

**NRDC PERSPECTIVES ON “CAP & TRADE” DESIGN ELEMENTS TO REDUCE GREENHOUSE
GASES IN CALIFORNIA**

September 2007

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NRDC offers this document as a starting point for discussion regarding the strengths and weaknesses of “cap & trade” as a specific policy tool to reduce greenhouse gas (GHG) emissions in California, and to discuss perspectives on specific design elements. We appreciate the thoughtful comments we have received to date. This document focuses on cap and trade, rather than other policy tools, because even though NRDC is spending the majority of our time and effort working on other regulatory policies needed to meet the AB 32 emission limit, it is clear to us that as we develop policy positions, a more detailed discussion with our colleagues about the pros and cons of cap and trade and specific design elements would be very helpful. *Since we continue to use this document as the basis for discussion with our colleagues, we expect it to evolve over time.* Attachment A provides a description of key terminology used in discussing “cap and trade” program designs, and is intended to help facilitate a meaningful discussion of the pros and cons of various design elements.

I. Context for Considering a “Cap & Trade” Program to Reduce Greenhouse Gases

- ◆ **Description of cap & trade:** a regulatory program that creates an enforceable absolute cap (that declines over time) on emissions from certain sectors and allows covered entities to use certain types of market mechanisms to demonstrate compliance. (This type of program is commonly known as a “cap and trade” program, although trading may be minimal if allowances are auctioned, as we discuss below.) It is important to distinguish this type of program from the existing voluntary “offsets” market. AB 32 recognizes this clearly by using the term “market-based *compliance* mechanism.” (emphasis added) If the California Air Resources Board (CARB) decides to adopt a cap and trade program, regulated entities will only be able to use those market mechanisms for compliance that have been approved by CARB, and will face penalties for non-compliance.
- ◆ **Part of package of policies.** There is no silver bullet to curb global warming emissions. Any cap and trade program should be part of an integrated *package* of policies to meet the AB 32 statewide limit. We would expect a cap and trade program to provide a relatively small portion of the overall emission reductions needed to meet the 2020 limit, and certainly under half of the reductions. We have worked for many years on a full range of policies that should be part of the package, including energy efficiency programs, building and appliance efficiency standards, renewable portfolio standard, generation emissions performance standard, vehicle emissions standard, low-carbon fuel standard, land use location efficiency, etc.
- ◆ **Process and requirements in AB 32 must be met.** AB 32 requires a public process for CARB to determine *whether* the package of policies will include market mechanisms, and *if so*, how they can best be designed to meet the law’s goals. This must include, at a minimum, meeting the requirements of Health and Safety Code Section 38570 and providing opportunities for the Environmental Justice and Economic and Technology Advancement

Advisory Committees and all stakeholders to provide input.¹ Any program must be designed to be in the best interest of California and to meet the requirements of AB 32, including achieving real emission reductions, maximizing additional environmental and economic benefits, not disproportionately impacting low-income communities, complementing state efforts to improve air quality and reduce toxic emissions, etc.

- ◆ **Multiple market mechanisms should be considered.** A cap and trade program is one type of policy tool that CARB may consider. Other market mechanisms should also be considered, including incentives, fees, rebates, taxes (although a tax would need to be established by the Legislature or the voters), etc. We expect that the package of policies to meet AB 32's 2020 emission limit will include multiple types of mechanisms.

II. Strengths & Weaknesses of “Cap & Trade” as a Policy Tool

Every type of policy tool has strengths and weaknesses; cap and trade programs are no exception. By combining policies into a package we can maximize the benefits and minimize the downsides of using them individually. A cap & trade program to reduce greenhouse gases must be well-designed and complement (not substitute for) regulatory programs as part of an overall package. The following strengths and weaknesses are based on a well-designed cap and trade program (our initial thoughts on the elements of a well-designed program are described below, including a tight cap, allowances used in the public interest, strong enforcement, etc.). CARB should learn from previous experiences, including prior mistakes and problems, to prevent development of a poorly-designed program. As with any policy, a poorly-designed cap and trade program may be worse than no program at all. It is paramount to avoid repeating mistakes.

Strengths

- ◆ **Enforceable cap on emitters.** AB 32 establishes a 2020 *statewide emission limit* that the state *itself* commits to achieve through a combination of implementing policies; whereas, a *cap and trade program* creates a limit on sectors that is enforceable against individual *emitters*.²
- ◆ **Complements regulatory programs to reduce emissions even further.** The enforceable cap should push emissions lower than can be achieved through regulatory programs alone.³
- ◆ **Reduces costs and allows state to lower emissions even further.** A cap and trade program can lower the cost of reducing emissions, thereby enabling the state to “get more for its money” by lowering emissions further than regulatory programs alone.

¹ Health and Safety Code Section 38570(b) requires that CARB do all of the following before including a market-based compliance mechanism in its regulations: “(1) Consider the potential for direct, indirect, and cumulative emission impacts from these mechanisms, including localized impacts in communities that are already adversely impacted by air pollution. (2) Design any market-based compliance mechanism to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants. (3) Maximize additional environmental and economic benefits for California, as appropriate.”

² AB 32 is an economy-wide emissions limit that includes all sectors. When this document refers to “covered entities” in “capped sectors,” it means sectors that are included in the cap and trade program. “Uncapped sectors” are those sectors that are not included in the cap and trade program, and therefore have no enforceable cap on the sector (although reductions from all sectors will contribute to meeting the overall AB 32 economy-wide limit).

