

**Comments of the Economic and Technology Advancement and Advisory Committee  
(ETAAC) on the Draft Scoping Plan  
September 5, 2008**

To: Chairperson Mary Nichols and members of the California Air Resources Board  
From: Members of the ETAAC Committee

Thank you for the opportunity to provide ETAAC feedback on CARB's Climate Change Draft Scoping Plan (Draft Plan). Our feedback is provided in this document in three sections: (1) general feedback, (2) detailed feedback on selected areas, and (3) an attachment with comments specific to the recommendations contained in the ETAAC report to CARB dated February 2008.

**General Feedback on the Draft Scoping Plan**

ETAAC believes the Draft Plan represents a good starting point for a comprehensive climate action plan for California. ETAAC commends CARB for producing an excellent document and we are pleased that several of our recommendations were included.

***Regulations and Market Mechanisms***

We applaud the inclusion of both regulatory and market mechanisms. Properly structured market mechanisms can reduce the costs associated with emissions reductions and climate change mitigation while reducing emissions beyond what traditional regulation can do alone. Among the market mechanisms, ETAAC supports a well-designed cap and trade market coupled with complementary policies to spur innovation, overcome traditional market barriers and address distributional impacts from possible higher prices for goods and services in a carbon-constrained world. We concur with CARB that a carbon fee should also be considered.

We believe it is imperative that CARB support a mix of direct measures and market mechanisms. These should be identified through an economic analysis that includes cost effectiveness, technological feasibility, ease of implementation, and other values of the different measures and demonstrates that the mix that CARB recommends best achieves the objectives outlined in AB 32. Some ETAAC members are concerned about what appears to be a heavy reliance on direct measures. On the other hand, some recognize that CARB has a successful history of using direct measures as an effective tool to reduce air pollution.

***Scope***

ETAAC noted in Chapter 9 of its report that, from the standpoint of encouraging early action, innovation, and clear price signals, "the AB 32 carbon cap should include as many different sectors of the economy as is practical" (p. 9-2). If transportation fuels are not included at the outset of the cap and trade program, the timely implementation of complementary policies, such as the Low Carbon Fuels Standard, aggressive GHG standards for all highway vehicles, and VMT policies, takes on even greater importance.

While a properly structured carbon market can reduce emissions and costs, ETAAC notes that it alone is not enough to break down all the barriers to transforming California's energy market to a low-carbon future (p. 1-4). To that end, the Draft Plan outlines direct measures touching on most

sectors of the economy, including important focus areas such as energy efficiency, sustainable forests, and water in addition to the more obvious and frequently mentioned electricity/natural gas, transportation, and industrial sectors. However, CARB has not proposed to include any measures in the plan to increase recycling or composting, noting that they are discussing these ideas with the California Integrated Waste Management Board (CIWMB). We strongly encourage CARB to reexamine our recommendations regarding “Waste Reduction, Recycling, and Resource Management” (see ETAAC Chapter 4.IV).

### ***Climate Mitigation and the Economy***

The State’s emissions reduction targets under AB 32 provide both challenges and opportunities for California’s economy, and the regulations and other measures must be designed with the health of the State’s economy in mind. ETAAC made many recommendations related to the economics of climate change mitigation, including revenue recycling, focus on efficiency, cleantech jobs and manufacturing.

### ***Economic Assumptions and Level of Detail***

ETAAC notes that any policy decisions must be informed and supported by robust economic modeling and analyses. ETAAC recommends that this economic analysis be made as transparent as possible to allow informed discussion by all stakeholders. CARB should ensure accurate cost and quantity inputs in a sector by sector analysis, and provide near term and long term employment and economic impacts for each sector. CARB should also perform a sensitivity analysis to determine if particular measures are driving the analysis and masking the impact of other measures, as well as a cost effectiveness analysis comparing across all measures including offsets and the cap and trade system. Finally, CARB should ensure that an ongoing and transparent process exists through the regulatory process and the implementation phase for evaluating and re-evaluating cost-effectiveness, and for considering new measures and discontinuing existing measures as new technologies, policies and cost effectiveness information surface. We look forward to seeing this economic analysis as soon as possible. Once the modeling has been completed, ETAAC recommends that CARB (1) revisit the Draft Plan to review the proposed measures for cost-effectiveness, (2) use the analysis to take into account costs and capital constraints when creating an implementation schedule for the recommended measures, and (3) provide opportunities for feedback on the analysis prior to initiating regulations.

Additionally, ETAAC members believe it is important to note that there is some uncertainty about the ability to achieve all the expected emission reductions listed in the Draft Scoping Plan and that the actual reductions achieved may potentially be less than projected reductions. For example, the Draft Scoping Plan assumes that the 33% RPS will result in 21.2 MMT of emission reductions by 2020. As the ETAAC Report states, a number of barriers must be addressed before greater renewable energy penetration can be achieved, including the lack of transmission infrastructure, energy storage technology, integration policy and coordinated policy direction. California’s LSE’s are aggressively procuring renewable energy to meet their 20% RPS goals for 2010 but the barriers cited above are posing challenges in meeting this goal. CARB should identify and address these barriers in the final Scoping Plan. Also, the Draft Plan appears to be basing the energy efficiency goals on the high end being considered by the CPUC, without accounting for the uncertainty surrounding achieving these reductions among individual utilities

in the entire electric sector. Similarly, uncertainties exist for Combined Heat and Power (CHP) and the accompanying greenhouse gas reductions. The risk of any measure falling short of the anticipated reduction is real, and CARB should provide a plan for meeting that contingency at the earliest possible opportunity. It may be useful to provide both high and low estimated reductions for measures, along with an explanation of the assumptions under each scenario. The estimated costs to satisfy the shortfall should be included in the economic analysis for the low scenarios.

Furthermore, the specific reduction targets in the Draft Plan are given as simple endpoints in 2020, without any explanation of the expected path of reductions over time. It would be helpful if CARB could provide additional information about the timing and phasing-in of reductions under each measure, again taking care to account for the likelihood of delays and setbacks along the way.

### ***Need for Increased Coordination***

ETAAC believes that the ambitious goals set out in the Draft Plan will require improved coordination among regulatory agencies (p. 1-7). There must be effective leadership across all State agencies to reduce GHG emissions from their own governmental operations and from the stakeholders they oversee and/or regulate. The Draft Plan should acknowledge the size of this challenge, and encourage timely coordination.

### **Detailed Feedback**

ETAAC members identified three broad areas for more detailed feedback: (a) market mechanisms, (b) technology advancement and (c) land use issues. With the ETAAC report recommendations as a point of reference, ETAAC has provided comments on the Draft Scoping Plan's treatment of these three areas below. Note that additional comments concerning specific recommendations can be found in the appendix.

#### ***Market Mechanisms***

As noted above, ETAAC supports the inclusion of the market mechanisms in the Draft Plan. However, three issues deserve further attention: (1) offsets and flexible compliance, (2) allowance allocation and use of possible revenues, and (3) pricing policies.

#### ***Offsets***

In its report, the ETAAC noted that the development of an offsets market may be beneficial. Yet in order for this market to work properly, offsets must be real, additional, permanent, enforceable, predictable and transparent. (p.9-5) ETAAC recommends a standards-based approach informed by experiences with the CDM and CER processes rather than case-by-case review for this purpose (p. 9-5). The California Climate Action Registry (CCAR) has demonstrated that offset standards for the voluntary market can be developed that are credible, transparent, and effective. CARB can require the same rigor for offsets applied to a compliance market.

The Draft Scoping Plan appropriately recognizes the distinction between offsets for compliance and a voluntary offset market. Offsets for compliance for cap and trade can help reduce

compliance costs by providing flexibility. A robust voluntary offset market can help the state capture additional cost-effective carbon reductions and related benefits.

Members of the ETAAC did not reach agreement on the issue of quantity and geographic limitations on offsets. Some members believe limits inherently involve tradeoffs between compliance costs and environmental and economic policy goals such as technological innovation and in-state co-benefits (p. 9-6). Members agree that these tradeoffs should be explicitly acknowledged and quantified should CARB choose to impose limits on the use of offsets. Geographic limits on offsets can help ensure that California is able to take advantage of the environmental and economic benefits of offset projects, but the restricted flexibility may likely increase costs. With regard to quantity limits, some members believe that quantity limits on offsets can encourage action and innovation in capped sectors. Others believe that incentivizing offsets will encourage innovation outside of capped sectors, while strong, long-term emission reduction targets provide sufficient incentive for innovation in capped sectors. Though some ETAAC members preferred limitations on offsets, the ETAAC Report noted that it is difficult to come up with a “scientific” number to justify a specific quantity limit (ETAAC Report 9-5, 9-6). Many members asked for data on the potential costs and benefits of quantitative and geographic limits on offsets.

The Draft Scoping Plan suggests a 10% individual entity limitation on the use of offsets for compliance. We would like further explanation of CARB’s thinking regarding an offset limit of any amount, as well as further discussion as to why 10% is the appropriate limit and how this limit might change over time. We also recommend that CARB clarify whether the 10% limit on compliance offsets is based on a percentage of the reductions to be achieved by the cap and trade program or a percentage of total state reductions

If there are limits on offsets for compliance, then it is important to make sure that the voluntary market captures all cost-effective emissions reductions so that the state can achieve AB 32 goals. The proposed California Carbon Trust (p. 2-4) would be one way to help develop, support, and encourage a robust voluntary offset market.

#### *Allowance Allocation and Use of Possible Revenues*

In Chapter 9 of its report, ETAAC examined allowance allocation methods with three specific policy goals in mind: encouraging early action, innovation, and clear price signals. The ETAAC report notes that free allocations based on historic output (grandfathering) is bad for all three criteria and that some level of auctioning would provide the strongest and clearest price signals for early action and innovation. The Draft Plan states that CARB intends to move quickly from a system where some permits are distributed freely to a system where most are auctioned. We think more details are required in the Scoping Plan about the timing and process for distributing allowances and the reasons underlying each decision. In its report, ETAAC recommended that any revenues from allowance auctions or carbon fees be used to further AB 32 goals (p. 1-12).

We would like to see this recommendation in the Draft Plan. ETAAC proposed the creation of an entity such as the California Carbon Trust to manage the use of auction revenues to encourage emissions reductions and related AB 32 policy objectives (p. 2-3). In particular, ETAAC recommends certain productive and appropriate uses of revenues (p. 9-4):

- Direct investment in and purchase of additional GHG emissions reductions to support the development and deployment of low-carbon technologies through an investment program.
- Allocate funds to California universities, colleges, and research facilities for RD&D dedicated to technologies with potentially high GHG emission reduction value.
- Create financial vehicles and/or programs that address specific gaps, imperfections, or opportunities in the carbon market in order to serve as a catalyst for both private and public sector participation.
- Support Environmental Justice goals by investing in emission reduction projects with co-benefits in impacted communities. In order to achieve this goal, CARB should establish a process and a method for identifying the communities that are maximally impacted and for maximizing benefits for these communities.

