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Landmark Greenhouse Gas Cap-and-Trade Program Adopted in California

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California's Global Warming Solutions Act of 2006 (AB 32) directed the California Air Resources Board (CARB) to adopt regulations that would reduce the state's greenhouse gas emissions (GHGs) to 1990 levels by the year 2020. AB 32 authorized CARB to adopt regulations that use "market-based compliance mechanisms," among other means, to achieve that goal. Accordingly, on December 17, 2010, CARB adopted the Cap-and-Trade Program (Program) aimed at reducing the GHG emissions of electricity providers, large industrial sources, carbon dioxide suppliers, and fuel suppliers and distributors. The landmark Program will take effect on January 1, 2012, and promises to dramatically change "business as usual" in California.

The Program is intended to reduce emissions at the same time as driving down costs by establishing a declining cap on emissions from covered sources, allocating emissions allowances, and providing for the auction, trading, sale, and banking of allowances. This system encourages long-term investment in cleaner fuels, rewards companies for energy efficiency, and provides companies with flexibility in determining how they will operate within their emissions budget.

Sources Regulated

The Program is divided into three compliance periods, with the introduction of regulated sources split between the first two compliance periods, as follows:

1. From January 1, 2012 through December 21, 2014, the following sources will be regulated:
    - Generators of electricity and the first in-state distributors of imported electricity;
    - Industrial facilities subject to CARB's Mandatory Reporting Regulation (MMR) for GHGs, such as refineries, cement manufacturers, and producers of paper, aluminum, glass, and iron and steel; and
    - Suppliers of carbon dioxide gas for industrial purposes.
2. From January 1, 2015 through December 31, 2017, in addition to the above, fuel suppliers and distributors will be regulated, including:
    - Suppliers of natural gas delivered in-state;
    - Suppliers of transportation fuel (e.g. gasoline, diesel, ethanol) sold or distributed for consumption in-state; and
    - Producers of liquefied petroleum gas sold or distributed in-state

3. From January 1, 2018 through December 31, 2020, all of the above continue to be regulated.

Carbon dioxide emissions from the stationary combustion of biomass fuels (e.g. from solid waste management and wastewater treatment, and waste-to-energy electric generating) are excluded from compliance obligations if emissions are verified through the MMR.

GHGs sought to be reduced by AB 32 include carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydroflurocarbons, perfluorocarbons, and nitrogen trifluoride, and other fluorinated GHGs. A carbon dioxide equivalence (CO_2e) factor was calculated for each of these GHGs. A threshold of 25,000 tons per year of CO_2e is used to determine whether compliance is mandatory for industrial and electricity sources.

If the emissions generated by an industrial or electricity generation facility or the emissions resulting from the electricity imported by first distributors total more than the threshold, the entity is a "covered entity" with a compliance obligation. The appropriate point of regulation for fuel deliverers has yet to be determined, but it will be based on the emissions expected to occur when the fuel is combusted. An entity falling within any of the regulated categories of sources but emitting less than the threshold can "opt-in" to the Program.

Entities participating in the Program must register with CARB. Approximately 360 businesses, representing 600 facilities, will be required to participate. Emissions from the covered entities are responsible for 80 percent of California's GHG emissions.

The Cap

Each year, CARB determines the total cap on GHG emissions from all covered sources and divides the cap into "allowances" equal to one metric ton of CO_2e ($MTCO_2e$). The cap, and corresponding number of allowances, is reduced each year to reach a 15% reduction of GHGs by 2020. The reducing cap is intended to allow companies to find more energy-efficient means of operating over time.

When the Program begins on January 1, 2012, the cap starts at 165.8 million $MTCO_2e$, which is equal to the total emissions forecast from the covered sources initially subject to the Program. The cap declines by about 2% in 2013 and 2014, but increases to 394.5 million $MTCO_2e$ in 2015 to account for the addition of fuel suppliers and distributors to the Program. The cap then decreases by about 3% annually between 2015 and 2020, reaching the final 2020 cap of 334.2 million $MTCO_2e$. By year 2020, the cap is expected to result in a total reduction of 18 to 27 million $MTCO_2e$.