³ It is important to note that most regulatory programs, such as the renewable portfolio standard, are intensity based, so that absolute emission levels may continue to rise even while the program reduces emissions relative to business as usual levels. To meet AB 32's limit, California must reduce absolute emissions.

- ◆ **Creates price signal** so that businesses incorporate greenhouse gas emission considerations into everyday decision-making. Without a cap and trade program, businesses can meet the minimum requirements of other regulatory programs and continue to emit GHGs without limit or cost; a cap and trade program creates a price signal so that businesses attribute a cost (whether an out-of-pocket cost or an opportunity cost) to every ton of GHGs emitted, and adjust their business practices accordingly. As economists would say, it “internalizes an externality.”⁴
- ◆ **Spurs innovation by providing an economic incentive to exceed regulation.** A cap and trade program provides companies with an incentive to exceed minimum requirements under other regulatory programs (because there is a cost or opportunity cost to every ton of GHGs emitted), and can thereby stimulate innovation (in a very general way) to develop and deploy new or better ways to reduce GHGs.
- ◆ **Regulator can focus on desired outcome.** In any regulatory system, the regulated entities have more information than their regulators. A cap and trade program can help address this information asymmetry, by enabling the regulator to focus on the desired outcome (a limit on emissions) without needing to know everything about how to achieve that outcome, and can thereby reduce the administrative burden on the regulator.

Weaknesses

- ◆ **Does not overcome existing “market barriers.”** Many solutions to global warming, most notably energy efficiency, face numerous “market barriers” to deployment that have been long understood in California.⁵ A cap and trade program will not overcome these barriers,⁶ and complementary policies are needed to address them.
- ◆ **Does not spur innovation for any specific technology or in any specific sector.** A multi-sector cap and trade program provides a general signal to reduce GHG emissions, and since compliance can be achieved by taking a variety of actions, the program may not spur innovation for any specific technology or in any specific sector. Targeted policies, combined with RD&D, are more useful for spurring innovation for specific technologies or in specific sectors, which will be necessary to meet California’s long-term GHG reduction goals.⁷ (In general, the more specific the desired public policy outcome, the more useful it is to use narrower policy instruments.)
- ◆ **Could lead to undesirable side effects.** A cap and trade program offers emitters flexibility in how they reduce greenhouse gases to comply with the program, so there is a risk of undesirable side effects (especially if other laws and regulations to address those effects are not tight enough). For example, if emitters choose to adopt a measure that

⁴ By auctioning allowances and “internalizing the externality” of greenhouse gas emissions, the program incorporates the “polluter pays” principle, which is a basic tenet of international environmental law.

⁵ See, for example, Golove W.H. and J.H. Eto, *Market Barriers to Energy Efficiency: A Critical Reappraisal of the Rationale for Public Policies to Promote Energy Efficiency*, Lawrence Berkeley National Laboratory, March 1996, <http://eetd.lbl.gov/ea/EMS/reports/38059.pdf>.

⁶ The only market failure a cap and trade program corrects is the current lack of a cost for emitting GHGs.

⁷ This was a central theme of a recent paper by UC Berkeley Professor Margaret Taylor, which demonstrated that “demand-pull” policies such as performance-based standards, combined with RD&D, were most effective at advancing a specific type of technology (post-combustion technologies to control SO₂). Taylor M.R., E.S. Rubin, D.A. Hounshell, “Regulation as the Mother of Innovation: The Case of SO₂ Control,” *Law and Policy*, Vol. 27, No. 2, April 2005, pp. 348-378.

reduces GHGs but increases air pollution, that would be a serious concern, especially if the regulations to control air pollution are not strong enough or are not enforced.⁸

- ◆ **Provides limited public oversight and understanding of actions taken to reduce GHG emissions.** A cap and trade program typically provides emitters with diverse options for compliance (e.g., emission reductions at their own facilities, trading allowances, using banked allowances, etc.). The program is enforced by ensuring that each entity surrenders enough allowances to match its emissions. Since enforcement focuses on the outcome (i.e., lower overall emissions) and not the means to achieve the outcome, it provides less public oversight and understanding of the specific actions individual emitters take to reduce emissions than other more targeted regulatory programs.
- ◆ **Does not provide price certainty for investors.** Investors often prefer price certainty when making long-term capital-intensive investments. This can be mitigated to some extent if investors have clear expectations about the future of the market (e.g., through liquid futures markets).

A *poorly-designed* program would have further weaknesses. For example, a poorly-designed cap and trade mechanism poses greater risks for continuing or exacerbating environmental injustice. For instance, offsets from out-of-state sources will not result in emission reductions of GHGs and co-pollutants (i.e. air and toxic pollutants) in communities already experiencing heavy air pollution. In addition, a poorly-designed cap and trade program that “grandfathers” allowances (i.e. gives allowances to polluters for free based on historical emissions) would financially reward the biggest polluters. If California adopts a cap and trade program as part of a package of policies to meet AB 32’s limit, it is essential that the state learn from mistakes made in past cap and trade programs, in particular by setting the cap tightly, avoiding “windfall profits” to polluters, and avoiding offsets. Regulators in the Northeast’s Regional Greenhouse Gas Initiative (RGGI) program and in the European Union (EU) are beginning to learn these lessons and starting to tighten their emission caps and to auction allowances.