If auction revenues exceed the level where they can be efficiently applied to abate carbon and other GHG emissions, ETAAC members suggested that they might be used to reduce distorting taxation or to provide payments to ratepayers.

The Draft Plan contains several possible uses of auction revenues, including and in addition to the uses listed above. ETAAC encourages CARB to collect comments on this issue and to view auction revenues as an important source of funding for achieving the ambitious goals set out by AB 32.

#### *Pricing Policies*

Existing incentives and labeling schemes are not doing enough to influence consumer behavior and purchasing decisions to move California toward a low carbon economy. Pricing policies can help steer consumers toward lower carbon products and lifestyle choices. ETAAC recommendations included fee and tax shifting, or feebates, as one way to achieve this goal (recommendations 2.III.E and 3.IV.G). Feebates are currently listed as “under consideration” for inclusion in the scoping plan, and ETAAC recommends that they be evaluated in the final draft because of their potential to provide cost-effective reductions in fuel consumption. ETAAC also recommended other pricing strategies to influence consumer decisions, including pay-as-you-drive insurance (3.III.B) and congestion pricing (3.III.C).

#### *Technology Advancement*

ETAAC notes that achieving the emissions reductions goals set out by AB 32 will require increased and accelerated deployment of new and existing technologies, and that the technologies required to support reductions beyond 2020 may need additional research and development. Technology advancement is therefore a very important issue for both near term and long term climate policy goals. ETAAC members believe that the Draft Plan’s discussion of innovation and RD&D to support the 2020 and 2050 goals is lacking, and that there are certain high priority technology areas, such as enabling technologies, that require added attention.

#### *General Innovation and RD&D*

The Draft Plan acknowledges that technological advancement will be necessary to achieve the future greenhouse gas reductions required to reduce global warming. The need for funding of new technologies was also touched on in the discussion on use of auction proceeds. However, the Draft Plan contains little concrete discussion on what it takes to achieve the necessary

technological advancement. The importance of new technologies and the challenges to developing and commercializing them is so significant that the topic deserves more discussion. ETAAC believes that there are significant barriers to technology development and deployment that require attention. (see p. 1-5, and recommendations 2.II.A, 2.II.B, 4.III.I). These barriers include market penetration, transition issues such as infrastructure development and permitting, and financial and technological roadblocks at certain key stages of technology development. The Draft Plan should include a section dedicated to overcoming the hurdles of developing and commercializing technological advancement in a manner that does not pick winners, as well as concrete recommendations on how to develop and support this innovation infrastructure. More information on the performance standards and incentives needed to stimulate innovation should be included.

ETAAC believes that increased coordination, innovative public financing, competitive renewable energy zones and other methods of transmission reform, and Cleantech workforce training could all prove beneficial for increasing the development and deployment of low carbon technologies. California's state government can also play a role, in coordination with the federal government, in supporting RD&D, setting codes and standards in a manner that maximizes incentives for innovation, and by being an early adopter of low and zero emission vehicles.

#### *Enabling Technologies*

The ETAAC Report describes a number of enabling technologies, including energy storage, plug-in electric vehicles as storage devices and smart grid as enabling technology for renewables and clean vehicles (ETAAC Report, Chapter 5.IV). In particular, energy storage is needed to help integrate higher penetration of intermittent resources. As described in the ETAAC Report, large-scale successful storage technologies can help transform wind generation into a reliable resource for energy planning, enabling California to take full advantage of this renewable resource abundant throughout the West.

However, the Draft Plan makes no mention of the important role enabling technologies play in the State's zero and low carbon strategy. The Draft Plan should acknowledge the importance of enabling technologies and include strategies that would expressly support the development and implementation of enabling technologies as described in the ETAAC Report.

#### *Carbon Capture and Sequestration (CCS)*

The ETAAC Report identifies the demonstration of CCS in geologic formations as a key opportunity for California to benefit from national and international partnerships, as well as a potential opportunity for achieving long-term reductions in GHG emissions, especially on a national and global scale (ETAAC Report, page 5-21). The Draft Plan does not appear to consider CCS in its recommendations, other than to mention it as part of the "vision for the future" to achieve the 2050 goals (p. 73, C-58) and to briefly mention it as one way to potentially reduce emissions in the electricity and industrial sectors (p. C-79, C-105).

The Draft Plan should acknowledge the need for carbon capture and sequestration demonstrations and pilots, including biological processes, with appropriate standards for safety, coordination of siting and permitting, and other considerations, so that the technology can be fully developed and commercialized for use in electricity generation, fuels production, and

industrial processes. Taking these steps now would provide an incentive to separate CO<sub>2</sub> for sequestration. WESTCARB, which is managed by the California Energy Commission (CEC), has conducted some groundbreaking work in this area, but more needs to be done, including funded commercial-scale projects.

### ***Land Use and Smart Growth***

The Draft Scoping Plan's target of 2 MMTCO<sub>2</sub>E for local government actions and regional targets (land use and smart growth) is low and underestimates the sector's potential contribution to the state's 2020 emissions limit. The 2 MMTCO<sub>2</sub>E target will not get the state on the path to reach its 2050 goals. CARB should put in place a target for land use that will send a strong message to local and regional governments that business-as-usual land use is not acceptable and that we must start designing communities that provide a balance of transportation options and reduce the need to drive. Transportation emissions are the largest source of California's emissions, and they present a large opportunity to achieve emissions reductions.

ETAAC also supports the proposal for land-use planning agencies to use the CEQA process to avoid or mitigate emissions resulting from forest conversion. This complements other recommended "smart growth" measures to concentrate development and reduce commute distances, and will simultaneously reduce expansion of the wildland-urban interface (WUI) thereby reducing wildfire suppression costs and ignition sources.

The legislature has been active this year in trying to work with stakeholders to find common ground and develop incentives that would encourage smart growth and help the state meet emissions reduction targets. (SB 375, Steinberg). Similar focus and leadership from CARB on the issue would be helpful.

### **Detailed Comments on ETAAC Recommendations Are Attached**

We have attached appendix A, which contains a status update on the ETAAC recommendations from our February 2008 report to the CARB. We have provided our best understanding of the status of each recommendation, its relationship to the Draft Scoping Plan and where appropriate, specific additional comments relative to the Draft Scoping Plan.

Thank you for the opportunity to provide comments on the Draft Scoping Plan. We offer these comments in the spirit of assisting staff and leadership at CARB in your exceptional efforts to prepare a final Scoping Plan that offers a visionary roadmap to address climate change.

Respectfully submitted,

The image shows two handwritten signatures in black ink. The signature on the left is 'Alan Lloyd' and the signature on the right is 'Bob Epstein'. Both signatures are written in a cursive, flowing style. Below each signature is a horizontal line, likely representing a printed name or title.

Alan Lloyd  
Chairman, ETAAC

Bob Epstein  
Vice Chair, ETAAC

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## Summary of ETAAC Recommendations Status as of September 5, 2008

### A. Create a California Carbon Trust

**Status:** In Development; Part of Proposed Scoping Plan

**Description:** A new public or public-private entity that creates an incentive fund using allowance revenues to encourage carbon reductions in sectors inside and outside the cap, while also supporting environmental justice goals, actively managing the carbon market, and encouraging RD&D efforts. Activities could start prior to 2012, helping to set an early price signal for carbon and other GHG emissions.

**Progress:** E2 is working to further develop the Carbon Trust proposal. E2 has met with members of the financial community, cleantech entrepreneurs and regulators over the past several months to discuss the Carbon Trust proposal, with most of the discussion focusing on the Trust's role in financing and encouraging cleantech RD&D. E2 has prepared a draft report outlining the Trust's potential role in financing and encouraging Research, Development, Demonstration, and Deployment (RDD&D). The report draws from the input of cleantech investors, entrepreneurs, and policymakers and from academic expertise on this topic. It identifies specific financing gaps and details possible public sector interventions. It also makes recommendations regarding the structure of the RDD&D portion of the Trust.

**Next Steps:** Having addressed the role of the Trust in encouraging RDD&D, E2 is now researching how the California Carbon Trust could use auction revenues to accelerate emission reductions in California. We are gathering information on potential emission reduction projects and will discuss options for compliance credits, voluntary offsets, and incentive payments for projects that would otherwise not be funded.

**Comment:**

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### B. Promote Clean Energy Innovation and Commercialization

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** Support California RD&D and commercialization efforts today to ensure that critical innovations are available to contribute to GHG reductions in future years. Optimize current programs toward California's climate change goal and consider new programs to accomplish this objective. Consider creating a new entity to coordinate these efforts.

**Progress:** The work that E2 has done with regard to the role of the Carbon Trust (see above) is relevant to clean energy innovation and commercialization. E2's draft report outlines barriers to cleantech innovation and commercialization and makes recommendations for public sector intervention. The recommendation to support demonstration of initial installations would be implemented in part through AB 118 and through the Emerging Renewable Resources Program (ERRP) program proposed by Pacific Gas and Electric Company and San Diego Gas and Electric Company. The CPUC has issued a proposed decision on the ERRP, but a final decision has not been issued.

**Next Steps:** Efforts to implement AB 118 are ongoing. The CPUC is expected to issue a final decision on proposed ERRP in the 3rd quarter.

**Comment:** This is a broad and sweeping recommendation that gives many ideas related to demonstration



finance, targeted RD&D funding for carbon reductions, engaging the private sector, and possibly creating a new entity to manage and coordinate these efforts. Additional attention is needed to establish priorities and examine overlaps between this and other recommendations and efforts (including the California Institute for Climate Solutions and the proposed California Carbon Trust). Additional research is needed on the proposal to create "single focused entity" to coordinate policy-motivated technology innovation.

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## **C. Leveraging AB 32 to Spur California Job Creation and Manufacturing**

**Status:** Under Consideration; Not Mentioned in Proposed Scoping Plan

**Description:** Amending current disincentives in the California's income tax and sales tax codes would help ensure that California is competitive with other states in attracting Cleantech capital investment. A Cleantech manufacturing attraction initiative could help the state proactively attract and grow companies here. A five-year "Buy California" incentive program could boost in-state Cleantech manufacturing and take advantage of the lower embedded carbon content of California-manufactured products.

