California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

June 28, 2012

LOCATION:
Air Resources Board
Byron Sher Auditorium, Second Floor
1001 I Street
Sacramento, California 95814
http://www.calepa.ca.gov/EPAbldg/location.htm

This facility is accessible by public transit. For transit information, call (916) 321-BUSS, website: http://www.sacrt.com
(This facility is accessible to persons with disabilities.)

TO SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING GO TO: http://www.arb.ca.gov/lispub/comm/bclist.php

June 28, 2012
9:00 a.m.

DISCUSSION ITEMS:

Note: The following agenda items may be heard in a different order at the Board meeting.

Agenda Item #

12-4-1: Public Meeting to Consider a Status Report on "Vision for Clean Air: 2012-2050"

Staff will update the Board on development of a report on future technology and energy scenarios illustrating how California's combined air quality and climate goals could be met.

12-4-2: Public Meeting to Present the Planned Air Pollution Research Fiscal Year 2012-2013

Staff will present to the Board the portfolio of research projects recommended for funding in Fiscal Year 2012-2013. Staff will describe the objective of each of the proposed projects and how it relates to previous research. Staff will also discuss how the proposed research projects strengthen the Board's programs, including guiding policy making, developing new regulations, and ensuring adopted regulations are effectively implemented.

12-4-4: Public Meeting to Consider Approval of the Proposed Assembly Bill 118 Air Quality Improvement Program Funding Plan For Fiscal Year 2012-2013

Staff will present to the Board the proposed Air Quality Improvement Program (AQIP) Funding Plan for fiscal year 2012-2013 which provides staff's recommendations for allocating the $40 million of AQIP project funding in the Governor's proposed budget. Staff recommends directing most of the AQIP funding to continue incentives for the purchase of zero-emission passenger cars and new hybrid and zero-emission trucks and buses. The remaining funding would be allocated to advanced technology demonstration projects. The AQIP, created under Assembly Bill 118 (2007), provides incentive funding through 2015 for clean vehicle and equipment projects.

12-4-5: Public Hearing to Consider Amendments to California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, and to Consider Amendments Allowing Use of Compliance Instruments Issued by Linked Jurisdictions

Staff will present proposed amendments to the cap and trade regulation relating to program implementation, as well as to clarify regulatory requirements. Staff will also present proposed amendments to allow California and Quebec to have a linked cap and trade program.

CLOSED SESSION – LITIGATION

The Board will hold a closed session, as authorized by Government Code section 11126(e), to confer with, and receive advice from, its legal counsel regarding the following pending or potential litigation:

Pacific Merchant Shipping Association v. Goldstene, U.S. District Court (E.D. Cal. Sacramento), Case No. 2:09-CV-01151-MCE-EFB.

POET, LLC, et al. v. Goldstene, et al., Superior Court of California (Fresno County), Case No. 09CECG04850.

Rocky Mountain Farmers Union, et al. v. Goldstene, U.S. District Court (E.D. Cal. Fresno), Case No. 1:09-CV-02234-LJO-DLB.

National Petrochemical & Refiners Association, et al. v. Goldstene, et al., U.S. District Court (E.D. Cal. Fresno) Case No. 1:10-CV-00163-AWI-GSA.

Association of Irritated Residents, et al. v. California Air Resources Board, Superior Court of California (San Francisco County), Case No. CPF-09-509562.

Association of Irritated Residents, et al. v. U.S. E.P.A., 2011 WL 310357 (C.A.9), (Feb. 2, 2011).

California Dump Truck Owners Association v. California Air Resources Board, U.S. District Court (E.D. Cal. Sacramento) Case No. 2:11-CV-00384-MCE-GGH.

Engine Manufacturers Association v. California Air Resources Board, Sacramento Superior Court, Case No. 34-2010-00082774.

Citizens Climate Lobby and Our Children's Earth Foundation v. California Air Resources Board, San Francisco Superior Court, Case No. CGC-12-519554.

OPPORTUNITY FOR MEMBERS OF THE BOARD TO COMMENT ON MATTERS OF INTEREST

Board members may identify matters they would like to have noticed for consideration at future meetings and comment on topics of interest; no formal action on these topics will be taken without further notice.

OPEN SESSION TO PROVIDE AN OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE BOARD ON SUBJECT MATTERS WITHIN THE JURISDICTION OF THE BOARD

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but that do not specifically appear on the agenda. Each person will be allowed a maximum of three minutes to ensure that everyone has a chance to speak.

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http://www.arb.ca.gov/lispub/comm/bclist.php

ONLINE SIGN-UP:
You can sign up online in advance to speak at the Board meeting when you submit an electronic Board item comment. For more information go to:

http://www.arb.ca.gov/board/online-signup.htm

IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT THE CLERK OF THE BOARD:
OFFICE: (916) 322-5594
1001 I Street, Floor 23, Sacramento, California 95814
ARB Homepage: www.arb.ca.gov

SPECIAL ACCOMMODATION REQUEST

Special accommodation or language needs can be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language;
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 as soon as possible, but no later than 7 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Comodidad especial o necesidad de otro idioma puede ser proveído para alguna de las siguientes:

- Un intérprete que esté disponible en la audiencia.
- Documentos disponibles en un formato alterno u otro idioma;
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 7 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

SMOKING IS NOT PERMITTED AT MEETINGS OF THE CALIFORNIA AIR RESOURCES BOARD

California Environmental Protection Agency

Air Resources Board

PUBLIC MEETING AGENDA

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CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC MEETING TO CONSIDER THE APPROVAL OF A DRAFT REPORT: PLANNED AIR POLLUTION RESEARCH, FISCAL YEAR 2012-2013

The Air Resources Board (ARB or Board) will conduct a public meeting at the time and place noted below to consider a draft report, titled *"Planned Air Pollution Research, Fiscal Year 2012-2013."*

DATE: June 28, 2012

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item may be considered at a one-day meeting of the Board, which will commence at 9:00 a.m., June 28, 2012. Please consult the agenda for the meeting, which will be available at least 10 days before June 28, 2012.

The California Health and Safety Code (HSC), Sections 39700 - 39704, established the Air Resources Board's research program. It directed the Board to coordinate and administer all air pollution research that is funded, to any extent, with State funds. To facilitate this process, HSC Section 39705 directs the Board to appoint a Research Screening Committee to give advice and recommendations on all air pollution research projects proposed for funding.

ARB staff will present a written draft report, *Planned Air Pollution Research, Fiscal Year 2012-2013,* at the meeting. The report describes proposed research concepts for funding. After the staff presentation and public testimony, the Board will vote on the draft plan. Those research concepts approved by the Board at this meeting will be developed into full research proposals and brought back to the Board for final consideration and approval.

Copies of the report may be obtained from ARB's Public Information Office, 1001 I Street, First Floor, Environmental Services Center, Sacramento, California, 95814, (916) 322-2990, at least 10 days prior to the scheduled meeting. The reports may also be obtained from ARB's website at http://www.arb.ca.gov/research/apr/apr.htm.

Interested members of the public may also present comments orally or in writing at the meeting and may be submitted by postal mail or by electronic submittal before the meeting. To be considered by the Board, written comments not physically submitted at the meeting must be received **no later than 12:00 noon, June 27, 2012,** and addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

You can sign-up online in advance to speak at the Board meeting when you submit an electronic board item comment. For more information, go to:
http://www.arb.ca.gov/board/online-signup.htm.

Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

The Board requests, but does not require 20 copies of any written submission. Also, ARB requests that written and email statements be filed at least 10 days prior to the meeting so that ARB staff and Board members have time to fully consider each comment. Further inquiries regarding this matter should be directed to Annalisa Schilla, Air Pollution Specialist, (916) 322-8514, or Annmarie Rodgers, Manager of the Climate Action & Research Planning Section, (916) 323-1517.

SPECIAL ACCOMMODATION REQUEST

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- An interpreter to be available at the hearing;
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CALIFORNIA AIR RESOURCES BOARD

James N. Goldstene
Executive Officer

Date: June 15, 2012

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.arb.ca.gov.

Proposed Research Plan

Fiscal Year 2012-13

June 2012

California Environmental Protection Agency

Air Resources Board

The statements and conclusions in this report are not necessarily those of the California Air Resources Board. The mention of commercial products, their source, or their use in connection with material reported is not to be construed as either actual or implied endorsement of such products. To obtain this document in an alternative format, please contact the Air Resources Board Disability Coordinator at (916) 323-4916 or 7-1-1 for the California Relay Service. This report is available for viewing or downloading from the Air Resources Board's Internet site at http://www.arb.ca.gov/research/apr/apr.htm.

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INTRODUCTION

For more than 40 years, the Air Resources Board (ARB or Board) and key public and private partners have collaborated to make California a center for pioneering air pollution research. The goal of ARB's research program is to provide timely scientific and technical information to help the Board, local air districts, and others take effective actions to achieve three ambitious goals: 1) attain air quality standards, 2) reduce health risk from toxic air pollutants, and 3) meet greenhouse gas reduction targets.

This year's annual plan includes projects that will increase understanding of California's progress on air quality, answer near-term questions important for program implementation, and explore benefits of longer-term strategies. ARB's research program will continue to play an important role in meeting the challenges of increasingly stringent federal quality standards and long-term climate goals. California's air pollution control programs must address multiple pollutants, a series of federal deadlines, and greenhouse gas reduction goals in 2020 and beyond as shown in Figure 1.

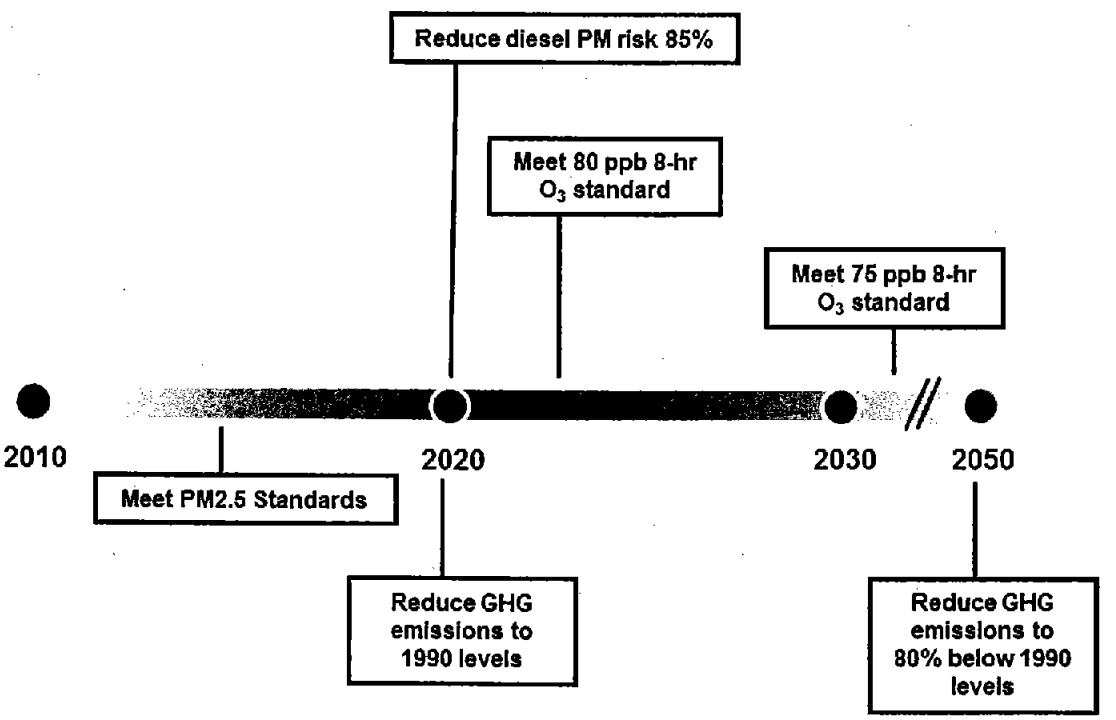


Figure 1. California's key air quality and climate change milestones through 2050.

This research plan is designed to reflect the highest priority program needs. Although this year's plan is largely focused on near-term program needs (i.e., next 5 to 10 years), several projects have implications for assessing long-term transportation and land use strategies.

This plan is organized around three overarching research themes: scientific foundation, clean air strategies (comprising mobile source and sustainable communities strategies), and program effectiveness:

Scientific Foundation – The core of ARB's research program is to understand the causes of, and identify potential solutions to California's air pollution problems.

Clean Air Strategies – Addressing both mobile source control and sustainable communities strategies, research in this area supports the development of new and innovative pollution-reduction strategies to ensure that ARB regulations and programs are based on the most up-to-date science.

Program Effectiveness – As new rules and programs phase in, ARB is actively pursuing measurement and evaluation efforts to verify that its regulations are effectively meeting their targets and protecting public health.

The Fiscal Year 2012-2013 Research Plan includes 14 research concepts, totaling approximately $6 million, for which ARB intends to obtain significant co-funding. As shown in Figure 2, the majority of the research funding is allocated to research related to mobile sources (52%) with the remaining funds supporting research related to scientific foundation (21%), sustainable communities (19%), and program effectiveness (8%).

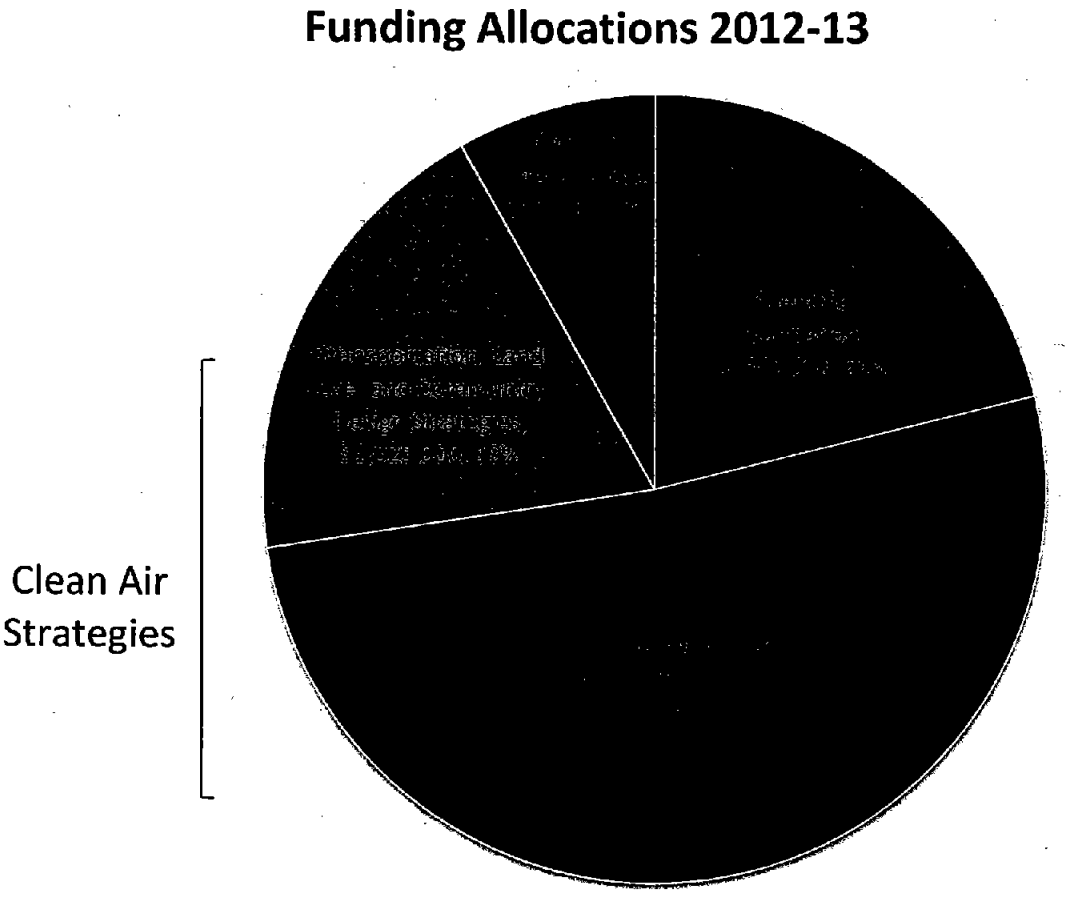


Figure 2. Proposed ARB research funding allocation for fiscal year 2012-2013.

PLANNING PROCESS

This research plan is designed to address the Board's highest priority program needs. As in previous years, ARB initiated the research planning process by sending out a public solicitation inviting and encouraging the public to contribute research concepts that address ARB's priority research areas. This year's research planning also benefited from ongoing discussions with experts from multiple government agencies and other institutions with scientific expertise or regulatory authority in air pollution and related fields. ARB staff prioritized specific program needs, reviewed research ideas submitted by the public, developed additional research concepts to address remaining program needs, and synthesized the results to produce this annual research plan. Pending approval by the Board, the research projects described in this plan are ready to be developed into complete proposals to be reviewed by ARB's Research Screening Committee and then returned to the Board for final funding approval.

Coordination, Leveraging, and Collaboration

ARB works with other California and federal agencies to ensure that its research portfolio is non-duplicative of already funded work, leverages the State's available research funding, and produces results that have the greatest program benefits. ARB also continues to seek co-funding opportunities and other ways to leverage limited research dollars. This enables ARB to participate in projects and studies outside the reach of ARB's research budget alone. Research partners have included a wide range of government agencies and research organizations including, but not limited to, the U.S. Environmental Protection Agency (EPA), the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA), the Coordinating Research Council (CRC), the California Energy Commission (CEC), the California Public Utilities Commission (CPUC), the California Department of Transportation (Caltrans), the Health Effects Institute (HEI), and the South Coast Air Quality Management District.

This year's annual research plan will leverage multi-million dollar funding commitments from NASA and the National Institute of Standards and Technology (NIST) to study California's air quality and greenhouse gas emissions. ARB is also coordinating with the U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) on the mid-term review of ARB's Advanced Clean Cars rules, and is exploring co-funding opportunities for related projects. And, in order to verify compliance with the Advanced Clean Cars rules, this plan includes co-funding for a CRC project that seeks to lower the detection limit of particulate matter (PM) emissions.

Recent Research Highlights

Over the past 40 years, ARB has carried out scientific research in areas as diverse as the health effects of air pollution on vulnerable populations, the role of atmospheric chemistry in regional air pollution, and the impact of greenhouse gas emissions on climate change. Although ARB's research budget is modest compared to other funding organizations, the program has a long history of providing results that have influenced regulatory development at the state, national, and international levels. Below are a few recent highlights from ARB's research program.