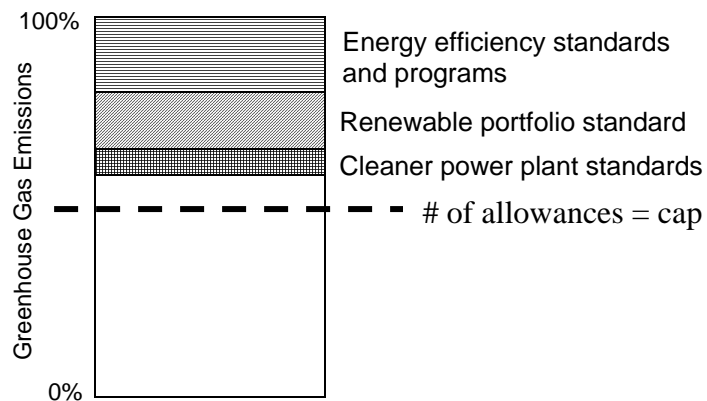
Some parties have suggested that a tax on GHGs would be a better policy tool than a cap and trade program. It is not an either or proposition. This document does not explore the strengths and weaknesses of a tax or other market mechanisms in detail, but, in short, taxes can be an effective policy tool and, like a cap and trade program, can create a price signal and internalize a current externality. However, a tax provides no certainty about emissions (but total certainty about costs), and emissions could continue to increase. In contrast, a well-designed cap and trade program is attractive because it provides more certainty that emissions will remain at or below the enforceable limit. Both taxes and a cap and trade program (and other market mechanisms) could be used as part of the package of policies to meet AB 32’s 2020 emission limit, and CARB may evaluate all of these policy tools.

⁸ AB 32 clearly recognizes this concern and requires that CARB “consider the potential for direct, indirect, and cumulative emission impacts...including localized impacts in communities that are already adversely impacted by air pollution,” and “design any market-based compliance mechanism to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants” before including a market-based compliance mechanism in its regulations.

III. “Cap & Trade” Design Elements

Any cap and trade program must supplement performance-based standards and other types of policy tools to meet the AB 32 statewide emissions limit. Intensity-based policies (such as performance-based standards) that achieve GHG reductions, spur innovation, and overcome market barriers for particular types of technologies, complemented by a well-designed “cap and trade” program that provides an enforceable absolute limit on particular sectors may be a particularly useful combination of policies to meet AB 32’s multiple public policy goals.

Any cap and trade program must work together with intensity-based policies such as performance-based standards (e.g., energy efficiency standards, renewable portfolio standard, vehicle emissions standards, etc.). In effect, the cap sets the overall limit on emissions in particular sectors, while the individual regulatory and performance-based standards determine how some of the necessary reductions will be achieved through specific strategies, and enforcement of the cap requires emitters to achieve even further reductions and provides a backstop in case the reductions from the intensity-based targets do not fully materialize as expected. The figure below provides an example of how the different policy tools would work together to get emissions down to the level of the cap.



Example for the electric utility sector

There are several key design elements that make up a cap and trade program. While we provide general views on each design element here, many of these are inter-dependent and our position on one element will depend on another. *As such, it is generally difficult to take a detailed position on any given design element in isolation; rather, the package must be evaluated as a whole.*

Since we first began discussions with our colleagues based on this draft document, the California Market Advisory Committee (MAC) issued a report with recommendations to CARB on the design of a cap and trade program for California.⁹ We believe it is essential that CARB conduct a transparent public process to fully discuss with all interested stakeholders the pros and cons of cap and trade as a policy tool, what value the tool might bring in a package of policies to meet the AB 32 limit, and how to design the policy to provide that value. This process must include, at a minimum, meeting the requirements of Health and Safety Code Section 38570 and providing

⁹ California Market Advisory Committee, *Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California*, June 30, 2007.

opportunities for the Environmental Justice and Economic and Technology Advancement Advisory Committees and all stakeholders to provide input.¹⁰ We provide NRDC’s general views on each design element of a cap and trade program here, and Attachment B briefly describes the major similarities and differences between our perspective and the design elements recommended in the MAC report.

A. Scope

- ◆ **Cover all sectors with adequate data quality.** The enforceable cap should cover as many sectors as possible that have adequate emissions data (including mandatory reporting for the sectors, with independent verification and enforcement). However, it may be administratively infeasible to cover some sectors that have many small, diverse sources.
- ◆ **Cover fossil fuels.** The enforceable cap should eventually include, at a minimum, the main sectors that burn fossil fuels. These sectors are likely to have adequate emissions data to enable effective enforcement. The program should be phased in, as administratively feasible, to include the electricity sector (with the point of regulation at either the retail seller or the “first seller”¹¹), large stationary source emitters (including refineries and oil and gas extraction facilities), natural gas utilities (for the carbon content of all natural gas sold to small and medium customers not covered as individual stationary sources), and should eventually include transportation fuels sold into California.
- ◆ **Minimize leakage.** The scope of the program must be designed to minimize leakage. It should focus, where possible, on reducing emissions associated with *consumption* of products in California, rather than *production*, and require that imports of carbon-intensive products be treated equally with in-state production of the same products.

B. Level of the Cap and Rate of Decline

- ◆ **Cap must reduce emissions and be tight enough.** Setting the cap and its rate of decline over time is the most important design element in determining the program’s environmental impact. A cap and trade program is only worthwhile if the cap will reduce emissions below business as usual levels, and below the level that can be achieved by regulatory programs alone.
- ◆ **Cap must decline over time.** While any program will need time to phase in, it is important that the cap decline over time to provide continued incremental progress at reducing emissions, and put sectors on a path to achieve the deep reductions needed by mid-century.

