September 24, 2008

Mary Nichols, Chairman
James Goldstene, Executive Officer
California Air Resources Board
1001 "I" Street
P.O. Box 2815
Sacramento, CA 95812

Dear Chairman Nichols and Mr. Goldstene:

Attached to this letter are the recommendations and comments of the Environmental Justice Advisory Committee on the Implementation of the Global Warming Solutions Act of (2006) ("EJAC"). We commend your staff for the effort that each has put into the creation of the Draft Scoping Plan; their hard work and commitment to this process is above reproach.

The Committee was created in the statute and assigned the task of advising the Air Resources Board "in developing the scoping plan pursuant to Section 38561 and any other pertinent matter in the implementation of this division." EJAC represents a broad cross-section of California's Environmental Justice movement. Our members truly capture the diversity of the Great State of California with its rich mix of ethnic, age, geographic, language, and issue area expertise. It is this rich diversity and our direct connection in our day-to-day lives with the people who have the most to gain—and the most to lose—from the State's effort to address the critical issue of climate change that underlies and tethers our comments on the Draft Proposed Scoping Plan.

While we have included a range of comments, our core recommendations are:

1. To ensure that the overall GHG reduction targets are met in 2020, ARB should identify emissions reductions that total at least 150% of the necessary reductions to allow for inevitable losses during rule-making and implementation phases.

2. To ensure emissions limits are met in a manner that minimizes costs and maximizes benefits for California's economy, improves and modernizes California's energy infrastructure, maximizes additional environmental and economic co-benefits for California, and complements the state's efforts to improve air quality, ARB should require all emissions reductions and clean renewable energy infrastructure be achieved in-state.

3. To ensure the Air Resources Board can truly understand the policy choices that lay before California, staff should provide a path for reaching the 427 MMTCO2E 2020 target which does not rely on using trading to achieve the goal.

4. ARB should add ten of the proposed measures currently labeled as “under consideration” in the Draft Scoping Plan as mandatory measures.

Our comments and recommendations are as detailed as time and resources have allowed. It is our great hope that not only will you find the attached interesting, but that you also will strive to address the issues raised, incorporate the recommendations made, and work with this Committee as ARB works to complete the Proposed Scoping Plan.

Recommendations and Comments

of the

Environmental Justice Advisory Committee on the Implementation of the Global Warming Solutions Act of 2006 (AB 32)

on the

Draft Scoping Plan

September 23, 2008

When the California Legislature passed the Global Warming Solutions Act of 2006 (AB 32, Nunez)[hereinafter we will refer to this legislation as "AB 32"], it crafted a piece of legislation that clearly strived to establish California as a world-class leader on reducing emissions of the greenhouse gases known as the "Kyoto-6"[1]. When the Governor signed the bill, the whole world took notice and applauded California's promise. In making AB 32 law, California promised to take bold steps to reduce our greenhouse gas emissions and—importantly—California promised to ensure that the efforts undertaken would be accomplished in a manner that thoughtfully advanced, rather than impeded, the state's broader environmental, economic, and social goals.

Indeed, the legislature explicitly stated, "It is the intent of the Legislature that the State Air Resources Board design emissions reduction measures to meet the statewide emissions limits for greenhouse gases established pursuant to this division in a manner that minimizes costs and maximizes benefits for California's economy, improves and modernizes California's energy infrastructure and maintains electric system reliability, maximizes additional environmental and economic co-benefits for California, and complements the state's efforts to improve air quality."[2]

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[1] The "Kyoto-6"are the six gases identified in the Kyoto Protocol when it was adopted in December 1997. The Kyoto Protocol came into force in February 2005 after it was ratified by 55 countries. Those six gases are carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. These same six gases are targeted in AB 32. *See* H&S Code § 38505(g). In the 10 years since the adoption of the Kyoto Protocol, scientists have come to understand that other emissions have very significant climate change effects including Black Carbon or soot, caused primarily by diesel exhaust and biomass burning. *See, e.g.,* Sato, Mki., J. Hansen, D. Koch, A. Lacis, R. Ruedy, O. Dubovik, B. Holben, M. Chin, and T. Novakov, Global atmospheric black carbon inferred from AERONET. *Proc. Natl. Acad. Sci.*, 100, 6319-6324. For an overview of the findings of the study, *see*, NASA Finds Soot has Impact on Global Climate**,** *May 13, 2003, at* http://www.giss.nasa.gov/research/news/20030513/. For a more recent treatment of the subject*, see,* Global and Regional Climate Changes Due to Black Carbon, V. Ramanathan & G. Carmichael, *Nature Geoscience* **1**, 221 - 227 (2008) Published online: 23 March 2008. For a overview of the findings of the Article, *see*, Robert Monroe, Scripps Institution of Oceanography/UC San Diego Black Carbon Pollution Emerges as Major Player in Global Warming*: Soot from biomass burning, diesel exhaust has 60 percent of the effect of carbon dioxide on warming but mitigation offers immediate benefits,* March 24, 2008, at http://ucsdnews.ucsd.edu/newsrel/science/03-08BlackCarbonPollution.asp. We should further note, that during the legislative negotiations for AB 32, members of the environmental justice community tried, unsuccessfully, to include black carbon as a greenhouse gas.

[2] See Health and Safety Code § 38501(h).

Further, throughout AB 32 the legislature included specific instruction that "the state board shall evaluate the total potential costs and total potential economic and noneconomic benefits of the plan for reducing greenhouse gases to California's economy, environment, and public health; "[3] to conduct workshops "in regions of the state that have the most significant exposure to air pollutants, including, but not limited to, communities with minority populations, communities with low-income populations, or both;"[4] to "ensure that activities undertaken to comply with [AB 32] do not disproportionately impact low-income communities.;"[5] to "direct public and private investment toward the most disadvantaged communities in California;"[6] to "consider the potential for direct, indirect, and cumulative emission impacts from [market-based compliance mechanisms], including localized impacts in communities that are already adversely impacted by air pollution;"[7] to "design any market-based compliance mechanism to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants;"[8] to "maximize additional environmental and economic benefits for California;"[9] and finally, the Legislature required the Air Resources Board to "to convene an environmental justice advisory committee…to advise it in developing the scoping plan..and any other pertinent matter in implementing" AB 32.[10]

As ARB strives to develop a plan for how California will implementing the provisions of AB 32, we remind you that thoughtful policy development requires fair and detailed assessment of the full range of viable policy choices—both the pros and cons. With a thoughtful assessment of the benefits and impacts of the policy options available, policy-makers—such as the Air Resources Board—can make the best possible decisions. This is important because policy choices have consequences for real people—and in the context of determining California's path toward addressing our greenhouse gas emissions, what is at stake is almost too enormous to

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[3] H&S Code § 38561(d).

[4] H&S Code § 38561(g).

[5] H&S Code § 38562(b)(2).

[6] H&S Code § 38565.

[7] H&S Code § 38570(b)(1).

[8] H&S Code § 38570(b)(2).

[9] H&S Code § 38570(b)(3).

[10] H&S Code § 38591(a).

contemplate. But we must. Will our efforts to address green house gases result in building a stronger economy in California where we have enhanced our energy security by reducing our reliance on natural gas and other fossil fuels because we have truly invested in California's unparalleled wind and solar resources thereby providing a steady supply of clean, reliable energy that enhances public health by dramatically reducing air pollution and runs California's manufacturing and other business infrastructure while at the same time building job ladders that start in the ranks of the unemployed and underemployed in California's rural and urban areas and continues through inventors and venture capitalists of Silicon Valley and on to the largest businesses in the State?

As the members of the Environmental Justice Advisory Committee for the Implementation of the Global Warming Solutions Act of 2006, the comments and recommendations that follow seek to express our views, concerns, and hopes for AB 32 implementation as outlined in ARB's Draft Scoping Plan.[11]

[11] This written document is supplemental to a number of verbal comments and conversations about various aspects of the Scoping plan, including conversations which occurred during our Committee meetings as well as conversations that occurred between Committee members and the chair and staff of the Air Resources Board.

Background: Environmental Justice and Climate Change

The Environmental Justice Movement is a broad, national effort to redress the disproportionate impact of environmental hazards and ensure that communities affected by those hazards have a seat at the decision-making table. The Environmental Justice Movement arose out of communities experiencing environmental degradation, a broad river of social and political ferment growing out of such varied tributaries as the Civil Rights Movement, the farm worker movement, and the grassroots anti-toxics movement.

The Environmental Justice Movement has focused on ensuring that everyone has the right to a safe, clean and healthful environment. It has both responded to and helped create a vibrant national literature documenting the disparate impact of every environmental hazard – from lead poisoning to air pollution, water contamination to toxic waste dumps, pesticide poisoning to lack of access to recreational opportunities – on poor people and people of color in the United States. It has resolutely focused attention on communities that bear the multiple burdens of racism and economic deprivation, of corporate malfeasance and government neglect. Over the past 20 years, it has used tools drawn from many social movements to make its voice heard.

At the First National People of Color Environmental Leadership Summit in 1991 – a watershed moment in the Environmental Justice Movement – delegates adopted the Principles of Environmental Justice, which have defined and guided the Movement since that time. Among the principles are the rights of all people to be free from both environmental degradation and from discrimination, the right to a safe environment, and the responsibility of creating sustainable ways of living that protect the planet for future generations.

While a major focus of the Movement has been on remediating past disparate impacts and preventing future ones – what is sometimes called distributional justice – there is another component of environmental justice that is increasingly being realized: the right of affected communities to have a voice in the decisions which affect their lives. The idea that those most affected by environmental hazards should have a role in decision-making about those hazards – procedural justice – is enshrined in the Principles of Environmental Justice in the concepts of self-determination, equal participation and informed consent. It was also central to the California Legislature's codification of the Environmental Justice Advisory Committee in AB 32.

Just as with other environmental hazards, the distributional impacts of climate change are not equally shared. Globally, it is a cruel irony that those nations and peoples who have had the least role in creating climate change – those in the Arctic, in the global South, in developing countries, in island nations – are the ones who are already feeling the brunt of its impacts, from rising sea levels, melting polar ice, and changing weather patterns. Domestically and within California, low-income communities and communities of color will bear the overwhelming burden of climate change, while at the same time having the least resources to avoid, mitigate or adapt to those impacts, as well as their inevitable social and economic ramifications. This

holds true across the range of impacts, from catastrophic events such as hurricanes to low-intensity and long-term changes such as the northward spread of diseases formerly isolated in the tropics.