**Progress:** Certain bills to expand Self Generation Incentive Program eligibility to natural gas fired CHP would give extra incentives to California-based companies. (SB 1012 - Kehoe and AB 1064 - Lieber). Another bill would give California Energy Commission contracting preference to such companies (AB 2267 - Fuentes). The definition of California-based is not yet settled. The proposal to reinstate a manufacturing investment tax credit or sales tax exemption for manufacturing equipment purchases is making no progress in the legislature, possibly because it is perceived as a cost to the state. Tesla Motors recently decided to site a manufacturing facility in California after the state waived the sales tax on their purchases. Tesla stated the waiver was a "key factor" in the deal.

**Next Steps:** SB 1012 and AB 1064 failed to pass. AB 2267 - Fuentes passed, to be sent to Governor.

### **Comment:**

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## **D. Clean Technology Workforce Training Program**

**Status:** Under Consideration; Not Mentioned in Proposed Scoping Plan

**Description:** At present, California lacks a program to address workforce needs across industries that are developing and deploying advanced clean technologies in California. Creating a new program in this area could address demands for the skilled workforce necessary to serve the Cleantech industry's needs

**Progress:** There are two bills pending in the legislature related to green job creation and workforce training. SB 1672 (Steinberg) would make \$1 billion in bond funds and \$1.25 billion in loans available to middle and high schools, community colleges, businesses and labor organizations that create green technology training and jobs. AB 3018 (Nunez) would create a pilot program to identify needed skills, develop training programs, and train workers for jobs in a range of cleantech industries. Industry efforts are also underway to develop a cleantech workforce. For example, PG&E launched an innovative workforce development pilot program called PowerPathway in 2008 to establish a systematic pipeline of qualified individuals ready to move into positions in the skilled crafts. PowerPathway is modeled on best practices for collaboration with community colleges, the workforce development system, labor, and community-based organizations. PG&E has implemented 4 pilot programs in 4 geographic areas within its service territory in 2008, with expansions planned for 2009. PG&E received over 4,700 applications for the 100 PowerPathway training seats offered in 2008. Early results give reason for optimism that this workforce development platform can facilitate the creation of a technically educated workforce that will also serve California's emerging energy sectors in addition to PG&E's traditional hiring needs. However, the demand is greater than current resource capacity can

accommodate. A significant and reliable funding source is required to realize the full potential of this and other similar programs to provide long-term sustainable wage employment for many residents in California's disadvantaged communities. In addition, because retirement is becoming a pressing issue for all utilities, statewide collaboratives/consortiums are forming to focus on workforce development

**Next Steps:** SB 1672 failed to pass. AB 3018 passed, to be sent to Governor.

**Comment:** In implementing this strategy, the ARB should leverage existing programs, such as California State Advanced Transportation Technology and Energy program within the community college system and PG&E's PowerPathway, rather than begin anew. ARB can configure the program to catalyze leveraged funding from AB32 fees and revenues and private employer funds.

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## **E. Fee and Tax Shifting (Feebates)**

**Status:** In Development; Under Evaluation for Proposed Scoping Plan

**Description:** Adjust specific State fees and taxes in a revenue neutral manner to encourage the distribution of low carbon products

**Progress:** Feebates for light duty vehicles are being considered for inclusion in the Proposed Scoping Plan as a backstop strategy if the state is not able to implement the Pavley standards for light duty vehicles. The feebates could possibly be extended to medium duty vehicles.

**Next Steps:** Feebates are currently listed as under consideration for the scoping plan.

**Comment:** The general "feebate" approach can be applied to any product category for where there is already well defined measurement of carbon content and for which there is a State tax or fee assessed at the time of purchase.

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## **F. Municipal Assessment Districts**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** Municipal government sponsored financing to accelerate investments in clean energy. The investment would be paid back over time by participating property owners.

**Progress:** The City of Berkeley was first to propose this sort of innovative financing mechanism, and Berkeley's program is scheduled to launch in September 2008. Other California cities, including San Francisco and Santa Cruz, have announced plans to launch similar programs in 2008. Palm Desert has proposed similar model using a different type of assessment district. As of now, only charter cities are permitted to set up these types of financing schemes, while general law cities are not. Pending legislation would address this issue for the Berkeley model, and AB 811, signed into law August of 2008, addresses the issue for the Palm Desert model.

**Next Steps:** AB 1709 should allow all California cities and counties to set up municipal assessment districts. AB 1709, which passed the legislature and will take effect in January 2009 if signed into law, will clear the path for cities and counties wanting to follow the Berkeley model. The cost of capital and the administrative costs associated with setting up these districts are lingering issues that should improve with time and experience.

## Comment:

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### **G. On-Bill Financing for Small Business Energy Efficiency Projects**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** To overcome cash flow and capital constraints for small businesses, utilities could finance energy efficiency projects using ratepayer and/or other sources of funds, including, when appropriate, leveraging opportunities with private/public lending institutions.

**Progress:** The CA CPUC has mandated that all IOUs deliver On Bill Financing for the 2009-11 Energy Efficiency program cycle. Small Business California will operate under an EPA grant through May of 2009 to help develop and foster success with CA OBF programs. Sempra will ask the CPUC to continue their OBF program for the 2009-11 cycle, continuing to lead the CA IOUs with the use of OBF as a tool which applies to all SDG&E and SoCalGas programs where rebates are applicable. Sempra will raise, if the CPUC agrees, the maximum loan per meter in 2009 to \$100,000 for commercial customers and \$250,000 per meter for institutional or taxpayer funded entities. SCE says they will incorporate OBF for both small business and institutional customers. The current small business pilot program has led to the installation of 1.1 MWh, plus 600,000 kWh sold and waiting for installation, for a total of 1.7 kWh to date. Most of this is from refrigeration retrofits. PG&E is researching OBF and plans to offer a commercial program in the 2009-11 cycle although when that will occur within the cycle is not known at this time. PG&E is also planning on delivering a program dedicated to state buildings perhaps using state bond funds but final planning has not been completed.

**Next Steps:** All IOUs currently have filed program plans for the 2009-11 program cycle with the CPUC. Currently, those programs are likely to begin sometime in the first quarter of 2009 if no additional delays are encountered.

## Comment:

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### **A. Planning: Smart Growth and Transit Villages**

**Status:** Under Consideration; Part of Proposed Scoping Plan

**Description:** Planning measures can shift investments in housing and transportation infrastructure in a way that would reduce GHG emissions over the long term by providing desirable and low-GHG transportation options, largely by replacing automobile trips. Smart Growth is an urban planning and transportation strategy that emphasizes growth near city centers and transit corridors to prevent urban sprawl.

**Progress:** CARB's Draft Scoping Plan calls for a 2 MMT CO<sub>2</sub> reduction from improved land use practices by 2020. The Draft Scoping Plan specifically mentions regional greenhouse gas emissions targets, encouraging regional blueprint planning and increased compact and infill development to meet the target. The plan does not contain any clear linkage between infrastructure resource allocation decisions and Smart Growth planning.

**Next Steps:** Smart Growth legislation (SB375) is being considered by the Assembly. (passed)

**Comment:** The final scoping plan should contain a link between infrastructure resource allocation decisions and smart growth. If needed, CARB should identify any necessary legal authority. Based on ETAAC's report, reductions greater than 2 million tons in 2020 should be feasible.

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## **B. Pay-As-You-Drive Insurance**

**Status:** In Development; Under Evaluation for Proposed Scoping Plan

**Description:** Pay-As-You-Drive or Pay-Per-Mile insurance assesses individualized premiums based upon miles driven instead of the calendar year, providing motorists a new option to save money by driving less and therefore minimizing insurance risk. Pay-As-You-Drive premiums incorporate traditional risk factors such as driving record and vehicle make and model. They also still reflect insurance coverage services selected by the consumers themselves.

**Progress:** The Assembly passed AB2800 (Huffman), which seeks to enable the implementation of PAYD insurance in California on a voluntary basis for both insurers and drivers. This legislation requires a 2/3rd majority vote to pass. The California Department of Insurance has embarked on a rulemaking proceeding "with the goal of making PAYD insurance widely available in California and to encourage participation." At the first public workshop on June 23, 2008, CDI staff declared that the "primary" goal of PAYD was to reduce Vehicle Miles Traveled for environmental benefit. Preliminary regulations are expected in Fall, 2008. Prop 103 requires that mileage be given the greatest weight in setting insurance rates after the driver's safety record, yet mileage currently has little effect on insurance rates. The California Air Resources Board has stated that it will consider including PAYD in the AB32 scoping plan.

**Next Steps:** AB2800 was withdrawn. Insurance companies are required to submit new filings to CDI to comply with Prop 103 by July 14th. CDI intends to issue draft regulations on PAYD in August, and has a one-year deadline for completing rulemakings.

**Comment:** CDI should create regulations that lead to PAYD implementation as broadly as possible. If CDI finds that it needs legislative authority, it should seek such legislation authority.

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## **C. Congestion Charges**

**Status:** In Development; Under Evaluation for Proposed Scoping Plan

**Description:** Congestion pricing uses electronic transponders in the vehicle, database-linked cameras, and other barrier-free means to charge drivers as they enter heavy traffic congestion zones. This system works well in combination with public transit, and can be used as a source of funding for improved public transit systems.

**Progress:** The California Air Resources Board has stated that it will consider including congestion pricing in the AB32 scoping plan. Localities must receive authorization from the State Legislature to charge for the use of highways in the State. The City and County of San Francisco has expressed support for congestion pricing and is planning for its implementation, contingent on permission from the Legislature. Santa Clara County and Los Angeles County are initiating congestion charging studies.

**Next Steps:** ICCT is currently funding a study to determine the potential greenhouse gas benefits that could be achieved by congestion charging.

**Comment:** CARB should evaluate congestion charging in the final scoping plan, and the legislature should provide localities with legislative authority to implement congestion charging.

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## **D. Employer-Based Commute Trip Reductions**

**Status:** Under Consideration; Under Evaluation for Proposed Scoping Plan

**Description:** Employers and their employees can reduce GHG emissions by reducing drive-alone commuting.

**Progress:** The draft scoping plan states that ARB is considering including an "Indirect Source Fee" in the AB32 scoping plan (p. 38). Commercial and residential development create additional vehicle miles traveled. The indirect source fee would create an incentive to design developments to reduce GHG emissions; and provide mitigation of the emissions that do occur. The draft plan also states that CARB is considering public education and programs to reduce vehicle travel by encouraging telecommuting, flex-time schedules, and mode-shifting alternative forms of travel.