Scientific Foundation

ARB's health effects research has helped form the scientific basis for development of state and national ambient air quality standards. Several ARB-funded research studies completed over the past year have added to the body of evidence on the impacts of particulate matter and ozone exposure on public health. For the first time, exposure to particulate matter (PM10) has been associated with the incidence of new cases of stroke in California women. In another California study, fine particulate matter (PM2.5) exposure has been found to increase the premature death risk from cardiovascular disease by 15 percent per 10 micrograms per cubic meter. ARB-funded research also showed that inhalation of PM2.5 can activate cells that initiate blood clotting, which can result in an increased risk of heart attacks and stroke. A toxicologic study conducted in the San Joaquin Valley (co-sponsored by ARB and the Electric Power Research Institute) confirmed epidemiologic studies in finding that no specific source of PM2.5

appears to be less toxic than any other – reaffirming the need to continue to regulate all sources of fine particles. A controlled ozone exposure study found an effect on heart rate variability from high ozone levels alone, suggesting that short-term exposures to ozone can have acute cardiovascular effects.

Other ARB-funded research studies demonstrate the need to continue reducing Californians' exposure to air pollution, especially among vulnerable populations. An analysis of data from the California Health Interview Survey found positive relationships between asthma symptoms and air pollution exposures. Racial/ethnic minority and low income respondents had greater increases in adverse asthma outcomes for similar increases in NO_2 and PM10 exposures. Several studies measured elevated air pollutant levels in homes, daycare centers, and vehicles, underscoring the need to improve air quality indoors and in other enclosed environments. These research findings led ARB to put three research projects into place last year to investigate the effectiveness of high-efficiency filtration in reducing pollution exposures for asthmatics, as well as in homes, school buses, and cars. Results from these research projects are expected in 2015 and 2016.

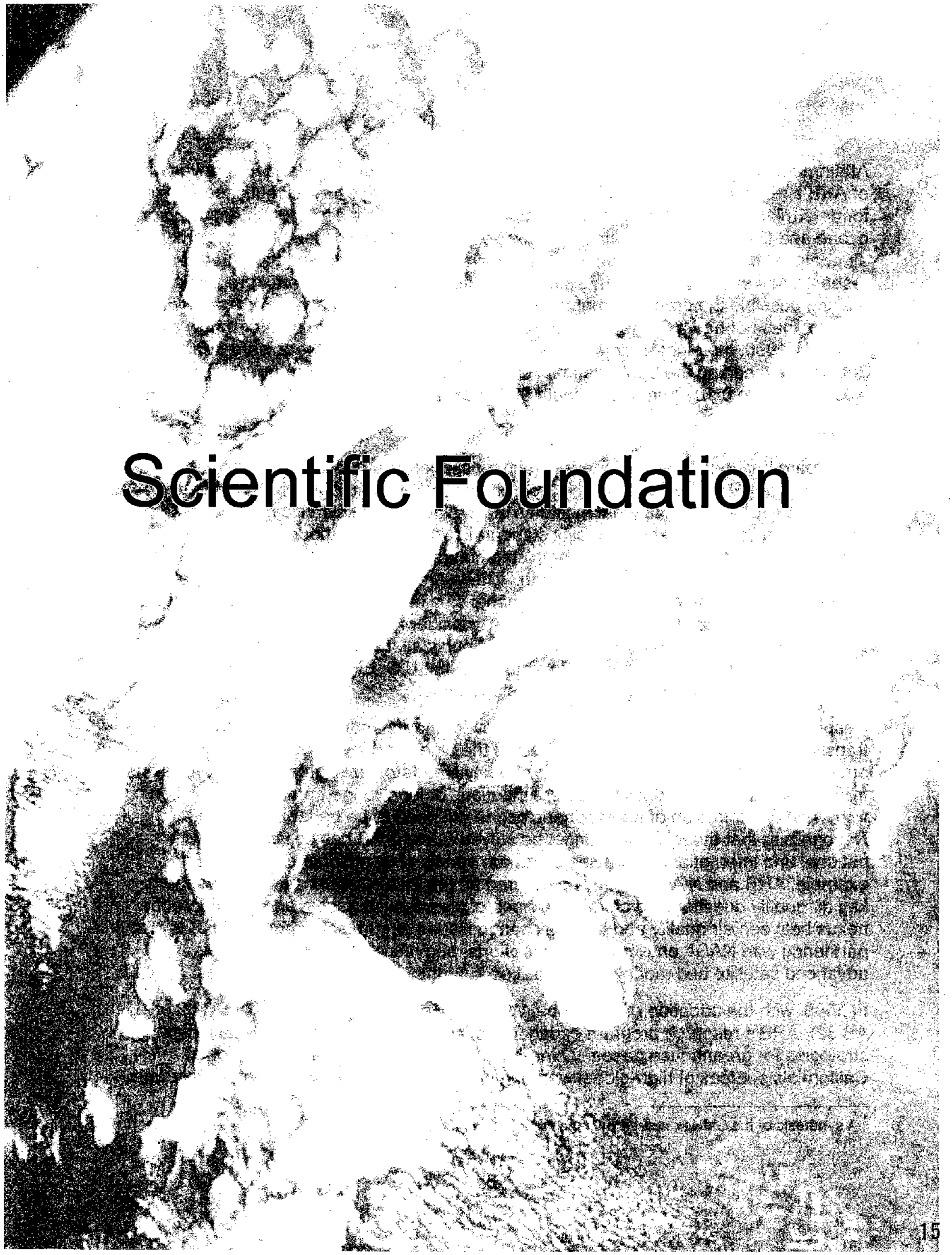
Clean Air Strategies

A collaboration among ARB, several universities, the South Coast Air Quality Management District and the Los Angeles Metropolitan Transportation Authority measured tailpipe emissions from diesel- and compressed natural gas-fueled transit buses with different types of aftertreatment under a range of operating conditions. While both fuel types met applicable emission standards for PM and nitrogen oxides (NO_X), results for toxic emissions varied greatly. These findings resulted in the installation of oxidation catalysts on all compressed natural gas-fueled buses to prevent high formaldehyde emissions, and the adoption of nitrogen dioxide (NO_2) limits for the heavy-duty diesel retrofit program to prevent enhancement of ozone and PM2.5 formation. This collaboration between ARB and university scientists continues with a systematic effort to measure the toxicology of particle emissions from new and emerging technologies and fuels for both light- and heavy-duty vehicles.

ARB-funded research on hydrofluorocarbons and other high-global warming potential greenhouse gases (up to 10,000 times as potent as carbon dioxide [CO_2]) demonstrated that emissions of these gases are growing rapidly in California and are produced from a variety of sources. Several research projects highlighted the importance and relative cost-effectiveness of reducing these emissions and led directly to adoption of ARB rules to reduce hydrofluorocarbons from commercial refrigeration, motor vehicle air conditioning systems, and other sources. These rules are expected to reduce annual statewide greenhouse gas emissions by 10 million metric tons of carbon dioxide equivalents in 2020 at relatively low cost and, in many cases, cost savings to industry. Finally, based on the results of this research effort, ARB adopted a protocol to provide incentives to recover and destroy a subset of these potent greenhouse gases (those that are also ozone-depleting substances) as part of the cap-and-trade program. Ongoing projects are investigating sources of other important non-CO_2 greenhouse gases, such as methane (CH_4) and nitrous oxide (N_2O), in California and identifying ways to cost-effectively mitigate and reduce these climate-altering pollutants.

Program Effectiveness

The results of ARB-funded research studies help demonstrate how the Board's policies are leading to significant air quality improvements. Between 2007 and 2010, ARB's emissions monitoring program detected a 50 percent reduction in diesel-related pollutants in heavily impacted communities (including the neighborhoods adjacent to the Ports of Los Angeles and Long Beach), due largely to the benefits of regulatory and incentive programs focused on port-related activities. In addition, ARB and NOAA have been collaborating on a major field campaign to examine climate and air quality impacts in California. The first major published result from this study demonstrates that California's first-in-the-nation regulations for ocean-going vessels to switch to low-sulfur fuels and slow their speed as they approach the State's coast reduce emissions by 88 percent or more for virtually all air pollutants.



Scientific Foundation

SCIENTIFIC FOUNDATION

Attainment of health-based national and state ambient air quality standards drives many of ARB's regulatory programs. ARB's research program lays the scientific foundation for determining the causes and health impacts of California's air pollution, focusing on ozone and fine particulate matter, the only pollutants that still exceed national ambient air quality standards. The scientific and technical knowledge gained through this research has supported California's comprehensive air pollution control programs, making possible the dramatic improvement in California's air quality. For example, Los Angeles has not had a Stage 1 smog alert (one-hour peak of 0.20 ppm or more) since 1998. In 1990, the eight-hour design value was 0.186 ppm and there were nearly 200 days exceeding the 0.075 national standard. By 2011, the eight-hour design value was reduced to 0.107 ppm with about 100 exceedance days.

CURRENT RESEARCH

The Board has long been a pioneer in funding studies of air pollution's health effects. Results from ARB's health research program, as well as from studies funded by the U.S. EPA, HEI and the National Institutes of Health, are the scientific basis for both national and state ambient air quality standards for particulate matter and ozone. ARB has several ongoing and recently completed contracts that further our understanding of how air pollution adversely affects health. These projects include both mechanistic studies using animal models and human panel studies that, when published, add to the body of scientific literature that the U.S. EPA considers in their review of the national ambient air quality standards. These types of publications are of value in standard reviews and help provide evidence for the basis that U.S. EPA uses to select the concentration and averaging time for the standards.

Despite decades of research progress, improved understanding of the formation and transformation of air pollutants is needed as the types and levels of air pollutant emissions change over time. And as air quality standards are tightened and emissions from California sources decline, the contributions of long-range transport of pollution from Asia and intrusion of stratospheric ozone will need to be better understood. Recognizing that these issues cannot be solved alone, ARB has collaborated with national and international agencies on a wide variety of atmospheric studies. For example, ARB and NOAA recently partnered on the 2010 CalNex study[1] to research key air quality questions, to study emissions of greenhouse gases, and to explore the nexus between air quality and climate change issues (e.g., black carbon). ARB is also partnering with NASA on two new major efforts, beginning in 2012, to use their advanced satellite and modeling capabilities to further investigate these issues.

In 2006, with the adoption of the Global Warming Solutions Act (Assembly Bill 32 or AB 32), ARB's research program expanded to include sources and potential mitigation strategies for greenhouse gases. Over the past five years, ARB has inventoried California's sources of high-global warming potential industrial gases (e.g., refrigerants,

[1] A synthesis of the CalNex results will be completed by NOAA in 2013.

insulation foam-blowing agents), partnered with the CEC and the California Department of Food and Agriculture (CDFA) on a comprehensive research program to examine N_2O emissions related to the application of fertilizer to agricultural soils, established a regional monitoring network to measure statewide emissions of CO_2, N_2O and CH_4, and deployed two mobile monitoring platforms to better understand specific sources of greenhouse gases. Beginning in 2012, ARB intends to use its existing greenhouse gas monitoring network and research tools to complement a five-year greenhouse gas monitoring project funded by NIST to investigate the sources and trends of CO_2 and CH_4 emissions in Los Angeles.

Research Needs

Despite improvements in California's air quality, ozone and particulate matter levels continue to exceed health-based air quality standards in both urban and downwind rural areas of California. While the causes of high urban ozone levels have been studied for decades, it is very complex – involving thousands of compounds that react in a nonlinear fashion – and the state of scientific knowledge is constantly evolving and improving. Continuing to improve the photochemical mechanisms and data inputs used in air quality models is a priority since these models are required to be used to demonstrate compliance with federal standards.

The sources and formation of PM2.5 has become an increasingly important research area since the first federal PM2.5 standard was set in 1997. Although NO_X and diesel PM controls have led to significant emission reductions and lower atmospheric PM2.5 levels, the organic carbon component (about 25 percent of PM2.5) is less well understood. Preliminary data from CalNex and other studies indicates that more research is needed to fully characterize organic carbon in air quality models and that organic carbon's role in climate change may be much greater than previously thought.

Proposed Projects

ARB plans to leverage a multi-million dollar commitment by NASA to study air quality in California next year with three proposed projects focused on the organic carbon fraction of PM2.5. These projects will provide essential information on emissions, atmospheric transformations, and the role of the organic carbon fraction of PM2.5 in climate change. In addition, one of the proposed projects will also provide an updated chemical mechanism for ozone formation.

- Improving Controls and Measurement Methods for Semi-Volatile Organic Compound Emissions from Light-Duty Vehicles
- Improving Chemical Mechanisms for Ozone and Secondary Organic Carbon
- Characterizing the Climate Impacts of Brown Organic Carbon

Improving Controls and Measurement Methods for Semi-Volatile Organic Compound Emissions from Light-Duty Vehicles

Objective: Results from recent research indicate that light-duty gasoline vehicles emit significant amounts of semi-volatile organic compounds that, in turn, form secondary

organic carbon in the atmosphere. The objectives of this project are to: 1) study possible control technologies to reduce semi-volatile organic compound emissions from light-duty vehicles, and 2) explore more cost-effective measurement technologies to quantify semi-volatile organic compound emissions from light-duty vehicles.

Concept: Public exposure to particulate matter air pollution is associated with adverse health effects such as asthma and premature mortality. Contributions to ambient particulate matter are caused by two sources: directly emitted particulate matter, such as vehicle tailpipe emissions, and secondary organic carbon formation in the atmosphere, from precursor emissions such as semi-volatile organic compounds. Light-duty vehicles are known to be relatively small contributors to directly emitted particulate matter, but a recent research project reveals that these same vehicles also emit semi-volatile organic compounds that result in secondary organic carbon formation. As part of this same research project, old and late model heavy-duty diesel trucks were also tested, and results show that diesel engine aftertreatment effectively controls semi-volatile organic compound emissions. These results suggest that diesel engine emissions control technologies can potentially serve as a model for possible control of semi-volatile organic compound emissions from light-duty vehicles.

In the proposed study, prototype control technologies, such as improved catalytic converters or gasoline particulate filters, will be installed on selected test vehicles and emissions testing will be conducted to determine control technology effectiveness. In addition to vehicle tailpipe emissions controls, this project will investigate the emissions impacts of changes to gasoline composition, such as increased ethanol content. Semi-volatile organic compound emissions are not routinely measured as part of the current certification procedures, but such measurements would be needed as part of a possible control program. These emissions are regularly measured during field studies of ambient aerosols, and field techniques will be studied and evaluated for incorporation into vehicle testing procedures. Results from this project will determine the technical feasibility and potential emissions reductions from control of semi-volatile organic compound emissions from light-duty vehicles, and will also determine the most accurate and cost-effective method for measuring these emissions.

Proposed level of funding: $500,000

Improving Chemical Mechanisms for Ozone and Secondary Organic Carbon

Objective: Photochemical air quality models are required to be used as part of the foundation for air quality plans and to assess the relative effectiveness of air pollution control strategies to achieve federal standards for ozone and PM2.5. This project will develop updated chemical mechanisms for predicting the formation of ozone and secondary organic carbon, and assess the reactivity of volatile organic compounds in California's airsheds. The results of this study will be used by ARB to update atmospheric chemistry in models used for air quality planning.

Concept: Photochemical mechanisms used in air quality models should represent the most up-to-date understanding of how ozone and the secondary organic carbon fraction of PM2.5 are formed and their relationships to the primary pollutants emitted from

different source categories. The SAPRC chemical mechanisms (named after the Statewide Air Pollution Research Center) have been developed or updated under ARB's sponsorship for more than 20 years and extensively used in regulatory and scientific modeling applications for ozone and PM2.5. The current version of the SAPRC gas-phase mechanisms is SAPRC-07, which represents the state of the science as of 2007. There have been significant developments in several areas that warrant an update of the chemical mechanisms, since ARB will continue the use of SAPRC for regulatory applications in California. A recently completed project added a chemical mechanism for secondary organic carbon into SAPRC-07.

The proposed research will continue development of secondary organic carbon chemical mechanisms with the goal of improving predictive models for secondary organic carbon formation from aromatics and other volatile organic compounds. This project will update model scenarios to improve estimates of the ozone-forming potential of volatile organic compounds and develop optimal condensed mechanisms for airshed models to reduce computer time without sacrificing accuracy. The researchers will also perform sensitivity analysis of organic nitrate and dinitrogen pentoxide chemistry on the formation of secondary pollutants, taking into account recent laboratory and field studies (e.g., CalNex), and conducting modeling simulations for typical summer and winter pollution episodes in California's major air basins. The results of this research will provide the ARB with improved and more up-to-date mechanisms for ozone and secondary particulate matter prediction and volatile organic compound reactivity assessment.

Proposed level of funding: $450,000

Characterizing the Climate Impacts of Brown Organic Carbon

Objective: Black carbon (the dark soot produced from combustion) absorbs light and gives off heat, and is now recognized as a significant contributor to global warming. Light-absorbing organic carbon that is not black, called brown carbon, was recently discovered to also be a potentially large contributor to global warming. The proposed research will characterize the extent to which brown carbon contributes to light absorption in California, which will help improve understanding of the contribution of brown carbon to global climate change.

Concept: A better understanding of the relative contribution of brown carbon to atmospheric warming will allow its effects to more accurately be captured in climate models. Although the optical properties of black carbon are relatively well understood, those of brown carbon are more uncertain. Research indicates that brown carbon, which is believed to consist of higher-molecular weight hydrocarbon compounds, absorbs more strongly and primarily at shorter wavelengths (i.e., blue and ultraviolet), whereas black carbon absorbs all wavelengths of solar radiation far more effectively than brown carbon and therefore has a greater warming effect, by mass. Although brown carbon absorbs less energy per unit mass than black carbon, some sources of both (such as open biomass burning) can produce substantially more brown carbon than black carbon, so the quantity of brown carbon may lead to more warming than that

caused by black carbon. Some studies indicate that brown carbon may account for as much as 20 percent of the solar radiation absorbed by the earth's atmosphere.

The combustion sources that contribute to brown carbon in the atmosphere are not well characterized, and recent studies suggest that there may be multiple pathways for its formation. To help characterize and differentiate sources of brown carbon from black carbon, the proposed research will make source-specific chemical and multi-wavelength optical measurements of particulate matter at several monitoring sites in California. The investigators will quantify chemical and optical characteristics of brown carbon sources and investigate the formation pathways for brown carbon. The results will be analyzed and the impact of brown carbon on atmospheric warming will be estimated using California data.

Proposed level of funding: $400,000

CLEAN AIR STRATEGIES

CLEAN AIR STRATEGIES

Supporting the development of clean air strategies remains a cornerstone of ARB's research program. The focus has historically been on the transportation sector where ARB has primary authority, and this research will continue, focusing on light-duty vehicles and freight transport. When AB 32 was enacted in 2006, ARB's research program expanded to include studies ranging from high-global warming potential industrial gases to voluntary strategies based on climate-friendly behavior. Research needs in other sectors (e.g., energy efficiency, renewable energy) have largely been addressed by other state agencies including the CEC and CPUC.

