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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Implement the
Commission's Procurement Incentive
Framework and to Examine the Integration of
Greenhouse Gas Emissions Standards into
Procurement Policies.

Rulemaking 06-04-009
(Filed April 13, 2006)

Order Instituting Informational Proceeding –
AB-32

CEC Docket Number 07-OIIP-01

**COMMENTS OF KENNETH C. JOHNSON
PERTAINING TO ALLOWANCE ALLOCATION ISSUES**

Kenneth C. Johnson
2502 Robertson Rd
Santa Clara, CA 95051
408-244-4721
kjinnovation@earthlink.net

October 31, 2007

**COMMENTS OF KENNETH C. JOHNSON
PERTAINING TO ALLOWANCE ALLOCATION ISSUES**

Kenneth C. Johnson, an unaffiliated individual, U.S. citizen, and resident of California having a personal interest in and concern about climate change, respectfully submits the following comments in response to the *Administrative Law Judge's Ruling Requesting Comments and Noticing Workshop on Allowance Allocation Issues* (10/15/2007).

1. INTRODUCTION: ADMINISTRATIVE ALLOCATION VERSUS REFUNDED AUCTION

Under a cap and trade system, two basic options exist for distribution of emission allowances: they may be auctioned or they may be allocated administratively. An administrative allocation would be free and revenue-neutral, whereas an auction, as conventionally implemented, would impose a substantial taxation burden on the regulated industry in addition to regulation-induced technology costs. But an auction can alternatively be implemented, like free allocation, to be revenue-neutral within the regulated industry.

If auction revenues are refunded to regulated entities according to a proportionate allocation formula for refunding that matches the allowance allocation formula under an alternative free allocation system, then the auction will be essentially equivalent to free allowance allocation in terms of its costs and distributional impacts. Entities would pay for all of their allowances, but the cash refund would be economically equivalent to free distribution of an entity's allowance share. The two regulatory approaches would be substantially equivalent; and policy issues, questions and concerns relating to administrative allocation would be equally applicable to refund allocation under a refunded auction.

A refunded auction would have two principal benefits in relation to administrative allocation: First, it would be a more practical way to implement output-based allocation;

and second, it could accommodate a price floor, as recommended by the MAC¹. (In comparison to a conventional, unrefunded auction, refunding may also have legal implications in relation to interstate commerce rules and ARB's taxation authority under AB 32, but these issues are not discussed in this policy brief.)

2. OUTPUT-BASED REFUNDING

Under a refunded auction in the electricity sector with output-based refunding, regulated entities would be required to maintain a verifiable accounting of end-use delivered energy (MWh) associated with regulated emissions in order to qualify for the refund. At the time that allowances are surrendered (after the compliance period) entities would provide the regulatory authority an accounting of both emissions and associated output generation. Refunds would subsequently be distributed in proportion to output, i.e., at a uniform dollar-per-MWh rate with the refund rate determined to achieve revenue-neutrality. (To avoid cash flow imbalances, the payment due date for auctioned allowance purchases might be deferred until refunds are distributed. Alternatively, established electricity producers could qualify for short-term loans or advances to cover their auction costs until the refund is distributed.)

Administrative allocation could, to an extent, be output-based, but the problem is that emissions-related generation output may not be accurately known at the time of the auction. Output-based refunding would be based on an auditable accounting of past production, rather than speculative estimation of future production. The refund would not motivate entities to make anomalously high bids or large-volume allowance purchases, because refunds could only be obtained on the basis of actual, verifiable energy deliveries, and no single entity's actions would significantly affect the refund rate.

All electricity-generating entities would qualify for refunds, including renewable energy producers, irrespective of whether they generate emissions or require emission allowances. There would be no barriers to new entrants that have competitive emissions performance.

¹ Market Advisory Committee, Final Report, June 29, 2007:
http://www.climatechange.ca.gov/policies/market_advisory.html

As with administrative allocation, refunding could result in windfall profits, but with output-based refunding such profits would accrue primarily to renewable and low-emission energy producers. In this context the profits would attract investment capital to low-emission energy sources, and would induce rapid expansion of low-emission production. Energy supplies would increase (within the cap constraint), and competition from new, low-emission energy sources would mitigate regulation-induced price increases.

Not all refunds would go to low-emission or renewable energy producers. All regulated entities would, in varying degrees, receive refunds, ensuring that economic incentives and penalties are proportionate to emission intensity. (Sequestration services would not qualify for refunds because they do not generate marketable energy, but refunds would provide capital that high-emission producers could use for sequestration.)

3. PRICE FLOOR

The MAC report recommended the implementation of a price floor to maintain price stability and “reinforce environmental integrity and the value of clean investments”. This recommendation is specifically responsive to the AB 32 maximum feasibility mandate, in that a price floor would provide an incentive for overcompliance to the extent that emission reductions below the 1990 level can be achieved within a marginal cost-effectiveness limit defined by the price floor. An auction system could accommodate a price floor. Moreover, by minimizing regulatory costs, a refunded auction could make it feasible to impose a price floor sufficient to achieve maximum technologically feasible and cost-effective emission reductions in the regulated sector. (The AB 32 “cost effectiveness” criterion may be construed to encompass both marginal costs, which are limited by the emission price, and distributional costs, which can be controlled through refunding.)

The benefit of auction refunding can be illustrated by considering how it would have impacted the U.S. electricity industry in 2006.² An unrefunded auction or allowance

² This example is excerpted from my recommendations for the AB 32 Scoping Plan, “Cap-and-Trade with auctioned allocation, a price floor, and output-based refunding”, posted on ARB’s web archive for the Scoping Plan (<http://www.arb.ca.gov/cc/scopingplan/submittals/other/other.htm> - filed under “Ken Johnson”).

sale at an emission price of \$10/ton-CO₂, applied to all U.S. power plants with at least 2 million MWh annual generation, would have resulted in average emission charges of 0.93 cents/KWh and annual auction revenue of \$21.8 billion. By contrast, with a refunded auction and a higher emission price of \$25/ton, entities that incur a net loss would, on average, incur net costs of 0.38 cents/KWh, much less than the 0.93 cents of the unrefunded auction at \$10/ton. The net losses would all go to low-emission producers, and the total revenue flow between firms incurring positive and negative net charges would be \$6.23 billion, much less than \$21.8 billion. Thus, in this illustration marginal technology incentives are significantly increased (by a factor of 2.5) while regulatory costs to the industry are greatly diminished.

4. REGULATORY OPTIONS

One limitation of output-based allocation is that it focuses regulatory incentives primarily on low-GHG energy production and does not create much incentive for end-use energy efficiency improvements. (If technology costs result in higher energy prices there would be an incentive to improve energy efficiency, but not to the same extent as an unrefunded auction, which could result in much higher prices.) However, energy efficiency could be promoted by means of complementary policies such as appliance efficiency standards or monetary incentives such as feebates. The auction refunding method could also be adapted to promote energy efficiency. For example, utility investments in verifiable load reduction could qualify as "output" for the purpose of determining the refund allocation, to the extent that the refund incentive is not duplicative of other regulatory incentives.

It should be recognized that in the context of an economy-wide cap-and-trade system with no price floor, complementary policies focused on energy efficiency would result in no incremental environmental benefit; they would only shift the burden for emission reductions from the electricity sector to other sectors. The shift would not necessarily benefit the electricity sector, because its emission reduction burden would be relieved by reducing sales volume. In effect, end-use efficiency improvements would induce the market to achieve the cap by producing lower quantities of high-GHG electricity, rather than high quantities of low-GHG electricity. In either case, the

aggregate emission level would be set by the cap. But the AB 32 maximum feasibility mandate requires a regulatory strategy that seeks to both minimize emission intensity in electricity generation, and also minimize end-use electricity consumption. This policy objective can be achieved by employing price instruments, including a price floor in the electricity sector and similar monetary incentives for end-use efficiency. The price floor would function to minimize emission intensity of power generation (ton-CO₂ per MWh); the complementary policies would minimize energy consumption per unit of economic utility (e.g., watts per lumen for illumination, watts per cubic foot of refrigeration capacity, etc.); and the combination of policies would together operate to minimize emissions per unit of economic utility.³

One issue that has been problematic in the EU ETS is the impact of GHG regulation on the relative competitiveness of coal and natural gas. The simple, uniform dollar-per-MWh refunding method described above could result in significant incentives to substitute NG for coal in the electricity sector, which could be disruptive to other industries that depend on NG (e.g., home heating, fertilizer production). However, the refunding method can alternatively be constructed to neutralize incentives for substituting NG for coal while preserving incentives for replacing fossil-fuel energy with renewable or other low-GHG energy sources. This can be accomplished by applying separate refund rates to coal, NG, and other sectors. The refund rate for other sectors is the same as it would be with uniform refunding, while the rates for coal and NG are determined to preserve overall revenue neutrality and to make the average per-MWh net regulatory cost (auction minus refund) the same for coal and NG. (Without the presence of the “other” category, this average cost would be zero and the above prescription would simply make the refund revenue-neutral in both the coal and NG sectors.) This regulatory approach would induce the electricity sector to reduce both coal and natural gas dependence, rather than increasing reliance on natural gas.⁴

³ This type of synergistic combination of complementary policies is discussed in the following publication (Appendix B): “Feebates: An effective regulatory instrument for cost-constrained environmental policy,” <http://dx.doi.org/10.1016/j.enpol.2005.10.005>

⁴ This method of using refunding to manage fuel-switching incentives is discussed in the following working paper (Appendix B): “Refunded Emission Taxes: A Coherent Post-Kyoto Policy Framework for Greenhouse Gas Regulation,” <http://ssrn.com/abstract=934481>

The refunding method can similarly be adapted to achieve other types of refined policy objectives (e.g., cross-subsidies from coal to hydro could be neutralized if it is expected that the hydro subsidy would not result in additional low-GHG electricity production capacity). The refunding allocation method might also be adjusted to compensate for other established subsidies. For example, if a particular sector receives supplemental government subsidies, then the refund can be determined so that the total subsidy (refund plus supplemental) is leveled across the electricity sector.

5. RELEVANCE TO STATUTORY REQUIREMENTS OF AB 32

The CEC-CPUC recommendations to ARB should be clearly traceable to the legislative policy objectives and statutory requirements of AB 32. There is some ambiguity and lack of clarity as to what the precise statutory requirements of AB 32 are, in terms of the relationship between cap-and-trade and the statute's maximum feasibility mandate. This has relevance for auction refunding and a price floor, and the following comments address this issue.

A fundamental requirement of AB 32 is the emission cap (Sec. 38550): "By January 1, 2008, the state board shall ... determine what the statewide greenhouse gas emissions level was in 1990, and approve in a public hearing, a statewide greenhouse gas emissions limit that is equivalent to that level, to be achieved by 2020." This mandate makes no specific reference to cost minimization, but Sec. 38562 stipulates that ARB should "Design the regulations ... in a manner that is equitable, seeks to minimize costs and maximize the total benefits to California ...". On the other hand, it is also a fundamental requirement of AB 32 that the regulations should "achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions ..." (Sec. 38560).

The cost minimization goal of Sec. 38562 might appear to conflict with the maximum feasibility mandate of Sec. 38560. The cost minimization requirement, as construed by classical cap-and-trade theory, would seem to imply that the mandated emission cap should be achieved at minimum cost irrespective of whether significantly greater emission reductions would be technologically feasible and cost-effective. By contrast, the evident intended meaning of the maximum feasibility mandate is that the

regulations should achieve maximum technologically feasible and cost-effective greenhouse gas emission reductions irrespective of whether the mandated cap could be achieved at less cost. How can these two perspectives be reconciled? Should the AB 32 regulations be constructed to do as little as is necessary to achieve the minimal requirements of the cap as cheaply as possible, or should they be constructed to do as much as is reasonably possible, within defined limits of cost-effectiveness, to achieve legislative policy goals of climate stabilization?

Cal/EPA and ARB have not taken an official position on this question, and regard it as a “design” or “implementation” issue that should be resolved through the AB 32 public participatory process.⁵ But a concern is that ARB may base its regulatory policy on an interpretation, though not explicitly articulated or officially stated, that effectively equates “maximum technologically feasible and cost-effective greenhouse gas emission reductions” with “reductions sufficient only to achieve the cap”. (For example, “cost-effective” might be interpreted to mean “least-cost”.) This approach would render the maximum feasibility mandate meaningless or redundant, because it would be entirely subsumed by the cap, and the meaning of AB 32 would be no different if the statute made no reference to “maximum technologically feasible and cost-effective reductions ...”.