Low-income residents are less likely to have access to air conditioning and other cooling mechanisms to prevent heat stroke and death in heat waves. Low-income workers – particularly farm workers, who in California are overwhelmingly Latino – have to work outside with no protection at all from the elements.

Low-income communities and communities of color are often more geographically vulnerable to climate change's predicted impacts, such as rising sea levels; in the San Francisco Bay Area, for example, it is well-documented that the "flatlands" closest to the Bay are disproportionately inhabited by people of color, while the hills are disproportionately white.

Low-income communities and communities of color already bear a disproportionate cumulative burden of air and water pollution in California and nationally, and this trend is predicted to continue or even intensify if market-based "solutions" are deployed. It is market-based decisions, within a framework of structural racism in planning and zoning decisions, that has created the disparate impact of pollution that exists today; relying on that same mechanism as the "solution" will only deepen the disparate impact.

Low-income Californians have less access to health care, meaning that they will have less access to resources to cope with the predicted rise in formerly tropical diseases such malaria, dengue fever, and West Nile Virus. Lack of access to quality environmental health services in low income communities will also mean that water borne diseases related to climate change will often go undiagnosed. Low income people, the elderly, and the ill are often socially isolated making them more vulnerable to heat related illness. Having access to cooling centers, or simply being able to go somewhere cool during a heat wave can be life saving.

All of these impacts underscore the importance of California focusing attention on environmental justice communities and concerns as it defines, refines and implements climate change policies under AB 32. And here, because of AB 32's express terms, this attention is not only a good idea and smart public policy, it is the law.

General Comments

For the purposes of these comments and recommendations, time need not be spent laying out the proof of either human contribution to climate change or of the massive impacts upon the people and industry of California should we fail to reduce greenhouse gas emissions. We must, however, raise again the very significant stake that communities of color and low-income communities have in the policy choices and implementation of California's greenhouse gas efforts.

We stress that the primary human-contributed cause of greenhouse gas emissions is fossil fuel use.[12] That makes addressing greenhouse gas emissions about more than simply reducing carbon. Currently nearly all of the electricity and transportation fuels in the United States come from fossil fuels—coal, oil and natural gas. [13] This is why addressing greenhouse gas emissions is about fundamentally changing the way we make and use energy. If, in the long run, we are to truly address the human contribution to climate change, we must change our fuel sources dramatically. It is impossible to overstate how much changing how we make energy and use energy will benefit low-income communities and communities of color in California and as well as public health generally. The fact of the matter is that no source emits only carbon, which means that the oft repeated remark that "it's just carbon" is entirely misplaced. Currently, communities are being crushed under the impossible load of the emissions from fossil fuel usage. These communities host refineries, roadways[14], ports, airports, powerplants, cement kilns, and other facilities that release a wide range of health-destroying pollutants.[15] One of the most serious, very small particulate matter (PM)[16], is a co-pollutant of every fossil-fuel

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[12] IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA. P.3.

[13] Department of Energy at http://www.energy.gov/energysources/fossilfuels.htm.

[14] For communities living near large and/or active roadways, the roadway functions like a stationary source of pollution. For the child living or attending school near one of these roadways, it is of little consequence that the pollution is caused by a continuous stream of trucks and automobiles as compared to being caused by a single large smokestack.

[15] See, for example, Traffic Density in California: Socioeconomic and ethnic differences among potentially exposed children*, Robert B Gunier et al., Journal of Exposure Analysis and Environmental Epidemiology* (2003) **13,** 240–246 (finding "that low-income children of color were more likely than White children and higher income children to live in block groups with high traffic density"); Russ Lopez, Segregation and Black/White Differences in Exposure to Air Toxics in 1990, *Environmental Health Perspectives Supplements* Volume 110, Number S2, April 2002 (http://www.ehponline.org/members/2002/suppl-2/289-295lopez/lopez-full.html) (finding "Blacks are more likely than Whites to be living in census tracts with higher total modeled air toxics in every large metropolitan area in the United States." These areas included Los Angeles, Oakland, Riverside-San Bernardino, Sacramento, San Diego, San Francisco, and San Jose.); Catherine P. Koshland, Impacts and control of air toxics from combustion, Symposium (International) on Combustion Volume 26, Issue 2, 1996, Pages 2049-2065; and Pastor, Sadd, and Hipp, Which Came First? Toxic Facilities, Minority Move-In, and Environmental Justice, Journal of Urban Affairs, Vol. 23, No. 1, 1-21 (2001).

[16] PM, including dust and soot, is often measured in three sizes, PM_{10}, $PM_{2.5,}$ and ultrafine. PM causes serious health problems, "annually 14,000 to 24,000 deaths statewide may be associated with exposures to PM2.5." *See,* Facts About Particulate Matter Mortality--New data revealing greater

combustion process.[17] Particulate matter not only contributes to climate change, it also causes staggeringly high rates of illness and death in communities of color and low income communities around the state.[18]

California's leaders have often stated their desire to "lead the world" on how best to reduce greenhouse gas emissions. Given what is at stake for our communities, we completely support that goal. For maximum impact, both in greenhouse gas reductions and meeting the broader goals established by the legislature in AB 32, changing how we make and use energy must be at the core of our implementation efforts. While in some sense the Draft Scoping Plan seems to be attempting to accomplish this shift, in reality the Plan essentially proposes an international free-market trading program with a laundry list of existing activities appended to it, none of which have been analyzed for how they square with the basic principles of AB 32--to develop a program that both maximizes greenhouse gas reductions and maximizes the state's other environmental, public and social goals.

1. **California should establish a three-pronged approach for addressing greenhouse gases: 1) adopting standards and regulations; 2) providing incentives; and 3) putting a price on carbon via a carbon fee. The three pieces support one another and no single prong can work without equally robust support from the others.**

The Draft Scoping Plan has cataloged a range of activities to reduce greenhouse gases, nearly all of which the Committee hopes to support,[19] and nearly all of which existed prior to being

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dangers from PM2.5 (2008) [future reference to this publication will refer to the document as "ARB PM Factsheet." It can be found at http://www.arb.ca.gov/research/health/pm-mort/pm-mort_fs.pdf]

[17] "All combustion processes generally produce PM2.5." ARB PM Factsheet

[18] *See* ARB PM Factsheet which states ARB staff examined numerous studies from around the world and confirmed that even at very low levels of exposure, there exists a strong link between PM2.5 air pollution and many adverse health effects." Those effects include: "premature deaths, hospitalizations, emergency room and doctor's visits for respiratory illnesses or heart disease. Studies also suggest that PM2.5 may influence the frequency and severity of asthma symptoms, and acute and chronic bronchitis."

[19] The Committee recognizes that the Draft Scoping Plan actually provides very little information about the details of how the proposed standards and regulations will be crafted and implemented. This lack of information makes full support of seemingly reasonable steps a bit more difficult. We assume for the purposes of these comments that the regulatory process will produce rules that are efficient, effective, and supportive of community health.

included in the Scoping Plan.[20] The Plan spent a scant ¾ of a page asserting it is "A Comprehensive Approach" to addressing greenhouse gases because "many of the measures complement one another, and provide a comprehensive framework of emissions accounting, tracking, and enforcement." [21] In spite of this assertion, the Scoping Plan spends about ½ page discussing emissions accounting and tracking and ½ page discussing enforcement. [22] Instead, to the extent that the Scoping Plan is "a comprehensive approach" it is because it makes the "cap-and-trade" program the central focus of the implementation effort--assigning more emissions reductions to it than any other measure and weaving it throughout the Plan—stating, "the preliminary recommendation places 85 percent of California's total greenhouse gas emissions under a declining emissions cap by 2020, which will reduce emissions from the covered sectors by almost 30 percent from business as usual."[23] Further, the assertion that the scheme will reduce emission "by almost 30 percent from business as usual" is less than helpful because of the way it which "business as usual" has been calculated. For example, the BAU number does not incorporate the reductions that will be achieved when California meets the current 20% Renewable Portfolio Standard or the long-ago adopted Pavely standards.[24] The document never explains why or how placing emissions under the cap actually results in reductions. It's as if trading is dogma, we do not have to understand the details of how or why, we should simply believe.

We offer as our first recommendation that the Draft Scoping Plan shift its focus from that of having at the core of the state's greenhouse gas emissions reduction approach an international free-market trading scheme to a three-pronged approach using the best aspects of the most well-understood approaches to government leadership in environmental protection. The three-prongs—regulations and standards, incentives, and a price on carbon by assessing a

[20] "Key elements of ARB's preliminary recommendation for reducing California's greenhouse gas emissions to 1990 levels by 2020 include: 1) *Expansion and strengthening of existing* energy efficiency programs and building and appliance standards; 2) *Expansion of the Renewables Portfolio* Standard to 33 percent; 3) Development of a California cap-and-trade program that links with other WCI Partner programs to create a regional market system; 4) *Implementation of existing State laws and policies*, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; 5)Targeted fees to fund the State's long-term commitment to AB 32 administration." Draft Scoping Plan at 9 (emphasis added and numbers added in place of bullets in the original text).

[21] Draft Scoping Plan ES-2.

[22] Draft Scoping Plan at pages 69 and 70.

[23] Draft Scoping Plan at ES-3.

[24] "The 2020 forecast does not take credit for reductions from the Pavley greenhouse gas emission standards for vehicles or from full implementation of the Renewables Portfolio Standard." Draft Scoping Plan pages 6-7.

carbon fee--work together to reinforce each other and form the foundation for a strong, comprehensive plan.