ARB's research efforts have led directly to some of the regulations and programs now in place to meet the 2020 greenhouse gas emission goals of AB 32. The enactment of the Sustainable Communities and Climate Protection Act of 2008 (Senate Bill 375 or SB 375) pushed ARB's research program further into new areas such as integrated land use, housing and transportation planning. Meeting long-term air quality and climate goals will require well-integrated control programs, and a transition to zero and near-zero emission technologies.

MOBILE SOURCE CONTROL STRATEGIES

Passenger travel and freight transport are major sources of both criteria and toxic air pollutants and greenhouse gas emissions in California. To meet long-term air quality and climate goals, emissions from these sectors will need to be significantly reduced beyond what is expected from already adopted regulations.

CURRENT RESEARCH

ARB has funded extensive research related to a variety of mobile source control strategies as have multiple local, state, and federal agencies. Research and development activities beginning in the 1990s led to the Low Emission Vehicle (LEV) I, II, and III (i.e., Advanced Clean Car) hydrocarbon, hydrocarbon reactivity, and NO_X emission standards for cars, and 90 percent reductions in particulate matter and NO_X emissions from new trucks. Previous and on-going research on light-duty vehicles, sponsored by ARB, U.S. EPA, NHTSA, and the U.S. Department of Energy (DOE), has examined the technical feasibility and/or cost-effectiveness of emissions reduction technologies or strategies, though largely at the vehicle (as opposed to fleet) level.

Other state and federal research has also focused on developing a better understanding of consumer vehicle purchase decisions, as well as usage of these vehicles, in order to improve models of the current and future motor vehicle fleet and emissions. Research on NO_X emissions from heavy-duty diesel engines is ongoing in Europe, at ARB and the U.S. EPA to characterize the in-use emissions from trucks employing selective catalytic reduction aftertreatment, to address questions related to in-use versus certification emission levels, and the need for certification methods appropriate for selective catalytic reduction. Rail electrification research, funded by Caltrans, LA Metro, and the Southern California Association of Governments, has focused on engineering or technical aspects while economic issues were generally noted as an area for future investigation.

Research Needs

Continued advancements in technology necessitate ongoing research to ensure that the expected emission benefits from existing and future regulatory programs are realized. The recently approved Advanced Clean Cars program requires a midterm review, coordinated with U.S. EPA and NHTSA, to evaluate whether the regulations will achieve the expected emissions reductions from the light-duty fleet.[2] To support the midterm review, additional research is needed to quantify the electricity powered miles driven by advanced technology vehicles, to understand the charging behavior of electric vehicle drivers, to develop methods for measurement of low levels of particulate matter emissions so that compliance can be reliably determined, and to quantify the emission benefits of vehicle load reduction. Research in these areas will be coordinated with U.S. EPA and NHTSA.

NO_X emissions remain a challenge to meeting health-based air quality standards. It is an important precursor for both ozone and particulate matter, and upcoming federal deadlines for ozone and fine particulate matter (PM2.5) standards cannot be met without substantial new reductions. In 2010, the heavy-duty engine emission standard for NO_X was lowered by 90 percent. Nevertheless, heavy-duty trucks will continue to be a significant contributor to overall NO_X emissions in the state, and recent ARB in-house research indicates that there is potential for further NO_X reductions.

Research is also needed to help develop effective strategies for reducing not only NO_X, but also diesel particulate and greenhouse gas emissions from the freight system. Achieving zero or near zero emissions from railroad operations in California will require advanced technologies, such as cleaner locomotive engines and fuels, but very likely also operational changes in the rail system both within California as well as nationally. These technological and operational improvements require a better understanding of economic costs, as well as potential long-term savings, so that the most cost-effective strategies can be identified.

Proposed Projects

The five research projects proposed for mobile source control strategies reflect new program needs, long-term goals, and build on the comprehensiveness of California's existing clean air strategies research program.

- Economic and Operational Considerations in Transitioning to a Zero or Near-Zero Emission Rail System in California
- Evaluating Technologies and Methods to Lower NO_X Emissions from Heavy-Duty Vehicles
- Advanced Plug-in Electric Vehicle Travel and Charging Behavior
- Technical Analysis of Vehicle Load-Reduction Potential for Advanced Clean Cars
- Improving Detection of PM Emissions for Certification of Advanced Clean Cars

[2] During the midterm review, ARB will also evaluate the possibility of accelerating the phase-in schedule of particulate matter standards and assess progress to date on the other components of the program.

Economic and Operational Considerations in Transitioning to a Zero or Near-Zero Emission Rail System in California

Objective: Meeting California's long-term air quality, public health, and climate goals will require transitioning to a zero or near-zero emissions freight transport system, including rail operations. The proposed study will examine the economic challenges and opportunities, as well as operational changes, involved in transitioning to zero or near-zero emission rail operations both in California and nationally.

Concept: ARB's recently adopted diesel regulations addressing drayage trucks, cargo handling equipment, and transport refrigeration units are significantly reducing diesel particulate matter emissions and health risk in the vicinity of California's rail yards. As a result, by 2020, more than 75 percent of remaining rail yard emissions in California is expected to come from diesel-powered line haul locomotives.

In order to further reduce health risks in communities adjacent to the rail yards while also achieving necessary criteria pollutant and greenhouse gas emissions reductions, California will need to transition to a zero or near-zero emissions locomotive fleet. This will most likely be accomplished through some combination of tighter emission standards for diesel locomotives, use of cleaner biofuels, hybridization and/or electrification of locomotives, accelerated deployment of the cleanest locomotives to California, and more efficient railroad logistics and operations. To date, studies of the technological feasibility of rail electrification have been funded by Caltrans, LA Metro, and the Southern California Association of Governments. ARB staff are continuing this technological assessment but also looking more broadly at all types of zero or near zero technologies, as well as the use of cleaner fuels.

However, the assistance of external researchers with expertise in rail economics and operations is needed for ARB staff to fully assess the feasibility of different approaches for achieving zero or near-zero rail emissions. The proposed research project will assess current railroad economics and operations, including California and the national rail system, as well as an assessment of a range of future scenarios developed with the guidance of ARB staff.

The business costs examined in this study will need to extend beyond just the cost of new locomotives and infrastructure to include other economic as well as operational issues including: 1) the potential benefits of fuel savings associated with fleet modernization and optimization of rail operations; 2) possible use of existing railroad rights-of-way to construct renewable energy (solar or wind) facilities that could be used to support rail electrification with the possibility of selling excess power to offset costs; 3) and the impacts on business operations, including potentially increased costs, associated with a California-specific locomotive fleet or additional railcars to transport batteries or other power sources. These and other issues will be more fully defined when the full scope of work for this project is developed.

Proposed level of funding: $400,000

Evaluating Technologies and Methods to Lower NO_X Emissions from Heavy-Duty Vehicles

Objective: The objective of the research is to find technologies, tuning and engine management practices that will enable heavy-duty natural gas and diesel vehicles to meet NO_X emission rates significantly lower than the 2010 emissions standard. While the purpose will be to establish the lowest emission rate possible, the goal will be to achieve at least a 90 percent reduction compared to the 2010 standard. The NO_X reductions should be achieved without an overall greenhouse gas penalty, at a minimum, and preferably with a concurrent greenhouse gas emission benefit.

Concept: The 2010 NO_X emission standard for heavy-duty engines, limiting NO_X to 0.2 grams per brake horsepower-hour, constitutes a 90 percent reduction in emissions. Nevertheless, upcoming federal air quality standards for particulate matter and ozone cannot be achieved in California without significant additional NO_X emissions reductions from the heavy-duty fleet beyond what will be achieved with a 2010 compliant fleet. The main technology employed by diesel engine manufacturers to meet the 2010 engine NO_X standard is selective catalytic reduction which reduces engine-out NO_X prior to emission at the tailpipe. In natural gas trucks, selective catalytic reduction is typically used in lean burn engines while three way catalysts are used in stoichiometric engines. These are relatively new technologies in heavy-duty truck applications and manufacturers of selective catalytic reduction, three way catalysts, and heavy-duty engines are applying the lessons learned in earlier applications, such as stationary sources and light duty vehicles, to optimize the overall systems to achieve the required NO_X reductions. However, as these methods mature, meeting NO_X emissions standards below the 2010 level should become possible in heavy-duty truck applications.

The proposed research aims to optimize the aftertreatment technology choice, aftertreatment configuration, urea dosing strategies, and engine tuning to maximize NO_X emissions reductions beyond levels needed to meet the existing standard in the following three heavy-duty applications:

1. Heavy duty diesel vehicles with selective catalytic reduction
2. Lean burn natural gas with selective catalytic reduction
3. Stoichiometric natural gas with three way catalysts

In the proposed study, the level of emissions reduction possible will be established through testing on an engine dynamometer test bench. Results of this research will be helpful in developing tighter NO_X emissions standards for heavy-duty engines that will be needed if California is to meet more stringent federal air quality standards.

Possible co-funding: Co-funding for this project is will be sought from U.S. EPA, the South Coast Air Quality Management District, and the Manufacturers of Engine Control Association. Without co-funding the project will likely have to be scaled back and prioritized to reduce the overall cost.

Proposed level of funding: $2,000,000

Advanced Plug-in Electric Vehicle Travel and Charging Behavior

Objective: Electric-drive vehicles are expected to account for an increasingly large share of new light-duty vehicle sales as the Advanced Clean Cars program is implemented. However, the actual air quality benefits associated with turnover to these vehicles could vary depending on individual consumer usage and charging behavior. The objective of this research project is to collect and analyze longitudinal, in-use vehicle data, including electric vehicle miles traveled, that will improve criteria and greenhouse gas emission estimates of individual vehicles types as well as the on-road fleet as a whole.

Concept: Emissions benefits from plug-in electric vehicles will depend on real-world driving conditions and how many miles these vehicles are driven using on-board power sources. How consumers will use and charge vehicles is not well understood, especially given the diversity of expected vehicle designs and electric driving ranges.

Research by the Plug-in Hybrid Electric Vehicle Center at the University of California (UC) at Davis has evaluated usage and charging behavior of a small sample of blended plug-in hybrid electric conversions based on longitudinal instrumented vehicle data and household interviews. In another study, the CEC will collect on-board vehicle information from approximately 250 owners of Chevrolet Volt and Nissan Leaf vehicles in California for a one-week period. The results of the CEC study will be used to evaluate how energy usage differs between these two vehicle models as well as compared to other conventional vehicles in the study households. Both the UC Davis and CEC research studies are expected to provide useful, practical experience for collecting and analyzing vehicle operation, usage, and charging data, but these studies alone will not be sufficient to draw robust conclusions on the variation between vehicle types. Additionally, DOE is collecting usage data from thousands of plug-in hybrid electric and full battery electric vehicles placed throughout the country which may provide comparative results.

In the proposed ARB study, the investigators will analyze manufacturer submitted vehicle data for different vehicle types to estimate the share of a vehicle's miles traveled that emits zero tailpipe emissions. To supplement this analysis, the researchers will also recruit a stratified sample of plug-in electric vehicle-owning households and instrument all vehicles within the household to evaluate the emissions profile of total household vehicle miles traveled and charging behavior. The results of this study will be used to refine estimates of the emissions benefit of different designs of plug-in electric vehicles (plug-in hybrids, range extended battery electrics, and full battery electric vehicles). The travel pattern and charging behavior findings will help improve emissions inventory models, especially for advanced vehicles, and also inform estimates for electricity demand and grid management as well as siting of new public charging infrastructure.

Proposed level of funding: $650,000

Technical Analysis of Vehicle Load-Reduction Potential for Advanced Clean Cars

Objective: To meet stringent new vehicle emission standards, manufacturers are expected to consider additional vehicle load-reduction strategies such as improved aerodynamics, reduced tire rolling resistance, or mass optimization. The objective of this research project is to understand the maximum potential usage of these types of strategies by vehicle manufacturers assuming that all model year 2025 vehicles adopt today's best-in-class load-reduction technologies.

Concept: The Advanced Clean Cars program requires the new vehicle fleet to meet increasingly lower fleet average greenhouse gas emission standards. Greater penetration of load-reduction technologies, such as improved aerodynamic designs, low rolling resistance tires, and mass optimization, is likely to be a core component of auto manufacturers' strategies for complying with the tighter greenhouse gas emission standards. Previous ARB-sponsored research by Lotus Engineering showed that it is feasible to reduce vehicle mass by over 30 percent without compromising passenger safety. Joint modeling efforts by ARB and U.S. EPA for light-duty vehicle greenhouse gas emission standards found it feasible and cost-effective to achieve an additional 20 percent reduction in vehicle mass, tire rolling resistance, and aerodynamic drag. The annual U.S. EPA model-by-model fuel economy and CO_2 emission certification data provides the fundamental physical parameters (i.e., road load coefficients) to analyze the extent to which load-reduction technologies are employed in currently available vehicles.

The proposed research project will analyze U.S. EPA certification data for 2012 and later model year vehicles to identify those vehicle model configurations with the best aerodynamic, tire rolling resistance, and mass optimization characteristics. Controlling for powertrain size, vehicle size, body style, and other vehicle attributes, the researchers will conduct a statistical analysis to quantify the potential of the leading emerging load-reduction technologies to achieve greenhouse gas reductions if deployed across all vehicle models in the expected 2020 to 2025 vehicle fleet. The researchers will also quantitatively assess the ability for the emerging load reduction strategies, if comprehensively deployed, to have ancillary cost benefits in terms of downsized powertrains for all vehicles and reduced energy storage (for hybrid, plug-in electric, and hydrogen fuel cell vehicles). The results of this project would help assess the technical feasibility and associated costs for advanced technology vehicles of all types as part of the midterm evaluation of the Advanced Clean Cars program.

Proposed level of funding: $150,000

Improving Detection of PM Emissions for Certification of Advanced Clean Cars

Objective: The ARB recently adopted lower tailpipe particulate matter standards for light-duty vehicles as part of the Advanced Clean Cars regulations (LEV III). The objective of this research project is to investigate possible modifications to improve the current gravimetric filter particulate matter measurement methods in light of these new standards.

Concept: The lowering of the light-duty vehicle particulate matter emissions standards, first to 3 milligrams per mile, and then to 1 milligram per mile, present measurement challenges using existing measurement methods. ARB in-house analysis indicates that particulate matter measurements at these low levels are feasible, but research is needed to confirm that these measurements are repeatable under standard certification testing conditions.

The CRC recently released a request for proposals for a research project to develop reproducible and acceptable test methods for measuring very low concentrations of particulate matter in vehicle exhaust (3 milligrams per mile), and to investigate possible methods to improve the repeatability of the current gravimetric particulate matter measurements procedures specified in the Code of Federal Regulations, Part 1066, including changes to emissions sample dilution, combining different phases of the test cycle on a single filter, changing filter face velocity, and other laboratory test methods and procedures. This project augments the CRC project, with the goal of achieving repeatable emissions measurements down to 1 milligram per mile. This research will improve existing measurement methods, thus addressing many of the questions regarding the feasibility of the lower particulate matter emissions standards for light-duty vehicles.

Proposed level of funding: $75,000

TRANSPORTATION, LAND USE, AND COMMUNITY DESIGN STRATEGIES

State law (SB 375) encourages California transportation and land use agencies to consider greenhouse gas impacts of their planning processes. Each of California's metropolitan planning organizations (MPOs) is required to develop a sustainable communities strategy that demonstrates how they will meet regional greenhouse gas reduction targets set by ARB, or to do a plan showing what it would take to meet the targets. Three major MPOs in California have completed their first sustainable communities strategies that meet ARB targets and others are in progress. The strategy for the largest MPO, the Southern California Association of Governments, relies significantly on more compact transit oriented development to achieve reductions in per capita greenhouse gases and to reduce smog forming emissions. Other urban MPOs are also planning for enhanced transit oriented development.

CURRENT RESEARCH

The ARB and other agencies are conducting research on the built environment, focusing on land use, transportation, community design, and energy efficiency. This includes exploring factors like economic and behavior patterns, and looking at the impact of built environment systems on energy use, human health, and the environment. CEC is funding several projects at UCLA to study transit infrastructure and the impact of land use on energy systems. The Center for Resource Efficient Communities at UC Berkeley has produced white papers on a range of topics, including barriers to complete street design, factors affecting the success of SB 375, and future research priorities. The Urban Land Use and Transportation Center at the UC Davis Institute of Transportation Studies continues to develop statewide land use, transportation, and economic models to aid planning efforts. The Urban Land Use and

Transportation Center is also conducting a variety of studies to advance policy design and behavior research, including research on building occupant behavior strategies to increase energy efficiency and understanding the effects of policies on travel behavior and vehicle miles traveled.

Ongoing ARB-funded research aims to improve vehicle miles traveled and greenhouse gas emission reduction estimates, determine the role of land use planning in reducing residential energy consumption, quantify greenhouse gas and criteria air pollutant emissions reductions associated with commercial green buildings, investigate the effects of complete streets on travel behavior, vehicle miles traveled, and public health, explore the economic costs and benefits of smart growth strategies, and quantify the effect of local government actions on reducing vehicle miles traveled.

RESEARCH NEEDS

As transportation, land use, and community design strategies are implemented, there are opportunities to assess the benefits and the potential for any unintended adverse impacts. Research is needed to evaluate the impact of light rail transit on choice of travel mode, including active transport such as walking and bicycling, as well as to assess whether increased exposure to traffic emissions might result. Pavement materials that absorb less of the sun's energy reduce urban heat islands, slow smog formation, reduce building energy use, and cool the Earth's atmosphere. Encouraging large-scale adoption of these cool pavement materials will require quantitative information on pavement performance and air quality impacts to assist decision makers in local transportation and planning agencies considering construction of new roadways and parking lots.

PROPOSED PROJECTS

The four proposed address a variety of research issues related to urban design and transportation strategies.

- Identifying Urban Designs and Traffic Management Strategies that Reduce Air Pollution Exposure
- Evaluating Benefits for New Light Rail Transit Lines
- Life Cycle Assessment and Co-Benefits of Cool Pavements

Identifying Urban Designs and Traffic Management Strategies that Reduce Air Pollution Exposure

Objective: As more compact transit-oriented development occurs, it is important to assess the potential for unintended effects such as increased pedestrian and resident air pollution exposure, and to prevent or mitigate such effects to the extent possible. This project will improve the understanding of near-roadway exposures for a range of California urban landscapes and identify potential mitigation strategies to reduce air pollution exposures.

Concept: As communities include more higher density, transit-oriented development, research is needed to better understand street-level exposure and the potential for

urban designs and traffic management strategies to prevent or mitigate these exposures.

The street-level exposure studies that have been conducted lack the spatial resolution and focus on freshly emitted pollutants necessary to refine and validate dispersion models for urban landscapes in California. Previous studies that have focused on deep street canyons do not appropriately capture the lower, more variable and widely-spaced building stock typical of California. Also, there are no known tools to help urban and transportation planners incorporate pedestrian pollution exposure into transit-oriented development planning.