A more reasonable interpretive construction of the statute would read the cost minimization condition of Sec. 38562 as an economic efficiency requirement, i.e., the emission reductions should be achieved in such a manner that the *same* reduction level could not be achieved at significantly less cost or with greater benefit to the economy. This requirement does not imply that greater emission reductions should not be achieved (albeit at greater cost), if such further reductions would be feasible and cost effective according to Sec. 38560. This interpretation preserves the relevance of both the maximum feasibility and cost minimization mandates, and is consistent with the legislative policy objectives and intent of AB 32. (On the other hand, the cap requirement is not entirely subsumed by maximum feasibility. Without the cap, ARB would be free to adopt an excessively conservative standard of “cost-effectiveness” that results in no reduction in statewide emission even from present levels.)

⁵ Correspondence with Eileen Tutt (Cal/EPA, May 19, 2007) and Chuck Shulock (ARB, Sept. 13, 2007)

The statute clearly recognizes that the mandated cap is only an interim and minimal goal, and that significantly greater emission reductions will be required to achieve climate stabilization goals. The cap is based on the Governor's June, 2005 Executive Order S-3-05, which also established a longer-term goal of reducing California's GHG emissions to 80% below the 1990 level by 2050.⁶ The 2050 target, unlike the 2020 cap, is "based on emission reductions the science indicates will be necessary from all developed nations to ensure protection of the planet in the 100-year time frame".⁷ However, the target is not reflective of more recent findings of the IPCC's Fourth Assessment Report and recent observational evidence of climate change, which has been outpacing all of the IPCC model projections. The imperatives of climate change clearly require emission reductions beyond the 1990 level, as is recognized by AB 32's maximum feasibility mandate and by the requirement that ARB develop plans and recommendations for continued emission reductions beyond 2020 (Sec. 38551).

The CEC-CPUC recommendations relating to cap-and-trade should clearly reflect and relate to the statutory requirements of AB 32. For example, allowance banking, which is based on the premise that the cap represents long-term emission reduction requirements, would interfere with efforts to achieve significantly greater emission reductions that will be required after 2020.⁸ A refunded auction with a price floor, like banking, would induce greater emission reductions in the short term, but without increasing emissions in the long term. This could provide a regulatory mechanism for seamlessly transitioning to more stringent post-2020 regulations. AB 32 represents a "hybrid" legislative policy that both imposes a cap, as a minimal requirement, and also imposes a maximum feasibility requirement; so its regulatory implementation correspondingly calls for a hybrid policy instrument such as cap-and-trade with a price floor.

⁶ <http://gov.ca.gov/index.php?/executive-order/1861/>

⁷ Climate Action Team's March, 2006 Final Report, http://www.climatechange.ca.gov/climate_action_team/reports/2006-04-03_FINAL_CAT_REPORT.PDF

⁸ Banking would not be necessary under AB 32 because the Governor's intervention authority under Sec. 38599 provides protection against "significant economic harm". A Governor-managed safety valve (price cap) could be instituted under the authority of Sec. 38599. (This is discussed in my Scoping Plan recommendations, "Cap-and-Trade with Governor-authorized safety valve", posted at <http://www.arb.ca.gov/cc/scopingplan/submittals/other/other.htm>.)

6. HISTORICAL LESSONS

The U.S. SO₂ trading program, instituted in 1990 as Title IV of the Clean Air Act Amendments, achieved its defined objectives at a cost much less than originally anticipated. But price erosion undermined regulatory incentives for SO₂ emission reductions, and the Clean Air Interstate Rule had to be enacted in 2005 to effectively reduce the emission cap. Had the SO₂ program been implemented as a refunded auction, with a price floor set at a level comparable to either original expectations of marginal compliance costs or current trading prices under CAIR, then regulatory incentives for maximum feasible and cost-effective reduction of SO₂ emission could have been maintained, the program's environmental goals might have been achieved much sooner, and the need for the supplemental CAIR legislation could have been avoided. The implication for GHG regulation is clear: AB 32 is based on a recognition that the 2020 statewide emission target will not, in itself, be sufficient to achieve climate stabilization goals, so it is imperative that regulations be structured to induce maximum feasible and cost-effective emission reductions, and not just achieve the minimal requirements of the cap as was the case with the SO₂ program.

A good working example of a program that illustrates the principle of refunding is the Swedish program for regulating stationary-source NO_x emissions. The program is a refunded emission tax, not cap-and-trade, but the same operational principle would apply to a refunded auction. (If the price floor is activated, the refunded auction would be essentially equivalent to a refunded tax.) This program was enacted in 1990 with the intention of achieving a 35% reduction in regulated NO_x emissions by 1995, but it actually resulted in a 50% reduction (including demand growth) within that time frame. Moreover, the program encountered little political resistance, and its net economic costs have been estimated at only 0.04 cents per KWh, about one-fifth of what it would have been without the refund.⁹

⁹ Following are several references that discuss the Swedish NO_x program:

[1] Ågren, C., 2000. Nitrogen oxides: emissions charge works well. Acid News 2, 1–4
<http://www.acidrain.org/pages/publications/acidnews/2000/AN2-00.pdf>

Several aspects of the Swedish program have relevance to AB 32. First, the refunding method was adopted for the specific purpose of preserving competitiveness of regulated firms relative to small-capacity, unregulated entities. (At the outset of the program, combustion units with less than 50 GWh annual generation were exempt because of the high cost of NO_x monitoring equipment, although cost reductions allowed smaller facilities to later be incorporated in the program.) Second, the program does not supersede, but complements and coexists with, an NO_x emission standard. Third, the program incentivized significant early action to reduce emissions in the two-year period between its enactment in 1990 and when it became effective in 1992. Fourth, the program effectively motivated maximal emission reductions, in that NO_x emissions were reduced to a level well below the applicable regulatory limit and below levels achieved in the U.S. and other countries. Had a conventional cap-and-trade system similar to the U.S. SO₂ trading system been employed, it would not have motivated emission reduction beyond the 35% target. (Banking may have resulted in additional short-term emission reductions, but at the cost of higher emissions in the long term.)

[2] Barg, S., Duraiappah, A., Exan, V. E., 2000. Economic Instruments for Environmental Policy Making in Ontario. International Institute for Sustainable Development (pp. 48–50)
http://www.ene.gov.on.ca/envision/ergreport/downloads/report_paper2.pdf

[3] Isaksson, L., Sterner, S., 2006. Refunded emission payments theory, distribution of costs, and Swedish experience of NO_x abatement, in: *Ecological Economics* 57 (1), 93-106.
<http://www.sciencedirect.com/science/journal/09218009>
<http://dx.doi.org/10.1016/j.ecolecon.2005.03.008>

[4] Millock, K., Sterner, T., 2004. NO_x emissions in France and Sweden. In: Harrington, W., Morgenstern, R.D., Sterner, T. (Eds.), *Choosing Environmental Policy: Comparing Instruments and Outcomes in the United States and Europe*. Resources for the Future, Washington, DC, pp. 117–132.
http://www.rff.org/rff/RFF_Press/CustomBookPages/Choosing-Environmental-Policy.cfm

[5] Sterner, T., Høglund, L., 2000. Output-Based Refunding of Emission Payments: Theory, Distribution of Costs, and International Experience. Discussion Paper 00-29. Published by Resources for the Future.
<http://www.rff.org/Documents/RFF-DP-00-29.pdf>

[6] (USEPA), 1997. Performance of Selective Catalytic Reduction on Coal-Fired Steam Generating Units. U.S. Environmental Protection Agency, Office of Air and Radiation. (See esp. p. 37.)
<http://www.epa.gov/airmarkets/progsregs/arp/docs/scrfinal.pdf>

[7] Wolff, G. H., 2000. When Will Business Want Environmental Taxes? Redefining Progress.
http://www.redefiningprogress.org/newpubs/2000/etr_business.pdf

7. RESPONSE TO QUESTIONS

Following are responses to some of the questions posed in the ALJ ruling¹⁰.

Q1. Please comment on each of the criteria listed by the MAC. Should other criteria be added, such as criteria specific to the electricity and/or natural gas sectors? In making trade-offs among the criteria, which criteria should receive the most weight and which the least weight?

Re criterion a (*Reduces the cost of the program to consumers, especially low-income consumers*): “Reduce” should be interpreted as “minimize”, as there is no guarantee that the AB 32 regulations will not impose positive costs on consumers. The cost minimization objective is supported by Sec. 38562(b)(1), but as noted above, this must be interpreted in a manner that is consistent with the maximum feasibility mandate of Sec. 38560. Regarding low-income consumers, the specific requirement is that “activities undertaken to comply with the regulations do not disproportionately impact low-income communities,” Sec. 38562(b)(2).

Re criterion b (*Avoids windfall profits where such profits could occur*): Windfall profits are not incompatible with a market-based regulatory approach, or with the goals of AB 32, if they accrue mainly to renewable and low-emission energy producers as they would with output-based allocation. In a competitive market, such profits would induce rapid expansion of low-emission energy, thereby increasing energy supply (within the cap constraint) and lowering prices.

Re criterion c (*Promotes investment in low-GHG technologies and fuels (including energy efficiency)*): Pursuant to Sec. 38561(b), a refunded auction with a price floor, and similar types of monetary incentive policies (e.g. for energy-efficient appliances), would preferentially subsidize and draw investment capital to low-GHG technologies and fuels, including energy efficiency.

¹⁰ <http://www.cpuc.ca.gov/EFILE/RULINGS/73857.htm>

Re criterion d (*Advances the state’s broader environmental goals by ensuring that environmental benefits accrue to overburdened communities*): This is supported by Sec. 38570(b)(1).

Re criterion e (*Mitigates economic dislocation caused by competition from firms in uncapped jurisdictions*): This is supported by Sec. 38562(b)(1).

Re criterion f (*Avoids perverse incentives that discourage or penalize investments in low-GHG technologies and fuels (including energy efficiency)*): Perverse incentives would likely fail the statute’s maximum feasibility requirement (Sec. 38560).

Re criterion g (*Provides transition assistance to displaced workers*): This is supported by Sec. 38562(b)(1).

Re criterion h (*Helps to ensure market liquidity*): Market liquidity is an essential characteristic of market-based instruments, which are authorized by AB 32. “Market-based” has a specific defined sense in AB 32 (Sec. 38505(k)), but the statute also authorizes other types of regulatory mechanisms such as monetary incentives (Sec. 38561(b)), which are “market-based” in the broader sense of relegating detailed resource allocation decisions to the market rather than regulators. Monetary incentives (such as a price floor) are “liquid” in the sense that regulated firms are free to balance the tradeoff between emission reductions and costs in any way that best suits their interests.

Other criteria:

The regulations should be constructed to achieve maximum technologically feasible and cost-effective reductions in greenhouse gas emissions, irrespective of whether the cost of such reductions exceeds the minimal cost required to achieve the cap. This criterion should be given no less weight than the cap.

Q2. Broadly speaking, should emission allowances be auctioned or allocated administratively, or some combination?

Allowances should be auctioned, but with output-based refunding.

Q3. If you recommend partial auctioning, what proportion should be auctioned? Should the percentage of auctioning change over time? If so, what factors should be used to design the transition toward more auctioning?

With refunding, there is probably no reason why 100% auctioning (with 100% refunding) could not be instituted at the outset of the program.

Q4. How should new market entrants, such as energy service providers, community choice aggregators, or (deliverer/first seller system only) new importers, obtain emission allowances, i.e., through auctioning, administrative allocation, or some combination?

New entrants who require allowances would obtain them through auctioning, and would qualify for refunds based on their delivered energy irrespective of whether they generate emissions and require allowances.

Q5. What are the important policy considerations in the design of an auction?

Perhaps the most important consideration is distribution of auction revenue, which involves essentially the same policy issues as allowance distribution with administrative (free) allocation.

Q6. How often should emission allowances be auctioned? How does the timing and frequency of auctions relate to the determination of a mandatory compliance period, if at all?