**Next Steps:**

**Comment:**

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## **E. New Vehicle Technology Improvements**

**Status:** In Development; Part of Proposed Scoping Plan

**Description:** While forward thinking when written -- and vitally important for near term AB 32 compliance -- AB 1493 does not capture the full potential for GHG emission reductions now technically possible from motor vehicles. A more comprehensive standard for post-2016 vehicles of all types would net even greater GHG emission reductions and can help foster partnership opportunities nationally and internationally.

**Progress:** CARB is committed to implementation of both the existing passenger vehicle GHG standards, and development on new standards for post-2016 vehicles (p. 20). However, California needs a waiver from the US EPA to implement its current passenger vehicle GHG standards, and the current Administration has blocked progress by refusing to allow the waiver. California is currently litigating this denial. CARB has included a preliminary medium and heavy-duty vehicle engine measure in the draft GHG scoping plan. In addition to the aerodynamic efficiency early action measure already underway, CARB proposes a heavy duty vehicle engine measure and a medium/heavy duty vehicle hybrid engine measure.

**Next Steps:** A federal waiver allowing the state to implement GHG standards is critical to allow CARB's efforts to continue its leadership role on environmental issues and reduce GHG emissions by 31.7 mmtyp CO<sub>2</sub>(eq) by 2020. CARB has determined that proposed federal fuel economy standards would achieve important reductions, but will not benefit the California fleet (nor other states that have adopted this standard) as much as the California standards.

**Comment:** CARB's passenger vehicle measure would implement ETAAC's recommendation and should be adopted. CARB should also include a heavy-duty vehicle standard with an adoption date of 2010 in order to meet the rule adoption deadlines specified under AB32, and consider a more integrated approach to regulating engines, vehicles, and chassis.

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## **F. Low GHG Fleet Standards and Procurement Policies**

**Status:** Implemented; Not Mentioned in Proposed Scoping Plan

**Description:** Performance standards and procurement policies can facilitate implementation of low and zero carbon vehicles.

**Progress:** Legislation (AB 236, Lieu) was signed into law in 2007 requiring that state passenger vehicle

purchases meet criteria based on emissions, fuel economy, lifecycle fuel cost, and purchase cost. Legislation (AB2560, Lieu) expanding this program to medium and heavy duty vehicles has passed the California Assembly. CARB's staff draft scoping plan contains an extensive discussion of how to minimize emissions from the state's vehicle fleet and provide access to alternative fuels under the "state government" chapter. This chapter also mentions an opportunity to reduce criteria pollutant emissions by including cleaner cars in the state's fleet.

**Next Steps:** The California Department of General Service's implementation of passenger vehicle scoring is due by the end of this year. All vehicles procured after June 30, 2009 must meet these criteria. AB 2560 passed, to be sent to Governor.

**Comment:** California should minimize the carbon footprint of both its passenger vehicle and heavy duty vehicle fleet, and legislative authority should be provided to state agencies if needed in areas such as heavy duty vehicles. Given California's urgent need to reduce emissions and purchase the lowest lifecycle cost vehicles, implementation should occur as soon as possible.

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## **G. GHG-based Vehicle Feebates and Registration Fees and Indexed Fuel Taxes**

**Status:** Under Consideration; Under Evaluation for Proposed Scoping Plan

**Description:** Fiscal incentives to promote more fuel efficient vehicles can complement carbon standards without restricting customer access to a full range of vehicle choices. Options include a revenue-neutral vehicle "feebate" program. Yet another potential approach would be to base vehicle registration fees and fuel tax levels on GHG emissions, but indexed to match inflation and keep pace with VMT increases.

**Progress:** Feebates have been addressed in the draft AB32 scoping plan as a potential "back-up" to California's passenger vehicle GHG standards (p.20), and are under consideration as a stand-alone measure (p.37). Indexed registration fees and fuel taxes are not considered in the plan.

### **Next Steps:**

**Comment:** In addition to feebates, CARB should also consider indexed registration fees. However, this incentive is less important than feebates because the registration fees are smaller and spread out over time. CARB may wish to evaluate the potential of GHG-indexed fuel taxes as an additional financial incentive.

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## **H. Air Quality Incentives Programs and Standards**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** Air quality programs such as the Carl Moyer incentive program do not include a value for diminishing GHG emissions. Coordinating GHG emission reduction programs with existing air quality improvement programs (for both vehicles and other sources) would help meet AB 32's climate change response goals. It could also improve the efficiency of incentive programs for both GHG emissions and other air pollutants.

**Progress:** This topic is not addressed in the draft scoping plan. Note that this topic is potentially related to investments in carbon reductions, such as through a California Carbon Trust, if carbon fees and/or the value of allowances are used for public purposes.

**Next Steps:** Existing programs under AB118, and Proposition 1B, will create some incentive funding within their scope.

**Comment:**

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**I. Create Markets for Green Fuels**

**Status:** Under Consideration; Not Mentioned in Proposed Scoping Plan

**Description:** The Low-Carbon Fuel Standard (LCFS) mandate being developed by CARB addresses the lifecycle GHG emissions of transportation fuels. However, independent incentives might expedite achieving or exceeding that standard and creating a basis for deeper future reductions, while creating opportunities for additional in-state production.

**Progress:** At present, CARB efforts are focused on achieving the goals of the LCFS. The technical development efforts for the LCFS would also be useful in providing Green Fuels labeling information to the public regarding the carbon intensity of fuels developed as part of, or in addition to, CARB's Low Carbon Fuel Standard (LCFS). However, because design and implementation of the LCFS is complex, CARB is not currently evaluating the additional steps that would be needed to establish a Green Fuels labeling program.

**Next Steps:** CARB staff have indicated that they will evaluate ways to encourage fuel carbon reductions beyond the standard, such as carbon content labeling, in the future after completing work on the LCFS.

**Comment:**

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**A. Cleantech Tax Incentives**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** Tax policies such as those addressed in Assembly Bills 1506, 1527 and 1651, all authored by Assemblyman Juan Arambula in 2006, would encourage small (and large) businesses to undertake measures to meet AB 32 goals that would otherwise be cost prohibitive.

**Progress:** AB 1506, 1527 and 1651 failed to pass.

**Next Steps:**

**Comment:**

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**B. Rebates for Load Reduction**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** Expand load reduction rebate programs to include non-generation technologies.

**Progress:** The ETAAC Report recommends expanding the load reduction rebate program to include non-generation technologies. Implementation of this recommendation would require policy support and relaxation of fuel switching rules and eligibility of load shifting technologies such as thermal energy storage to participate in existing programs. In addition, the investor-owned utilities (IOUs) have Demand Response programs that provide rebates for permanent load reduction and demand response.

**Next Steps:** The IOUs will be filing amended applications for program and funding approval for 2009-2011 on September 8, 2008.

**Comment:** CARB should support the development of non-generation load reduction technologies, as there is a substantial technology gap that needs to be overcome before this recommendation can be fully implemented. CARB can also support CPUC approval of the IOUs' applications for Demand Response programs.

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## **C. Improve Policies for Combined Heat and Power Plants**

**Status:** In Development; Part of Proposed Scoping Plan

**Description:** California has yet to tap the full potential of Combined Heat and Power (CHP) facilities to decrease CO<sub>2</sub> and other GHG emissions. This ETAAC recommendation covers policies to promote those CHP projects that "qualify" for improved treatment under State regulation, whether it is small new CHP under AB 1613, new larger CHP facilities, or existing CHP that will contribute to lower GHG emissions and criteria air pollutants.

**Progress:** The Draft Scoping Plan states that the State should "pursue efforts to encourage combined heat and power systems that make use of both the electricity and the heat generated to maximize efficiency." (p. 21) The Scoping Plan estimates 6.9MMTCO<sub>2</sub>E in reductions from CHP by 2020. The Western States Petroleum Association (WSPA) held the "Combined Heat & Power Collaborative" on July 8, 2008 to provide a forum for interested parties to engage in constructive dialogue, education, technical review, research and guidance to assist the State in designing the successful implementation of the CHP aspects of AB32. Progress on specific aspects of recommendation: (1) Defining CHP, identifying potential, and setting targets: The recommendations to define CHP, develop qualifying criteria and determine how CHP projects should participate in the GHG market are being addressed in the CPUC's AB32 proceeding and were addressed in the ARB Draft Scoping Plan. In addition, ARB has established a CHP Working Group. The issue of whether there should be CHP targets has in the past been determined by the CPUC in the Long Term Procurement Plan (LTPP) proceeding. The 2008 LTPP is expected to conclude in early 2009. If this practice continues, no final action would be taken by either the CEC or CPUC on proposed targets until that time. The CEC has not taken action to develop AB 1613 criteria. The CPUC has instituted an OIR (R.08-06-024) to implement AB 1613. Both agencies are determining resource commitments to implement AB 1613 for their respective tasks. (2) Developing an "explicit strategy" for low carbon electricity generation, with CHP as an option: This recommendation will be addressed in the CEC's IEPR proceeding. The 2009 IEPR is currently conducting workshops with a draft report expected September 2009. Thus, no targets have been established that would encourage additional CHP development. (3) Reexamining CHP's eligibility for CPUC self-gen incentives: CPUC issued a rulemaking on June 26 to consider rules for implementing AB 1613, including removal of barriers. No comparable investigation has been initiated for large-scale CHP. The CPUC still has not acted on a request filed in December 2006 to reduce departing load charges, although a decision is anticipated in Q3 2008. SB 1012 (Kehoe) is moving through the legislature to allow the CPUC to determine eligibility for natural-gas fired CHP. (4) Maintaining power purchase programs for QFs to maximize CHP system efficiency and economic viability: The IOUs have filed a standard offer contract for QF installations (including CHP); an updated standard offer will be filed Q3 2008. CPUC has a program in place. Whether the current prices are likely to encourage new resources remains to be seen. (5) CHP-friendly transmission tariffs: no action. (6) "Doublebenchmarking" for the evaluation of CHP GHG emission reduction benefits: a double benchmark considers the combined efficiency of the separate production of electrical and thermal energy that would have occurred had the CHP plant not been developed. A CPUC recommendation to CARB on the use of double benchmarking is expected in August 2008.



**Next Steps:** This recommendation is being addressed by various State agencies.

**Comment:**

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**D. Distributed Renewable Energy Generation: Solar PV**

**Status:** Under Consideration; Not Mentioned in Proposed Scoping Plan

**Description:** Based on an assessment of California's solar resources, rooftop solar photovoltaics (PV) have the technical potential to generate 74,000 MW at peak output. Solar PV can clearly make a substantial contribution to reducing the need for the most expensive (and often most polluting) peak power requirements. ETAAC recommends that California build on existing solar incentive policies by reducing system installation costs and ensuring that residents and businesses receive compensation for the value of net excess electric generation.

