

COMMENTS ON AB 32 PROPOSED SCOPING PLAN,

(Issued by California Air Resources Board, October 15, 2008)

SUBMITTED BY SIERRA CLUB CALIFORNIA, November 19, 2008

To California Air Resources Board Members and Staff:

Sierra Club California commends CARB's forward movement on this comprehensive, far-reaching AB 32 Proposed Scoping Plan. It can ultimately be a model for the nation and the world. The Plan will help California build a stronger, cleaner economy that will create jobs, protect us from oil price surges, and reduce pollution that causes climate disruption.

Sierra Club welcomes this opportunity for comment. At this critical decision point, and in ensuing years as AB 32 implementation measures are developed in more detail, Sierra Club will continue to press for those high-priority measures most likely to move us forward quickly to a low-carbon energy economy while maintaining fairness and equity.

CARB's Proposed Scoping Plan is moving in the right direction. We support the ten specific changes on pages 3-4. We recommend further strengthening, however, before the Plan is adopted in December. Sierra Club's volunteers and staff have prepared a full set of comments, presented below.

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Our top priorities for changes in the Proposed AB 32 Scoping Plan:

- 1) Concentrate on carbon fees to generate revenues, but if cap-and-trade is used, CARB should commit to a rapid implementation of 100% auctioning of allowances.. If offsets are allowed, they must be very limited, located only within or near our state's border, and have no adverse impacts on environmental justice. Program revenues should go toward GHG reduction programs, such as clean technologies, green jobs, and aid for low-income consumers and small businesses.
- 2) Increase the goals for emissions reductions from lower vehicle traffic by enforced regional land use planning requirements.
- 3) Require commercial recycling and take meaningful steps toward for zero waste and Extended Producer Responsibility (EPR).

Additional priorities include:

- 1) Consider cap-and-auction just one tool among market mechanisms. Other tools should be brought forward more robustly, including feed-in tariffs and carbon fees in the Plan’s near-term action agenda. See details in the following pages.
- 2) Make sure the 33% renewables electricity standard is achieved before 2020, either through legislation or regulatory action. Promote and enable Community Choice Electricity Aggregation (CCA) and feed-in tariffs as potentially powerful GHG reduction mechanisms. Implement the CPUC RPS Report, October 2008, which states (p. 10): “If the state is required to generate 33% of its energy from renewable resources by 2020, then all new procurement of new energy resources between now and 2020 must be entirely renewable energy, except some new fossil for peaking capacity and to replace aging fossil plants critical to renewable integration.”
- 3) Give more specificity and amplitude to the goal of electrifying transportation, especially greatly expanding ZEV numbers (plug-ins and electric cars) beyond CARB's currently too low projected levels. This would reap huge GHG reductions.
- 4) Place a higher priority on reducing methane emissions, since the Plan greatly underestimates the significance of methane emissions by using the 100-year global warming potential. Over a shorter time horizon, methane accounts for 17% to perhaps well over 30% of the state’s GHGs, rather than the 5.7% indicated in the 2004 inventory.
- 5) Ensure that actions to reduce greenhouse gases also help, whenever possible, to clean up California’s unhealthy air, especially in already highly impacted areas.

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OVERALL COMMENTS:

- We are pleased that the Proposed Plan seeks to meet the law’s requirement of rolling back our greenhouse gas emissions to 1990 levels by 2020.
- Scientists now suggest, however, that goal of 1990 levels by 2020 may be inadequate. The Plan now wisely incorporates intentional redundancies and a “margin of safety” that could anticipate the possibility that urgent action is more pressing than current assumptions would indicate. The GHG concentration in the atmosphere may be at the tipping point, as evidence of the newly recognized rapid release of arctic permafrost and seabed methane gives us even less time for GHG reductions before runaway warming takes over.
- We welcome this Plan’s statement that California cannot afford delay in reducing pollution that causes global warming. The potential costs of inaction or delayed action are immeasurably greater than the cost of implementation now.
- CARB's plan, which relies predominately on direct regulations for the electricity and transportation sectors to reach the state's 2020 emission reduction goal, sets a standard for other states and the federal government in most areas. However, there are substantive flaws in the plan’s approach to “cap-and-trade” and “offsets.”
- Sierra Club strongly supports the new plan's promises to cut more emissions than previous drafts did. We also support the plan’s proposal to include: auctioning of emission allowances to polluters; more limitations on offsets; recognition of much higher potential for recycling and zero waste; more momentum for significant changes in current land use and transportation planning; and more emphasis on green job creation in the fields of clean power and energy efficiency. The Plan now makes a stronger case for the economic and health benefits of clean energy.
- The Plan correctly points out that many powerful parallel policies must be pursued in order to remove all the state's market barriers and regulatory impediments to GHG reduction. State climate programs need the full force of CARB’s backing to such parallel measures as Feed-In Tariffs, Carbon Fees and Community Choice Electricity
- We support the inclusion of co-benefits from GHG reductions such as public health improvements and better energy efficiency.

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Comments by section: (page numbers refer to pages in Proposed Scoping Plan and Appendices)

II. RECOMMENDED ACTIONS

A. ROLE OF THE STATE: SETTING AN EXAMPLE (p. 24)

- We applaud the explicit commitment of the state government to lead by example, with a target of a minimum of 30 percent reduction by 2020. We encourage immediate implementation of all the actions listed, plus more to be identified.

B. ROLE OF LOCAL GOVERNMENT: ESSENTIAL PARTNERS (p. 26)

- We are pleased that SB 375 requires CARB to work closely with local governments to establish strong regional targets for greenhouse gas reduction through the SB 375 process.
- We believe CARB's goal for local governments of a 15% GHG reduction from current levels by 2020 is feasible.
- CARB should set a higher goal of at least 11 million metric tons in greenhouse gas reductions to be achieved from reductions in vehicle miles traveled. We believe research supports the feasibility of a higher goal.
- CARB should provide substantial technical and financial assistance to local governments, in addition to guidance protocols, to help them reduce greenhouse gases from transportation and land use, as well as other sectors, including energy and recycling. These governments are fiscally hard-pressed by the economy's downturn and credit collapse. Many are facing employee layoffs. They do not have the talent or expertise to devise and execute such GHG plans. They also need financial and technical assistance from state and federal sources; compliance will be difficult without that aid.
- SB 375 is insufficient by itself. Needed also are tools for local governments to translate GHG reduction targets into local action.
- CARB should actively promote and facilitate Community Choice Electricity Aggregation (AB 117, 2002), which Sierra Club believes is the single most potent step municipalities can take to quickly reduce their greenhouse gas emissions substantially in the next decade.

See more discussion below in #6. Regional Transportation-Related Greenhouse Gas Targets.

C. EMISSIONS REDUCTION MEASURES

- We are concerned about the following statement by CARB on p. 28:
“Expiration of existing utility long-term contracts with coal plants will reduce GHG emissions when such generation is replaced by renewable generation, coal with carbon sequestration, or natural gas generation, which emits less CO₂ per megawatt-hour.” This statement is too vague to be of use for policy guidance, since there is a big difference between replacing coal plants with natural gas and building renewables. On average, when compared to coal, natural gas plants reduce carbon dioxide by roughly 40%. And carbon sequestration technologies—in the near term timeframe—are expected to capture and sequester only a tiny fraction of carbon emissions from coal plants. Both of these options compare quite *unfavorably* with most renewables. At present carbon sequestration is too costly and under-researched. The additional energy required to separate and sequester carbon makes this an uneconomic strategy. Further expansion of natural gas generation cannot be the direction if GHG reduction targets are to be met. Instead, no new fossil fuel generation plants

should be built and all new investment capital should be put into renewable, zero-emission generation. All actions should keep to the fast path toward >80% reduction by 2050. A careful examination of data will show that achieving California's clean energy policies, including the 33% renewable standard and both the short and long-term greenhouse gas reduction targets, will require all new generation to be renewable.

1. California Cap and Trade Program Linked to Western Climate Initiative (p. 30)

Direct Emission Reductions: Sierra Club is pleased that the Plan proposes most of the required GHG reductions come from performance standards that directly reduce emissions, such as California's clean-car, renewable-energy, and energy-efficiency programs, and incentive programs like the Solar Initiative, with only 20% proposed for the carbon pollution market program. If possible, we would like to see that percentage made even lower.