In reference to a refunded auction, one concern regarding the compliance period and timing is cash flow, if there is a significant time lag between the auction payment and refund distribution. The program should be structured to avoid cash flow problems, at least for established energy producers. (New entrants might need to obtain startup financing to cover their initial auction costs.)

Q7. How should market power concerns be addressed in auction design? If emission allowances are auctioned, how would the administrators of such a program ensure that all market participants are participating in the program and acting in good faith?

Regarding participation and good faith, it is important to have robust, traceable accounting of both emissions and associated energy production, and simple, transparent rules for auctioning and refunding.

Q8. What criteria should be used to designate the types of expenditures that could be made with auction revenues (including use to reduce end user rates), and the distribution of money within those categories?

Under an output-based refunded auction, all revenue would be refunded in proportion to generation output. The resulting increased competitiveness and expanded production capacity of low-emission generation would help to minimize economic costs and reduce end-user rates.

Q9. What type of administrative structure should be used for the auction? Should the auction be run by the State or some other independent entity, such as the nonprofit organization being established by the Regional Greenhouse Gas Initiative?

(No comment.)

Q10-20. If some or all allowances are allocated administratively, which of the above method or methods should be used for the initial allocations? ...

(No comment, except to note that the allocation options and questions relating to administrative allocation could, in principle, apply equally well to refund allocation.)

Q21. Would a deliverer/first seller point of regulation necessitate auctioning of emission allowances to the deliverers/first sellers?

This would probably be the most practical approach from the standpoint of administration and transaction costs. Deliverers/first sellers would normally surrender allowances and would also accrue refunds under a refunded-auction system. Any

allowance resale and trading would require rigorous accounting of both emissions and generation output associated with allowances.

Q22. Are there interstate commerce concerns if auction proceeds are obtained from all deliverers/first sellers and spent solely for the benefit of California ratepayers? If there are legal considerations, include a detailed analysis and appropriate legal citations.

Output-based refunding would probably alleviate interstate commerce concerns because the allocation criteria would be state-neutral, and out-of-state generators would benefit equally from refunds.

The policy implications of the deliverer/first seller approach are generally considered in relation to importers, not exporters; but symmetric treatment of importers and exporters would require that both be subject to regulations in the locale where delivered energy is consumed, not where it is generated. If imports are subject to California's GHG regulations, then exports should be exempt from those regulations and subject to regulations of jurisdictions where the power is delivered. A policy that subjects exports to the same California regulations as imports would be protectionist of high-GHG emitters in neighboring jurisdictions that do not regulate GHG emissions, and would create an economic disincentive for other states to adopt similar policies.

Q23-26. If you believe 100% auctioning to deliverers/first sellers is not required, explain how emission allowances would be allocated to deliverers/first sellers. ...

(No comment.)

Q27. Are there any other factors unique to the natural gas sector that have not been captured in the questions above? If so, describe the issues and your recommendations.

As discussed previously, a refunded auction system could employ a refunding method tailored to minimize incentives for substituting NG for coal (if that is a policy objective), while maintaining incentives for substituting renewable sources for fossil-fuel energy.

Q28. Considering your responses above, summarize your primary recommendation for how the State should design a system whereby electricity and natural gas entities obtain emission allowances if a cap and trade system is adopted.

In their recommendations to ARB, the CPUC and CEC should identify the following as a potential policy option that should be considered: A cap-and-trade system with auctioned allocation, output-based refunding of auction proceeds, and a price floor. The price floor would provide a mechanism for transitioning to post-2020 regulations. (Even if a price floor is not imposed at the outset of the program, the regulations should be structured to allow accommodation of a price floor at a later date.) The refunding method may be tailored to have preferred distributional characteristics (e.g. to neutralize incentives for substituting NG for coal, while maintaining incentives for phasing out fossil-fuel energy).

The Commissions' recommendations should clearly articulate their interpretation of AB 32, particularly with regard to the meaning and legislative intent of the maximum feasibility requirement; and the recommendations should be clearly traceable to statutory requirements. If the recommendations are premised on a particular interpretation or concept of "cost effectiveness", it should be so noted.

The Commissions and ARB should review the Swedish NO_x program as a working example of how refunding can be employed. Also, the US SO₂ trading program should be evaluated, not just from the perspective of cost minimization, but also in terms of its performance in relation to the AB 32 maximum feasibility mandate and how the program might have evolved if the proposed regulatory policy had been applied to SO₂ regulation.

Respectfully submitted,

/s/ Kenneth C. Johnson

Kenneth C. Johnson
2502 Robertson Rd
Santa Clara, CA 95051
408-244-4721
kjinnovation@earthlink.net

Dated: October 31, 2007

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of COMMENTS OF KENNETH C. JOHNSON PERTAINING TO ALLOWANCE ALLOCATION ISSUES on the service list for CPUC Docket No. R.06-04-009 and CEC Docket No. 07-OIIP-01 by serving a copy to each party by electronic mail and/or by mailing a properly addressed copy by first-class mail with postage prepaid.

Executed on October 31, 2007, at Santa Clara, California.

/s/ Kenneth C. Johnson

Kenneth C. Johnson
2502 Robertson Rd
Santa Clara, CA 95051
408-244-4721
kjinnovation@earthlink.net

CALIFORNIA PUBLIC UTILITIES COMMISSION

Service List

Proceeding: R0604009

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Parties

CINDY ADAMS
COVANTA ENERGY CORPORATION
40 LANE ROAD
FAIRFIELD, NJ 07004

STEVEN S. SCHLEIMER
DIRECTOR, COMPLIANCE & REGULATORY AFFAIRS
BARCLAYS BANK, PLC
200 PARK AVENUE, FIFTH FLOOR
NEW YORK, NY 10166

STEVEN HUHMANN
MORGAN STANLEY CAPITAL GROUP INC.
2000 WESTCHESTER AVENUE
PURCHASE, NY 10577

RICK C. NOGER
PRAXAIR PLAINFIELD, INC.
2711 CENTERVILLE ROAD, SUITE 400
WILMINGTON, DE 19808

KEITH R. MCCREA
ATTORNEY AT LAW
SUTHERLAND, ASBILL & BRENNAN, LLP
1275 PENNSYLVANIA AVE., N.W.
WASHINGTON, DC 20004-2415

ADAM J. KATZ
MCDERMOTT WILL & EMERY LLP
600 13TH STREET, NW.
WASHINGTON, DC 20005

CATHERINE M. KRUPKA
MCDERMOTT WILL AND EMERY LLP
600 THIRTEEN STREET, NW
WASHINGTON, DC 20005

LISA M. DECKER
CONSTELLATION ENERGY GROUP, INC.
111 MARKET PLACE, SUITE 500
BALTIMORE, MD 21202

CATHY S. WOOLLUMS
MIDAMERICAN ENERGY HOLDINGS COMPANY
106 EAST SECOND STREET
DAVENPORT, IA 52801

KEVIN BOUDREAU
CALPINE POWER AMERICA-CA, LLC
717 TEXAS AVENUE, SUITE 1000
HOUSTON, TX 77002

THOMAS DILL
PRESIDENT
LODI GAS STORAGE, L.L.C.
1021 MAIN ST STE 1500
HOUSTON, TX 77002-6509

E.J. WRIGHT
OCCIDENTAL POWER SERVICES, INC.
5 GREENWAY PLAZA, SUITE 110
HOUSTON, TX 77046

PAUL M. SEBY
MCKENNA LONG & ALDRIDGE LLP
1875 LAWRENCE STREET, SUITE 200
DENVER, CO 80202

TIMOTHY R. ODIL
MCKENNA LONG & ALDRIDGE LLP
1875 LAWRENCE STREET, SUITE 200
DENVER, CO 80202

STEPHEN G. KOERNER, ESQ.
EL PASO CORPORATION
WESTERN PIPELINES

JENINE SCHENK
APS ENERGY SERVICES
400 E. VAN BUREN STREET, SUITE 750

2 NORTH NEVADA AVENUE
COLORADO SPRINGS, CO 80903

PHOENIX, AZ 85004

JOHN B. WELDON, JR.
SALMON, LEWIS & WELDON, P.L.C.
2850 EAST CAMELBACK ROAD, SUITE 200
PHOENIX, AZ 85016

KELLY BARR
MANAGER, REGULATORY AFFAIRS & CONTRACTS
SALT RIVER PROJECT
PO BOX 52025, PAB 221
PHOENIX, AZ 85072-2025

ROBERT R. TAYLOR
AGRICULTURAL IMPROVEMENT AND POWER DIST.
1600 NORTH PRIEST DRIVE, PAB221
TEMPE, AZ 85281

STEVEN S. MICHEL
WESTERN RESOURCE ADVOCATES
2025 SENDA DE ANDRES
SANTA FE, NM 87501

ROGER C. MONTGOMERY
VICE PRESIDENT, PRICING
SOUTHWEST GAS CORPORATION
PO BOX 98510
LAS VEGAS, NV 89193-8510

RONALD F. DEATON
LOS ANGELES DEPARTMENT OF WATER & POWER
111 NORTH HOPE STREET, ROOM 1550
LOS ANGELES, CA 90012

SID NEWSOM
TARIFF MANAGER
SOUTHERN CALIFORNIA GAS COMPANY
GT 14 D6
555 WEST 5TH STREET
LOS ANGELES, CA 90051

DAVID L. HUARD
ATTORNEY AT LAW
MANATT, PHELPS & PHILLIPS, LLP
11355 WEST OLYMPIC BOULEVARD
LOS ANGELES, CA 90064

CURTIS L. KEBLER
J. ARON & COMPANY
SUITE 2600
2121 AVENUE OF THE STARS
LOS ANGELES, CA 90067

DENNIS M.P. EHLING
ATTORNEY AT LAW
KIRKPATRICK & LOCKHART NICHOLSON GRAHAM
10100 SANTA MONICA BLVD., 7TH FLOOR
LOS ANGELES, CA 90067

GREGORY KOISER
CONSTELLATION NEW ENERGY, INC.
350 SOUTH GRAND AVENUE, SUITE 3800
LOS ANGELES, CA 90071

NORMAN A. PEDERSEN
ATTORNEY AT LAW
HANNA AND MORTON, LLP
444 SOUTH FLOWER STREET, NO. 1500
LOS ANGELES, CA 90071

MICHAEL MAZUR
CHIEF TECHNICAL OFFICER
3 PHASES RENEWABLES, LLC
2100 SEPULVEDA BLVD., SUITE 37
MANHATTAN BEACH, CA 90266

TIFFANY RAU
POLICY AND COMMUNICATIONS MANAGER
CARSON HYDROGEN POWER PROJECT LLC
ONE WORLD TRADE CENTER, SUITE 1600
LONG BEACH, CA 90831-1600

GREGORY KLATT
ATTORNEY AT LAW
DOUGLASS & LIDDELL
411 E. HUNTINGTON DRIVE, STE. 107-356
ARCADIA, CA 91006

RICHARD HELGESON
SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY
225 S. LAKE AVE., SUITE 1250
PASADENA, CA 91101

DANIEL W. DOUGLASS
ATTORNEY AT LAW

PAUL DELANEY
AMERICAN UTILITY NETWORK (A.U.N.)