Using Los Angeles as a case study, this project will further refine an existing model that can be used, along with air pollutant and meteorological data collected as part of this study, to estimate California-specific air pollution exposures of pedestrians and residents living and traveling along transportation corridors with many bus stops. The collected data and model will also be used to quantify the effects of community design and traffic management choices on air pollution exposures, which will help inform design of future transit micro-environments in California. This project will help regional and transportation planners minimize pedestrian roadway pollution exposure as SB 375 is implemented.

Proposed level of funding: $375,000

Evaluating Benefits for New Light Rail Transit Lines

Objective: This research will advance the understanding of the impact of light rail on travel behavior. Opened in April 2012, the new Expo Line light rail in Los Angeles provides a unique opportunity to examine how light rail transit impacts travel behavior in California. The findings can be used to improve travel demand forecasting models used by metropolitan planning organizations in the SB 375 planning process. This study will expand the currently limited body of knowledge on the impacts of transportation infrastructure on walking and bicycling.

Concept: The regional travel demand forecasting models used by metropolitan planning organizations in the SB 375 planning process are limited in their ability to accurately evaluate smaller-scale smart growth and transit projects. The existing models are largely based on regional averages from cross-sectional travel surveys, and do not fully capture the local impact of land use and transportation strategies on travel behavior. Although the sustainable communities strategies developed under SB 375 have the potential to encourage active transport modes such as walking and bicycling, quantification of these effects is limited.

The proposed research study will build upon an existing study that assessed the travel modes of approximately 250 households in the vicinity of the planned Expo light rail line in Los Angeles. This existing study collected travel data including trip logs, odometer readings, and, for half of the households, GPS locations and measurements of physical activity for a seven-day period prior to the Expo Line being completed. The proposed project will collect similar data for the same 250 households now that the Expo Line is

operating to assess how access to this new mode of transit has affected the distribution of travel by mode choice. Results of this study are expected to help local governments and planning agencies better account for reductions in vehicle miles traveled and changes in other transportation mode choices related to construction of light rail infrastructure.

Proposed level of funding: $200,000

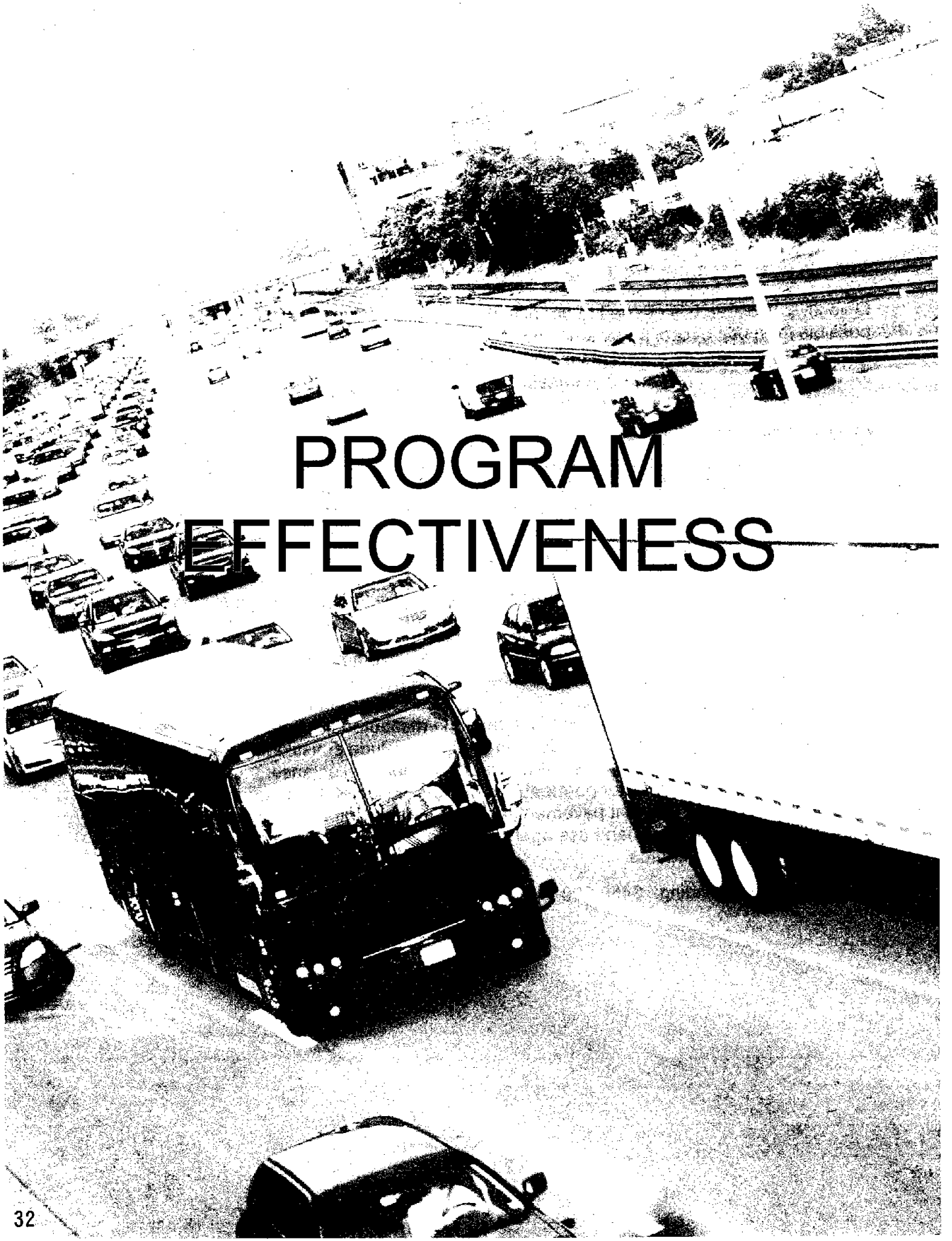
Life Cycle Assessment and Co-Benefits of Cool Pavements

Objective: Research is needed to quantify the potential air quality and climate benefits possible from use of cool pavements in California. The objective of the proposed research is to measure emissions of air pollutants and conduct life cycle assessments for different types of pavement materials commonly used in California, including asphalt and concrete, as well as new cool pavement technologies that are being considered.

Concept: Over 80 percent of pavements in California are various forms of asphalt. Asphalt, with one third the aged reflectance of concrete, warms local and regional climate, accentuating urban heat islands and associated population heat stress. In addition, asphalt is softer than concrete and has higher rolling resistance which leads to tire wear, reduced fuel economy, and higher greenhouse gas and criteria pollutant emissions from vehicles. In 2011, the ARB, CEC, and DOE funded Lawrence Berkeley National Laboratory to test a variety of cool pavements. This work, which is underway, will compare the temperatures, heat fluxes, and solar reflectance of four cool pavement technologies with those of two conventional technologies.

The proposed research project will build upon current pavement research by quantifying criteria pollutant and toxic emissions for different pavement technologies already being tested. The researchers will conduct life cycle analysis for greenhouse gases using input data collected from paving manufacturers and measured from several cool pavement demonstrations. These measurements will include emissions data; surface, air, and mean radiant temperatures; heat conduction; solar reflectance; and possibly ultraviolet reflectance and water permeability. Quantification of the air quality and life cycle impacts of these different pavement materials will provide information for state and local transportation and land use agencies to consider in the process of setting or revising pavement standards.

Proposed level of funding: $450,000



PROGRAM EFFECTIVENESS

PROGRAM EFFECTIVENESS

ARB regulations reduce atmospheric levels of pollutants that are harmful to human health and contribute to climate change. In designing and assessing regulatory programs, ARB considers their effectiveness in reducing emissions of ozone and PM2.5 precursors, toxic air contaminants, and greenhouse gases.

CURRENT RESEARCH

The ARB has a long history of conducting and sponsoring research to assess the air quality benefits of regulatory programs. Remote sensing and tunnel studies of on-road vehicles have been conducted in the state for over two decades to measure the air quality improvements associated with increasingly stringent criteria pollutant emissions standards. These studies have been instrumental in refining emissions inventories and models used in development of regulations designed to attain federal air quality standards and reduce near-source exposure to toxic pollutants. More recently, ARB performed community monitoring to demonstrate the emission reductions and air quality improvement resulting from regulations to retrofit or replace diesel trucks with cleaner technologies.

RESEARCH NEEDS

Much of the current assessment of program effectiveness is focused on diesel vehicles and passenger cars. ARB's Truck and Bus Rule requires almost all heavy-duty diesel vehicles operating in California to be equipped with diesel particulate filters by 2014, and the 2010 heavy-duty engine emissions standard for NO_X will result in the use of selective catalytic reduction in most late model heavy-duty diesel vehicles. How well these aftertreatment controls perform in the real world and over time needs to be evaluated. In the light-duty sector, the LEV I emissions standards took effect in 1994 followed by the LEV II emissions standards in 2004. Remote sensing studies and tunnel studies have characterized the exhaust from vehicles subject to these emissions standards over time, but a new study is needed to continue extending the historical record, especially as vehicles older than the LEV program begin to exit the fleet in significant numbers.

PROPOSED PROJECTS

ARB proposes funding two projects to assess emissions from cars and trucks operating on California's roads. Results from these projects will improve the understanding of the emissions reductions that have occurred in response to recent ARB regulations and will also help to assess the durability of current emission control technologies.

- Measuring Real-World Emissions from the On-Road Heavy-Duty Truck Fleet
- Measuring Real-World Emissions from the On-Road Passenger Car Fleet

Measuring Real-World Emissions from the On-Road Heavy-Duty Truck Fleet

Objective: To assess the air quality benefits of ARB's heavy-duty diesel standards, on-road measurements will be performed to measure changes in particulate matter, NO_X, and other emissions resulting from fleet turnover to cleaner vehicles.

Concept: The ARB Truck and Bus Rule is leading to the introduction of exhaust aftertreatment devices to reduce particulate matter (0.01 grams per brake horsepower-hour) and NO_X (0.2 grams per brake horsepower-hour) emissions so that, by 2023, all the heavy-duty diesel engines operating on California roadways will meet the 2010 heavy-duty engine standard. These particulate matter and NO_X emissions reductions are far greater than those associated with normal fleet turnover, and on-road measurements will help assess actual emissions changes over time for the regulated pollutants, as well as for ultrafine particles, ammonia, and the NO_2/NO_X ratio.

ARB-funded studies being conducted near the Port of Oakland are demonstrating significant emission reductions occurring in the port truck fleet due to implementation of ARB's Drayage Truck Rule. The proposed research will build upon these measurement programs by measuring emissions from the broader on-road truck fleet at three stages of implementation of ARB's statewide Truck and Bus Rule: (i) mid-2013, when a significant fraction of the fleet will have diesel particulate filters; (ii) mid-2015, when pre-1994 engines are replaced with 2010 engines; and (iii) mid-2016, when pre-1996 engines are replaced with 2010 engines, and by which time a significant portion of the fleet will have 2010 engines.

The proposed study will complement an ARB funded heavy-duty truck study that will begin simultaneously in the Los Angeles basin to perform on-road measurements in 2013, 2015, and 2017. The proposed research will measure emissions in Northern California at the Caldecott tunnel, where an uphill grade will ensure that the trucks operating under load have elevated exhaust temperatures to make aftertreatment systems functional (i.e., urea injection is active). In each of the three sampling campaigns, measurements will be performed to quantify pollutant emission rates individually from at least 1000 trucks. The measurements include nitric oxide, nitrogen dioxide, ammonia, nitrous oxide, isocyanic acid, carbon monoxide, and particle mass and size distribution. The results of this study will be used quantify the benefits of the Truck and Bus Rule over time.

Proposed level of funding: $450,000

Measuring Real-World Emissions from the On-Road Passenger Car Fleet

Objective: Measurements of vehicle exhaust made by remote sensing devices deployed at roadsides have proven very successful at showing that motor vehicle emissions in California have been steadily decreasing in response to ARB regulations. This proposed study will monitor emission trends by vehicle model and age in the light-duty on-road fleet, and explore measurement of running loss evaporative emissions.

Concept: Remote sensing device data will allow characterization of the relative importance of high-emitters to fleet average emissions, and will help evaluate the effectiveness of the LEV II program in maintaining low emissions from vehicles throughout their useful life. Remote sensing studies conducted in California since 1999 have shown a steady reduction in tailpipe emissions of hydrocarbons, carbon monoxide, and NO_X from the light-duty on-road fleet.

The proposed study will extend the measurement record to 2015. Previous studies at the on-ramp from La Brea Boulevard to Interstate 10 in Los Angeles began in 1999 and were repeated about every two years until 2005. In 2008, technology was added to include measurements of ammonia, nitrogen dioxide, and sulfur dioxide emissions. The proposed research will continue to measure emissions from vehicles at the La Brea Boulevard on-ramp location in the spring of 2013 and 2015, thereby extending the record collected since 1999, and helping establish trends for ammonia and nitrogen dioxide emissions from 2008 onward.

The project will also explore the potential of remote sensing devices for measurement of on-road evaporative hydrocarbon emissions from the light-duty on-road fleet, by estimating total hydrocarbons with modified software algorithms. This project will enable ARB to continue to observe emission trends for hydrocarbons, carbon monoxide, and NO_X, and investigate trends for nitrogen dioxide and ammonia as vehicles that meet the 2004 LEV II standard replace higher emitting vehicles in the fleet.

Proposed level of funding: $75,000

NEXT STEPS

The 14 research projects proposed in this plan address key knowledge gaps and will strengthen the scientific foundation of air pollution and climate control programs, help develop future clean air regulations and programs, and measure the effectiveness of ARB's programs. Following Board action on the plan, staff will proceed to work with researchers to develop these research projects into complete proposals to be reviewed by ARB's Research Screening Committee and then brought to the Board for final funding approval. Results are anticipated in three to five years.

CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC MEETING TO CONSIDER THE APPROVAL OF THE PROPOSED ASSEMBLY BILL 118 AIR QUALITY IMPROVEMENT PROGRAM FUNDING PLAN FOR FISCAL YEAR 2012-13

The Air Resources Board (ARB or Board) will conduct a public meeting at the time and place noted below to consider approval of the *Proposed Assembly Bill 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2012-13* (Fiscal Year 2012-13 Funding Plan).

DATE: June 28, 2012

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item will be considered at a one-day meeting of the Board, which will commence at 9:00 a.m., June 28, 2012. Please consult the agenda for the meeting, which will be available at least ten days before June 28, 2012, to determine the order of agenda items.

Background:

The Air Quality Improvement Program (AQIP) is a voluntary incentive program created under the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (Assembly Bill 118, Statutes of 2007). AQIP provides funding through 2015 for clean vehicle and equipment projects that reduce criteria pollutant and air toxics emissions often with concurrent climate change benefits. AQIP expands ARB's portfolio of air quality incentives, providing the opportunity to fund projects not covered by other incentive programs which focus on near-term emission reductions. AQIP is ARB's only incentive program structured to enable investments in technology advancing projects that also provide immediate emission reductions.

AQIP investments to date support the deployment of hybrid and zero-emission trucks, advanced clean cars, and other advanced technologies critical to meeting California's long-term air quality and climate change goals. These investments are an important first step in the fundamental transformation of the California vehicle fleet to one with widespread use of zero- and near-zero emission vehicles.

The Governor's proposed Fiscal Year 2012-13 State Budget provides $40 million for AQIP projects. ARB's regulatory guidelines governing implementation of AQIP require that the Board approve an annual Funding Plan describing how AQIP funds appropriated to ARB in the State Budget will be spent. The proposed Fiscal Year 2012-13 Funding Plan outlines: (1) ARB priorities for the funding cycle; (2) funding allocations by project category; (3) project category descriptions, including refinements based on public input and evaluation of previous years' project implementation; and (4) contingency provisions to address uncertainties in available funding levels.

Description of Fiscal Year 2012-13 Funding Plan:

For Fiscal Year 2012-13 funding cycle, ARB staff proposes to focus most AQIP funding on the two largest project categories from previous years – the Clean Vehicle Rebate Project, which provides consumer rebates for zero-emission and plug-in hybrid passenger cars, and the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project, which targets commercial vehicles. In developing AQIP, ARB staff envisioned that these project categories would receive funding for multiple years. While we are seeing strong demand for funding in the Clean Vehicle Rebate Project, demand for vouchers in the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project has slowed over the past year. However, hybrid and electric truck technologies are at a key point where continued public incentives can help them penetrate the California marketplace and become mainstream choices.

Staff also proposes to continue a small allocation for advanced technology demonstrations. These are an important part of AQIP because successful demonstration projects can potentially lead to new deployment project opportunities.

Table 1 presents ARB staff's proposed Fiscal Year 2012-13 project category allocations along with the estimated number of vehicles that these funding levels would support. The Table shows 2 separate funding levels to manage uncertainty regarding available funding. The $40 million level reflects the funding for AQIP projects in the Governor's proposed State Budget. The $27 million level is a conservative estimate of total funding based on AQIP revenues over the past 3 years which have been 25-30 percent lower than the appropriated amount. ARB staff proposes to initially issue solicitations for the lower funding targets shown in Table 1 with provisions to scale up funding if revenues are higher or additional funding becomes available. The contingency provisions to address this uncertainty are described in greater detail in the Funding Plan.

Table 1: Proposed Fiscal Year 2012-13 Project Category Funding Levels

Project Category	$27 Million Plan Based on Recent Revenues		$40 Million Plan[1] Revised Budget Appropriation	
	Proposed Allocation	Vehicles Funded	Proposed Allocation	Vehicles Funded
Clean Vehicle Rebate Project[2]	$15 M	7,700	$21 M	10,700
Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project	$10 M	350	$14 M	500
Advanced Technology Demonstration/Testing	$2 M	N/A	$5 M	N/A

1- Based on Governor's revised State Budget of $43 million minus estimated administrative costs.
2- An additional $3 million from fiscal year 2008-09 is being reallocated to the Clean Vehicle Rebate Project.

ARB staff proposes continuing its large investment in the Clean Vehicle Rebate Project at the same level as last year. In addition, $3 million from fiscal year 2008-09 is being reallocated to the Clean Vehicle Rebate Project. In the past several months, there has been a substantial increase in the number and diversity of zero-emission vehicles and plug-in hybrids offered for sale in California, and this trend is expected to continue. Even with this large investment, ARB expects that the proposed funding will only provide rebates for about half of the vehicles sold.

The $10 million proposed for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project would provide funding for about 350 new hybrid and zero-emission trucks and buses that staff believes, when combined with previous years' funding, will adequately support the continuing deployment of hybrid and zero-emission technology into the California fleet in Fiscal Year 2012-13. Several refinements to the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project are proposed with the goals of boosting demand and encouraging additional fleets to purchase hybrid and zero-emission trucks. Staff also proposes a $2 million allocation to continue funding for advanced technology demonstrations.

