BEFORE THE
AIR RESOURCES BOARD
OF THE STATE OF CALIFORNIA

SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY COMMENT ON DRAFT SCOPING PLAN

Norman A. Pedersen, Esq.
HANNA AND MORTON LLP
444 South Flower Street, Suite 1500
Los Angeles, California 90071-2916
Telephone: (213) 430-2510
Facsimile: (213) 623-3379
E-mail: *npedersen@hanmor.com*

Attorney for the **SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY**

Dated: August 1, 2008

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The Southern California Public Power Authority ("SCPPA") respectfully submits the following comments on the Climate Change Draft Scoping Plan ("Draft Plan") released by the California Air Resources Board ("ARB") on June 26, 2008. These comments are tentative. As noted in the Draft Plan, ARB is continuing to conduct economic modeling and will provide a Supplemental Report later in August, 2008. Draft Plan at ES-4. SCPPA understands that there will be an opportunity to submit further comments after release of the Supplemental Report.

At this point prior to release of the Supplemental Report, there is no evidence that California needs to adopt a cap-and-trade program in order to achieve the greenhouse gas ("GHG") emission reductions required by Assembly Bill ("AB") 32, the California Global Warming Solutions Act of 2006. The Draft Plan in combination with the appendices that were released by ARB on July 22, 2008, demonstrate that non-market measures would be more than adequate to achieve the AB 32 emission reduction goal.

Furthermore, the Draft Plan fails to provide any evidence or even an argument that a cap-and-trade program would meet the AB 32 requirement that programs that are implemented by the ARB under AB 32 must be cost effective. Particularly, there is no evidence that including the electric sector in a California multi-sector cap-and-trade program would be cost effective. The modeling results developed by the California Public Utilities Commission ("CPUC") and the California Energy Commission ("CEC") in CPUC Rulemaking 06-04-009 and CEC Docket No. 07-0HP-01 show that a cap-and-trade program would *not* be cost effective for the electric sector. Thus, it appears at this point prior to release of the Supplemental Report that California should desist from adopting a cap-and-trade program generally and for the electric sector particularly.

If, ARB were, nevertheless, to continue to pursue a cap-and-trade program, SCPPA recommends that the ARB include residential and commercial natural gas usage and transportation fuels in the program at the outset in 2012 instead of deferring inclusion to as late as 2020. Additionally, SCPPA recommends that the ARB consider including the recycling and waste, high global warming potential ("GWP"), and agriculture sectors in the program instead of omitting them without any explanation or apparent evaluation. SCPPA recommends that the ARB assure there would not be double regulation of emissions associated with electricity imports that originate from generation resources that are located in other jurisdictions. Lastly, SCPPA recommends that the ARB consider robust cost containment mechanisms.

SCPPA questions the efficacy of one of the "other measures" that are being evaluated by the ARB. The measure would require that California retail electricity providers transfer their investments in certain generation facilities to entities that, most likely, would not reduce emissions from the transferred resources.

I. THE DRAFT PLAN FAILS TO DEMONSTRATE THAT A CAP-AND-TRADE PROGRAM IS NEEDED TO MEET AB 32 GOALS.

The Draft Plan contends that a cap-and-trade program is necessary in order to reach AB 32 emission reduction goals. The 2020 emissions reduction target under AB 32 is 427 $MMtCO_2e$. Draft Plan at 8. Attaining this target "requires reductions of 169 $MMtCO_2e$, or approximately 30 percent, from the state's projected 2020 [business-as-usual] emissions of 596 $MMtCO_2e$…." *Ibid*. The Draft Plan presents "recommended greenhouse gas reduction measures" that, without the addition of the cap-and-trade program, would achieve only 133.8 $MMtCO_2e$ emission reductions by 2020. Thus, according to the Draft Plan, a cap-and-trade program is needed to get the last 35.2 $MMtCO_2e$ in emission reductions that are required to achieve a total reduction of 169 $MMtCO_2e$ by 2020. The

Draft Plan presents the following Table 2 purporting to show that the contribution of 35.2 $MMtCO_2e$ from a cap-and-trade program is necessary to meet the 169 $MMtCO_2e$ emissions reduction goal:

Table 2: Recommended Greenhouse Gas Reduction Measures

Recommended Reduction Strategies	Sector	2020 Reductions (MMTCO2E)
The Role of State Government • Reduce carbon footprint • Set an example	Various	1-217
California Cap-and-Trade Program Linked to WCI: Emissions cap of 365 MMTCO2E covering electricity, transportation, residential/commercial and industrial sources by 2020. Shaded reductions contribute to achieving the cap.		
California Light-Duty Vehicle GHG Standards • Implement Pavley standards • Develop Pavley II light-duty vehicle standards	Transportation	31.7
Energy Efficiency • Building and appliance energy efficiency and conservation • 32,000 GWh reduced electricity demand • 800 million therms reduced gas use • Increase Combined Heat and Power (CHP) electricity production by 30,000 GWh • Solar Water Heating (AB 1470 goal)	Electricity & Commercial and Residential	26.4
Renewables Portfolio Standard (33% by 2020)	Electricity	21.2
Low Carbon Fuel Standard	Transportation	16.5
High Global Warming Potential Gas Measures	High GWP	16.2
Sustainable Forests	Forests	5
Water Sector Measures	Water	4.818
Vehicle Efficiency Measures	Transportation	4.8
Goods Movement • Ship Electrification at Ports • System-Wide Efficiency Improvements	Transportation	3.7
Heavy/Medium Duty Vehicles • Heavy-Duty Vehicle GHG Emission Reduction (Aerodynamic Efficiency) • Medium- and Heavy-Duty Vehicle Hybridization • Heavy-Duty Engine Efficiency	Transportation	2.5
Million Solar Roofs (Existing Program Target)	Electricity	2.1
Local Government Actions and Regional GHG Targets	Land Use and Local Government	2
High Speed Rail	Transportation	1
Landfill Methane Control	Recycling & Waste	1
Methane Capture at Large Dairies	Agriculture	119
Energy Efficiency and Co-Benefits Audits for Large	Industrial	TBD

Industrial Sources		
Additional Emissions Reduction from Capped Sectors		35.2

Total Reductions: 169

Draft Plan at 11.

The Draft Plan's Table 2 fails to demonstrate that a cap-and-trade program is necessary to reach the 169 $MMtCO_2e$ emissions reduction goal. The Draft Plan presents Table 22 listing "other measures" that would generate up to an additional 44.75 $MMtCO_2e$ in 2020. Draft Plan at 40. If the 44.75 $MMtCO_2e$ that could be obtained from the "other measures" listed in Table 22 in the Draft Plan were added to the 133.8 $MMtCO_2e$ that could be attained from non-market measures as shown in Table 2 of the Draft Plan, the total emission reductions from non-market measures would be 178.55 $MMtCO_2e$, more than enough to meet the AB 32 goal of 169 $MMtCO_2e$ of emission reductions by 2020.

Still more emission reductions are available from non-market measures. On July 22, 2008, nearly a month after the ARB released the Draft Plan, the ARB released the appendices to the Draft Plan. Appendix C identifies non-market GHG emission reduction measures that the ARB has been considering. Appendix C contains tables that identify (1) emission reduction measures, (2) the emission reductions that could be obtained from each measure, and (3) the net annualized cost of each measure to the extent to which such information was available at the time that Appendix C was released. Attachment A to this comment contains the tables that are presented in Appendix C.

The sum of the emission reductions that could be obtained from the Appendix C non-market measures is 265.56 $MMtCO_2e$, a robust 57 percent more than the 169 $MMtCO_2e$ that the ARB projects as being the 2020 emission reduction goal. Furthermore, the net annualized cost of attaining the 265.56 $MMtCO_2e$ emission reduction is a **negative** $15.8 billion. Thus, according to the data in

Appendix C, there would be a *net savings* from pursuing the non-market emission reduction measures set forth in Appendix C.

Appendix C not only identifies more emission reductions than were identified in the Draft Plan as being obtainable from non-market measures. Appendix C identifies non-market measures that were not included in the Draft Plan. For example, Table 25 presents emission reductions that could be achieved through "green building" measures that are discussed in Appendix C at C-89 through C-98. Green building measures are projected to have a GHG emission reduction potential of 28.5 $MMtCO_2e$, but they were not identified in either Table 2 or Table 22 in the Draft Plan. In a footnote, Appendix C notes: "In order to avoid double counting, the ARB is not counting the green building measures as 'additional' GHG reductions, but this may change as ARB staff gains a better understanding of the interactions between the sectors." Appendix C at C-99. However, it is clear from the description of the "green buildings" measures in Appendix C that at least some if not most of the 28.5 $MMtCO_2e$ would not "double count" the emission reductions that would be obtained through other measures.