The Plan correctly points out that many powerful parallel policies must accompany "cap and trade" in order to remove all the state's ingrained market barriers and regulatory impediments to GHG reduction. State climate programs need to give these parallel measures – like Feed-in Tariffs, carbon fees, and Community Choice Electricity Aggregation – the full force of ARB's backing.

- Sierra Club urges CARB to consider the merits of replacing cap and trade with a carbon fee. A carbon fee would aid business planning and benefit businesses, because the price of carbon under a fee system is more predictable than the outcome of a cap and trade/auction. In addition, such a fee would provide a predictable source of income for the state to put into Scoping Plan implementation. Under the precedent of the *Sinclair Paint* case, expenditures of revenue from carbon fees must be related to the issue of carbon emissions. CARB has not given this fee option the attention or study it merits.

We urge CARB to make even clearer that cap-and-trade is no panacea. Over-reliance on unproven cap-and-trade schemes would be a risky gamble.

- If California establishes a cap-and-trade program, it should require 100 percent auction from the start in order to be fair to everyone, including consumers and producers. Auctioning pollution allowances is the simplest, most fair and effective choice. Polluting industries should receive a clear, immediate indication that the state is heading in this direction. CARB's draft implementation plan says that achieving 100 percent auctioning is a "worthwhile goal."

- In the event a cap-and-trade program is adopted, we agree with the Market Advisory Committee's recommendation of "a transition to full auction within the cap-and-trade program, noting that a system in which California ultimately auctions all of its emission allowances is consistent with fundamental objectives of cost-effectiveness, fairness and simplicity." (Appendix I, p. C-19) On the other hand, we are very concerned by CARB's quote that "WCI Partner jurisdictions have agreed to a minimum percentage of allowances auctioned increasing from 10 percent in the first three-year compliance period to 25 percent in 2020." These low amounts would fail to provide an incentive for early GHG reductions. In addition, the climate crisis is so great, that we need substantial revenue as soon as possible to support massive reductions of GHGs and other air pollutants through fostering the transition to a low-carbon society.

- All of the Northeastern and Mid-Atlantic states involved in the Regional Greenhouse Gas Initiative (RGGI) decided to auction nearly or fully 100 percent of their allowances, even though a much lower minimum was discussed earlier in the RGGI process. Although RGGI was severely flawed by over-issuing allowances, the RGGI states raised \$38.6 million in the first U.S. auction for global warming pollution permits. This money can be used to benefit consumers and invest in clean energy and other green investments.

- Giving away pollution permits for free would generate windfall profits for polluters and enrich out-of-state corporate shareholders at the expense of Californians.
- Sierra Club strongly supports the CPUC and CEC recommendation that “all auction revenues be used for purposes related to AB 32.” This money should go toward clean energy technologies, public transit and environmental mitigation, green jobs, and aid for low-income consumers and small businesses. Funding will also be required to provide training in renewable energy job skills for people now working in the fossil fuel industry and to help low-income consumers and small businesses reduce their utility bills through greatly improved energy efficiency.
- Sierra Club is concerned that aligning with the Western Climate Initiative (WCI) could dilute California’s program and result in fewer emissions reductions and more delays, unless California can bring other states up to higher standards than WCI is currently recommending. The Design Recommendations for the WCI Regional Cap-and-Trade Program states (Appendix I, p. D-54): “The WCI recommends each Partner auction a minimum percentage, between 25 percent and 75 percent, of its allowance budget.” If California agrees to this, it could mean that between 25% and 75% of emissions allowances will be given away for free to the biggest polluters in the state. This is unacceptable.
- Direct reductions in capped sectors are vastly preferable to offsets. CARB should require power and oil companies to invest in renewable energy and cleaner transportation, rather than to pay someone else in some other jurisdiction to reduce their pollution. Any offsets should be limited in number and subjected to rigorous criteria (See more discussion below). We are also concerned about how WCI’s recommendations for cap-and-trade and offsets relate to concerns of the environmental justice community. We note that, among WCI member states, California is the only state with an official environmental justice advisory committee for climate issues, and we are disturbed by the failure of the WCI process to give sufficient attention to EJ concerns.
- California should not allow emissions trading with any jurisdiction that does not have a hard emissions cap of AB 32-like stringency, because such trading would remove the assurance that our emissions reductions were real.
- No trading in emissions should be allowed if it causes “hot spots” that exacerbate air pollution at the local level, especially within communities already beset by environmental justice issues.
- Aggressive steps must be taken to guard against leakage by measuring the carbon emission at its actual point of production for electrical generation consumed in CA at its actual point of production.
- Every product manufactured in the world today has its own carbon footprint—the carbon emissions associated with the production of that product. To maintain a fair market for California goods, CARB should require that producers of emission-intensive products imported for consumption in California purchase the same emissions allowances that California producers must when they sell their products in the same market. Similarly, emissions associated with products produced in California but exported should be allocated to the exporting state or nation rather than California. Any other principle would sorely disadvantage California industries and act as a powerful lever for driving additional jobs offshore.

OFFSETS

CARB's Plan undercuts its cap-and-trade program by unduly relying on offsets. These are credits that polluters in capped sectors can buy based on estimated pollution reductions made by others in uncapped sectors. In this way, offsets substitute for cuts that could have been made directly by polluters in the electricity, industrial, and transportation sectors directly addressed by cap-and-trade. Both CARB and WCI

would allow approximately half of the required pollution reductions under a cap-and-trade system to occur through offsets.

However, CARB's plan goes beyond the WCI's minimum offset limit. WCI allows states to use offsets for as much as 49 percent of reductions over the lifetime of the program without rules on when polluters can use offsets. Under that approach, polluters could rely entirely on offsets in the early years of the program, which could allow polluters in capped sectors to delay making their own emission reductions until later years, in some cases not until 2018. In contrast, California has decided it will limit the use of offsets to 49 percent during each three-year round of reductions under WCI. In that way, California will guarantee at least some real reductions in sectors covered by a cap-and-trade system throughout the program's earlier years.

Rather than outsourcing efforts around the world through offsets to cut GHG emissions, California should be aggressively harnessing its own energies and capacities to develop new clean technologies that can help reduce global warming pollution here and around the world.

- If offsets are allowed, they must be very limited in number and subjected to rigorous criteria. The Proposed CARB Scoping Plan suggests limiting offsets to 10 percent of a firm's "compliance obligation." CARB must clarify that this means that no more than 10 percent of the emitter's required reductions may come from offsets, not 10 percent of its total emissions.
- While the proposed plan does limit emission offsets more than the draft did, it still allows up to 49 percent of emission reductions to come from offsets, from anywhere in the world – not just from California. This would allow pollution to continue in low-income communities that already carry a heavier burden of polluting industries. ARB must put in place strict safeguards to assure that pollution trading and offsets do not harm air quality in those communities.
- We are opposed to any system that would relieve any domestic emitter of carbon from paying for their fair share of the costs of the carbon they emit in exchange for “offsets,” either for internationally produced CO₂ emissions or domestically for activities designed to enhance carbon sinks, like tree planting. While government and private support of improved soil carbon content and reforestation are highly desirable, it is impossible to retain the integrity and effectiveness of a program to reduce domestic CO₂ emissions if it is combined with an international trading mechanism involving efforts to preserve and enhance carbon sinks.
- We oppose trading between sources of carbon pollution and sinks, like forests, that store carbon. The ability of forests to store carbon should not become a justification for maintaining higher emissions of air pollution. We need both 80% reductions in domestic CO₂ emissions and strong programs to enhance carbon sinks; we should not “trade” them off against each other. This separation of carbon control systems is especially important given the increasing vulnerability of California's forests and other flora owing to fire, drought and potential effects of climate change.

2. California Light-Duty Vehicle GHG Standards (p. 38)

- Sierra Club supports implementation of the Pavley “Clean Cars” standards, which continue to call for reduction of global warming pollution from personal vehicles. While the Pavley standards will help us to meet 2020 requirements for greenhouse gas reductions, California needs more improvements in vehicle technology before 2020 in order to meet our 2050 goals. The state should immediately begin a dramatic shift toward plug-in hybrid electric vehicles and battery electric vehicles to begin the ramp-up needed to meet 2050 greenhouse gas reduction goals. This should be stated specifically in the Plan to make sure it is implemented.