AVAILABILITY OF DOCUMENTS AND AGENCY CONTACT PERSONS

ARB staff will present the *Proposed AB 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2012-13* at the meeting. Copies of the report may be obtained from ARB's Public Information Office, 1001 I Street, First Floor, Environmental Services Center, Sacramento, California, 95814, (916) 322-2990 at least 30 days prior to the scheduled meeting on June 28, 2012. The report may also be obtained from ARB's website at http://www.arb.ca.gov/msprog/aqip/aqip.htm .

SUBMITTAL OF COMMENTS

Interested members of the public may present comments verbally or in writing at the meeting and may be submitted by postal mail or by electronic submittal before the meeting. To be considered by the Board, written comments not physically submitted at the meeting must be received **no later than 12:00 noon, June 27, 2012, before meeting begins,** and addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

You can sign up online in advance to speak at the Board meeting when you submit an electronic board item comment. For more information go to: http://www.arb.ca.gov/board/online-signup.htm.

Please note that under the California Public Records Act (Government Code section 6250 et seq.), your written and verbal comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

ARB requests that written and email statements on this item be filed at least 10 days prior to the meeting so that ARB staff and Board members have additional time to consider each comment. Further inquiries regarding this matter should be directed to Ms. Johanna Levine, Air Pollution Specialist, at (916) 324-6971, or Ms. Graciela Garcia, Air Pollution Specialist, at (916) 323-2781.

SPECIAL ACCOMMODATION REQUEST

Special accommodation or language needs can be provided for any of the following:

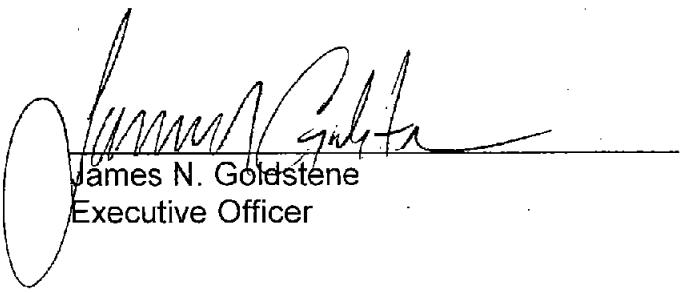
An interpreter to be available at the hearing;
Documents made available in an alternate format or another language;
A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at 916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing.
TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Comodidad especial o necesidad de otro idioma puede ser proveído para alguna de las siguientes:
Un intérprete que esté disponible en la audiencia.
Documentos disponibles en un formato alterno u otro idioma.
Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

CALIFORNIA AIR RESOURCES BOARD



James N. Goldstene
Executive Officer

Date: May 29, 2012

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.arb.ca.gov.

California Environmental Protection Agency

Air Resources Board

ASSEMBLY BILL 118 AIR QUALITY IMPROVEMENT PROGRAM FUNDING PLAN FOR FISCAL YEAR 2012-13

Release Date: **May 29, 2012**
Board Consideration: **June 28, 2012**

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Executive Summary

The Air Quality Improvement Program (AQIP) is a voluntary incentive program created under the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (Assembly Bill 118; Núñez, Chapter 720, Statutes of 2007). AQIP provides funding through 2015 for clean vehicle and equipment projects that reduce criteria pollutant and air toxic emissions, often with concurrent climate change benefits.

AQIP expands the Air Resources Board's (ARB or Board) portfolio of air quality incentives, providing the opportunity to fund projects not covered by other incentive programs that focus on near-term emission reductions. AQIP is ARB's only incentive program structured to enable investments in technology advancing projects that also provide immediate emission reductions.

AQIP investments to date support the deployment of hybrid and zero-emission trucks, zero-emission and plug-in hybrid passenger cars, and other advanced technologies critical to meeting California's long-term air quality and climate change goals. These investments are an important first step in the fundamental transformation of the California vehicle fleet to one with widespread use of zero- and near-zero emission vehicles. ARB staff proposes continuing these investments in the 2012 funding cycle. AQIP projects are working as envisioned, and their streamlined design has made them accessible to consumers. Staff is proposing several refinements aimed at encouraging broader program participation, boosting demand for heavy-duty hybrid and zero-emission trucks, and managing uncertainty surrounding ARB's limited funding for light-duty vehicles.

The Governor's proposed Fiscal Year 2012-13 State Budget provides $40 million for AQIP projects. ARB's regulatory guidelines governing implementation of AQIP require that the Board approve an annual Funding Plan describing how AQIP funds will be spent each fiscal year. The *Proposed Assembly Bill 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2012-13* (Funding Plan) outlines: (1) ARB priorities for the funding cycle; (2) funding allocations by project category; (3) project category descriptions, including refinements based on public input and evaluation of previous years' project implementation; and (4) contingency provisions to address uncertainties in available funding levels.

Summary of the Fiscal Year 2012-13 Funding Proposal

For the fiscal year 2012-13 funding cycle, ARB staff proposes to focus most AQIP funding on the two largest project categories from previous years – the Clean Vehicle Rebate Project, which provides consumer rebates for zero-emission and plug-in hybrid passenger cars, and the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project, which targets commercial vehicle applications. In developing AQIP, ARB staff envisioned that these project categories would receive funding for multiple years. While we are seeing strong demand for funding in the Clean Vehicle Rebate Project, demand

for vouchers in the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project has slowed over the past year. However, hybrid and electric truck technologies are at a key point where continued public incentives can help them penetrate the California marketplace and become mainstream choices.

Staff also proposes to continue a small allocation for advanced technology demonstrations. These are an important part of AQIP because successful demonstration projects can potentially lead to new deployment project opportunities.

Table ES-1 presents ARB staff's proposed fiscal year 2012-13 project category allocations along with the estimated number of vehicles that these funding levels would support. Table ES-1 shows 2 separate funding levels to manage uncertainty regarding available funding. The $40 million level reflects the funding level for AQIP projects in the Governor's proposed State Budget. The $27 million level is a conservative estimate of total funding based on AQIP revenues over the past 3 years, which have been 25-30 percent lower than the appropriated amount. ARB staff proposes to initially issue solicitations for the lower funding levels with provisions to scale up funding if revenues are higher or additional funding becomes available. The Funding Plan includes contingency provisions to address this and other elements of uncertainty.

Table ES-1: Proposed Fiscal Year 2012-13 Project Category Funding Levels

Project Category	**$27 Million Plan** Based on Recent Revenues		**$40 Million Plan**[1] Revised Budget Appropriation	
	Proposed Allocation	Potential Vehicles	Proposed Allocation	Potential Vehicles
Clean Vehicle Rebate Project[2]	$15 M	7,700	$21 M	10,700
Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project	$10 M	350	$14 M	500
Advanced Technology Demonstration/Testing	$2 M	N/A	$5 M	N/A

1- Based on Governor's revised State Budget of $43 million minus estimated administrative costs.
2- An additional $3 million from fiscal year 2008-09 is being reallocated to the Clean Vehicle Rebate Project.

ARB staff proposes continuing its large investment in the Clean Vehicle Rebate Project at the same level as last year. In addition, $3 million from fiscal year 2008-09 is being reallocated to the Clean Vehicle Rebate Project. In the past year, there has been a substantial increase in the number and diversity of zero-emission and plug-in hybrid vehicles offered for sale in California, and this trend is expected to continue. Even with this large investment, staff expects that the proposed funding will only provide rebates for about half of the vehicles sold.

The $10 million proposed for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project would provide funding for about 350 new hybrid and zero-emission trucks and buses that staff expects, when combined with previous years' funding, will adequately support the continuing deployment of hybrid and zero-emission technology into the California truck fleet in fiscal year 2012-13. Several refinements to the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project are proposed with the goals of boosting demand and encouraging additional fleets to purchase hybrid and zero-emission trucks.

Staff also proposes a $2 million allocation to continue funding for advanced technology demonstrations. Proposed demonstration project priorities include zero-emission off-road equipment and zero-emission transit vehicles.

Recommendation

Staff recommends that the Board approve the proposed Funding Plan which builds on the success of the first three years of AQIP.

I. Introduction

The Air Quality Improvement Program (AQIP) is a voluntary incentive program created under the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007* (Assembly Bill 118). AQIP provides funding for clean vehicle and equipment projects that reduce criteria pollutant and air toxic emissions, often with concurrent climate change benefits. AQIP expands the Air Resources Board's (ARB or Board) portfolio of air quality incentives, providing the opportunity to fund projects not covered by other incentive programs that focus on near-term emission reductions.

AQIP is ARB's only incentive program structured to allow for investments in technology advancing projects. AQIP investments to date support the deployment of hybrid-electric vehicles, zero-emission vehicles (ZEV), and other advanced technologies that are critical to meet California's post-2020 air quality and climate change goals.

The Governor's proposed Fiscal Year 2012-13 State Budget allocates about $40 million for AQIP projects, although historical revenues have been closer to $30 million per year. ARB's regulatory guidelines governing implementation of AQIP require that the Board approve an annual Funding Plan describing how AQIP funds will be spent each fiscal year prior to spending ARB's annual appropriation. This *Proposed Assembly Bill 118 Air Quality Improvement Program Funding Plan for Fiscal Year 2012-13* (Funding Plan) outlines: (1) ARB priorities for the funding cycle; (2) funding allocations by project category; (3) project category descriptions, including refinements based on public input and evaluation of previous years' project implementation; and (4) contingency provisions to address uncertainties in available funding levels. In addition, the Funding Plan provides an overview and summary statistics on the implementation of the first 3 years of AQIP.

The remainder of this introductory chapter provides background on AQIP. The next chapter contains a summary of the fiscal year 2012-13 funding proposal, descriptions of the project categories and contingency provisions. The Funding Plan appendices include a status report on ARB's previously funded Assembly Bill 118 projects and a discussion on the deployment challenges for hybrid vehicles.

A. Implementation of AQIP

Program Purpose

AQIP provides funding through 2015 for clean vehicle and equipment projects. As with other ARB incentive programs, statute requires that emission benefits from AQIP be surplus to what is already required by local, state and federal regulation. Assembly Bill 118 allows for a range of eligible AQIP project categories, which can be divided into 3 general project types:

- *Commercial Deployment*: These projects include the next generation of advanced technology vehicles and equipment just reaching commercialization. Consumer incentives are needed because these products generally cost more than their traditionally powered (e.g., gas or diesel) counterparts, which can be a significant barrier to their purchase. Incentives will accelerate consumer acceptance and have the immediate benefit of reducing criteria pollutants, air toxics, and greenhouse gas emissions. Incentives help drive economies of scale by reducing production and sales costs as volume increases, and accelerating technology transfer to other sectors. Most AQIP funding awarded to date has been directed to commercial deployment projects.

- *Advanced Technology Demonstration:* ARB's goal in funding demonstration projects is to help demonstrate the viability of new, cleaner technology. AQIP funds are used to accelerate advanced technology vehicles, equipment or emission controls which are on the cusp of commercialization. The demonstration projects funded now could become deployment projects several years from now if the technology proves successful. ARB has included an allocation for advanced technology demonstration projects in each AQIP Funding Plan.

- *Research and Workforce Training*: Statute allows AQIP to fund research on the air quality impacts of alternative fuels, research to increase biofuel production, and workforce training related to advanced technologies. These project types provide the information and training necessary to develop the advanced fuels and vehicles most effective in reducing air pollution. To date, ARB has not directed AQIP funding to research and workforce training categories because there are already large investments being made by other agencies. For example, the California Energy Commission (Energy Commission) has already directed $22.3 million to advanced technology work force training projects through its Assembly Bill 118 program and has allocated an additional $2.5 million investment in the upcoming funding cycle. In addition, the Energy Commission has directed $88.7 million for alternative fuel production with an additional allocation of $20 million in the upcoming funding cycle. The Energy Commission has also allocated $14.3 million for Emerging Opportunities that may include research on advanced fuels and innovative technologies. Accordingly, ARB staff again proposes deferring AQIP funding for these project categories.

Revenue Sources

Funding for AQIP comes primarily from the Smog Abatement Fee which is assessed annually for a vehicle's first 6 registration years in lieu of providing a biennial smog certification. Of the $20 collected for each vehicle at the time of annual registration, $4 is allocated to ARB for AQIP. In addition, a small portion of AQIP funding comes from 2 additional sources: the initial registration fee for new vessels and annual equipment identification plate fees.

Each year funding is allocated to ARB in the State budget for AQIP; however, over the past several years, actual revenues in the Air Quality Improvement Fund have been lower than the State budget allocation by about 25-30 percent. Accordingly, staff now proposes two sets of project allocations: a conservative estimate based on recent AQIP revenues and the amount identified in the revised State Budget.

Guiding Principles for AQIP

The Board established overarching implementation priorities and guiding principles for AQIP funds as part of Fiscal Year 2009-10 Funding Plan and reaffirmed the guiding principles in each subsequent funding plan. Staff believes these guiding principles continue to be appropriate and used them to identify projects for this funding year. Broad principles include:

- Support development and deployment of advanced technologies needed to meet California's longer-term, post 2020 State Implementation Plan (SIP) and climate change goals.

- Focus program funds on areas underserved through other incentive programs. Through the Carl Moyer Program and the Goods Movement Emission Reduction Program about $2 billion is already being invested in near-term emission reductions, with the ancillary benefit of technology advancement. AQIP is ARB's sole source of incentives that allows for funding of the more advanced technologies.

The Federal Clean Air Act includes a provision that allows SIPs for areas with the worst air quality (the extreme ozone nonattainment areas – the South Coast and San Joaquin Valley) to rely on advanced, yet to be developed, technologies (also known as the "black box" commitment). Both South Coast and the San Joaquin Valley have ozone attainment dates in 2023 and new National Ambient Air Quality Standards are expected to set additional milestones to be met in the 2030 timeframe. Attainment of these standards will likely require much greater use of zero- and near zero-emission technologies; which are the same technologies needed to meet greenhouse gas emission reduction goals. Investing now in the next generation of vehicles, equipment, and emission controls is essential to meet this commitment because of the time needed for these technologies to penetrate the marketplace.

In order to meet the goal of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050 (Executive Order S-3-05), a fundamental transformation of the vehicle fleet will need to occur with zero-emission and hybrid vehicles making up a significant fraction of the fleet. Specifically, the 2007 *State Alternative Fuels Plan* envisions a 2050 vehicle fleet where 40 percent of California's transportation fuel is electricity or hydrogen. In January 2012, ARB made progress towards this goal with the adoption of the Advanced Clean Cars regulations which will require 1 out of every 7 new cars purchased in 2025 to be zero-emission or plug-in hybrid. This was followed by the Executive Order B-16-2012 that set a 2050 target for greenhouse gas emission

reductions from the transportation sector equaling 80 percent less than 1990 levels and directed state agencies to establish benchmarks for expanding the zero-emission vehicle market share with over 1.5 million zero-emission vehicles on California roads, easy access to zero-emission vehicle infrastructure, and petroleum displacement of at least 1.5 billion gallons by 2025. AQIP investments are an important early step in supporting this transformation.

For deployment projects, guiding principles also include:

- Accelerate deployment of proven advanced technologies to support significant penetration by the 2024 extreme ozone nonattainment area attainment date (i.e., focusing on new, commercialized technologies on the cusp of widespread deployment).

- Support consumer choice to buy cleaner vehicles, which may not have occurred without a monetary incentive.

Demonstration project guiding principles focus on projects that:

- Demonstrate the potential to provide cost-effective emission reductions.

- Show the potential to be economically viable without subsidy.

- Will be ready for commercialization within three years following demonstration.

- Have potential for use in the California marketplace.

II. Proposed Funding Plan for Fiscal Year 2012-13

For fiscal year 2012-13 funding cycle, ARB staff proposes to focus most of AQIP funding on the two largest project categories from previous years – the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project and the Clean Vehicle Rebate Project. There has been strong demand for funding in these areas, and both hybrid truck and electric vehicle technologies are at a key point where public incentives can help them penetrate the California marketplace and become mainstream choices. Staff also proposes to continue an allocation for advanced technology demonstrations. These are an important part of the program because successful demonstration projects can potentially lead to future deployment project opportunities in the future.

ARB staff envisioned that these project categories would be funded for multiple years in order to maintain continuity and provide a larger overall impact on the selected technologies. Continuing investments in the next generation of vehicles, equipment, and emission controls is critical to meet California's long-term air quality goals and will help start the transformation of the California fleet to one with widespread use of advanced technology hybrid and zero-emission vehicles.

ARB staff held two public workshops and six detailed public work group meetings in developing the proposed Funding Plan. ARB staff also maintains an open dialog with the Energy Commission and other agencies and stakeholders in the development of the Funding Plan. More information on this coordination may be found in Appendix B. As in previous years, ARB staff will hold additional public work group meetings through the year to update stakeholders on project implementation.

A. Summary of Funding Proposal

Table II-1 presents ARB staff's proposed fiscal year 2012-13 project category allocations along with the estimated number of vehicles that these funding levels would support. The table shows 2 separate funding targets. The $40 million target reflects the funding level for AQIP projects in the Governor's proposed budget. The $27 million target is a conservative estimate of total funding based on AQIP revenues over the past 3 years, which have been 25-30 percent lower than the appropriated amount. To manage the uncertainty regarding the funding that will ultimately be available for AQIP projects, ARB staff proposes to initially issue solicitations for the lower funding levels shown in Table II-1 with provisions to scale up funding if revenues are higher. For the purposes of this document, the lower levels are assumed in the project category discussions.

Table II-1: Proposed Fiscal Year 2012-13 Project Category Funding Levels

Project Category	$27 Million Plan Based on Recent Revenues		$40 Million Plan[1] Revised Budget Appropriation	
	Proposed Allocation	Potential Vehicles	Proposed Allocation	Potential Vehicles
Clean Vehicle Rebate Project[2]	$15 M	7,700	$21 M	10,700
Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project	$10 M	350	$14 M	500
Advanced Technology Demonstration/Testing	$2 M	N/A	$5 M	N/A

1- Based on Governor's revised State Budget of $43 million minus estimated administrative costs.
2- An additional $3 million from fiscal year 2008-09 is being reallocated to the Clean Vehicle Rebate Project.

ARB staff proposes continuing its large investment in the Clean Vehicle Rebate Project at the same level as last year. In addition, $3 million from fiscal year 2008-09 is being reallocated to the Clean Vehicle Rebate Project. In the past year, there has been a substantial increase in the number and diversity of zero-emission and plug-in hybrid vehicles offered for sale in California and this trend is expected to continue. Even with this large investment, ARB expects that the proposed funding will only provide rebates for about half of the vehicles sold. To help bridge this gap, the Energy Commission allocated $5 million in the Fiscal Year 2012-13 Investment Plan for possible use by ARB to help meet consumer demand.

Correspondingly, staff is proposing a $10 million Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project allocation. Combined with the $21 million in funding from year 2 and 3, this will provide funding for about 1,000 new hybrid and zero-emission trucks and buses that staff expects will adequately support the continuing deployment of these technologies into the California fleet. Staff also proposes a $2 million allocation to continue funding for advanced technology demonstrations.