Likewise, Table 34 and the associated text in Appendix C identifies recycling and waste management measures including increasing the efficiency of landfill methane capture, liquefied natural gas from landfill gas, commercial recycling, extended producer responsibility and environmentally friendly purchasing, and increased production and markets for compost. Appendix C at C-127. These measures were not included in either Table 2 or Table 22 in the Draft Plan.

Similarly, Table 36 presents a set of "additional forest management strategies" including forest conservation, afforestation, reforestation, urban forestry, fuels management, and forest management that would have a potential for 5 $MMtCO_2e$ emission reductions. These reductions would be additional to the "sustainable forest" measures that could result in 5 $MMtCO_2e$ in emission

reductions as identified in Table 35 of Appendix C and in Table 2 of the Draft Plan. The Table 36 "additional forest management strategies" measures were not included in either Table 2 or Table 22 in the Draft Plan.

Appendix C, at this preliminary stage prior to receiving the Supplemental Report, appears to demonstrate that the AB 32 emission reduction goals can be accomplished more than adequately through non-market measures at a negative net cost to society. Thus, the contention in the Draft Plan that a cap-and-trade program is necessary is unsupported.

II. THE DRAFT PLAN FAILS TO DEMONSTRATE THAT A CAP-AND-TRADE PROGRAM WOULD BE A COST EFFECTIVE EMISSION REDUCTION MEASURE.

AB 32 requires that any measure adopted by AB 32 must be cost-effective. Even though the Draft Plan proposes that California adopt a cap-and-trade program, the Draft Plan does not even attempt to demonstrate that a cap-and-trade program would be a cost-effective emission reduction measure. Conversely, the Draft Plan and Appendix C show that pursuing *non-market* emission reduction measures would not only be successful in fully achieving the emission reductions required by AB 32, but those measures would, as a whole, tend to be dramatically cost effective. They would result in a net *savings* to California that would amount to billions of dollars.

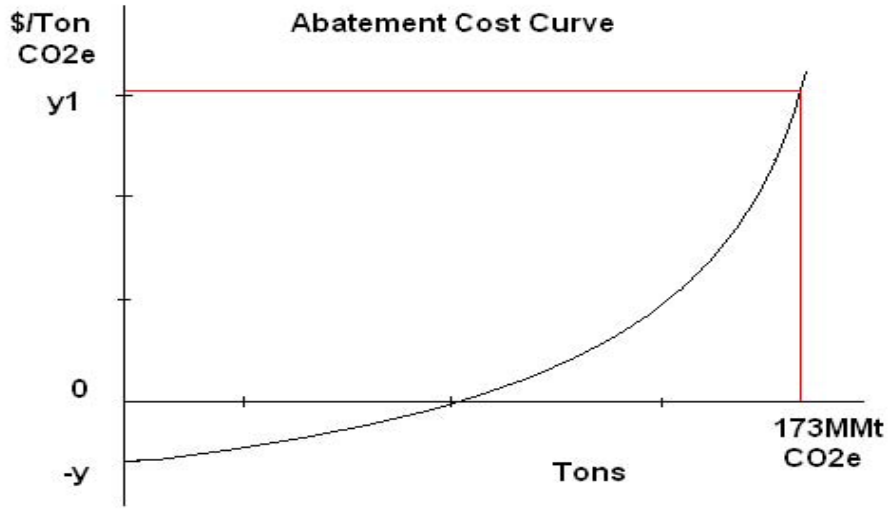
A. AB 32 Requires that Any Measure Adopted by the ARB Must Be Cost Effective.

AB 32 repeatedly and emphatically requires that any program adopted by the ARB must result in GHG emission reductions that are *cost effective*: "The State Board shall adopt rules and regulations in an open public process to achieve the maximum technologically feasible and *cost-effective* greenhouse gas emissions reductions…." Cal. H&S Code §38560 (emphasis added). "The state board shall prepare and approve a scoping plan, as that term is understood by the state board, for achieving the maximum technologically feasible and *cost-effective* reductions in greenhouse gas emissions…." Cal. H&S Code §38561(a) (emphasis added). "On or before January 1, 2011, the state

board shall adopt greenhouse gas emission limits and emission reduction measures by regulation to achieve the maximum technologically feasible and *cost-effective* reductions in greenhouse gas emissions…." Cal. H&S Code §38562(a) (emphasis added). It is indisputable that any "rules and regulations," "scoping plan," or "greenhouse gas emission limits and emission reduction measures" that are developed by ARB must be cost effective.

B. Defining "Cost Effectiveness."

AB 32 defines "cost-effective" or "cost-effectiveness" as meaning "the cost per unit of reduced emissions of greenhouse gases adjusted for its global warming potential." Cal. Pub. H&S Code §38505(d). The ARB staff has designed an approach to establishing the cost-effectiveness of emission reductions strategies that might be pursued by ARB to accomplish the AB 32 emission reduction goal. The ARB staff projects that "a broad spectrum of strategies" will be needed to achieve emission reductions of 169 $MMtCO_2e$ from the projected "business-as-usual" 2020 emissions level. The ARB staff's graphical representation of the cost of abating 173 $MMtCO_2e$ (now, 169 $MMtCO_2e$) is the following:



ARB Cost-Effectiveness White Paper, p. 32, AB 32 Technical Stakeholder Working Group Meeting (June 3, 2008). Any strategy that would have a cost expressed in dollars per tonne CO_2e that would fall on ARB's abatement cost curve below y_1 would be cost effective as required by AB 32. The ARB staff explained:

> The range of cost-effectiveness of a number of strategies can serve as background for establishing the reasonableness of a proposed regulation's cost-effectiveness. The highest cost-effective strategy and the least cost-effective strategy can form the range representing the bundle that in total demonstrate a path for reaching the emission reduction target. In the example shown in Exhibit 2, the lowest value would be \$ y and the highest value \$ y_1. Any proposed regulation falling within this range or, depending on additional factors required by AB 32, reasonably close to this range would be considered cost-effective and would meet the AB 32 cost-effectiveness requirement. That is because the suite of strategies or "the bundle" demonstrates how the 2020 emission reduction target can be reached in conjunction with other approaches. As the actual BAU 2020 emissions level may be greater or less than the current estimate, the range of the bundle of measures should remain flexible and be able to accommodate a higher or lower upper end of the range of cost-effectiveness.
>
> In addition, the bundle can be updated as additional technological data and strategies become available. As ARB moves from developing the Scoping Plan to developing specific regulations, and as regulations continue to be adopted, updated cost-effectiveness estimates will be established.

Ibid at 6. "An individual measure is **cost effective** under a given target emission reduction if and only if it costs no more than the marginal cost associated with target emission reduction," as shown at y_1 on the ARB staff's abatement cost curve. A Cost-Effectiveness Analysis of AB 32 Measures, p. 12, James Sweeney, Precourt Institute for Energy Efficiency, Stanford University, ARB AB 32 Technical Stakeholder Working Group Meeting (June 3, 2008) ("Sweeney Presentation") (emphasis added).

C. The Draft Plan Fails to Show that a Cap-and-Trade Program Would Be a Cost-Effective Strategy.

As discussed in the Draft Plan, a single-cap multi-sector cap-and-trade program is one of the strategies that ARB might consider to accomplish "cost-effective greenhouse gas emission reductions" under AB 32 in the electric sector. However, there is no demonstration in the Draft Plan that a cap-and-trade program would be cost-effective. There is no demonstration that the cost of the program would be at or below the marginal cost of achieving the AB 32 emission reduction target as shown at y_1 on the ARB staff's abatement cost curve. Such a demonstration is a necessary prerequisite for any ultimate adoption of a cap-and-trade program by the ARB.

A possible retort is that the cap-and-trade program should not be subject to the ARB staff's cost effectiveness test. James Sweeney presented this argument at the June 3, 2008 ARB AB 32 Technical Stakeholder Working Group Meeting. He contended that a cap-and-trade program is not an emission reduction measure in itself but, rather, is an "instrument" to be used to motivate regulated entities to undertake "measures" to attain emission reductions: "I will use 'instrument' to mean system to motivate the measures, e.g., minimum sales mandate or cap-and-trade system." Sweeney Presentation at 14.

However, exempting a cap-and-trade program from being tested for cost-effectiveness is impermissible under AB 32. The ARB's AB 32 "rules and regulations," "scoping plan," and "greenhouse gas emission limits and emission reduction measures [adopted] by regulation" must be aimed at achieving "cost-effective reductions in greenhouse gas emissions" without exception. Cal. H&S Code §38560, §38561(a), §38562(a).

