooling towers would require the tunneling of 12-foot-diameter re-circulating water pipes beneath Interstate 5 from the SONGS Coastal Complex to the Mesa Complex. Due to the size constraints of the cold-water reservoir necessary to receive the output from the towers, three new vertical wet pit circulating

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<sup>4</sup> This proposed definition is drawn from the definitions of the synonyms “feasible” and “possible” found in the *Merriam-Webster Online Dictionary* (<http://www.merriam-webster.com/dictionary/feasible>) and in the *American Heritage Dictionary of the English Language*. Feasibility should also be framed by what is deemed to be reasonable under this Policy, as required under California law.

<sup>5</sup> The Mesa Complex is a 130-acre area at SONGS located northeast of the 84-acre power block and operational area. It is located on the east side across Interstate 5 and the railway. Administrative buildings, maintenance, and support services are housed there. No power-generating activities occur at the Mesa Complex.

water pumps would be needed to pass cooling water through the condenser. Additionally, three new high volume/high head vertical wet pit pumps would be required to pump circulating water from the hot water reservoir up to the cooling towers. It should be noted that operation of cooling towers at a nuclear power plant with such a large degree of elevation change (approximately 100 feet) between the cooling towers and the condenser is unprecedented, and additional engineering design would be required to ensure that public safety would not be compromised by the discharge of cooling water across the SONGS seawall during a loss-of-power event.

The Policy's requirement for SONGS to install a marine mammal prevention cage around the Unit 2 and 3 circulating water intake velocity caps by the end of 2010 will be very difficult to achieve. Such a barrier would require several months to design and review for nuclear safety concerns. It would also take additional time to deploy if it is determined to be feasible. SCE is currently working with the National Marine Fisheries Service on receiving a marine mammal take permit that would require SCE to study the issue. Therefore, this requirement is redundant and unnecessarily restrictive and should be removed from the Policy.

## 2. Environmental impacts and permitting requirements

Drift impacts due to the operation of cooling towers would be significant. A closed-cycle operation at SONGS would produce annual PM10 emissions between 828 and 837 tons. The California Air Resources Board has designated San Diego County as a non-attainment area for PM10 and PM2.5. A major-source Title V air permit would be required from the San Diego County Air Pollution Control District. It is unlikely that SONGS could locate and purchase a sufficient number of PM10 emission credits to cover these emissions. Additionally, each year approximately 165 tons of salt would be deposited downwind (south-southwest) of the proposed cooling towers extending across the SONGS Coastal Complex area. This salt deposition would create the need for significant additional maintenance requirements for the existing equipment and facilities and the potential for unplanned unit outages from electrical arcing in the switchyard. These could present potential safety hazards. Salt deposition may also occur across the nearby Camp Pendleton housing areas to the northeast. Salt deposition across the coastal scrubland habitat could cause adverse impacts to sensitive and protected vegetation and habitat.

The conversion from once-through cooling to closed-cycle cooling would result in an annual average loss of power generation of approximately 143 megawatts at SONGS. If that generating capacity is replaced by a natural-gas powered generating facility, an estimated additional 227,000 metric tons per year of CO<sub>2</sub> would be emitted.

Various permits, including a Coastal Development Permit, would be required for the conversion of SONGS to closed-cycle cooling. All of these permits would be acquired in accordance with regulatory public participation requirements, which would likely incur intense public opposition due to project cost, adverse aesthetic/visual impacts, air emissions, traffic, and potential ecological impacts prohibited by various federal and state statutes and regulations. Approval from the California Public Utilities

Commission would also be required for recovery of the closed-cycle cooling system conversion cost from the ratepayers as well as for ongoing annual costs. Additionally, it should be noted that SCE does not own the land on which SONGS is located, and as such, all construction activities necessary for conversion to closed-cycle cooling involving additional lands not now held under lease would need to be approved by the Department of the Navy. Failure to receive approval from any of these agencies would render the construction and operation of closed-cycle cooling at SONGS impossible.

It is reasonable for the Board to recognize the physical and regulatory barriers illustrated above in any definition of feasibility.

- C. *The supposed relief from the closed-cycle cooling required in Track 1 is illusory. The Policy should provide a reasonable opportunity for relief.*

The Policy provides relief from closed-cycle cooling performance upon a showing that meeting such a standard is not feasible. However, the relief provided in Track 2 is illusory. Track 2 authorizes plants to use alternative technology and operational controls to achieve 90% of the Track 1 93% reduction in flow rates to protect all stages of life of marine organisms, including very small fish eggs, larvae, and plankton. No known technology exists that can achieve the level of reduction of entrainment required in Track 2, other than closed-cycle cooling. Achieving the level of reduction of all stages of marine life required in Track 2 would require the use of screens with 0.2 millimeter spacing. The use of such finely spaced barriers, especially in an ocean environment, is not feasible because the screens would become clogged by all manner of marine organisms and plants larger than fish eggs and larvae. These blockages would prevent the operation of the generation unit.

**III. California law requires the board to balance the environmental benefits against economic factors to determine the reasonableness of the policy.**

In *Entergy Corp. v. Riverkeeper Inc.*, the U.S. Supreme Court held that economics and cost considerations can be taken into account by the U.S. Environmental Protection Agency (EPA) when establishing BTA under Section 316(b) of the federal Clean Water Act.<sup>6</sup> As a result, California law is not inconsistent with, or preempted by, federal law when it requires the Board to determine the reasonableness of its policies under Section 316(b) by balancing environmental benefits with economic factors. As demonstrated by the analysis in the memorandum attached as Exhibit G, multiple overlapping authorities — including the Porter-Cologne Act, CEQA, and the California Administrative Procedures Act — require the Board to balance economics to determine the reasonableness of the Policy. Balancing economics requires more than a mere awareness of the potential costs of the Policy; at a minimum, it requires the Board to determine whether the Policy is reasonable when its economic costs are weighed against environmental and other factors.

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<sup>6</sup> *Entergy Corp. v. Riverkeeper, Inc.*, 129 S. Ct. 1498 (2009).

SCE believes the Policy fails the reasonableness standard established by California law, as described in Exhibit G. The two-page economic analysis provided in the SED does not adequately describe or evaluate the costs (both economic and non-economic) of the Policy. A sufficient balancing of costs and benefits is not provided. As a result, the Policy is unlawful at this point because a complete economic analysis has not been made available to the public that meets the requirements of California law. NERA's economic analysis provides a starting point for complying with California law. It provides evidence that the present value cost of the Policy would be about \$3.12 billion for only \$34 million in benefit, which raises serious questions about the reasonableness of the Policy. As a result, the Policy is unlawful at this point because a complete economic analysis has not been made available to the public that meets the requirements of California law.

#### **IV. SCE recommends that BTA be defined as a suite of technologies to reduce impingement and entrainment.**

As discussed in detail below, SCE recommends that the BTA be defined as a suite of technologies to reduce impingement and entrainment to the maximum extent feasible in a manner that is cost-beneficial. This approach allows regulated parties a reasonable opportunity to comply with a level of protection that is feasible — i.e. one that can be achieved successfully in practice. By requiring plant owner/operators to use technology that can be implemented successfully and is cost-beneficial, the Board will achieve the maximum feasible protection for marine organisms.

##### **A. *The Board should exercise its authority under Entergy and California law to define BTA in a manner that is cost-beneficial.***

The SED devotes just two pages to an economic analysis of the Policy.<sup>7</sup> In light of the magnitude of the Policy's potential economic impact, significantly greater consideration and analysis are warranted. A thorough economic analysis should be conducted to ensure the Policy's costs and benefits are in reasonable balance, as suggested by the U.S. Supreme Court in *Entergy Corp. v. Riverkeeper, Inc.*<sup>8</sup> Based on the National Economic Research Associates (NERA) technical analysis commissioned by the California Council for Environmental and Economic Balance (CCEEB), described below,<sup>9</sup> **a statewide cost-benefit analysis demonstrates that the Policy's cost exceeds its benefit by a factor in excess of 90-to-1 statewide, and in excess of 140-to-1 at SONGS.** Specifically, EPA's cost-benefit methodology, NERA's analysis shows that the statewide present-value costs of the Policy would be about \$3.12 billion for only \$34 million in benefits, and for SONGS, about \$1.7 billion in costs for only \$12 million in benefits. As a result, substantial evidence suggests that if a statewide economic analysis were prepared that balanced costs against benefits, it would show that the Policy

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<sup>7</sup> State Water Resources Control Board, *Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling: Draft Substitute Environmental Document*, July 2009, at 108.

<sup>8</sup> 129 S. Ct. 1498 (2009).

<sup>9</sup> NERA, *Preliminary Costs and Benefits of California Draft Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling*, Sept. 2009. The report is attached as Exhibit D.

results in costs that are unreasonable and wholly disproportionate to the benefits provided. It is not good public policy to adopt a regulation with a cost that disproportionately outweighs its potential benefit. To do so puts the Board in the position of advocating that protection of marine organisms is necessary no matter what the cost, a position rejected by the Supreme Court as unreasonable.

In addition, instead of defining closed-cycle cooling as BTA, cost-beneficial performance standards should be adopted as BTA: technology and in-plant operational solutions that do not result in significant adverse environmental impacts or costs that are wholly disproportionate to the environmental benefit gained. Defining a more reasonable and flexible BTA standard is fully consistent with the Clean Water Act (CWA), EPA guidance, and California law. SCE believes doing so would also offer a more balanced, reasonable application of Section 316(b) to the California context given existing technology, economic, environmental, reliability, and regulatory constraints described below.