DOUGLASS & LIDDELL
21700 OXNARD STREET, SUITE 1030
WOODLAND HILLS, CA 91367

10705 DEER CANYON DRIVE
ALTA LOMA, CA 91737

AKBAR JAZAYEIRI
DIRECTOR OF REVENUE & TARRIFFS
SOUTHERN CALIFORNIA EDISON COMPANY
2244 WALNUT GROVE AVE. ROOM 390
ROSEMEAD, CA 91770

ANNETTE GILLIAM
ATTORNEY AT LAW
SOUTHERN CALIFORNIA EDISON COMPANY
2244 WALNUT GROVE AVENUE
ROSEMEAD, CA 91770

CATHY A. KARLSTAD
SOUTHERN CALIFORNIA EDISON COMPANY
2244 WALNUT GROVE AVE.
ROSEMEAD, CA 91770

LAURA I. GENAO
ATTORNEY
SOUTHERN CALIFORNIA EDISON
2244 WALNUT GROVE AVENUE
ROSEMEAD, CA 91770

RONALD MOORE
GOLDEN STATE WATER/BEAR VALLEY ELECTRIC
630 EAST FOOTHILL BOULEVARD
SAN DIMAS, CA 91773

DON WOOD
PACIFIC ENERGY POLICY CENTER
4539 LEE AVENUE
LA MESA, CA 91941

AIMEE M. SMITH
ATTORNEY AT LAW
SEMPRA ENERGY
101 ASH STREET HQ13
SAN DIEGO, CA 92101

ALLEN K. TRIAL
SAN DIEGO GAS & ELECTRIC COMPANY
HQ-13
101 ASH STREET
SAN DIEGO, CA 92101

ALVIN PAK
SEMPRA GLOBAL ENTERPRISES
101 ASH STREET
SAN DIEGO, CA 92101

DAN HECHT
SEMPRA ENERGY
101 ASH STREET
SAN DIEGO, CA 92101

DANIEL A. KING
SEMPRA ENERGY
101 ASH STREET, HQ 12
SAN DIEGO, CA 92101

SYMONE VONGDEUANE
SEMPRA ENERGY SOLUTIONS
101 ASH STREET, HQ09
SAN DIEGO, CA 92101-3017

THEODORE ROBERTS
ATTORNEY AT LAW
SEMPRA GLOBAL
101 ASH STREET, HQ 13D
SAN DIEGO, CA 92101-3017

DONALD C. LIDDELL, P.C.
DOUGLASS & LIDDELL
2928 2ND AVENUE
SAN DIEGO, CA 92103

MARCIE MILNER
DIRECTOR - REGULATORY AFFAIRS
SHELL TRADING GAS & POWER COMPANY
4445 EASTGATE MALL, SUITE 100
SAN DIEGO, CA 92121

REID A. WINTHROP
PILOT POWER GROUP, INC.
8910 UNIVERSITY CENTER LANE, SUITE 520
SAN DIEGO, CA 92122

THOMAS DARTON

STEVE RAHON

PILOT POWER GROUP, INC.
SUITE 520
8910 UNIVERSITY CENTER LANE
SAN DIEGO, CA 92122

DIRECTOR, TARIFF & REGULATORY ACCOUNTS
SAN DIEGO GAS & ELECTRIC COMPANY
8330 CENTURY PARK COURT, CP32C
SAN DIEGO, CA 92123-1548

GLORIA BRITTON
ANZA ELECTRIC COOPERATIVE, INC.
58470 HWY 371
PO BOX 391909
ANZA, CA 92539

LYNELLE LUND
COMMERCE ENERGY, INC.
600 ANTON BLVD., SUITE 2000
COSTA MESA, CA 92626

TAMLYN M. HUNT
ENERGY PROGRAM DIRECTOR
COMMUNITY ENVIRONMENTAL COUNCIL
26 W. ANAPAMU ST., 2/F
SANTA BARBARA, CA 93101

JEANNE M. SOLE
DEPUTY CITY ATTORNEY
CITY AND COUNTY OF SAN FRANCISCO
1 DR. CARLTON B. GOODLETT PLACE, RM. 234
SAN FRANCISCO, CA 94102

JOHN P. HUGHES
MANAGER, REGULATORY AFFAIRS
SOUTHERN CALIFORNIA EDISON COMPANY
601 VAN NESS AVENUE, STE. 2040
SAN FRANCISCO, CA 94102

LAD LORENZ
V.P. REGULATORY AFFAIRS
SOUTHERN CALIFORNIA GAS COMPANY
601 VAN NESS AVENUE, SUITE 2060
SAN FRANCISCO, CA 94102

MARCEL HAWIGER
THE UTILITY REFORM NETWORK
711 VAN NESS AVENUE, SUITE 350
SAN FRANCISCO, CA 94102

NINA SUETAKE
ATTORNEY AT LAW
THE UTILITY REFORM NETWORK
711 VAN NESS AVE., STE. 350
SAN FRANCISCO, CA 94102

DIANA L. LEE
CALIF PUBLIC UTILITIES COMMISSION
LEGAL DIVISION
ROOM 4300
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

F. JACKSON STODDARD
CALIF PUBLIC UTILITIES COMMISSION
EXECUTIVE DIVISION
ROOM 5125
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

AUDREY CHANG
STAFF SCIENTIST
NATURAL RESOURCES DEFENSE COUNCIL
111 SUTTER STREET, 20TH FLOOR
SAN FRANCISCO, CA 94104

DONALD BROOKHYSER
ATTORNEY AT LAW
ALCANTAR & KAHL
120 MONTGOMERY STREET
SAN FRANCISCO, CA 94104

EVELYN KAHL
ATTORNEY AT LAW
ALCANTAR & KAHL, LLP
120 MONTGOMERY STREET, SUITE 2200
SAN FRANCISCO, CA 94104

KRISTIN GRENFELL
PROJECT ATTORNEY, CALIF. ENERGY PROGRAM
NATURAL RESOURCES DEFENSE COUNCIL
111 SUTTER STREET, 20TH FLOOR
SAN FRANCISCO, CA 94104

MICHAEL P. ALCANTAR
ATTORNEY AT LAW
ALCANTAR & KAHL, LLP
120 MONTGOMERY STREET, SUITE 2200
SAN FRANCISCO, CA 94104

SEEMA SRINIVASAN
ATTORNEY AT LAW
ALCANTAR & KAHL, LLP
120 MONTGOMERY STREET, SUITE 2200
SAN FRANCISCO, CA 94104

WILLIAM H. CHEN
DIRECTOR, ENERGY POLICY WEST REGION
CONSTELLATION NEW ENERGY, INC.
SPEAR TOWER, 36TH FLOOR
ONE MARKET STREET
SAN FRANCISCO, CA 94105

BRIAN K. CHERRY
DIRECTOR REGULATORY RELATIONS
PACIFIC GAS AND ELECTRIC COMPANY
77 BEALE STREET, B10C
SAN FRANCISCO, CA 94106

EDWARD G POOLE
ANDERSON DONOVAN & POOLE
601 CALIFORNIA STREET SUITE 1300
SAN FRANCISCO, CA 94108

ANN G. GRIMALDI
MCKENNA LONG & ALDRIDGE LLP
101 CALIFORNIA STREET, 41ST FLOOR
SAN FRANCISCO, CA 94111

BRIAN T. CRAGG
ATTORNEY AT LAW
GOODIN, MACBRIDE, SQUERI, RITCHIE & DAY
505 SANSOME STREET, SUITE 900
SAN FRANCISCO, CA 94111

JAMES D. SQUERI
ATTORNEY AT LAW
GOODIN MACBRIDE SQUERI RITCHIE & DAY LLP
505 SANSOME STREET, STE 900
SAN FRANCISCO, CA 94111

JEANNE B. ARMSTRONG
ATTORNEY AT LAW
GOODIN MACBRIDE SQUERI DAY & LAMPREY
505 SANSOME STREET, SUITE 900
SAN FRANCISCO, CA 94111

KAREN BOWEN
ATTORNEY AT LAW
WINSTON & STRAWN LLP
101 CALIFORNIA STREET
SAN FRANCISCO, CA 94111

LISA A. COTTLE
ATTORNEY AT LAW
WINSTON & STRAWN LLP
101 CALIFORNIA STREET, 39TH FLOOR
SAN FRANCISCO, CA 94111

SEAN P. BEATTY
ATTORNEY AT LAW
COOPER, WHITE & COOPER, LLP
201 CALIFORNIA ST., 17TH FLOOR
SAN FRANCISCO, CA 94111

VIDHYA PRABHAKARAN
GOODIN, MACBRIDE, SQUERI, DAY, LAMPREY
505 SANSOME STREET, SUITE 900
SAN FRANCISCO, CA 94111

JOSEPH M. KARP
ATTORNEY AT LAW
WINSTON & STRAWN LLP
101 CALIFORNIA STREET
SAN FRANCISCO, CA 94111-5802

JEFFREY P. GRAY
DAVIS WRIGHT TREMAINE, LLP
505 MONTGOMERY STREET, SUITE 800
SAN FRANCISCO, CA 94111-6533

CHRISTOPHER J. WARNER
PACIFIC GAS AND ELECTRIC COMPANY
77 BEALE STREET, PO BOX 7442
SAN FRANCISCO, CA 94120-7442

SARA STECK MYERS
ATTORNEY AT LAW
122 28TH AVENUE
SAN FRANCISCO, CA 94121

LARS KVALE
CENTER FOR RESOURCE SOLUTIONS
PRESIDIO BUILDING 97
PO BOX 39512
SAN FRANCISCO, CA 94129

ANDREW L. HARRIS
PACIFIC GAS & ELECTRIC COMPANY
PO BOX 770000 MAIL CODE B9A
SAN FRANCISCO, CA 94177

ANDREA WELLER
STRATEGIC ENERGY
3130 D BALFOUR RD., SUITE 290
BRENTWOOD, CA 94513

JENNIFER CHAMBERLIN
STRATEGIC ENERGY, LLC
2633 WELLINGTON CT.
CLYDE, CA 94520

BETH VAUGHAN
CALIFORNIA COGENERATION COUNCIL
4391 N. MARSH ELDER COURT
CONCORD, CA 94521

KERRY HATTEVIK
MIRANT CORPORATION
696 WEST 10TH STREET
PITTSBURG, CA 94565

AVIS KOWALEWSKI
CALPINE CORPORATION
3875 HOPYARD ROAD, SUITE 345
PLEASANTON, CA 94588

WILLIAM H. BOOTH
ATTORNEY AT LAW
LAW OFFICES OF WILLIAM H. BOOTH
1500 NEWELL AVENUE, 5TH FLOOR
WALNUT CREEK, CA 94596

J. ANDREW HOERNER
REDEFINING PROGRESS
1904 FRANKLIN STREET
OAKLAND, CA 94612

JANILL RICHARDS
DEPUTY ATTORNEY GENERAL
CALIFORNIA ATTORNEY GENERAL'S OFFICE
1515 CLAY STREET, 20TH FLOOR
OAKLAND, CA 94702

CLIFF CHEN
UNION OF CONCERNED SCIENTIST
2397 SHATTUCK AVENUE, STE 203
BERKELEY, CA 94704

GREGG MORRIS
DIRECTOR
GREEN POWER INSTITUTE
2039 SHATTUCK AVENUE, STE 402
BERKELEY, CA 94704

R. THOMAS BEACH
CROSSBORDER ENERGY
2560 NINTH STREET, SUITE 213A
BERKELEY, CA 94710-2557

BARRY F. MCCARTHY
ATTORNEY AT LAW
MCCARTHY & BERLIN, LLP
100 PARK CENTER PLAZA, SUITE 501
SAN JOSE, CA 95113

C. SUSIE BERLIN
ATTORNEY AT LAW
MC CARTHY & BERLIN, LLP
100 PARK CENTER PLAZA, SUITE 501
SAN JOSE, CA 95113

MIKE LAMOND
ALPINE NATURAL GAS OPERATING CO. #1 LLC
PO BOX 550
VALLEY SPRINGS, CA 95252

JOY A. WARREN
ATTORNEY AT LAW
MODESTO IRRIGATION DISTRICT
1231 11TH STREET
MODESTO, CA 95354

BALDASSARO DI CAPO
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

JOHN JENSEN
PRESIDENT
MOUNTAIN UTILITIES
PO BOX 205
KIRKWOOD, CA 95646

MARY LYNCH
VP - REGULATORY AND LEGISLATIVE AFFAIRS
CONSTELLATION ENERGY COMMODITIES GROUP
2377 GOLD MEDAL WAY, SUITE 100
GOLD RIVER, CA 95670