Another possible retort is that AB 32 permits the ARB to "include in the regulations adopted pursuant to Section 38562" the use of "market-based compliance mechanisms…." Cal. H&S Code §38570(a). However, that provision does not exempt a market-based compliance mechanism from

being tested for cost effectiveness. Section 38562 specifically requires that any measures that ARB adopts "by regulation" shall achieve "cost-effective reductions in greenhouse gas emissions…." Thus, the requirement of cost-effectiveness applies to any "market-based compliance mechanism" just like any other program, mechanism, or measure that the ARB might adopt to achieve the AB 32 emission reduction goal. If a single-cap multi-sector cap-and-trade program would not fit on the ARB staff's cost abatement curve at or under the marginal cost of achieving the emission reductions required to accomplish AB 32 emissions reduction goal, the cap-and-trade program would be unlawful. The Draft Plan fails to make any attempt to show where the cap-and-trade program would fall on the cost abatement curve.

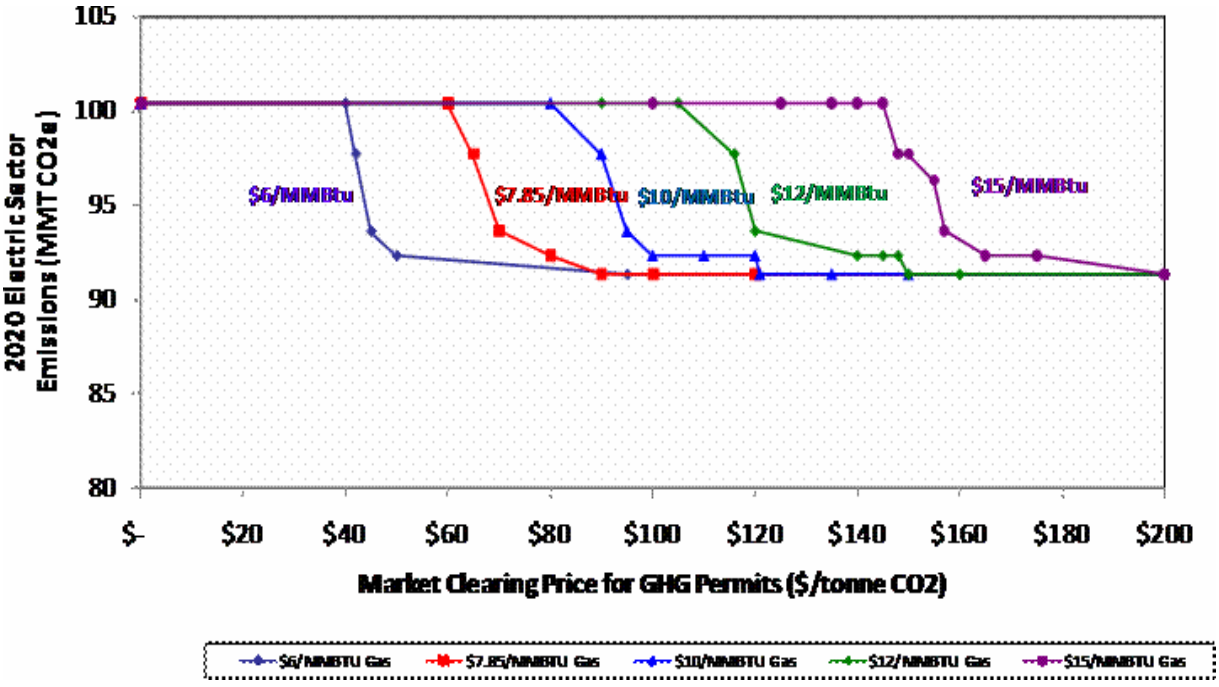
III. INCLUDING THE ELECTRIC SECTOR IN A CAP-AND-TRADE PROGRAM WOULD NOT BE COST EFFECTIVE.

Although the ARB has not released any studies regarding the cost effectiveness of a cap-and-trade program, on May 13, 2008, the CEC and CPUC released the results of modeling by their consultant, Energy and Environmental Economics, Inc. ("E3"). The E3 Results demonstrate that including the electric sector in a multi-sector cap-and-trade program would result in nearly *no* electric sector emission reductions until very high levels of allowance prices are reached. Conversely, the Commissions have available to them information from E3 showing that substantial emission reductions could be obtained through non-market measures for a fraction of the cost of buying allowances.

Emission reductions could be achieved through imposition of the cap-and-trade scheme on the electric sector if the cost of allowances reached a level that was sufficient to prompt a change in the order for dispatching emission-producing generation resources. Currently, gas-fired generation is the marginal resource in California. Coal-fired generation is an infra-marginal resource which is dispatched ahead of gas-fired generation. Including the electric sector in a cap-and-trade program

could result in a reduction of emissions by raising allowance prices to levels such that gas-fired generation would displace coal-fired generation in the dispatch order.

The E3 Results show, however, that if the electric sector were included in a multi-sector cap-and-trade program, gas-fired generation would tend to displace coal-fired generation only if there were low gas prices and high allowance prices. E3 Results, Slide 23. Currently, gas prices are in the vicinity of $12/MMBtu. If gas prices are assumed to be at or above $12/MMBtu, allowance prices exceeding $100/ton CO_2 would be required to alter the dispatch of coal-fired generation:



Thus, at today's gas prices, including the electric sector in a cap-and-trade program would not be among the cost-effective strategies shown on the ARB staff's emission abatement curve, especially given that Appendix C tends to show that the AB 32 emission reduction goal can be met at a net negative cost. The cap-and-trade strategy would result in redispatching coal-fired resources only if allowance prices were above the $100/t$CO_2$e marginal cost of emission reduction strategies. Accordingly, based on the E3 Results in combination with the June 3, 2008 presentations at the CARB Technical Stakeholder Working Group Meeting, including the electric sector in a cap-and-

trade program would not be a cost-effective strategy for achieving GHG emission reductions under AB 32.

A. A Cap-and-Trade Program Could Be Very Expensive for the Electric Sector.

Including the electric sector in a cap-and-trade program could be very expensive for the electric sector. As shown above, allowance prices would have to exceed $\$100/tCO_2$ to result in dispatching gas resources ahead of coal resources. There is no information available from either the E3 Results or the ARB economic modeling effort to show that emission reductions could be achieved more cheaply from other sectors so as to depress allowance prices below $\$100/tCO_2$. If allowances were auctioned and cost $\$100/tCO_2$, electric sector "deliverers" would be required to pay approximately **$98 billion** during the nine years 2012 to 2020, or **$10.9 billion per year**, to buy allowances. E3 Results, Slide 88, Scenario 7. The one SCPPA member for which the E3 Calculator provides data on a utility-specific basis, the Los Angeles Department of Water and Power ("LADWP"), would be required to spend approximately $1.5 billion for allowances in 2012 alone, 56 percent of the utility's projected total budget (excluding the cost of buying allowances) of $2.7 billion. *Ibid.*

B. Non-Market Measures Are Much Cheaper.

From the data currently available from E3, it would be far preferable for the electric sector to pursue emission reductions through non-market measures without being required to participate in a cap-and-trade program. E3 projected the cost of pursuing the measures that constituted its "Reference Case" and also calculated the incremental cost that would be required for the electric sector to pursue what E3 called an "Aggressive Policy Case" or "33 percent RPS/High-Goals EE" case. E3's Reference Case emission reduction goals could be achieved by the electric sector for a total net cost of $600 million ($\$29/tCO_2$ x 21.1 $MMtCO_2$ = $600 million). E3 Results, Slide 16. Similarly, E3's "33% RPS/High EE" goals could be achieved for a net cost of $4.97 billion ($168

$/tCO$_2$e x 29.6 MMtCO$_2$e = $4.97 billion). *Ibid.* The 21.1 MMtCO$_2$ reduction in annual emissions that would result from the Reference Case and the 29.6 MMtCO$_2$ reduction that would result from the "33% RPS/High EE" case would cost a total of approximately $5.5 billion, approximately 1/20 of the $98 billion that would be spent on allowances during the nine year period 2012 through 2020.

1. Non-Market Measures May Be Even Less Expensive than Projected by E3.

The ratio between allowance costs and actual mitigation costs in California may be even greater than projected by E3. E3's projected net cost of achieving the "33 percent RPS/High EE" objectives may be substantially overstated. LADWP found that if "more realistic prices of $12 for natural gas and $90 for coal in 2020" were assumed, fossil generation costs would increase so as to make "the 33 percent RPS and aggressive energy efficiency very cost effective on their own merit, even with the conservative allowance price of $30/ton." CPUC R.06-04-009, LADWP Opening Comment, p. 9 (June 2, 2008). Similarly, the Natural Resources Defense Council and the Union of Concerned Scientists ("NRDC/UCS") said: "However, at a natural gas price of approximately $13.50/MMBtu the 33% RPS/High-Goals EE scenario does not cost any more than the reference scenario. At natural gas prices of $14/MMBtu and higher, the 33% RPS/High-Goals EE scenario actually results in lower total costs." CPUC R.06-04-009, NRDC/UCS Opening Comment, p. 9. (June 2, 2008).