**B. BTA should not be defined as closed-cycle cooling.**

The CWA does not require the Board to opt for the technology that physically most reduces impingement and entrainment, regardless of cost and other factors, as the best technology available. The CWA, consistent with the Supreme Court's *Entergy* decision, gives the Board authority to consider cost and a variety of other factors in defining BTA for cooling-water intakes at existing power plants. In *Entergy Corp. v. Riverkeeper, Inc.*, the Supreme Court found that EPA permissibly relied on cost-benefit analysis in setting national performance standards less stringent than closed-cycle cooling and in providing for cost-benefit variances from those standards as part of its Phase II regulations. The Court also held that the CWA did not require EPA to choose the technology that most reduces "adverse environmental impact" or mortality from entrainment and impingement. The Second Circuit had defined BTA as the technology that "achieves the greatest reduction in adverse environmental impacts at a cost that can reasonably be borne by the industry." *Riverkeeper, Inc. v. EPA*, 475 F. 3d 83, 99 (2d Cir. 2007). As Justice Scalia noted, even the Second Circuit's interpretation would require EPA to consider cost in addition to how much the technology reduces entrainment and impingement. *Entergy*, 129 S.Ct. at 1508. Yet, the Supreme Court found clearly that the Second Circuit was too restrictive in its treatment of the agency's consideration of cost. In his concurrence, Justice Breyer stated that any regulatory action necessarily involves a comparison of cost and benefit. "[E]very real choice requires a decisionmaker to weigh advantages against disadvantages, and disadvantages can be seen in terms of (often quantifiable) costs." *Id.* at 1513 (Breyer, J., concurring). He added that an absolute prohibition on cost-benefit comparisons would trigger "irrational" results. *Id.*

Writing for the majority, Justice Scalia stated that whether it is "reasonable" to bear a particular cost "may well depend on the resulting benefits." *Entergy*, 129 S.Ct. at 1510. Under the CWA, EPA and state agencies are authorized to consider a variety of factors when defining BTA, including: "the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control

techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the [EPA] Administrator deems appropriate.” 33 U.S.C. § 1314(b)(2)(B).

1. The Policy and SED contain an inadequate analysis of the environmental benefit of closed-cycle cooling.

In the Phase II rulemaking process, EPA reviewed a mass of scientific and technological evidence, including a database of 154 studies of entrainment and impingement. EPA is currently gathering additional information as it reconsiders the earlier rule in light of *Entergy*. It is at best unclear from the Policy whether Board staff conducted a similarly exhaustive review of intake technologies when it chose to define BTA as closed-cycle cooling. Indeed, the Policy takes the overly simplistic approach of measuring “environmental impact” on the single dimension of intake flow and choosing the technology (closed-cycle cooling) that minimizes intake flow. By contrast, EPA found that there is a host of intake technologies, and combinations of technologies, that might be best at specific sites, including: varying intake flows at certain times, installing nets or screens of various types, and continuously rotating screens. A host of factors (such as the type of water body and the local species present) affects which technology is best. As discussed in more detail below, SCE’s technical review demonstrates that there likely are numerous significant environmental impacts associated with requiring cooling towers at the OTC plants that the SED did not properly analyze or disclose.

The Board should follow EPA’s lead and conduct a similarly robust analysis to define BTA in a cost-beneficial manner that can be implemented successfully at California’s existing OTC generating facilities. Such an analysis that compares the economic costs of the Policy against its environmental benefits is required under California law, as described below.

As discussed in more detail below, SCE’s technical review demonstrates that there likely are numerous significant environmental impacts associated with requiring cooling towers at the OTC plants that the SED did not properly analyze or disclose.

The SED devotes only two pages to an economic analysis of the Policy.<sup>10</sup> This “analysis” consists of a few introductory paragraphs that discuss, in general terms, the merits of plant repowering versus plant retrofitting with a closed-cycle cooling system, along with selected text and one table of cost summary data from the Tetra Tech report.<sup>11</sup> As stated in the SED,<sup>12</sup> the Tetra Tech report was a programmatic-level evaluation of hypothetical cooling tower retrofit applications for all of the coastal OTC plants and did not provide a detailed evaluation of the economic impacts of this Policy. For example, the closing paragraph of the SED’s economic analysis section references a 2008 grid modeling effort conducted by Jones & Stokes stating that the overall cost of a statewide

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<sup>10</sup> SED at 108.

<sup>11</sup> Tetra Tech Inc., *California’s Coastal Power Plants: Alternative Cooling System Analysis*, February 2008 (prepared for the California Ocean Protection Council).

<sup>12</sup> SED at 118.



policy to replace OTC could range from \$100 million to \$11 billion. Clearly, the Policy's potential economic magnitude warrants more consideration and greater precision. Board staff should conduct a thorough economic analysis to ensure the Policy's costs and benefits are in reasonable balance. SCE suggests elements of such an analysis below.

2. SCE recommends that BTA be defined as a suite of technologies to reduce impingement and entrainment.

By defining BTA as closed-cycle cooling, the Policy imposes a one-size-fits-all approach to the reduction of impingement and entrainment impacts. SCE advocates defining BTA in a manner that: can be feasibly implemented given both physical and regulatory barriers present within California's Coastal Zone; increases compliance flexibility, without a substantial environmental impact; and does not impose costs on California's electricity consumers that are wholly disproportionate to the benefits gained. By utilizing a suite of technologies to achieve the stated goal of reduced impingement and entrainment, and using mitigation and restoration to offset any remaining impacts, the Board can achieve its goals in a manner that is fully consistent with the Supreme Court's interpretation of the CWA and that meets Justice Breyer's description of reasonable public policy. BTA should be defined so that the owner/operator of an existing coastal power plant (or other industrial installation using seawater for cooling, heating, or industrial processing) is required to use the site-specific best technology available to reduce the intake and mortality of all forms of marine life to the maximum extent feasible, without imposing costs that are wholly disproportionate to the benefit achieved.

To the extent that application of the illustrative technologies specified by the Board as BTA is either not feasible, or presents a cost wholly disproportionate to the benefit, the owner/operator should be allowed to petition the Regional Board with jurisdiction over its facility for relief from this requirement. If the Regional Board grants relief, it should impose mitigation or restoration requirements on the owner/operator that achieve the practical equivalent of reducing marine life intake and mortality to the maximum extent feasible without imposing costs that are wholly disproportionate to the benefit achieved. For purposes of the Policy, the term "feasible" should be defined as "capable of being implemented successfully without contradicting proven facts, laws, or circumstances."<sup>13</sup> BTA should be defined as reductions (defined above) that are achieved through application of a technology or a combination of the following technologies:

- Fish handling and return system
- Fine-mesh traveling screens

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<sup>13</sup> This definition is drawn from the definitions of "feasible" and "possible" found in the *Merriam-Webster Online Dictionary* (<http://www.merriam-webster.com/dictionary/feasible>) and in the *American Heritage Dictionary of the English Language*.

- Redesigned intake structure with fine mesh, handling and return system
- Fish barrier net
- Filter fabric barrier (i.e. Gunderboom) that reduces aquatic impacts at cooling water intake structures
- Relocation of cooling water intake structures
- Velocity cap for cooling water intake structures
- Passive fine-mesh screen at inlet of offshore submerged intake structure (i.e. Wedgewire)
- Double-entry, single exit cooling water intake structure with fine mesh screens and fish handling and return system

The owner/operator should be required to provide a periodic review, in the form of a report, of new and updated impingement and entrainment reduction technology. The requirement for such a report could be included in special provisions of the National Pollutant Discharge Elimination System discharge permit from the Regional Board with jurisdiction over the facility to ensure that each facility that continued to use OTC was in fact using the best technology available for reduction of impingement and entrainment over time.

The Board should exercise its judgment in determining what constitutes wholly disproportionate cost compared to benefit. The Board should be guided by the Supreme Court's discussion in *Entergy* of when a cost/benefit ratio may be considered wholly disproportionate. There, the Court upheld EPA's rejection of closed-cycle cooling as BTA because the cost/benefit ratio of 4.7-to-1 was wholly disproportionate. *Entergy*, 129 S.Ct. at 1509. As detailed below, the statewide cost/benefit ratio of the Policy is over 20 times worse, at over 90-to-1.

**C. *The cost of closed-cycle cooling is wholly disproportionate to its environmental benefit.***

In its current form, the Policy would require electric generating facilities to reduce the intake of cooling water by installing closed-cycle wet cooling systems or, under certain conditions, by demonstrating compliance via alternative means. CCEEB commissioned NERA to conduct a cost-benefit analysis of the Policy. The Board should find this information helpful in evaluating and further refining the Policy. The NERA report draws on guidance from federal and California agencies on methods to develop detailed cost-benefit assessments for the Policy at the affected facilities. The report provides illustrative estimates of the Policy's costs and benefits statewide. It also provides estimates of the Policy's cost and benefit at a single facility, SONGS, as an example of how to implement the site-specific alternative provided in the Policy. The

report also responds to some of the concerns expressed by Board staff in the Substitute Environmental Document (SED) regarding the use of cost-benefit analysis in the context of regulating cooling water intake structures at electricity generating facilities, and addresses the use of the “habitat production avoided” approach recommended by Board staff.

1. Overview of methods and sources used to estimate costs and benefits.

NERA used various sources of information to develop illustrative estimates of the costs and benefits of the Policy statewide and at SONGS. The primary source for cooling technology costs was the recent study by Tetra Tech for the California Ocean Protection Council on alternative cooling systems at California’s coastal power plants (Tetra Tech 2008). In addition, NERA estimated the costs of replacing power lost during construction of the cooling towers and as a result of lower net generating capacities with the towers. NERA also estimated the costs associated with changes in emissions of CO<sub>2</sub> and other pollutants based on projected allowance prices.