Allowances

Allowances will effectively serve as a permit to emit GHGs, as companies must obtain sufficient allowances to cover their GHG emissions. Allowances are distributed directly to some sources, while others must obtain them through the auction system discussed below. Allowances are allocated to the opt-in sources on the same basis as the covered entities.

The Program is projected to increase the cost of doing business. Recognizing this, CARB will initially allocate most allowances for free as transition assistance and to protect against "leakage." The transition assistance is intended to allow businesses time to obtain new equipment and/or create new processes that reduce their GHG emissions. "Leakage" is the risk that businesses will leave California because they cannot compete against the lower-priced goods available from non-California entities not subject to the Program. The amount of free allowances for transition assistance will decline each year, but some industrial sources will continue to receive free allocations through the life of the Program to keep them in the State. Allocations will also differ between individual facilities based on their performance in comparison to an emissions benchmark for each industrial

sector. Facilities will be rewarded in allocations for exceeding their benchmark.

Benchmarks have not yet been established for industrial sources but are expected to be determined based primarily on best management practices. Industrial businesses have criticized CARB for the delay in establishing the benchmarks because they cannot anticipate their allowances. Businesses are worried they will not have enough time to plan future operations and budgets and prepare to meet their compliance obligations for 2012. Mindful of this concern, CARB anticipates setting those benchmark figures in the very near term. Environmentalists are urging stringent benchmarks based on best available technologies and practices worldwide to prevent free allocations and maintaining the status quo.

Retail electricity distributors will also receive free allowances through the life of the Program to protect consumers from high rates. Investor Owned Utilities (IOUs) will be given free allowances that they must auction and use the proceeds to benefit their ratepayers. Publicly Owned Utilities (POUs) will also receive allowances that may be similarly auctioned, or they have the option to use the allowances directly to meet their compliance obligations for any generating facility they own. Despite the free allowances to retail electricity distributors, utilities are concerned that the system is not sufficient to protect consumers if allowance prices are higher than expected.

The allowance budget does not absolutely limit entities in their emissions. If they will exceed their budget, entities may obtain offsets or more allowances by auction or by purchase on secondary markets.

Offsets

An offset represents one $MTCO_2e$ and, upon approval by CARB, can be used in lieu of allowances in complying with the Program. Offset programs must demonstrate "that the emissions reductions are real, permanent, verifiable, enforceable, and quantifiable," as well as surplus or additional. Only offsets for projects that reduce or remove GHGs outside the Program that otherwise would not have occurred or been required by federal, state, or local laws, regulations, or air quality requirements are deemed "additional" or "surplus." Four protocols have been approved by CARB for recognition of offset credits: (1) the U.S. Forests Protocol (forest preservation), (2) the Livestock Manure Digester Projects Protocol (manure biogas control), (3) the Urban Forests Projects Protocol (planting trees in urban areas), and (4) the Ozone Depleting Substances Projects Protocol (destruction of ozone depleting substances). The Program also establishes a mechanism for CARB's approval of additional offset programs, including international protocols.

Since the offsets are generated outside the covered sources, the use of offsets would allow the covered sources to exceed the allowances issued. To ensure overall reduction of GHGs, a limit of 8% of an entity's emissions can be accounted for by offset credits.

Concerns have been raised that offset credits might be awarded for projects that do not create additional GHG reductions because the definition of "additional" used by the approved offset protocols is not the same as CARB's definition in the Program. Projects that began before 2007 may not reduce additional GHGs as compared to the Program baseline, and offset credits for those projects would compromise the emissions cap. Others, however, argue that CARB committed to issuing credits to reward companies for voluntary early action to reduce GHGs.