While requiring the electric sector to participate in a California-only single-cap multi-sector cap-and-trade program would have the potential for causing regulated entities to incur massive allowance costs with *no* significant emission reduction benefits, a non-market programmatic approach could have very low or even negative costs. The disproportion between electric sector allowance costs and the cost of mitigation measures that were examined by E3 may be substantially greater than 1/20 if natural gas prices go higher than they are today.

2. Allowance Costs Are Disproportional to Actual Mitigation Costs.

A substantial disproportion between the aggregate cost of allowances and the net cost of actual electric sector mitigation measures should be expected. It is consistent with findings by the National Commission on Energy Policy ("NCEP"). The NCEP found that a cap-and-trade program which requires regulated entities to buy allowances would be extremely costly in comparison to actual emission reduction costs.

The CPUC/CEC Staff attached a white paper from the NCEP entitled "Allocating Allowances in a Greenhouse Gas Trading System" ("NCEP White Paper") as Appendix A to their April 16, 2008 Joint CPUC and CEC Staff Paper on Options for Allocation of GHG Allowances in the Electricity Sector ("Staff Paper") in CPUC R.06-04-009. The NCEP found that the total expenditures on allowances would be approximately *ten times* actual emissions mitigation costs. The NCEP said: "Modeling analyses of the program design first outlined by the Commission in its 2004 report suggested the total value of emissions allowances during the first phase of program implementation is on the order of $30-$40 billion each year…." NCEP White Paper at 4. However, "actual emissions-mitigation costs are estimated to average only roughly $4 billion per year over the first ten-year implementation period, or roughly one tenth of the estimated $30-40 billion allowance value associated with the trading program." *Ibid* at 5. NCEP explained the reason for the 1/10 ratio between amounts spent on allowances and the amount spent on actual mitigation measures:

> Given that mitigation costs, at the margin, determine the price (or value) of each allowance, the mismatch between aggregate allowance value and aggregate mitigation costs might seem counter-intuitive. In fact, however, this mismatch is a simple function of the fact that the number of tons being reduced under the policy is much smaller than the number of tons that continue to be emitted (and for which allowances are issued).

Ibid. Thus, aggregate allowance costs should be expected to substantially exceed the net cost of actual emission reduction measures under a cap-and-trade scheme.

IV. IF ARB ATTEMPTS TO PROCEED WITH IMPLEMENTING A CAP-AND-TRADE PROGRAM, THE PROGRAM SHOULD BE REVISED.

If the ARB elects to proceed with a cap-and-trade program, the program should be revised from the one envisioned in the Draft Plan. First, the natural gas and transportation sectors should be included in the program in 2012 without deferral to a later time. Second, the ARB should evaluate including the recycling and waste, high GWP, and agriculture sectors in the program. Third, there should be some assurance that there will not be double regulation of electricity that is imported into California by "deliverers" from out-of-state power plants located in other jurisdictions which are also imposing a cap-and-trade regime. Fourth, there should not be a "quick" transition to full auctioning of allowances. Fifth, there should be an expansive inclusion of robust cost containment measures.

A. The Transportation Fuels and Natural Gas Sectors Should Be Included in the Program at the Outset.

The Draft Plan proposes that if a cap-and-trade program were to be adopted, the capped sectors should ultimately include electricity, transportation fuels, natural gas (often called "commercial and residential" in the Draft Plan), and large industrial sources. Draft Plan at 17. The capped sectors would cover nearly 85 percent of total California 2020 "business-as-usual" GHG emissions. *Ibid*. According to the Draft Plan, the business-as-usual 2020 emissions for the capped sectors are projected to be 512 $MMtCO_2e$. Implementation of the Draft Plan's recommended non-market measures as shown in Draft Plan Table 2 as reproduced above would be expected to reduce emissions for the capped sectors by 112 $MMtCO_2e$ in 2020 to 400 $MMtCO_2e$. In order to achieve the AB 32 goals, the Draft Plan proposes to cap allowable emissions from the capped sectors at 365 $MMtCO_2e$ so as to achieve an additional 35 $MMtCO_2e$ of emission reductions by that year. Draft Plan at 17.

It appears, however, that ARB does not intend to include transportation fuels and natural gas ("commercial and residential") in the cap-and-trade program at the outset of the program in 2012.

The WCI proposed in a "Draft Design of the Regional Cap-and-Trade Program" ("WCI Draft Design") released on July 23, 2008 that "transportation fuels" and "residential, commercial, industrial fuels" (natural gas) be included in the cap-and-trade program in 2015 rather than 2012. WCI Draft Design at 4 (July 23, 2008). Appendix C to the Draft Plan notes with apparent approbation: "WCI recommends that for small users (such as residential and commercial natural gas customers), the emissions be *phased into* the program, with the point of regulation being the natural gas local distribution companies (LDCs)." Appendix C at C-59 (emphasis added). Likewise, it appears that ARB is not planning on transportation fuels being included in the cap-and-trade program at the outset of 2012. Appendix C notes that "California shares a strong interest with other WCI Partners in *phasing* transportation fuels into the program before 2020." Appendix C at C-23 (emphasis added). *See also* Draft Plan, footnote 23 and Appendix C, C-17, footnote 5 ("phasing transportation fuels into the cap-and-trade program by 2020").

If a cap-and-trade program were adopted, the transportation and natural gas sectors should be included with electricity and large industrial sources in the cap-and-trade program at the outset in 2012 without any deferral. Transportation fuels account for 38 percent of California's greenhouse gas emissions. Draft Plan at 7. Natural gas ("commercial and residential") accounts for 9 percent of the emissions. *Ibid*. Deferral of the inclusion of transportation fuels and natural gas in the cap-and-trade program would tend to diminish the assumed effectiveness of the program. The supposed benefit of having a cap-and-trade program is that "a broad-based cap-and-trade program is likely to yield additional opportunities for lower cost reductions, thereby reducing the cost of achieving the overall emission target." Appendix C at C-16. To the extent to which there were a three year or more deferral of the inclusion of transportation fuels and natural gas in the cap-and-trade program, there would be a deferral or loss of the supposed opportunities for lower-cost reductions, making it

more costly for capped entities to reach the 365 $MMtCO_2e$ cap for the capped entities by 2020. Prompt inclusion of both transportation fuels and natural gas in the cap-and-trade program in 2012 would maximize the possibility that those sectors that account for, in combination, 47 percent of California emissions will have a full opportunity to provide "additional opportunities for lower cost reductions." Appendix C at C-16.

The natural gas distributors have repeatedly argued that gas should not be included in a cap-and-trade program at all. They have typically argued that natural gas users have no alternative but to reduce consumption. However, reduced consumption is a desirable outcome. Including residential and commercial natural gas usage in a cap-and-trade program may result in increased interest in efficiency measures that reduce consumption of natural gas for heating and may result in less discretionary use of features such as gas logs.

More importantly, there *are* alternatives to using natural gas for various applications. The prime example is solar water heaters. As the Draft Plan notes, "the use of solar water heaters can reduce natural gas use in homes and businesses." Draft Plan at 21. That is why the "State will be instituting incentives for up to 200,000 solar water heating systems, which would save as much as 26 million therms of natural gas per year…." *Ibid*.

Additionally, natural gas should be included in the cap-and-trade program simultaneously with the electric sector because electricity and natural gas are intermodal competitors. Both gas and electricity can be used for a wide variety of applications including cooking, heating, cooling, drying, and pumping/compression. In the future, gas and electricity are likely to be intermodal competitors as transportation fuels. Some electric applications such as electric heat pumps are lower-carbon options than their gas-fired counterparts.[1] It would be illogical to effectively penalize electricity,

[1] Burning gas at 50% efficiency in a combined-cycle power plant, than running it through a heat pump with a performance co-efficient of three, results in a 150% net thermodynamic efficiency from the use of gas. That efficiency

which for various applications may be more efficient and less carbon-intensive than natural gas, by deferring inclusion of natural gas in the cap-and-trade program. The consumer choice of fuels would be uneconomically and inequitably skewed if one sector were to be included in the cap-and-trade program with the other sector being omitted. If the ARB adopts a cap-and-trade program, the program should be applied simultaneously to the gas and electric sectors.