Having a program that is built upon clear standards is key for that program's success. There is little doubt that ARB and other air quality regulators have been effective in the past when establishing emissions standards (and sometimes requiring particular emissions control devices) to reduce emissions. Nonetheless, ARB seems to have decided to avoid completely standards based rule-making. Even the often praised Acid Rain program—generally the program proponents of the "cap-and-trade" approach identify as being successful—was based upon emissions standards.[25] Trading programs that were not built upon clear standards targets have failed to achieve pre-program promised results. This is because, in part, without the underlying emissions standards, it is impossible to establish the correct allocation levels—resulting in the programs being dramatically over-allocated. Over-allocation strips away the incentive for business to reduce emissions because the emissions credits remain cheaper than the cost for changing emissions levels.[26] The South Coast Air Quality Management District's RECLAIM program and the European Union's Emissions Trading Scheme are two prominent examples of such failures. It seems that the East Coast's Regional Greenhouse Gas Initiative will follow in the footsteps of the previous programs and begin over-allocated, too.[27]

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[25] Title IV of the Clean Air Act of 1990 "requires 110 powerplants to reduce their emissions to a level equivalent to the product of an emissions rate of 2.5 lbs of SO2/mmBtu x an average of their 1985-1987 fuel use." U.S. EPA, Overview of the Clean Air Act Amendments at http://www.epa.gov/air/caa/overview.txt.

[26] The Acid Rain program was also limited to a relatively small number of sources and the path to compliance was clear—switch to low-sulfur coal, install scrubbers (and/or a few other technology fixes), and/or energy efficiency. Also, all of the facilities installed Continuous Emissions Monitors to verify emissions levels and ensure compliance.

[27] *See*, for example, "The Regional Greenhouse Gas Initiative (RGGI) is expected to be over-allocated by between 35-38 million short tons in 2009 due to lower-than-expected emissions in the 10 participating states, according to a newly released Point Carbon report." RGGI '09 over-allocated by nearly 40 million tons: report, Sept 19, 2008. *See, also* the New York Times reporting: "The supply of allowances is more than what the market needs," said Milo Sjardin, head of the North America division of New Carbon Finance, a research and analysis firm. "Prices are not going to be high, not for the foreseeable future." He also noted that the market was also "not going to produce a lot of emission reductions" as long as the supply of allowances outstrips utilities' need. " States Aim to Cut Gases by Making Polluters Pay, New York Times, September 16, 2008, (http://www.nytimes.com/2008/09/16/us/16carbon.html?_r=2&sq=RGGI%20Sept%2016&st=cse&adxnnl=1&oref=slogin&scp=1&pagewanted=1&adxnnlx=1221838476-vts8YOhWyimYj4FiN1reUg) This discussion of the over-allocation of RGGI is not new, see, for example *US states may reconsider RGGI caps after over-allocation fears*, Carbon Point, November 1, 2007. ("The scheme's overall emissions cap

Providing incentives (or in other words financial or other support to assist in implementing the standard or regulation) for industry and private actors to enhance their ability to undertake critically necessary actions is of critical importance and has been completely overlooked in the Draft Scoping Plan. Despite an AB 32 requirement to do so[28], the Draft Scoping Plan does not suggest how ARB will provide support to impacted businesses—especially small and medium business—to undertake either required or voluntary reduction projects. It appears that instead of a broad, workable program for incentives, ARB has decided that there will be no options other than the trading scheme and offsets. It seems that ARB has not even considered whether there is a role for programs such as grants, tax restructuring, loan guarantees, no or low-cost loan programs or other tools that would support compliance.

Finally, it is clear that part of the solution must be to establish a price on carbon. Putting a price on carbon allows for the internalization of the cost of carbon emissions, providing a signal to people and business to seek to reduce carbon emitting activity in order to save money. A price on carbon, if done correctly, can also spur innovation to assist in reducing carbon. The Draft Scoping Plan has proposed to use a free-market international "cap-and-trade" scheme to establish the price based mostly upon the claim that it will lead to the least cost reductions. While containing costs is important, it should not be—and according to AB 32, it cannot be—the consideration which trumps all others. The overall project here is to invest wisely so that costs are minimized, but the benefits are maximized—and those benefits include ensuring that the residents of California receive maximum value for the money we all will be paying as energy prices increase as a result of the effort to reduce greenhouse gas emissions. Interestingly, although leakage is generally thought of as a reduction that occurs in-state being offset by an emissions increase out of state, putting California in an international trading scheme could result in leakage of California's jobs, capital, and air quality benefits to other jurisdictions as California's business choose to undertake reduction projects outside of California.

Alternatively, our three-pronged approach would keep the reductions, the capital, the job growth, the health benefits and the increasingly diverse energy infrastructure all inside of California. Basically, the approach would work as follows: 1) identify the suite of regulations and actions that need to be taken; 2) determine what kinds of incentives are needed to get the activity to happen; and then 3) use the fee on carbon to provide monetary incentives and to encourage and allow market actors to undertake the targeted action. A simple example could be the reduction measure of expanding the Million Solar Roofs Program by 2,000MW for a total

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is currently set at 188 million short tons, but a recorded drop in emissions by over 20 million short tons between 2005 and 2006 may have left the scheme over-allocated by 24 million short tons, or 13 per cent of the cap in 2009, according to a recent report by Point Carbon.")

[28] "The plan shall identify and make recommendation on…potential monetary and nonmononetary incentives for sources and categories of sources…" H&S Code § 38561(d).

of 5,000MW by 2020. There could be a robust package of loans, tax incentives, and cash grants that is funded from the carbon fee to ensure small and medium sized business have the up-front capital necessary to install solar power. The expanded solar production and installation effort, when done in conjunction with high-quality training and apprenticeship programs for making, installing, and servicing solar, allow for creation of new high-quality jobs, expands opportunities for California's existing skilled labor base, provides high quality manufacturing opportunities, and leverages venture capital (and incentive funding) for solar technology—allowing for maximization of economic growth caused by the reduction measure. Further, since the capital and labor pools are expanded for participation in the program, perhaps the reduction measures could be expanded to set an even higher total goal. California would also reap the benefits of both cleaner air and a more diverse energy infrastructure.

2. **The Committee supports, some with modification, all but three of the measures outlined by staff (Cap-and-Trade Program linked to the Western Climate Initiative, Low Carbon Fuel Standard, and the Sustainable Forest Target)**

3. **The Committee continues to be concerned that the public health and non-economic benefits and impacts of the Plan have not been adequately presented, analyzed, or incorporated into the Scoping Plan.**

Since the Committee's inception, we have repeatedly flagged the importance of understanding and maximizing the public health and non-economic benefits associated with the State's effort to reduce greenhouse gases.[29] It is equally important that the State's efforts do not negatively impact public health and the environment. Understanding and maximizing the public health impacts of the plan are of acute importance to low-income communities, communities of color, and those who are already highly burdened by air pollution because the benefit or burden of these programs has a significant impact on the health of those communities. In a very real sense, this has life or death consequences for them. Further, AB 32 requires the Scoping Plan to:

> evaluate the total potential costs and total potential economic and noneconomic benefits of the plan for reducing greenhouse gases to California's economy, environment, and public health, using the best available economic models, emission estimation techniques, and other scientific methods.[30]

It seems fairly clear that efforts undertaken to reduce greenhouse gas emissions will require financial investment. The question ARB must truly grapple with is: "how can we ensure that investments in reducing greenhouse gasses have maximum effectiveness?" While it seems that

[29] See, for example, the letter from the Committee co-Chairs to Chairman Nichols and Mr. Goldstene dated May 7, 2008.

[30] H&S Code § 38561(d).

the ARB staff has developed and implemented a wide-ranging effort to understand the potential costs and benefits of the plan for California's economy, it is equally clear that no similar effort has been undertaken to understand the noneconomic, environmental, or public health costs and benefits of the plan.[31] Further, there seems to be absolutely no effort to compare the relative benefits or costs of different possible approaches proposed in the Draft Scoping Plan. As we read the language in AB 32, understanding the economic, noneconomic and public health impacts, costs, and benefits are three equally relevant requirements of the statute, each deserving of analysis.

In June, the Committee met to develop a recommendation on a process ARB could undertake to evaluate the public health impacts of the Scoping Plan. We transmitted to ARB a recommendation that a Dr. Amy Kyle, a lecturer and researcher and U.C. Berkeley with extensive expertise in this subject matter, be asked to form a blue-ribbon plan of public health experts who would actively meet to consider the following:

1. What are the questions that should be asked to understand the public health impacts and benefits of climate control policies?
2. How could those questions best be answered?
3. Who would be the best researchers and what tools are available to answer the questions?

The Committee further recommended that the panel be overseen by representatives of EJAC, ARB, Cal/EPA, the California Conference of Local Health Officers (CCLHO), and the State Department of Public Health. We urged ARB to undertake this work right away as time was running short to adequately address public health questions.

Despite multiple efforts to follow up upon that recommendation, to date the Committee has seen no indication that the ARB intends to either undertake our recommended actions or to develop an alternative process to evaluate the public health impacts of the Scoping Plan. The Committee renews its recommendation to ARB and calls upon ARB to clarify exactly how it is complying with this provision of AB 32.

Recommendations:

Below are the Committee's recommendations for specific modifications that should be made for the final Proposed Scoping Plan:

1. **To ensure that the overall GHG reduction targets are met in 2020, ARB should identify emissions reductions that total a significant number more that the minimum necessary reductions to allow for inevitable losses during rule-making and implementation phases.**

[31] ARB did release additional analysis on this issue recently. This Committee will comment upon that document when commenting upon the final Proposed Scoping Plan.

California state law requires the Air Resources Board to "adopt rules and regulations…to achieve the **maximum** technologically feasible and cost-effective greenhouse gas emissions reductions from sources or categories of sources, subject to the criteria and schedules set forth in [AB 32]."[32] As a matter of policy and as a matter of law, we urge ARB to indentify and pursue more reduction efforts.

The Scoping Plan acknowledges that,

> "As the proposed measures are developed over the coming years, it is possible some of these strategies will not materialize as originally thought or be deemed to not be technologically feasible or cost-effective at the level given in the Plan. If this happens, new strategies would need to be developed to provide additional reductions if there is a projected shortfall in emissions reductions."[33]

The Committee is deeply concerned that the Draft Scoping Plan has presented a list of measures with estimated reductions that total **exactly** equal to the amount of reductions needed to meet the 2020 goal—with 35 MMTCO2E reductions, the largest "measure" in the plan, attributed to a free-trade international "cap-and-trade" scheme. Staff has been clear in discussions when we have raised this issue, that should any of the other measures fail to reach predicted goals, those emissions will be "made up" by the "cap-and-trade" scheme. The Committee strongly advises against this approach since trading programs have a long history of failing to provide reductions in targeted emissions (see detailed discussion, infra.) In effect, with this approach, the Draft Scoping Plan's back-up plan for ensuring compliance with AB 32's reduction requirements is expansion of the international "cap-and-trade" scheme which, if history is any guide, is likely to prove insufficient for meeting the AB 32 reduction target.