NERA based its benefits assessment on the methodology established by EPA for its Phase II rule to reduce impingement and entrainment from large existing power plants under CWA Section 316(b). The primary sources for the benefits were SONGS biological studies and summary data from the SED on California’s other coastal power plants. NERA also relied on species-specific information on the commercial and recreational values of fish impinged and entrained at California’s coastal power plants.<sup>14</sup> NERA used these values to express the potential benefits of the Policy in dollar terms. NERA made several conservative assumptions to avoid overstating the costs or understating the benefits of the Policy. It assessed whether the costs and benefits that were not monetized would likely affect the overall conclusions.

2. An illustrative statewide cost-benefit analysis using EPA’s methodology demonstrates that the Policy’s cost exceeds its benefits by more than 90-to-1.

Table 1 summarizes the results of NERA’s illustrative statewide cost-benefit analysis. The Policy calls for a phased implementation of closed-cycle cooling systems, with varying requirements for facilities with different technologies and locations. Compliance dates range from 2011 to 2022. As a result, the costs and benefits for different facilities will be experienced in different years. Table 1 shows present values in 2009 dollars as of January 1, 2009 based upon a real discount rate of seven percent. The present values reflect the fact that several power plants would not have to comply with the Policy until several years in the future (e.g., in 2022 for SONGS) and thus the present values as of January 1, 2009 are much lower than if the same costs and benefits were

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<sup>14</sup> See Cal. Dept. of Fish & Game, *California Commercial Landings for 2007*. August 5, 2008; Electric Power Research Institute, *Comprehensive Demonstration Study for Southern California Edison’s San Onofre Nuclear Generating Station, Final Report* (2008) (prepared for SCE); Pacific States Recreational Fishery Information Network, *Pacific States Marine Recreational Fisheries Monitoring*, 2009.

incurred earlier.

The estimated present value (in today's dollars) of total costs across all affected power plants in California is approximately \$3.12 billion (theoretically set aside on January 1, 2009 to equal the discounted sum of all costs incurred in future years under the Policy). The largest component is capital costs of about \$1.5 billion, followed by energy penalty costs of about \$618 million and construction outage costs of \$450 million. The estimated present value of total benefits across all affected power plants in California is about \$34 million (i.e. the discounted sum of the benefits of the Policy in future years). Entrainment gains account for about \$26.7 million of the benefits, while impingement gains account for the remaining \$7.5 million in benefits.

**Table 1. Preliminary statewide cost-benefit analysis: summary results**

Source: NERA calculations

	PV (Present Value)
<b>Costs</b>	
Capital	\$1,503.6
Operating and Maintenance	\$151.5
Construction Outage	\$450.3
Energy Penalty	\$617.7
Heat Rate Impact	\$91.3
CO2 Emissions	\$306.8
<b>Total</b>	<b>\$3,121.2</b>
<b>Benefits</b>	
Impingement	\$7.5
Entrainment	\$26.7
<b>Total</b>	<b>\$34.2</b>
<b>Cost/Benefit Comparisons</b>	
Net Costs	\$3,087.0
Cost/Benefit Ratio	91

*Notes*

- All dollar values are in millions of 2009 dollars.
- PV values are present values as of January 1, 2009 based on a real annual discount rate of seven percent.
- The statewide analysis does not include the costs of cooling-tower retrofits at the Encina, Potrero, Redondo Beach, or South Bay plants because Tetra Tech's 2008 report does not provide cost estimates for these facilities. However, the analysis does include the benefits of reduced cooling-water intake at these facilities.

As shown in Table 1, the estimated present value of net costs (i.e., costs minus benefits) of the Policy across all affected power plants is approximately \$3.12 billion. These results indicate the costs that California electricity ratepayers would incur to install cooling towers on all facilities with once-through cooling would exceed the benefits to society by a factor of over 90.

Guidelines on regulatory policymaking from the California Department of Water Resources (DWR), U.S. EPA, and the U.S. Office of Management and Budget (OMB) indicate that policies are economically justified only if their total benefits exceed their

total costs (or non-monetized effects are likely to cover any gap in monetized costs and benefits). The Policy's large net costs suggest that it is not reasonable to use so much of California's scarce economic resources to achieve closed-cycle cooling performance. SCE hopes the Board would agree there are limited resources to address environmental issues and that the Board should require expenditure of resources in a way that is reasonably related to the benefit gained so that more of our pressing environmental problems can be addressed.

A legally sufficient economic analysis of the Policy that compared costs (economic and non-economic) against environmental benefits to ensure reasonableness would include developing several additional assessments beyond the illustrative assessments provided in this report, such as:

- Expansion of technologies considered to include technologies other than closed-cycle wet cooling systems;
- Modeling to evaluate the likely effects of the Policy on the electricity system and the implications of these effects on the statewide costs and benefits; and
- Assessments of the likely effects of the alternative compliance mechanisms on compliance at the various facilities and the implications for statewide costs and benefits.

3. Implementing the Policy at SONGS would exceed the estimated benefits by a factor of over 140.

The Policy would allow owners and operators of affected nuclear power plants and affected fossil fuel-fired power plants with a heat rate of 8,500 BTU/kWh or less to request alternative reduction targets from the Regional Water Board if they demonstrate that the costs of the Policy for their power plants would be "wholly disproportionate" to the benefits. The Policy does not provide specific guidance on how the cost-benefit analysis should be performed, although it does indicate that costs should be measured in terms of cents-per-kWh and that benefits should be measured in terms of "habitat production foregone" (an estimate of habitat area production that is lost to all entrained species). As discussed in NERA's report, these measures of costs and benefits are not consistent with state or federal guidelines and raise a number of conceptual and practical difficulties.

NERA performed an illustrative site-specific cost-benefit analysis of the Policy for SONGS using EPA's methodology for the CWA Section 316(b) Phase II Rule. Table 2 summarizes the results. The estimated present value of costs arising from implementing the Policy at SONGS is about \$1.7 billion, and the estimated present value of benefits is

about \$12 million.<sup>15</sup> Thus, the estimated costs from implementing the Policy at SONGS would exceed the estimated benefits by a factor of over 140.

The NERA analysis assumes that it is feasible to switch to closed-cycle cooling at SONGS, ignoring the conclusion that insuperable physical, practical, and regulatory barriers discussed above make the installation of cooling towers at SONGS infeasible. Although additional study would be necessary to assess the costs and benefits of alternative compliance mechanisms, the preliminary analysis indicates that disregarding the insuperable barriers at SONGS, requiring installation of cooling towers would not be economically justified compared to the benefit obtained. It would be important to expand the cost-benefit assessment for SONGS to include evaluations of the costs and benefits of other technologies that could reduce impingement and entrainment.

**Table 2. Preliminary SONGS cost-benefit analysis: summary results**

*Source: NERA calculations*

	PV (Present Value)
<b>Costs</b>	
Capital	\$293.3
Operating and Maintenance	\$12.5
Construction Outage	\$776.6
Energy Penalty	\$359.9
Heat Rate Impact	0
CO2 Emissions	\$299.0
<b>Total</b>	<b>\$1,741.4</b>
<b>Benefits</b>	
Impingement	\$3.6
Entrainment	\$8.5
<b>Total</b>	<b>\$12.1</b>
<b>Cost/Benefit Comparisons</b>	
Net Costs	\$1,729.3
Cost/Benefit Ratio	145

*Note:*

- All dollar values are in millions of 2009 dollars.
- PV values are present values as of January 1, 2009 based on a real annual discount rate of seven percent.

<sup>15</sup> NERA used site-specific cost data from the September 2009 report by Enercon Services, Inc. titled *Feasibility Study for Installation of Cooling Towers at San Onofre Nuclear Generating Station* (which is attached as Exhibit E).

4. The Substitute Environmental Document's (SED) concerns regarding a detailed economic analysis that compares costs against benefits are misplaced.

The SED alludes to three broad concerns with using cost-benefit analysis: that it is incomplete; that it leads to inconsistent regional decisions; and that it is overly burdensome. The following points summarize NERA's response to these concerns:

- *Benefit estimates are incomplete.* Contrary to the SED's suggestion, indirect use benefits can be assessed by including trophic transfer, which estimates the impact of additional forage fish on the population of fish valued directly by anglers and commercial fishers. More broadly, although all monetized benefit and cost estimates are incomplete, the results can be used to develop meaningful conclusions. Benefits that cannot be monetized can be evaluated qualitatively to assess the impact they might have on the net benefits of the Policy.
- *Consistency in state policy across regions.* The SED appears to assume that consistency requires uniform technology choices. But consistency is more usefully defined as applying a consistent set of decision criteria and methods for evaluating costs and benefits across regions and facilities.
- *Cost-benefit analysis is too burdensome for Regional Boards.* As NERA's analyses show, much of the necessary data are already available. The level of the analysis also should be tailored to the magnitude of the decision (e.g., a large nuclear plant compared to a small peaking or load-following unit). Finally, it is important to put the costs in analysis in perspective, as they are generally a very small fraction of the costs of the regulation in question.

In summary: (1) benefit estimates are sufficiently complete to provide meaningful cost-benefit comparisons; (2) cost-benefit analysis provides the correct consistency in treatment of facilities across regions; and (3) cost-benefit analysis is not too burdensome in light of the potential societal gains and the substantial information that is available.

5. A cost-benefit analysis of the Policy would provide a more accurate forecast of future consequences than the SED's analysis.

NERA's economic assessment of the Policy contains several conclusions and recommendations:

- Cost-benefit analysis is an important means of clarifying the significant consequences of key decisions regarding the Policy. The concerns raised against cost-benefit analysis – that it is too incomplete,

that it leads to inconsistent regional decisions, or that it is overly burdensome to regions – are not legitimate reasons to deny its use in informing the Board.