B. The ARB Should Consider Including the Agriculture, Recycling and Waste, and High GWP Sectors in the Program.

The recycling and waste, agriculture, and high GWP sectors accounted for 10 percent of the total California GHG emissions during the 2002-2004 period. Draft Plan at 7. Under business-as-usual assumptions, they would account for over 14 percent of California's emissions by 2020. The high GWP sector alone is projected to increase by over *300 percent* from 14.8 $MMtCO_2e$ in 2002-2004 to 46.9 $MMtCO_2e$ on a business-as-usual condition in 2020.

Although the recycling and waste, agriculture, and high GWP sectors represent a significant percentage of current California greenhouse gas emissions and are projected to account for an even greater share of California GHG emissions under business-as-usual conditions in 2020, the three sectors would be omitted entirely from the cap-and-trade program under the Draft Plan. Draft Plan at 17. The Draft Plan fails to provide any explanation for the omission. If the sectors are to be excluded from the program, there should be, at minimum, an explanation of the rationale for omission.

It is certainly not self-evident that the three sectors should be completely excluded from the cap-and-trade program. Although some sub-sectors within the sectors may warrant exclusion, it appears to be inappropriate to exclude the sectors in their entirety. The recycling and waste

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factor is substantially higher than the 90 percent maximum efficiency that can be obtained in a modern direct-combustion gas furnace.

management sector includes the State's solid waste landfills, composting infrastructure, and recycling industries. Appendix C at C-123. The Draft Plan recommends a landfill methane control measure that could result in potential 2020 reductions of 1 $MMtCO_2e$. Draft Plan at 35. It is not clear, however, why landfills should not be included in a cap-and-trade program to provide more of an incentive to control landfill methane emissions. More generally, inclusion of the recycling and waste management sector in the cap-and-trade program may provide an incentive for sector entities to pursue some of the "other" measures that are identified in Appendix C but not "recommended" in the Draft Plan such as increasing the efficiency of landfill methane capture, liquefied natural gas from landfill gas, commercial recycling, extended producer responsibility and environmentally friendly purchasing, and increased production and markets for compost. Appendix C at C-127.

Similarly, the high GWP sector consists of a broad range of sources that emit gases that have hundreds to thousands of times the climate impact of CO_2. Appendix C at C-136. High GWP substances are largely used as refrigerants in stationary and mobile source air conditioning and refrigeration. *Ibid*. High GWP gases are also used as foam-blowing agents, as fire suppressants, in consumer products, and in a semi-conductor industry. *Ibid*. The Draft Plan and Appendix C recommend a variety of measures to address high GWP gas emissions, but the Draft Plan fails to provide an evaluation of whether the high GWP sector or any high GWP sub-sectors should be included in the cap-and-trade program. *See* Draft Plan at 25-26; Appendix C at C-136 to C-154.

Agriculture is a major industry in California. Appendix C divides the sector into six sub-sectors: manure management (6.9 $MMtCO_2e$ in 2004), enteric fermentation (7 $MMtCO_2e$ in 2004), rice cultivation (0.6 $MMtCO_2e$ in 2004), energy use/fuel combustion (4.9 $MMtCO_2e$ in 2004), agricultural residue burning (0.08 $MMtCO_2e$ in 2004), and agricultural soil management (8.3 $MMtCO_2e$ in 2004). Appendix C at C-155. The Draft Plan recommends only one non-market

measure for the agricultural sector, methane capture at large dairies (1 $MMtCO_2e$ emission reduction by 2020). Draft Plan at 36. There is no explanation why inclusion of the agriculture sector in a cap-and-trade program would not encourage methane capture at large dairies as well as other emission reduction efforts.

C. Caution Should Be Taken to Avoid Double Regulation.

If a cap-and-trade program were to be adopted, care should be given to avoiding double regulation. The CPUC and CEC propose that in-state sources of emissions and "deliverers" of electricity from out-of-state sources should be subject to inclusion in a cap-and-trade program to avoid "leakage" of emissions to points outside of California. CPUC Decision 08-03-018 at 61 (March 13, 2008). If the ARB were to adopt the "deliverer" approach recommended by the CPUC and the CEC, there would be a possibility of double regulation of emissions from sources of electricity that are located outside of California. California would regulate the deliveries of electricity into California from an out-of-state facility while the state or province in which the generation facility is located would simultaneously regulate emissions from the generation source. Any attempt by California to impose double regulation on emissions associated with the generation of electricity at out-of-state facilities that are subject to regulation by the host state or province would obviously be susceptible to legal challenge. SCPPA recommends that the ARB be diligent in avoiding the imposition of a double regulatory burden on out-of-state emissions.

D. The ARB Should Avoid a "Quick Transition" to Auctioning All or the Majority of the Allowances.

The Draft Report states that if a cap-and-trade program were adopted, the "distribution of allowances would quickly transition from a system in which the State provides some free allowances, to a system in which the majority of allowances are auctioned in the trading market." Draft Plan at 18. There is no explanation of the basis for the apparent support for a "quick transition" from

providing "some free allowances" to auctioning a "majority" of allowances. The statement appears to constitute an endorsement of a WCI position. In any event, the ARB should carefully scrutinize whether there should be a "quick transition" to a "majority" of allowances being auctioned.

Auctioning could have a severe impact on consumers. For one utility, the Los Angeles Department of Water and Power ("LADWP"), E3 found that if there were pure auctioning of allowances to "deliverers" as a point of regulation in the California electric sector, rates would rise by 39.9 percent above 2008 levels. E3 Results, Slide 70. This was assuming the modest allowance price of $30/t CO_2E. The CPUC/CEC Staff recognized the potential impact on retail electricity providers such as LADWP which currently serve their customers with a more GHG-intensive mix of generation resources:

> We note that for retail providers with self-owned fossil-fired generation, particularly fully resourced utilities, payments for allowances successfully purchased at auction may present unproductive up-front cash flow problems as those same entities would be entitled to receive revenues from the auction as well. If the retail provider were actually required to submit payment for the entire block of allowances purchased, this could constitute a substantial payout for retail providers that are fully resourced, particularly those still dependent on coal facilities.

Staff Paper at 34 (April 16, 2008).

Auctioning would increase the wholesale market clearing price ("MCP") of electricity. The increased wholesale prices would cause an increase in retail rates. Retail customers would be required to bear more than the cost of allowances, however. E3 examined the effect of auctioning on the MCP of electricity. One unintended consequence of the impact of auctioning on the MCP of electricity is that there would be increased profits for producers and importers of electricity from low or zero carbon generation and resources even though they would buy few if any allowances. E3 estimated that, assuming an allowance price of $30/t CO_2E, California would pay approximately $700 million annually to low or zero carbon generation due to the higher MCP for electricity. E3

Results, Slide 25. This was a conservative estimate. It assumes that low-carbon generation that is either owned by utilities directly or is subject to utility long-term contracts would not capture the windfall from a higher market clearing price for electricity. *Ibid*. Furthermore, the estimate assumes a low allowance price. If higher allowance prices were assumed, there would be a proportionate increase in the windfall that low or zero carbon generation would receive.

The cost of auctioned allowances and the resulting impact on electricity prices could greatly outstrip the actual cost of emission reduction measures. The NCEP found that the "cost of actual mitigation measures undertaken [by entities covered by cap-and-trade program] is generally far smaller than the face value of allowances." Staff Paper, Appendix A, NCEP White Paper, p. 5. Under the fairly conservative assumptions of NCEP, the cost of buying allowance that would be incurred by covered entities would outstrip the actual costs incurred to achieve actual emission reductions by a factor of 10 to 1. *Ibid* at 4. As noted above, assuming allowance prices of $\$100/tCO_2e$ and electric sector implementation of E3's "33 percent RPS/High EE" goals, the cost of allowances to the electric sector would be 20 times the net incremental cost of actually achieving AB 32 emission reduction goals.

The CPUC/CEC Staff Paper postulated that there may be emission allocation methodologies other than auctioning which would avoid the MCP effect of auctioning. Staff Paper at 26-28. Although the alternative methodologies that were presented in the Staff Paper as well as elsewhere need to be further tested to determine whether adoption of the methodologies would, in fact, avoid the impact on market clearing prices that would result from auctioning, those methodologies should be fully examined before making any decision to adopt a "quick transition" to auctioning, as suggested by the Draft Plan.

The ARB should also be cautious about a "quick transition" to auctioning and secondary market trading of allowances because of the clear potential for speculation in an allowance market. With auctioning, allowances would become a commodity. Hedge funds and others would be tempted to engage in speculative sales and purchases. Speculative participation in an allowance market for arbitrage purposes could have a substantial impact on the price of allowances. Although there is little certainty about how much speculation contributed to the rise in housing prices that was experienced through 2005 or to the rise in international oil prices that is currently being experienced, few knowledgeable market observers would claim that speculation has played no role. The ARB should be cautious about advocating a "quick transition" to auctioning as an allowance allocation methodology.