However, it seems clear from the comments in the Draft Scoping Plan that any of the measures proposed could either fall short of expected reductions, prove to be not technologically feasible, fail to be cost-effective, or otherwise fail to move forward (for example, the Plan attributes reductions to the completion of high-speed rail—the completion of which is entirely out of ARB's hands). Given the acknowledged reality of the likelihood of the some reductions shortfall, we urge the ARB to develop additional strategies now instead of later.

2. **ARB should require all emissions reductions and clean renewable energy infrastructure be achieved in-state or provide a clear analysis of how encouraging California's capital to flow from the state benefits or harms California's residents.**

[32] H&S Code § 38560 (emphasis added)

[33] Draft Scoping Plan at 68.

In AB 32, the legislature clearly directed ARB to "ensure emissions limits are met in a manner that minimizes costs and maximizes benefits **for California's economy**, improves and modernizes **California's** energy infrastructure, maximizes additional environmental and economic co-benefits **for California**, and complements **the state's** efforts to improve air quality."[34]

The Draft Scoping Plan has proposed that California "Implement a broad-based cap-and-trade program that links with other Western Climate Initiative Partner programs to create a regional market system."[35] In this program, California will join with at least 20% of the United States economy and 73% of the Canadian economy[36] to create a new "currency [that] would be in the form of allowances which the State would issue based upon the total emissions allowed under the cap during any specific compliance period."[37] Then these "allowances could be traded across state and provincial boundaries, so actual emissions could vary from a state's initial allowance budget. The number of allowances issued in a given year by the WCI partners overall would set a limit on emissions from the region."[38]

We stress an important concern about this program 1) The fact that "actual emissions could vary from a state's initial allowance" or in other words—California's emissions could be higher than the number of allowances California distributes.[39] ARB should carefully and completely explain what this fact means. Then ARB should explain what this means for California overall. Under this proposed international scheme, it is impossible for California to ensure that the reductions will occur in California.[40]

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[34] H&S Code § 38501(h) (emphasis added)

[35] Draft Scoping Plan at 15.

[36] See "Ontario Joins Largest North American Climate Collaborative," from the Western Climate Initiative website at http://www.westernclimateinitiative.org/ewebeditpro/items/O104F18782.PDF

[37] Draft Scoping Plan at 16.

[38] Draft Scoping Plan at 18

[39] Also important is the fact that "allowances issued…by the WCI partners overall would set a limit on emissions from the region."—or in other words not only does California have to establish the correct number of allowances to issue, everyone in the WCI has to get it right too, or California will be negatively impacted.

[40] The inability to ensure that particular reductions would occur in a particular state is a core reason that the D.C. Circuit Court of Appeals struck down the U.S. EPA's recently adopted Clean Air Interstate Rule (CAIR) program. (*North Carolina v. EPA,* No. 05-1244, Slip Op. (D.C. Cir., July 11, 2008)

3. **To ensure the Air Resources Board can truly understand the policy choices that lay before California, staff should provide a path for reaching the 427 MMTCO2E 2020 target which does not rely on using trading to achieve the goal.**

The success of California's efforts to reduce greenhouse gases is predicated upon the successful development and implementation of a free-market international trading scheme. This despite the fact that time is of the essence if we are to avoid the worst climate collapse scenarios—some experts say less than 10 years from now.[41] Further, this is despite the fact that a program of this type and scale has never been successfully implemented. The necessity for success is too high, the price for failure too great, to stake our hopes on an approach that has no proven track record.

Our third recommendation is that the Plan provide a path for reaching the 2020 target that does not rely on trading to achieve the goal, including the economic and public health modeling that would support that alternative path for compliance. Understanding the pros and cons of a public policy choice of this magnitude requires thoughtful examination of all reasonable alternatives. Instead of providing that information, the Draft Scoping Plan provides only one path and does not mention anywhere any of the challenges, past history of problems and possible limitations of the trading scheme proposed—among the most noticeable the tendency of trading schemes to stifle innovation[42] and the failure of those programs to deliver significant reductions. Reading only the Draft Scoping Plan, one would never even suspect that there is even a possibility that a trading scheme may face problems and that there exists a broad-based

[41] James Hansen, a NASA scientist with a long history in studying climate change stated in 2006 "I think we have a very brief window of opportunity to deal with climate change ... no longer than a decade, at the most." (Warming expert: Only decade left to act in time, MSNBC.Com, Sept. 14, 2006. http://www.msnbc.msn.com/id/14834318/) Many now believe that the impacts of climate are being felt much more quickly than believed. See, for example, Study: Warming is stronger, happening sooner: Higher C02 emissions from fossil fuels, and weaker Earth, cited as reasons, MSNBC.Com, October 22, 2007. (http://www.msnbc.msn.com/id/21423872)

[42] See, for example, Driesen, Design, Trading, and Innovation, MOVING TO MARKETS IN ENVIRONMENTAL PROTECTION: LESSONS AFTER 20 YEARS OF EXPERIENCE (Jody Freeman and Charles Kolstad eds. Oxford University Press) (2005) (http://www.law.syr.edu/Pdfs/0oxford.pdf); Driesen, Does Emissions Trading Encourage Innovation? Driesen, Environmental Law Reporter, Vol. 32, January 2003 **;** Gagelmann and Frondel, The impact of emission trading on innovation - science fiction or reality?, European Environment, Volume 15 Issue 4, Pages 203 – 211 (2005); and Economist, The Carbon Market is Working, But Not Bringing Forth as Much Innovation as Had Been Hoped, May 31, 2007.

rejection trading schemes in favor of a carbon fee[43] by a range of people and companies including Al Gore, the Congressional Budget Office, New York mayor Michael Bloomberg, NASA scientist James Hansen, the Los Angeles Department of Water and Power and Exxon-Mobile Corporation. Also, major newspapers have editorialized against the carbon trading scheme including *the Los Angeles Times, Wall Street Journal, and the Detroit Free Press*[44]

The Draft Scoping Plan itself acknowledges that a carbon fee could be a very effective tool for achieving greenhouse gas emissions reductions, stating:

> Carbon fees can play two distinct roles in implementing AB 32. Fees can be used as a powerful tool to incent emission reductions by affecting the relative prices within the economy. By making carbon-intensive fuels and GHG-intensive products relatively expensive compared to low-carbon fuels and low-GHG products, carbon fees can affect consumption and investment within the economy and reduce GHG emissions. Fees would also provide a source of revenue to pay for reductions or achieve other goals related to the program. [45]

The Draft Scoping Plan further states:

> While this type of price signal would have some effect on consumer buying patterns, the larger effect would be on the investment decisions and fuel choices made by suppliers of goods and services.[46]

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[43] On the national and international level, the carbon fee is generally referred to as a carbon tax. In California, we should avoid a carbon tax in favor of a carbon fee. There are real and significant differences between the two. Most importantly, in California because of the 19xx passage of Proposition 13, the xxx, and a subsequent California Supreme Court case Sinclair. Paint Co. v. Bd. of Equalization (1997) 15 Cal.4th 866 "fee" has a very specific meaning. A reasonable fee must be used to address the actual or anticipated impacts of the fee payers' operations. This means that the fee must be used only to reduce greenhouse gas emissions and the impacts of greenhouse gas emissions. This fact makes it very different from a tax, the proceeds of which can be used for any government purpose.

[44] "A tax on carbon dioxide emissions, phased in gradually but relentlessly, would be the most transparent and efficient step this country could take in the search for energy independence and reductions in many emissions, including carbon dioxide. It would send a hugely important signal to the markets -- for cars and for alternative energy sources such as windmills and solar collectors, in particular -- that innovation and conservation are essential." Keep Carbon Tax in the Mix of Solutions, Jul 12, 2007.

[45] Draft Scoping Plan at 41.

[46] Draft Scoping Plan at 41.

Despite these very compelling outcomes which are completely in line with the desired outcome of AB 32 implementation and the relative ease of establishing, collecting, and enforcing fee collection,

> "Carbon fees, while supported by a number of interests, have received less attention during the development of the Draft Plan, in large part because they provide less certainty in California's ability to meet specific emission targets, as required under AB 32."[47]

First, we should recall that the Administration's decision to develop a trading scheme as California's key climate change policy approach was made before the adoption of AB 32 or the development of the Draft Scoping Plan. This fact may well be playing a key role in why carbon fees "have received less attention during the development of the Draft Plan."

Second, even if it were true that carbon fees "provide less certainty" in meeting AB 32 goals, good decision-making requires that we explore and know how much less certainty and whether that reduction in certainty is overcome by a higher chance of successful program implementation and better incorporating the broader environmental, energy diversity, job growth, innovation and public health goals as required by AB 32 into the program. The Draft Scoping Plan has failed to raise or address any of these important issues and thereby has not provided the fundamental kind of information needed to make the decision to establish an international trading scheme as the center of California's climate policy.

Third, proponents of "cap-and-trade" schemes unduly privilege "allocation certainty" over "price certainty." Basically, to put a price on carbon, one can control for either allocation or price. Even before one gets to issues of what could go wrong with a trading scheme, the policy decision to privilege allocation is problematic. After all, we are operating in a world when all we know for sure is that green house gas emissions have very serious negative consequences and we have to do everything we can to reduce our emissions to avoid a planetary disaster. We *think* that if we can reduce carbon equivalents to around 450 ppm, we'll prevent the worst of the climate collapse. But with each passing year, it seems scientific understanding of the issues advances a bit more until now Dr. James Hansen of NASA, one of the foremost researchers in this area, is calling for a target of 350 ppm.[48] The point is that even if we were to meet the allocation targets, we may fail to meet the environmental goals because our knowledge is evolving about the scope and impact of climate change. What we do know for sure is that we must stop burning fossil fuels if we are going to truly address the climate crisis. Therefore, as a policy matter, we should privilege price certainty because doing so maximizes innovation and deployment of new technology—something that is key to our success (see discussion of how trading stifles innovation, infra).