**Progress:** The legislation establishing the California Solar Initiative (SB-1, adopted in 2006) is limited to systems where "The solar energy system is intended primarily to offset part or all of the consumer's own electricity demand." California has a relatively new feed-in tariff for some utilities for projects under 1.5 MW, which allows surplus sale transactions (i.e., surplus sale provides for on-site use before selling the surplus, but does not provide for banking like net metering). PG&E has already signed 13 contracts for 11 MWs in the last four months. This feed-in tariff excludes solar energy systems installed under the California Solar Initiative, and contains administrative requirements that create a barrier to rooftop PV solar residential or small business projects. Several bills have been introduced regarding feed-in tariffs, some of which would exclude PV solar that received a capital cost incentive under the California Solar Initiative. (Some of these bills may raise issues beyond the scope of ETAAC's recommendation. One of these additional issues is whether existing incentives for renewable energy would be replaced by feed-in tariffs that provide an incentive by paying a higher price than the value of the energy provided.) CARB states in the draft plan that "Compensation for surplus generation is critical both for meeting the [solar roof] program goals and for supporting zero energy buildings."(p C-71)

**Next Steps:** Legislation is under consideration.

**Comment:** Policy-makers should take action to compensate residents and businesses for the value of power provided to the grid when the value of solar PV output exceeds the value of on-site use. To have the greatest long-term impact, PV solar will need to benefit from innovations that allow it to compete with grid electricity without subsidies.

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**E. Customer Choice of Electric Service Provider**

**Status:** Under Consideration; Not Mentioned in Proposed Scoping Plan

**Description:** For many years, Californians have demonstrated a desire to purchase electricity from providers other than the incumbent utility. However, this option, known as "direct access," was suspended in California during the energy crisis of 2000-2001. The CPUC should examine whether the expansion of direct access can assist the state in reaching its GHG emission reduction goals.

**Progress:** CPUC has an open proceeding to determine the circumstances and timing for reopening the retail energy market to allow for customer choice. Community Choice Aggregation service is also an option available to customers within the political jurisdictions of cities, counties or Joint Powers Agencies who have elected to provide electric commodity service by becoming Community Choice Aggregators.

**Next Steps:** Ongoing CPUC proceeding.

**Comment:** CARB and the CPUC should investigate whether the opportunity for customers to purchase electricity through direct access purchases could support AB 32 goals.

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## **F. Building Efficiency Programs and Incentives**

**Status:** In Development; Part of Proposed Scoping Plan

**Description:** Encourage better energy performance in new buildings and cost-effective building retrofits.

**Progress:** Investor-Owned Utilities filed their Energy Efficiency Program and Incentive proposals for the 2009-2011 period, which are designed to meet increased goals. As an example, PG&E seeks almost \$1.9 billion over the three-year program, more than double the amount authorized for the previous three-year funding cycle. SCE and SDG&E also proposed increased funding levels to meet higher goals, at \$1.3 billion and \$280 million, respectively. The Draft Scoping Plan recommends maximizing energy efficiency building and appliance standards and pursuing additional efficiency efforts (p. 21). Additional efficiency measures are under consideration for inclusion in the scoping plan (p. 38).

**Next Steps:** CPUC approval process for program filings.

**Comment:** Achieving the proposed goals in the draft Scoping Plan will require coordination and extraordinary action by multiple governmental agencies at federal, state and local levels, as well as coordination among and between state agencies, utilities, and end users to create processes and new measures and mandates for energy efficiency that do not exist today. The success of these goals will also depend on additional research and development, technology improvements, consumer education, and workforce development, to mention only a few of the related recommendations in the ETAAC Report. Thus, the ambitious scope, cost, and scale of these goals should be fully acknowledged in the development of the final Scoping Plan. Furthermore, the Draft Plan appears to be basing the energy efficiency goals on the high end being considered by the CPUC. It should be noted that the Itron Goals Report, the source of the goals' ranges, recommends the use of a 20% "uncertainty band" which is not accounted for in the Draft Plan. It should also be noted that the CPUC is in the process of updating the input parameter values for its Database for Energy Efficiency Resources ("DEER"), and the updated parameters are likely to result in downward revisions to savings estimates. Finally, the CPUC has indicated that the overall energy savings goals will be updated in 2010. The update will include at a minimum a rerun of the Itron model with new DEER numbers and the 2009 adopted market price referent to be used to establish avoided costs (D. 08-07-047, issued August 1, 2008). Thus, CARB should treat the energy savings goals as provisional with uncertainty appropriately factored in. Given all of the above, it may not be prudent for CARB to assume a single numeric target for energy efficiency in the Draft Plan. We recommend that CARB factor uncertainty into the Draft Plan targets and use a more realistic range of demand and related emissions reductions associated with energy efficiency.

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## **G. Combustion Devices: Energy Efficiency**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** Develop uniform efficiency standards for all types of combustion devices.

**Progress:** The Draft Scoping Plan contains measures related to boiler efficiency and stationary internal combustion electrification, but does not mention uniform standards.

**Next Steps:**

**Comment:**

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**H. Industry - Government Partnerships to Reduce Industrial Energy Intensity**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** To make the state's industrial sector more competitive and climate friendly, California should join the "Superior Energy Performance Partnership." Led by the Federal Department of Energy (DOE), the Federal Environmental Protection Agency, the Manufacturing Extension Partnership, and a number of industrial firms that include 3M, Dow, Dupont, Ford, Toyota, Sunoco, this public-private partnership is an effort to improve energy management across the country.

**Progress:**

**Next Steps:**

**Comment:**

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**I. A Revolving Fund for Technology Demonstration Projects**

**Status:** Under Consideration; Not Mentioned in Proposed Scoping Plan

**Description:** A new program for California Demonstrations for Industrial Energy Technologies (California DIET) would accelerate adoption of emerging, technically proven energy efficiency technologies through industrial demonstration projects. A low-cost loan fund could be created and could be replenished by royalties on successful demonstration projects, shared energy savings, and shared carbon credits banked for future use or sale.

**Progress:** Part of the ongoing work for the proposed California Carbon Trust deals with the issue of demonstration finance. E2 has produced a draft report on this topic. CEC staff are working on proposals for demonstration finance as well.

**Next Steps:**

**Comment:**

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**J. Develop Suite of Emission Reduction Protocols for Recycling**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** Development of the appropriate protocols for the recycling sector will result in GHG emission reductions far beyond the limited success available through minimizing fugitive methane emissions from landfills. Recycling itself can truly act as a mitigation measure to reduce GHG emissions across all sectors of the economy.

**Progress:** The Draft Scoping Plan's "Recycling and Waste" recommendation (p. 34) does not specifically

address this ETAAC recommendation. Furthermore, the California Climate Action Registry has not made any progress towards the development of these emission reduction protocols. Some private efforts have been made to develop a methane avoidance protocol under the Chicago Climate Exchange but ARB and CCAR need to expend resources to adapt this protocol for California.

### **Next Steps:**

**Comment:** Given the significant and cost-effective (and potentially cost-negative) greenhouse gas reductions available through waste reduction, recycling, and composting, CARB should take steps to identify appropriate protocols and expedite their development.

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## **K. Increase Commercial-Sector Recycling**

**Status:** Under Consideration; Under Evaluation for Proposed Scoping Plan

**Description:** Recycling offers the opportunity to cost-effectively reduce GHG emissions from the mining, manufacturing, forestry, transportation, and electricity sectors while simultaneously reducing methane emissions from landfills. Recycling is widely accepted. It has a proven economic track record of spurring more economic growth than any other option for the management of waste and other recyclable materials. Increasing the flow through California's existing recycling or materials recovery infrastructures will generate significant climate response and economic benefits.

**Progress:** Increased commercial recycling is mentioned in the Draft Scoping Plan as a measure "under evaluation," but the appendix does not identify specific actions to reduce emissions through this sector. The Draft Scoping Plan notes that "research and studies are planned to investigate potential for commercial recycling." (p. C-126). The Draft Plan is silent on the specific recommendations outlined in the report (mandatory recycling for commercial entities that generate over 4 cubic yards of refuse, requirements for owners of multi-family buildings to provide recycling services, and disposal limits for readily recyclable materials). Legislation is pending to impose mandatory commercial recycling.

**Next Steps:** Legislation is under consideration. The Draft Scoping Plan notes that "research and studies are planned to investigate potential for commercial recycling." (p. C-126)

### **Comment:**

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## **L. Remove Barriers to Composting**

**Status:** Under Consideration; Under Evaluation for Proposed Scoping Plan

**Description:** Compostable organics make up 30 percent of California's overall waste stream, contributing over 12 million tons annually to the state's landfills. This material undergoes anaerobic decomposition in landfills and produces significant quantities of methane, much of which is not captured by landfill gas systems. Composting offers an environmentally superior alternative to landfilling organics. Composting avoids these landfill emissions and offers greater carbon sequestration in crop biomass and soil, a decrease in the need for GHG-releasing fertilizers and pesticides, and a decline in energy intensive irrigation.

**Progress:** The Draft Scoping Plan's Appendix C includes a Composting measure that is "under evaluation." The appendix does not provide sufficient detail to determine the degree to which this measure would address existing barriers, and no specific action is proposed on the various recommendations in this section.

## **Next Steps:**

## **Comment:**

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### **M. Phase Out Diversion Credit for Greenwaste Alternative Daily Credit**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** In many markets, greenwaste composting faces undue competition for materials from landfills because operators of landfills are able to get "diversion credit" for using greenwaste as Alternative Daily Cover (ADC). This practice is another barrier to developing a more robust composting industry in California and contributes to the climate change threat.

**Progress:** The Draft Scoping Plan's "Recycling and Waste" recommendation (p. 34) does not specifically address this recommendation. The CIWMB has convened a working group to look into this issue, but has yet to take any action.

**Next Steps:** In order to implement this recommendation, legislation would be required.

## **Comment:**

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### **N. Reduce Agricultural Emissions Through Composting**

**Status:** Under Consideration; Under Evaluation for Proposed Scoping Plan

**Description:** Greater agricultural use of compost has been proven to substantially reduce the demand for irrigation and fertilizers/pesticides, while increasing crop yields. This is an extremely cost-effective way to reduce agricultural GHG emissions while sustaining California's agricultural industry by returning organic nutrients to the soil.

**Progress:** The Draft Scoping Plan's Appendix C includes a Composting measure that is "under evaluation," and the Agriculture section of the Scoping Plan identifies Fertilizer Use Efficiency as an "Area of Research." However, neither of these measures is recommended for immediate action and there are no emission reductions associated with them.

