CALIFORNIA AIR RESOURCES BOARD
Assembly Bill 32 Technical Stakeholder Working Group Meeting

April 4, 2008
9:00 a.m. - 12:30 p.m.

Sierra Hearing Room
2nd floor of the California Environmental Protection Agency (CalEPA)
Headquarters Building
1001 "I" Street, Sacramento, California

Note: The Sierra Hearing Room at CalEPA Headquarters has limited seating. The meeting will be webcast (http://www.calepa.ca.gov/broadcast/) and open to real-time questions via e-mail (ccplan@arb.ca.gov).

AGENDA

A. Opening Remarks

B. Air Resources Board (ARB) Staff Presentation: "Role of Offsets Under AB 32"

C. Round-Table Discussion on Offsets

1. Should California have an offsets program for compliance purposes?
2. What should the project approval and quantification process be for approving projects?
3. Should there be quantitative limits on the use of offsets for compliance purposes? If so, how should the limits be determined?
4. Should California establish geographic limits or preferences on the location of projects that could be used to generate credits within the offsets system? If so, what should be the nature of those limits or preferences?
5. Should California discount credits from offset projects?

An Economic Analysis Technical Stakeholder Meeting will be held the same day starting at 1:30 in the Sierra Hearing Room to discuss issues related to modeling offsets in Energy 2020.

This is the fourth in an ongoing series of program design technical stakeholder meetings. These meetings are being conducted to provide interested stakeholders the opportunity to provide specific technical input concerning various elements of the program design that may become part of the Assembly Bill (AB) 32 Scoping Plan. The attached white paper is also intended to provide background on the offset issues that will be discussed, along with a summary of recommendations on this topic from the Market Advisory Committee (MAC), the Economic and Technology Advancement Advisory Committee (ETAAC), and precedents from other greenhouse gas emissions cap-and-trade programs.

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Schedule of Upcoming AB 32 Economic Analysis and Program Design Stakeholder Technical Work Group Meetings

(Schedule is subject to change; when updates occur, a revised schedule will be posted at http://www.arb.ca.gov/cc/scopingplan/meetings/meetingstechstake.htm)

Group	Meeting Topic	Time	Location
Program Design	Offsets	April 4 9 a.m. – 12:30 p.m.	Sierra Hearing Room
Economic Analysis	How Offsets are Modeled	April 4 1:30 p.m. – 3:30 p.m.	Sierra Hearing Room
Economic Analysis	Non-economic Analysis	April 25 9 a.m. – 12:30 p.m.	Coastal Hearing Room
Program Design	Cost Containment	April 25 1:30 p.m. – 5 p.m.	Coastal Hearing Room
Scenarios Workshop	**Overview of Policy Scenario Evaluation Process and Preliminary Modeling Results**	**May 5**	**Byron Sher Auditorium**
Economic Analysis	Cost Effectiveness	early May	Coastal or Sierra Hearing Room
Program Design	Enforcement	early May	Coastal or Sierra Hearing Room
Economic Analysis	TBD	June 16 9 a.m. – 12:30 p.m.	Coastal Hearing Room
Program Design	TBD	June 16 1:30 p.m. – 5 p.m.	Coastal Hearing Room

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FRAMEWORK FOR DISCUSSION

Overview

The April 4, 2008 program design technical stakeholder meeting is designed to provide interested stakeholders the opportunity to provide specific technical input concerning various program design elements that may become part of the Assembly Bill (AB) 32 Scoping Plan. This meeting will focus on the possible generation and use of offset credits for compliance purposes under AB 32. ARB has structured this meeting around five questions related to offsets.

This meeting is part of ARB's effort to understand how to best design market mechanisms for possible inclusion in the AB 32 Scoping Plan. AB 32 includes specific criteria that ARB must consider before implementing market-based measures. ARB will evaluate any market-based measures against those criteria before deciding whether to include them in the Scoping Plan.