- The state should immediately create a Battery Electric Vehicle Partnership with industry to speed the electrification of its light-duty vehicle fleet.
- The minimum goal of 7,500 Zero Emission Vehicles (ZEVs) currently required by the Zero Emission Vehicle Program in 2012-2014 is grossly inadequate. CARB should establish a goal of hundreds of thousands of ZEVs in that timeframe, and recommend increased funding for immediate development of plug-in hybrid vehicles and infrastructure for all plug-in vehicles.
- CARB should create a program and incentives to encourage conversion of the 100,000 hybrids now in use to plug-in hybrids, and mandate all appropriate state fleet vehicles be plug-in or zero-emission vehicles.
- CARB's Plan to reduce tailpipe emissions from cars and trucks recommends that the state evaluate and possibly implement a "feebates" program, a system of one-time rebates and surcharges on new passenger cars and light trucks based on the amount of global warming pollution they emit. Sierra Club supports a feebates program that could supplement California's tailpipe standards. According to a University of Michigan study, implementing a clean car discount program would deliver an additional 21 percent reduction in global warming pollution beyond the tailpipe standards.

Important: Sierra Club supports adoption of a “feebate” system in addition to the Pavley regulations, not just as a back-up to the Pavley regulations.

A feebate program would make cleaner cars more affordable for everyone. Cleaner cars cost less to operate, so people would save money on gas. Automakers would have an added incentive to produce cleaner vehicles.

3. Energy Efficiency (p. 41)

- Sierra Club supports all the energy-efficiency efforts listed by CARB. In fact, we believe that even greater reductions in the pollution that causes global warming can be gained by further strengthening efficiency and conservation efforts. In particular, it is necessary to strengthen independent auditing, measurement and verification of efficiency measures and programs.
- The Plan’s goal of 32,000 gigawatt-hours of electric power demand reduction by 2020 falls far short of the economic potential for 60,000 gigawatt-hours of savings if all technology options are included (as described in the California Energy Commission 2007 Integrated Energy Policy Report, p. 98). The larger goal is more in line with the Western Governors efficiency recommendation of 20% reduction from projected demand, which their advisory panel said was likely achievable well before the 2020 target year if best practices were used.
- The mandatory Green Building Standards Code update scheduled for 2010 needs to be strengthened. CARB pressure could help. Commissioning, quality control and enforcement of green building standards and practices in actual construction and renovation has become acutely important as evidence mounts within the trade that many so-called “green” projects do not deliver the efficiency savings advertised.
- Can CARB provide more detail in terms of the three measures in CR-1 (separate out the expected reductions from the three strategies outlined)?
- By 2020, California should be able to go well beyond the SB 1470 goal of only 0.1 million tons of annual reductions from solar water heating, through encouraging public-private partnerships.

- CARB should recommend to the CPUC that energy-efficiency programs be administered independently from the utility companies, and expand the use of Standard Offer contracts based upon performance. The California Public Utilities Commission investigated this in 2002 and concluded that independent providers were more cost effective, particularly for residential customers. The CPUC is developing independent and objective systems for measuring and verification of energy-efficiency program savings, and should be urged to fully deploy this in a timely manner.

4. Renewables Portfolio Standard (p. 44)

- Sierra Club is pleased to see CARB's recommendation for a 33% Renewable Portfolio Standard (RPS) for electricity providers. This forward-thinking measure should be quickly given the force of law for all utilities, either by regulatory action or by legislation.

Sierra Club presented the Governor and the legislature's leadership with a 14-point plan to reform and supplement RPS.

- We appreciate the mention of [0]"broad-based participation from many parties and the removal of barriers." We look forward to more consideration of the environmental and consumer points of view.

- Although the Plan mentions "Community Energy" and "municipal utility operations," there is no mention of Community Choice Aggregation (CCA), a specific authority under California law (AB 117, Migden). CCA offers large potential for local governments to move aggressively toward meeting or exceeding the state's mandated Renewable Portfolio Standards (RPS). Over 40 cities and counties in the state have performed feasibility studies financed by the California Energy Commission and the U.S. Department of Energy, with over two dozen jurisdictions in advanced stages of planning for actual implementation. Marin County, Oakland, Berkeley and Emeryville, as well as San Francisco have either established or are considering a target of 50% or more renewables for all customers within their service region by 2017. When achieved, such targets represent the single easiest way for municipalities to comply locally with whatever AB 32 stipulations may be imposed. Sierra Club urges ARB to make CCA a central part of its GHG reduction strategy in the near and medium term.

- Sierra Club is very pleased with the inclusion of the option of "a Feed-In Tariff for all RPS-eligible renewable energy facilities," but questions the phrase "up to 20 megawatts in size." We favor implementation of feed-in tariffs at once for all sizes of facilities. Feed-In Tariffs (FiTs) are efficient tools for speeding adoption of renewable electricity generation and stabilizing market prices of new technologies. Already used in more than 37 countries, and under consideration in Michigan, Minnesota, Illinois and Rhode Island, FiTs establish a price for renewables — guaranteed for 20 years or more — based on the cost of producing that electricity plus a fair profit. These rates usually have a modest impact on customer bills compared to conventionally generated electricity. (In Germany, for example, the FiT cost to consumers equals the price of a loaf of bread per month.) FiTs allow manufacturers and renewable project developers to predict demand, and to invest with confidence. California should model its FiTs on those programs that have achieved significant growth of renewables. A FiT in California should be tied to meeting the state's goals for renewables. CARB should also recommend restructuring state law to allow more favorable renewable energy price structures.

- California Energy Commission's workshops on Feed-In Tariffs need to offer much more aggressive and comprehensive options, and CARB must prod CEC to do this.

- As the California Energy Commission's recommended in its 2007 Integrated Energy Policy Report, any carbon trading system should reduce allowances according to an appropriate evaluation of the effects of the renewable portfolio standard — in order to avoid oversupply of allowances.

- CARB should consider and address the full life cycle of emissions whenever possible. Currently, there appears to be an inconsistency across sectors. Transportation fuels take a full life cycle approach, but the energy sources for electric generation and end-use natural gas consumption do not. Unfortunately, the CPUC's interpretation of SB 1368 would allow about five million tons of GHG per year per Liquefied Natural Gas (LNG) terminal to go into the atmosphere without being "counted" as part of the state's carbon emissions, if these terminals are constructed. This is not an abstract issue, as we already face the likelihood of imported LNG increasing the carbon footprint of pipeline natural gas from Texas and Mexico. That is a loophole that should and must be closed: five million tons of GHG per year is roughly equivalent to the emissions of one million cars.
- Sierra Club urges CARB to ensure that electric power generators be held to an increasingly stringent carbon standard, and that the carbon standard be applied to all generators, whether under contract or utility owned, and to all types of retail sellers of electricity within the state.
- Sierra Club believes CARB's target of reducing coal generation 40%, or 13,000 gigawatt-hours, by 2020 is an achievable goal, provided that utility companies are held to the renewable energy and efficiency targets.
- Industrial boilers, oil refineries and glass manufacturing represent excellent opportunities to recover waste heat for electric generation and other purposes.

5. Low Carbon Fuel Standard (p. 46)

- We are looking forward to implementation of a Low Carbon Fuel Standard that accounts for all environmental impacts on a life cycle basis.
- However, we are disappointed that the Proposed Scoping Plan contains no explicit projections for carbon reductions from implementation of a rigorous Zero Emission Vehicle (ZEV) program. An ambitious ZEV program, plus plug-in hybrids, could achieve significant GHG savings.
- The plan should include specific requirements for automakers to sell hundreds of thousands of zero-emission vehicles annually by 2020.

6. Regional Transportation-Related Greenhouse Gas Targets (p. 47)

- The Plan should do more than just "encourage" local city and county climate action plans. This planning should be required.
- This need not be an unfunded mandate: most cities lack funding and expertise to craft adequate climate plans. CARB should take the lead in devising incentives – carrots and sticks – and means of financially assisting or persuading cities to comply.
- The Plan should include stronger measures to reform land use planning in ways that reduce vehicle miles traveled (VMT). (See Newman and Kenworthy paper on how one passenger-mile of transit use can reduce 3–7 passenger-miles in a car.)
- Expand Regional Blueprints already underway. These should include transit-oriented development, walkable, bikeable communities, mixed land uses, requiring Regional Transportation Plans to have strong requirements for reduction of vehicle miles traveled and more.

