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Thomas Howard
Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

RE: Implementation Plan, Request for Additional Information:
Alamitos Generating Station

Dear Mr. Howard,

This letter is in response to your December 11, 2012 correspondence requesting additional information for the AES Alamitos Generating Station (ALGS) Implementation Plan (IP) and subsequent letter of January 31, 2013 granting additional time for AES Southland (AES-SL) to respond. As AES-SL stated earlier, recent developments in proposed regulatory action by the South Coast Air Quality Management District (SCAQMD) and the final decision of Administrative Law Judge (ALJ) David M. Gamson in the Public Utilities Commission's (PUC) Long Term Procurement Planning (LTPP) process have caused AES-SL to reconsider the method and timing of compliance with the Statewide Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling (Policy). Since our key assumptions for AES-SL's phased retirement and repowering of generation units described in the IP for the ALGS include both a reliance on SCAQMD Rule 1304(a)(2) to comply with emission offset requirements for replacement generating units, and non-recourse project financing supported by long-term PUC approved contracts, considerable uncertainty still exists in AES-SL's plans for the timing and methods of compliance with the Policy.

The PUC decision in the 2012 LTPP authorizes only a limited amount of natural gas fired generation in this procurement cycle which will delay the repowering of some of the AES-SL fleet. The PUC authorized up to 1,200 MW of new natural gas fired generation in the western Los Angeles basin, less than half of the minimum amount recommended by the California Independent System Operator (CAISO). In addition, the CAISO's recommendation assumed that both units at the San Onofre Nuclear Generating Station (SONGS) were in service, which is not a certainty given the ongoing concerns over the reliability of the recently replaced steam generators and the pending expiration of the NRC license in 2022.

The primary assumption that supported AES-SL's original repowering schedule submitted in our IP was that the PUC would authorize a sufficient amount of new natural gas fired generation by the end of the 2012 LTPP cycle to enable the retirement and replacement of more than half the AES-SL OTC fleet via this first procurement authorization. Since this did not occur, AES-SL has prepared a revised repowering schedule based on the assumption that additional procurement for the replacement of natural gas fired generation would be authorized during the 2014 and 2016 LTPP cycles. However, if such procurement is not authorized AES-SL will again need to reconsider its method and timing for compliance with the Policy.

Even more problematic for electrical reliability planning and AES-SL's own repowering assumptions is a newly proposed fee by the SCAQMD for projects using Rule 1304(a)(2). Proposed Rule 1304.1 has the potential to make the repowering of all of AES-SL's fleet prohibitively expensive and would cause AES-SL to evaluate alternative compliance options with the Policy. As of the date of this letter, the SCAQMD has not adopted this new fee rule but continues with a formal rule making process with the intent of implementing new fees for replacement generation projects later this year. Should Rule 1304.1 be adopted as proposed AES-SL may need to abandon a Track 1 compliance path for some or all of its existing OTC capacity and seek alternative compliance options.

Although AES-SL has made significant progress in refining and advancing our original Track 1 compliant IP for the ALGS, including the advancement of engineering design and the preparation of an Application for Certification (AFC) to the California Energy Commission (CEC) for the development of new non-ocean cooled generating units, our primary path for compliance with the Policy and its timing can only be considered tentative at this time.

Notwithstanding the considerable uncertainty that exists with AES-SL's plans for complying with the Policy, the following information has been compiled assuming we are able to continue with our original Track 1 path of compliance at the ALGS. AES-SL has already made progress in reducing ocean water intake flows at our Huntington Beach Generating Station (HBGS) through the retirement of Units 3&4 in 2012 and our updated IP with early retirement dates for four generating units in the AES-SL fleet and compliant retirement schedules for all of our largest generating units should be considered when evaluating the request for unit specific deadline extensions. As previously stated in our IP of 2011, AES-SL must phase its redevelopment to ensure system reliability and compliance with overarching Federal Energy Regulatory Commission (FERC) standards and California Independent System Operator (CAISO) transmission planning assumptions. AES-SL has developed a reasonable approach and schedule to comply with the Policy that considers electrical system reliability but it does require compliance date extensions for ALGS Units 1 through 4. These compliance date extensions are offset by early retirements of other units such as HBGS Units 3 and 4 and Redondo Beach Generating Station Units 6 and 8.