To establish a basic framework for our discussion today, here is the basic definition for "offset":

> **Offset**
> An "offset" is an emission reduction achieved by an entity, beyond what otherwise would have happened because of regulation, common practice, or otherwise expected behavior. In general, an offset would come from an uncapped source. For offsets to be used for compliance with AB 32, the offsets program in California may only credit projects with reductions that are real, additional, quantifiable, permanent, verifiable and enforceable.[1]

The MAC defined additionality in its glossary as follows: "emission reductions achieved through a given project over and above those that otherwise would have occurred in the absence of the project under a business-as-usual scenario."[2] The MAC also suggested two additional adjectives to be used when defining offsets—transparent and predictable. However, these adjectives are more descriptive of an offsets program than of an offset reduction. A transparent and predictable program would generate public confidence and minimize administrative costs.

For use in a California cap-and-trade system, any offset would need to come from a source and reduce emissions that are not directly covered by the cap-and-trade program.[3] The non-covered source does not have a compliance obligation under the

[1] The text of AB 32, part 38562(d)(1) states, "The greenhouse gas emission reductions achieved are real, permanent, quantifiable, verifiable, and enforceable by the state board." Part 38562(d)(2) states, " … the reduction is in addition any greenhouse gas emissions reduction that otherwise would occur".
[2] Market Advisory Committee, "Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California," June 2007, p. 90.
[3] The typical definition of entity in a non-covered sector may not be broad enough. An otherwise covered entity may have some non-covered emissions, which may be eligible to generate offset credits. For example, RGGI directly covers the electricity sector for its CO_2 emissions, but allows offset credits to be generated for reductions of SF_6 emissions in transmission and distribution of electricity.

cap-and-trade program, but it may generate reductions that can be used by entities with compliance obligations. An offset credit could be generated for each metric ton of reduction of carbon dioxide equivalent (CO_2e) beyond an established baseline. Like an allowance, each offset credit authorizes its bearer to emit one ton of CO_2e. Offsets could also be used as a flexible compliance mechanism outside of the context of a cap-and-trade system.

In the stakeholder meeting on April 4, 2008, ARB staff will present an overview of the possible roles of an offsets program under AB 32, and will facilitate a group discussion on five questions regarding how offsets can be generated and used for compliance purposes under AB 32:

1. Should California have an offsets program for compliance purposes?
2. What should the project approval and quantification process be for approving projects?
3. Should there be quantitative limits on the use of offsets for compliance purposes? If so, how should the limit be determined?
4. Should California establish geographic limits or preferences on the location of projects that could be used to generate credits within the offsets system? If so, what should be the nature of those limits or preferences?
5. Should California discount credits from offset projects?

KEY QUESTIONS FOR DISCUSSION

1. Should California have an offsets program for compliance purposes, either within a cap-and-trade system or as an alternative compliance mechanism in conjunction with direct regulation?

- **An offsets program could serve two primary purposes under AB 32**. First, it could provide greater flexibility for entities under a cap to meet their compliance obligations. Such flexibility would create opportunities for lower cost solutions to be found, reducing the overall cost of the program. Second, the offsets program could encourage reductions (beyond common business practice and what is required by regulation) from non-capped sources. Another purpose of an offsets program may be to effectively link a California cap-and-trade program to other cap-and-trade programs, if both programs recognize a project as producing a credit which can be used to meet compliance obligations in their programs.[4]
- **There are several drawbacks from an offsets program.** First, offsets may come from sources where it is difficult to obtain accurate, reliable and consistent measurements of the emission reductions.[5] This may be one reason why these sources were not directly capped. Second, offsets projects often have relatively high administrative costs, both to businesses and government, in comparison to sources placed directly under a cap. However, from a business point of view, an offsets project will remain attractive if the cost of the offset reduction is substantially lower than reducing emissions at the capped source. Third, an offset mechanism may decrease the amount of emissions reductions achieved directly by capped sources. This may delay the changes eventually needed to transition California's economy to a low carbon future by reducing incentives for innovation of capped sources.
- **California would need to establish solid rules for what constitutes a regulatory grade offset in California.** Under AB 32 reductions must be real, additional, quantifiable, permanent, verifiable, and enforceable. The prescribed rules could inadvertently reduce the incentive to create offset credits because they could create uncertainties for project developers as to whether or not there will be a viable market for their emission reductions. Furthermore, limiting usage on offsets may increase investment risk, which effectively could increase costs of reductions within the system. Therefore, the real question becomes how strict the rules for offsets should be.
- **In addition to rules on criteria, California may decide to establish explicit limits on offsets.** These may include limiting the portion of compliance obligations that may be met through offset credits or the imposition of specific