Some environmentalists also opposed offset credits for forest management on the belief that such credits would encourage clear-cutting. Other environmentalists, however, argued the protocol does not encourage clear-cutting. CARB responded that clear-cutting would occur regardless of whether offset credits are allowed, and that the agency's interest is the reduction of GHG emissions under the protocol. The exemption for biomass plants also generated concern that additional trees would be felled for fuel. Representatives of the biomass industry, though, responded that California facilities only use wood waste from forest projects.

The Trade

The trading of allowances and offsets establishes a market price for GHG emissions that reflects the carbon cost of doing business. Allowances can be purchased by auction or on the secondary market. In addition to covered and opt-in entities, other entities such as traders, brokers, and offset providers can voluntarily participate in auctions and secondary markets. Non-governmental organizations may also participate in order to purchase allowances and retire them from use to further reduce emissions.

Auctions of Allowances

Beginning in February 2012, CARB (or a hired third party) will conduct auctions for the purchase of allowances every quarter of the year. Allowances to be auctioned can include: (1) allowances held by entities; (2) remaining allowances not allocated by CARB; and (3) allowances budgeted for future compliance periods. Allowances held by entities would be consigned to CARB to be auctioned. Allowances budgeted for future compliance periods can be purchased to be banked for future use. The advantage of doing so is to lock in the current trading price in anticipation that prices will rise in the future. 2% of allowances budgeted for the second compliance period will be auctioned in 2012, and 2% of the allowanced budgeted for the third compliance period will be auctioned in 2015. A covered entity can purchase up to 10% of the available allowances at each auction, while the maximum an opt-in entity may purchase is limited to 4%.

Entities wishing to participate must register at least 30 days prior to the auction, provide a guarantee that the entity has the ability to pay upon its winning bid, and submit sealed (blind) bids. Allowances will be awarded starting with the highest bidder and proceeding consecutively downward until all bids are exhausted or available allowances are sold. However, no bids will be accepted below a reserve price. CARB has set the reserve price for 2012 at $10 per allowance (one $MTCO_2e$). The reserve price will increase annually by 5% plus an amount equal to the consumer price index, which is expected to result in approximately $15-$30 per allowance by 2020.

To protect against a short supply of allowances on the market and to keep allowance prices within a reasonable range, CARB will maintain a reserve of allowances to be sold three weeks after each auction (the Reserve). During the first compliance period, 1% of the total allowances will be set aside in the Reserve annually; during the second compliance period, the set aside rises to 4%; and during the third compliance period, the set aside reaches 7%. If any additional allowances are unsold at action, they will be placed into the Reserve (except that those allocated to utilities will be returned). Sales from the Reserve are conducted in three tiers: at $40, $45, and $50 per allowance. Entities required to participate in the Program can purchase Reserve allowances by specifying the number of allowances they want in each tier. Allowances are sold until each tier is empty, or, if more reserve bids are submitted than allowances available, the allowances are prorated among bidders.

Secondary Markets & Banking

Allowances may be sold in the secondary market between entities registered and holding accounts with CARB. Allowances can also be banked for future use. The ability to bank allowances creates incentive for entities to make early reductions in emissions so they use current allowances in later compliance periods when there are fewer allowances available and prices to obtain them are higher. However, to prevent hoarding and driving up prices, entities will be limited in the amount of compliance instruments that they can hold at any one time (the amount of the holding limit will be calculated by the Executive Officer).

Linkage to Other Programs

Although not yet established, the Program allows for the potential linkage to other national and sub-national governments for trade. Although federal government efforts to implement a cap and trade program have stalled, New Mexico recently approved a cap-and-trade program, and several Canadian provinces are expected to implement programs soon as part of the Western Climate Initiative ("WCI"), of which California is a member.

Compliance

The annual emissions of all covered and opt-in entities will be verified by an accredited third party. Local air districts will also provide information to CARB on facility emissions, new and modified permits, and industrial process improvements. CARB will issue each participating entity "compliance instruments" that represent an allowance or an offset. Compliance is demonstrated at the end of each year. During the first two years of a compliance period, the entity must surrender compliance instruments covering 30% of its emissions for that year. At the end of the third year in a compliance period, the entity must surrender the balance of compliance instruments equal to the remainder of its actual GHG emissions for the full compliance period.