E. The ARB Should Consider a Full Suite of Robust Cost Containment Measures.

As noted above, adoption of a cap-and-trade market-based mechanism for regulating GHG emissions by covered entities could result in an aggregate cost of allowances being incurred by covered entities that would vastly exceed the net cost of actual emission reduction measures. Additionally, speculation in the newly created commodity--allowances--could significantly affect allowance prices and the cost that would be imposed on covered entities as a result of their participation in the cap-and-trade program.

Unfortunately, the Draft Plan fails to recognize that if a cap-and-trade program were to be adopted, there would be a need for a robust suite of cost containment mechanisms. The Draft Plan discussion of cost containment is limited to mentioning that "banking" of allowances and offsets may be considered. Draft Plan at 16, 19. The primary focus of the cursory discussion of offsets is on the need for limiting the use of offsets to "10 percent of the compliance obligation for an individual firm…." Draft Plan at 19. If a cap-and-trade program were to be adopted, the ARB should go far

beyond the Draft Plan to consider a full and expansive set of cost containment mechanisms, including the following:

1. Banking.

If a cap-and-trade program were to be adopted, regulated entities should be permitted to bank allowances from a current compliance period for use in a future compliance period. However, there may be a need for some constraints on banking to prevent hoarding. It may be necessary to prohibit non-covered entities such as hedge funds from banking allowances so that only covered entities are permitted to bank allowances.

2. Borrowing.

The ARB should consider permitting borrowing of allowances for a future compliance period in addition to banking. Borrowing would be an important flexible compliance mechanism for entities such as electric generators that would be exposed to experiencing abnormal and unpredictable spikes in emissions during a given compliance period.

Perhaps even more importantly, borrowing would facilitate long-term investments in emission reduction measures that may not provide an immediate benefit during a current period but would result in a substantial step reduction in emissions in the future. It takes three to five years to develop, license, construct, and begin operations at a new power plant. It takes five to seven years or more to plan, permit, and construct transmission projects. New renewable generation resources are useless without associated transmission lines. Permitting borrowing would permit a covered entity to undertake long-term capital investments in emission reduction measures during a current period while borrowing allowances from a future period in which a new energy resource and associated transmission would become operational. Thus, borrowing would be an important tool that could be used by covered entities to undertake precisely the sort of long-term investments in emission reduction measures that are advocated in the Draft Plan.

3. Multi-Year Compliance Periods.

Compliance periods should be longer than a single year. Longer periods can allow entities such as electricity generators that might experience fluctuations in emissions due to weather conditions to smooth their use of allowances. Also, allowing multi-year compliance periods will allow covered entities more time to make investments and then realize emission reduction benefits from their investments during a single compliance period.

Although multi-year compliance periods and borrowing are aimed, at least in part, at attaining similar policy objectives, both should be allowed. For example while having a longer compliance period such as three years may encourage investment in projects that may result in emission reductions in one or two years, three year compliance periods would not accommodate investments in projects such as transmission lines that require a substantially longer lead time. Borrowing would accommodate such investments.

4. Rolling Compliance Periods.

In addition to lengthened compliance periods, the ARB should consider rolling compliance periods in which compliance end-dates are staggered. A single compliance period that ends on one date for all covered entities may cause abnormal and excessive allowance price peaks. Allowing rolling compliance periods in which compliance end-dates are staggered may mitigate the tendency for allowance prices to spike at the end of a compliance period.

5. Compliance Extensions.

Even if liberal banking, borrowing, and compliance period regulations were to be adopted, unforeseeable circumstances could arise which could cause a regulated entity to need a compliance extension for a good cause shown. A regulatory program which would inflexibly deny compliance extensions regardless of the degree of merit would be unjust and unreasonable. Compliance extensions should be permitted on a case-by-case basis.

6. Linkage to Other Programs.

Linking a California program with regional, national, or international cap-and-trade programs may result in a deeper and more liquid market for allowances. Thus, linkage to other programs such as the Regional Greenhouse Gas Initiative or the European Union's Emission Trading System could have a cost containment benefit. However, any linkage to other programs should be carefully evaluated on a case-by-case basis. The ARB should be mindful that linking California to other cap-and-trade programs may have the potential to raise as well as to lower California allowance prices. If allowance prices tend to be higher in the broader market, entities in the broader market would presumably be permitted through linkage to buy allowances in California, causing an increase in California allowance prices.

7. Offsets.

Offsets should be permitted to the extent that they meet the criteria of being real, additional, verifiable, permanent, and enforceable. If the offsets meet those criteria, offsets should be permitted without limitation. Allowing real, additional, verifiable, permanent, and enforceable offsets may permit covered entities to obtain allowances at a lower cost while contributing to concrete emission reductions that will be seen by the atmosphere.

The use of offsets should not arbitrarily be limited to "10 percent of the compliance obligation for an individual firm…." Draft Plan at 19. Likewise, there should not be any geographic limitation. Quantitative or geographic limitations would needlessly circumscribe the cost containment benefits of offsets. If the offsets are additional, verifiable, permanent, and enforceable, offset projects would result in emission reductions that would be just as concrete as any reductions that would be made directly by covered entities. Also, there should not be any discounting of offsets. If an offset is real, additional, verifiable, and enforceable, there is no rational basis for discounting the offset.

8. "Price-Trigger" Safety Valves.

A "price-trigger" safety valve should be considered as an important measure to prevent a market meltdown. A price-trigger safety valve would ensure that if market prices reach an unacceptably high level, additional allowances would be released or other measures would be taken to prevent prices from exceeding the pre-set level.

9. Alternative Compliance Payments.

Alternative compliance payments should be allowed to permit a regulated entity to satisfy and extinguish its compliance obligation for a compliance period if the regulated entity fails to have enough allowances to cover its emissions during the compliance period. Permitting a defaulting covered entity to make an alternative compliance payment establishes an outer bound on the burden that the cap-and-trade program would impose on covered entities.

Instead of focusing on whether alternative compliance payments should be permitted, the ARB should focus on the level at which alternative compliance payments should be set. Indexing alternative compliance payments so that they would be calculated as a multiple of the market-determined allowance prices (for example, 1.5 times a market-established price index) would avoid the potential for fixed alternative compliance payments to fall below market prices for allowances.

10. Market Participation Rules.

If entities that are not covered by the cap-and-trade program such as hedge funds and speculators are permitted to hold allowances, it becomes more important to have rules to prevent market distortions that may result from hoarding or similar behavior. Although permitting entities that do not have compliance obligations to participate in a cap-and-trade program might have the potential to add liquidity to the allowance market, the participation of such entities clearly adds a level of risk of market manipulation and price volatility.

11. Market Intervention Agency.

The ARB should consider establishing a market intervention agency that could act as a market maker and market stabilizer. However, creating a market intervention agency should not be considered to be a substitute for other flexible compliance and cost containment mechanisms. The ARB should consider establishing *both* a price-trigger safety valve and an independent market intervention agency. They are not mutually exclusive and can operate in tandem. For example, the recently considered federal legislation, S.3036, provided for the creation of a "Carbon Market Efficiency Board" which would have authority to intervene in the national allowance market and also provided for a "cost-containment auction" in which allowances would be auctioned from time to time when the allowance market prices reached statutorily prescribed levels. *See* S.3036 §§532, 533.

12. Market Oversight Board.

There may be merit to creating a market oversight board which would oversee allowance markets in addition to creating a market intervention agency. For example, S.3036 would create a Carbon Markets Working Group to oversee the allowance market without having direct intervention authority. S.3036 would simultaneously create the Carbon Market Efficiency Board that would be empowered to intervene in allowance markets, if necessary. S.3036 §422.

13. Alternative Compliance Option for Retail Electricity Providers that Are Also Electricity Deliverers.

Some retail providers of electricity may be covered entities in a cap-and-trade program to the extent that they are also "deliverers" of electricity, assuming the ARB adopts the recommendation made by the CPUC and the CEC in their Interim Opinion on GHG Regulatory Strategies, CPUC Decision 08-03-018 (March 13, 2008). In order to avoid imposing a double burden of requiring retail providers to comply with mandatory energy efficiency and renewable energy mandates while simultaneously requiring retail providers to pay for allowances to cover emissions associated with

deliveries to serve native load, retail providers that are also deliverers should be permitted to elect to be regulated under an alternative compliance mechanism. Specifically, to mitigate the double burden of paying to cover the cost of programmatic mandates while also paying for allowances to cover emissions associated with deliveries to serve native load, retail providers that are also deliverers should be permitted to elect to be subject to entity-specific caps and to be relieved of the obligation to acquire allowances to cover emissions associated with deliveries to serve native load up to level of their caps.