- We are concerned with how this section of the Plan deals with land use measures. The Plan's land use goals are not ambitious enough. Targets are too modest. Tools identified to cope with the problem are inadequate. And serious reflection of public health, social and economic co-benefits of forceful action is lacking.
- SB 375 is insufficient by itself. Needed also are tools for local governments to translate GHG reduction targets into local action.
- The Plan only counts reducing 5 million metric tons (MMT) of carbon equivalent per annum by 2020 from actions in this sector. This is only about 3% of the total reductions. By comparison, the Sacramento Area Council of Governments (SACOG) blueprint could reduce carbon emissions by roughly 1 MMT by 2020, even though SACOG's region currently contains no more than 1/15th of California's population.
- An April 2007 Cal/EPA report, "Climate Action Team Proposed Early Actions to Mitigate Climate Change in California, Draft for Public Review," allotted 18 MMT by 2020 to "regional transportation/smart growth land use measures."

The methodology CARB used to generate its current 5 MMT estimate is outdated and flawed.

- For a document as important as the AB 32 Scoping Plan, CARB should draw on the broadest possible range of studies and methodologies available to generate their estimate of reductions from the land use sector. Instead, they rely on a single study (The UC Berkeley report) to generate the 5 MMT estimate.
- The regional model simulations in the UC Berkeley report are widely acknowledged to understate the benefits of dense mixed-use development.
- Even the author of the UC Berkeley report criticizes the models in her study: "the results confirm that even improved calibrated travel models are likely to underestimate VKT [vehicle kilometers traveled] reductions from land use, transit, and pricing policies. These models simply are not suited for the policy analysis demands in the era of global climate change."
- Rather than basing their estimate on a single study, CARB should examine a more recent report from the authors of Growing Cooler, which suggests that reductions of 11-14 MMTs are possible by 2020 (The Ewing Report).
- Unlike the UC Berkeley report, the Ewing Report is based on actual historical data for a 20-year period exclusively from California. It is far more realistic in its projections than a series of regional modeling studies from different states and nations with widely differing circumstances (as included in the UC Berkeley report).
- More compact neighborhoods and less driving are the essence of the EIR for SACOG's Blueprint scenario. SACOG plans to devote much less land devoted to urban uses and to cut carbon emissions while saving farmland – providing public health and economic savings for households and businesses where less driving is required. Reduction of trips through good neighborhood design must be a CARB imperative from now on.

CARB must set a higher 2020 target for land use in order to put California on track for the 2050 target.

- We simply can't afford another 10 years of "business-as-usual" development. If CARB sets a low target for land use, the result may be 10 more years of sprawl. This will make it impossible to reach our 2050 target.
- For California to achieve its 2050 target, we must achieve VMT reductions of approximately 10% by 2020 and 20% by 2030. The current 5 MMT target equates to a 4% VMT reduction by 2020 – less than half of what is needed to keep California on track.

GHG Reductions from Land Conservation should be quantified and prioritized

- In addition to reducing VMT, smart growth also reduces greenhouse gas emissions by preserving landscapes that sequester carbon, such as forests, agricultural lands, and oak woodlands. CARB should establish guidelines for quantifying the emission reduction benefits of preserving these landscapes, and for mitigating the GHG emissions and loss of sequestration resulting from conversion.
- There are a number of possible mechanisms for implementing this strategy, including SB 375, CEQA, and Indirect Source Review.
- Many of California's carbon-capturing landscapes are outside of regional transportation metropolitan planning organizations (MPOs), and therefore are not covered by SB 375. CARB should ensure that additional policy measures are adopted that apply to these rural counties.
- SB 375 and other land use measures should be coordinated with the Sustainable Forests measures to avoid duplicative efforts and maximize benefits in both sectors.

Smart Growth is Good for California's Economy

- Smart growth is a net economic benefit for California, according to a recent analysis by Stanford University's Jim Sweeney.
- Californians want and need to live closer to jobs and public transportation choices – because smart growth will free them from high gas prices. The cost of driving a mile in the U.S. nearly doubled between 2002 and 2007.
- The Sacramento Region (SACOG) estimates their smart growth blueprint will save \$16 billion in infrastructure costs by 2030.
- Adopt and require the use of greenhouse performance standards, goals and metrics for transportation planning and projects. Hold state, regional and local agencies accountable for meeting these metrics.
- Sierra Club recommends fast-tracking regional mass transit infrastructure, including Bus Rapid Transit programs (especially on existing freeway HOV lanes).
- We suggest that mandatory employer parking cashout, like that implemented by the city of Santa Monica, be added as an additional measure to evaluate. Employer parking cashout rewards employees that opt for transit, carpooling, and other smart transit choices.
- Many other ways to reduce workplace vehicle-miles-traveled (VMT), such as parking fee increases, telecommuting, etc. that need further study.
- Sierra Club is pleased with the mention of public education about transportation.
- We suggest that increasing public transit services (both bus and rail) be included among the sector-based methods.
- Sierra Club supports CARB's consideration of Pay-As-You-Drive Auto Insurance. We note a recent study by Jason E. Bordoff and Pascal J. Noel, "Pay-As-You-Drive Auto Insurance: A Simple Way to Reduce Driving Related Harms and Increase Equity" (www.brookings.edu/~media/Files/rc/papers/2008/0417_payd_bordoff/0417_payd_bordoff.pdf). Applied to California, the analysis indicates much larger benefits than estimated in the Proposed Scoping Plan. This emission-reduction estimate is about ten times larger than the Plan states, and the Plan overlooks co-benefits such as congestion reductions, crash reductions and consumer benefits.

- Here are a few of the study's key findings. (The full paper will be posted on the Bookings Institution website shortly):
 - An 8 percent driving reduction for light-duty vehicles
 - VMT decrease by 24 billion miles
 - Less fuel consumption by 1.2 billion gallons, based on 2006 levels.
 - Direct annual CO₂ reductions of 10.5 million metric tons
 - Lower premiums for drivers; two-thirds of households would save money.
- CARB should adopt the Indirect Source Rule (ISR) for carbon dioxide.
 - The indirect source rule, already in effect in the San Joaquin Valley for air pollution, is a proven policy tool that helps developers and planners calculate and mitigate the impacts of projects.
 - ISR creates a local revenue fund to help local governments implement Climate Action Plans.
 - Rural non-MPO counties are excluded from SB 375, so ISR would be the only tool that rural counties can use to address the GHG impacts of land use.

In order for ISR to be effective in reducing VMT, it should discourage developers from building far from existing services and jobs, and it should encourage close-in development. To this end, the amount of the fee should be proportional to the VMT, and the computer model used to compute a project's emissions should accurately account for the individual project's VMT.

As a means of encouraging green building, reducing energy use, and promoting good community design measures such as mixed use and walkability, such an ISR should follow the precedent set by the existing ISR to incorporate fee reductions for onsite GHG reduction measures. Remaining fees should be used for projects that reduce GHG as well as criteria pollutants and achieve other environmental co-benefits.

- Lawrence Frank's new study, *Reducing Global Warming and Air Pollution: The Role of Green Development in California* (July 1, 2008, prepared for Environmental Defense Fund), is very supportive of ISR. ISR is tested and effective.
- Allocation of State transportation funds: CARB can exert much more influence on local transportation planning than portrayed in the October Proposed Scoping Plan. All the local transportation agencies vie for State transportation funds. Make those funds contingent on reducing vehicle-miles and carbon dioxide emissions. Allocations should be weighted to strongly favor those local transportation agencies that have the highest population-adjusted reductions in carbon dioxide emissions.
- CARB should prioritize public transit funding:
 - The Plan should make it a top priority to invest in and sustain public transportation and programs to improve transportation efficiency and reduce congestion.
 - When transit is convenient and reliable, people choose to use it. When Bay Area residents both live and work within ½ mile of transit, 42% of them ride it to work.
- CARB should promote efforts to make transportation information available via cell phones. One low-cost innovation is the introduction of everything-on-cell-phone transportation info. Cell phones can coordinate and improve all our existing transportation equipment with:
 - Convenient access to bus and train schedules and next-bus or next-train real-time arrival times;
 - Automatic payment for train, bus, carpool, taxi, or rideshare (with demand-driven price adjustments honing in on the best price for minimum vehicle-miles);
 - Carpools or rideshares scheduled weeks, days, hours, or minutes ahead, or even when a car is parked, or when a car with an empty space is driving by.
 - Real-time ridesharing "buddy selection" (sometimes you want professional peers, sometimes church buddies, sometimes a muscleman for a tandem bicycle).