- Requiring all existing California generation units with once-through cooling to achieve closed-cycle performance with respect to intake flow reduction, as proposed, does not pass any reasonable cost-benefit test. As discussed above, the net costs would be very large – about several billion dollars on a present value basis, after accounting for the phasing of the requirement – more than 90 times the estimated benefits. To ignore this fact would result in a misallocation of the resources available for environmental protection.
- The statewide cost-benefit assessment could be expanded to evaluate the likely impacts on costs and benefits of potential effects of the Policy on the California electricity system and to consider a wide range of potential alternatives to the Track 1 requirement, including different levels of potential control (which would translate into different likely technology choices at the various facilities).
- The flexibility provisions in the Policy should be retained and expanded. The Policy should allow site-specific cost-benefit analyses for power plants to identify the most economically desirable means of reducing impingement and entrainment. Phasing in the Policy gradually would minimize disruptions to the state and regional electricity systems.

The Policy should establish a clear methodology for performing site-specific cost-benefit analysis. The EPA methodology in the Phase II Rules, in conjunction with cost-benefit guidelines from DWR, EPA, and OMB, offers a good template for such a methodology. NERA's illustration suggests that most of the information needed to implement such a cost-benefit methodology for individual California facilities is already available.

#### 6. The SED's "economic analysis" lacks context.

The "economic analysis" in the SED is wholly inadequate. At its simplest level, it reports the average cost (based on the Tetra Tech study) of retrofitting closed-cycle systems per kilowatt-hour, noting that is about 1.13 cents/kWh if they operate at the 2006 actual levels, or about 8.7% of the average price. It is impossible, however, to evaluate these costs in isolation, without comparing them to the benefits obtained. Nowhere does the SED provide such an analysis. NERA's report contains a preliminary cost-benefit analysis based on federal and state guidelines for conducting benefit-cost analyses showing that the likely benefits of the Policy fall far short of the costs of retrofitting the OTC plants with cooling towers.



The SED analysis suggests that the owners of some plants may choose to repower plants in configurations that include closed-cycle cooling. The SED analysis suggests that the owners of some plants may choose to repower plants in configurations that include closed-cycle cooling. This analysis is conflict with statements in the draft staff paper issued by the staff of the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and California Independent System Operator (CAISO) (together, the Joint Energy Agencies) indicating that “it is possible that the majority of power plant operators will retire their existing facilities rather than invest money to refit old technologies to meet the proposed SWRCB requirements.”<sup>16</sup> In making this statement, the Joint Energy Agencies relied on the representations of OTC plant representatives that they would likely shut down their facilities rather than invest monies to comply with the Policy.<sup>17</sup> Further, the ability to repower is dependent on numerous factors, including obtaining facility permitting, financing, land acquisition and local approvals, and conducting studies of the potential effects on the electrical infrastructure. Nevertheless, to the extent generators decide that it would be less costly for them, on net, to comply with the Policy by proposing to repower or simply shutting down, the incremental net cost of repowering or shutting down must be analyzed. In the case of repowering, the relevant comparison is between the variable costs of continued operation and the total costs of repowering (including capital expenditures for the plant itself and the cooling system). For plant shutdowns, the relevant cost is the difference between the variable costs of continuing to operate the existing plant and the cost of replacement power. A complete analysis of social costs should also include costs associated with air emissions, including CO<sub>2</sub>, to the extent they are not already reflected in out-of-pocket costs as a result of a cap-and-trade system. The SED does not provide estimates of any of these costs, let alone a comparison of those costs to the benefits of the proposed rule under those circumstances.

**V. The Board should craft a Policy that protects electric system reliability.**

- A. *The Policy should ensure flexibility and acknowledge that OTC capacity cannot be retired until replacement capacity needed for reliability is operational.*

SCE appreciates the Board’s efforts to engage the Joint Energy Agencies to ensure that the timeline set forth in the Policy will not disrupt the state’s electrical power supply. Any OTC policy must be balanced with the need to maintain a reliable electric grid, and SCE agrees with the Joint Energy Agencies that “the implementation of an OTC mitigation policy for existing generators has to be integrated with planning and development of the replacement infrastructure necessary to support system reliability.”<sup>18</sup>

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<sup>16</sup> *Draft Joint Agency Staff Paper: Implementation of Once-Through Cooling Mitigation through Energy Infrastructure Planning and Procurement*, July 2009, at 3 (noting that “with limited exceptions, representatives of the existing OTC plants confirmed this presumption at a May 2009 workshop on OTC mitigation”).

<sup>17</sup> *Id.*

<sup>18</sup> *Id.* at 4.

As the Joint Energy Agencies acknowledge, Southern California's electrical system poses unique challenges that make OTC policy implementation via investor-owned utility procurement actions extremely difficult.<sup>19</sup> The South Coast Air Quality Management District's Priority Reserve dispute currently prevents the construction of new replacement generation, while at the same time, siting new transmission in the region is likely to run into extraordinary opposition, resulting in long lead times and unpredictable outcomes. These obstacles are separate and distinct from the broader complex exercise of understanding the eventual configuration of California's electrical system in light of the state's renewables goals and A.B. 32 implementation.

Like the Joint Energy Agencies, SCE believes that the "[a]nalyzes of options to satisfy future requirements, planning decisions, procurement process, permitting, and construction all take time and carry uncertainties that are not easily reduced to a specific date when replacement infrastructure can be certain to be operational."<sup>20</sup> For example, the Joint Energy Agencies provide a detailed list of the studies and steps that are necessary to develop an OTC Replacement Infrastructure Plan, including identifying what additional system capacity is needed, where it is needed, and what characteristics are needed to meet system requirements. Transmission project upgrades or additions must also be examined, as well as permitting processes. The Joint Energy Agencies list more than four pages of studies, analyses, and steps that must be undertaken to develop a firm compliance timeline.<sup>21</sup> The Joint Energy Agency Staff Paper on implementation of the Policy contemplates that the Board will use the Joint Energy Agencies' implementation plan as the basis for establishing compliance timelines, and will take into account any necessary delays in enforcing the Policy, based on the Energy Agencies' determination that a unit is required for system reliability.<sup>22</sup> However, it is not clear to SCE to what extent the Board intends to defer to the Energy Agency representatives where reliability concerns are at issue. In recognition of the uncertainties involved in resource planning, permitting, and construction, the Board should adopt the Joint Energy Agencies' guiding principle: OTC capacity cannot be allowed to retire until replacement capacity needed to assure reliability is operational.<sup>23</sup> Explicitly acknowledging this principle within the Policy will ensure the flexibility needed to maintain system reliability and to accommodate other state public policy objectives.

***B. The Policy should require each of the Joint Energy Agencies to issue a formal finding that implementation plans submitted by generators will not adversely impact reliability.***

SCE appreciates the provisions in the Policy that provide for ongoing feedback from the Joint Energy Agencies through the Statewide Advisory Committee on Cooling Water Intake Structures (SACCWIS). According to the Policy, the SACCWIS will

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<sup>19</sup> *Id.* at 5-8.

<sup>20</sup> *Id.* at 3.

<sup>21</sup> *Id.* at A-2 to A-6.

<sup>22</sup> *Id.* at A-6 ("The SWRCB would periodically review the Plan and, for each unit with an official reliability designation, modify the OTC permit expiration date to match the reliability designation of the unit.")

<sup>23</sup> *Id.*

include representatives from the Joint Energy Agencies as well as the Coastal Commission, State Lands Commission, and the Air Resources Board, and will “assist the Water Boards in reviewing implementation plans and schedules submitted by dischargers pursuant to [the] Policy.”<sup>24</sup> Although SCE supports feedback from such a broad committee, SCE is concerned that the role of SACCWIS remains an advisory one, and that the committee is not accountable for the failure to prevent risks to the reliability of the system. Moreover, SCE is aware of testimony at the September 16 public hearing that the Board should ask for earlier and more frequent advice from SACCWIS to allow for changes to the Policy to address the practicality of the implementation schedule in the light of the need to maintain reliability. In response to such concerns, Board members commented that the affected parties should not expect frequent review or changes to the Policy once adopted by the Board. In effect, the exchange at the Board workshop underscores an essential point: policies should be reasonable so that they are durable. To deal with this issue, SCE recommends that, in addition to the interaction between the staff of the Board and the Joint Energy Agencies through the SACCWIS, the CEC, CPUC, and the CAISO each issue a formal finding that the implementation plan and schedule submitted by each OTC plant owner/operator will not adversely affect grid reliability. This finding should take into consideration the locational need of coastal generation facilities, and provide an estimate of the timing and feasibility of necessary replacement generation. Consistent with the Joint Energy Agencies’ guiding principle above, if any Energy Agency finds that an OTC plant’s implementation plan will negatively affect system reliability, the schedule for that plant’s compliance with the Policy should be suspended.

**VI. The Substitute Environmental Document (SED) falls short of CEQA requirements by failing to identify the Policy’s significant environmental impacts.**

The SED falls short of statutory and regulatory requirements for a California Environmental Quality Act (CEQA) document, even one prepared under a certified regulatory program. The document’s defects are systemic, precluding meaningful review by the public and decisionmakers. SCE believes that the SED should be revised and re-circulated to address the concerns identified below.

Under an appropriate environmental review (which has not been done in this case), the SED likely would have concluded that the Policy would result in significant environmental impacts. The technical review prepared by ENVIRON, dated September 28, 2009, attached as Exhibit F (the “ENVIRON Report”), supports this conclusion. The ENVIRON Report demonstrates that the SED was not prepared in accordance with industry standards for several environmental issue areas. The SED includes analytical and methodological defects that an adequate CEQA document would not contain. These defects are material and prejudicial. The ENVIRON Report provides considerable evidence that the Policy would result in significant environmental impacts not analyzed or disclosed in the SED.

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<sup>24</sup> Policy § 1(I).