B. Description of Project Categories Proposed for Fiscal Year 2012-13 Funding

This section describes each project category proposed for funding in fiscal year 2012-13.

Clean Vehicle Rebate Project

CLEAN VEHICLE REBATE PROJECT℠

Funding Target: $15 to $21 million

Synopsis: Consumer rebates for zero-emission and plug-in hybrid light-duty vehicles.

Project Benefits:

- Support transportation sector emission reductions needed in the post-2020 timeframe.
- Spur commercialization of the cleanest vehicles available.

Overview

ARB staff proposes a $15 to $21 million funding range for the Clean Vehicle Rebate Project in fiscal year 2012-13. In addition, $3 million from fiscal year 2008-09 is being reallocated to the Clean Vehicle Rebate Project. The Clean Vehicle Rebate Project provides rebates to California residents, businesses, nonprofit organizations and government entities that purchase or lease a ZEV such as a battery electric or fuel cell electric, or a plug-in hybrid electric vehicle. The Clean Vehicle Rebate Project helps get the cleanest vehicles on the road in California by providing consumer rebates to partially offset the higher initial cost of these advanced technologies. This early investment in clean vehicle technologies will prime the market for the larger number of vehicles needed over the next decade and beyond to meet the State's health based air quality standards and climate change goals. The Clean Vehicle Rebate Project investment — coupled with corresponding investments in vehicle charging and fueling infrastructure by regional governments, the Energy Commission and federal government — is enticing manufacturers to focus early vehicle deployment in California. For a complete list of eligible vehicles, rebate amounts and information about the Clean Vehicle Rebate Project, visit www.energycenter.org/CVRP. A detailed description of the first three years of funding is included in Appendix A.

Efforts to Encourage Zero-Emission Vehicle Deployment in the San Joaquin Valley

Rebates are distributed throughout the State, but concentrated in the San Francisco Bay Area, Los Angeles/South Coast and San Diego regions. This is likely due to targeted marketing by automakers, the demographics of early adopters, additional incentives and access to public charging infrastructure. In response to low rebate demand in the San Joaquin Valley, the Clean Vehicle Rebate Project enhanced its

outreach efforts in this region and is collaborating with the San Joaquin Valley Air Pollution Control District to increase consumer participation by:

- Teaming with the San Joaquin Valley Air Pollution Control District's electric vehicle rebate program that offers an additional rebate on top of the Clean Vehicle Rebate Project
- Promoting both programs through joint public events and media outreach
- Marketing the suite of incentives available to consumers (e.g., High Occupancy Vehicle access, free public charging, local/state/federal vehicle and infrastructure incentives, utility rate discounts)

On March 15, 2012, the San Joaquin Valley Air Pollution Control District launched the Drive Clean! Rebate Program that provides additional vehicle rebates of up to $3,000 for San Joaquin Valley residents, businesses, non-profit and government entities. Information on this program is available at: http://www.valleyair.org/Grant_Programs/GrantPrograms.htm#DriveCleanRebateProgram . Over the past year, the Clean Vehicle Rebate Project has provided 85 percent more rebates to the San Joaquin Valley in fiscal year 2011-12 than in previous fiscal years. The San Joaquin Valley also had the second highest year over year increase in the Clean Vehicle Rebate Project rebates distributed, second only to the greater Sacramento region.

Staff Proposal for Fiscal Year 2012-13

The prevailing challenge this fiscal year is the anticipated gap between projected rebate demand and available AQIP funding. In the year ahead, manufacturers' collective production volumes of clean vehicles for California will range between 15,000 and 20,000 vehicles. Assuming production volumes translate to sales, and sales to rebate applications, the Clean Vehicle Rebate Project will only meet about half of the projected rebate demand[1]. With the addition of $5 million in Energy Commission funds, the Clean Vehicle Rebate Project will likely rebate slightly less than two-thirds of expected demand. Staff's proposal is designed to continue ARB's commitment to advancing clean vehicle technologies, while maintaining the program's consumer-driven focus. Staff's proposal is the outcome of individual and group discussions with clean vehicle manufacturers, consumer advocates and other industry stakeholders, as well as a Clean Vehicle Rebate Project Work Group meeting conducted on March 15, 2012.

A. Proposal to Support Manufacturer Diversity
   Through the Clean Vehicle Rebate Project, ARB is encouraging the maturation of a diverse and competitive clean vehicle market. This is consistent with Board direction provided at the July 2011 meeting to promote manufacturer diversity. This issue was discussed in detail at public workshops, working group meetings as well as individual stakeholder meetings. Staff considered several options to address manufacturer diversity; including manufacturer caps based either on number of

[1] Assuming a total $18 million allocation from ARB (includes $15 million from fiscal year 2012-13 and $3 million reallocation from fiscal year 2008-09).

rebates or percentage of available funding or manufacturer/vehicle model set-asides. The latter would be challenging to administer and may result in funds going unused if purchases for certain manufacturer/vehicle models do not materialize. However, significant progress toward a diverse marketplace has been made. In fact, since last October, seven eligible vehicle models have been added to the Clean Vehicle Rebate Project. Recognizing this, staff believes the appropriate approach is to continue the Clean Vehicle Rebate Project as a first-come, first-serve program and allow the market to continue to expand diversity further.

B. Waiting List Discretion
The Clean Vehicle Rebate Project waiting list provision has been a popular feature for consumers and manufacturers alike because it provides a degree of funding certainty during gaps between funding cycles. A waiting list is appropriate when acting as a modest investment to bridge a short-term funding gap; it is not sustainable, however, when demand quickly outstrips available funds. Should the Clean Vehicle Rebate Project fall under the latter scenario, it would likely require restructuring in the future. Staff proposes that the Board provide the Executive Officer discretion on whether to establish a waiting list to bridge the gap between fiscal year 2012-13 and fiscal year 2013-14 funding. A decision-making trigger would be invoked when the remaining vehicle funding reaches $3 million. Parameters that would be evaluated in making the decision to establish a waiting list include: expenditure rate of Clean Vehicle Rebate Project funding, potential for additional funds, and projected future vehicle volumes. If a waiting list is established, the future funding commitment would be limited to no more than $5 million.

C. Range Extended Battery Electric Vehicle Eligibility
Staff proposes adding the range extended battery electric vehicle as a zero-emission vehicle type. The range extended battery electric vehicle is a new regulatory vehicle category approved by the Board in January 2012. No other changes are proposed to the eligible vehicle types or rebate amounts.

D. Car Share Allocation
Staff proposes to carry over $200,000 into fiscal year 2012-13 from the car share set aside established in fiscal year 2011-12. Approximately $600,000 of the $1.5 million set-aside has been spent. Staff proposes that the remaining unused car share funds, approximately $700,000, roll back to the main Clean Vehicle Rebate Project fund if they are not used by the time fiscal year 2011-12 funding has been depleted.

Grantee Solicitation

Staff proposes to issue the solicitation for a grantee to administer the Fiscal Year 2012-13 Clean Vehicle Rebate Project following Board approval of the Funding Plan and passage of the annual State Budget. The same competitive process and eligibility requirements will be used as in previous funding years; the solicitation will be open to individuals, federal, state, and local government entities and agencies, and non-profit

organizations with experience implementing a rebate program and general knowledge of statewide outreach and implementation. Staff proposes allowing up to 6 percent of the project funding to be used for administering the Clean Vehicle Rebate Project.

Future Funding Needs

Nearly all new vehicle sales by the 2040 model year need to be ZEVs and plug-in hybrid electric vehicles in order to achieve California's long term 2050 greenhouse gas reduction goals in the light-duty vehicle sector. California's ZEV regulation is the most technology-forcing piece of the Advanced Clean Car Program. Recent amendments to the regulation strengthen ZEV requirements and require manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018-2025 model years with 15 percent of new cars produced in 2025 being ZEVs and plug-in hybrid electric vehicles. The continuation of rebate funding in the next few years, in combination with other monetary and non-monetary incentives, is critical to early wide-scale consumer acceptance and adoption of clean vehicle technology.

ARB anticipates that between 15,000 and 20,000 vehicles will be available for sale in California in 2012, followed by increases in production in each of the following years. Table II-2 presents future incentive needs based on vehicle production volumes from the 2012 amendments to the California Zero Emission Vehicle Regulation. Additionally, Governor Brown issued Executive Order B-16-2012 in March 2012 that lays the foundation for 1.5 million zero emission vehicles on California's roadways by 2025. If California vehicle sales track projected production volumes, staff anticipates that AQIP funding alone cannot continue to sustain the Clean Vehicle Rebate Project under its current structure, and that fundamental changes to the program or substantial additional funding will be necessary in the future. Staff will closely monitor the market in setting the course for Fiscal Year 2013-14 Funding Plan.

Table II-2. Incentive Needs Based on Current Clean Vehicle Rebate Project Rebate Amounts

Year	Vehicle Type[1]				Total	
	ZEV		PHEV			
	Volume[2]	$ (M)	Volume	$ (M)	Volume	$ (M)
2013	2,300	$5.80	18,100	$27.10	20,400	$32.90
2014	2,300	$5.70	18,400	$27.60	20,700	$33.30
2015	8,900	$22.30	26,900	$40.30	35,800	$62.60
2016	9,100	$22.70	27,200	$40.80	36,300	$63.50
2017	9,200	$23.00	27,600	$41.40	18,400	$64.40
2018	16,800	$42.00	61,300	$91.90	78,100	$134.00
2019	33,500	$83.70	75,300	$113.00	108,800	$197.00
2020	48,300	$249.00	89,100	$220.00	137,400	$469.00

[1] - ZEV rebate amount is $2,500; plug-in hybrid electric vehicle rebate amount is $1,500.
[2] - Production volumes are based on January 2012 ZEV Regulation Amendments.

Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project

Funding Target: $10 to $14 million

Synopsis: Consumer vouchers for about ½ the incremental cost of new hybrid and zero-emission trucks.

Project Benefits:

- Spur early production volumes, lower long-term production cost.
- Reduce criteria pollutants, advance technology to meet long-term SIP commitments.
- Reduce CO_2 emissions; help meet Assembly Bill 32 emission reduction targets.

Overview

ARB staff proposes a $10 to $14 million funding range for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project. Hybrid and zero-emission trucks and buses are now commercially available in multiple vehicle configurations from nearly a dozen vehicle manufacturers. A hybrid-electric vehicle typically uses an electric motor and a diesel-powered engine, which work in tandem to reduce emissions and fuel consumption. Hybrid vehicle technology has the potential to reduce criteria pollutant, air toxic, and greenhouse gas emissions – particularly in urban delivery vehicles, refuse trucks, work trucks, buses, and other vehicles with high stop-and-go or idling duty cycles. Zero-emission trucks and buses are typically powered by a large electric battery (although fuel cells are making technological strides) that typically provide up to 100 miles of range per charge.

Both hybrid and zero-emission vehicles provide fuel cost savings to the fleet owner. With reductions to the upfront vehicle cost combined with fuel savings, these vehicles have the potential to be cost competitive with conventional vehicles. Production capacity has substantial growth potential for both hybrid and electric trucks and buses, but current low production volumes contribute to a $25,000 to $80,000 vehicle cost premium for hybrid trucks and up to $120,000 cost premium for zero-emission trucks. ARB expects production costs to decline as hybrid driveline and battery production volumes increase. When this occurs, the fuel economy payback period should shorten to the point where a hybrid or zero-emission truck purchase is economical without incentives. The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project is intended as a multi-year incentive program to bridge this gap. Additional information and statistics regarding the first 2 years of the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project implementation can be found in Appendix A.

Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Program Demand

The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project has provided vouchers to help California fleets purchase over 1,000 hybrid and zero-emission trucks and buses. While Year 1 (fiscal year 2009-10) Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project voucher demand was high, fleet participation in Year 2 (fiscal year 2010-11) has been slower than expected (Figure 2), with approximately $10 million remaining for hybrid and zero-emission vehicle vouchers as of May 1, 2012. Discussions with stakeholders suggest participating fleets may have already turned over much of their existing older, urban delivery vehicle fleet for new hybrids in Year 1 when the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funds initially became available. Some fleet representatives have also suggested voucher amounts be increased to further stimulate program demand. Additional discussion regarding steps ARB is taking to address these deployment challenges can be found in Appendix B.

Figure 2. Hybrid and Zero-Emission Vehicle Funding Demand

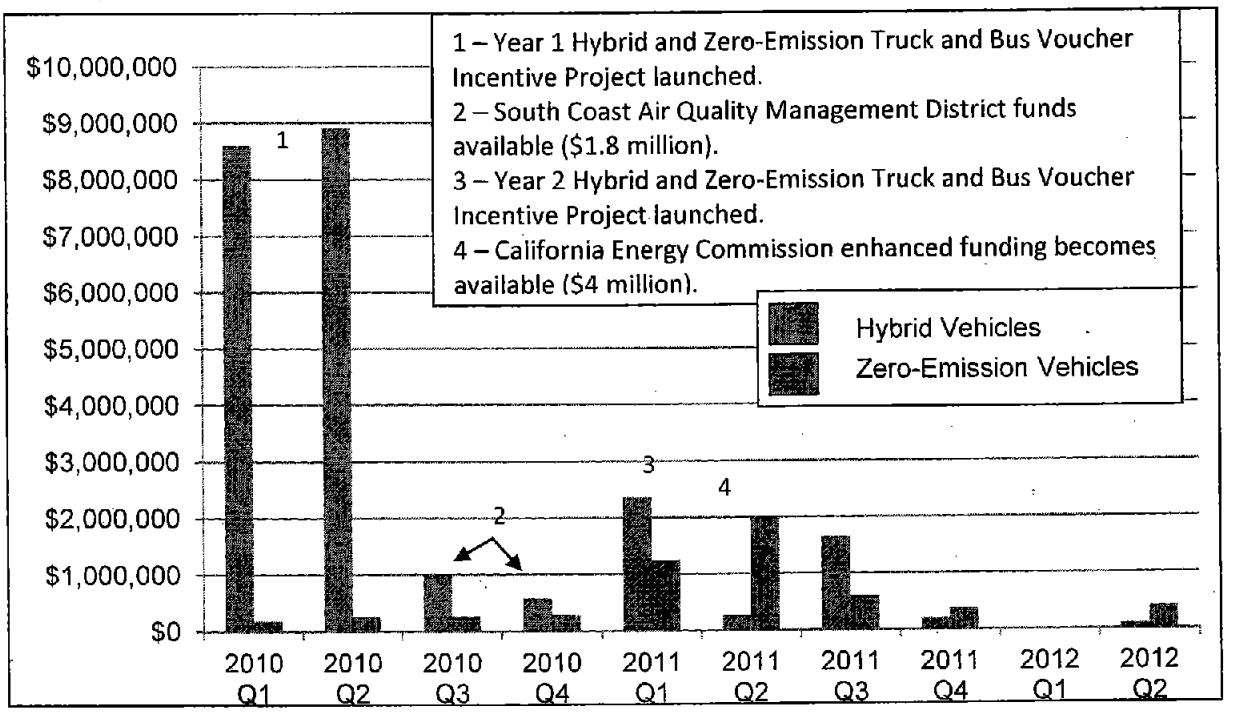

Figure includes zero-emission commercial vehicles funded via the Clean Vehicle Rebate Project in 2010.

Staff Proposal for Fiscal Year 2012-13

ARB has delayed launching the Year 3 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project since approximately $10 million in funds remain available. Staff proposes combining the remaining Year 2 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funds with the $11 million Year 3 funds (approved by the Board last July) and launch Year 3 in July 2012 utilizing the proposed higher voucher amounts and other program enhancements described in this section.

Staff's proposal for the fiscal year 2012-13 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project is intended to stimulate near-term demand for hybrid and zero-emission vehicles by: 1) increasing vouchers for the cleanest technologies available and 2) adding new eligible vehicle types.

A) Zero-Emission Vehicle Vouchers

Zero-emission technology represents the "gold standard" for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project, as the program is intended to accelerate development, deployment and consumer acceptance of the cleanest technology needed to meet California's air quality and climate change goals. Staff proposes increasing the voucher amounts for zero-emission vehicles (Table II-2) from the existing typical voucher amount of $20,000 to up to $45,000 per vehicle, depending on gross vehicle weight. The proposed voucher amounts would provide close to 50 percent of the incremental cost of zero-emission trucks.

When the Board approved the first AQIP Funding Plan in 2009, it was unclear whether zero-emission commercial vehicles had the near-term viability to make inroads into the California truck fleet. Zero-emission commercial vehicles were added to the Clean Vehicle Rebate Project as an AQIP-eligible vehicle type since that project focused primarily on zero-emission vehicle technologies. These vehicles were shifted from the Clean Vehicle Rebate Project to the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project in AQIP's Fiscal Year 2010-11 Funding Plan since the voucher structure more effectively facilitates truck and bus purchases. This technology has since demonstrated an increased near-term viability in the advanced technology truck market. Staff also heard feedback from stakeholders that the current voucher levels were too low with many vehicles incremental cost exceeding $100,000.

To date, AQIP has helped deploy in California over 250 zero-emission trucks and buses from three vehicle manufacturers. Despite their much higher incremental cost, demand for zero-emission trucks and buses is increasing faster than that for hybrids (Figure 2). The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project briefly offered higher voucher amounts for zero-emission commercial vehicles when the Energy Commission directed $4 million of its fiscal year 2010-11 Assembly Bill 118 funding project in July 2011. The Energy Commission incentives increased the typical Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project voucher for zero-emission vehicles from $20,000 to $48,000 for vehicles manufactured in California and to $40,000 for vehicles manufactured outside of California[2]. These funds were exhausted within 2 weeks, as California fleets quickly ordered 150 zero-emission trucks to take advantage of the enhanced vouchers.

[2] The San Joaquin Valley Air Pollution Control District also has approved $2 million to augment the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding for hybrid and zero-emission vehicles deployed in the Valley. More information can be found at: www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2011/August/Agenda_Item_15_Aug_18_2011.pdf.

Staff's proposed fiscal year 2012-13 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project zero-emission vehicle voucher amounts are similar to those offered when the additional Energy Commission funding was available.

Table II-3: Proposed Zero-Emission Truck and Bus Voucher Amounts

Gross Vehicle Weight (lbs)	Base Vehicle Incentive[1]	
	1 to 100 vehicles	101 to 200 vehicles
5,001 – 8,500	$12,000	$10,000
8,501 – 10,000	$18,000	$12,000
10,001 – 14,000	$30,000	$20,000
14,001 – 19,500	$35,000	$25,000
19,501 – 26,000	$40,000	$30,000
> 26,000	$45,000	$35,000

The first three Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project-eligible vehicles purchased by a fleet per funding year are eligible for the following additional voucher amount: $2,000/vehicle if below 8,501 lbs; $5,000/vehicle if 8,501 to 10,000 lbs; and $10,000/vehicle if over 10,000 lbs.