Innovative transportation funding mechanism:

- CARB needs to consider influencing the means of transportation funding. Consider the roller coaster ride of gasoline prices and transportation funding income over the past year. Add in the economic mess at both Federal and State level. California needs a transportation funding mechanism that provides an incentive to reduce vehicle miles and decrease carbon emissions. Such a funding mechanism makes it easier to influence regional planning.
- One suggestion is to consider auto insurance cost savings. Identify the total amount paid for vehicle insurance in a benchmark year. Then split the savings between government and drivers. For example, Californians (including businesses) paid about \$50 billion dollars for vehicle insurance in 2007. If government actions reduce vehicle-miles traveled (VMT) and accidents per vehicle-mile, the amount spent on vehicle insurance would decline. An overall savings of 10% on insurance could provide California \$2.5 billion for more innovative projects.
- For example, in 2008, an individual might have paid \$1,000 for car insurance plus \$250 in gasoline taxes (that help fund transportation infrastructure). In 2015, because people are using transit, rideshare, etc. to reduce total vehicle miles, the same individual might pay only \$900 for insurance (\$800 for the insurance company and \$100 for government transportation funding) and only \$150 in gasoline taxes (because of better fuel efficiency and 20% less vehicle-miles). In this example, the individual saves \$200 on his/her transportation costs while transportation funding remains the same \$250 per year per individual. However, much more of the \$250 can be spent on road and bridge maintenance, or buses and trains, since reduced vehicle-miles mean less funding is needed for new roads .

Public Toll Roads:

- Many experts are advocating tolls to replace fuel taxes. Los Angeles Metropolitan Transportation Authority plans to convert some high occupancy vehicle lanes to toll lanes in order to secure Federal grants. The problem with tolls is that government or private operators have an incentive to increase vehicle-miles in order to increase the total funds collected. Since private road owner-operators will be especially resistant to programs that reduce vehicle-miles, perhaps we should eliminate any private toll roads.

7. Vehicle Efficiency Measures (p. 29)

- We support vehicle efficiency measures, such as fuel-efficient tire standards.

8. Goods Movement (p. 29)

- We support the ship electrification in ports approved by CARB in 2007.
- Requiring on-dock electric rail and electric drayage would eliminate all diesel emissions inside the port.
- We want to know more details of the Plan's proposed "Goods Movement Efficiency Measures - System-Wide Efficiency Improvements," which CARB has predicted will yield savings of 3.5 tons.
- CARB should work with state transportation agencies to plan commercially viable electric rail systems that would replace diesel trucks and trains. That move would also reduce congestion along California's highways, potentially lowering total vehicle emissions.

9. Million Solar Roofs Program (p. 53)

- We support the Million Solar Roofs Program and its goal of 3,000 megawatts of solar energy for homes and businesses throughout the state by 2017. We note, however, that some reforms in program structure and funding may be necessary to achieve the goal.

10. Heavy/Medium-Duty Vehicles (p. 53)

- We support all three proposals for aerodynamic efficiency, hybridization, and engine efficiency.
- Sierra Club supports CARB's policies to reduce emissions from heavy-duty trucks with hybrid engine technology and other efficiency improvements. This could improve public health by reducing smog-forming pollution. Sierra Club urges quick action to address GHG pollution from heavy-duty trucks, reportedly scheduled for CARB's December 11 board hearing, when it will take up a measure to reduce emissions from tractor-trailers operating in California.
- We request that ARB consider requiring electrification of medium-duty delivery trucks, as well as other means to reduce emissions in this sector.

11. Industrial Emissions (p. 56)

- We support CARB's plan to require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce GHG emissions and provide other pollution reduction co-benefits.
- California's industries (and CARB) could learn from Japan. "According to the International Energy Agency, based in Paris, Japan consumed half as much energy per dollar worth of economic activity as the European Union or the United States, and one-eighth as much as China and India in 2005." (NY Times, July 4, 2008)
- High efficiency co-generation needs to be required for all appropriate new energy installations.

12. High Speed Rail (p. 56)

- Sierra Club endorsed Proposition 1A and supports construction of a High Speed Rail system for California.
- CARB is aware of the ongoing controversy over Altamont and Pacheco Pass routes. We urge CARB to advise the High Speed Rail Authority on the relative carbon footprints of competing routes into the Bay Area, and to assess the relative degrees of cost-effectiveness in reducing carbon when constructed. To the extent that CARB can bring to bear climate considerations and data on this choice, the public will be well served.

13. Green Building Strategy (p. 57)

- Industry evidence indicates a disquieting fact: in so-called "green" buildings, we are not getting advertised energy conservation results owing to improper installation of energy saving features like insulation, framing and lighting. Poorly installed batt-type installation can reduce energy reductions as much as 80%. With improper installation, air leaks occur in the house or building envelope so hot or cold air enters freely, thus negating any energy savings in cooling or heating designed in the plans. Some solar panels are poorly placed. Some reported test data show that supposedly "green" buildings actually use

more energy once in operation than a well-built regular structure.

- Apparently, many contractors don't train employees or give them the time on the job to carefully check their work, nor do building inspectors find these problems. More critical is the construction industry in general is not "Performance Based." For example, a building can get "green" status without ever proving if it is indeed saving energy. Without feedback, the contractors and inspectors don't learn, and the architects never learn if their plans are actually successful in saving energy.
- The solution is requiring verification of building performance before occupancy. In addition, a building could get a temporary green building certification but it would not be final until several years of energy data are collected to prove that the energy reductions are actually being achieved. Contractors need to train their regular employees plus have a well-trained supervisor carefully watching their day labor force implement correct techniques. Building inspectors need to be trained, and they need to enforce proper construction at every step of the project and on every building in a project. Awarding any state-level green building certification should be conditional on demonstrated efficiency.

Absent from the Scoping Plan is a discussion of existing community preservation and historic preservation. While green building is critical for new construction, it should not be used as an excuse to tear down historic buildings or existing communities. Recognition of community preservation and related historic preservation should be a part of all landuse decisions. Since demolition comprises a significant portion of waste generated in California, community preservation is the source reduction part of development. Adaptive reuse of buildings either in place or by relocation should be discussed either in the Green Building section or under landuse as well as linked to the Recycling and Waste section.

14. Recycling and Waste (p. 62-63 and Vol. 1 Supporting Documents and Measure Detail p. C-158 to C-164)

While significantly improved from the first version, CARB's scoping plan should highlight even more aggressively the powerful carbon reduction potential of zero waste and extended producer responsibility: first, reducing waste by design in manufacturing process, then reusing, recycling or composting products. We suggest that the findings of the new report "Stop Trashing the Climate," released June 5, 2008, (<http://www.stoptrashingthecclimate.org/>) be considered for the Scoping Plan. The report, by GAIA with the Institute for Self Reliance and Eco-Cycle, brings together information about recycling, plus source reduction, reuse and composting. Further, it describes how scaling up recycling, reusing materials and products, and shrinking the size of a community's waste stream can greatly reduce greenhouse gas generation and related climate damage:

"Incinerators and landfills are relics of an unsustainable past that have no place in our green economy. The report, "Stop Trashing the Climate" shows that zero waste -- that is, preventing waste and strengthening recycling and composting -- is one of the fastest, cheapest and most effective strategies for confronting global warming." Carl Pope, Executive Director, Sierra Club

While it is commendable that Californians are recycling as much as they are, the statement that existing diversion rate from landfills is 54 percent is a misleading statistic. The critical statistic is how much is landfilled today as compared to the 1990 base year. When the current disposal tonnages are used, Californians will see that they are landfilling almost the same amount today as they did then. Per capita waste disposal is down but we are still wasting huge amount of raw materials. Using the true disposal figures shows that there is huge opportunity to both reduce what we generate and increase what we compost, reuse and recycle.