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[47] Draft Scoping Plan at 42.

[48] Hansen et al., Target Atmospheric CO2: Where Should Humanity Aim?, Atmospheric and Oceanic Physics, June 2008 at http://arxiv.org/ftp/arxiv/papers/0804/0804.1126.pdf.

Then, when the difficulties of developing, implementing, and maintaining a long-term free-market international trading scheme are added to the mix of considerations, a focus on maintaining long-term pricing stability may seem even more attractive.

The Draft Scoping Plan states that "ARB will also design the California program to meet the requirements of AB32, including the need to address potential localized impacts, ensure market security (avoid gaming), and ensure enforceability."[49] However, the Plan does not provide a single detail on how these ends, which will determine the ultimate success or failure of the overall program, will be achieved. The Final Scoping Plan should at a minimum address:

1) how the ARB plans to meet each requirement of AB32,
2) how the ARB plans to address potential localized impacts,
3) how the ARB proposes to avoid gaming (particularly in the face of several market failures worldwide),
4) how the ARB proposes to ensure enforceability, particularly across state and international borders,
5) Municipal utilities' concerns about how this program will impact their ability to expand investment in clean, renewable energy
7) how to avoid over-allocation.

It is absolutely critical that the policy decisions that the Air Resources Board make be grounded in a true and robust understanding of the challenges that come along with that decision. The Draft Scoping Plan must be honest, thorough, and up-front about the benefits and drawbacks of an international trading scheme as compared to a carbon fee.

4. ARB should add as proposed measures many of the measures currently labeled as "under consideration" in the Draft Scoping Plan including:

a. Feebates for light duty vehicles
b. Additional Electricity Energy Efficiency
c. Additional Natural Gas Energy Efficiency
d. Expansion of Million Solar Roofs
e. Refinery Energy Efficiency Process Improvement
f. Removal of Methane Exemption from Existing Refinery Regulations
g. Oil & Gas Extraction GHG Emission Reduction
h. GHG Leak Reduction from Oil & Gas Transmission
i. Industrial Boiler Efficiency
j. Stationary Internal Combustion Engine Electrification
k. Off-Road Equipment

[49] Draft Scoping Plan at ES-3.

Comments on Specific Measures:

1. Transportation

The Environmental Justice community has long opposed allowing mobile to stationary source trading and would strongly suggest ARB not allow this trading

Link Port Electrification To Aggressive Renewable Energy Programs:
We fully support the port electrification measure. However, it is important that ARB follows up this measure with aggressive renewable energy programs to ensure that the likely power demand that will come from cold-ironing will be met largely with renewable energy. The decreased levels of diesel emissions that cold-ironing will deliver are important and a welcomed action for our environmental justice communities near port operations. However, it is also important to ensure that one problem will not be replaced with another- namely, the increased emissions from power plants due to the increased power demand coming from port electrification. Peak power demand for a single port adopting and implementing cold-ironing would increase approximately 50 MW in 2010, 90 MW in 2015, and 140 MW in 2020. Furthermore, largely due to cold ironing, Port of Long Beach forecasts a power demand increase of 200% in the next 25 years. The emissions increases from power plants could be disastrous and undermine AB 32 reduction targets if renewable energy development is not aggressively pursued as source of energy for this electrification program.

2. Land Use and Local Government

Require Local Governments To Meet Carbon Reduction Targets:
In the AB 32 Scoping Plan, ARB proposes to, "encourage local governments to set quantifiable emission reduction targets for their jurisdictions." This approach, however, relies too heavily on voluntary actions by cities. However, as the state must reduce emissions to 1990 levels by 2020, local governments, especially medium to large cities throughout the state must do their part in reducing emissions. ARB must set substantial carbon reduction targets that are based on the size of the local jurisdiction with larger cities carrying the responsibility for meeting greater reduction targets. As it is now, ARB only encourages local governments to set targets. Unfortunately, our experience continues to demonstrate that cities that either do not set any targets, set targets that are too low, or unrealistic targets with no intent of meeting them. Therefore, ARB should set quantifiable emission reductions targets for local jurisdictions. By establishing the targets, it will be up to the local governments to figure out how they meet these targets. Local jurisdictions are free to make targets above the ARB baseline target for cities and could receive incentives if those higher city-set targets are met.

Require Local Governments to Pass Carbon Reduction Plans to Meet Their Targets:

To ensure that local governments meet their targets, ARB should require that these bodies pass carbon reduction plans designed to meet the target. If the governments exceed the baseline target, they would qualify for state incentives. State incentives should not be available for just meeting the target. Once again, this approach allows local governments the autonomy of how they decide to meet the target- whether that is green building ordinances, energy efficiency programs, programs reducing Vehicles Miles Traveled, or other approaches.

Furthermore, within the Scoping Plan, the ARB points out five areas in which these carbon reduction plans could focus to reduce emissions. These five areas- community energy, community waste, community water, community transportation, and community design, should be prioritized in terms of what types of reduction programs should be encouraged. For example, energy programs such as green building programs or programs designed to raise energy efficiency and make it easier to acquire solar panels are among the most effective ways to reduce emissions within a local government's jurisdiction. Alternatively, areas that have shown to be less effective and reliable in reducing greenhouse gases such as community design, which has been used in recent years as a means of justifying new Greenfield development, should be de-emphasized.

3. Electricity and Natural Gas

Establish an expanded Renewable Portfolio Standard (RPS) without loopholes:
More than any other proposal in the Scoping Plan, an expanded Renewable Portfolio Standard has the potential of greatly reducing our greenhouse gas emissions and setting California on the path to building a sustainable future. This is especially crucial for the many communities throughout the state that live near fossil fuel power plants or low-income communities that are disproportionately likely to have a plant nearby in the future. A 33% Renewable Portfolio Standard without compliance loopholes would ensure that the loading order would finally be effectively implemented. Since 1995, the California Energy Commission has approved 39 power plants throughout the state and more are proposed.[50] In Chula Vista, a proposed peaker plant only 350 feet from residences and in violation of the city's general plan, is entering the final stages of the siting process. Extremely flawed fossil fuel power plant proposals such as one in Chula Vista have been given rubber-stamp approval, emitting particulate matter and greenhouse gases in significant amounts. A strong RPS--without loopholes--would compel utilities and state agencies to aggressively invest in renewable energy sources and gradually de-emphasize fossil fuel energy generation.

An expanded RPS is both feasible and necessary to wean the state off of polluting fossil fuel generation. A mix of solar panels, demand management, and Combined Heat and Power (CHP)

[50] California Energy Commission, *Power Plant Fact Sheet*, http://www.energy.ca.gov/sitingcases/FACTSHEET_SUMMARY.PDF (retrieved 8/1/08)

could produce enough energy to replace a 650 MW natural gas-fired power plant.[51] Coupled with a feed in tariff, an increased renewable portfolio standard would provide both the fiscal feasibility and external impetus to begin establishing renewable energy sources as our major sources of electricity over fossil fuel power plants.

Though the adoption of an expanded RPS is a good start, this promising start could be undermined and rendered meaningless if watered down with the inclusion of loopholes that would allow utilities not to comply with the 33% standard. For example, currently the investor owned utility serving the San Diego region, San Diego Gas and Electric (SDG&E) is getting roughly 6% of its energy from renewable sources. This is far below the 20% by 2010 requirement of the original RPS. For the 33% Renewable Portfolio Standard to actually deliver the reductions that it has the potential for, utilities such as SDG&E must make a good faith effort to meet this standard. By providing "outs" such as alternative compliance payments (ACP) and renewable energy credits (RECs), once again utilities can refuse to invest in renewables and instead use those funds to purchase themselves into compliance. ACPs allow utilities to pay a fee rather than develop and purchase renewables while RECs allow utilities to purchase credits from existing renewable sources thereby in effect sponsoring a pre-existing renewable energy project without actually getting the energy from that source. Both of these mechanisms will undermine the 33% RPS and allow utilities such as SDG&E to continue their failed business-as-usual fossil fuel practices.

Establish Feed-In Tariffs and Programs for Buy Back of Excess Energy from clean solar and wind and highly-efficient distributed generation such as fuel cell and combined heat and power (CHP) Units

The expansion of renewable energy sources in the state will be crucial to meeting the RPS and ultimately, to meeting the AB 32 emission reduction levels. Within the scoping plan, ARB states its intent to investigate funding mechanisms. However, the most effective funding mechanism in the market today has been Feed-In Tariffs (FIT) and rate structure reform that mandates a buy-back for excess electricity from renewable sources such as private PV solar installations. Europe has produced thousands of MW from wind and solar primarily due to FIT. Feed-in tariff refers to a rate structure in which a renewable energy producer is paid a competitive yet fixed rate for the renewable energy sold into the grid. The California Energy Commission has already endorsed this idea in its 2007 IEPR stating that "excess solar generation delivered to the grid should be compensated through a feed-in tariff."[52] Furthermore, the rate that would be paid to the renewable energy producer should be "based on the RPS market price referent that includes a time-of-delivery adjustment."[53] As the CEC and CPUC have already reflected an

[51] Environmental Health Coalition, *Green Energy Options* (2007), p. 4.

[52] California Energy Commission, *Integrated Energy Policy Report* (2007), p. 186.

[53] Id.

interest in adopting such a tariff, it is imperative that ARB also endorse such a requirement, underlining the fact that FIT are the most effective way in promoting and funding renewable energy development.
Moreover, ARB should increase its focus on promoting other highly efficient distributed generation like stationary fuel cells and Combined Heat and Power (CHP) by including such units in a FIT scheme. As a renewable energy expert outlined regarding CEC's position on the matter, the CEC is recommending a tariff structure for CHP units as they "appear to offer the greatest fuel efficiency of available distributed generation technologies."[54] Such a measure would help meet the Scoping Plan's stated goal of increasing CHP electricity production by 30,000 GWh.

CARB should not support or encourage the use of Carbon Capture and Storage (CCS) technologies:

On page 73 of the Draft Scoping Plan, the ARB indicates a willingness to "move forward" with "feasible solutions to carbon to do capture and sequestration." As members of communities that will be directly threatened by such proposed sequestration projects, such as the project planned near Bakersfield—an already overburdened community hosting a great fraction of the state's pollution, we strongly oppose the ARB's support, encouragement, or funding of any CCS projects. The siting of CCS demonstration projects in traditionally overburdened communities violates AB32's statutory mandate not to disproportionately impact traditionally overburdened communities. Also, there is no proof that such projects will result in permanent and verifiable CO2 reductions.