LEONARD DEVANNA
EXECUTIVE VICE PRESIDENT
CLEAN ENERGY SYSTEMS, INC.
11330 SUNCO DRIVE, SUITE A
RANCHO CORDOVA, CA 95742

ANDREW BROWN
ATTORNEY AT LAW
ELLISON, SCHNEIDER & HARRIS, LLP
2015 H STREET
SACRAMENTO, CA 95811

BRUCE MCLAUGHLIN
BRAUN & BLAISING, P.C.
915 L STREET, SUITE 1270
SACRAMENTO, CA 95814

GREGGORY L. WHEATLAND
ATTORNEY AT LAW
ELLISON, SCHNEIDER & HARRIS, LLP
2015 H STREET
SACRAMENTO, CA 95814

JANE E. LUCKHARDT
ATTORNEY AT LAW
DOWNEY BRAND LLP
555 CAPITOL MALL, 10TH FLOOR
SACRAMENTO, CA 95814

JEFFERY D. HARRIS
ATTORNEY AT LAW
ELLISON, SCHNEIDER & HARRIS LLP
2015 H STREET
SACRAMENTO, CA 95814

VIRGIL WELCH
STAFF ATTORNEY
ENVIRONMENTAL DEFENSE
1107 9TH STREET, SUITE 540
SACRAMENTO, CA 95814

WILLIAM W. WESTERFIELD, 111
ATTORNEY AT LAW
ELLISON, SCHNEIDER & HARRIS L.L.P.
2015 H STREET
SACRAMENTO, CA 95814

DOWNEY BRAND
DOWNEY BRAND
555 CAPITOL MALL, 10TH FLOOR
SACRAMENTO, CA 95814-4686

RAYMOND J. CZAHAR, C.P.A.
CHIEF FINANCIAL OFFICER
WEST COAST GAS COMPANY
9203 BEATTY DRIVE
SACRAMENTO, CA 95826

STEVEN M. COHN
ASSISTANT GENERAL COUNSEL
SACRAMENTO MUNICIPAL UTILITY DISTRICT
PO BOX 15830
SACRAMENTO, CA 95852-1830

ANN L. TROWBRIDGE
ATTORNEY AT LAW
DAY CARTER & MURPHY, LLP
3620 AMERICAN RIVER DRIVE, SUITE 205
SACRAMENTO, CA 95864

DAN SILVERIA
SURPRISE VALLEY ELECTRIC CORPORATION
PO BOX 691
ALTURAS, CA 96101

JESSICA NELSON
PLUMAS-SIERRA RURAL ELECTRIC CO-OP
73233 STATE ROUTE 70, STE A
PORTOLA, CA 96122-7064

DONALD BROOKHYSER
ALCANTAR & KAHL
1300 SW FIFTH AVE., SUITE 1750
PORTLAND, OR 97210

CYNTHIA SCHULTZ
REGULATORY FILING COORDINATOR
PACIFIC POWER AND LIGHT COMPANY
825 N.E. MULTNOMAH
PORTLAND, OR 97232

KYLE L. DAVIS
PACIFICORP
825 NE MULTNOMAH ST., SUITE 2000
PORTLAND, OR 97232

RYAN FLYNN
PACIFICORP
825 NE MULTNOMAH STREET, 18TH FLOOR
PORTLAND, OR 97232

IAN CARTER
POLICY COORDINATOR-NORTH AMERICA
INTERNATIONAL EMISSIONS TRADING ASSN.
350 SPARKS STREET, STE. 809
OTTAWA, ON K1R 7S8

CANADA

JASON DUBCHAK
ASSOCIATE GENERAL COUNSEL
WILD GOOSE STORAGE LLC
C/O NISKA GAS STORAGE, SUITE 400
607 8TH AVENUE S.W.
CALGARY, AB T2P 0A7
CANADA

Information Only

BRIAN M. JONES
M. J. BRADLEY & ASSOCIATES, INC.
47 JUNCTION SQUARE DRIVE
CONCORD, MA 01742

MATTHEW MOST
EDISON MISSION MARKETING & TRADING, INC.
160 FEDERAL STREET
BOSTON, MA 02110-1776

KENNETH A. COLBURN
SYMBILITIC STRATEGIES, LLC
26 WINTON ROAD
MEREDITH, NH 03253

RICHARD COWART
REGULATORY ASSISTANCE PROJECT
50 STATE STREET, SUITE 3
MONTPELIER, VT 05602

KATHRYN WIG
PARALEGAL
NRG ENERGY, INC.
211 CARNEGIE CENTER
PRINCETON, NY 08540

SAKIS ASTERIADIS
APX INC
1270 FIFTH AVE., SUITE 15R
NEW YORK, NY 10029

GEORGE HOPLEY
BARCLAYS CAPITAL
200 PARK AVENUE
NEW YORK, NY 10166

ELIZABETH ZELLJADT
1725 I STREET, N.W. SUITE 300
WASHINGTON, DC 20006

DALLAS BURTRAW
1616 P STREET, NW
WASHINGTON, DC 20036

VERONIQUE BUGNION
POINT CARBON
205 SEVERN RIVER RD
SEVERNA PARK, MD 21146

KYLE D. BOUDREAUX
FPL GROUP
700 UNIVERSE BLVD., JES/JB
JUNO BEACH, FL 33408

ANDREW BRADFORD
SENIOR MARKET RESEARCH ASSOCIATE
FELLON-MCCORD & ASSOCIATES
SUITE 2000
9960 CORPORATE CAMPUS DRIVE
LOUISVILLE, KY 40223

GARY BARCH
FELLON-MCCORD & ASSOCIATES, INC.
SUITE 2000
9960 CORPORATE CAMPUS DRIVE
LOUISVILLE, KY 40223

RALPH E. DENNIS
DIRECTOR, REGULATORY AFFAIRS
FELLON-MCCORD & ASSOCIATES
CONSTELLATION NEWENERGY-GAS DIVISION
9960 CORPORATE CAMPUS DRIVE, STE 2000
LOUISVILLE, KY 40223

SAMARA MINDEL
REGULATORY AFFAIRS ANALYST
FELLON-MCCORD & ASSOCIATES
9960 CORPORATE CAMPUS DRIVE, SUITE 2000
LOUISVILLE, KY 40223

BARRY RABE
1427 ROSS STREET
PLYMOUTH, MI 48170

BRIAN POTTS
FOLEY & LARDNER
PO BOX 1497
150 EAST GILMAN STREET
MADISON, WI 53701-1497

JAMES W. KEATING
BP AMERICA, INC.
MAIL CODE 603-1E
150 W. WARRENVILLE RD.
NAPERVILLE, IL 60563

JAMES ROSS
RCS, INC.
500 CHESTERFIELD CENTER, SUITE 320
CHESTERFIELD, MO 63017

TRENT A. CARLSON
RELIANT ENERGY
1000 MAIN STREET
HOUSTON, TX 77001

GARY HINNERS
RELIANT ENERGY, INC.
PO BOX 148
HOUSTON, TX 77001-0148

JEANNE ZAIONTZ
BP ENERGY COMPANY
501 WESTLAKE PARK BLVD, RM. 4328
HOUSTON, TX 77079

JULIE L. MARTIN
WEST ISO COORDINATOR
NORTH AMERICA GAS AND POWER
BP ENERGY COMPANY
501 WESTLAKE PARK BLVD.
HOUSTON, TX 77079

FIJI GEORGE
EL PASO CORPORATION
EL PASO BUILDING
PO BOX 2511
HOUSTON, TX 77252

ED CHIANG
ELEMENT MARKETS, LLC
ONE SUGAR CREEK CENTER BLVD., SUITE 250
SUGAR LAND, TX 77478

NADAV ENBAR
ENERGY INSIGHTS
1750 14TH STREET, SUITE 200
BOULDER, CO 80302

NICHOLAS LENSSEN
ENERGY INSIGHTS
1750 14TH STREET, SUITE 200
BOULDER, CO 80302

ELIZABETH BAKER
SUMMIT BLUE CONSULTING
1722 14TH STREET, SUITE 230
BOULDER, CO 80304

WAYNE TOMLINSON
EL PASO CORPORATION
WESTERN PIPELINES
2 NORTH NEVADA AVENUE
COLORADO SPRINGS, CO 80903

KEVIN J. SIMONSEN
ENERGY MANAGEMENT SERVICES
646 EAST THIRD AVENUE
DURANGO, CO 81301

SANDRA ELY
NEW MEXICO ENVIRONMENT DEPARTMENT
1190 ST FRANCIS DRIVE
SANTA FE, NM 87501

BRIAN MCQUOWN
RELIANT ENERGY
7251 AMIGO ST., SUITE 120
LAS VEGAS, NV 89119

DOUGLAS BROOKS
NEVADA POWER COMPANY
SIERRA PACIFIC POWER COMPANY
6226 WEST SAHARA AVENUE
LAS VEGAS, NV 89151

ANITA HART
SENIOR SPECIALIST/STATE REGULATORYAFFAIR
SOUTHWEST GAS CORPORATION
5241 SPRING MOUNTAIN ROAD
LAS VEGAS, NV 89193

RANDY SABLE
SOUTHWEST GAS CORPORATION
MAILSTOP: LVB-105
5241 SPRING MOUNTAIN ROAD
LAS VEGAS, NV 89193

BILL SCHRAND
SOUTHWEST GAS CORPORATON
PO BOX 98510
LAS VEGAS, NV 89193-8510

JJ PRUCNAL
SOUTHWEST GAS CORPORATION
PO BOX 98510
LAS VEGAS, NV 89193-8510

SANDRA CAROLINA
SOUTHWEST GAS CORPORATION
PO BOX 98510
LAS VEGAS, NV 89193-8510

CYNTHIA MITCHELL
ENERGY ECONOMICS, INC.
530 COLGATE COURT
RENO, NV 89503

CHRISTOPHER A. HILEN
ASSISTANT GENERAL COUNSEL
SIERRA PACIFIC POWER COMPANY
6100 NEIL ROAD
RENO, NV 89511

ELENA MELLO
SIERRA PACIFIC POWER COMPANY
6100 NEIL ROAD
RENO, NV 89520

TREVOR DILLARD
SIERRA PACIFIC POWER COMPANY
PO BOX 10100
6100 NEIL ROAD, MS S4A50
RENO, NV 89520

DARRELL SOYARS
MANAGER-RESOURCE PERMITTING&STRATEGIC
SIERRA PACIFIC RESOURCES
6100 NEIL ROAD
RENO, NV 89520-0024

FRANK LUCHETTI
NEVADA DIV. OF ENVIRONMENTAL PROTECTION
901 S. STEWART ST., SUITE 4001
CARSON CITY, NV 89701

LEILANI JOHNSON KOWAL
LOS ANGELES DEPT. OF WATER AND POWER
111 N. HOPE STREET, ROOM 1050
LOS ANGELES, CA 90012

LORRAINE PASKETT
DIRECTOR, LEGISLATIVE AND REG. AFFAIRS
LA DEPT. OF WATER & POWER
PO BOX 51111
111 N. HOWARD ST., ROOM 1536
LOS ANGELES, CA 90012