To the extent to which a retail provider/deliverer that elects to be regulated under the alternative compliance mechanism has emissions associated with deliveries to serve native load that exceed its cap, the retail provider/deliverer would be required to acquire allowances through an auction or through the cap-and-trade secondary market in order to avoid a penalty. Likewise, if the retail provider/deliverer engages in wholesale sales of electricity, the retail provider/deliverer would be required to obtain allowances to cover the emissions associated with the deliveries for wholesale sales. The entity-specific cap that would apply to a retail provider/deliverer that elects to be regulated under the alternative compliance mechanism should be based on emissions associated with deliveries to serve the retail provider/deliverer's native load, not deliveries for wholesale sales.

V. REQUIRING DIVESTITURE OF EXISTING INVESTMENTS IN GENERATION RESOURCES WITH NO ACTUAL EMISSION REDUCTION BENEFITS.

The Draft Plan observes that "approximately 32,000 GWh of the electricity consumed each year in California comes from coal-based generation, with approximately 87 percent of this imported from out-of-state facilities." Draft Plan at 39. The Draft Plan suggests "requiring electric service providers to divest or otherwise mitigate portions of existing investments in coal-based generation." *Ibid*. This is not one of the Draft Plan's "recommended measures." It is one of the "other measures for possible inclusion in the Proposed Scoping Plan" that are discussed in the Draft Plan. Draft Plan

at 37. The Draft Plan suggests that the measure could reduce coal generation by "up to 13,000 GWh" so as to result in emission reductions of 8 $MMtCO_2e$ by 2020, assuming that the coal generation would be replaced by combined cycle gas turbine generation. Draft Plan at 40.

SCPPA is strongly committed to reducing emissions associated with coal-based generation through all measures that are or may become available, including carbon capture and sequestration ("CCS"). However, SCPPA questions the efficacy of requiring electric service providers to divest investments in coal-based generation. If there were a divestiture, the acquiring party would presumably continue to operate the acquired facilities. Thus, while California's carbon footprint may be reduced, the world's atmosphere would see no change whatsoever in actual GHG emissions. Divestiture would most likely result in a "fire sale" of the divested asset by the California retail providers and a substantial capital loss with no offsetting environmental benefits. The divestiture measure should be further evaluated the next version of the Scoping Plan.

VI. CONCLUSION.

SCPPA recommends that the ARB reconsider the Draft Plan's contention that a cap-and-trade program is needed to attain AB 32 goals. The Draft Plan preliminarily shows that non-market measures are more than adequate to meet AB 32 goals. Imposing a cap-and-trade program would not be cost-effective within the meaning of "cost-effectiveness" as established in AB 32. Particularly, including the electric sector in a cap-and-trade would not be cost-effective.

If, nevertheless, the ARB elects to continue to pursue a cap-and-trade program, SCPPA recommends that the natural gas and transportation fuels sectors included in the program at the outset in 2012 rather than later. SCPPA recommends that the ARB consider including the recycling and waste, agriculture, and high GWP sectors in the cap-and-trade program. If they are not included, the ARB should explain why they are omitted. SCPPA urges the ARB to ensure that there will not be double regulation of emissions from out-of-state electrical generation resources by both California

and by the jurisdictions in which the generation resources are located. Additionally, SCPPA recommends that the ARB focus its attention on establishing a full and robust suite of cap-and-trade cost containment mechanisms. Lastly, SCPPA urges the ARB to reevaluate the environmental efficacy of requiring California regulated entities to divest their interest in out-of-state generation resources.

Respectfully submitted,

/s/ Norman A. Pedersen

Norman A. Pedersen, Esq.
HANNA AND MORTON LLP
444 South Flower Street, Suite 1500
Los Angeles, California 90071-2916
Telephone: (213) 430-2510
Facsimile: (213) 623-3379
E-mail: *npedersen@hanmor.com*

Attorney for the **SOUTHERN CALIFORNIA PUBLIC POWER AUTHORITY**

Dated: August 1, 2008

ATTACHMENT A
Draft Plan, Appendix C Tables

Draft Plan, Appendix C Tables

Appendix C Transportation-Preliminary Recommendations
Table 3

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Pavley (AB 1493)	31.7	-9,999	ARB	2004/2009-2016*
Pavley II – Light-Duty Vehicle GHG Standards		-1,048	ARB	2010/2017

Appendix C Transportation-Preliminary Recommendations
Table 4

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Tire Pressure Program*	0.82	-629	ARB	2009/2010
Tire Tread Standard	0.3	-123	CEC	2009-2010?
Low Friction Engine Oils	2.8	-434	ARB	2012/2014
Solar-Reflective Automotive Paint and Window Glazing	0.89	-5	ARB	2009/2012
Total:	4.8			

Appendix C Transportation-Preliminary Recommendations
Table 5

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Low Carbon Fuel Standard (Discrete Early Action)	16.5	0	ARB	2008/2010

Appendix C Transportation-Preliminary Recommendations
Table 6

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Ship Electrification at Ports (Discrete Early Action)*	0.2	0**	ARB	2007/2010
Goods Movement Efficiency Measures • Goods Movement System-Wide	3.5	-1,240	ARB	2009-2011
Efficiency Improvements • VSR • Clean Ships • Port Drayage Trucks • Commercial Harbor Craft Maintenance and Design Efficiency • Cargo Handling Equipment Anti-Idling • Transport Refrigeration Units Cold Storage Prohibition and Energy Efficiency				

Appendix C Transportation-Preliminary Recommendations
Table 7

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Heavy-Duty Vehicle GHG Emission Reduction (Aerodynamic Efficiency)*,** (Discrete Early Action)	1.4‡	640	ARB	2008/Phased-In Schedule for large fleets: 20% by end of 2010; 40% by end of 2011; 65% by end of 2012; 100% by end of 2013
Medium-and Heavy-Duty Vehicle Hybridization	0.5	-85	ARB	2011/2015
Heavy-Duty Engine Efficiency	0.6	-187	ARB	2015/2017?

Appendix C Transportation-Preliminary Recommendations
Table 8

Reduction Measure	Potential 2020 Reductions MMTCO_2E	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
High Speed Rail	1*	0**	TBD	Pending Voter Approval

Appendix C-Transportation Other Measures Under Evaluation Table 9

Reduction Measure	Potential 2020 Reductions MMTCO_2E	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Feebates for light duty vehicles (in addition to Pavley)	4	-1,015	ARB
Feebates for medium duty vehicles (8,50010,000 lbs GVW)*	1-3	TBD	ARB
Feebates (in lieu of Pavley)	31.7	TBD	ARB

Appendix C: Local Government Actions and Regional Targets—Preliminary Recommendations
Table 10

Reduction Measure	Potential 2020 Reductions MMTCO_2E	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Regional GHG Targets	≥ 2 MMT	-621 (aggregated)	Local Governments / ARB / Regional Planning Agencies	Local actions have begun already in some areas Set targets by January 1, 2010
Local Government Actions	Not quantified at this time	Not quantified at this time	Local Government	Local Government tools and protocols by January 1, 2010

Appendix C: Appendix C: Local Government Actions and

Regional Targets—Other Measures Under Consideration
Table 11

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Congestion Pricing	Up to 1 MMT	Long-term savings.*	State Legislature/R egional Planning Agencies/ Local Government
PAYD Insurance Premiums	Up to 1 MMT	Long-term savings*	Dept of Insurance
Indirect Source Rules for New Development	Up to 1 MMT	Long-term savings*	Local Air Districts/ ARB
Programs to Reduce Vehicle Trips	Up to 1 MMT	Long-term savings*	State, Regional, and Local Agencies

Appendix C: Electricity and Natural Gas-Preliminary Recommendations and Measures under Evaluation
Table 12

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Preliminary Recommendations				
E-1: Energy Efficiency and Conservation (Electricity)	15.2	-3,116	CPUC & CEC	Ongoing
CR-1: Energy Efficiency and Conservation (Natural Gas)	4.2	-220	CPUC & CEC	Ongoing
Measures under Evaluation				
Additional Electricity Energy Efficiency	Additional 3.8	-553	CPUC & CEC	N/A
Additional Natural Gas Energy Efficiency	Additional 1.0	-146	CPUC & CEC	N/A

Appendix C: Electricity and Natural Gas-Preliminary Recommendations and

Measures under Evaluation
Table 13

Reduction Measure	Potential 2020 Reductions $MMTCO_2e$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Preliminary Recommendations				
CR-2 -Solar Water Heating: AB 1470 target: 200,000 units installed by 2017	0.1	292	CPUC	2010-2017
Measures under Evaluation				
Expanded Solar Water Heating: 1.75 million units installed by 2020	Additional 1	292	CPUC	N/A