CARB will notify the entity if it fails to surrender a sufficient number of valid compliance instruments, and the entity will have 30 days from notification to correct the deficiency. Each day after the 30-day deadline that a deficiency remains will constitute a separate violation. Any violation of the Program is considered an emissions violation under Health and Safety Code section 42400 et seq., which provides for the issuance of injunctions (section 41513) or assessment of penalties of up to $40,000 for each violation (section 38580).

The Program also prohibits trades to undisclosed parties, trades that manipulate the value of a published market index, misreporting trade information, and trades that are fraudulent, false, misleading, or deceptive.

Air districts argue that some violations could go unpunished or penalties are weak. The districts oppose allowing entities more time to submit compliance instruments if its offsets were determined to be invalid. They also point to the lack of a triggering date for when compliance instruments for excess emissions are due. Those flaws allow an entity to delay penalties from being incurred. The districts also say that the penalties for trading violations are unclear. Further, they are concerned that the provision that proceeds from the sale of electricity allowances be used to benefit ratepayers is vague and unenforceable, and that there are no consequences for failure to benefit ratepayers. The regulated entities, on the other hand, argue that the potential fines are excessive because the penalties overlap by providing for separate violations for each day and each compliance instrument. They urge penalties to be commensurate with the scope and severity of the violation.

Changes & Amendments Expected

Although the Program has been adopted, the regulations will not be final until further changes and amendments are made. Most of the concerns set forth above that were raised by interested parties will be resolved by these changes and amendments.

The resolution adopting the proposed regulations includes a list of modifications proposed to be made after a 15-day public comment period (these modifications are referred to as "the 15-day changes"). The 15-day changes include:

- Setting the benchmarks for industrial sources;
- Determining and finalizing allowance allocation methods for industrial sources, petroleum refining, and electric distribution utilities;
- Determining whether additional sources need transition assistance (free allocations);
- Setting aside allowances each year to incentivize the in-state production of renewable electricity, and providing

for the disposition and retirement of those set-aside allowances;

- Implementing a border adjustment for cement importers if necessary to avoid leakage of cement manufacturers;
- Revising the offset compliance program to ensure consistency;
- Reviewing the treatment of electricity generators and combined heat and power facilities with long-term supply contracts; and
- Reviewing the point of regulation of transportation fuels imported/delivered into California to ensure they are covered by the Program only once.

Thereafter, additional issues will continue to be considered to be adopted as amendments prior to the implementation of the Program in 2012. Those amendments are anticipated to address:

- The consideration of additional offset protocols;
- The creation of systems to track the trading of allowances and offsets;
- Whether allowances should be allocated directly to natural gas utilities and, if so, the allocation method;
- How to ensure that proceeds from the sale of electricity allowances are used to benefit ratepayers;
- How to prevent the regulation of imported electricity from shifting GHGs to other states rather than reducing them overall; and
- Modifications to enforcement provisions.

CARB will issue a status report no later than July 31, 2011, regarding the finalization of the allowance allocation system, implementation of market-tracking, offset-tracking, and auction systems, linkage with other WCI programs, status of additional offset protocols and estimates of expected offset supply, and other issues. Final action to adopt all regulations and modifications must be completed by October 28, 2011. Annual status reports are required, and amendments may be made prior to the start of each new compliance period if adjustments to the Program are needed.

For further information, see:
CARB, Draft Resolution 10-42, Dec. 16, 2010
CARB, Proposed Regulation Order, Nov. 24, 2009
CARB, Staff's Suggested Modifications to Proposed Regulation, Dec. 16, 2010
CARB Press Release # 10-63, Dec. 16, 2010
CARB, Staff Report: Initial Statement of Reasons, Oct. 28, 2010
CARB, "Cap-and-Trade Program" Powerpoint, Dec. 16, 2010
CARB, "The Role of Offsets in Cap-and-Trade" Powerpoint, Feb. 25, 2010

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