RANDY S. HOWARD
LOS ANGELES DEPT. OF WATER AND POWER
111 NORTH HOPE STREET, ROOM 921
LOS ANGELES, CA 90012

ROBERT L. PETTINATO
LOS ANGELES DEPARTMENT OF WATER & POWER
111 NORTH HOPE STREET, SUITE 1151
LOS ANGELES, CA 90012

HUGH YAO
SOUTHERN CALIFORNIA GAS COMPANY
555 W. 5TH ST, GT22G2
LOS ANGELES, CA 90013

RASHA PRINCE
SOUTHERN CALIFORNIA GAS COMPANY
555 WEST 5TH STREET, GT14D6
LOS ANGELES, CA 90013

RANDALL W. KEEN
ATTORNEY AT LAW
MANATT PHELPS & PHILLIPS, LLP
11355 WEST OLYMPIC BLVD.
LOS ANGELES, CA 90064

S. NANCY WHANG
ATTORNEY AT LAW
MANATT, PHELPS & PHILLIPS, LLP
11355 WEST OLYMPIC BLVD.
LOS ANGELES, CA 90064

PETER JAZAYERI
STROOCK & STROOCK & LAVAN LLP
2029 CENTURY PARK EAST, SUITE 1800
LOS ANGELES, CA 90067

DEREK MARKOLF
CALIFORNIA CLIMATE ACTION REGISTRY
515 S. FLOWER STREET, SUITE 1640
LOS ANGELES, CA 90071

DAVID NEMTZOW
1254 9TH STREET, NO. 6
SANTA MONICA, CA 90401

HARVEY EDER
PUBLIC SOLAR POWER COALITION
1218 12TH ST., 25
SANTA MONICA, CA 90401

VITALY LEE
AES ALAMITOS, LLC
690 N. STUDEBAKER ROAD
LONG BEACH, CA 90803

STEVE ENDO
PASADENA DEPARTMENT OF WATER & POWER
45 EAST GLENARM STREET
PASADENA, CA 91105

STEVEN G. LINS
GENERAL COUNSEL
GLENDALE WATER AND POWER
613 EAST BROADWAY, SUITE 220
GLENDALE, CA 91206-4394

TOM HAMILTON
MANAGING PARTNER
ENERGY CONCIERGE SERVICES
321 MESA LILA RD
GLENDALE, CA 91208

BRUNO JEIDER
BURBANK WATER & POWER
164 WEST MAGNOLIA BLVD.
BURBANK, CA 91502

RICHARD J. MORILLO
ASSISTANT CITY ATTORNEY
CITY OF BURBANK
215 E. OLIVE AVENUE
BURBANK, CA 91502

ROGER PELOTE
WILLIAMS POWER COMPANY
12736 CALIFA STREET
VALLEY VILLAGE, CA 91607

AIMEE BARNES
MANAGER REGULATORY AFFAIRS
ECOSECURITIES
HARVARD SQUARE
206 W. BONITA AVENUE
CLAREMONT, CA 91711

CASE ADMINISTRATION
SOUTHERN CALIFORNIA EDISON COMPANY
2244 WALNUT GROVE AVE., RM. 370
ROSEMEAD, CA 91770

TIM HEMIG
NRG ENERGY, INC.
1819 ASTON AVENUE, SUITE 105
CARLSBAD, CA 92008

BARRY LOVELL
15708 POMERADO RD., SUITE 203
POWAY, CA 92064

ALDYN HOEKSTRA
PACE GLOBAL ENERGY SERVICES
420 WEST BROADWAY, 4TH FLOOR
SAN DIEGO, CA 92101

YVONNE GROSS
REGULATORY POLICY MANAGER
SEMPRA ENERGY
HQ08C
101 ASH STREET
SAN DIEGO, CA 92103

JOHN LAUN
APOGEE INTERACTIVE, INC.
1220 ROSECRANS ST., SUITE 308
SAN DIEGO, CA 92106

KIM KIENER
504 CATALINA BLVD.
SAN DIEGO, CA 92106

SCOTT J. ANDERS
RESEARCH/ADMINISTRATIVE DIRECTOR
UNIVERSITY OF SAN DIEGO SCHOOL OF LAW
5998 ALCALA PARK
SAN DIEGO, CA 92110

JOSEPH R. KLOBERDANZ
SAN DIEGO GAS & ELECTRIC
PO BOX 1831
SAN DIEGO, CA 92112

ANDREW MCALLISTER
DIRECTOR OF OPERATIONS
CALIFORNIA CENTER FOR SUSTAINABLE ENERGY
8690 BALBOA AVE., SUITE 100
SAN DIEGO, CA 92123

JACK BURKE
LEGISLATIVE AFFAIRS MANAGER
CALIFORNIA CENTER FOR SUSTAINABLE ENERGY
8690 BALBOA AVE., SUITE 100
SAN DIEGO, CA 92123

JENNIFER PORTER
POLICY ANALYST
CALIFORNIA CENTER FOR SUSTAINABLE ENERGY
8690 BALBOA AVENUE, SUITE 100
SAN DIEGO, CA 92123

SEPHRA A. NINOW
POLICY ANALYST
CALIFORNIA CENTER FOR SUSTAINABLE ENERGY
8690 BALBOA AVENUE, SUITE 100
SAN DIEGO, CA 92123

JOHN W. LESLIE
ATTORNEY AT LAW
LUCE, FORWARD, HAMILTON & SCRIPPS, LLP
11988 EL CAMINO REAL, SUITE 200
SAN DIEGO, CA 92130

ORLANDO B. FOOTE, III
ATTORNEY AT LAW
HORTON, KNOX, CARTER & FOOTE
895 BROADWAY, SUITE 101
EL CENTRO, CA 92243

ELSTON K. GRUBAUGH
IMPERIAL IRRIGATION DISTRICT
333 EAST BARIONI BLVD.
IMPERIAL, CA 92251

THOMAS MCCABE
EDISON MISSION ENERGY
18101 VON KARMAN AVE., SUITE 1700
IRVINE, CA 92612

JAN PEPPER
CLEAN POWER MARKETS, INC.
PO BOX 3206
418 BENVENUE AVENUE
LOS ALTOS, CA 94024

GLORIA D. SMITH
ADAMS, BRADWELL, JOSEPH & CARDOZO
601 GATEWAY BLVD., SUITE 1000
SOUTH SAN FRANCISCO, CA 94080

MARC D. JOSEPH
ADAMS BRADWELL JOSEPH & CARDOZO
601 GATEWAY BLVD. STE 1000
SOUTH SAN FRANCISCO, CA 94080

DIANE I. FELLMAN
ATTORNEY AT LAW
LAW OFFICES OF DIANE I. FELLMAN
234 VAN NESS AVENUE

HAYLEY GOODSON
ATTORNEY AT LAW
THE UTILITY REFORM NETWORK
711 VAN NESS AVENUE, SUITE 350

SAN FRANCISCO, CA 94102

SAN FRANCISCO, CA 94102

MICHEL FLORIO
ATTORNEYS AT LAW
711 VAN NESS AVE., STE. 350
SAN FRANCISCO, CA 94102

DAN ADLER
DIRECTOR, TECH AND POLICY DEVELOPMENT
CALIFORNIA CLEAN ENERGY FUND
5 THIRD STREET, SUITE 1125
SAN FRANCISCO, CA 94103

MICHAEL A. HYAMS
POWER ENTERPRISE-REGULATORY AFFAIRS
SAN FRANCISCO PUBLIC UTILITIES COMM
1155 MARKET ST., 4TH FLOOR
SAN FRANCISCO, CA 94103

THERESA BURKE
REGULATORY ANALYST
SAN FRANCISCO PUC
1155 MARKET STREET, 4TH FLOOR
SAN FRANCISCO, CA 94103

NORMAN J. FURUTA
ATTORNEY AT LAW
FEDERAL EXECUTIVE AGENCIES
1455 MARKET ST., SUITE 1744
SAN FRANCISCO, CA 94103-1399

AMBER MAHONE
ENERGY & ENVIRONMENTAL ECONOMICS, INC.
101 MONTGOMERY STREET, SUITE 1600
SAN FRANCISCO, CA 94104

ANNABELLE MALINS
CONSUL-SCIENCE AND TECHNOLOGY
BRITISH CONSULATE-GENERAL
ONE SANSOME STREET, SUITE 850
SAN FRANCISCO, CA 94104

DEVRA WANG
NATURAL RESOURCES DEFENSE COUNCIL
111 SUTTER STREET, 20TH FLOOR
SAN FRANCISCO, CA 94104

KAREN TERRANOVA
ALCANTAR & KAHL, LLP
120 MONTGOMERY STREET, STE 2200
SAN FRANCISCO, CA 94104

NORA SHERIFF
ATTORNEY AT LAW
ALCANTAR & KAHL, LLP
120 MONTGOMERY STREET, SUITE 2200
SAN FRANCISCO, CA 94104

OLOF BYSTROM
DIRECTOR, WESTERN ENERGY
CAMBRIDGE ENERGY RESEARCH ASSOCIATES
555 CALIFORNIA STREET, 3RD FLOOR
SAN FRANCISCO, CA 94104

SETH HILTON
ATTORNEY AT LAW
STOEL RIVES
111 SUTTER ST., SUITE 700
SAN FRANCISCO, CA 94104

SHERYL CARTER
NATURAL RESOURCES DEFENSE COUNCIL
111 SUTTER STREET, 20TH FLOOR
SAN FRANCISCO, CA 94104

ASHLEE M. BONDS
THELEN REID BROWN RAYSMAN&STEINER LLP
SUITE 1800
101 SECOND STREET
SAN FRANCISCO, CA 94105

CARMEN E. BASKETTE
CORPORATE DEVELOPMENT PRINCIPAL
ENERNOC
594 HOWARD ST., SUITE 400
SAN FRANCISCO, CA 94105

COLIN PETHERAM
DIRECTOR-REGULATORY
SBC CALIFORNIA
140 NEW MONTGOMERY ST., SUITE 1325
SAN FRANCISCO, CA 94105

JAMES W. TARNAGHAN
DUANE MORRIS LLP
SUITE 2000

KEVIN FOX
WILSON SONSINI GOODRICH & ROSATI
ONE MARKET STREET, SPEAR TOWER, 3300

ONE MARKET, SPEAR TOWER
SAN FRANCISCO, CA 94105

SAN FRANCISCO, CA 94105

KHURSHID KHOJA
ASSOCIATE
THELEN REID BROWN RAYSMAN & STEINER
101 SECOND STREET, SUITE 1800
SAN FRANCISCO, CA 94105

PETER V. ALLEN
THELEN REID BROWN RAYSMAN & STEINER
101 SECOND STREET, SUITE 1800
SAN FRANCISCO, CA 94105

SHERIDAN J. PAUKER
WILSON SONSINI GOODRICH & ROSATI
SPEAR TOWER, SUITE 3300
ONE MARKET ST
SAN FRANCISCO, CA 94105

ROBERT J. REINHARD
MORRISON AND FOERSTER
425 MARKET STREET
SAN FRANCISCO, CA 94105-2482

CALIFORNIA ENERGY MARKETS
517-B POTRERO AVENUE
SAN FRANCISCO, CA 94110

HOWARD V. GOLUB
NIXON PEABODY LLP
2 EMBARCADERO CENTER, STE. 2700
SAN FRANCISCO, CA 94111

JANINE L. SCANCARELLI
ATTORNEY AT LAW
FOLGER, LEVIN & KAHN, LLP
275 BATTERY STREET, 23RD FLOOR
SAN FRANCISCO, CA 94111

JOSEPH F. WIEDMAN
ATTORNEY AT LAW
GOODIN MACBRIDE SQUERI DAY & LAMPREY LLP
505 SANSOME STREET, SUITE 900
SAN FRANCISCO, CA 94111

MARTIN A. MATTES
NOSSAMAN, GUTHNER, KNOX & ELLIOTT, LLP
50 CALIFORNIA STREET, 34TH FLOOR
SAN FRANCISCO, CA 94111

JEN MCGRAW
CENTER FOR NEIGHBORHOOD TECHNOLOGY
PO BOX 14322
SAN FRANCISCO, CA 94114

LISA WEINZIMER
ASSOCIATE EDITOR
PLATTS MCGRAW-HILL
695 NINTH AVENUE, NO. 2
SAN FRANCISCO, CA 94118

STEVEN MOSS
SAN FRANCISCO COMMUNITY POWER COOP
2325 3RD STREET, SUITE 344
SAN FRANCISCO, CA 94120

SHAUN ELLIS
2183 UNION STREET
SAN FRANCISCO, CA 94123

ARNO HARRIS
RECURRENT ENERGY, INC.
220 HALLECK ST., SUITE 220
SAN FRANCISCO, CA 94129

ED LUCHA
CASE COORDINATOR
PACIFIC GAS AND ELECTRIC COMPANY
PO BOX 770000, MAIL CODE B9A
SAN FRANCISCO, CA 94177

GRACE LIVINGSTON-NUNLEY
ASSISTANT PROJECT MANAGER
PACIFIC GAS AND ELECTRIC COMPANY
PO BOX 770000 MAIL CODE B9A
SAN FRANCISCO, CA 94177

JASMIN ANSAR
PG&E

JONATHAN FORRESTER
PG&E

MAIL CODE B24A
PO BOX 770000
SAN FRANCISCO, CA 94177

MAIL CODE N13C
PO BOX 770000
SAN FRANCISCO, CA 94177

RAYMOND HUNG
PG&E
PO BOX 770000 MAIL CODE B9A
SAN FRANCISCO, CA 94177

SEBASTIEN CSAPO
PROJECT MANAGER
PACIFIC GAS AND ELECTRIC COMPANY
MAIL CODE B9A
PO BOX 770000
SAN FRANCISCO, CA 94177

SOUMYA SASTRY
PACIFIC GAS AND ELECTRIC COMPANY
MAIL CODE B9A
PO BOX 770000
SAN FRANCISCO, CA 94177

STEPHANIE LA SHAWN
PACIFIC GAS AND ELECTRIC COMPANY
PO BOX 770000, MAIL CODE B9A
SAN FRANCISCO, CA 94177

VALERIE J. WINN
PACIFIC GAS AND ELECTRIC COMPANY
PO BOX 770000, B9A
SAN FRANCISCO, CA 94177-0001

KARLA DAILEY
CITY OF PALO ALTO
UTILITIES DEPARTMENT
BOX 10250
PALO ALTO, CA 94303

FARROKH ALBUYEH
VICE PRESIDENT
OPEN ACCESS TECHNOLOGY INTERNATIONAL INC
SUITE 910
1875 SOUTH GRANT STREET
SAN MATEO, CA 94402