To address these significant impacts, the SED must analyze and incorporate any feasible mitigation measure or alternative that would minimize them. See Pub. Res. Code § 21080.5(d)(3)(A); Cal. Code Regs. tit. 14, § 15252(a); Cal. Code Regs. tit. 23, § 3777(a). If the SED cannot reduce the impact to less-than-significant levels, a Statement of Overriding Considerations must be adopted.

It is difficult for the public or decision-makers to evaluate the control technology apparently favored by the Policy – wet cooling towers – because the SED did not evaluate and disclose all the environmental impacts associated with the Policy. As shown by SCE’s comments, closed-cycle cooling towers that rely on saltwater for intake purposes are either infeasible, or practically infeasible, for many coastal facilities and would result in significant environmental impacts not addressed by the SED. Given that impingement and entrainment impacts already are mitigated fully at some coastal facilities, such as SONGS,<sup>25</sup> the significant adverse impacts associated with cooling towers are not justified by a commensurate benefit.

The SED’s current CEQA deficiencies amount to an abuse of discretion, as demonstrated by California case law that interprets the legal requirements for state agencies complying with CEQA under a certified regulatory program. As just one example among several, the SED does not provide a meaningful analysis of the mandated “no project” alternative. In a directly analogous case, the California Supreme Court held that an agency’s failure to include a “meaningful consideration of the ‘no project’ alternative” amounted to a prejudicial abuse of discretion for not “proceed[ing] in accordance with procedures mandated by law.” *Mountain Lion Found. v. Fish and Game Comm’n*, 16 Cal. 4th 105, 137 (1997) (overturning environmental document prepared pursuant to a certified regulatory program for a Fish and Game Commission policy allowing the hunting of mountain lions).

This section describes the SED’s CEQA defects, organized in the following subsections:

- A. The Board’s certified regulatory program does not cover the Policy, triggering the need for an Environmental Impact Report (EIR).
- B. The SED is materially defective for not evaluating and disclosing numerous potentially significant environmental impacts related to the following environmental issue areas:
  - Air Quality
  - GHG Emissions

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<sup>25</sup> Final Report of the Marine Review Committee to the California Coastal Commission, MRC Document No. 90-02), August 1989, § V, at 302 (“Our best estimates indicate that either constructing a 60-ha artificial reef or restoring a 60-ha wetland would completely compensate for the loss of fish larvae.”).

- Aesthetics
  - Noise
  - Biological Resources
  - Water and Aquatic Ecology
  - Utilities and System Services
- C. The Board staff abused its discretion by limiting its assessment of cumulative impacts to a one-sentence conclusory statement.
- D. The Board staff abused its discretion by not analyzing the environmental impacts associated with a reasonable range of alternatives, by not analyzing environmental impacts associated with the mandated “no project” alternative, and by not selecting an “environmentally superior” alternative.
- E. The Board staff did not satisfy its obligation under Public Resources Code Section 21159 to analyze reasonably foreseeable methods of compliance with the Policy.
- F. The SED did not analyze significant inconsistencies between the Policy and existing laws, regulations, and policies, including A.B. 32 and the California Air Resources Board (CARB) Scoping Plan.
- A. *The Board staff must prepare an EIR because the Policy is not covered by the Board’s certified regulatory program.*

The Board has two narrowly prescribed certified regulatory programs, described by the CEQA Guidelines exactly as follows:

- “The Water Quality Control (Basin)/208 Planning Program of the State Water Resources Control Board and the Regional Water Quality Control Boards” (CEQA Guidelines § 15251(g)); and
- “The regulatory program of the State Water Resources Control Board to establish instream beneficial use protection programs” (CEQA Guidelines § 15251(k)).

The Policy does not fall under either of these programs. The SED is neither part of a basin plan (or a plan prepared pursuant to CWA Section 208), nor involved in establishing instream beneficial uses.

The SED suggests the Board has a certified regulatory program for its “water

quality planning process” pursuant to CEQA Guidelines Section 15251(g).<sup>26</sup> This interpretation appears to stretch the program’s reach beyond the scope provided in the two relevant CEQA Guidelines. Nonetheless, even if water quality planning were to fall under the program, it still would not cover the Policy. Water quality planning relates primarily to setting objectives and beneficial uses for receiving waters. The Policy proposes to set performance standards for power plants, regardless of water quality standards for the receiving waters.

In the absence of the shelter of a certified regulatory program, an agency must complete a full EIR. *See Citizens for Non-Toxic Pest Control v. Dept. of Food & Agric.*, 187 Cal. App. 3d 1575, 1588 (1987). The Board staff is obligated to complete several additional procedural requirements if a certified regulatory program does not apply. *See* Pub. Res. Code § 21080.5(c); CEQA Guidelines § 15250.

SCE believes the Board staff must prepare a complete EIR. However, as shown below, even if the Board may proceed under a certified regulatory program, the SED falls short of CEQA’s requirements.

**B. The SED does not evaluate or disclose numerous potentially significant environmental impacts**

According to the California Supreme Court, an environmental document prepared under a certified regulatory program serves “as the functional equivalent of an EIR” and “must provide public and governmental decisionmakers with detailed information on the project’s likely effect on the environment.” *Ebbetts Pass Forest Watch v. Cal. Dept. of Forestry and Fire*, 43 Cal. 4th 936, 943 (2008); *see Santa Barbara County Flower & Nursery Growers Assn. v. County of Santa Barbara*, 121 Cal. App. 4th 864, 872 (2004) (certified regulatory program “must satisfy statutory criteria to ensure environmental review is functionally equivalent to the EIR process”). The Board remains subject to CEQA’s broad policy goals and substantive standards. *City of Arcadia v. State Water Res. Control Bd.*, 135 Cal. App. 4th 1392, 1422 (2006).

Thus, even if the Board need not prepare a full EIR (which SCE believes the Board is obligated to do), the SED is not an adequate functional equivalent to an EIR. The SED neglects to analyze and disclose reasonably foreseeable environmental impacts related to air quality, GHG emissions, and other environmental issue areas identified in the ENVIRON Report.

1. The SED’s air quality emissions analysis does not comply with CEQA.
  - a) The SED does not compare Policy emissions against established CEQA significance thresholds.

The SED does not compare the Policy’s estimated emissions against established

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<sup>26</sup> SED at 10.

CEQA significance thresholds established by the regional air quality management districts.<sup>27</sup> According to the ENVIRON Report, “It is standard practice to discuss the CEQA air quality significance thresholds for construction and operational impacts.”<sup>28</sup> This simple step reveals several significant environmental impacts that are not disclosed by the SED.

Based on estimates provided in the SED, Policy emissions would exceed significance thresholds for the following pollutants:

- PM10 from cooling towers.<sup>29</sup>
- PM2.5 from cooling towers.<sup>30</sup>
- SO<sub>x</sub>, NO<sub>x</sub>, CO, VOC, PM10, and PM2.5 associated with replacement generation.<sup>31</sup>

Not disclosing these impacts amounts to a material and prejudicial error because the SED does not identify *any* significant impacts associated with the Policy, and thus does not adopt all feasible mitigation measures or alternatives, nor suggest that a Statement of Overriding Considerations is necessary. An EIR must be prepared with a sufficient degree of analysis to provide decision-makers with the information needed to make an intelligent judgment concerning the project’s environmental impacts. CEQA Guidelines §15151; *Napa Citizens for Honest Gov’t v. Napa County Bd. of Supervisors*, 91 Cal. 4th 342, 356 (2001). To comply with CEQA, the SED should be revised and re-circulated to consider feasible mitigation measures and alternatives to reduce these significant impacts. See Pub. Res. Code § 21080.5(d)(3)(A); Cal. Code Regs. tit. 14, § 15252(a); Cal. Code Regs. tit. 23, § 3777(a).

- b) The SED’s methodology to estimate Policy emissions appears to be seriously flawed.

Several defects in the SED’s methodology for estimating Policy-related emissions make it difficult to evaluate the Policy’s impacts. The heart of the SED’s evaluation of air quality emissions involves three “scenarios” that Staff developed to ostensibly “describe the range of potential air emission increases.” Regrettably, the scenarios are rife with problems and difficult to reproduce from a technical perspective. See ENVIRON Report, Comment 5.

Scenario 1 (Table 23) assumes all “units deemed feasible” will be retrofitted to “closed-cycle wet cooling” and replacement power will be met with “native replacement” for “fossil units” and by “excess capacity within the coastal fleets” for the nuclear units.<sup>32</sup>

<sup>27</sup> See ENVIRON Report, Table 1.

<sup>28</sup> *Id.*, Comment 4.

<sup>29</sup> *Id.*, Tables 2 and 3.

<sup>30</sup> *Id.*, Tables 4 and 5.

<sup>31</sup> *Id.*, Table 6.

<sup>32</sup> SED at 98.

The SED does not evaluate whether the OTC plants can feasibly make up energy losses with “native replacement” or whether there is a feasible amount of “excess capacity” available in the coastal fleet to address the nuclear facilities’ replacement needs. If such capacity is not available, the Policy would either undermine system reliability (an effect not evaluated) or require the import of external generation (the effects of which are not analyzed).

According to the Jones & Stokes report referenced by the SED that evaluates grid reliability, the “Board’s pending OTC policy does have potential to negatively affect electric reliability, [but] proper planning can compensate for any plant retirements and prevent reliability problems, provided the industry has sufficient time to respond.”<sup>33</sup> Similar concerns are raised regarding transmission constraints.<sup>34</sup> Regrettably, the SED does not provide potential mitigation measures to address these concerns and does not evaluate how the Policy will accommodate postponement to avoid reliability concerns if these issues are not rectified in a timely manner.<sup>35</sup>

For Scenario 1, the SED makes no effort to evaluate the significance of the estimated emissions. The significant exceedances of applicable air quality standards mentioned above are not disclosed. The SED does not address the practical infeasibility of retrofitting nuclear facilities with closed-cycle cooling towers (see detailed discussion below). Despite these flaws, Scenario 1 likely represents the most realistic of the three scenarios.