[4] The particular topic of linkage to other GHG trading programs will be discussed in depth on April 25th at the program design stakeholder meeting dealing with cost containment.

[5] Various concerns have been raised in this regard. For example, the members of the California environmental justice community issued a Declaration that touched on these issues. The Declaration can be accessed via http://www.ejmatters.org/declaration.html

geographic boundaries on where qualifying offset projects can be located. Both possibilities are discussed in more detail below.

- **California has three general options for the role offsets may play in meeting California compliance obligations:**
    - Do not allow any use of offsets
    - Allow limited use of offsets (e.g. limit absolute usage of offset credits or limit only to certain types of sources)
    - Allow unlimited use of offsets

2. What should be the project approval and quantification process?

- **If California chooses to allow offsets, it would need to establish which types of offset projects are eligible to generate credits within the system.** Two basic approaches can be used for deciding which project types would be eligible. California could allow project types to be proposed and submitted directly by project developers and then be evaluated by the regulators for possible inclusion (bottom-up), or it could choose to identify project types from the outset to be used by project developers (top-down).
- **California may choose to include many different project types from the outset of the program.** Allowing project developers to submit proposals for project types could be viewed as more economically efficient for the program, because it would allow for the inclusion of more low-cost reductions. This bottom-up approach allows for project developers to be more innovative in finding low-cost reduction opportunities that would be implemented on a practical level. By allowing more project types, many smaller sources of emissions could be allowed to participate in achieving emission reductions under the AB 32 program.
- **California may choose to only allow certain project types to generate credits at the outset of the program for a number of reasons.** This top-down approach gives a clear signal to project developers as to exactly what regulators are looking for. Regulators may choose to use this approach in order to channel investment into certain sectors/projects that they feel are high priority for achieving emission reductions or achieve other policy goals (e.g. projects that have associated co-benefits). Such an approach reduces costs to the program over time, because each project proposal does not need to be assessed by staff.
- **California may consider three approaches when approving eligible project types:**
    - A bottom-up approach
    - A top-down approach
    - A hybrid approach

- **California may wish to include elements of both approaches for determining the eligibility of project types.** An example of a possible hybrid approach would be to establish an initial list of eligible project types at the outset of the program, and as the program is more administratively established, allow for project developers to submit additional project proposals that would then be reviewed by the regulators. California could then either expand the list of eligible project types based on some of these submittals, or continue to allow project type proposals to be evaluated on a one-by-one basis by the regulators.
- **California would also need to establish which methodologies can be used for quantifying emission reductions from projects.** Two basic approaches can be used for quantifying the baseline and additionality of offset projects. California could allow emission reductions to be based on individual project assessments submitted by project developers (project-by-project), which would then be reviewed on a case-by-case basis by regulators and verifiers. Emission reductions could also be based on general criteria and emission factors (standards-based) pre-established in protocols and approved by regulators, for use by project developers.
- **A project-by-project approach may be the most precise and rigorous way to quantify emission reductions from offset projects,** because individual project circumstances and factors are accounted for. However, this sort of approach can be associated with high administrative costs for regulators to validate and verify project-specific information. Also, individual baseline scenarios are based on counterfactual information in which some subjective judgment may be used on behalf of the project developers. Likewise, regulators must use consistent judgment when evaluating different methodologies for one project type. If multiple methodologies exist for a particular project type, project developers may engage in "methodology shopping" in order to find the methodology that most favorably calculates emission reductions from their individual project. The possibility of gaming the system may be greater in a project-by-project approach because project developers may use evaluation criteria that are hard for regulators and verifiers to evaluate due to their site-specific nature, when estimating their baseline scenarios.
- **A more centralized approach may provide a tool for eliminating some of the concerns associated with a project-by-project approach.** The standards-based approach uses more general information and assumptions about project types, instead of project-specific data, to establish baselines and additionality, which eliminates the need for project developers to develop a method for defining baselines. Such an approach may be helpful in determining the leakage potential of certain project types and may also lead to easier monitoring, verification, and enforcement of emission reductions. This sort of process tends to be associated with a more transparent review process.
- **A standards-based approach may also have some disadvantages.** For some projects, baselines may be hard to standardize. This approach may unfairly penalize projects where baselines are actually higher than that assumed