Appendix C: Electricity and Natural Gas-Preliminary Recommendations and Measures under Evaluation
Table 14

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	**Net Annualized Cost ($ Millions)†**	Proposed Lead Agency	Adoption/ Implementation Timeframe
Preliminary Recommendations				
E-4 – Million Solar Roofs: 3,000 MW by 2017	2.0	0**	CPUC/CEC	Current program
Measures under Evaluation				
Expanded Million Solar Roofs: 5,000 MW by 2020	Additional 1.3	1,009	CPUC/CEC	2017-2020

Appendix C: Electricity and Natural Gas -Preliminary Recommendations
Table 15

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
E-2: Increasing Combined Heat and Power Use by 32,000 GWh	6.8	-1,311	CPUC & CEC	2009-2020

Appendix C: Electricity and Natural Gas -Preliminary Recommendations Table 16

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
E-3: Renewables Portfolio Standards (33% by 2020 for IOUs & POUs)	21.2	1,556	CEC/ CPUC	2020

Appendix C: Electricity and Natural Gas -Measures under Evaluation
Table 18

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Coal Emission Reduction Standard	Up to 8	850	N/A

Appendix C: Water-Preliminary Recommendations
Table 19

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Water Use Efficiency	1.4	TBD	DWR, CEC	Ongoing

Appendix C: Water-Preliminary Recommendations Table 20

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Water Recycling	0.3	TBD	SWRCB	Ongoing

Appendix C: Water-Preliminary Recommendations
Table 21

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Water System Energy Efficiency	2	TBD	DWR, PUC, SWRCB, CEC	Ongoing

Appendix C: Water-Preliminary Recommendations
Table 22

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$†	Net Annualized Cost ($ Millions)	Proposed Lead Agency	Adoption/ Implementation Timeframe
Reuse Urban Runoff	0.2	TBD	SWRCB	TBD

Appendix C: Water-Preliminary Recommendations Table 23

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Increase Renewable Energy Production	0.9	TBD	CEC, PUC	2020

Appendix C: Water-Preliminary Recommendations Table 24

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Public Goods Charge for Water	TBD	TBD		2020

Appendix C Table 25
Green Buildings Summary
GHG Emission Reduction Potential

Strategy	GHG Emission Reduction Potential (MMTCO_2E)*
Existing State Building	0.9
New State Construction	0.06
Existing Public Schools	1.3
New School Construction	0.3
Existing Residential	9.7
New Residential Construction	5.4
Existing Commercial Buildings	7.3
New Commercial Construction	3.5
Total	**28.5**

Appendix C: Industry-Preliminary Recommendations
Table 26

Reduction Measure	Potential 2020 Reductions MMTCO_2E	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Energy Efficiency and Co-Benefits Audits for Large Stationary Sources	TBD	TBD	ARB	2010/2012

Appendix C: Industry-Other Measures Under Evaluation
Table 27

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$[61]	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Carbon Intensity Standard for Cement Manufacturers	1.1 – 2.5	-3	ARB
Reduction Measure	**Potential 2020 Reductions $MMTCO_2E$[61]**	**Net Annualized Cost ($ Millions)†**	**Proposed Lead Agency**
Carbon Intensity Standard for Concrete Batch Plants	2.5 – 3.5	0	ARB
Waste Reduction in Concrete Use	0.5 – 1.0	-28	ARB

Appendix C: Industry-Other Measures Under Evaluation
Table 28

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Refinery Energy Efficiency Process Improvement	2 to 5	-383	ARB
Removal of Methane Exemption from Existing Refinery Regulations	0.01 -0.05	5	ARB

Appendix C: Industry-Other Measures Under Evaluation
Table 29

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Oil and Gas Extraction GHG Emission Reduction	1 to 3	-170	ARB
GHG Leak Reduction from Oil and Gas Transmission	0.5 to 1.5	-15	ARB

Appendix C: Industry- Other Measures Under Evaluation
Table 30

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Industrial Boiler Efficiency	0.5 – 1.5	-127	ARB
Stationary Internal Combustion Engine Electrification	0.1 – 1.0	-13	ARB

Appendix C: Industry-Other Measures Under Evaluation
Table 31

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Glass Manufacturing Energy Efficiency	0.1 – 0.2	6	ARB

Appendix C: Industry-Other Measures Under Evaluation
Table 32

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Costs or Savings†	Proposed Lead Agency
Off-Road Equipment	Up to 0.5	TBD	ARB

Appendix C: Recycling and Waste Management-Preliminary Recommendations
Table 33

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Landfill Methane Control Measure (Discrete Early Action)	1.0	1	ARB	Board Hearing Early-2009

Appendix C: Recycling and Waste Management-Other Measures Under Evaluation
Table 34

Reduction Measure	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Increasing the Efficiency of Landfill Methane Capture	TBD	TBD	CIWMB
Liquefied Natural Gas (LNG) from Landfill Gas	1.0	TBD	CIWMB
Commercial Recycling	up to 6.5[63]	TBD	CIWMB
Extended Producer Responsibility & Environmentally Preferable Purchasing	TBD	TBD	CIWMB & DGS
Increase Production and Markets for Compost (studies underway for data development)	3.1[64]	TBD	CIWMB
Reduction Measure	**Potential 2020 Reductions $MMTCO_2E$**	**Net Annualized Cost ($ Millions)†**	**Proposed Lead Agency**
Anaerobic Digestion	2.2	TBD	CIWMB

Appendix C: Forests—Preliminary Recommendations Table 35

Reduction Strategy	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Sustainable Forest Target	5	50	Board of Forestry and Fire Protection	2020

Appendix C: Forests-Implementing Strategies
Table 36

Reduction Strategy	Potential 2020 Reductions $MMTCO_2E$	Net Annualized Cost ($ Millions)†	Proposed Lead Agency
Additional Forest Management Strategies o Forest Conservation o Afforestation/ Reforestation o Urban Forestry o Fuels Management o Forest Management	Minimum 5	TBD	Cal Fire

Appendix C: High GWP-Preliminary Recommendations
Table 37

Reduction Measure	Potential 2020 Reductions MMTCO_2E	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
H-1: Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-Professional Servicing (Discrete Early Action)	0.2 -0.5	2.4	ARB	2009/2010
H-2: SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)	0.3	0.1	ARB	2009/2010
H-3: High GWP Reduction in Semiconductor Manufacturing (Discrete Early Action)	0.15	3	ARB	2008/2012
H-4: Limit High GWP Use in Consumer Products		<0.1		
Pressurized Gas Duster GWP Limit of 150	0.20		ARB	2008/2012+
Other Consumer Product Categories	0.05		ARB	Ongoing
H-5: High GWP Reductions from Mobile Sources		See Separate Entries Below		
Low GWP Refrigerants for New Motor Vehicle Air Conditioning Systems	2.5	16	ARB	2010/2015
Air Conditioner Refrigerant Leak Test During Vehicle Smog Check	0.5	TBD	ARB/ BAR	2011/2012*
Refrigerant Recovery from Decommissioned Refrigerated Shipping Containers	<0.1	TBD	ARB	2011/2012
Enforcement of Federal Ban on Refrigerant Release during Servicing or Dismantling of Motor Vehicle Air Conditioning Systems	0.1	0	ARB	2009/2010*
H-6: High GWP Reductions from Stationary Sources		See Separate Entry Below		
Reduction Measure	**Potential 2020 Reductions MMTCO_2E**	**Net Annualized Cost ($ Millions)†**	**Proposed Lead Agency**	**Adoption/ Implementation Timeframe**
High GWP Recycling and Deposit Program	6.3	-66	ARB	2009/2010
Specifications for Commercial and Industrial Refrigeration	4.0	0.6	ARB	2010/2011
Foam Recovery and Destruction Program	1.0	100	ARB	2009/2010

SF_6 Leak Reduction and Recycling in Electrical Applications	0.1	-0.1	ARB	2010/2012
Alternative Suppressants in Fire Protection Systems	0.1	2	ARB	2010/2011*
Residential Refrigeration Early Retirement Program	0.1	-6	ARB	2010/2011*

Appendix C: Agriculture-Preliminary Recommendations
Table 38

Reduction Measure	Potential 2020 Reductions MMTCO_2E	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
Methane Capture at Large Dairies	1	156	ARB	2017-2020

Appendix C State government-Preliminary Recommendations
Table 39

Reduction Measure	Potential 2020 Reductions MMTCO_2E	Net Annualized Cost ($ Millions)†	Proposed Lead Agency	Adoption/ Implementation Timeframe
State Government	1-2	TBD	Various	TBD/Ongoing