AES-SL has responded to each of your requests for information below:

- 1. As subject to the South Coast Air Quality Management District's PM_{2.5} Rule 1325, specify how AES-SL will comply if it pursues its repowering plans as described in the IP.*

The SCAQMD's PM_{2.5} Rule 1325 will place restrictions on the total amount of power generated from a repowered ALGS but will not prevent AES-SL from developing and operating new replacement generation. Rule 1325 requires any new generation subject to New Source Review of the Clean Air Act to meet a plant wide limit of 100 tons per year of PM_{2.5} emissions or provide offsets for all of its PM_{2.5} emissions. Since PM_{2.5} emission offsets do not exist in the SCAQMD, AES-SL would voluntarily accept a plant wide limit of 99 tons per year of PM_{2.5} emissions to demonstrate compliance with Rule 1325 and obtain a Permit to Construct and revised Title V

permit. Since our original IP was submitted to the SWRCB, we have been able to secure vendor guarantees for PM_{2.5} emission limits from new natural gas turbine units that would allow a repowered ALGS to operate at an economically viable annual capacity factor and stay within a 99 ton per year limit.

AES-SL would still rely on SCAQMD Rule 1304(a)(2) to demonstrate compliance with the emission offset requirements of Rule 1303 for PM₁₀ and Volatile Organic Compounds (VOC). Should the SCAQMD adopt the newly proposed fee Rule 1304.1, AES-SL may need to abandon a Track 1 compliance path and seek alternative compliance options for the ALGS.

- 2. An updated implementation plan and an updated compliance schedule shall be provided due to the sale of Huntington Beach units 3 and 4 to Edison Mission energy and the proposed retirement of Redondo Beach Generation Station units 6 and 8 to facilitate repowering of the entire Huntington Beach facility. Provide more depth about the phasing in and out of the units AES-SL controls in the southern California area, and, whether the phasing of units will proceed faster if aggregate level capacity is not kept throughout the compliance schedule timeline.*

Subsequent to AES-SL's submission of an IP for the ALGS on April 1, 2011, we have refined and advanced our project development plan for the replacement of existing OTC generating units and revised our proposed project development schedule. It must be noted that with the 2012 LTPP decision only recently finalized, the proposed project development schedule may change to ensure consistency with state agency planning assumptions and contract awards.

AES-SL intends to replace the OTC generating units at ALGS with dry-cooled natural gas fired combined cycle units which will result in the complete cessation of ocean water intake at the ALGS. Our planned retirement and repowering schedule has been attached to this letter as an updated IP. It is imperative to note that the projected operational and retirement dates in the attached schedule are predicated on the timing of assumed contract awards and our off-taker's desired commercial operation dates (COD). The IP shows the retirement of Redondo Beach Generating Station (RBGS) Units 6 and 8 by the end of the fourth quarter of 2018 to enable a COD of 2019 for new generation located at the Huntington Beach Generating Station (HBGS) and a retirement date of 2020 for Units 5 and 7 to enable new generation at the RBGS. The retirement schedule for the ALGS shows that the largest generating units (hence those with the largest OTC flow rate) will be retired first and in compliance with the implementation dates in the current Policy. AES-SL proposes to retire ALGS units 3 and 4 by the end of 2023 and finally the smallest units 1 and 2 by the end of 2026.

The entire AES-SL retirement and development schedule is primarily controlled by the currently known and anticipated schedule of authorized procurement by the PUC. To date the PUC has authorized the procurement of only 1,200 MW of new natural gas fired generation. Assuming sufficient procurement is authorized in the 2014 and 2016 LTPP cycles and project financing supported by long-term PUC approved contracts can be obtained, the attached schedule for development and retirement can be maintained.

In addition to the constraints posed by the PUC planning and procurement process, site and transmission system constraints also impact the schedule for the development of new generating units and retirement of existing OTC generating units at the AES-SL sites. The CAISO has identified the OTC generating plants in the western Los Angeles local reliability area as critically important generating assets required to maintain system reliability. This system condition has been exacerbated by the recent shutdown of SONGS. The CAISO has identified a need of between 2,370 and 3,741 MW of generating capacity in the western Los Angeles local

reliability area to replace the existing OTC generation.¹ The need identified by the CAISO assumed that SONGS would be available to serve southern California at its full capacity. It is the CAISO's planning assumption that forms the basis of the requirement to maintain the total aggregate level capacity of the AES-SL fleet over the course of our repowering schedule. Should the CAISO's planning assumptions change and AES-SL can secure long-term PUC approved contracts to support new generating capacity, the redevelopment of the AES-SL sites and the phasing of new generating units at the ALGS could proceed more quickly than proposed in the attached development schedule.

Along with the constraint of maintaining generating capacity, there is also limited space available for the construction of new generating units at both the HBGS and ALGS. At the HBGS there is available space to construct approximately 500 MW of air cooled combined cycle generation without retiring and demolishing any existing generating units. Once constructed and connected to the transmission system, the synchronous condensers of units 3 and 4 at the HBGS can be demolished or relocated to make space for the construction of a second power block. Upon completion of the second new power block at the HBGS, existing units 1 and 2 can be retired.