The first and most obvious concern regarding CCS is that there is no guarantee the CO2 will stay underground permanently. One of two things could happen that would release all or some of the sequestered CO2 back into the atmosphere either negating the impact of CCS or causing a disaster. Unless it can be proven that the CO2 will stay underground without a doubt, then CCS should not be utilized. Such a study has yet to be undertaken and such a conclusion remains unstated.

Jim Katzer, a visiting scholar at MIT's Laboratory for Energy and the Environment noted that there are a number of studies that are investigating storage in the 5,000- to 20,000-ton-capacity range, and they're generating some useful information. "But," he says, "none of them are getting us to the answer we really need: how are we going to manage storage in the millions of tons over long periods of time?"[55]

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[54] Id, p. 208-209.

[55] Schmidt, Charles W. "Carbon Capture and Storage: Blue-Sky Technology or Just Blowing Smoke?" Environmental Health Perspectives. Vol 115, No 11. November 2007.

http://www.ehponline.org/members/2007/115-11/focus.html

The CO2 could be released gradually through cracks or fissures in the ground and oil wells. Sequestering the CO2 in old oil reservoirs that have been depleted is a popular option among proponents of CCS, but doing so could pose problems. As Professor Stefaan Simons of the University College London states, "Once you've drilled into a chamber you have compromised it. Presumably there are cracks around the hole."[56] Those cracks would provide perfect exit ways for the CO2 to make its way above ground and back into the atmosphere.

This gradual release won't cause a major catastrophe, but will instead negate the whole process. If the CO2 ends up back in the atmosphere then we will have accomplished nothing, except more CO2 in our atmosphere and perhaps some undeserved credits or monetary rewards to companies initially thought to have sequestered the carbon.

Moreover, some major geologic event, for example, an earthquake or landslide, will create cracks and pathways underground for the CO2 to escape en mass into the atmosphere. Pending on how much CO2 is sequestered below ground, this could lead to a major catastrophe. Though it is often used in arguments by opponents of CCS, it is worth once again noting the events at Lake Nyos in 1986. Lake Nyos is located in the Northwest Province of Camaroon and lies atop an inactive volcano. Magma lies beneath the lake and leaks carbon dioxide into the water. On August 21, 1986, triggered by natural events, the lake suddenly emitted a huge cloud of CO2 killing approximately 1,700 people.[57]

It should be noted that proponents of CCS insist that such a catastrophe is impossible as the CO2 will not be stored in one cavernous location, but instead in smaller quantities. They do, however, concede that constant monitoring would be necessary with CCS because of its potential danger.[58]

Although, events similar to the Lake Nyos tragedy would be a worse-case scenario, the events of 1986 prove how deadly CO2 can be and necessitates that we consider the potential disaster

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[56] Knight, Matthew. "Fake Plastic Trees." CNN Future Summit. December 6, 2007.

http://edition.cnn.com/2007/TECH/11/30/fsummit.climate.carboncapture/

[57] Information on Lake Nyos. Wikipedia: http://en.wikipedia.org/wiki/Lake_Nyos

[58] Brown, Valerie J. "Of Two Minds: Groups Square Off on Carbon Mitigation". Environmental Health Perspectives. Vol 115, No 11. November 2007. http://www.ehponline.org/docs/2007/115-11/spheres-abs.html

we are creating not only for ourselves, but for future generations. As noted by Peter Montague, editor of the online newsletter, *Rachel's Democracy and Health News, "…* if the carbon sequestration plan were to fail, with grievous consequences for human civilization, failure would occur decades or centuries into the future when the current generation of decision-makers, researchers, philanthropists, and environmental advocates could no longer be held accountable." [59]

Our second major concern regarding CCS is that its promotion detracts resources from pursuing truly low-carbon alternatives and sends the message that we can continue to extract and burn fossil-fuels indefinitely with the quick-fix of CCS even though it has not been proven to work. "From an industrial perspective, carbon sequestration seems like a winning strategy. If it succeeded in reducing carbon dioxide emissions to the atmosphere, it would allow coal and oil firms to retain and even expand their market share in the energy business throughout the 21st century, eliminating the need for substantial innovation. Carbon sequestration would also greatly reduce the incentive for Congress to invest in renewable energy, which competes with coal and oil"[60] wrote Montague.

If we continue deriving a majority of our energy needs from these non-renewable resources instead of researching and utilizing renewable and alternate sources of energy, we are setting ourselves up for long-term failure.

4. Water

The proposed water measures in the draft scoping plan fail to capture the full range of activities necessary in the water sector to address climate change while promoting public health and social equity. In general the plan fails to include specific measurable benchmarks for conserving and re-using water, protecting water quality and reducing dependence on imported water. Furthermore, this section of the plan contains several elements that further promote existing inequalities. In order to address these concerns there are several elements that should be addressed in the final version of the scoping plan.

Water Conservation:
As written, the scoping plan does not include specific measures to ensure that water conservation takes place. To address this CARB must include specific water conservation

[59] Montague, Peter. "Carbon Sequestration" Rachel's Democracy and Health News. Vol. 932. November 8, 2007. http://www.rachel.org/bulletin/index.cfm?St=3

[60] Montague, Peter. "Carbon Sequestration" Rachel's Democracy and Health News. Vol. 932. November 8, 2007. http://www.rachel.org/bulletin/index.cfm?St=3

measures. These measures must specifically address water use in agriculture, power generation, large industry and new development.

Although agriculture is by far the largest water user in CA, and is responsible for fully 80% of the State's water consumption, there is no discussion of how agricultural water use will be addressed by this plan. It is critical that the scoping plan include specific guidelines and measurable benchmarks for reducing agricultural water use and increasing water use efficiency in agricultural settings.

In addition, the scoping plan must include measures to reduce water use in new developments. The best mechanism to address this would be to require water-demand neutrality for all new development. In developing this mechanism it is critical that there are protections included for low-income individuals. One model of how this could be done effectively is the previously proposed AB 2153 (Krekorian-2008).

Finally, the scoping plan must promote water conservation by establishing clear water use caps for California's largest water users. This should include water use caps for landscape water users.

Source Water Protection:
In addition to including specific mechanisms to conserve water and promote regional water self-sufficiency, it is critical that the scoping plan include measures to protect source water. Today, communities throughout California are being delivered water that is unsafe to drink. As a result, millions of Californians do not have access to what is one of the most basic human rights, drinking water. Because many of these communities are small, low-income, people of color communities with limited resources, they are unable to finance the water system upgrades that are necessary to effectively treat their drinking water.

This problem has profound social and environmental costs. From a social perspective, communities are being forced to pay for water system upgrades as a result of irresponsible parties who are polluting their water supplies. The pollution itself is a threat to public health and the environment. Cleaning the pollution not only requires huge financial resources but requires that significant amounts of energy be used to clean and treat what would have otherwise been safe drinking water.

Recognizing the high environmental and economic cost of removing pollution from water supplies, it is critical that the scoping plan include specific targets and measures for protecting source-water. In particular this should include strong measures to reduce the use of nitrogen fertilizers and regulate agricultural wastewater. Nitrate contamination is the number one contaminant in CA drinking water and is associated with a range of serious and potentially fatal health problems including "Blue Baby Syndrome" and gastric cancer. Elevated nitrate levels have been found in the water sources that supply drinking water to over 11 million Californians,

primarily in the Central Valley.[61] In addition to adopting measurable benchmarks to reduce the use of nitrogen fertilizers and regulate agricultural wastewater, we propose that this program also create a carbon fee to be levied on nitrates in fertilizers. The funds generated through this program should then be used to pay for clean up of nitrogen contaminated drinking water and programs to reduce the use of nitrogen based fertilizers.

In addition to addressing pollution generated from agricultural irrigation, the scoping plan should identify additional benchmarks to reduce other contaminants from entering into drinking water supplies and thereby reduce the energy used to treat water. This mechanism should focus on "polluter pays" principles.

Graywater:
While the scoping plan discusses water recycling and urban water reuse, it does not address the potential to reduce energy use by expanding the use of graywater. While graywater offers huge opportunities to both reduce energy consumption and conserve water supplies, its application continues to be quite limited. As such, the scoping plan should include specific measures to expand the use of graywater in a variety of settings. This includes ensuring that local government policies support the use of graywater, that developers implement graywater schemes when applicable and appropriate, and that consumers have access to information and resources to help them implement graywater systems in their homes.

Regional Water Self-Sufficiency:
Directly related to all of the previous points is the need to reduce imported water use in regions throughout California. The State Water Project is the single largest electricity user in California.[62] As such, reducing dependency on imported water has the potential to drastically reduce greenhouse gas emissions. The scoping plan should include measurable targets for achieving regional water self-sufficiency.

While there are a wide range of measures that can contribute to regional self-sufficiency, the scoping plan should require that local jurisdictions adopt measures to dramatically expand the use of low-impact development which includes such things as expanding permeable surface areas, reducing impermeable surface areas, developing local water catchment and harvesting facilities, and implementing other land-use and design practices that minimize water run-off and maximize water catchment and re-use. This approach will not only promote water self-sufficiency but can contribute to source-water protection thereby reducing energy use

[61] Lighthall, D. Dairy Production and the Nitrogen Cycle: implications for the Public's Health. CCLHO *Semi-Annual Conference*. Fresno; 2007. And, US EPA. Fertilizer Management: US Environmental Protection Agency; 2000.

[62] Anderson, Carrie. *Energy Use in the Supply, Use and Disposal of Water in California*. Process Energy Group, Energy Efficiency Division, California Energy Commission. 1999.

associated with both moving and treating water. Furthermore, these kinds of land-use and design practices increase soil health therefore promoting carbon sequestration.

Public Goods Charge:
The public goods charge, as proposed, promotes existing inequalities in water use. By proposing a per-connection fee large water users, including agricultural and industrial users, are not held accountable for the actual "climate cost" of their water use. The public goods charge should be scaled such that there are different rates for different kinds of users including a separate rate scale for domestic users and separate rate scale for large water users including agricultural, industrial, and large commercial users.