in the available methodology. Also reductions could be quantified that are in essence non-additional, because they were not included in the baseline scenario. In this regard it is evident that some tradeoffs exist between screening out non-additional projects and excluding additional ones.

- **There are three approaches that California could consider to determine baselines and additionality:**
    - A project-by-project approach
    - A standards-based approach
    - A hybrid approach
- **California may wish to strike a balance between the two approaches for determining emission reductions from offset projects.** An example of a hybrid approach to determining baselines and additionality of offset projects could include California establishing protocols or methodologies for certain projects, where baselines can easily be standardized, while allowing developers of additional projects to submit project-specific methodologies in cases where baselines are harder to standardize.

3. Should there be quantitative limits on the use of offsets for compliance purposes? If so, how should the limit be determined?

- **Limiting the quantity of offsets for compliance purposes is one way to attain the benefits of offsets while reducing some of the risks associated with offsets.** The primary reason to impose a limit on the number of offset credits that an emitter could use for compliance obligations is to ensure that at least a certain fraction of the reductions come from capped sources. The primary argument against a quantitative limit is that it may prevent emitters from choosing the least costly reductions.
- **Additional quantitative limits on certain offset credits may also be desirable** (e.g. if the program wishes to limit the amount of offset credits from entering the system from out-of-state projects). However, if California allows offsets from out-of-state projects there may be legal issues if quantitative limits on offsets projects within the State differ from that of out-of-state projects (i.e. the Interstate Commerce Clause).
- **Over time California could change the quantitative limit on offset credit use.** However, it is not necessarily clear when the need for offset credits would be larger. The need for offset credits may be larger early in the program, when capped sources have not yet had much time to implement new technologies or have found it prohibitively costly to prematurely replace their current equipment. Conversely, the demand for offset credits could be greater in later years, as reduction requirements become larger. It is California's hope that more of the world will implement GHG emission reduction programs over time. Such action would also limit the amount of uncapped sources that would be eligible to generate offset credits.

- **California could also allow the level of limitation to depend on certain market circumstances.** For example, "price triggers", which signal when additional offset credits may be used to meet compliance obligations, could be imposed.
- **California has four general policy options for limiting the number of offset credits which an emitter may use to meet its compliance obligations:**
    - No limit on offset credits
    - A percentage (e.g., 10%) of the obligation[6] that may be met with offsets
    - An increasing percentage of the obligation that may be met with offsets
    - A decreasing percentage of the obligation that may be met with offsets
- **Another possible way to limit offset use is to have a limit on the number of offset credits that California would issue.** However, California-issued credits may have value beyond regulatory compliance in California. In fact, RGGI has decided not to place a limit on the number of offset credits issued, but has limited the amount of the obligation that can be met with offset credits.

4. Should California establish geographic limits or preferences on the location of projects that could be used to generate credits within the offsets system? If so, what should be the nature of those limits or preferences?