Scenario 2 (Table 24) makes the bare assertion that all “generation shortfall is replaced by new combined cycle units.”<sup>36</sup> No evaluation of the feasibility of this key assumption is made and the SED does not acknowledge that other portions of the document seriously question the likelihood that new generation can be developed in time to provide replacement power given regulatory constraints.<sup>37</sup> Further, no evaluation is made as to where the energy would come from. If the units are not located within the same load areas, new transmission lines would be necessary. Significant transmission-related constraints raise questions about the feasibility of this potential.<sup>38</sup>

Scenario 3 (Table 25) appears to be even less feasible than the other two scenarios. The SED assumes “all fossil units are repowered to combined cycle systems with dry cooling.”<sup>39</sup> This assumption is made even though the SED relies on a Tetra Tech study that determined it was infeasible to retrofit some of the OTC plants. This assumption is made even though the SED acknowledges that dry cooling towers likely

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<sup>33</sup> ICF Jones & Stokes, *Electric Grid Reliability Impacts from Regulation of Once-Through Cooling in California*, 2008, at 4; ENVIRON Report, Comments 32-34.

<sup>34</sup> *Id.*

<sup>35</sup> ENVIRON Report, Comments 32-34.

<sup>36</sup> SED at 98.

<sup>37</sup> SED, Appendix C, at C-6 to C-8.

<sup>38</sup> ENVIRON Report, Comments 32-34.

<sup>39</sup> SED at 98.



would not be utilized at OTC facilities.<sup>40</sup>

Despite the potential infeasibility of all three scenarios (particularly Scenarios 2 and 3), the SED makes no attempt to evaluate the scenario that likely would be the environmentally superior option: a scenario that assumes the nuclear plants are *not* retrofitted with closed-cycle cooling towers. The SED acknowledges that assuming the nuclear facilities will be retrofitted with cooling towers “account[s] for 80 to 90 percent of any increase” in emissions from the Policy.<sup>41</sup> Thus, if the nuclear facilities are not retrofitted, the Policy’s air quality emissions would be cut dramatically.

Substantial regulatory hurdles make the practical feasibility of adding cooling towers at Diablo Canyon or SONGS highly suspect. Multiple agencies, including the California Coastal Commission and the Central Coast Regional Water Quality Control Board, have rejected such alternatives.<sup>42</sup> According to the ENVIRON Report, cooling towers at SONGS could cause an array of significant environmental impacts associated with air quality, noise, biological resources, recreation, and water quality. The SED did not analyze or address any of these impacts.<sup>43</sup>

While [the two nuclear facilities] may meet technical and logistical requirements for installing wet cooling towers, it may not be a practical option in light of the outsized importance of these facilities compared to others and the lengthy approval process that will be involved with the NRC and other interested parties.<sup>44</sup>

[C]onsideration must be given to other environmental impacts (air emissions, visual, noise, etc.) that may result from the use of a closed-cycle system and the comprehensive cost associated with its installation and operation.<sup>45</sup>

Moreover, because impingement and entrainment impacts have been mitigated to less than significant levels at SONGS in accordance with the facility’s Coastal Commission permit, the Policy’s adverse impacts would not be offset with a commensurate benefit.

The apparent defects in the scenarios – and the SED’s failure to evaluate emissions associated with a scenario that excludes the nuclear facilities – make it difficult for the public to evaluate effectively the impact of Policy-related emissions. It is settled law that “a paramount consideration of CEQA is the right of the public to be informed in

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<sup>40</sup> SED at 88.

<sup>41</sup> SED at 99.

<sup>42</sup> See, e.g., California Coastal Commission, Marine Review Committee, *Final Report of the Marine Review Committee to the California Coastal Commission* (1989), at 289-290. This report is hereby incorporated by reference.

<sup>43</sup> See ENVIRON Report, Comment 39 and Introduction.

<sup>44</sup> SED at 83-84.

<sup>45</sup> SED at 85.

such a way that it can intelligently weigh the environmental consequences of any contemplated action and have an appropriate voice in the formulation of any decision.” *Envtl. Planning and Info. Council v. County of El Dorado*, 131 Cal. App. 3d 350, 354 (1982). SCE requests that the SED be revised to address these material issues.

- c) The SED does not analyze potential health hazards associated with Policy emissions.

The SED does not include any discussion regarding the potential health effects of Policy-related air pollutants. Most notably, it does not discuss the potential impact of increased emissions of PM10 and PM2.5 from cooling towers. Exposure to elevated concentrations of particulate matter has been linked to a number of adverse health effects, including acute respiratory infections, lung cancer, and chronic respiratory and cardiovascular diseases.<sup>46</sup>

The SED does not report the increase in air toxic emissions due to the energy penalty associated with the installation of cooling towers. The additional power plant emissions are also expected to result in an increase in air toxic emissions.<sup>47</sup> SCE requests that the SED be revised to evaluate these legitimate health risks.

2. The SED does not provide a meaningful evaluation of Policy-related GHG emissions.

According to the ENVIRON Report, “the SED provides insufficient discussion regarding global climate change impacts in regards to the Policy. The SED has not adequately developed a GHG emissions inventory nor has it evaluated the emissions in comparison to the goals of the State of California to reduce the State’s GHG emissions.”<sup>48</sup>

The SED does not provide an analytical framework for determining the significance of Policy GHG emissions. The SED estimates GHG emissions based on Scenarios 1-3, described above. The significance determination consists of only the following unsupported statement:

Staff expects that the actual net increase in greenhouse gas emissions will fall somewhere in between these extremes (0-5 percent net increase in greenhouse gas emissions). As such, staff has determined that there will be a less than significant impact to the environment.<sup>49</sup>

The SED provides no basis for the staff’s belief that the impact would be less than significant. No explanation is offered about how the staff determined the “emissions will fall somewhere in between th[e] extremes” identified in the scenarios. No evaluation is

<sup>46</sup> ENVIRON Report, Comment 14.

<sup>47</sup> *See id.*, Comment 7.

<sup>48</sup> *Id.*, Comment 15.

<sup>49</sup> SED at 102.

made about the feasibility constraints raised above for Scenario 3, which is the only scenario that represents a decrease in GHG emissions, and thus tends to skew the averaging approach apparently taken by the SED.

The SED's approach does not comport with the Office of Planning and Research's (OPR) draft CEQA Guidelines for GHG emissions ("Draft CEQA GHG Guidelines").<sup>50</sup> The Draft GHG CEQA Guidelines call for a careful and detailed consideration of the significance of project GHG emissions.<sup>51</sup> The Draft GHG CEQA Guidelines call for a good-faith quantification of all direct and indirect GHG emissions.<sup>52</sup> The SED does not quantify construction emissions, indirect emissions (e.g., from water use), or emissions related to the "interim" period when OTC plants may be offline. These undisclosed emissions may be very substantial.<sup>53</sup>

Under the California Global Warming Solutions Act of 2006, widely known as A.B. 32, California needs to reduce GHG emissions by approximately 30% below business-as-usual year 2020 GHG emissions. The A.B. 32 Scoping Plan requires a reduction of 169 million metric tons (MMT) of CO<sub>2e</sub> by 2020.<sup>54</sup> Several specific measures are recommended in order to achieve this level of reduction, including a 33% Renewable Portfolio Standard (RPS), which is expected to result in 21.3 MMT savings. In order to achieve this objective, the grid must accommodate a significant amount of intermittent resources (solar and wind) that do not have certain specific performance requirements (such as ramping and load-following needed to satisfy and maintain system reliability). In a 2007 report on reliability, the California Independent System Operator stated that meeting the 20% RPS goal required the ongoing availability of existing generation to provide back-up generation and essential reliability services.<sup>55</sup> In a 33% RPS scenario, reliability would be at an even greater risk without the OTC plants.

The ENVIRON Report identifies a commonly practiced method to evaluate the significance of GHG emissions by comparing project emissions against A.B. 32 goals.<sup>56</sup> If one assumes the business-as-usual scenario is the "no project" alternative, then the Policy results in an increase of potentially over 2 million metric ton per year of CO<sub>2</sub> emissions. The Policy would not represent a 30% decrease from business-as-usual.

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<sup>50</sup> OPR issued the Draft CEQA GHG Guidelines on April 13, 2009. The Natural Resources Agency has until January 1, 2010, as required by Public Resources Code § 21083.05(b), to finalize the rulemaking to adopt the new CEQA Guidelines.

<sup>51</sup> Draft CEQA GHG Guidelines at 4 (proposing to amend CEQA Guidelines § 15064.4). The SED also does not consider important documents to help assess the significance of GHG impacts, such as a white paper issued by the California Air Pollution Control Officers Association (CAPCOA, *CEQA and Climate Change*, Jan. 2, 2008).

<sup>52</sup> *Id.* See also Office of Planning and Research, *CEQA and Climate Change: Addressing Climate Change through CEQA*, June 2008, at 5.

<sup>53</sup> See ENVIRON Report, Comments 17, 18, and 20.

<sup>54</sup> A.B. 32 required CARB to prepare a Scoping Plan to achieve reductions in GHG emissions in California. CARB issued the Scoping Plan on December 11, 2008.

<sup>55</sup> California Independent System Operator, *Integration Of Renewable Resources: Transmission and Operating Issues and Recommendations for Integrating Renewable Resources on the California ISO-Controlled Grid*, November 2007, at i.

<sup>56</sup> See ENVIRON Report, Comment 16.