ETAAC submitted to CARB an excellent set of recommendations for the waste sector but only some were included in the Plan. We strongly urge CARB to include ALL the ETAAC recommendations for the waste sector.

We believe there are many more tons of carbon reductions possible from aggressive zero waste and extended producer responsibility programs. Our top improvements to the Plan are:

1. Mandate the collection of commercial recycling which can be phased in by commodity starting with corrugated containers and other paper, organics, metals and then specific plastics.
2. Stop the use of alternate daily cover (ADC) made from compostable material as this increases the chance of methane generation and release, and eliminate recycling credit given for ADC.
3. Aggressively work to site more composting operations and complete all needed studies to resolve the issues of VOCs from composting.
4. Support the EPR Framework legislation and once signed into law, work quickly to implement the law.
5. Move cautiously in any action that might increase methane from open or closed landfills as any action to increase energy development from landfills may actually increase fugitive releases of methane and other VOCs into the atmosphere. The Precautionary Principle should be used in any action regarding landfill gases.
6. Use current disposal tonnages rather than diversion tonnages as the final arbiter of success.

Inclusion of specific measures for these actions with emission reduction numbers and deadlines should be attached to each action.

Landfill Issues – Organic Wastes, Alternate Daily Cover and Methane Generation and Collection

Landfill waste disposal should be phased out by requiring recycling and making manufacturers responsible for the end-of-life disposition of their products. Wastes should be separated, particularly organic wastes, for effective composting and to reduce the risk of generating methane. CARB should explicitly reject carbon credits for landfill carbon sequestration. Alternative Daily Cover (ADC) that uses green waste or wood waste should not be given recycling credits or counted as recycling. This actually de-incentivizes diversion of green waste into composting and methane energy capture.

While CARB's plan supports separation of organic and compostable materials CARB's suggestion to capture and utilize landfill methane gas should not be construed as support for continued dumping of green waste into landfills. Landfill capture of methane is far less efficient than what is possible with green waste separation. This is especially crucial given that methane is a far more potent greenhouse gas than carbon dioxide. Some research shows that attempts to capture and convert landfill gas to energy (LFGTE) actually can cause more emissions than just flaring the gas under certain conditions. In addition, the common assumption that "the majority of methane gas that escapes the landfill can be flared and converted to CO₂" may not be valid in many cases. A common default or "blanket" assumption that 75 percent landfill gas collection rate may be invalid and is under review by CARB. The International Panel on Climate Change (IPCC) states that some landfill sites may have less efficient or only partial gas extraction systems, and there are fugitive emissions from landfilled waste prior to and after the implementation of active gas extraction; therefore estimates of lifetime recovery efficiencies may be as low as 20%." The International Council for Local Environmental Initiatives agrees with the IPCC: "a default estimate of the recovery efficiency should be 20%."

To operate LFGTE economically, landfill operators must increase the concentration of methane in landfill gas significantly while degrading the efficiency of gas collection systems by leaving the cap off longer,

replacing vertical collection wells with flexible horizontal pipes, and decreasing vacuum pressure. *This may result in increasing net overall GHG emissions, instead of reducing them.*

CARB's underlying assumption is that methane gas has a global warming factor of 21 (i.e. 21 times more potent than CO₂). But that is the relative harm over 100 years. The short-term harm (important when considering the tipping point when global warming reaches a point of no return) is much greater. Over a 10-20-year period, it is estimated that the relative harm of methane gas is 72-90 times greater than CO₂ due to methane's unique properties. All this indicates CARB should exercise considerable caution in making LFGTE assumptions and recommendations.

High Recycling / Zero Waste and Market Development

- CARB's plan should stipulate mandatory commercial recycling (even with recycling markets at their current bottom, because credit problems are the issue, not lack of markets). Infrastructure exists in California to handle all the materials collected, and in most cases, mandatory commercial recycling will not require local governments to modify existing collection contracts. It should require the state to mandate collection or ban the landfilling of paper, metal and certain plastics, as well as green waste.

It has been almost twenty years since California signed AB 939 into law. Since that time, businesses and institutions have had ample time to implement commercial recycling, and yet these sectors still generate more than half of what is disposed of in our landfills. The time for voluntary action is over. CARB needs to show the political will to truly reduce greenhouse gases by mandating commercial recycling for all materials where even negative value markets exist.

Composting, reuse and recycling facilities should be included in local government critical infrastructure plans along with water and sewage treatment plants. All are necessary for a community to be sustainable. In many cases regional compost, reuse and recycling facilities are an alternative to each community having their own set of zero waste operations. However, cities should be encouraged to locate facilities close to the point of generation, especially composting operations, so as to reduce transportation-related energy consumption and to allow residents and businesses to use their own compost locally rather than shipping in finished compost. We encourage cities to landbank for critical infrastructure projects like compost facilities.

- We propose statewide installation of "Resource Recovery Parks" to include facilities for reusing, recycling, composting, and minimizing the discarding of materials. They can also incorporate facilities for repair services, retail sales of reclaimed products and landscaping supplies, organically composted gardens, educational tours, and public amenities. Such a model park currently operates in the city of Marina in Monterey County.
- Fees collected from the sale of carbon credits or other greenhouse reduction financial mechanisms should be made available in the form of grants, loans or tax credits to private or public composting and reuse or recycling manufacturing facilities.
- Successful Zero Waste initiatives require effective outreach and educational programs. CARB should utilize the legions of young people who are not only are enthusiastic and care about waste reduction, recycling and global warming but are also willing to go out and do something about it. CARB should aid these individuals in helping educate our communities about the issue. Recycling ambassador programs throughout state and local government agencies should be instituted so that students and other volunteers can go door-to-door educating residents about the need for and the benefits of recycling. In addition, new home owners, apartment dwellers and other residents should receive information after moving to a new

residence that explains to them the recycling policies in their neighborhood and encourages them to do so. People are willing to do what it takes to pitch in, but if they have no idea how to do it, they won't even begin. This type of outreach should be a critical aspect of the CARB plan.

- Government purchasing power is very powerful. Along with existing Environmentally Preferred Programs, a new program discouraging the purchase of single use disposable items and encouraging refillables and reusables needs to be implemented.
- CARB is to be commended for stipulating “lifecycle tracking” of manufactured products, giving priority to reusables and locally manufactured items.

Conversion Technology

Sierra Club Policy does not support incineration of mixed solid waste. The Club is reviewing options of recovering energy from source-separated parts of the solid waste stream, e.g., restaurant cooking oil, sewage sludge, and food waste. However, burning or converting a material to a different state can require more energy than the energy recovered. Further, conversion technology facilities require significant investments of funds, public and private and dedicated waste streams and can discourage the development of reuse or recycled markets for those same materials. Developing new products from waste materials creates more jobs than burning or “converting” those materials. So like landfill gas, we recommend the use of the Precautionary Principle before embarking on new conversion facility development.

15. Sustainable Forests (p. 27)

- The forest sector can play an important role in sequestering carbon from the atmosphere, but the targets outlined in the scoping plan continue to be quite weak. We encourage the ARB to revisit the targets as data improves, and re-evaluate whether a more aggressive target is appropriate.
- While there will inevitably be a role for the California Department of Forestry, the Board of Forestry, and the Resources Agency in developing regulations and conservation strategies for the forest sector, it is imperative that the ARB retain a clear leadership role in evaluation of the standards, the certainty of potential emission reductions, and the consistency of the inventory and accounting.
- Any perceived reduction in potential wildfire-related emissions attributed to fuels reduction activities should be considered highly speculative and should not be used to reach the 5MMTCO₂E target. While fuels reduction actions in certain locations, such as near homes and communities, may be a public safety priority, it is not at all clear that there is a net savings of carbon emissions associated with these activities.

To the extent that there is an increased focus on using forest biomass to generate electricity, it is important that biomass utilization not lead to adverse forest management practices. It makes sense to utilize the material created from community protection efforts, or incidental to an otherwise lawful harvest, but we should not allow biomass production to impact important habitat areas, including riparian areas, late seral forests, or other sensitive habitats.

16. Water (p. 65)

- We support a public goods charge for funding investments in water efficiency that will lead to reductions in greenhouse gases.