C. Allowance Distribution

Allowances can be sold (i.e., auctioned), given away for free, or a combination of the two. Since allowances are made scarce by the cap, they represent something of value and their distribution determines the primary equity impact of the program. The method for distributing allowances is

¹⁰ Health and Safety Code Section 38570(b) requires that CARB do all of the following before including a market-based compliance mechanism in its regulations: “(1) Consider the potential for direct, indirect, and cumulative emission impacts from these mechanisms, including localized impacts in communities that are already adversely impacted by air pollution. (2) Design any market-based compliance mechanism to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants. (3) Maximize additional environmental and economic benefits for California, as appropriate.”

¹¹ The Public Utilities Commission and California Energy Commission are examining this issue in detail and taking public input, and will be developing a joint recommendation to CARB.

also the key factor in spurring early action, since it is the primary determinant of whether entities that make investments to reduce GHG emissions between now and the beginning of the program are rewarded or penalized.

- ◆ **Distribute allowances in the public interest.** Allowances should be seen as a public asset, since they represent permission to use the atmosphere, which belongs to all of us, to dispose of pollution. Allowance distribution should:
 - not create large profits for businesses that are unrelated to actions to reduce GHG emissions (i.e., “windfall profits”);
 - not penalize “early actors” that have proactively reduced GHG emissions already;
 - ensure that emitters are appropriately motivated to make investments that will reduce emissions; and
 - reduce costs to consumers.
- ◆ **Allowances should not be “grandfathered.”** That is, allowances should not be allocated (given away for free) to emitters based on historical emissions, because it does not meet any of the allowance distribution principles listed above. Early adoption of a policy that CARB will not grandfather allowances is also essential to spur early action.
- ◆ **We favor 100% periodic auctions or allocations to be used for public purposes,** as a means to meet the principles listed above. Allowances should be 100% auctioned in all sectors in which the potential for windfall profits to private companies exists to the disadvantage of consumers. Many economically unregulated sources covered by a cap and trade program will raise their prices to reflect the “opportunity cost” of allowances, passing that cost onto consumers, even if they receive allowances for free. Studies have shown that free allocation of only a small portion of allowances would fully cover these sources’ costs of investments in emission reductions, and any further free allocation would result in a windfall.¹² Economically regulated sources, or sources in highly competitive regional, national, or global markets, would not be able to increase prices to pass through the full “opportunity cost” to consumers. A careful sector-by-sector analysis of whether opportunity costs would get passed through to customers and result in undue profits should inform the choice of whether some portion of allowances might be allocated or whether allowances should all be periodically auctioned to meet the principles outlined above. As such, the specific choice of allowance distribution method will depend on the structure of the specific sectors that will be capped, and the types of entities that are the point of regulation. In particular, there are more options for how to distribute allowances in the public interest in sectors that are largely economically regulated or comprised of publicly-owned entities, such as the utilities in the electricity and natural gas sectors. For example, allowances could be allocated to utilities as trustees on behalf of their customers (not to shareholders). If some portion of allowances are allocated, it should be done on an output basis (adjusted for energy efficiency savings) or per-capita basis, to meet the principles above, and not based on historical emissions (i.e., grandfathered).
- ◆ **Auction revenues or allowances should be distributed for public purposes** and to meet the goals of AB 32, including:
 - Support investments in, and deployment of, technologies to reduce GHG emissions;
 - Invest in RD&D of new technologies to reduce GHG emissions;

¹² See, for example, *Allocating Allowances in a Greenhouse Gas Trading System*, National Commission on Energy Policy staff paper, www.energycommission.org/site/page.php?report=32.

- Provide economic opportunities to low-income and disadvantaged communities, as well as small businesses, schools, affordable housing associations, and other community institutions;
- Support air and toxic pollution reduction efforts and enforcement programs, particularly in environmental justice communities;
- Support development of “green collar” jobs; and
- Reduce costs to consumers, particularly low-income consumers, for example through investments in end-use efficiency beyond the state’s existing programs.

If entities that are largely economically regulated or publicly-owned are the point of regulation, such as electricity or natural gas utilities, CARB could also allow them to keep a portion of the amount they spend in the auction to make long-term investments in greenhouse gas reduction measures (subject to oversight and verification that the investments meet appropriate criteria).

D. Market Mechanisms

There are three primary market mechanisms that are often discussed in the context of a cap and trade program: auctions, trading, and offsets. Auctions were discussed above, since they are a market mechanism used to distribute allowances. Trading and offsets are market mechanisms that CARB could decide to allow covered entities to use to demonstrate compliance, regardless of how allowances are distributed, although trading is likely to be limited in practice if allowances are auctioned periodically.

- ◆ **Trading.** We use the term “trading” to mean a mechanism authorized by CARB allowing entities in sectors with mandatory enforceable caps to use allowances purchased from other entities in capped sectors for compliance. Others use the term to mean offsets, discussed below, or the existing voluntary offsets market. It is important to distinguish these mechanisms because our perspective on each of them differs significantly.
 - **Sources within capped sectors should be allowed to trade allowances.** Once allowances have been distributed in some manner (discussed above), companies should be allowed to buy and sell allowances in order to true-up their holdings to reflect actual emissions and to encourage them to continue to pursue strategies to reduce emissions. The program must track GHG co-pollutants and ensure that they do not increase as a result of the program, as we discuss further below.
 - **Trading of allowances with other jurisdictions (i.e. linking) should not be allowed until stringent criteria are met.** Linking with other jurisdictions’ cap and trade programs (e.g., RGGI or EU ETS) can only occur if CARB allows regulated entities to use allowances issued by other jurisdictions for compliance. Once systems are linked, their combined program automatically becomes the “least common denominator” for certain design elements.¹³ Therefore, CARB would need to establish strong criteria to evaluate another jurisdiction’s program before considering linking (e.g., comparably stringent caps, comparable mandatory reporting, strong enforcement, etc.) in order to maintain the integrity of the program. Linking should be approached with special caution to evaluate the

¹³ For example, if a system with no offsets and no price cap links through allowance trading with a system that has both, then the combined program automatically includes the offsets and price cap contained in the second jurisdiction, rendering the first jurisdiction’s exclusion of these mechanisms moot.

impact on other pollutants that are emitted simultaneously with GHGs, to prevent backsliding on air quality.