A similar situation occurs at the ALGS where there is space to construct approximately 1,000 MW of air cooled combined cycle generation without demolishing any existing units. After the new units are operational and connected to the transmission system, existing units 5 and 6 can be retired and demolished to make space for new generation that will utilize SCAQMD Rule 1304(a)(2) through the retirement of ALGS Units 3 and 4. It will take a minimum of three years to demolish and build an additional 500 MW on the footprint of existing units 5 and 6. Once completed, the new power block can be connected to the transmission system and units 3 and 4 retired and demolished to make space for the last new power block at the ALGS. Once operational, the last of the OTC generating units at the ALGS can be retired.

At the RBGS there are no constraints on space and new generation can be constructed and the generating capacity of the site can be reduced from 1,310 MW to approximately 500 MW without the need to demolish any existing units.

- 3. An extension of the compliance schedule for units 1 and 2 to 2022, and units 3 and 4 to 2024. Further information shall be submitted to State Water Board staff that supports reasoning for such a proposal, including what progress has been made to date toward the IP. For units 5 and 6, an update on the progress made to date toward the IP must be submitted.*

As of the date of this letter AES-SL intends to permanently end all ocean water OTC at the ALGS by the end of 2026 and intends to retire the largest generating units (hence the units with the greatest OTC flow rate) first. Units 5 and 6 will be retired in compliance with the schedule dictated by the policy. Units 3 and 4 will be retired by the end of 2023 and the smallest units 1 and 2 will be retired by the end of 2026. As explained above, the primary condition that will enable the development of new generation to replace existing OTC generation at the ALGS is the securing of non-recourse project financing supported by long-term PUC approved contracts. To date, the PUC has authorized the procurement of only 1,200 MW of new natural gas fired generation. The anticipated schedule for further procurement authorization by the PUC provides the basis for the attached retirement schedule, along with the physical constraints posed by limited available space at the ALGS and the expected need to maintain generating capacity at this critical generating asset in the Los Angeles basin.

¹ California ISO Once-Through Cooling and AB1318 Study Results. 2011/2012 Transmission Planning Process Stakeholder Meeting Reliability Assessment of Once Through Cooling Generation Studies – Los Angeles Basin Area. December 8, 2011

As a demonstration of progress towards the originally submitted IP for the ALGS, AES-SL has advanced its engineering and design for replacement generation to the point where detailed engineering data can be shared with the CAISO and California Energy Commission (CEC). AES-SL intends to develop approximately 2,000 MW of new generation across four air cooled, natural gas fired 3-on-1 combined cycle power blocks to replace the more than 2,000 MW of existing OTC generation at the ALGS. It is anticipated that an Application for Certification to the CEC for the proposed new generation will be submitted in late 2013. Engineering and design has progressed at a slower pace compared to AES-SL's HBGS and RBGS due to the complexity and size of the ALGS, however, AES-SL has already submitted an Interconnection Request for new generating capacity at the ALGS to the CAISO. The Interconnection Request includes anticipated in-service dates of the generators and specific generating facility engineering data. The advancement of AES-SL's engineering design, the Interconnection Request and substantial fees provided to the CAISO clearly demonstrates AES-SL's commitment and progress towards a sustainable business plan for complying with the SWRCB Policy.

4. *Information on the effectiveness of implementing water intake flow reduction, a comparison of present and historical water intake flow, and the megawatts production. Per section 2.C.(2) of the Policy, no later than October 1, 2011, the owners or operators of existing power plant units were required to cease intake flows when not directly engaged in power generating activities or critical system maintenance.*

We are seeking authorization from various contractual counterparties to share production and flow data that is otherwise confidential per the terms of our agreements. However, an internal review of the data shows the ratio of flow rate to electricity production can vary by more than an order of magnitude over any given time period and there is no perceptible difference in the variability of this ratio before and after the implementation of Section 2.C.(2) of the Policy. The discussion below provides some insight into why the implementation of this policy has not resulted in any detectable difference in reducing ocean water intake flows per MWh produced.

Section 7.2 of the AES Alamitos Generating Station IP, originally submitted to the State Water Resources Control Board on April, 2011, described how the ocean water circulating water pumps at the ALGS are operated under four operating scenarios:

1. Power generation;
2. Startup of a generating unit prior to actual power generation;
3. Shutdown of a generation unit after power generation has ceased; and,
4. Maintaining critical plant systems when generating units are offline, not generating power or in a startup or shutdown mode.

Section 2.C.(2) of the Policy prevents the owners or operators of the ALGS from operating the circulating water pumps except under these specific power generating or critical system maintenance scenarios. The underlying assumption behind this policy is that owners or operators might continue to run their circulating water pumps without an operational justification. The ALGS pumps are electrically powered, non-variable speed pumps which require approximately 300 kW of electricity per hour to run for the smallest pumps and approximately 600 kW per hour for the largest pumps. When the station is generating power, the electricity required to run the pumps is available from the station itself as part of the auxiliary load of the plant. When the station is not generating power, the electricity required to operate the pumps must be purchased from the local utility at a cost of approximately \$0.132/kWh, or approximately \$40 per hour for the smaller pumps on Units 5 and 6 and almost \$80 per hour for the larger pumps on Units 7 and 8. There are two circulating water pumps per unit at ALGS.