1- A zero-emission school bus is eligible for the same additional funding as a hybrid school bus as identified in Table II-5.

Staff proposes that unredeemed Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project vouchers – with the exception of those already receiving the additional Energy Commission funds – be eligible for the higher voucher amounts described in Table II-3, if redeemed after Board approval of staff's proposal. Staff expects the increased voucher amounts identified in this section will significantly increase demand, help boost production, and support a robust California market for zero-emission commercial vehicles over the next 2 years.

B) Maximum Vouchers per Fleet

Staff proposes increasing the maximum number of allowable vouchers per fleet from the existing limit of 100 vouchers to 200 vouchers (Tables II-3 and II-4). Raising the maximum number of vouchers per fleet to 200 will provide flexibility for larger fleets that have driven Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project demand to receive additional vouchers.

C) Funding Tiers

Staff proposes to simplify funding tiers from the 3 levels approved in fiscal year 2011-12 to the 2 levels identified in Tables II-3 and II-4. The Base Vehicle Incentive for vehicles 1 through 100 remains unchanged, while vouchers 101 through 200 would be discounted by about one-third. The lower voucher amounts for vehicles 101-200 allow for more vehicles to be funded if several fleets purchase in these volumes over the year.

Table II-4: Eligible Hybrid Truck and Bus Proposed Voucher Amounts

Gross Vehicle Weight (lbs)	Base Vehicle Incentive	
	1 to 100 vehicles	101 to 200 vehicles
6,001 – 8,500 (plug-in hybrids only)[1]	$ 8,000	$ 6,000
8,501 – 10,000 (plug-in hybrids only) [1]	$10,000	$ 8,000
10,001 – 19,500	$15,000	$10,000
19,501 – 33,000	$20,000	$12,000
33,001 – 38,000	$25,000	$15,000
> 38,000	$30,000	$20,000

The first three vouchers redeemed by a fleet per funding year are eligible for the following additional voucher amount: $2,000/vehicle if below 8,501 lbs; $5,000/vehicle if 8,501 to 10,000 lbs and $10,000/vehicle if over 10,000 lbs. Additional voucher funding opportunities are identified in Table II-5.

1- Vehicle must be ARB-certified as an Ultra-Low Emission Vehicle (ULEV). Voucher amount is increased by $2,000 for each of the following: ARB-certification as a Super Ultra Low Emission Vehicle (SULEV) and ARB-certification for zero-evaporative emissions.

To encourage fleets – particularly small fleets – to invest in hybrid technology, up to an additional $10,000 (depending on vehicle weight) will be provided for the first 3 vouchers received by a fleet per funding year. Staff hopes to draw more small fleets and first-time purchasers into the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project by further reducing the incremental cost for small volume purchases. This concept was approved by the Board last year as part of the Year 3 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project program structure. Existing unredeemed vouchers for a fleet's first 3 hybrid or zero-emission vehicles would be eligible for this additional $10,000 if the vouchers are redeemed after Year 3 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project launch in July 2012.

D) Commercial Plug-in Hybrid Pick-Up Trucks

Staff proposes to support the production and deployment of commercial plug-in hybrid pick-up trucks in the 6,001 to 8,500 lbs. gross vehicle weight rating (GVWR). The first commercial vehicles – expected to be available for purchase by late 2012 – would have an all-electric range of up to 40 miles before a gasoline-powered engine starts to recharge the vehicle batteries. Electrification of these vehicles has the potential for significant emission benefits due to the relatively high truck population in this weight class.

Table II-4 identifies staff's proposed voucher amounts for this vehicle type. To be eligible, the vehicle must be ARB-certified as an ULEV[3]. An additional $2,000 would be provided for each plug-in hybrid up to 10,000 lbs. gross vehicle weight for ARB-certification to SULEV standard and for zero-evaporative emissions, to encourage manufacturers to further develop the cleanest technologies. Only plug-in

[3] Exhaust emission standards as defined in California Low-Emission Vehicle Regulations, California Code of Regulations Title 13 section 1961.

hybrid vehicles purchased by public, non-profit or commercial entities for work purposes are eligible for Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding since the intent of the project is to promote funding for commercial vehicles. Personal or passenger vehicles in this weight class are not eligible for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project but may be eligible for the Clean Vehicle Rebate Project. Eligibility of this vehicle type will be delayed until implementation of fiscal year 2012-13 funding if implementation cannot be accommodated within the existing administrative budget. Staff will re-evaluate this category during development of the Fiscal Year 2013-14 AQIP Funding Plan to determine if it should remain Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project eligible in future funding years.

E) Exportable Power
Staff proposes providing an additional $2,000 incentive for Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project-eligible plug-in hybrid vehicles between 6,000 lbs and 10,000 lbs GVWR that provide exportable power. Exportable power allows workers to plug in to an onboard electrical outlet eliminating the need to use portable generators to power worksite operations. The proposed $2,000 incentive reflects about half the incremental cost of this option. Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project-eligible plug-in hybrid vehicles below 10,001 lbs have been targeted for funding as they are most likely to utilize exportable power for work purposes. ARB staff will evaluate, in coordination with the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Work Group, whether to extend the $2,000 exportable power incentive to Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project-eligible vehicles in other weight categories. Eligibility of exportable power will be delayed until implementation of fiscal year 2012-13 funding if implementation cannot be accommodated within the existing administrative budget.

F) Additional Hybrid Vehicle Voucher Funding
Staff proposes several opportunities for additional voucher funding should a hybrid vehicle exceed minimum Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project eligibility requirements. These vehicles have the potential to provide additional emission reductions as well as further advanced the technology towards a more robust system. These proposed voucher enhancements are discussed below and detailed in Table II-5.

Table II-5: Opportunities for Additional Hybrid Vehicle Voucher Funding[1]

Gross Vehicle Weight (lbs)	Plug-in or Hydraulic Hybrid[2]	School Bus[3]	ARB Certification (full vehicle)	Early Heavy-Duty Vehicle On-Board Diagnostics Compliance[4]
8,501 – 10,000 (plug-in hybrids only)	NA	$ 5,000	NA (required)	NA (full OBD required)
10,001 – 14,000	$10,000	$10,000	Up to $20,000	Up to $20,000
14,001 – 19,500				
19,501 – 33,000				
33,001 – 38,000				
> 38,000				

1- The total of all advanced technology vehicle subsidies, including the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Base Vehicle Incentive and all voucher enhancements may not exceed the assumed vehicle incremental cost identified in Table II-6.
2- Vehicle must demonstrate at least a 40 percent fuel economy benefit relative to its non-hybrid counterpart as part of its Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project eligibility application.
3- Zero-emission school buses also eligible for this voucher bump-up.
4- Specific criteria for determining early OBD compliance will be determined by ARB staff and interested stakeholders during public Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Work Group meetings.

Plug-in and Hydraulic Hybrids- Staff proposes an additional $10,000 for plug-in and hydraulic hybrids that demonstrate additional benefits. These vehicles typically cost up to thirty percent more than traditional battery-electric hybrids, but have the potential for greater criteria pollutant and greenhouse gas emission reductions than traditional hybrids. While plug-in and hydraulic hybrid vehicle technologies have made significant strides over the past few years, no plug-in hybrids and only two hydraulic hybrids are Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project-eligible as of May 1, 2012.

Figure 3. The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project-eligible Autocar-Parker hydraulic hybrid refuse hauler

Figure 4. Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project eligible zero-emission school bus

School Buses- Staff proposes continuing the existing Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project policy of providing an additional $5,000 to $10,000 for hybrid or zero-emission school bus purchases. Combining Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project and ARB Lower Emission School Bus Program funds can provide up to 90 percent of the total typical

hybrid bus cost of $200,000. Other public funding, such as federal or local air district funds, could be used to pay for the remaining cost.

Hybrid Vehicle Certification- While all light- and complete medium-duty vehicles (i.e. below 14,000 lbs gross vehicle weight) must be ARB-certified to be sold in California, heavy-duty vehicles (14,000 lbs gross vehicle weight and above) are not required to be ARB-certified. Rather, heavy-duty vehicle engines are certified for use in a particular vehicle weight class and certain vocations, such as urban buses. However, in a hybrid truck, an ARB-certified engine is used in conjunction with a hybrid driveline which makes it more challenging to determine emission benefits, particularly over a diversity of urban and suburban duty cycles. As hybrid trucks and buses transition from a niche to a mainstream choice, full hybrid vehicle certification is critical to identify the emission benefits that drive policy and deployment strategies.

The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project currently offers an additional $5,000 for hybrid trucks or buses above 14,000 lbs gross vehicle weight that are voluntarily ARB-certified, yet very few hybrid truck and bus manufacturers have chosen to do so. Staff proposes to increase Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project incentive for ARB-certified heavy-duty hybrids from $5,000 up to $20,000 to further encourage voluntary full hybrid vehicle certification.

On-Board Diagnostics- In May 2009, the Board adopted 'On-Board Diagnostic Regulations for Heavy-Duty Engines and Vehicles' (HD OBD) that require heavy-duty vehicles and engines be equipped by 2013 with ARB-certified on-board diagnostics systems that monitor engine and vehicle after-treatment to ensure in-use vehicle emissions do not exceed a certain threshold[4]. ARB staff will be bringing HD OBD amendments to the Board in July 2012 to provide additional time for hybrid heavy-duty vehicles – for which On-Board Diagnostic (OBD) poses additional complexities – to comply with these requirements.

Staff proposes to provide an additional voucher amount of up to $20,000 per vehicle that demonstrates early or partial OBD compliance as required by HD OBD or its Amendments. The definition of early or partial OBD compliance would be determined in consultation with ARB, the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Work Group and other stakeholders based upon factors such as technical feasibility, cost of early compliance, and market share projected to achieve early or partial compliance. For more information regarding ARB's proposed HD OBD Amendments, visit http://www.arb.ca.gov/msprog/obdprog/obdprog.htm.

[4] Final Regulation Order: On-Board Diagnostic System Requirements--2010 and Subsequent Model-Year Heavy-Duty Engines, California Air Resources Board, www.arb.ca.gov/msprog/obdprog/hdobdreg.htm .

G) Assumed Incremental Cost

The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project requires that the sum of all advanced technology vehicle subsidies– including the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project voucher – does not exceed a vehicle's incremental cost[5]. In rare instances where this occurred, the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project voucher has been discounted to ensure public funding does not exceed incremental cost. Incremental cost is currently determined on a per vehicle basis equaling the difference between a conventional new truck or bus and a Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project-funded vehicle. This process for determining incremental cost, and the maximum allowable voucher amount, can be an administrative burden and provides a disincentive for manufacturers to lower vehicle prices.

Staff proposes that the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project incorporate assumed vehicle incremental costs as identified in Table II-6. These proposed assumed vehicle incremental costs ensure all manufactures have the opportunity to reasonably offset the incremental cost of their vehicles.

The additional incentive of up to $10,000 for a fleet's first three vouchers is not included in incremental cost calculations. Incremental costs will be determined on a case-by-case basis for transit/shuttle buses, plug-in hybrid vehicles, fuel cell vehicles, and hydraulic hybrid vehicles, as well as incremental costs for other vehicles not typically funded by the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project.

Table II-6: Assumed Vehicle Incremental Cost

Gross Vehicle Weight	Hybrid	Zero-Emission
5,001 – 6,000 lbs	N/A	$ 30,000
6,001 – 8,500 lbs	$20,000	$ 40,000
8,501 – 10,000 lbs	$25,000	$ 50,000
10,001 – 14,000 lbs	$30,000	$ 65,000
14,001 – 19,500 lbs	$40,000	$ 75,000
19,501 – 26,000 lbs	$50,000	$100,000
26,001 – 33,000 lbs	$60,000	$120,000
33,000 – 38,000 lbs	$70,000	case-by-case
>38,000 lbs	$80,000	

[5] Public school buses are an exception to this rule. For public school buses, the sum of Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project and other public funding may not exceed the full school bus cost. The additional up to $10,000 incentive for a fleet's first three vouchers is not included in incremental cost calculations.

H) Aerial Boom Vehicles with electric power take-off

Aerial boom vehicles are typically used by utility companies, forestry services, signage companies, and others to lift personnel in a large bucket to a height necessary for aerial work. These vehicles typically idle the main engine to power the aerial boom, often for hours per day and in residential neighborhoods. An aerial boom vehicle with electric power take-off is equipped with a battery to power the aerial boom, eliminating the engine idle time.

Figure 5. Aerial boom vehicle with electric power take-off

Staff proposes extending Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project eligibility to electric power take-off-powered aerial boom vehicles above 26,000 lbs GVWR with a working boom height of at least 50 feet. While smaller aerial boom vehicles have a higher population, the heavier vehicles typically provide more significant and predictable emission benefits due to their high-idle times. Staff recommends this largest class of aerial boom vehicles with electric power take-off be eligible for the same voucher amounts as hybrid vehicles between 19,501 to 33,000 lbs GVWR (Table II-3). Staff does not propose marrying voucher funding levels to vehicle GVWR for electric power take-off as most aerial boom vehicles above 26,000 lbs generally use the same electric power take-off package, regardless of vehicle weight. The proposed voucher amount reflects approximately one-half the incremental cost of this technology. Staff has developed this proposal in consultation with the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Work Group, the Energy Commission, Calstart, public utilities, technology manufacturers, and other stakeholders.

The California market for large aerial boom vehicles is relatively small – staff expects just a few dozen vehicles would receive Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding under this new project category. However, the technology is proven, commercialized, and eliminates the need for up to four hours per day of main engine idling under typical operations. Staff hopes incentive funding for this category will help advance efforts to develop and deploy electric power take-off for other vehicles and equipment with remote power needs. ARB will evaluate potential Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding for other potential electric power take-off technology applications as these technologies mature and become fully commercialized. Staff may also propose expanding eligibility to smaller electric power take-off-powered aerial boom vehicles in future funding years as more data becomes available regarding these vehicles' duty cycles and emission benefits.

l) Hybrid Off-Road Equipment
The Hybrid Off-Road Equipment Pilot Project, approved by the Board as part of fiscal year 2010-11 AQIP Funding Plan, provides the University of California at Riverside Center for Environmental Research and Technology (CE-CERT) almost $1 million to accelerate deployment of commercialized hybrid construction equipment and $1 million to evaluate the equipment's emission benefits during typical operations with the goal of possible future AQIP deployment funding.

While equipment deployment funds are nearly depleted, preliminary equipment test results will likely not be available until late 2012[6]. It is premature without the emissions testing results to set aside additional funding for hybrid equipment deployment; however, waiting until Fiscal Year 2013-14 Funding Plan could delay funding for hybrid equipment deployment until early 2014. Staff proposes the flexibility to direct up to $2 million of fiscal year 2012-13 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding towards additional deployment of hybrid off-road equipment. Staff would make this adjustment in consultation with the Off-Road Equipment Pilot Project Work Group and other interested stakeholders and in consideration of factors such as hybrid equipment testing results, potential hybrid equipment consumer demand, and remaining available Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding. These funds would be administered by the fiscal year 2012-13 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Grantee. Additional information regarding implementation of the ongoing Hybrid Off-Road Equipment Pilot Project can be found in Appendix A.

Grantee Solicitation

ARB staff proposes to issue the Fiscal Year 2012-13 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Solicitation in late 2012 and expects program launch in early 2013. Similar to last year, the solicitation will be open to individuals, federal, state, and local government entities and agencies, and organizations with California heavy-duty vehicle, vehicle incentive, or air quality experience. Solicitations will be evaluated using scoring criteria similar to last fiscal year, and the grantee will be responsible for outreach and implementation of the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project statewide. Staff proposes allowing up to 8.5 percent of the project funding to be used for administrative costs. These administrative costs are higher than those allowed for the Clean Vehicle Rebate Project because of the additional work involved in tracking vouchers through the entire vehicle purchase process.

[6] As of March 15, 2012, CE-CERT has provided $675,000 to help deploy nine hybrid caterpillar D7E dozers and an additional $171,000 to deploy six hybrid Komatsu HB215LC-1 excavators.

Funding Contingency

Staff expects the proposed Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project voucher amounts and program structure will provide a significant boost to program demand. Should this demand not materialize, the proposed fiscal year 2012-13 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding allocation may be reallocated as follows:

1) Up to half of the allocated funding may be redirected to other fiscal year 2012-13 AQIP projects if remaining Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funds exceed remaining Clean Vehicle Rebate Project funds as of November 1, 2012.
2) Additional funds may be redirected to other fiscal year 2012-13 AQIP projects if remaining Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding exceeds $10 million as of January 1, 2013.

Any reallocation of fiscal year 2012-13 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding to other AQIP projects will be conducted in consultation with the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Work Group and other interested AQIP stakeholders.

Future Funding Needs

Because the natural turnover of trucks and buses is slow, a significant increase in hybrid and zero-emission truck and bus deployment is needed over the next several years to meet California's longer term air quality goals. ARB is developing a vision document, along with other stakeholders, describing possible technology scenarios for meeting the federal 8 hour ozone standard in the 2030 timeframe and achieving 80 percent greenhouse gas emission reductions by 2050 pursuant to Executive Order S-03-05. ARB staff expects the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project will continue to provide a critical early investment to help realize this long-term vision. Additional information regarding how investments in the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project can help meet early visioning document milestones can be found in Appendix B.

Advanced Technology Demonstration Projects

Funding Target: $2 to $5 million

Synopsis: Demonstrate the viability of advanced technology vehicles, equipment or emission controls.

Project Benefits:

- Accelerate commercialization and deployment of cleaner technologies in the California marketplace.
- Support California's goals for criteria pollutant, air toxics, and greenhouse gas emission reductions.

Overview

ARB staff proposes a $2 to $5 million funding range for Advanced Technology Demonstration Projects. ARB's goal in funding demonstration projects under AQIP is to help accelerate the next generation of advanced technologies to reduce emissions from mobile sources. AQIP funding would be used to demonstrate the viability of new technologies with the potential for commercialization within 3 years of demonstration and the ability to gain significant market penetration. To date, ARB has primarily focused its limited demonstration project funds in the off-road sector. This complements the Energy Commission's Assembly Bill 118 advanced technology demonstration funds which have focused primarily on on-road vehicles.

Over the course of the last 3 years, the types of projects funded have seen a transition as technology transfers from different sectors and as the technology achieves more significant emission reductions. For example, AQIP has invested $2.6 million in locomotives and has moved from demonstrating diesel particulate filters on line-haul and switcher locomotives in Year 1, to demonstrating Tier-4 technologies in switchers in Year 2 and demonstrating technologies approaching Tier-4 standards in high-horsepower locomotives in Year 3. In the future, funding for locomotives will likely be directed at projects meeting or exceeding the emission benefits of previously funded projects. On the marine side, AQIP funding helped successfully demonstrate the retrofit of an in-service tug boat with hybrid technology originally designed for new tug boats. This demonstration provides an avenue for tug boat operators to clean up their existing fleet, which is critical since these boats operate sometimes in excess of 40 years. Additional information regarding the implementation of Advanced Technology Demonstration Projects can be found in Appendix A.