- We are pleased that CARB staff calls for a 20% reduction in water use, but disappointed that agricultural water use is not included among the efficiency targets. Agricultural water use accounts for more than three quarters of the state's total water use.
- Moving, treating, heating, and desalting water consumes energy. Producing energy consumes water. Some innovative ideas to reduce water consumption:

- Installation of smart water meters:

Install smart radio protocol meters (aka Advanced Metering Infrastructure (AMI)) and an associated remotely adjustable pressure reduction valve to municipal and industrial water users and similarly smart meters with appropriate transmission technology to agriculture. AMI allows leak detection and can also provide the same differentiation between domestic and irrigation water use as two separate meters. Single-family dwelling water price could depend on water use. The associated valves could be authorized by customers to reduce the pressure, should they be at risk of excessive use of water for the month (financial penalty). (A phone call or web entry would allow customers to draw on "rollover" or "banked" gallons or even to "sell" their banked gallons to others.) The smart water meters could communicate with the smart electric and smart gas meters to quickly calculate the actual energy savings of a solar hot water heater. The pair could automatically adjust the energy savings for a change in family size causing a change in water use.

Local water agencies may conserve on water storage infrastructure with the AMI meters. Should the agency's water be needed to fight a fire or should a pipe failure or earthquake interrupt supply, the agency can ration water use. For example, if calculations suggest homes need to reduce use to 100 gallons per day, the agency can turn off the water for each home when the home use reaches 100 gallons each day.

Ask the California State Water Resources Board, the Public Utilities Commission, and the California Air Resources Board to coordinate. Southern California Edison is installing AMI to relay real-time data and possibly control use. Local water agencies could contract with or coordinate with electric utilities to relay water use and control-valve communications.

- Implement "Pay as You Save" utility programs for water conservation, too:

By including water savings in "pay as you save" programs, utilities could provide energy efficient appliances, solar water heaters, insulation, solar energy systems, co-generation furnace replacements, long-haul tractor conversions to electric-natural gas hybrids etc. Utility customers would pay for the equipment over time, via their utility bills with no up-front payment, no debt obligation, no credit checks, and no liens needed. Utilities can guarantee that the customers' monthly utility bills will be less than before the installation of the energy and water saving technologies. Because the arrangement is attached to a property and not a person, even renters can benefit.

- Include greenhouse gas emissions credits for water savings:

Allow greenhouse gas emissions credits for the water purveyor based on a calculation that includes greenhouse gas emissions from the customer's side of the water meter.

17. Agriculture (p. 66)

- Sierra Club remains extremely disappointed with the Plan's low expectations for agriculture. The initial Plan only mentioned 1 potential MMT equivalent of GHG reduction from methane capture at large dairies while the state's GHG inventory shows 13 MMT equivalent of methane emissions from manure management and enteric fermentation. Agriculture contributes about half of California's methane emissions, but is far from contributing its share of reductions under the current Plan. This is especially serious considering that conventional models of methane underestimate its effect. The CEC's inventory

used a GWP of 21, revised upward from the early figure of only 11. The figure used by CEC lags behind current science, as the newest figures show a 100-year GWP of 25. However, there are major questions around using a 100-year GWP when CH₄ is only resident in the atmosphere for about 8 years. The 20-year GWP, which has currently been upgraded to over 70, would be more appropriate. If a 20-year GWP is applied, methane would be seen to contribute 17% of the state's greenhouse gas impact rather than the "official" 2004 figure of 5.7%. If shorter term timeframes are examined, which match the 8 year residency of methane, then the role of methane would be much greater. In addition, one NASA scientist has evidence that methane may be twice as powerful as IPCC assumes. Thus, methane may represent even more of a threat in human induced global warming. The flip side is that its short residence in the atmosphere may also represent a great opportunity to lower GHGs rapidly. This could be amplified by the fact that, unlike carbon emissions, the vast majority of anthropogenic methane emissions can apparently be rapidly absorbed by sinks. Tackling the global methane problem—compared to CO₂—is thus a relatively rapidly achievable goal, and a state like California could contribute disproportionate benefits that might have truly global significance.

- Studies have shown significant methane emissions from bovine digestion, which raises the question of whether a carbon tax should be applied to dairy products, such as beef and milk.
- In Department of Conservation's study of greenhouse gas emissions associated with conversion of agricultural land to urban uses, both direct and indirect emissions should be considered. Promoting more compact, efficient, transit-oriented urban development will not only reduce greenhouse gas emissions from vehicle travel but also conserve agricultural land by minimizing conversion to urban use.
- The Plan should reference and encourage CDFA's development of a strategic plan for agriculture. Efforts to minimize conversion of prime farmland will be helped if agricultural enterprises now on the land maintain profitability and sustainability.
- The Plan should emphasize that linking good land use with local food systems can reduce transportation-related emissions, provide a premium for farmers selling locally, and even improve access to healthier foods.
- State and local governments could increase access to local foods, for example, by direct investments, incentives and public-private partnerships to develop needed local foods system infrastructure.
- Joint action by the Department of Food & Agriculture and CARB could significantly increase the amount of locally produced food consumed in the state – thus reducing more emissions from transportation. CDFA and CARB could work together to track and measure "food miles traveled" and seek ways to cut distances from food to producer. Cutting down on transport of agricultural products from agriculture areas to other parts of the state would lessen GHG.
- The Plan should address urban agricultural issues, such as:
 - a) What funding can the state supply to assist municipalities in supporting urban agriculture?
 - b) What focus can CARB bring on removing barriers to urban agriculture? CARB and CDFA could work together to: find useable land for community gardens, inventories of such land; test for toxicity; reach out to potential urban gardeners; recast city regulations in favor of urban orchards, edible landscaping, local composting, and rooftop gardens; and provide more UC Master Gardener training and technical assistance?

c) Could CARB facilitate funding of local offices in each municipality to inventory potentially available state-owned lands and mobilize local community gardeners and organizers?

- Many studies by California scientists and others throughout the world have shown how organically grown crops have significantly lowered GHG emissions, from non-use of nitrate fertilizers, retention of carbon in soils, and other means.
- The Plan needs to highlight the greenhouse gas reduction benefits of organic agriculture. The California Energy Commission Climate Change Research Conference Sacramento, September 10-13, 2007 has five presentations: http://www.climatechange.ca.gov/events/2007_conference/presentations/index.html
- Data from The Rodale Institute's long-running comparison of organic and conventional cropping systems confirm that organic methods are far more effective at removing the greenhouse gas, carbon dioxide, from the atmosphere and fixing it as beneficial organic matter in the soil. See Laura Sayre, 2003 http://www.newfarm.org/depts/NFfield_trials/1003/carbonsequest.shtml

-- Another study shows confirmed ecological virtues of organic farming
www.pnas.org/cgi/reprint/103/12/4522.pdf
<http://news-service.stanford.edu/pr/2006/pr-organics-030806.html>

D. Public Health and Environmental Justice Issues Must Be Addressed

- The Proposed Scoping Plan has failed to adequately respond to concerns raised by the EJAC and public health community.
- CARB should adopt the EJAC's recommendations to increase the 2020 target for land use, invest in public transit in low-income communities, and create incentives for local governments to reduce their emissions.
- The public health analysis should include specific data about public health impacts associated with community design, including impacts on obesity, chronic disease and public safety.
- CARB should ensure that the public health community has an ongoing, formal role in shaping AB 32 policy.

Sierra Club supports the following text recommended for insertion into the Plan by the Coalition for Clean Air and other California organizations.

- ARB will adopt a cumulative impacts assessment method within a year or prior to the adoption of AB 32 related market-based regulation and identify communities "already impacted by air pollution" cumulatively to ensure uniformity and consistency among the state, air districts and other local governments so that communities identified as impacted by one agency do not get categorized differently by another;
- ARB will evaluate the potential negative impacts (if any) of all subsequent AB 32 regulations in these communities prior to their adoption and incorporate safeguards;
- ARB will design the market mechanism compliance protocols to achieve maximum emission reduction and co-benefits in the most disadvantaged communities by including incentives and restrictions; and
- ARB will initiate a public process within three months to determine and recommend the percentage of resources generated through AB 32 related auction and fee revenues that can be directed to assist in adaptation and emission reduction measures for those communities and small businesses most disadvantaged by climate change or air pollution impacts.