- ◆ **Offsets.** We use the term offsets to mean emission reductions from projects in sectors that are *not capped*, which CARB could allow entities in capped sectors to use for compliance (i.e., instead of surrendering an allowance).¹⁴

- **Complementary regulatory policies, not offsets, should be used to achieve emission reductions in uncapped sectors.** Offsets allow emission reductions in uncapped sectors instead of in a capped sector. Theoretically, offsets result in higher emissions in the capped sectors and lower emissions in uncapped sectors, within no overall change in emissions. However, offsets may not provide equally reliable reductions in the uncapped sectors, for example, if leakage is high or reductions are not truly additional beyond business as usual, resulting in an overall increase in emissions.¹⁵ Basically, offsets create a funding mechanism to provide incentives for reductions in uncapped sectors; however, the emission reductions in these other sectors could be secured through other policy tools such as regulatory or incentive programs (funded through other mechanisms) in those sectors. AB 32 requires that California reduce *statewide* emissions, so all sectors should contribute emission reductions. There are numerous pros and cons to consider in determining whether offsets should be included in a program, including the following.

- Pros: potentially lower costs to achieve emission reductions; provides an incentive for broader emission reductions in more sectors (than a cap and trade program only); can help spur emission reductions in uncapped sectors.
- Cons: offsets weaken the purpose of the cap, which is to spur investments in covered sectors (particularly to transform the state’s energy industries) in order to get on the path to achieve the deep reductions that are necessary by 2050; offsets create greater uncertainty of GHG reductions and ensuring that offsets produce *real* emission reductions is challenging and requires significant administrative costs;¹⁶ offsets from outside the state may eliminate the environmental and economic co-benefits that California seeks from its program, thereby exacerbating environmental justice problems; offsets from outside the state may not be recognized under a future federal system thereby requiring California to incur emission reduction costs twice; and offsets weaken the signal for innovation within the capped sectors.

In general, we believe the cons outweigh the pros and that there are better policy tools to achieve emission reductions in California’s uncapped sectors.

¹⁴ It is important to distinguish offsets in a regulatory compliance framework like a cap and trade program (where the regulator sets the rules), from offsets in a voluntary, retail market (where individuals or companies voluntarily purchase on their own). We do not address the voluntary market in this paper, and while there is a significant push to improve the validity of these voluntary, retail offsets by establishing standards, to date there is no widely-accepted standard.

¹⁵ For a discussion of some environmentalists’ concerns about offsets in the European Union Emissions Trading Scheme see Climate Action Network Europe, *National Allocation Plans 2005-07: Do They Deliver?*, April 2006.

¹⁶ The California Market Advisory Committee cautioned that the verification costs for offsets could be substantial, warning that “the number of staff needed to implement an effective offset monitoring program could conceivably be larger than the staff needed to run the cap-and-trade program itself.” California Market Advisory Committee, *Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California*, June 30, 2007, p. 74.

- Offsets should only be considered if the cap is set tightly. *If* offsets are allowed, they should be:
 - Limited to a small portion of companies' compliance obligation;
 - Limited to specific project types in sectors that will provide environmental co-benefits in California, particularly in environmental justice communities;
 - Limited to specific project types that have stringent protocols to ensure the emission reductions are real and additional (beyond business as usual);
 - Discounted to compensate for the uncertainty of GHG reductions, for example, by requiring more than one offset to be used for compliance in place of one allowance;
 - Verified to be real, surplus, permanent, quantifiable, and enforced by CARB, as AB 32 requires.¹⁷

E. Compatibility with Air Quality and Toxic Reduction Goals

These are some initial ideas on how to ensure that a cap and trade program meets NRDC's longstanding commitment and the law's requirement that any program prevent an increase in air or toxic pollution. We are eager to hear thoughts about these and other ideas.

- ◆ Distribute auction revenue or allowances to support air and toxic pollution reduction efforts and enforcement programs, particularly in environmental justice communities.
- ◆ Exclude sectors from the program that have high toxic emissions and that would be likely to use strategies that would increase toxic pollution.
- ◆ Evaluate potential strategies covered entities in each sector might use to comply, identify problematic strategies that could increase air or toxic pollution, and either prohibit these strategies or do not include a sector that might use problematic strategies in the program.
- ◆ Monitor the program's impact on air quality and toxic emissions by incorporating these considerations in mandatory reporting systems, make the data publicly available by source and sector over time, and promptly act to address any problems that are identified, for example, through complementary regulations or by requiring a higher "allowance ratio" (e.g. 1.5-to-1) for all allowances purchased in those areas.
- ◆ Identify specific technical and programmatic strategies for covered sectors that will reduce both greenhouse gas emissions and other co-pollutants; promote investments in these strategies to contribute to meeting AB 32's limit through more targeted complementary programs.