5. Green Buildings

Green Building programs provide one of the greatest tools for carbon reduction available to local jurisdictions. However, green building programs that are either too limited in scope, too weak in what is required by new development, or provide too many loopholes for compliance, are driven solely by incentives, will not be sufficient to provide meaningful greenhouse gas reduction. It is important to point out that AB 32-mandated reduction levels cannot be met if cities do not take aggressive approaches to decrease energy consumption. Well-designed, comprehensive green building measures could significantly decrease emissions. As ARB is encouraging state buildings to be certified LEED silver and gold certified, it follows that ARB should also encourage local jurisdictions to require new development to meet, at the minimum, LEED silver levels of green building. Though, the guidelines would be flexible enough to allow different approaches to green building.

On page 32 of the Draft Scoping Plan, ARB states that "actions taken by local governments are expected to provide significant greenhouse gas reductions," unfortunately past experiences with cities have illustrated clearly that significant reductions only occur with mandatory actions and direct regulations. Green Building Guidelines emphasizing that green building measures be mandatory will be crucial in achieving this promised "significant greenhouse gas reductions."

Energy Efficiency: Commit to a date to achieve the Goals for Energy Net Zero Structures:

The Draft Scoping Plan highlights the importance of green building programs and for that the ARB should be applauded. However, missing from this analysis is a focus on an end goal. The scoping plan is silent on the amount of carbon reduction and the date by which the reductions will be achieved related to green building goals. Therefore, the final scoping plan should include a hard requirement to achieve CEC's and CPUC's goal of establishing Energy Net Zero structures by 2020 for residences and 2030 for commercial and industrial structures. Establishing such a goal is crucial as it provides direction, certainty, and guidance for the rest of the state. Establishing that California has a concrete and dedicated goal of creating all new structures to be energy net zero would allow local, state, and regional actors- both public and private, to better plan and prepare. Furthermore, establishing concrete and mandatory net

zero goals would complement the ARB's Renewable Portfolio Standard proposal. In order to achieve aggressive goals for energy efficiency, we recommend the ARB commit to a date to achieve the goals for energy net-zero structures.

Energy Efficiency and Co-Benefits Audits for Large Industrial Sources: Addition Of Large Commercial Buildings To the Program:

According to the US Department of Energy, the operation of buildings is one of the largest consumers of energy. The generation of energy, in turn, is one of the largest emitters of greenhouse gases in the state. Therefore, the mandatory energy audits recommended for large industrial sources should be expanded to include the largest commercial buildings in the state. Commercial buildings are a less obvious yet just as pervasive user of energy and the resultant emissions of greenhouse gas emissions as industrial sources and should be included in the measure. The threshold should be based on the sq. foot size of the facility and energy use. Another aspect that should be included in a commercial building audit is the potential for the structure to host large PV or solar systems on the rooftops and parking lots. For example, in San Diego and other regions of the state that are acres of warehouses—buildings with expansive rooftop and parking lot spaces and not a lot of energy demand. The audits should codify the potential generation of these uses for regional energy.

6. Industry

ARB should add commitments for specific tons of reductions for all categories of Industrial emissions including separate, specific commitments for Refinery reductions to the Recommended Measures, expand the list of measures, and accelerate the timeline for Industrial regulation.

The entire category of Industrial sources, including all Refinery sources, are missing from assignment for any emissions reductions in the Scoping Plan (see Table 2, from page 11 of the Draft Scoping Plan.) According to the ARB, Industrial sources make up 20% of the state's total Greenhouse Gases (GHGs), and the California Public Utilities Commission (PUC) data shows it is even higher. According to the Lawrence Berkeley National Laboratory, "Refineries are the largest energy using industry in California and the most energy intensive industry in the United States . . . . After Texas and Louisiana, California has the largest petroleum refining industry in the country." [63] The California Energy Commission found "California ranks 1st in the U.S. in gasoline consumption and 2nd in jet fuel consumption."[64] Furthermore, refinery GHG

[63] Profile of the Petroleum Refining Industry in California, California Industries of the Future Program, Lawrence Berkeley The Lawrence Berkeley National Laboratory, LBNL-55450, page iii., *Ernst Worrell and Christina Galitsky,* Environmental Energy Technologies Division, March 2004, http://ies.lbl.gov/iespubs/55450.pdf

[64] http://www.energy.ca.gov/oil/index.html

emissions are drastically increasing through expansions and switches to energy-intensive dirty crude oil refining. The refinery sector in particular has the largest local emissions of point source smog precursor and toxic emissions (which are co-pollutants to GHGs) and urgently needs emission reductions to improve public health. This is especially important for the large populations of people with asthma who live near refineries and other industrial facilities, and to implement CARB's desperately-needed Environmental Justice policy to reduce heavy cumulative impacts on low income communities and communities of color.

Entirely leaving out all industrial sources including all refinery sources from direct emissions reduction targets must be seen as a major failing of the Scoping Plan. There is only one Industrial measure listed in the "Table 2 Recommended Greenhouse Gas Measures," but with no emissions reductions. This is unlike every measure listed for every other sector on that Table, including agricultural, electricity, commercial and residential, transportation, water, forests, high GWP, and recycling and waste, each of which have associated tons of reductions in the Plan.

The sole Industrial Sector measure is an audit of energy efficiency for large industrial sources but without implementation of emissions reductions options identified through the audit.[65] The audit does not even cover all refineries, despite the fact that the smaller refineries (still very large industrial sources) may very well be the less efficient refineries. Furthermore, if audits allow piecemeal evaluations of individual units, or if total energy use, high carbon feedstocks, and total emissions are left out, audits could allow unlimited emissions increases without even a comment. Absent an emission reduction target, this sole industrial measure may actually be counterproductive by providing an energy-efficient stamp of approval on refinery units which hog fossil-fuel use.

While some refinery measures proposed by the EJAC as Early Action Measures (EAMs) *are* included in the separate "Other Measures Under Evaluation" category of the Scoping Plan, unfortunately there is no commitment to carry these out, and not one ton of reduction committed. There is absolutely no guarantee provided in the Plan that these measures will not be traded away for out of state reductions that are difficult for local Californians to verify, and which provide no local co-pollutant reductions. We recommend that these additional refinery

[65] Currently ARB proposes to require assessments of the largest industrial sources, this is defined within the scoping plan as sources that emit over 0.5 million metric tons of Carbon Dioxide Equivalent (MMTCO2E) per year. Power generation in California alone accounts for 79 MMTCO2E, however, this program would cover only 23 of California's power plants.[65] Ultimately, only 54 sites around the state would be covered by this requirement. Considering that an emitter is only required to have an audit performed on the facilities and is not required to actually implement any of the measures, for considerable reductions to occur the amount of sources that would be covered must increase. This would be done by lowering the threshold to 0.25 MMTCO2E.

measures be taken out of the "Other Measures Under Evaluation" list and added to the recommended list, with commitments for tons of reductions.

The list below concentrates on Oil Refineries (which makes up almost 40% of the Industrial Sector according to the PUC, a number much higher than ARB has identified). We also strongly support proposals for direct control of other industrial and power plant emissions and replacement with clean energy alternatives.

General Policy Recommendations for Oil Refineries and Industrial Sector:

- Re-iterate and implement ARB's goal to maximize co-pollutant reductions for all Industrial Sources including oil refineries
- Prioritize direct, local control (not pollution trading) GHG sources where co-pollutants are significant (including refineries and industrial sources.) Do not relegate EJ policy implementation to after-the fact mitigation in lieu of pro-active pollution prevention from industrial sources.
- Remove oil refineries, which emit smog precursors and toxic chemicals locally, from eligibility in participating in a Cap-and-Trade and offsets program, which instead allows offsite trades of pollution reduction. Likewise apply this policy to all Industrial sources which emit smog precursors and toxic chemicals.
- Hold public meetings on refineries and separately on other industrial sectors to evaluate options for direct controls in detail prior to ARB Board review of the Scoping Plan.
- Require that energy audits, other evaluations, and data required to be carried out by the Plan be housed at ARB and available to the public, subject to normal ARB business confidentiality requirements.

Specific Measure Recommendations for Oil Refineries and Industrial Sector:

- Insert a GHG emission reduction target of at least 33% for Industrial Sources and separately at least 33% for Oil Refineries by 2020 since the Scoping Plan currently includes a commitment for zero tons of reduction from oil refineries and for all industrial sources. This is similar to the Renewable Portfolio Standard 33% target for power plants by 2020. (Oil refineries GHG emissions are about equal to in-state Power Plant emissions according to the PUC.)
- Include all oil refineries in the recommended Energy Efficiency Audits for Large Industrial Sources measure of Table 2, (currently many refineries are not included) and add a 33% fossil-fuel energy use reduction target and expeditious deadlines.
- Move refinery measures out of "Other Measures Under Evaluation" and into the "Recommended Greenhouse Gas Reduction Measures" of Table 2 of the Scoping Plan, insert deadlines, and emissions reductions targets. Also expand the following measures:
- In addition to a requirement for replacing old heaters and boilers, add a requirement for 20% solar-assist pre-heating for refinery boilers
- Separate flare controls into a stand-alone measure, require sufficient gas recovery capacity, redundancy, monitoring, and Flare Minimization procedures to eliminate non-emergency flaring

- Add a ban on venting of Pressure Relief Devices to Atmosphere and ensure that this does not increase flaring
- Add to the refinery energy efficiency list on page C-109 a requirement to evaluate all sources within refineries and identify options for reductions
- Expand the removal of exemptions for methane which is currently allowed throughout smog regulations statewide, to include all oil refinery sources, all industrial sources, and all sources, instead of the small subset now included in the plan. Currently only a small fraction of refinery sources is included in the Scoping Plan, compared to the large potential for methane reductions. There is no longer any excuse for such exemptions. Removal of the exemptions can be mandated by ARB to be carried out by every air district in the state, as regulations are modified, with further requirements to expedite the largest sources.
- Add a requirement for refineries to eliminate their large fossil-fuel grid electricity use and switch to clean renewable energy.
- Evaluate emissions and pollution prevention options for the following:
    - Stopping oil refinery switches to heavy, high-carbon crude oil which are causing large GHG emissions and local impacts, since these refinery activities are causing such large emissions increases so as to dwarf other efforts to reduce refinery emissions.
    - Options to reduce refinery product demand over time by 33% by 2020, through clean transportation and public transit measures. Reducing demand for oil refinery production over time is inherently connected to making progress in reducing transportation emissions through phasing in clean alternatives. These measure should include evaluation of fuel conservation standards, funding options for local public transit, especially clean energy metropolitan bus systems, in addition to infrastructure and plug in hybrid production requirements, bicycle transit infrastructure, and funding other clean alternative fuels and measures.