Operating the circulating water pumps at the ALGS while not generating power can cost over \$470 per hour. These costs are, and always have been, enough of an incentive for AES-SL to avoid operating the circulating water pumps when not directly engaged in power generating activities or critical system maintenance. Section 2.C.(2) of the policy has not affected normal operating protocols at the ALGS and, in and of itself, has not resulted in any detectable difference in the ratio of water intake flow, and the megawatt (MW) production at the ALGS.

Furthermore, the ratio of annual, monthly or even daily intake flows to MWh are not constant and are wholly dependent on how the ALGS is dispatched at any given time. AES-SL does not control when or at what load the generating units are dispatched. When the generating units are required to serve system needs, AES-SL is directed to start and run the units at specific load levels and directed to take the units offline when not needed. When a unit is generating power, all of the circulation water pumps for that unit are required for cooling and operate at a constant flow rate, regardless of the power output of the unit. At the ALGS, a unit could be dispatched at its minimum load and only generate 70 MW and would require two, 117,000 GPM circulation pumps to be in operation. Or the unit could be dispatched at its full output of over 500 MW and require the same number of non-variable speed pumps to be in operation with the same total flow rate. A seven-fold difference in electricity production can be realized with the same intake flow. Therefore, it is difficult to detect any difference in the ratio of intake flow volume to MW production over any given time period or before and after the implementation of Section 2.C.(2) of the Policy.

If you have questions regarding this submittal, please contact Stephen O'Kane, AES Southland, LLC at (562) 493-7840.

Sincerely,



Eric Pendergraft
President
AES Southland

ATTACHMENT 1
PROPOSED PHASED SCHEDULE
IMPLEMENTATION PLAN: ONCE-THROUGH-COOLING WATER POLICY REQUIREMENTS
RETIREMENT AND REPOWERING
AES SOUTHLAND, LLC

(SEE NOTES BELOW)

Unit	Repowered w/ Description	New MWs	Capacity Minimum Capacity		Unit Retirement Data				Unit CCO Data				Station Generation Capacity				
			MMW	MMW	2018	2020	2023	2026	2018	2021	2023	2026	2018	2021	2023	2026	
AL1	Combined Cycle Gas Turbine - (3 on 1 configuration, no duct firing)*	528	174.6	178.4					528								
AL2	Combined Cycle Gas Turbine - (3 on 1 configuration, no duct firing)*	528	332.2	-138.9					528								
AL3	Combined Cycle Gas Turbine - (3 on 1 configuration, no duct firing)*	528	498.0	30.0					528								
AL4	Combined Cycle Gas Turbine - (3 on 1 configuration, no duct firing)*	528	498.0	33.0					528								
AL5	Combined Cycle Gas Turbine - (3 on 1 configuration, no duct firing)*	528	225.8	17.5					469								
AL6	Combined Cycle Gas Turbine - (3 on 1 configuration)*	470	-	470.0					470								
HB1	Combined Cycle Gas Turbine - (3 on 1 configuration)*	178.9	178.9														
HB2	Combined Cycle Gas Turbine - (3 on 1 configuration)*	175.0	175.0														
HB3	Combined Cycle Gas Turbine - (3 on 1 configuration)*	506.0	506.0														
HB4	Combined Cycle Gas Turbine - (3 on 1 configuration)*	495.9	495.9														
RB5																	
RB6																	
RB7																	
RB8																	
Totals		3,879	3,217.2	-238.6	670.9	2,159.3	687.8	348.6	470	205.1	528	528	528	3,817.8	3,816.7	3,660.4	3,879.0

Note 1: The proposed phased schedule for the retirement and repowering of AES Southland, LLC's three Generating Stations (Alamitos, Huntington Beach and Redondo Beach) and the proposed electrical generation technology and resulting generation capacity for AES Southland LLC's Generation Stations are subject to change and are contingent upon various factors, including but not limited to: the release of Request for Offers (RFOs) and award of Power Purchase Agreements (PPA) from the Investor-Owned Utilities (IOUs), consistent with and supported by the CPUC led Los Angeles Basin Long-Term Procurement Plan (LTPP) process.

Note 2: Huntington Beach Generating Units 3 and 4 were retired on October 31, 2012 but will remain in service as synchronous condensers until December 2016 (HB3) and December 2017 (HB4).

* 3 on 1 combined cycle gas turbine configuration refers to three natural gas fired turbines and electric generators combined with a heat recovery steam generator and one steam turbine and electric generator