- **Potential offset projects are located throughout the world; however, there may be reasons why an offsets program would limit the geographic area in which offset projects are eligible to generate credits within the system.** There are several concerns with allowing out-of-state projects. According to AB 32, reductions must be enforceable by ARB. Reductions from out-of-state offset projects may raise an issue in this regard. Allowing out-of-state projects might also reduce the development and implementation of low-carbon technologies in California industry, which could raise concerns for meeting the long-term 2050 goal. To address this issue California could recognize an out-of-state project only if a cooperating environmental agency in the project's home state has entered into a formal MOU with ARB.[7] The MOU would need to require that agency to act on behalf of ARB in carrying out certain obligations relative to GHG emission offset projects within its borders. These obligations would include performing audits of offset project sites and reporting violations to ARB. [8]

[6] This is typically discussed in terms of a percent of the compliance obligation, which is tied to emissions, rather than a percent of the expected reductions. For example, the Regional Greenhouse Gas Initiative (RGGI) established an initial limit on offsets of 3.3% of the compliance obligation. This level was chosen based on analysis that indicated that it would allow half of the required reductions to come from offsets, while the remainder of the reductions would need to come from facilities covered in the RGGI system.
[7] RGGI has followed a similar process regarding out-of-state projects in its Model Rule.
[8] RGGI has not yet specified what other obligations they may require, but these two are specified in their Model Rule.

- **Furthermore, California may choose to limit the geographic scope of the offsets program to in-state only projects in order to incent California offsets.** Allowing only in-state offsets would keep the dollars spent on offsets within the state's economy. Other benefits, such as environmental and economic co-benefits from California reductions, would also be retained by the State.
- **Several motivations exist for allowing out-of-state offset projects.** Out-of-state projects would expand the scope of the program to allow for more low-cost GHG reduction possibilities to be incorporated, reducing the overall costs of the program. The broadened scope would increase access to a larger and more established offsets market and would also allow California to export its knowledge and technologies for reducing GHG emissions throughout the United States and possibly internationally. Since climate change is a global issue establishing a broad offsets market could help support the adoption of low-carbon technologies and sustainable development in the developing world, which is vital to reducing global emissions in the long-term.
- **There are three general locations for offset projects, and California could issue credits for projects in these locations:**
    - Projects within California
    - Projects in jurisdictions with specific agreements with California, either in the context of a regional trading system like that being developed in the Western Climate Initiative or outside of such a trading system
    - International projects (beyond regional agreements)
- **If California decides to allow out-of-state offset projects, it may wish to allow only certain kinds of projects.** For example, California might allow projects using only standard protocols approved by ARB.
- **Some project types could not be executed in California but might be available in other jurisdictions** (e.g. coal mine methane projects)**.** Emission sources which are likely to be controlled through direct regulation inside California, may provide sources for California offsets credits through projects in other states.[9] This may raise competitiveness concerns because the reductions in California would be non-additional, while those reductions outside of California may be additional. This could lead to financial flows out of the state. Another complication may arise around certain project types (e.g. energy efficiency and renewable energy projects) that reduce indirect emissions from capped sources. This issue known as "double counting" would need to be addressed in order for such projects to generate credits within the system.
- **California is a partner state in the Western Climate Initiative (WCI).** A cap-and-trade program developed by the WCI would likely allow offset projects within any partner state to be eligible for compliance obligations in California.

[9] ARB has proposed landfill methane as a direct regulation through its Early Action process.

5. Should California discount credits from offset projects?

- **One way to account for the risk associated with offset projects (mainly the risk of potential non-additional reductions being counted towards the emission reduction goal) is to use a discount factor.** This can help account for statistical variance of measurement and calculation methods used to quantify reductions from offset projects.
- **Using a discount factor may penalize truly additional projects with real emission reductions.** The risk of including credits from non-additional projects within the system may be better addressed by requiring that very stringent criteria be applied or by requiring offset projects to use more conservative baseline estimations.
- **Currently no other GHG trading system uses a discount factor for their offset credits.** This may cause some difficulties if California were to decide to link with other cap-and-trade programs.[10]

[10] The topic of linkage to other GHG trading programs will be discussed in depth on April 25th at the program design stakeholder meeting addressing cost containment.