7. Recycling and Waste Management

8. Forests

We are deeply concerned about recommendations from the Agriculture, Forest, and Recycling and Waste Management Subgroups that suggest using agricultural, forest, and waste byproducts to generate electricity and/or transportation fuels.[66] Biomass and debris should generally be retained in the agriculture and forestry sectors to maintain ecosystem balance and such sources are most valuable there instead of being used as fodder for emissions-gushing combustion.

Proposals to incinerate waste for energy are also deeply problematic. Such facilities result in the emission of hazardous substances and endanger public health.

[66] Draft Scoping Plan, p. 5

9. High Global Warming Potential Gases

10. Agriculture

The California Air Resources Board should require the installation and use of anaerobic digesters and biogas recovery from animal waste lagoons to capture methane gas emissions at large confined animal facilities in order to address the pressing global warming problem. The program to invest in manure digesters should be a mandatory requirement as opposed to a voluntary measure as CARB is proposing. Methane emissions from livestock waste account for 54 percent of the state's methane inventory and three percent of the total greenhouse gases in the state.[1] Uncaptured methane emissions pose a serious hazard to the global climate given that methane has a global warming potential over 23 times that of carbon dioxide.

The anaerobic decomposition of organic material in livestock manure occurs most frequently when manure is managed in liquid form, like being stored in lagoons or holding tanks.[2] Between 1990 and 2005, methane emissions from dairy cow manure rose 50 percent, largely due to the increase in dairy cows being housed in larger facilities that use liquid manure management systems.[3]

Digester technology has great potential because it can control the emissions of various pollutants, including methane and smog-forming volatile organic compounds, while controlling odors from livestock operations and providing other environmental benefits, especially since they are already at use at many facilities both in California and around the country. Enhanced regulation requiring the installation and use of anaerobic digesters would hold facilities accountable for their greenhouse gas emissions while have the important co-benefit of significantly improving the air pollution levels in California's Central Valley.

The costs of purchasing and installing digesters on dairy farms are offset by several benefits, including the production of biogas from captured methane emissions. Biogas can be burned for heating and light, or in gas boilers to run internal combustion engines or generators.[4] The

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[1] California Air Resources Board, California Greenhouse Gas Inventory by Sector and Activity (November 19, 2007); California Air Resources Board, Staff Report: Initial Statement of Reasons, Public hearing to Consider the Large Confined Animal Facility Definition, May 6, 2005, Table 1; University of California Division of Agriculture and Natural Resources Committee of Experts on Dairy Manure Management, Managing Dairy Manure in the Central Valley in California, revised June 2005 at 1.

[2] Henning Steinfeld, Pierre Gerber, Tom Wassenaar, Vincent Castel, Mauricio Rosales, Cees de Haan, *Livestock's Long Shadow: Environmental Issues and Options*, Food and Agriculture Organization of the United Nations, 2006 at 97.

[3] *Id*. at 14.

[4] *Id*. at 121.

benefit of biogas production in California's Central Valley would be especially pronounced considering biogas has a reduction potential of 75 percent in warm climates where methane emissions from liquid slurry manure storage systems are estimated to be over three times higher.[5] Recovered biogas also presents dairy farmers with the opportunity to produce clean fuel and natural gas that can be piped through a gas line and sold to PG&E for distribution in the energy market.

Among the co-benefits of requiring biogas recovery from animal waste lagoons would be a significant improvement in the quality of life of a substantial number of Californians. Residents of the Central Valley would benefit from considerable economic and health gains as a result of the implementation of effective policies to reduce the levels of air pollution. The per capita economic benefits of meeting the federal national ambient air protection standards (NAAQS) in the Central Valley would be close to $1,000 per person per year, totaling a gain of more than $3 billion.[6]

The $3 billion in benefits would include 460 fewer premature deaths among those age 30 or older; 325 fewer new cases of chronic bronchitis; 188,400 fewer days of reduced activity in adults; 260 fewer hospital admissions; 23,300 fewer asthma attacks; and 188,000 fewer days of school missed by children.[7] Additionally, 3,230 fewer cases of acute bronchitis in children would be diagnosed; 3,000 fewer days of work would be lost; and children would experience 17,000 fewer days of respiratory symptoms.[8]

While the health and economic gains of complying with federal air protection standards are significant, the benefits of attaining the California Ambient Air Quality Standards (CAAQS) are considerably larger since they provide a greater degree of protection than the federal standards. Evidence demonstrates that health throughout the Central Valley will continue to be adversely affected until the state health-based air quality standards for ozone are also met.[9] Attaining the more protective California air quality standards would double the gains that would result from meeting the NAAQS.[10] ARB can assertively address the problem of greenhouse gases, and the emission of methane from livestock operations in particular, by making biogas recovery mandatory and requiring the installation and use of anaerobic digesters.

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[5] *Id*.
[6] Jane V. Hall, Ph.D., Victor Brajer, Ph.D., Frederick W. Lurmann, *The Health and Related Economic Benefits of Attaining Healthful Air in the San Joaquin Valley*, Institute for Economic and Environmental Studies, California State University Fullerton, March 2006 at 74.

[7] *Id*.
[8] *Id*.
[9] *Id*. at 82.
[10] *Id*.

While regulation of this type has been traditionally carried out by local Air Districts, the district with the most cows – and most agricultural air pollution – the San Joaquin Valley Unified Air Pollution Control District, has proven unwilling or incapable of actively regulating these major pollution sources, either for GHGs or criteria pollutants. Thus, ARB must provide the regulatory leadership at the state level on this critical source of GHG pollution.

Require Barn Enclosure and Capture of Enteric Emissions

In addition, EJAC recommends that the ARB mandate that dairy farmers enclose their barns and install adequate technology for capturing emissions of noxious compounds released by the cows. In its analysis of agriculture sector, the ARB provides a breakdown for $MMTCO_2E$ emissions in 2004. In this chart, livestock enteric emissions account for 7 $MMTCO_2E$, making them the second largest source of these emissions in the agricultural sector.[11] Even before the emissions from the decomposition of its manure are factored in, a single lactating dairy cow can produce up to 340 pounds a year of methane, while a dry cow produces 334 pounds per year.[12] Relying on these more recent findings produces a global warming factor for the enteric emissions of California's 2.8 million dairy cows of 9.03 $MMTCO_2E$. Freestall barns, the current type of facility used by most dairies in California to house cows, allow these emissions to be released into the atmosphere. EJAC proposes that the ARB fix this problem by requiring dairies to house their herds in enclosed barns. The barns should be equipped with the necessary technology for capturing methane and emissions from other volatile organic compounds (VOCs). EJAC suggests that the dairies use the biofiltration process in which microbes break down and consume toxins in the air.[13] Even though carbon dioxide is a byproduct of biofiltratration, the process eliminates emissions from methane, a compound more than twenty times as powerful as CO2.

In terms of the costs of building the new barns, enclosed dairy barns produce economic benefits for dairy farmers that offset the installation and maintenance costs. Additionally, biofilters are known to be less expensive than incinerators and other control technologies that

[11] Climate Change Draft Scoping Plan: A Framework for Change. Appendices: June 2008 Discussion Draft. Pursuant to AB 32, The California Global Warming Solutions Act of 2006. Prepared by the California Air Resources Board.

[12] Frank Mithloehner, Volatile Fatty Acids, Amine, Phenol, and Alcohol Emissions from Dairy Cows and Fresh Waste, May 31, 2006, at 17; California Air Resources Board, Staff Report: Initial Statement of Reasons, Public Hearing to Consider the Large Confined Animal Facility Definition, May 6, 2005, Table 1; University of California, Division of Agriculture and Natural Resources, Committee of Experts on Dairy Manure Management, Managing Dairy Manure in the Central Valley in California, revised June 2005, at 1; California Energy Commission, California Greenhouse Gas Emissions, updated January 2007, http://www.arb.ca.gov/cc/ccei/emsinv/emsinv.htm.

[13] US EPA, Using Bioreactors to Control Air Pollution, September 2003, at 1, http://www.epa.gov/ttn/catc/dir1/fbiorect.pdf.

break down pollutants.[14] The higher cost of building and operating such a barn, in which a standard temperature has to be maintained year-round, is counterbalanced by the benefits provided by its cooling systems. As it is now, dairy farmers lose money when the temperature rises in the summer. Milk production drops and cows are less able to proliferate in the heat. For a typical herd of 3,600 lactating cows, a farmer could lose up to 2,700 gallons of milk per day during the summer months. The cooling system in the enclosed barn reduces heat stress and weight loss for the cows. The additional milk production alone could account for up to $160,000 worth of savings for a dairy farmer with a herd of that size.[15] In addition, the ventilation from the cooling system improves the air quality in the barn, which also increases the cows' productivity.[16]

The ARB should not be deterred by the fact that biofiltration technology is not currently used by dairy farmers in California. Enclosed dairy barns exist in colder parts of the country and the enclosed barns with biofilters are currently used for swine herds with an 80% control rate in eliminating VOC emissions.[17] The success of these facilities in other industries should encourage the ARB to require them in the dairy industry.

[14] Dairy Permitting Advisory Group, Recommendations to the San Joaquin Valley Air Pollution Control Officer Regarding Best Available Control Technology for Dairies in the San Joaquin Valley, Final Report – January 31, 2006, at 108-110 ("DPAG Report"). Available at: http://valleyair.org/busind/pto/dpag/Final%20DPAG%20BACT%20Rep%201-31-06.pdf.

[15] Western Dairy Design Associates, 3600 Milk Cow Dairy BACT Calculations.

[16] San Joaquin Unified APCD, Final Draft Staff Report with Appendices for Proposed Rule 4570: Confined Animal Facilities, March 13, 2006

[17] DPAG Report, at 19-23.