## **Next Steps:**

**Comment:** In addition to the Agriculture section of the Scoping Plan, this measure could be included in the development of adaptation strategies because of its role in reducing water consumption and in producing drought-resistant crops.

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### **O. Evaluate and Improve Policies for Qualified Waste Conversion Technologies**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** Establish policies to enable and encourage the development and implementation of waste conversion technologies.

**Progress:** LA county is developing one or more demonstration conversion technology projects in Southern California. County officials have identified four promising technology companies as well as potential recycling facilities for them to partner with for post-MRF residual solid waste as feedstock. They have also issued a Request for Offers and anticipate receiving 4 site-specific proposals, due August 15, 2008. If all goes on schedule, these facilities may be operational as early as 2012.

**Next Steps:** The proposed ERRP program is pending CPUC approval.

**Comment:** CARB can support public funding for demonstration projects in the state, while remaining mindful of the detrimental effect of administrative delay and complexity, as well as address the legislative and other barriers identified in the ETAAC report.

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## **A. Energy Efficiency Program Coordination**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** ETAAC recommends coordinating energy efficiency programs to maximize GHG emission reductions as well as achieve other State public policy goals such as improving air quality.

**Progress:** The recent IOU filings for the 2009-11 funding cycle included some integrated and coordinated programs. As an example, PG&E proposes to integrate its energy efficiency, demand response, and solar programs. It also proposes a Green Communities Program and Innovator Pilots to help local governments and communities reduce greenhouse gas emissions. PG&E's filing also identified proposed program changes that would complement AB 32 rules and policies, including a proposed program targeting "Cement Production & Distribution Energy Efficiency".

**Next Steps:** CPUC approval process for new programs.

**Comment:**

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## **B. Aggressive LED Energy Efficiency Programs**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** Energy efficiency is the first resource of choice according to the California Energy Action Plan's "Loading Order" and is one of the most cost effective GHG emission reduction measures. California must aggressively pursue the next generation of energy efficiency technologies to capture unrealized technical and economic potential. One technology that cuts across multiple end users is Light Emitting Diodes (LED).

**Progress:** Light-Emitting Diode (LED) applications including refrigerated case lighting, bi-level stairway lighting and street lighting were tested by IOUs as Emerging Technology during the 2006-8 program cycle. Recently filed IOU program and incentive proposals for 2009-2011 propose new LED incentive programs as a "cross-cutting" technology. As an example, PG&E's "LED Accelerator" proposal would nearly quadruple program funding between 2009 and 2011.

**Next Steps:** CPUC approval process for new programs.

**Comment:**

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## **C. Take Steps Necessary to Achieve an Increase in Renewable Energy to 33 Percent by 2020 to Reduce GHG Emissions**

**Status:** Under Consideration; Part of Proposed Scoping Plan

**Description:** California has the country's most aggressive renewable energy development goals. More can be done, however, if supporting infrastructure and complementary policies are developed. Policy makers are in support of increasing California's renewable portfolio standard (RPS) to 33 percent by 2020. There are a number of barriers to achievement of this goal that must be alleviated in order to realize significant GHG emission reductions through this change in State policy. A focused, massive commitment on the part of California's policymakers is essential. ETAAC supports exploring ways to increase California's renewable energy (or carbon-free equivalent) supply to 33 percent by 2020, provided the barriers can be addressed.

**Progress:** The Draft Scoping Plan supports a 33 percent RPS (p. 24), but does not appear to adequately consider the requisite steps to support 33% renewables as outlined in the ETAAC report. Legislators considered a 33% RPS but did not reach a decision.

**Next Steps:**

**Comment:**

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## **D. Competitive Renewable Energy Zones**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** California possesses enough renewable resource potential within its borders to provide several times the state's current electricity needs and contribute substantially to GHG emission reductions. However, there are still hurdles to sufficiently developing these noncarbon resources. California could adopt a policy to identify and assess Competitive Renewable Energy Zones (CREZs) throughout the state and then develop a strategy for public agencies and other stakeholders to facilitate the next generation build-out of these carbon free technologies.

**Progress:** CPUC /CEC/CAISO working on the Renewable Energy Transmission Initiative (RETI) to identify CREZs in both California and neighboring states. This effort is expected to develop an initial list of CREZs to be ranked by September 2008. Transmission options to access these CREZs would then be investigated so that an overall ranking considering cost and environmental impacts can be made by summer 2009. Transmission development would then proceed on the highest priority CREZs. However, given the length of time to permit and EPC new transmission lines, it is unlikely that significant new transmission accessing CREZs beyond those already underway (Tehachapi and Sunrise) will be available by 2012. A more likely timing would be 2014-15. While the Draft Plan includes a general acknowledgement that state and local permitting requirements may affect the viability of certain recommended strategies, it does not acknowledge the role of CEC and other applicable siting and permitting agencies in CREZ as a critical path item to expanded renewables.

**Next Steps:**

**Comment:** The Draft Plan should acknowledge the role of CEC and other applicable siting and permitting agencies in CREZ as critical to expanded renewables. The successful completion of RETI and the creation of CREZ's would help to address significant barriers to expanded renewable electricity generation. ETAAC suggests a coordinated siting and permitting process that retains the same level of current rigorous environmental review. A well-coordinated Federal/State siting process will reduce the time and legal and administrative costs for project developers, the cost of agency administration to taxpayers, and speed up

renewable development on a timeframe necessary to meet AB 32 goals. In addition, while work is underway to identify and advance transmission to CREZs, more can be done to facilitate permitting of renewable generation projects in these CREZs. In parallel to RETI, permitting agencies need to be designating where renewable energy development is a compatible land use, including general plans that balance the need for renewable energy projects and the concerns of preservationists. The ARB should encourage the land management agencies in California to develop such land use plans in parallel with the RETI effort to develop transmission plans to meet California's renewable energy goals.

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## **E. Renewable Energy Technology Assessments**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** California has proven world-class wind, geothermal and solar resources that can be expanded to meet future needs. Deployment of renewable energy installations will have a significant impact on meeting California's GHG emission reduction targets by displacing more carbon intensive technologies otherwise needed to meet growth in electricity demand. Deployment of these "game changing" technologies in large volumes will spur significant reduction in carbon emissions and alter the way energy is traditionally supplied and distributed.

**Progress:** ETAAC recommends deploying renewable energy technologies in large volumes to spur reductions in carbon emissions. This recommendation is being implemented by utilities through the RPS program and through the proposed Emerging Renewable Resource Program (ERRP).

**Next Steps:** The proposed ERRP is pending CPUC approval.

**Comment:**

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## **F. Electricity Storage as an Enabling Technology for Renewable Energy**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** Energy storage addresses the need to integrate intermittency and works to shift excess off-peak power production to peak periods of demand and, as noted below under plug-in electric drive vehicles, achieve synergies that support both zero carbon renewable electricity for current uses and vehicle energy.

**Progress:** Energy storage opportunities are being pursued on multiple fronts: a) PG&E filed FERC applications for two new pumped storage plants with capacities ranging from 380 MW to 1,140 MW for each project. b) The CEC PIER program awarded wind storage grants to a PG&E/SCE/EPRI joint proposal and to a separate SCE proposal. The joint proposal is to study using energy storage devices to mitigate some of the challenges associated with integrating intermittent wind resources. This grant-funded project has three objectives: 1) determine the value of deploying an energy storage device at any point on the grid, 2) identify the characteristics of an energy storage device that would maximize value of energy storage at any particular location, and 3) determine what, if any commercially available energy storage devices best match the identified value maximizing characteristics. SCE's separate CEC grant was for testing specific technologies. c) PG&E expects to issue an Energy Storage Request for Information (RFI) to determine the capabilities of energy storage providers for future projects. As described in the ETAAC Report, large-scale successful storage technologies can help transform wind generation into a reliable resource for energy planning, enabling California to take full advantage of this renewable resource abundant throughout the West. However, the Draft Plan makes no mention of the important role enabling technologies play in the State's zero and low carbon strategy.



**Next Steps:** Next steps include: a) FERC process for pumped hydro. b) Commencement of the CEC PIER funded wind-storage projects. c) Issuance of the energy storage RFI.

**Comment:** The ARB could encourage the CPUC and FERC to develop programs/tariffs that enable energy storage to be deployed to meet T&D and generation related needs, such as substation islanding and ancillary service provision. Furthermore, the ARB should encourage regulators to provide above market funding/special programs (like the proposed Emerging Renewable Resource Program) to move these technologies down the cost curve. The Draft Plan should acknowledge the importance of enabling technologies and include strategies that would expressly support the development and implementation of enabling technologies as described in the ETAAC Report.

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## **G. Plug-in Electric Drive Vehicles as Storage Devices**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** Plug-in hybrid and dedicated electric drive vehicles (PHEV/EV) could serve as energy storage devices. (Fuel cell vehicles could also serve this purpose.) The primary advantage of this approach is that these vehicles can be charged at night, when less expensive (and potentially less polluting) excess electrical generating capacity is available. They also have the potential to support the electric grid reliability. In the future, it is possible that on-site generation of hydrogen for fuel cell cars could be another form of vehicle-based storage in addition to the possibility of fuel cell/battery hybrids

**Progress:** CARB has proposed including both the transportation and the electricity sectors under a cap & trade program. This would avoid an uneven playing field that could occur if carbon was priced in the electricity sector, but not in the transportation sector. Technology development & deployment that is critical to the success for plug-in vehicles is on-going.

### **Next Steps:**

**Comment:** Policy-makers will need to develop a policy frame-work that recognizes the potential benefits of PHEVs for providing distributed energy to the grid during peak loads, and other ancillary grid services.

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## **H. Smart Grid as Enabling Technology for Renewables and Clean Vehicles**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** Today's grid was designed to only transmit electricity from central generation source to the point of consumption. A "smart" and interactive grid and communication infrastructure is necessary to enable the two-way flow of energy and data need for widespread deployment of distributed renewable generation resources, PHEV/EVs, and end-use efficiency devices.