DEAN R. TIBBS
PRESIDENT
ADVANCED ENERGY STRATEGIES, INC.
1390 WILLOW PASS ROAD, SUITE 610
CONCORD, CA 94520

JEFFREY L. HAHN
COVANTA ENERGY CORPORATION
876 MT. VIEW DRIVE
LAFAYETTE, CA 94549

ANDREW J. VAN HORN
VAN HORN CONSULTING
12 LIND COURT
ORINDA, CA 94563

JOSEPH M. PAUL
SENIOR CORPORATE COUNSEL
DYNEGY, INC.
4140 DUBLIN BLVD., STE. 100
DUBLIN, CA 94568

SUE KATELEY
EXECUTIVE DIRECTOR
CALIFORNIA SOLAR ENERGY INDUSTRIES ASSN
PO BOX 782
RIO VISTA, CA 94571

GREG BLUE
ENXCO DEVELOPMENT CORP
5000 EXECUTIVE PARKWAY, STE.140
SAN RAMON, CA 94583

SARAH BESERRA
CALIFORNIA REPORTS
39 CASTLE HILL COURT
VALLEJO, CA 94591

MONICA A. SCHWEBS, ESQ.
BINGHAM MCCUTCHEN LLP
PO BOX V
1333 N. CALIFORNIA BLVD., SUITE 210
WALNUT CREEK, CA 94596

PETER W. HANSCHEN
ATTORNEY AT LAW
MORRISON & FOERSTER, LLP
101 YGNACIO VALLEY ROAD, SUITE 450
WALNUT CREEK, CA 94596

JOSEPH HENRI

PATRICIA THOMPSON

31 MIRAMONTE ROAD
WALNUT CREEK, CA 94597

SUMMIT BLUE CONSULTING
2920 CAMINO DIABLO, SUITE 210
WALNUT CREEK, CA 94597

WILLIAM F. DIETRICH
ATTORNEY AT LAW
DIETRICH LAW
2977 YGNACIO VALLEY ROAD, 613
WALNUT CREEK, CA 94598-3535

BETTY SETO
POLICY ANALYST
KEMA, INC.
492 NINTH STREET, SUITE 220
OAKLAND, CA 94607

GERALD L. LAHR
ABAG POWER
101 EIGHTH STREET
OAKLAND, CA 94607

JODY S. LONDON
JODY LONDON CONSULTING
PO BOX 3629
OAKLAND, CA 94609

STEVEN SCHILLER
SCHILLER CONSULTING, INC.
111 HILLSIDE AVENUE
PIEDMONT, CA 94611

MRW & ASSOCIATES, INC.
1814 FRANKLIN STREET, SUITE 720
OAKLAND, CA 94612

REED V. SCHMIDT
VICE PRESIDENT
BARTLE WELLS ASSOCIATES
1889 ALCATRAZ AVENUE
BERKELEY, CA 94703

ADAM BRIONES
THE GREENLINING INSTITUTE
1918 UNIVERSITY AVENUE, 2ND FLOOR
BERKELEY, CA 94704

CLYDE MURLEY
1031 ORDWAY STREET
ALBANY, CA 94706

BRENDA LEMAY
DIRECTOR OF PROJECT DEVELOPMENT
HORIZON WIND ENERGY
1600 SHATTUCK, SUITE 222
BERKELEY, CA 94709

CARLA PETERMAN
UCEI
2547 CHANNING WAY
BERKELEY, CA 94720

EDWARD VINE
LAWRENCE BERKELEY NATIONAL LABORATORY
BUILDING 90R4000
BERKELEY, CA 94720

RYAN WISER
BERKELEY LAB
MS-90-4000
ONE CYCLOTRON ROAD
BERKELEY, CA 94720

CHRIS MARNAY
BERKELEY LAB
1 CYCLOTRON RD MS 90R4000
BERKELEY, CA 94720-8136

PHILLIP J. MULLER
SCD ENERGY SOLUTIONS
436 NOVA ALBION WAY
SAN RAFAEL, CA 94903

RITA NORTON
RITA NORTON AND ASSOCIATES, LLC
18700 BLYTHSWOOD DRIVE,
LOS GATOS, CA 95030

CARL PECHMAN
POWER ECONOMICS
901 CENTER STREET
SANTA CRUZ, CA 95060

MAHLON ALDRIDGE
ECOLOGY ACTION
PO BOX 1188
SANTA CRUZ, CA 95060

RICHARD SMITH
MODESTO IRRIGATION DISTRICT
1231 11TH STREET
MODESTO, CA 95352-4060

MODESTO IRRIGATION DISTRICT
1231 11TH STREET
MODESTO, CA 95354

ROGER VAN HOY
MODESTO IRRIGATION DISTRICT
1231 11TH STREET
MODESTO, CA 95354

WES MONIER
STRATEGIC ISSUES AND PLANNING MANAGER
TURLOCK IRRIGATION DISTRICT
333 EAST CANAL DRIVE, PO BOX 949
TURLOCK, CA 95381-0949

BARBARA R. BARKOVICH
BARKOVICH & YAP, INC.
44810 ROSEWOOD TERRACE
MENDOCINO, CA 95460

JOHN R. REDDING
ARCTURUS ENERGY CONSULTING
44810 ROSEWOOD TERRACE
MENDOCINO, CA 95460

CLARK BERNIER
RLW ANALYTICS
1055 BROADWAY, SUITE G
SONOMA, CA 95476

RICHARD MCCANN, PH.D
M. CUBED
2655 PORTAGE BAY, SUITE 3
DAVIS, CA 95616

CAROLYN M. KEHREIN
ENERGY MANAGEMENT SERVICES
1505 DUNLAP COURT
DIXON, CA 95620-4208

CALIFORNIA ISO
LEGAL AND REGULATORY DEPARTMENT
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

GRANT ROSENBLUM, ESQ.
CALIFORNIA ISO
LEGAL AND REGULATORY DEPARTMENT
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

KAREN EDSON
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

ROBIN SMUTNY-JONES
CALIFORNIA ISO
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

SAEED FARROKHPAY
FEDERAL ENERGY REGULATORY COMMISSION
110 BLUE RAVINE RD., SUITE 107
FOLSOM, CA 95630

DAVID BRANCHCOMB
BRANCHCOMB ASSOCIATES, LLC
9360 OAKTREE LANE
ORANGEVILLE, CA 95662

KENNY SWAIN
NAVIGANT CONSULTING
3100 ZINFANDEL DRIVE, SUITE 600
RANCHO CORDOVA, CA 95670

KIRBY DUSEL
NAVIGANT CONSULTING, INC.
3100 ZINFANDEL DRIVE, SUITE 600
RANCHO CORDOVA, CA 95670

GORDON PICKERING
PRINCIPAL
NAVIGANT CONSULTING, INC.
3100 ZINFANDEL DRIVE, SUITE 600
RANCHO CORDOVA, CA 95670-6078

LAURIE PARK
NAVIGANT CONSULTING, INC.
3100 ZINFANDEL DRIVE, SUITE 600
RANCHO CORDOVA, CA 95670-6078

DAVID REYNOLDS
MEMBER SERVICES MANAGER
NORTHERN CALIFORNIA POWER AGENCY
180 CIRBY WAY
ROSEVILLE, CA 95678-6420

SCOTT TOMASHEFSKY
NORTHERN CALIFORNIA POWER AGENCY
180 CIRBY WAY
ROSEVILLE, CA 95678-6420

ELLEN WOLFE
RESERO CONSULTING
9289 SHADOW BROOK PL.
GRANITE BAY, CA 95746

AUDRA HARTMANN
DYNEGY INC.
980 NINTH STREET, SUITE 1420
SACRAMENTO, CA 95814

BOB LUCAS
LUCAS ADVOCATES
1121 L STREET, SUITE 407
SACRAMENTO, CA 95814

CURT BARRY
717 K STREET, SUITE 503
SACRAMENTO, CA 95814

DAN SKOPEC
CLIMATE & ENERGY CONSULTING
1201 K STREET SUITE 970
SACRAMENTO, CA 95814

DANIELLE MATTHEWS SEPERAS
CALPINE CORPORATION
1127 11TH STREET, SUITE 242
SACRAMENTO, CA 95814

DAVID L. MODISETTE
EXECUTIVE DIRECTOR
CALIFORNIA ELECTRIC TRANSP. COALITION
1015 K STREET, SUITE 200
SACRAMENTO, CA 95814

DOUGLAS K. KERNER
ATTORNEY AT LAW
ELLISON, SCHNEIDER & HARRIS, LLP
2015 H STREET
SACRAMENTO, CA 95814

JUSTIN C. WYNNE
BRAU & BLAISING, P.C.
915 L STREET, SUITE 1270
SACRAMENTO, CA 95814

KASSANDRA GOUGH
CALPINE CORPORATION
1127 11TH STREET, SUITE 242
SACRAMENTO, CA 95814

KELLIE SMITH
SENATE ENERGY/UTILITIES & COMMUNICATION
STATE CAPITOL, ROOM 4038
SACRAMENTO, CA 95814

KEVIN WOODRUFF
WOODRUFF EXPERT SERVICES
1100 K STREET, SUITE 204
SACRAMENTO, CA 95814

MICHAEL WAUGH
AIR RESOURCES BOARD
1001 10TH STREET
SACRAMENTO, CA 95814

PANAMA BARTHOLOMY
ADVISOR TO CHAIR PFANNENSTIEL
CALIFORNIA ENERGY COMMISSION
1516 9TH STREET
SACRAMENTO, CA 95814

PATRICK STONER
PROGRAM DIRECTOR
LOCAL GOVERNMENT COMMISSION
1303 J STREET, SUITE 250
SACRAMENTO, CA 95814

RACHEL MCMAHON
CEERT
1100 11TH STREET, SUITE 311
SACRAMENTO, CA 95814

WEBSTER TASAT
AIR RESOURCES BOARD
1001 I STREET
SACRAMENTO, CA 95814

STEVEN KELLY
INDEPENDENT ENERGY PRODUCERS ASSN
1215 K STREET, SUITE 900
SACRAMENTO, CA 95814-3947

EDWARD J. TIEDEMANN
ATTORNEY AT LAW
KRONICK, MOSKOVITZ, TIEDEMANN & GIRARD
400 CAPITOL MALL, 27TH FLOOR
SACRAMENTO, CA 95814-4416

LAURIE TEN HOPE
ADVISOR TO COMMISSIONER BYRON
CALIFORNIA ENERGY COMMISSION
1516 9TH STREET, MS-32
SACRAMENTO, CA 95814-5512

JOSHUA BUSHINSKY
WESTERN POLICY COORDINATOR
PEW CENTER ON GLOBAL CLIMATE CHANGE
2101 WILSON BLVD., SUITE 550
ARLINGTON, VA 95816

LYNN HAUG
ELLISON, SCHNEIDER & HARRIS, LLP
2015 H STREET
SACRAMENTO, CA 95816

OBADIAH BARTHOLOMY
MECHANICAL ENGINEER
SACRAMENTO MUNICIPAL UTILITY DISTRICT
M.S. B257
6201 S. STREET
SACRAMENTO, CA 95817

BUD BEEBE
SACRAMENTO MUNICIPAL UTIL DIST
MS B257
6201 S STREET
SACRAMENTO, CA 95817-1899

BALWANT S. PUREWAL
DEPARTMENT OF WATER RESOURCES
3310 EL CAMINO AVE., LL-90
SACRAMENTO, CA 95821

DOUGLAS MACMULLEN
CHIEF, POWER PLANNING SECTION
CA DEPARTMENT OF WATER RESOURCES
3310 EL CAMINO AVE., ROOM 356
SACRAMENTO, CA 95821