F. Compliance and Cost Containment Mechanisms

- ◆ **Banking of allowances should be allowed.** Allowing covered entities to hold extra allowances to use in a future year for compliance can encourage earlier investments to reduce GHG emissions. In addition, most significant emission-reducing investments in the energy industries are lumpy and capital-intensive rather than incremental, so banking provides an important means to encourage these significant investments. Some constraints on banking, such as time limits, may be appropriate to ensure the efficacy of the program.

¹⁷ Health and Safety Code Section 38562(d).

- ◆ **Borrowing of allowances should be limited.** Some sectors will need flexibility to smooth the variations in emissions over time that occur due to factors out of their control. In particular, the electricity sector’s year-to-year emissions can vary significantly due to weather conditions and the availability of hydroelectric power. Limited borrowing or a compliance period greater than a year can provide this flexibility. However, borrowing should be limited to avoid delays in emission reductions, and borrowed allowances should be “paid back with interest.”
- ◆ **No price cap.** A price cap sets a maximum price above which unlimited additional allowances will be issued. This breaks the cap and allows emissions to increase and should not be allowed. If necessary, other cost containment mechanism (including banking, borrowing, and linkage, if robust criteria are met) can be used to smooth out price volatility.

G. Enforcement & Transparency

- ◆ **Vigorous enforcement is of paramount importance.** A cap and trade program will only limit emissions and provide an environmental benefit if enforcement is strong, consistent, and prompt.
- ◆ **Require independent verification of emission reporting** by all covered emitters, through a mandatory and enforced reporting program.
- ◆ Enforcement against an entity whose emissions exceed its allowances should include **finances, a requirement to surrender a multiple of the allowances not surrendered, and the other legal remedies** (including civil and criminal penalties) contained in AB 32. In particular, CARB should establish a clear penalty up-front for any excess emissions. Moreover, the penalty should be large enough that under no expected circumstance would it be rational for a covered entity to choose to pollute and accept the penalty.
- ◆ **Make information publicly available.** It is essential to make data, including emissions, allowances, prices, CARB evaluations of compatibility with air quality and toxic reduction efforts, etc. transparent and publicly available by source and sector to establish a well-functioning program.
- ◆ **Regularly evaluate how well the program is achieving public policy objectives.** Policies often need to be improved over time. Since many stakeholders have expressed particular concerns about a cap and trade program, CARB should establish up-front a schedule for regularly reviewing and improving the design of any such program to ensure that it is meeting the state’s public policy goals.

We look forward to a meaningful discussion on the various elements of a potential cap and trade program along with all the other policy tools under consideration as part of California’s commitment to meet AB 32’s statewide emission limit.

Attachment A

This attachment provides a brief description of some of the key terms used to describe various design elements of a “cap and trade” program. It is not a glossary of terms; instead, it describes the way terms are commonly used (sometimes in multiple ways). The list of terms is not exhaustive. *Inclusion of any particular term, or the description, does not imply support or opposition for any particular design element.* This attachment is intended to help clarify the terminology so that stakeholders can meaningfully discuss the pros and cons of various design elements.

I. Setting Caps

- ◆ **Emissions Cap = Emissions Limit:** An enforceable limit on the total amount of greenhouse gas emissions that can be released into the atmosphere during a time period. Caps usually decline over time, and are usually established for an entire sector or multiples sectors. If caps are established on individual emitters, it is the same thing as allocating the allowances (see below).
 - These terms are also used to describe the statewide emission limit established in AB 32. The cap established by AB 32 is a limit that the state *itself* commits to achieve through a combination of implementing policies; in contrast, a “cap and trade” program’s cap creates an enforceable limit on *emitters*.
 - Note that limits set an absolute level of emissions that cannot be exceeded. Actual emissions can be measured to compare against the limit. This is different from emission reductions.
- ◆ **Emission reduction:** This term is often used to mean several different things, including: a reduction in emissions relative to a counterfactual level (i.e. the level that would have occurred without some action), which cannot be directly measured; or the level of the emissions cap relative to a base year; or a level of emissions lower than current levels. Sometimes used to describe offsets.
- ◆ **Base year:** Emission limits are often described as a reduction in emissions relative to a base year. In AB 32 and the Governor’s Executive Order, 1990 is the base year for California. In the Kyoto Protocol, 1990 is the base year for most countries.
- ◆ **Allowance:** A permit to emit greenhouse gas emissions during a time period, which may or may not expire. Normally in denominations of 1 metric ton of CO₂ equivalent in a certain year.
- ◆ **Credit:** This term is often used to mean several different things, including allowance, offset, or early action credit. Most often, “credit” is used in reference to reductions that are created from offset projects (see below).
- ◆ **Baselines:** This term is generally used as a reference that serves as the basis for assessing emissions and emission reductions, but it is often used to mean several different things, including: the base year for a sector-level cap; current emission levels for an individual emitter or a sector; the year used to grandfather allowances (see below); or a “business as usual” projection of emissions.

- ◆ **Scope:** The choice made about the boundaries of a cap-and-trade system, i.e. which sectors will be included.