Under this approach, the Policy would be considered to have a significant impact on climate change because of its inconsistency with A.B. 32.<sup>57</sup>

When evaluating significant impacts, an EIR must set forth the bases for its findings; a bare conclusion regarding an environmental impact without explanation of its factual and analytical basis is not sufficient. *Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.*, 47 Cal. 3d 376, 404 (1988). The SED appears to fall far short of this standard for analyzing GHG emissions. The public and decision-makers have nothing other than Staff's "bare conclusion" of insignificance to evaluate the Policy's substantial GHG emissions increase (over 2 million metric tons per year).

Notably, if the SED had evaluated an alternative that did not include the nuclear facilities, the GHG emissions would have been substantially reduced. If it is determined that the Policy's GHG emissions are significant, as SCE believes, the Board must implement any feasible alternative to reduce the significant impact. SCE requests that the SED be revised to evaluate this scenario.

3. The ENVIRON Report identifies other potentially significant impacts of the Policy not identified in the SED.

SCE respectfully points to the comments made in the attached ENVIRON Report:

ENVIRON's review of the SED indicates that there are a number of fundamental issues with the Draft SED. If the analysis and evaluations were revised based on ENVIRON's comments, there appears to be a reasonable likelihood that the SED would have reached different conclusions than currently represented. Most notably, based on our limited review, there may be significant air quality, climate change, noise, and biological resource impacts associated with the Policy that were not identified in the SED.<sup>58</sup>

ENVIRON raises a number of potentially significant issues. For example, the Policy likely would cause a significant ambient noise impact on nearby residents if cooling towers are required at the Huntington Beach facility – an impact that is not identified in the SED.<sup>59</sup> The SED also did not analyze potential impacts to biological resources despite evidence of potentially significant impacts and despite the fact that the SED did not list Biological Resources as a topic area excluded from further analysis in Section 4.2.

As a general rule, the Board cannot avoid a complete and detailed analysis of reasonably foreseeable environmental impacts by labeling the SED as "programmatic."

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<sup>57</sup> See ENVIRON Report, Comment 16.

<sup>58</sup> ENVIRON Report at 1.

<sup>59</sup> See *id.*, Comments 21-25.

*See Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova*, 40 Cal. 4th 412, 429 (2007) (“tiering is not a device for deferring the identification of significant environmental impacts that the adoption of a specific plan can be expected to cause”). The Policy is so specific that the real impacts of each facility could have been analyzed, at least at a programmatic level.

Unless the issues identified in the ENVIRON Report are resolved and addressed in a re-circulated environmental document, it will be impossible for the public or decisionmakers to effectively understand impacts associated with the Policy. These defects are material and prejudicial because the SED must be prepared with a sufficient degree of analysis to provide decision-makers with the information needed to make an intelligent judgment about the project’s environmental impacts. *See Napa Citizens for Honest Gov’t v. Napa County Bd. of Supervisors*, 91 Cal. 4th 342, 356 (2001).

4. The SED does not adequately establish the baseline setting.

The Board cannot make a meaningful assessment of the potential environmental effects (e.g., any benefits and adverse impacts) of the Policy without first characterizing the baseline environment. *Save Our Peninsula Comm. v. Monterey County Bd. of Supervisors*, 87 Cal. App. 4th 99, 120 (2001). Here, the SED’s baseline analysis is limited to discussing the effects of impingement and entrainment from OTC plants and a short section on existing air quality emissions from OTC plants. No other environmental setting information is provided for any other environmental issue area. According to the ENVIRON Report, “the SED appears to have substantial data gaps that may prevent adequate definition of baseline effects for environmental review.”<sup>60</sup>

The baseline setting also does not consider the existing and required restoration measures at SONGS to mitigate impingement and entrainment impacts. No data are provided on GHG emissions from the energy sector or the state as a whole. No discussion is provided on the impacts of climate change, inconsistent with the Draft CEQA GHG Guidelines. No discussion is provided for how climate change may increase the demand for power from existing plants, such as the OTC plants. The SED’s failure to describe the baseline setting undercuts the SED’s sufficiency as an evaluation of project impacts.

C. *The SED’s one-sentence conclusory assessment of cumulative impact does not comply with the law.*

An environmental document prepared under a certified regulatory program must include a detailed and informative cumulative impacts analysis. *Friends of the Old Trees v. Dept. of Forestry & Fire Protection*, 52 Cal. App. 4th 1383, 1393 (1997) (overturning environmental document prepared under a certified regulatory program for failing to prepare adequate cumulative impacts assessment); *Mountain Lion Coalition v. Fish and Game Comm’n*, 214 Cal. App. 3d 1043 (1989) (same). In contravention of this mandate, the SED’s entire cumulative impact assessment consists of the following conclusory

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<sup>60</sup> *Id.*, Comment 30.

sentence: "Implementation of the proposed Policy will not result in cumulative impacts."<sup>61</sup>

A conclusory cumulative impact assessment similar to the SED was rejected in *Whitman v. Board of Supervisors*, where the EIR's analysis consisted of one sentence. 88 Cal. App. 3d 397 (1979). The court held that this analysis was plainly deficient; noting that the discussion lacked even a "minimal degree of specificity or detail," and the discussion must be more than a conclusion "devoid of any reasoned analysis." *Id.* at 411; see also *San Joaquin Raptor/Wildlife Rescue Ctr. v. County of Stanislaus*, 27 Cal. App. 4th 713 (1994).

In *Mountain Lion Coalition*, the California Fish and Game Commission (FGC) adopted regulations of statewide applicability that permitted the hunting of mountain lions after preparing an environmental document under its certified regulatory program. 214 Cal. App. 3d 1043, 1045. The *Mountain Lion Coalition* court determined the FGC's environmental document was "woefully inadequate" for evaluating potential cumulative impacts associated with the Policy, including only giving " cursory treatment" to issues raised by commenters and failing to "explain in even minimum detail how it arrived at [its] conclusions." *Id.* at 1050. As a result of these deficiencies, the court concluded the FGC "chose to circulate a document that simply swept the serious criticisms of this project under the rug," making it "impossible for the public...to fully participate in the assessment of the cumulative impacts associated with this project." *Id.* at 1051. Ultimately, the *Mountain Lion Coalition* court held the FGC "abused their discretion by not proceeding in a manner required by law." *Id.* at 1052.

Applying *Whitman* and *Mountain Lion Coalition* to the case at hand demonstrates that the SED lacks even a minimum degree of specificity or detail and is devoid of any reasoned analysis. This defect makes it impossible for the public to participate fully in the assessment of the Policy's cumulative impacts.<sup>62</sup>

The SED's failure to analyze the cumulative environmental impacts of the Policy is material because OPR's Draft CEQA GHG Guidelines specifically call for GHG emissions to be analyzed in a cumulative impact context given the global nature of climate change. A review of other statewide policies shows a very real potential for cumulative impacts. For example, the Policy may destabilize electric system reliability at the same time that the electric system is being stressed through the inclusion of an increasingly greater proportion of intermittent renewable sources in accordance with California's Renewables Portfolio Standard.<sup>63</sup>

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<sup>61</sup> SED at 108. A global search of the SED reveals that while the term "cumulative" is used elsewhere in the document, it is never used in the context of analyzing cumulative environmental impacts associated with the Policy or one of the Policy's alternatives.

<sup>62</sup> See ENVIRON Report, Comment 35.

<sup>63</sup> See, e.g., California Energy Commission, *Framework for Evaluating Greenhouse Gas Implications of Natural Gas-Fired Power Plants in California*, May 27, 2009; California Public Utilities Commission, *33 Percent Renewables Portfolio Standard Implementation Analysis – Preliminary Results*, June 2009 (which are hereby incorporated by reference).

Moreover, SCE and others have commented on numerous occasions that a reasonable likelihood exists that the Policy would result in significant cumulative environmental impacts related to grid reliability, climate change, air quality emissions, biological impacts, and other concerns.<sup>64</sup> Accordingly, the Board has not proceeded in a manner required by law until it provides an adequate cumulative impacts analysis.

*D. The SED does not analyze alternatives properly.*

1. The SED does not evaluate environmental impacts associated with Policy alternatives, and it does not consider the “no project” alternative.

The SED must develop and analyze any feasible alternative that would result in fewer environmental impacts than the Policy. Pub. Res. Code § 21159. CEQA Guidelines § 15126.6; Cal. Code Regs. tit. 23, § 3777(a)(2). When analyzing alternatives, the SED must compare the impacts of the alternatives with those that would result from the Policy. See CEQA Guidelines § 15126.6(d). Even an environmental document prepared pursuant to a certified regulatory program must analyze alternatives to the project, including the mandated “no project” alternative. *Mountain Lion Found. v. Fish and Game Comm’n*, 16 Cal. 4th 105, 137 (1997).

In *Mountain Lion Foundation* (a different case than *Mountain Lion Coalition*, which is described above), environmental groups challenged the FGC’s decision to remove the Mojave ground squirrel from the threatened species list under the California Endangered Species Act in part because of a failure to adequately consider alternatives. *Id.* at 110-111. The court noted that Public Resources Code Section 21080.5(d)(3)(A) and the FGC’s regulations require certified regulatory programs to consider alternatives to an adopted rule. *Id.* at 134. This requirement “ensures there is evidence of the public agency’s actual consideration of alternatives... and reveals to citizens the analytical process by which the public agency arrived at its decision.” *Id.* at 134 (emphasis added). The “public agency bears the burden of affirmatively demonstrating that... the agency’s approval of the proposed project following meaningful consideration of alternatives.” *Id.* (emphasis added).

Here, the SED does not provide a meaningful analysis of project alternatives as required by CEQA and *Mountain Lion Foundation*. The SED lacks any true impact analysis. It does not reveal the analytical process used by the Board. Although the SED qualitatively discusses what it calls “alternatives” (which would better be described as policy considerations), it did not evaluate any environmental impacts associated with any alternative and does not compare the impacts of any alternative to the Policy itself. See SED Sections 3 and 4 (which contain no analysis of impacts associated with any alternatives to the Policy).<sup>65</sup>

The California Supreme Court has found a very similar approach to violate

<sup>64</sup> SCE’s prior comment letters are attached as Exhibits A-C.