KAREN NORENE MILLS
ATTORNEY AT LAW
CALIFORNIA FARM BUREAU FEDERATION
2300 RIVER PLAZA DRIVE
SACRAMENTO, CA 95833

KAREN LINDH
LINDH & ASSOCIATES
7909 WALERGA ROAD, NO. 112, PMB 119
ANTELOPE, CA 95843

ELIZABETH W. HADLEY
CITY OF REDDING
777 CYPRESS AVENUE
REDDING, CA 96001

DENISE HILL
DIRECTOR
4004 KRUSE WAY PLACE, SUITE 150
LAKE OSWEGO, OR 97035

ANNIE STANGE
ALCANTAR & KAHL
1300 SW FIFTH AVE., SUITE 1750
PORTLAND, OR 97201

ELIZABETH WESTBY
ALCANTAR & KAHL, LLP
1300 SW FIFTH AVENUE, SUITE 1750
PORTLAND, OR 97201

ALEXIA C. KELLY
THE CLIMATE TRUST
65 SW YAMHILL STREET, SUITE 400
PORTLAND, OR 97204

ALAN COMNES
WEST COAST POWER
3934 SE ASH STREET
PORTLAND, OR 97214

KYLE SILON
ECOSECURITIES CONSULTING LIMITED
529 SE GRAND AVENUE
PORTLAND, OR 97214

CATHIE ALLEN
CA STATE MGR.
PACIFICORP
825 NE MULTNOMAH STREET, SUITE 2000
PORTLAND, OR 97232

PHIL CARVER
OREGON DEPARTMENT OF ENERGY
625 MARION ST., NE
SALEM, OR 97301-3737

SAM SADLER
OREGON DEPARTMENT OF ENERGY
625 NE MARION STREET
SALEM, OR 97301-3737

LISA SCHWARTZ
SENIOR ANALYST
ORGEON PUBLIC UTILITY COMMISSION
PO BOX 2148
SALEM, OR 97308-2148

CLARE BREIDENICH
224 1/2 24TH AVENUE EAST
SEATTLE, WA 98112

DONALD SCHOENBECK
RCS, INC.
900 WASHINGTON STREET, SUITE 780
VANCOUVER, WA 98660

JESUS ARREDONDO
NRG ENERGY INC.
4600 CARLSBAD BLVD.
CARLSBAD, CA 99208

CHARLIE BLAIR
DELTA ENERGY & ENVIRONMENT
15 GREAT STUART STREET
EDINBURGH, UK EH2 7TP
UNITED KINGDOM

KAREN MCDONALD
POWEREX CORPORATION
1400,
666 BURRAND STREET
VANCOUVER, BC V6C 2X8
CANADA

State Service

CLARENCE BINNINGER
DEPUTY ATTORNEY GENERAL
DEPARTMENT OF JUSTICE
455 GOLDEN GATE AVENUE, SUITE 11000
SAN FRANCISCO, CA 94102

DAVID ZONANA
DEPUTY ATTORNEY GENERAL
CALIFORNIA ATTORNEY GENERAL'S OFFICE
455 GOLDEN GATE AVENUE, SUITE 11000
SAN FRANCISCO, CA 94102

ANDREW CAMPBELL
CALIF PUBLIC UTILITIES COMMISSION
EXECUTIVE DIVISION
ROOM 5203
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

ANNE GILLETTE
CALIF PUBLIC UTILITIES COMMISSION
ENERGY RESOURCES BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

BETH MOORE
CALIF PUBLIC UTILITIES COMMISSION
ELECTRICITY RESOURCES & PRICING BRANCH
ROOM 4103
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

CATHLEEN A. FOGEL
CALIF PUBLIC UTILITIES COMMISSION
ENERGY RESOURCES BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

CHARLOTTE TERKEURST
CALIF PUBLIC UTILITIES COMMISSION
DIVISION OF ADMINISTRATIVE LAW JUDGES
ROOM 5117
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

CHRISTINE S. TAM
CALIF PUBLIC UTILITIES COMMISSION
ELECTRICITY RESOURCES & PRICING BRANCH
ROOM 4209
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

DONALD R. SMITH
CALIF PUBLIC UTILITIES COMMISSION
ELECTRICITY RESOURCES & PRICING BRANCH
ROOM 4209
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

ED MOLDAVSKY
CALIF PUBLIC UTILITIES COMMISSION
LEGAL DIVISION
ROOM 5037
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

EUGENE CADENASSO
CALIF PUBLIC UTILITIES COMMISSION
RATEMAKING BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

HARVEY Y. MORRIS
CALIF PUBLIC UTILITIES COMMISSION
LEGAL DIVISION
ROOM 5036
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

HENRY STERN
CALIF PUBLIC UTILITIES COMMISSION
DIVISION OF ADMINISTRATIVE LAW JUDGES
ROOM 2106
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JACLYN MARKS
CALIF PUBLIC UTILITIES COMMISSION
EXECUTIVE DIVISION
ROOM 5306
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JACQUELINE GREIG
CALIF PUBLIC UTILITIES COMMISSION
ENERGY COST OF SERVICE & NATURAL GAS BRA
ROOM 4102
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JAMIE FORDYCE
CALIF PUBLIC UTILITIES COMMISSION
DIVISION OF STRATEGIC PLANNING
AREA 5-B
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JASON R. SALMI KLOTZ
CALIF PUBLIC UTILITIES COMMISSION
ENERGY RESOURCES BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

GEORGE S. TAGNIPES
CALIF PUBLIC UTILITIES COMMISSION
ENERGY RESOURCES BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JOEL T. PERLSTEIN
CALIF PUBLIC UTILITIES COMMISSION
LEGAL DIVISION
ROOM 5133
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JONATHAN LAKRITZ
CALIF PUBLIC UTILITIES COMMISSION
DIVISION OF ADMINISTRATIVE LAW JUDGES
ROOM 5020
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JUDITH IKLE
CALIF PUBLIC UTILITIES COMMISSION
ENERGY RESOURCES BRANCH
ROOM 4012
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

JULIE A. FITCH
CALIF PUBLIC UTILITIES COMMISSION
DIVISION OF STRATEGIC PLANNING
ROOM 5119
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

KRISTIN RALFF DOUGLAS
CALIF PUBLIC UTILITIES COMMISSION
DIVISION OF STRATEGIC PLANNING
ROOM 5119
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

LAINIE MOTAMEDI
CALIF PUBLIC UTILITIES COMMISSION
DIVISION OF STRATEGIC PLANNING
ROOM 5119
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

LANA TRAN
CALIF PUBLIC UTILITIES COMMISSION
ELECTRIC GENERATION PERFORMANCE BRANCH
AREA 2-D
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

MATTHEW DEAL
CALIF PUBLIC UTILITIES COMMISSION
EXECUTIVE DIVISION
ROOM 5215
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

NANCY RYAN
CALIF PUBLIC UTILITIES COMMISSION
EXECUTIVE DIVISION
ROOM 5217
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

PAMELA WELLNER
CALIF PUBLIC UTILITIES COMMISSION
ENERGY RESOURCES BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

PAUL S. PHILLIPS
CALIF PUBLIC UTILITIES COMMISSION
ELECTRICITY RESOURCES & PRICING BRANCH
ROOM 4101
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

PEARLIE SABINO
CALIF PUBLIC UTILITIES COMMISSION
ENERGY COST OF SERVICE & NATURAL GAS BRA
ROOM 4209
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

RAHMOM MOMOH
CALIF PUBLIC UTILITIES COMMISSION
ELECTRICITY RESOURCES & PRICING BRANCH
ROOM 4205
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

RICHARD A. MYERS
CALIF PUBLIC UTILITIES COMMISSION
RATEMAKING BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

SARA M. KAMINS
CALIF PUBLIC UTILITIES COMMISSION
ENERGY RESOURCES BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

SCOTT MURTISHAW
CALIF PUBLIC UTILITIES COMMISSION
ENERGY DIVISION
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

SEAN A. SIMON
CALIF PUBLIC UTILITIES COMMISSION
ENERGY RESOURCES BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

STEVE ROSCOW
CALIF PUBLIC UTILITIES COMMISSION
RATEMAKING BRANCH
AREA 4-A
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

THERESA CHO
CALIF PUBLIC UTILITIES COMMISSION
EXECUTIVE DIVISION
ROOM 5207
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3214

BILL LOCKYER
STATE ATTORNEY GENERAL
STATE OF CALIFORNIA, DEPT OF JUSTICE
PO BOX 944255
SACRAMENTO, CA 94244-2550

KEN ALEX
PO BOX 944255
1300 I STREET, SUITE 125
SACRAMENTO, CA 94244-2550

BALDASSARO DICAPO
CALIFORNIA ISO
LEGAL AND REGULATORY DEPARTMENT
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

JUDITH B. SANDERS
ATTORNEY AT LAW
CALIFORNIA INDEPENDENT SYSTEM OPERATOR
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

JULIE GILL
EXTERNAL AFFAIRS MANAGER
CALIFORNIA INDEPENDENT SYSTEM OPERATOR
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

MARY MCDONALD
DIRECTOR OF STATE AFFAIRS
CALIFORNIA INDEPENDENT SYSTEM OPERATOR
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

PHILIP D. PETTINGILL
CALIFORNIA INDEPENDENT SYSTEM OPERATOR
151 BLUE RAVINE ROAD
FOLSOM, CA 95630

MICHAEL SCHEIBLE
DEPUTY EXECUTIVE OFFICER
CALIFORNIA AIR RESOURCES BOARD
1001 I STREET
SACRAMENTO, CA 95677

EVAN POWERS
CALIFORNIA AIR RESOURCES BOARD
1001 I ST, PO BOX 2815
SACRAMENTO, CA 95812

JEFFREY DOLL
CALIFORNIA AIR RESOURCES BOARD
PO BOX 2815 1001 I STREET
SACRAMENTO, CA 95812

PAM BURMICH
AIR RESOURCES BOARD
1001 I STREET, BOX 2815
SACRAMENTO, CA 95812

B. B. BLEVINS
EXECUTIVE DIRECTOR
CALIFORNIA ENERGY COMMISSION
1516 9TH STREET, MS-39
SACRAMENTO, CA 95814

DARYL METZ
CALIFORNIA ENERGY COMMISSION
1516 9TH ST., MS-20
SACRAMENTO, CA 95814

DEBORAH SLON
DEPUTY ATTORNEY GENERAL, ENVIRONMENT
OFFICE OF THE ATTORNEY GENERAL
1300 I STREET, 15TH FLOOR
SACRAMENTO, CA 95814

DON SCHULTZ
CALIF PUBLIC UTILITIES COMMISSION
ELECTRICITY RESOURCES & PRICING BRANCH
770 L STREET, SUITE 1050
SACRAMENTO, CA 95814

KAREN GRIFFIN
EXECUTIVE OFFICE
CALIFORNIA ENERGY COMMISSION
1516 9TH STREET, MS 39
SACRAMENTO, CA 95814

LISA DECARLO
STAFF COUNSEL
CALIFORNIA ENERGY COMMISSION
1516 9TH STREET MS-14
SACRAMENTO, CA 95814

MARC PRYOR
CALIFORNIA ENERGY COMMISSION
1516 9TH ST., MS-20
SACRAMENTO, CA 95814

MICHELLE GARCIA
AIR RESOURCES BOARD
1001 I STREET
SACRAMENTO, CA 95814

PIERRE H. DUVAIR
CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET, MS-41
SACRAMENTO, CA 95814

WADE MCCARTNEY
CALIF PUBLIC UTILITIES COMMISSION
DIVISION OF STRATEGIC PLANNING
770 L STREET, SUITE 1050
SACRAMENTO, CA 95814

CAROL J. HURLOCK
CALIFORNIA DEPT. OF WATER RESOURCES
JOINT OPERATIONS CENTER
3310 EL CAMINO AVE. RM 300
SACRAMENTO, CA 95821

HOLLY B. CRONIN
STATE WATER PROJECT OPERATIONS DIV
CALIFORNIA DEPARTMENT OF WATER RESOURCES
3310 EL CAMINO AVE., LL-90
SACRAMENTO, CA 95821