II. Compliance

- ◆ **Mandatory reporting:** A requirement for covered emitters to report their emissions on a set schedule.
- ◆ **Point of regulation = point of enforcement = covered emitter:** The entities that are required to surrender enough allowances to match their actual emissions every compliance period. Note that this does not necessarily need to be the point of allowance allocation.
 - **Load-based:** a system in which the covered emitters are responsible for all the emissions associated with the product that they provide to customers. Used to describe a cap on the utilities instead of the generators in California. This is also called a midstream point of regulation.
 - **Source-based:** a system in which the covered emitters directly emit greenhouse gases. Used to describe a cap on power plant emissions like in the northeast's Regional Greenhouse Gas Initiative (RGGI) or the cap on large industrial sources in the European Union's Emissions Trading Scheme (ETS). This is also called a downstream point of regulation.
 - **Upstream:** a system in which those who import fossil fuels or who extract fossil fuels within the state are required to hold allowances that cover the emissions embodied in the fuels. This approach has been advocated by the National Commission on Energy Policy for a federal program.
 - **Midstream:** A system with the point of regulation on entities that are at a midpoint in the supply chain, such as distributors of products, in between the upstream fossil fuel providers and the downstream point of emissions.
 - **Downstream:** A system with the point of regulation on the entities that are directly emitting the pollution. For example, for petroleum, downstream would be at the gas pump or the vehicle owner. Is sometimes used (mostly in the UK) to describe systems that regulate at the consumer level, for example by providing consumers with a credit card that tracks the carbon content of their purchases.
- ◆ **Leakage:** Leakage is the displacement of emissions caused by actions to try to reduce GHG emissions, and can occur under regulatory programs or a cap and trade system. More specifically, leakage occurs when a reduction in emissions of greenhouse gases within the capped sectors is accompanied by an increase in emissions outside the capped sectors, oftentimes outside of the geographic boundaries of the jurisdiction that is trying to control greenhouse gas emissions. Sometimes businesses also refer to the leakage of jobs or businesses, which refers to the claim that these will move to another state in response to a regulation.
- ◆ **Surrender = Deduct allowances:** The process whereby a covered entity demonstrates to the regulator that it has enough allowances to equal its actual emissions, and those allowances are destroyed and cannot be used again.

- ◆ **Retire allowances:** Sometimes used synonymously with surrender or deduct allowances. Also refers to the process whereby any entity permanently removes allowances from the market or destroys allowances so that they cannot be used again.
- ◆ **Penalty:** One type of enforcement, in addition to other legal remedies, to penalize entities that do not surrender enough allowances to match their actual emissions. Penalties often consist of a monetary fine and a requirement to surrender the missing allowances (or some multiple of them) in the following compliance period.
- ◆ **Registry:** The generic term “registry” refers to a regulator’s accounting system used to track reporting of actual emissions, allowances, and/or other information useful in monitoring and enforcing compliance. (This is a generic definition, not to be confused with the organizations called the California Climate Action Registry or the Climate Registry, which some often refer to simply as “the Registry.”)

III. Allowance Distribution

- ◆ **Allowance distribution or allocation method:** The method used to distribute a number of allowances that equal the cap, which may include an auction, free allocation, or a combination of the two.
- ◆ **Auction:** A method of distributing allowances in which the government sells (through an auction) allowances to covered entities and possibly other entities.
 - **Sky Trust:** A concept where revenues raised by the selling of permits through an auction are sent to all citizens on a per capita basis, as a rebate for increased fossil fuel prices.¹⁸
- ◆ **Free allocation:** A method of distributing allowances in which the government gives allowances away for free to covered entities and other entities.
 - **Grandfathering:** An allocation to covered entities based on past emissions in a given year.
 - **Output-based = benchmarking = performance-based:** An allocation based on the percent of output of a product in a sector, or by setting a level of emissions (in the form of allowances) per unit of output. For example, allowances could be allocated to utilities based on the percent of the state’s electricity that each one supplies.
 - **Per-capita or per-customer allocation:** An allocation to covered entities based on the percent of people or customers served by each entity.

IV. Compliance Mechanisms

- ◆ **Banking:** A mechanism authorized by the regulator allowing covered entities to keep allowances issued in one year to surrender (i.e., use for compliance) in a future year. Limits may be place on banking, such as: All banked allowances must be used within “X” number of years.

¹⁸ This concept was introduced in the book "Who Owns the Sky?" and is based on the Alaska Permanent Fund's disbursement of oil revenues.

- ◆ **Borrowing:** A mechanism authorized by the regulator allowing covered entities to surrender (i.e., use for compliance), in the current year, allowances that will be issued in a future year. Borrowing may include an interest adjustment so that the borrower will have to payback a larger amount in the future.
- ◆ **Trading:** A mechanism authorized by the regulator allowing entities to buy and sell allowances, and authorizing covered entities to use allowances purchased from other entities for compliance.
- ◆ **Offsets:** Emission reductions from projects in sectors that are not capped, which the regulator allows covered entities to use for compliance (i.e., instead of surrendering an allowance). (Note that it is important to distinguish offsets in a mandatory regulatory compliance framework, such as a cap-and-trade program, from offsets purchased in a voluntary, retail market.¹⁹) Offsets in the Kyoto Protocol:
 - **Clean Development Mechanism (CDM):** One type of offset established by the Kyoto Protocol. The CDM allows Annex I Parties (industrialized countries) to invest in emission reduction projects in developing countries, and to use those Certified Emission Reductions to meet their emissions cap under Kyoto.
 - **Certified Emissions Reduction (CER):** Reductions of greenhouse gases certified by the CDM Executive Board.
 - **Joint Implementation (JI):** Another type of offset established by the Kyoto Protocol. Joint Implementation occurs when an Annex I country invests in an emissions reduction project in another Annex I country to earn emission reduction units (ERUs) to meet their emissions cap under Kyoto.
 - **Emissions Reduction Unit (ERU):** Emissions reductions generated by Joint Implementation projects.
- ◆ **Linking:** Authorization by the regulator for covered entities to use allowances or offsets from a different jurisdiction's regulatory regime for compliance.