**Progress:** The Legislature and CPUC have each initiated efforts to define SmartGrid and to explore how they can be helpful in supporting its implementation. While the SmartGrid is an enabling technology to integrate both renewables and clean vehicles, neither the CPUC nor the Legislature address issues related to two-way dispatchable control over distributed generation or control over electric drive vehicle recharging. PG&E is working with International standards bodies (IEEE, SAE, EPRI) to establish connector and communications standards to enable the utilities to "speak" to these vehicles using a common protocol. In addition, the California legislature is broadly supporting the vehicle side of the equation through low carbon fuel regulations (LCFS), vehicle efficiency (Pavely AB 1493), incentives (Prop 1B, AB118, tax credits for clean tech and fuel, etc) and R&D (PIER)

## Next Steps:

## Comment:

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### I. Carbon Capture and Sequestration in Geological Formations

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** Demonstration of carbon capture and sequestration (CCS) in geological formations is a key opportunity for California to benefit from partnerships nationally and internationally. Broad commercial deployment of technology for CCS in geological formations faces significant challenges. Nevertheless, it offers a potential opportunity for achieving long-term reductions in GHG emissions, especially on a national and global scale.

**Progress:** The ETAAC Report identifies the demonstration of CCS in geologic formations as a key opportunity for California to benefit from national and international partnerships, as well as a potential opportunity for achieving long-term reductions in GHG emissions, especially on a national and global scale (ETAAC Report, page 5-21). The Draft Plan does not appear to consider CCS at all in its recommendations. ETAAC recommends the creation of a legal framework for long term liability associated with carbon sequestration, including issues relating to legal rights, as well as regulatory framework for monitoring storage and ensuring compliance. The EPA is developing an overall framework which will include monitoring and post-closure requirements, and has issued proposed rule for underground injection of CO<sub>2</sub> on July 25. There is currently no activity on developing a comprehensive legal framework to address long-term liability. ETAAC recommends financial incentives to spur CCS technology and implementation. The Department of Energy's Carbon Capture and Sequestration Research, Development and Demonstration Act of 2007 authorizes funding to be appropriated, but only for coal-based carbon capture and sequestration projects. SCE recently filed and received approval for a full-scale, 600 MW clean coal generation feasibility study combining coal gasification, carbon capture and sequestration

**Next Steps:** EPA will be accepting public comments on the proposed rule for underground CO<sub>2</sub> injection through November 24, 2008. EPA is also going to hold a public meeting sometime in September.

**Comment:** The Draft Plan should acknowledge the need for carbon capture and sequestration demonstrations and pilots so that the technology can be fully developed and commercialized. WESTCARB, which is managed by the CEC, has conducted some groundbreaking work in this area, but more needs to be done, including funded commercial-scale projects.

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### J. Low Carbon Electricity Generation Plan

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** California needs to plan now for low and zero carbon power supplies that will serve the end-use needs of residential, commercial, and industrial customers while also achieving AB 32's GHG emission reduction targets.

**Progress:** ETAAC recommends that the State develop a comprehensive GHG strategy that balances existing and new technologies, as well as renewable and other potential sources of zero and low carbon electricity. This recommendation is not included in the Draft Plan. The State is evaluating a cap and trade program, which would encourage low and zero carbon generation. However, existing programs are still implemented in silos without evaluating cost-effectiveness across the board.

## **Next Steps:**

## **Comment:**

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### **K. Unifying Standards for Climate-Related Programs**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** California's multiple programs for clean and alternative energy development, many of which were described above, have been largely designed in isolation from one another with the intent of stimulating innovation or improving environmental performance in discrete technology sub-categories. CARB should pursue a uniform strategy for implementation of new carbon reducing technologies after 2012, with carbon-equivalent savings that would link all existing clean energy programs and mandates.

**Progress:** There has been no activity in this regard, other than that the State is evaluating a cap and trade program, which would encourage low and zero carbon generation.

## **Next Steps:**

## **Comment:**

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### **A. Manure to Energy Facilities**

**Status:** In Development; Part of Proposed Scoping Plan

**Description:** The use of manure digesters to capture and utilize methane rich biogas is well established and could generate up to 350 MW of new renewable energy production. Address market and regulatory barriers (permitting, etc) to encourage the use of manure digesters.

**Progress:** The Draft Scoping Plan includes a recommendation to encourage methane capture and energy generation at dairies (p. 35). The Schwarzenegger Administration organized a stakeholder-working group led by Robert Crandall at the Department of Toxic Substances to compile the pertinent regulatory guidance and information pertaining to permitting a manure digester. This was done in an effort to improve and streamline the digester permitting process. The CPUC recently approved small renewable generator Power Purchase Agreement for generation up to 1.5 MW. Under these contracts, utilities would purchase biogas energy at the RPS-established market price referent. The recommendation to clarify environmental attributes ownership is being addressed by the CPUC as part of its RPS proceeding to address unbundling of RECs.

**Next Steps:** The first draft of a Permit Guidance Manual for Anaerobic Digesters and Co-Digesters has been completed but significant work is still needed, both related to format and content. It is important to recognize that the compilation of permitting information for digesters is just the first step toward getting better agency collaboration and hopefully improving the overall process. While the intent is to reach a "one-stop" permit guidance, a project developer still has to go to each permitting agency for a separate permit. Recognizing that obtaining a "one-stop" permit will be extremely difficult, efforts are being made to develop a general permit and a website which could serve as a virtual "one-stop" permit shop. This could lead to a means of communication, approval, and management of projects via electronic coordination between the agencies, industry, and other stakeholders. Despite these positive steps, it is the agencies regulatory requirements that are the primary barrier. In fact recent developments suggest that few if any new dairy digesters will be built, at least in the San Joaquin Valley where they are concentrated. Several years of agency led meetings, including

more recently the AB 32 Interagency Task Force, have failed to resolve any of the fundamental issues Unless they are addressed, the opportunity to build new digester systems for electricity generation or biomethane injection in natural gas pipelines will not manifest and this emerging industry will focus developments on other states. That process has already started.

**Comment:** The ARB could help establish a partnership among CPUC, natural gas utilities, and biomethane producers to clarify how to characterize and remove impurities found in biogas under a variety of feedstocks. The ARB could support two principles to facilitate increased use of manure to energy facilities, and guide policy discussions on: regulatory coordination and cooperation to align air and water permitting requirements for biomethane; and increased clarity regarding the global warming potential assigned to biomethane, and the effect of that categorization on market treatment of biomethane.

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## **B. Enteric Fermentation**

**Status:** In Development; Under Evaluation for Proposed Scoping Plan

**Description:** Reductions of methane emissions from ruminant agriculture -- beef cattle and dairy cows -- may be achieved by utilizing recommended feeding practices, the use of dietary additives or agents that impact digestion efficiency, and longer-term breeding and management changes.

**Progress:** The Draft Scoping Plan states that "further research is needed to understand and quantify the benefits of practices to reduce direct methane emissions from livestock digestive processes." Ongoing research at the state and national levels is underway but far from completion.

**Next Steps:** Various aspects of enteric fermentation research are underway including developing a process model to assess the potential to reduce GHG by improving dairy operational and animal efficiencies.

**Comment:**

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## **C. Agricultural Biomass Utilization**

**Status:** In Development; Under Evaluation for Proposed Scoping Plan

**Description:** Agriculture generates nearly 21 million tons of residues every year. Roughly 8 million dry tons of this potential waste material is technically available for sustainable energy and fuels production. Only a small portion of these resources is currently utilized. Incentives and research support are needed to encourage the development of an advanced biofuels industry in California. This could include investment credits, low interest loans, and fuel tax credits along with ongoing support for research and development efforts. In addition, there is a need to establish clear and consistent state policies for sustainable management and development of biomass to help reach climate change goals with production of renewable power and fuels and meet the needs for environmental protection.

**Progress:** The Draft Scoping Plan mentions the possibility of energy generation from manure digestion, as well as other bioenergy sources such as crop residue (p. 36). The Plan notes that energy produced will be tracked and accounted for in the Energy sector. Various areas of research are being pursued. The ETAAC Report includes a recommendation for incentives and research to encourage the development of an advanced biofuels industry in California. This recommendation is in part being addressed through the CEC PIER program and in part through AB 118. The report also includes a recommendation for CPUC to clarify ownership of the RECs and carbon credits in future rulings and regulations. This issue is currently being addressed by the CPUC in its AB32 proceeding.

## Next Steps:

**Comment:** With the Renewable Portfolio Standard and Low Carbon Fuel Standard included in the scoping plan, there is clearly the need to support further agricultural biomass utilization research. The ARB should include a strategy on overcoming regulatory hurdles to allow gasification and pyrolysis of biomass byproducts, as well as encourage the research, development and demonstration of biomethanation technologies. The ARB should also encourage the development of State policies for sustainable management and development of biomass to reach climate change goals.

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## D. Dedicated Bio-Fuels Crops

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** A concerted California biofuels development program could supply a significant amount of renewable fuels in the short term while advanced technologies for biomass conversion are being developed and proven. The Low Carbon Fuel Standard establishes a statewide goal of reducing the carbon intensity of California's transportation fuels by at least 10 percent by 2020. Bio-fuel crops grown and processed in California could help meet this new standard. It is important to steer bio-fuels development towards lowering the GHG of bio-fuels on a life-cycle basis.

**Progress:** Various areas of research are being pursued.

## Next Steps:

**Comment:** With the Low Carbon Fuel Standard included in the scoping plan, there is clearly the need to support further biofuels research. AB 118 funds are one vehicle for investment in sustainable crop production methods that should be pursued.

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## E. Soil Carbon Sequestration

**Status:** In Development; Under Evaluation for Proposed Scoping Plan

**Description:** Soil is a major reservoir for carbon and nitrogen in the terrestrial environment. It contains twice as much carbon as terrestrial vegetation and the atmosphere combined. Little is known about the sequestration potential of California's 400 agricultural commodities. Encourage "conservation tillage;" work to quantify soil sequestration; set up a monitoring network and provide for aggregation of credits on a commodity or regional basis.