SUMMARY OF RECOMMENDATIONS TO ARB AND PRECEDENTS

Recommendations to the California Air Resources Board (ARB):

Market Advisory Committee
The Market Advisory Committee (MAC) was formed December 20, 2006 by California Secretary for Environmental Protection, Linda Adams, and delivered its report[11] to ARB June 30, 2007. It includes recommendations on many aspects of the design of a cap-and-trade program, including subchapter 6.3 on offsets. The MAC recommends that "offsets should be allowed as part of the overall cap-and-trade program. The MAC also recommends that offsets should be "real, additional, independently verifiable, permanent, enforceable, and transparent."

The MAC argued against imposing geographic or quantitative limits in order to maximize emission reductions at the least cost. The MAC did, however, agree that there may be some legitimate reasons for imposing these limits (e.g. air quality and social equity) and introducing the limits gradually to the program.

The MAC recommended that California select specific project types that would be eligible to generate credits within the system. They also recommended that California follow a standards-based approach for determining the baseline and additionality of projects, and recommended against the project-by-project approach because of the administrative complexities and costs associated with it.

No GHG cap-and-trade program has required that offset credits be surrendered for compliance on a discounted basis.

Economic and Technology Advancement Advisory Committee (ETAAC)
The California Global Warming Solutions Act of 2006 (also known as AB 32) required the establishment of the ETAAC, which delivered its final report[12] February 11, 2008. It recommends that offsets be "real, additional, permanent, enforceable, predictable, and transparent."

ETAAC recommended that while "…quantity limits on offsets can be valuable for encouraging action and creative thinking within a sector, it should be pointed out that it is difficult to come up with a "scientific" number to justify any specific limit." The Committee also discussed how "placing geographic limits on offsets is one way to guarantee that offset projects used for compliance within state borders meet California's rigid standards for 'additionality' and verification. Some members raised questions as to

[11] Market Advisory Committee, "Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California," June 30, 2007. http://www.climatechange.ca.gov/documents/2007-06-29_MAC_FINAL_REPORT.PDF
[12] Economic and Technology Advancement Advisory Committee, "Economic and Technology Advancement Advisory Committee (ETAAC) Final Report: Technologies and Policies to Consider for Reducing Greenhouse Gas Emissions in California," February 11, 2008. http://www.arb.ca.gov/cc/etaac/ETAACFinalReport2-11-08.pdf

whether or not placing geographic limits on offsets could be designed in a way that does not violate the Commerce Clause."

Examples of Offset Programs:

European Union Emission Trading Scheme (EU ETS)

The EU ETS was established as part of the European Union member states' strategy for compliance with the Kyoto Protocol. Trading is planned for three phases: Phase I, which ran from 2005–2007; Phase II, which began January 1, 2008 and runs through 2012; and Phase III, which will run from 2013–2020. In both Phase I and Phase II, EU ETS allowed Certified Emission Reductions (CERs) from the Clean Development Mechanism (CDM) and credits from Joint Implementation (JI) projects. They have indicated that they will continue to accept these credits in Phase III as well.

The EU ETS has quantitative limits which differ by member country. Via the UNFCCC's CDM and JI mechanisms, the EU ETS program has accepted international offsets. However, due to over-allocation in Phase I, very few offset credits were needed to meet compliance obligations.

The CDM mechanism has followed a bottom-up approach for determining eligible project types. It has also followed a project-by-project approach for determining baselines and additionality, but is moving towards a more standards-based approach through the addition of combined methodologies.

Regional Greenhouse Gas Initiative (RGGI)

RGGI is a collaboration of ten Northeastern states to create a regional cap-and-trade program for carbon dioxide (CO_2) emissions from the electricity sector. Trading is scheduled to start in 2009. The Regional Greenhouse Gas Initiative (RGGI) will allow offsets from several specified project categories, as well as limited use of CERs when certain "price triggers" are reached.

In its Model Rule, RGGI has proposed that emitters may meet no more than 3.3% of their compliance obligation with offset credits; that would increase to 5% or 10% under certain market conditions. RGGI has also laid out provisions to issue credits for out-of-state projects.

RGGI has applied a top-down approach for determining eligible project types. The Model Rule has currently identified five project types that can generate credits within the system. RGGI has also opted for a standards-based approach for determining emission reductions from approved projects.