V. Cost Containment

- ◆ **Price cap:** The regulator determines a maximum price above which it will issue an unlimited amount of additional allowances, to ensure that the price never rises any higher. The result is emissions in excess of the cap.
- ◆ **Circuit breaker:** A maximum price above which the regulator will postpone lowering the emissions cap for some period of time.
- ◆ **Trigger:** A general term used to describe a price at which some measure will be taken to stabilize or lower prices. For example, RGGI uses price triggers to expand the amount of offsets that can be used for compliance.

¹⁹ There has been a significant push to improve the validity of these voluntary, retail offsets by establishing standards, however to date there is no widely-accepted standard. Any offsets within a cap-and-trade system require measurement and verification protocols and institutions for monitoring and enforcement. Offsets allowed to be used for compliance in a cap-and-trade program are expected to be subject to greater scrutiny and higher standards, and to be of higher quality than current voluntary, retail offsets.

- ◆ **Safety valve:** This term is often used synonymously with “price cap,” and sometimes used synonymously with “trigger.” It was also used to describe the provision in AB 32 that allows the Governor to delay compliance deadlines by a year under extraordinary circumstances. Also sometimes called an “escape hatch.”

Attachment B

In June 2007, the California Market Advisory Committee (MAC) issued a report with recommendations to CARB on the design of a cap and trade program for California. We believe it is essential that CARB now embark on a public process to fully discuss with all interested stakeholders the pros and cons of cap and trade as a policy tool, what value the tool might bring in a package of policies to meet the AB 32 limit, and how to design the policy to provide that value. This process must include, at a minimum, meeting the requirements of Health and Safety Code Section 38570 and providing opportunities for the Environmental Justice and Economic and Technology Advancement Advisory Committees and all stakeholders to provide input.²⁰

This Attachment briefly describes the major similarities and differences between NRDC's perspective, presented above, and the design elements recommended in the MAC report.²¹

NRDC generally agrees, to varying degrees, with the MAC's recommendations on:

- ◆ **Scope** – We agree with the MAC's recommendation for a declining cap that expands in scope over time to include the electricity, large industrial, natural gas, and transportation sectors, with mandatory reporting in each covered sector.
- ◆ **Recognition for early action** – We agree with the MAC's recommendation that a program should be designed to promote early action, that auctioning allowances provides good incentives for early action, and that offset credits should not be granted for early action.
- ◆ **Cost-containment mechanisms** – We agree that banking should be allowed, and that with the recommended 3-year compliance period, borrowing and a safety valve should not be included.
- ◆ **Strong enforcement** - We agree that penalties “should be automatic and non-negotiable,”²² with civil and criminal penalties for intentional violations.
- ◆ **Periodic evaluations** - We agree that “periodic evaluation and review should be built into the program.”²³

NRDC disagrees, to varying degrees, with the MAC's recommendations on:

- ◆ **Allowance distribution** – While we agree with the MAC report's preference for auctioning allowances and that “there should be no free allocation to firms under the cap that are able to pass most of their costs on to consumers,”²⁴ we disagree with the report's final recommendation that would phase in auctions. Instead, we believe that allowances must be distributed in the public interest from the start of the program, and that allowances

²⁰ Health and Safety Code Section 38570(b) requires that CARB do all of the following before including a market-based compliance mechanism in its regulations: “(1) Consider the potential for direct, indirect, and cumulative emission impacts from these mechanisms, including localized impacts in communities that are already adversely impacted by air pollution. (2) Design any market-based compliance mechanism to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants. (3) Maximize additional environmental and economic benefits for California, as appropriate.”

²¹ The MAC recommendations are summarized in Chapter 8 of their report. California Market Advisory Committee, *Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California*, June 30, 2007.

²² Ibid, p. 76.

²³ Ibid, p. 84.

²⁴ Ibid, p. 56.

should not be grandfathered (i.e. freely distributed based on historical emissions) under any circumstance.

- ◆ **Offsets** – We disagree with the MAC’s recommendation that unlimited offsets should be allowed as part of the program. Instead, we believe that CARB should use complementary regulatory policies, not offsets, to achieve emission reductions in uncapped sectors. In addition, offsets should only be considered if the cap is set tightly, and *if* offsets are allowed, they should be limited as we describe above.
- ◆ **Complementing air quality and toxic reduction goals** – The MAC report’s summary of recommendations did not include any recommendations specifically focused on ensuring that the program complements the state’s air quality and toxic reduction goals. We believe that any program must be designed to explicitly address this issue, as AB 32 requires.
- ◆ **Electric sector point of regulation** – We believe the MAC’s recommendation for a “first seller” point of regulation in the electric sector is premature. The report left many questions unanswered that must be addressed before the state determines whether a “load-based” approach or a “first-seller” approach to the point of regulation will best meet California’s goals. The Public Utilities Commission and California Energy Commission are taking public input on this issue and will be developing a joint recommendation to CARB.
- ◆ **Linkage** – We agree with the MAC report that CARB would need to negotiate linkage terms with specific jurisdictions individually, and monitor any linked systems to ensure that they continue to meet its requirements. However, we believe that linkage should only be considered with other jurisdictions if stringent criteria are met, including a requirement that the other jurisdiction has a sufficiently tight cap. Maintaining the environmental integrity of California’s system requires that any linked systems have stringent caps.