**Progress:** The Draft Scoping Plan states that "increasing carbon sequestration in soils and permanent crops is desirable but sound quantification protocols are not yet developed" (p. 36). The International Wine Industry Greenhouse Gas Accounting Protocol, developed through a partnership between the Wine Institute of California, New Zealand Winegrowers, South Africa's Integrated Production of Wine program, and the Winemakers' Federation of Australia, was released February 2008 for use by the global wine industry. The goal of the project partners was to provide a free, easy-to-use, wine industry specific, greenhouse gas (GHG) protocol and calculator that will measure the carbon footprints of winery and vineyard operations of all sizes and was approved as an acceptable reporting mechanism for wineries that must report their emissions under AB 32. The California Department of Food and Agriculture awarded a \$100,000 Specialty Crop Block Grant to the California Sustainable Winegrowing Alliance (CSWA) in collaboration with industry and academic partners for their California Vineyards Climate Protection Initiative proposal to examine data and research pertaining to emissions and offsets of greenhouse gases to better understand the wine, table and raisin grape sector's greenhouse gas "footprint." The intent of the project is to enable the industry to accelerate development of

mitigation measures and prioritize research needs and improve vineyard emission factors for use in the International Wine Industry GHG calculator. CSWA also received a two year, \$607,500 USDA NRCS Conservation Innovation Grant to evaluate and refine environmental services accounting tools that will help to increase use of their GHG accounting and energy efficiency benchmarking tools, create an online system to store, manage, analyze and report on outcomes determined through the tools, and conduct educational outreach to help other growers benefit from market-based conservation opportunities. CCAR has issued an 8/1/08 RFP deadline to develop a document to highlight and discuss any potential issues with developing a specific protocol, such as evaluating potential approaches to GHG emissions quantification, exploring options for defining projects, setting project boundaries, and developing performance standards and standardized baselines, as well as identifying any potentially relevant regulations pertaining to soil crop and rangeland sequestration. The contract will be awarded 9/1/08 with completion by 11/1/08. Concern has been raised about the lack of CCAR outreach to stakeholder groups announcing this effort and the short response time.

### **Next Steps:**

**Comment:** The ARB should also adopt a strategy for the public/private research community to coordinate and prioritize California soil carbon sequestration research needs. For example, the ARB could support research in and demonstration of the carbon sequestration potential of biochar and its benefits as soil amendment.

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## **F. Riparian Restoration and Farmscape Sequestration**

**Status:** In Development; Not Mentioned in Proposed Scoping Plan

**Description:** Re-establish natural woody vegetation on rangeland, field edges and marginal farmland and riparian areas that have been cleared. These efforts can have benefits for erosion control, water quality and wildlife habitat. Conduct the research that is needed to quantify the carbon storage from these practices and develop protocols that give landowners the ability to generate credits. Additional support is needed for funding and managing implementation and monitoring.

**Progress:** The Carbon Breakfast Club, a local consortium of ranchers, non-profits and agency personnel in the northern Sacramento Valley is focused on developing a cost-effective system for carbon sequestration in oak woodlands and native perennial grasslands. The group intends to register multiple ranches under the California Climate Action Registry and work with participants in a future cap-and-trade system to generate funding for oak woodland and native perennial grassland restoration. The Marin Soil Carbon Project is designed to establish a definitive soil carbon monitoring protocol for Marin's rangelands and use that protocol to test selected Best Management Practices with potential to significantly increase annual soil carbon sequestration rates. This replicable and scaleable template may then be rolled out statewide, even nationally. This is a local pilot study that will have local, national and potentially international significance in advancing the understanding and monitoring of carbon sequestration in soils. Spin-off soil findings and co-benefits are anticipated. Started in Spring 2008 with presentation of initial results in Fall 2009. The University of California Kearney Foundation of Soil Science has funded a UC Davis project to quantify the carbon sequestered in woody trees and shrubs, and in the soil of riparian corridors and hedgerows on farms in Yolo County. These marginal areas are turning out to represent a significant proportion of the carbon stored on a farm, e.g. approx. 15% of the total C stored on a 45 ha farm. Further funding is needed to determine the best practices for restoration of farm margins with woody vegetation, and for monitoring carbon storage and greenhouse gas emissions in restoration projects.

**Next Steps:** CCAR has issued an 8/1/08 RFP deadline to develop a document to highlight and discuss any potential issues with developing a specific protocol pertaining to rangeland sequestration. The Carbon

Breakfast Club will be closely involved with this effort.

**Comment:**

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**G. Fertilizer Use and Water Management Efficiency**

**Status:** In Development; Part of Proposed Scoping Plan

**Description:** There is growing interest in reducing nitrous oxide (N<sub>2</sub>O) emissions from managed soils due to high probability of GHG emission releases during fertilization. Substantial research needs to be conducted on the wide variety of crops and soils in California on N<sub>2</sub>O emissions, the effect of different cultivation practices and the potential to reduce inputs without impacting yield. Research on no-till soils generally shows an increase in N-containing trace emissions upon conversion from conventional tillage practices.

**Progress:** The Draft Scoping Plan states that ARB has begun a research program to better understand the variables affecting N<sub>2</sub>O emissions from fertilizer use (p. 35). The plan also mentions water efficiency (p. 36). CARB organized an agricultural nitrogen-working group to attempt to coordinate the various agencies efforts to research N<sub>2</sub>O emissions from nitrogen fertilizer use.

**Next Steps:** A total of \$950,000 is currently being spent on three separate agricultural N<sub>2</sub>O emissions projects at CDFA, CEC and CARB.

**Comment:**

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**A. Link Forest Fuels Management and Biomass Utilization**

**Status:** In Development; Part of Proposed Scoping Plan

**Description:** Public support of forest fuel management projects will provide a three-way climate gain by restoring forest ecosystems to more resilient conditions, directing excess fuels to biomass energy production and reducing wildfire emissions.

**Progress:** The Draft Scoping Plan contains a recommendation to "preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation." (p. 27) However, no GHG reductions are attributed to fuel management strategies. Accounting will be done following implementation. Biomass fuel utilization accounted for in Energy sector. Fuel management opportunities delegated to Board of Forestry.

**Next Steps:**

**Comment:**

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**B. Reforestation and Forest Management for Enhanced Carbon Storage**

**Status:** In Development; Part of Proposed Scoping Plan

**Description:** Reforestation and enhanced management of established working forests to store greater carbon stocks will provide climate benefits by absorbing CO<sub>2</sub> from the atmosphere and storing it as carbon in trees for hundreds of years or longer.

**Progress:** The Draft Scoping Plan notes possible gain from voluntary action in forest management. The

Plan also notes reforestation as possible recipient of revenue generated by auctions or carbon fees.

**Next Steps:** Delegated to Board of Forestry to 1) determine actions to meet 5 MMT 2020 target for Forest sector; 2) develop monitoring plan.

**Comment:** One of the areas not currently addressed in the CCAR protocols is permanence; instead it is addressed as a contractual item. The result is that this issue is addressed inconsistently, if at all. The ARB could support further discussion on this issue. In addition, in considering current and future protocols, the determination of the baseline case is critically important as it dictates the winners and losers in the market. It also has a large impact on who is encouraged and who is discouraged from implementing projects. The ARB should emphasize the need to set baseline in a way that encourages new, additional forest sequestration projects.

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### **C. Urban Forests for Climate Benefits**

**Status:** Under Consideration; Part of Proposed Scoping Plan

**Description:** Accelerated urban tree planting programs will cool landscapes, sequester carbon and provide biomass for renewable biopower.

**Progress:** Urban Forests are included in the draft scoping plan as a voluntary action. The Plan notes that "urban forests can provide the dual benefit of carbon sequestration and shading to reduce air conditioning load." (p. 28) Urban Forest Protocols are currently under public review process of California Climate Action Registry (CCAR).

**Next Steps:** Following public review process, final approval of voluntary Urban Forestry Protocols by CCAR Board.

**Comment:**

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### **D. Endorse "California Climate Solutions" Program**

**Status:** No Activity; Not Mentioned in Proposed Scoping Plan

**Description:** California should champion home-grown products and actions that contribute to climate solutions. Provide in-state purchasing preferences and priority in regulatory queues whenever feasible. Give preference to offset products certified by the California Climate Action Registry in voluntary or cap-and-trade market systems.

**Progress:**

**Next Steps:**

**Comment:**

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### **A. Establish a Loading Order for Water**

**Status:** Under Consideration; Not Mentioned in Proposed Scoping Plan

**Description:** Establish a Loading Order for Water: The State Legislature, the State Water Resources Control Board (SWRCB) and the CPUC can adopt a "Loading Order" policy for water that would prioritize cost



effective efficiency and recycling measures over traditional supply options. Such a phased approach by water agencies and the State is entirely consistent with a contemporary increased emphasis on integrated regional water management.

**Progress:** Though there is not mention of a loading order, the Scoping Plan notes that "in addition to the many efficiency efforts throughout the state, the Department of Water Resources is implementing a directive from the Governor to develop a plan to reduce per capita water use by 20 percent by 2020. Measures to increase water use efficiency and re-use will reduce electricity demand from the water sector, reducing GHG emissions." (p. 28) Efforts to increase water use efficiency and reuse include: The CPUC's Decision 07-12-050 (water-energy pilot) requires the four major energy IOUs to fund studies related to the relationship between water and energy and to partner with water agencies to offer joint incentives for water conservation. If the results of the pilot indicate that there are water conservation measures that are cost-effective for energy utilities to offer, then energy utilities could be expected to offer those incentives. It is not yet clear if water agencies would continue to offer similar incentives. The water-energy pilot is scheduled to begin in July 2008 and end in July 2009. The associated evaluation, measurement and verification report is scheduled for completion after 2010. State Legislature: In addition to AB 1420, there are several other bills related to water and energy. AB 2402 would require energy utilities to fund water conservation efforts, possibly by offering water conservation incentives. State Water Resources Control Board and others member of the WET CAT (Water Energy Subcommittee of the Climate Action Team) are also developing various water recycling, reuse and efficiency strategies. EPA has launched a new wastewater plant benchmarking tool that allows operations managers to baseline their energy use and compare it to other plants.

**Next Steps:** AB 2175 by Assembly Members John Laird (D-Santa Cruz) and Mike Feuer (D-Los Angeles) establishes numeric targets for urban and agricultural water use efficiency, requiring a 20 percent per-capita reduction in urban water use, and a 500,000 acre-feet reduction in agricultural water use, by 2020. AB 2175 passed in Assembly but failed to pass the Senate.

**Comment:** Water IOUs and municipal agencies have different regulatory environments and financial incentives that result in different barriers to energy efficiency projects for the two groups. For example, water IOUs do not have balancing account treatment, and this is a barrier for financing energy efficiency projects. The ARB could recommend workshops with municipal water agencies, water IOUs, the CPUC and others to identify these barriers and recommendations to address them when developing an implementation plan for the loading order.

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## **B. Establish a Public Goods Charge for Funding Water Improvements**

**Status:** In Development; Part of Proposed Scoping Plan

**Description:** The State should establish a program that collects a public goods charge from water users for investments in water efficiency as a cost-effective water supply measure and a GHG emissions reduction measure

**Progress:** The Scoping Plan states that "the State will also establish a public goods charge for funding investments in water efficiency that will lead to reductions in greenhouse gases." (p. 28) The charge can be used to fund end-use water efficiency improvements, system-wide efficiency projects, and water recycling.

**Next Steps:**

**Comment:** The ARB could provide guidance on how a public goods charge could be implemented for the

municipal agencies, since they are not regulated by the CPUC.

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