<sup>65</sup> See ENVIRON Report, Comments 37-41.

CEQA. In *Laurel Heights Improvement Assn. v. Regents of Univ. of Cal.*, 47 Cal. 3d 376, 403 (1988), the court held that an adequate alternatives discussion “must contain facts and analysis, not just the agency’s bare conclusions or opinions.” *Id.* at 404. Similarly, an alternatives analysis must consist of a “quantitative, comparative analysis” of the relative environmental impacts of the project and each alternative. See *Kings County Farm Bureau v. City of Hanford*, 221 Cal. App. 3d 692, 735 (1990).

The SED also does not evaluate the environmental impacts of a no-project alternative or compare its impacts against the Policy. In *Mountain Lion Foundation*, the Supreme Court held that an agency’s failure to include a “meaningful consideration of the ‘no project’ alternative” amounted to a prejudicial abuse of discretion for not “proceed[ing] in accordance with procedures mandated by law.” 16 Cal. 4th at 137.

The SED’s defective alternative analysis is material and prejudicial because no effort was made to reduce the significant environmental impacts identified in this letter. SCE requests that Board staff revise and re-circulate the SED to address these concerns.

## 2. SCE requests an evaluation of the identified feasible alternatives.

SCE requests the Board to consider the following feasible alternatives.<sup>66</sup> Based on SCE’s review of the “Statement of Goals” outlined in Section 1.7 of the SED, all of the proposed action alternatives appear to achieve the State Board’s objectives as well as or even better than the Policy.

**“No Project” Alternative** – The “no project” alternative is particularly appropriate for the SED because the Board is under no compunction to develop and promulgate a policy pursuant to CWA Section 316(b), which has existed for more than 30 years. During this time, the Board has relied on Best Professional Judgment (BPJ) compliance determinations on a case-by-case basis. That approach has not been declared unlawful. In fact, in light of recent high-profile federal court decisions, EPA has suspended its rulemaking efforts and recommended using BPJ on a case-by-case basis in Section 316(b) decisions. See *National Pollutant Discharge Elimination System — Suspension of Regulations Establishing Requirements for Cooling Water Intake Structures at Phase II Existing Facilities*, 72 Fed. Reg. 37,107, 37,108 (July 9, 2007) (“Permit requirements for cooling water intake structures...should be established on a case-by-case best professional judgment (BPJ) basis”). This alternative would avoid the significant environmental impacts described above.

**Exempt Nuclear Facilities From Policy Standards that Would Essentially Require Wet Cooling Towers** – According to the ENVIRON Report, the construction and operation of wet cooling towers at the nuclear facilities “may lead to significant environmental impacts, such as increased air emissions due to construction, due to the energy penalty associated with closed-cycle wet cooling towers, and due to the operation

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<sup>66</sup> SCE also requests that the Board consider other variations to the Policy raised in this comment letter and other written or oral comments.



of closed-cycle wet cooling towers.”<sup>67</sup> Moreover, “the SED does not discuss in much detail the potential environmental benefits if the nuclear facilities were exempted from the Policy, which might include less air emissions, less GHG emissions, less biological impacts, and less noise impacts than the Policy.”<sup>68</sup> Although the SED raised the alternative of exempting the nuclear facilities from the Policy alternative, no evaluation of environmental impacts was provided and no comparison of impacts to the Policy was offered. For the reasons discussed in detail above and in the ENVIRON Report, SCE believes that this alternative may be an environmentally superior alternative.

***Define BTA as Described Above*** – For the reasons described above, SCE believes that instead of defining closed-cycle cooling as BTA, the Board should adopt cost-beneficial performance standards. Defining a more flexible BTA standard would be fully consistent with the Clean Water Act and EPA guidance. SCE believes it would also offer a more balanced, reasonable application of Section 316(b) to the California context given existing technological, economical, environmental, reliability, and regulatory constraints. SCE believes that this alternative may be an environmentally superior alternative to the Policy.

***Assume the Costs of Cooling Towers are Wholly Disproportionate to the Environmental Benefit For Nuclear Facilities*** – Under this alternative, the covered facilities would be assumed to demonstrate that the costs of cooling towers would be wholly disproportionate to the environmental benefits. Because this alternative would not result in cooling towers at the nuclear facilities, it may greatly minimize the Policy’s significant environmental impacts.

***Add Replacement Generation Scenarios*** – Under this alternative, the Board would consider a more realistic range of scenarios to estimate air quality emissions. Currently, the SED assumes that replacement generation will come from excess capacity within the OTC fleet or from new, unidentified combined cycle units. Assuming current transmission and siting constraints continue over the next five to 10 years, these options may be infeasible. The SED should analyze the emissions associated with obtaining energy with an average in-state and average out-of-state emissions factor.

***Achieve Grid Stability Thresholds Before Policy Deadlines Initiate*** – Under this alternative, the Policy compliance deadlines would not begin until certain specified grid stability thresholds are achieved, as determined by the Board and the applicable energy agencies. This alternative would avoid the potentially significant grid reliability issues identified in the ENVIRON Report.

***Achieve Grid Stability Thresholds Before Policy Deadlines Initiate for the Nuclear Facilities*** – This alternative would be the same as above but would be limited to the nuclear facilities, given their disproportionate importance for providing base load generation and securing grid reliability. This alternative would avoid the potentially significant grid reliability issues identified in the ENVIRON Report and may temporarily

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<sup>67</sup> *Id.*, Comment 39.

<sup>68</sup> *Id.*

or permanently reduce the Policy's air quality, GHG, and other significant environmental impacts.

- E. *The Board did not satisfy its obligations under Public Resources Code Section 21159 to analyze reasonably foreseeable methods of compliance.*

Public Resources Code Section 21159(a) provides that an agency:

“[S]hall perform, at the time of the adoption of a rule or regulation requiring the installation of pollution control equipment, or a performance standard or treatment requirement, an environmental analysis of the reasonably foreseeable methods of compliance.... The environmental analysis shall, at a minimum, include, all of the following: [¶] (1) An analysis of the reasonably foreseeable environmental impacts of the methods of compliance. [¶] (2) An analysis of reasonably foreseeable mitigation measures. [¶] (3) An analysis of reasonably fore-seeable alternative means of compliance with the rule or regulation.”

The SED acknowledges that Section 21159 adds “specific obligations” on the Board when adopting rules or regulations establishing performance standards or treatment requirements.<sup>69</sup> It is clear the Policy involves performance standards, thus triggering Section 21159. The SED states: “The Policy contains technology-based performance standards to address adverse impacts from OTC systems” (emphasis added).<sup>70</sup> The Policy’s “Statement of Goals” section includes a goal to: “Establish technology-based performance standards that will implement CWA §316(b)” (emphasis added).<sup>71</sup>

According to the ENVIRON Report, the SED did not analyze several reasonable methods of compliance and reasonably foreseeable environmental impacts of the methods of compliance.<sup>72</sup> For example, the SED does not appear to account for the potential impact on existing power plant infrastructure from the increase in corrosiveness due to the use of salt water in a closed-cycle wet cooling tower.<sup>73</sup> As a result, “It is not clear if the SED has accounted for the potential impact on existing power plant infrastructure” which could require “significant downtime.”<sup>74</sup> The SED does not appear to account for the potential increase in fouling of the condensers due to the use of salt water in closed-cycle wet cooling towers.<sup>75</sup> “An increase in the rate of fouling in a condenser could result in off-cycle or unplanned shutdowns of a power generating unit which could lead to meaningful environmental impacts due to the need for alternative power generation

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<sup>69</sup> SED at 10.

<sup>70</sup> *Id.* at 13.

<sup>71</sup> *Id.* at 14.

<sup>72</sup> *See id.*, Comments 42-45.

<sup>73</sup> *Id.*, Comment 43.

<sup>74</sup> *Id.*

<sup>75</sup> *Id.*, Comment 44.

during shutdowns.”<sup>76</sup>

In addition to these shortcomings, there does not appear to be detailed analysis of the impacts associated with the methods of compliance.<sup>77</sup> Nor are any mitigation measures or alternatives analyzed to address the impacts associated with the reasonable means of compliance. Thus, until the State Board addresses these defects, the State Board likely will not have complied with Section 21159.

#### **VII. The Board should revise the Policy’s “special study” provision.**

Section 3(D) of the Policy requires the Board to request special studies from SCE and Pacific Gas & Electric Co. investigating alternatives for the nuclear-fueled power plants to meet the Policy’s requirements.<sup>78</sup> The Board must “consider” the study results in evaluating whether to modify the requirements for nuclear-fueled power plants. SCE recommends that instead of requiring additional studies, the Policy require the Board to examine first all independent studies performed by other regulatory agencies and any Comprehensive Demonstration Study ordered by Regional Boards. The Board should request additional studies only if it concludes the existing studies contain insufficient information regarding alternatives for the nuclear-fueled power plants to comply with the Policy’s intent, (including the costs for these alternatives).

#### **VIII. Conclusion**

Thank you for the opportunity to comment on the Policy. If the Board members and staff have any questions regarding this filing, SCE would be happy to continue our effort to inform and assist the staff and the Board.

Very truly yours,



Michael M. Hertel, PhD  
Director, Corporate Environmental Policy

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<sup>76</sup> *Id.*

<sup>77</sup> *Id.*, Comment 42.

<sup>78</sup> Policy § (3)(D)(1).

## Attachments

c: Charles R. Hoppin  
Frances Spivy-Weber  
Arthur G. Baggett, Jr.  
Tam M. Doduc  
Dorothy R. Rice  
John Robertus  
Secretary Mike Chrisman  
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