E. VOLUNTARY EARLY ACTIONS AND REDUCTIONS (p. 67)

- We are pleased CARB is studying means to reward voluntary early actions reductions.

F. USE OF ALLOWANCES AND REVENUES (p. 69)

- We support most of the uses listed, particularly those related to environmental justice, such as “achieving environmental co-benefits.” However, we are not supportive of “direct refund to consumers,” unless such “refunds” can be tied directly to GHG reductions.
- Criteria and toxic air pollutants create health risks, and some communities bear a disproportionate burden from air pollution. We support ideas that benefit these unfairly impacted communities.
- Revenues should be prioritized for projects that reduce both GHG emissions and also provide reductions in air and other pollutants that affect public health.
- We are pleased that CARB has provided a positive discussion of carbon fees. We think that the range of \$10 and \$50/ton would be reasonable; this fee could start low and gradually increase over time as needed.
- A \$30-per-ton fee on all greenhouse gases would provide revenue of approximately \$12 billion per year, which is less than 1/100th of the California economy. This money could be restored immediately to the state economy, encouraging local investment in clean technologies and green jobs, activities with a bright prospect in a carbon-constrained world. Revenues could also provide rebates for low-income consumers.
- We believe that it should be possible to quantify some of the benefits from the expenditure of the funds on projects that provide considerable GHG emission reductions. For example, transit operators know increased frequency of service and lower fares can increase ridership. Recovering waste heat, either to generate electricity or from generating electricity, has specific value to commercial and residential utility customers.
- On carbon pricing, emissions fees should be analyzed along with a cap-and-auction system, as the Plan proposes. We need the income to fund CO2 reductions.
 - Polluters always should have to pay for cleaning up the damage they cause. Therefore, if a carbon market is established, all emission allowances should be auctioned. The Plan states (page 16), “These allowances could be freely distributed to capped firms or auctioned in the trading market.” We are opposed to free distribution of allowances, since they don’t encourage accountability and provide much less motivation to reduce GHG emissions.
- Major emitters should pay for the cost of administering this program.

III. EVALUATIONS (p. 73)

Specific economic benefits of energy efficiency and clean energy measures can be evaluated based upon the sum of:

- 1) Projected and avoided costs for these energy supplies,

- 2) In-state jobs and manufacturing due to green economic activity,
- 3) Federal tax credits benefits and in-state tax revenues,
- 4) Export revenues, and
- 5) Environmental and public health benefits.

- CARB’s analysis of public health benefits of transportation efficiency measures focuses only on respiratory medicine and economic benefits of reducing respiratory disease. While this analysis provides powerful support for the Plan’s vehicle and fuel improvements, the Plan overlooks large public health benefits to other transportation efficiency measures not in the Plan.
- Public health perils such as obesity, diabetes and heart disease can be reduced by strategies the Plan should embrace more aggressively. Auto-dependent neighborhoods make these diseases more common; smart growth and reduced vehicle miles traveled can help combat them.
- CARB’s public health analysis needs to address the issue of food security and “healthy food deserts.” Lacking local healthy food choices, many people must travel long distances to obtain more healthy fare or rely on expensive, locally available junk food. Although emissions benefits of better access to healthy food may be modest, public health benefits can be significant and climate change policy offers a chance for low-income “food deserts” to get attention.

IV. IMPLEMENTATION: Putting the Plan into Action (p. 99)

A. Personal Action (p. 100)

We are pleased that the Proposed Scoping Plan includes Personal Action as an important strategy for curbing GHG emissions. It calls for the “active participation of the people of California” including “the voluntary commitment and involvement of millions of individuals and households.”

To encourage this voluntary commitment and involvement, we propose that CARB track on the Internet the effect of individual and family actions on lowering greenhouse gas emissions. A statewide electronic registry could record the results of their actions and report back via graphics and numbers the mounting total of emissions curbed.

Without such a measurement, individuals and families will lower their carbon footprint alone, receiving little or no feedback.

However, if they anticipate positive feedback, people will be much more likely to act. They will know for sure that their actions are having a positive effect. Knowing they’ve made a concrete contribution will motivate them to do even more, and to urge their friends and family to participate. This approach would also utilize the latest motivational research, which indicates that if people believe “everybody is doing it,” they are much more likely to do it.

By providing evidence of the effectiveness of individual actions, a public electronic measurement would furnish a way to turn fear of the effects of global warming into positive action. It will help eliminate feelings of helplessness in the face of a global problem.

Public measurement of voluntary actions would also draw individuals and families into the overall effort that CARB proposes in the Scoping Plan. Their experience will give them the feeling of “buying in.” That will build their interest in learning about and supporting CARB’s efforts and those of industry, transportation, agriculture, and other sectors. By feeling part of a community statewide effort, they would

become interested in and supportive of the steps being taken in other sectors – for example, government land use changes to reduce vehicle travel, etc.

Technology exists that would allow individuals and families who choose some of the actions recommended by CARB to receive positive feedback on their actions.

CARB should create a website where individuals and families could record the changes they're making in home insulation, windows, appliances, roof color, shading, compact fluorescents, recycling, reducing vehicle travel, and other emissions-curbing activities. Statewide tallies exist of some of these measures taken by large commercial installations. A tally of personal individual and family measures taken could also be created. A mountain of data on individual solar (PV and DHW) installations already exists.

Lucid Design Group for example, a California company, provides buildings with an interactive website and touch-screen kiosk display that makes resource use of energy, saving of money, and offset of emissions visible and easily understandable. That technology might be adapted for use in tracking individual and family contributions.

Furthermore, tracking progress in curbing individual or family emissions would be fun, like following a sports team. It will be like checking the stock market, except that this measure will always go up. It will give families a game to play

CARB should put in staff time to develop this project. Private partners might be interested in developing appropriate technology and a business model.

Watching the numbers or a thermometer-like graphic rise by logging on to a public website would create a sense of the community pulling together. We shouldn't underestimate the power of such feelings. People have yearnings to take part in idealistic national efforts and the feelings of solidarity such efforts create can be strong. Think of everyone pulling together in World War II and the public enthusiasm for and interest in the 2008 presidential election. Surely there's no statewide effort healthier or more universally beneficial than saving energy, switching to renewables and reducing vehicle travel.

We would feel like we're all in this together – which we are.

B. Public Outreach and Education (p. 100)

- All four strategies are excellent.
- Funding is needed for training teachers in the climate change curriculum.
- The Plan should include detailed public awareness campaigns, with budgets (funded by carbon fees), that will be used to involve the public in all aspects of the Plan.
- Successful implementation of California's historic global warming law will require a program that is open and transparent to the public, including performance and compliance tracking information of all components accessible via the Internet.

C. Implementation of the Plan (p. 104)

D. Tracking and Measuring Progress (p. 107)

- We are supportive of the measures proposed for tracking progress.

E. Enforcement (p. 109)

- Sierra Club agrees that enforcement is a critical component of AB 32 implementation. CARB will need to significantly bulk up its enforcement resources to meet this challenge. In addition, the scoping plan should explain the route for enforcing emission reduction measures taken by other agencies outside CARB to hold those agencies accountable for assuring the realization of emission reduction measures assigned to them.
- We support the measures proposed for enforcement, especially including engaging local Air Quality Districts in tracking emissions from local facilities.
- We would support allocating some program funding to these Air Quality Districts to support their increased duties under AB 32.

F. State and Local Permitting Considerations (p. 110)

- We support including state and local permitting considerations in the AB 32 implementation strategies.
- We would support allocating some program funding to the entities involved to support their increased duties under AB 32.

G. Role of Local Air Districts (p. 111)

- Sierra Club would support allocating some program funding to Air Quality Districts to support their increased duties under AB 32.

H. Program Funding (p. 112)

- We support the measures proposed for program funding, including collection of fees.

V. A VISION FOR THE FUTURE (p. 113)

- We support collaboration with key partners, as long as it doesn't dilute the effectiveness and speed of implementation. California needs to stand up for a high standard of GHG reductions, not sink to the "lowest common denominator."
- We applaud the planned expansion of research by California's universities to develop innovative solutions to all aspects of the plan, but we cannot wait for the "perfect technologies."

(For further detail on Sierra Club California's positions, see:
<http://www.sierraclubcalifornia.org/globalwarming.html>.)

Respectfully Submitted,

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