Proposed Fiscal Year 2012-13 Demonstration Project Categories

ARB staff proposes at least two demonstration project categories for fiscal year 2012-13 funding cycle. Staff proposes to initially focus the demonstration funds on categories that have not received funding in the past with additional categories identified if more funding becomes available. Initial categories include:

- *Zero-emission off-road equipment:* Staff is proposing up to $1 million for demonstration of zero-emission off-road equipment. Eligible projects may include, but are not limited to, transport refrigeration, ground support, cargo handling, and construction equipment.
- *Zero-emission transit vehicles:* Staff is proposing up to $1 million for demonstration of zero-emission transit vehicles. Due to the high costs of these technologies, this funding will either need a much larger cost share if part of a new build demonstration, or could be used for repowering first generation with current generation fuel cell or battery electric technologies.

If additional funding becomes available through the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding contingency, staff proposes to prioritize zero-emission drayage trucks with up to $1 million in funding.

If additional demonstration project funding becomes available beyond those projects identified above, staff proposes the option of funding additional demonstration projects based on Board priority, available funds, and needs identified from existing demonstrations. Staff is proposing the following demonstration categories in priority order:

- Liquid natural gas ferry demonstration
- Agricultural Tier-4 and hybrid tractor share project
- Marinization of Tier-4 loco engines for tugboats and ferries
- Post Tier-4 locomotive

Details on projects will be vetted through the AQIP Demonstration Project Working Group. Information on this working group may be found on ARB's Assembly Bill 118 AQIP Advanced Technology Demonstration Projects webpage at http://www.arb.ca.gov/msprog/aqip/demo.htm .

Grantee Solicitation

As in the previous funding cycles, staff proposes that grant solicitations for demonstration projects be open to local air districts and other public agencies. Public entities are encouraged to partner with one or more technology demonstrators and end users in their regions. At least 50 percent of each demonstration project's funds must be provided from a non-Assembly Bill 118 source, and at least 10 percent of this match must be in cash with the remainder allowed as in-kind contribution. The requirement of match funding leverages AQIP funds while encouraging grantees to be invested in

successful completion of the projects. Up to 10 percent of the total project budget would be available for project administration consistent with previous funding cycles.

C. Contingency Plans

The proposed Funding Plan is based upon the latest available information. However, circumstances may change between the time the Board approves the plan and the time project solicitations are issued or project funds awarded. This section describes staff's proposed contingency plans should mid-course corrections be needed to ensure that AQIP funds are spent expeditiously and efficiently. Under these provisions, the Board would grant the Executive Officer authority to make the necessary mid-course adjustments to address the cases described below.

Available AQIP Funds

Over the past 2 funding cycles, revenues in the Air Quality Improvement Fund have been nearly 30 percent lower than the amount appropriated in the State Budget, so ARB had to scale back its AQIP project funding accordingly. As a result, ARB has awarded about $28 million in grants each year rather than the $40 million annual total included in each of the Board-approved Funding Plans. Based on this experience, ARB staff is proposing contingency provisions in the event revenues in fiscal year 2012-13 are lower than the State Budget appropriation as well as to address potential funding that ARB may receive to augment specific AQIP projects.

The proposed Funding Plan includes a total AQIP project funding total of $40 million based on the Governor's revised State Budget. However, ARB is also establishing minimum allocations for each project category based on a $27 million revenue total. The $27 million total is a conservative estimate based on the revenues over the past three years. These allocations are presented in Table II-6.

Table II-6. Contingency Plan for Addressing Reduced Revenues

Project Category	Minimum Allocation[1] ($millions)	Allocation Based on $40 Million Budget[2] ($millions)
Clean Vehicle Rebate Project	15	21
Hybrid Truck and Bus Voucher Incentive Project	10	14
Advanced Technology Demonstration Projects	2	5
TOTAL	**27**	**40**

[1] Based on a conservative estimate of $27 million in revenues for AQIP projects.
[2] Based on Governor's revised State Budget of $43 million minus estimated administrative costs.

Establishing minimum targets for each category based on a conservative funding scenario reduces the risk of over-obligating funds beyond available revenues, and avoids disproportionally affecting projects that start later in the fiscal year if revenue projections are lowered. If revenues come in between the $27 million minimum allocation and the $40 million appropriated amount, funding for each project category would be scaled according to the targets in Table II-6 and an updated assessment of demand for funding in each project category. ARB staff plans to release initial grant solicitations based on the minimum allocations in Table II-6. However, the solicitations and grant agreements will be written with provisions to increase the awarded funding if there are sufficient revenues or if additional funding becomes available. Any allocation adjustments outside those specifically prescribed in the proposed Funding Plan would require Board approval.

Minor Technical/Administrative Changes

The proposed Funding Plan specifies all policy-related details regarding the projects to be funded. However, technical or administrative changes in implementation procedures may be needed from time to time to ensure these projects are successful. Staff proposes a transparent process in which minor changes to a project category would be publicly vetted through the public AQIP work groups that have been established to discuss the implementation details of each project. These changes would be within the Funding Plan parameters approved by the Board.

D. Fiscal Year 2012-13 Project Solicitations

Following Board approval of the proposed Funding Plan and after the final State Budget is signed; staff will release solicitations for each of the project categories in order to select a grantee to implement the projects in fiscal year 2012-13. The solicitations will include all the programmatic details potential grantees need to apply for funds, in addition to the criteria upon which the applications will be evaluated and scored.

In accordance with AQIP Guidelines, ARB will begin issuing project solicitations after the Board approves the funding plan and no later than 90 days after the funds are appropriated in the State Budget. The public work groups established for each project category will continue to be the primary avenue for seeking input and feedback on solicitations and implementation manuals. Staff will monitor and evaluate AQIP projects over the course of the fiscal year and share project data with the work groups.

III. References

In developing the proposed Funding Plan, ARB staff relied on information from previous Board approved AQIP Funding Plans, AQIP Guidelines, and the Energy Commission's Assembly Bill 118 Investment Plans . Links to this reference material are listed below:

Air Resources Board. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed AB 118 Air Quality Guidelines for the Air Quality Improvement Program and the Alternative and Renewable Fuel and Vehicle Technology Program, Released August 8, 2008.
http://www.arb.ca.gov/regact/2008/aqipfuels08/aqipfuels08.htm

Air Resources Board. Staff Report: Initial Statement of Reasons for Proposed Rulemaking, Proposed AB 118 Air Quality Improvement Guidelines, Released March 6, 2009. http://www.arb.ca.gov/regact/2009/aqip09/aqip09.htm

Air Resources Board. Proposed AB 118 Air Quality Improvement Program Funding Plan For Fiscal Year 2009-10. Approved April 24, 2009.
http://www.arb.ca.gov/msprog/aqip/fundplan/aqip_FY09-10_approved.pdf
http://www.arb.ca.gov/msprog/aqip/fundplan/aqip_FY09-10_FP_appendix.pdf

Air Resources Board. Proposed AB 118 Air Quality Improvement Program Funding Plan For Fiscal Year 2010-11. Approved June 24, 2010.
http://www.arb.ca.gov/msprog/aqip/fundplan/AQIP_FP_JUNE%202010-FINAL.pdf

Air Resources Board. Proposed AB 118 Air Quality Improvement Program Funding Plan For Fiscal Year 2011-12. Approved July 21, 2010.
http://www.arb.ca.gov/msprog/aqip/fundplan/final_approved_aqip_fy2011_funding_plan.pdf

Air Resources Board. 2011 Biennial Report to the Legislature on AB 118 Air Quality Improvement Program. January 11, 2011.
http://www.arb.ca.gov/msprog/aqip/leg_reports.htm

California Energy Commission, 2011. 2011 Integrated Energy Policy Report. Publication Number: CEC-100-2011-001-CMF
http://www.energy.ca.gov/2011publications/CEC-100-2011-001/CEC-100-2011-001-CMF.pdf

McKinney, Jim, Charles Smith, Andre Freeman, Pilar Magaña, Darcie Chapman. 2011. Benefits Report for the Alternative and Renewable Fuel and Vehicle Technology Program, Staff Draft Report. California Energy Commission, Fuels and Transportation Division. Publication number: CEC-600-2011-008-SD
http://www.energy.ca.gov/2011publications/CEC-600-2011-008/CEC-600-2011-008-SD.pdf

Smith, Charles, Jim McKinney. 2012. 2012-2013 Investment Plan Update for the Alternative and Renewable Fuel and Vehicle Technology Program Lead Commissioner Report. California Energy Commission, Fuels and Transportation Division. Publication Number: CEC-600-2012-001-LCR
http://www.energy.ca.gov/2012publications/CEC-600-2012-001/CEC-600-2012-001-LCF.pdf

Appendix A

Status Update on Assembly Bill 118 AQIP Projects

Contents

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A. Summary

In the previous 3 funding cycles (fiscal year's 2009-10, 2010-11, and 2011-12), the Air Resources Board (ARB) awarded about $28 million to Air Quality Improvement Program (AQIP) projects each year as shown in Table 1, which lists the project categories, funding levels, and project status. In fiscal year 2010-11, the Energy Commission supplemented ARB's awards by directing an additional $6 million to AQIP ($2 million for the Clean Vehicle Rebate Project and $4 million for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project) projects to meet additional demand bringing the total project funding to $35 million for the year. Fiscal year's 2009-10 and 2010-11 project funding was scaled back in accordance with the contingency provisions identified in each year's Funding Plan.

ARB funded five project categories in the first year of AQIP – the largest two being vouchers for the purchase of hybrid trucks and buses through the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project , and rebates for zero-emission or plug-in hybrid passenger cars through the Clean Vehicle Rebate Project. Both hybrid truck and electric vehicle technologies are at a key point where public incentives can help them become mainstream choices. These AQIP investments are an important first step in the fundamental transformation of the California fleet to one with widespread use of hybrid trucks and ZEVs critical to meeting California's long-term air quality and climate change goals.

For the most part, ARB continued funding these same categories in the second year, with the addition of one new category, a pilot project to evaluate and deploy off-road hybrid equipment. ARB did not allocate additional funds to the agricultural utility terrain vehicle rebate project in fiscal year 2010-11 because existing funds were sufficient to meet the projected demand. This program closed in December 2011 due to lack of demand and funds were redistributed in accordance to the contingency provisions in the fiscal year 2011-12 Funding Plan to three projects: locomotive demonstrations, hybrid truck testing and the Clean Vehicle Rebate Project. No new project categories were added in fiscal year 2011-12. While at different points in expenditure and implementation, all projects with the exception of the agricultural utility terrain vehicle rebate project are being implemented as envisioned, and the streamlined nature of the projects has enabled funds to be spent in a timely manner.

The Fiscal Year 2008-09 State Budget included a one-time appropriation from AQIP fund to implement a heavy-duty vehicle air quality loan program to assist smaller truck fleets affected by ARB's In-Use Truck and Bus Regulation and the Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation. Under this appropriation, $35 million is available for a financial assistance program referred to as the Providing Loan Assistance for California Equipment program.

This Appendix provides detailed information on the status of each projects' implementation.

Table 1: Status of Fiscal Year 2009-10, 2010-11, and 2011-12 AQIP Projects

Project Category	FY09-10 Award	FY10-11 Award	FY11-12 Award	Project Status[1]
Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project	$20.4 M	$23 M[2]	$11 M	Launched Feb 2010. ~$31 M spent; over 1050 vouchers issued; implementation ongoing.
Clean Vehicle Rebate Project	$4.1 M	$7 M[3]	$15.5 M[4]	Launched March 2010. ~$20 M spent; over 6,400 rebates issued; implementation ongoing.
Lawn & Garden Equipment Replacement	$1.6 M	$1 M	--	Launched spring 2010 with 9 air districts. ~$2.4 M spent; 12,400 mowers replaced; implementation ongoing.
Zero Emission Agricultural Utility Terrain Vehicle Rebates	$1.1 M[5]	--	--	Launched April 2010; closed December 2011. ~$135,000 spent; 56 rebates issued.
Off-Road Hybrid Equipment Pilot	--	$2 M	--	Launched July 2011. ~$850,000 spent; 15 vouchers issued. Emissions testing late 2012.
Advanced Technology Demonstrations	$1.8 M	$1.8 M	$1.5 M	11 projects ongoing from 1st two years; additional 2 projects in 2012
Total Funding	$29 M	$35 M	$28 M	

[1] Status as of May 1, 2012. Funds spent reflect vouchers/rebates in process and redeemed.
[2] Includes $4 million in funding from the California Energy Commission for zero-emission trucks.
[3] Includes $2 million in funding from the California Energy Commission.
[4] Includes $500,000 in funds redirected from the fiscal year 2011-12 locomotive demonstration.
[5] Remaining funds were redirected based on the contingency provisions in the Fiscal Year 2011-12 Funding Plan: $199,800 to hybrid truck testing and $675,000 to the Clean Vehicle Rebate Project.

B. Clean Vehicle Rebate Project

Overview

The Clean Vehicle Rebate Project offers vehicle rebates on a first-come, first-served basis for light-duty zero-emission vehicles, zero-emission motorcycles, and neighborhood electric vehicles. In the first 3 AQIP funding cycles, the Air Resources Board (ARB) has allocated a total of $24.1 million for the Clean Vehicle Rebate Project. An additional $2 million in funding was provided by the Energy Commission's AB 118 funding in mid-2011. To date nearly $20 million of this has been spent. ARB has made several program refinements since project inception to clarify project requirements and improve project effectiveness. The Clean Vehicle Rebate Project launched with its first year of funding in Fiscal Year (FY) 2009-10. In year 2, changes were made to expand opportunities for consumers to have experience driving clean cars without having to make the purchase commitment by including special provisions for rental and car share fleets that allowed these entities to more easily participate in the Clean Vehicle Rebate Project. Additional changes addressed growing consumer demand by establishing a cap on the number of rebates any entity could receive in each calendar year and the establishment of a waiting list. In year 3, in response to continuing demand increases, ARB reduced the maximum rebate amount for all vehicle types and set aside 10 percent of funds for car share fleets. Current rebates range from $900 for zero-emission motorcycles and neighborhood electric vehicles to $2,500 for full functioning zero-emission vehicles. Currently, 19 manufacturers have rebate-eligible vehicles, some with multiple models, and more vehicle introductions are planned in the next 6 months. Plug-in hybrid electric vehicles are new to the California consumer market, with several models introduced early in 2012.

The non-profit California Center for Sustainable Energy (CCSE) has been selected via competitive solicitation to administer the Clean Vehicle Rebate Project statewide in each of the 3 fiscal years. The California Center for Sustainable Energy responsibilities include project website development and maintenance, processing rebate applications and issuing rebate checks, consumer outreach and education, data reporting, and other duties associated with day-to-day implementation. ARB's responsibilities include program development and oversight, evaluating and approving eligible vehicles, verifying consumer compliance with rebate terms, and contract management and administration. The Clean Vehicle Rebate Project webpage, at http://www.energycenter.org/cvrp provides a real-time accounting of rebate funds available to consumers, a downloadable rebate application and instructions, list of eligible vehicles, an online tutorial, and other project information.

Program Status as of May 1, 2012

Since the project's consumer launch in March 2010, rebates for over 6,445 vehicles totaling nearly $20 million have been issued.

Table 2 presents a summary of rebates by vehicle type and model. The majority of total rebates (86 percent) have gone to light-duty zero-emission vehicles, with 79 percent of those rebates going toward the Nissan LEAF. Plug-in hybrid electric vehicles were introduced in late February 2012, and already comprise 8 percent of the total rebates issued as of May 1, 2012. As expected the recent diversity of vehicle types is resulting in more consumer choice. The list of rebate-eligible vehicles continues to expand, and 20 vehicles are now rebate-eligible covering a spectrum of prices and mileage range.

Table 2. Rebates by Vehicle Types and Model

Vehicle Type By Model	Number of Rebates	Total Dollars Allocated	Percentage of Total Dollars Allocated
Light-Duty Zero-Emission Vehicle	**5166**	**$17,130,750**	**86%**
CODA Sedan 2012	4	$ 10,000	0.05%
Honda 2010/11 FCX-Clarity	9	$ 42,500	0.21%
Mitsubishi i-MiEV 2012	50	$ 100,000	0.50%
Nissan Leaf 2011-2012 SV/SL Model	4634	$15,711,250	79%
Smart USA Cabriolet and Coupe 2011	319	$ 625,000	3%
Tesla Roadster 2009-2011	146	$ 632,500	3%
Think City 2011	3	$ 7,500	0.04%
Wheego LiFe 2011	1	$ 2,000	0.01%
Plug-In Hybrid Electric Vehicle	**1063**	**$ 1,594,500**	**8%**
Chevy Volt Low Emission package	286	$ 429,000	2%
Toyota Prius Plug-In Hybrid	777	$ 1,165,500	6%
Neighborhood Electric Vehicles	**74**	**$ 85,450**	**0.4%**
GEM 2009/10/11 e2	24	$ 21,900	0.11%
GEM 2009/10/11 e4	5	$ 6,100	0.03%
GEM 2009/2010 eL	3	$ 4,050	0.02%
GEM 2009/2010 eL-XD	4	$ 5,400	0.03%
GEM 2009/2010 eS	3	$ 3,300	0.02%
Miles EV 2009/2010 ZX40S-AD	34	$ 43,200	0.22%
Vantage 2010 EVX1000	1	$ 1,500	0.01%
Zero-Emission Motocyles	**93**	**$ 109,900**	**0.6%**
Brammo 2010-2012 Enertia	12	$ 15,000	0.08%
Vectrix 2007-2010 VX-1	5	$ 6,900	0.03%
Zero DS 2009-2011	76	$ 88,000	0.44%
Commercial Zero-Emissions Vehicles	**49**	**$ 980,000**	**5%**
Navistar 2010 eStar 300 series	10	$ 200,000	1%
Smith 2009/2010 Newton1-9	39	$ 780,000	4%
Total	**6445**	**$19,900,600**	**100%**

Table 3 presents rebates issued by applicant type. Consistent with ARB expectations, nearly 90 percent of the rebates have been issued to individual consumers, with the remainder going to businesses, non-profit organizations, or government fleets.

Table 3. Rebates by Applicant Type

Type of Application	Rebates Issued	Total Rebate Amounts	Percentage of Total Distributed
Private individual or sole proprietor	5783	$17,750,950	89%
California Licensed Business	610	$ 2,036,850	10%
Non-profit organization	12	$ 24,550	0.1%
State government agency	27	$ 49,650	0.2%
Local government agency	13	$ 38,600	0.2%
Total	**6,445**	**$19,900,600**	**100%**

Figure 1a illustrates the trends in rebate activity under the Clean Vehicle Rebate Project to date. The project was launched in March 2010, but the number of rebate applications was low until the release of the Nissan LEAF in early 2011. About 80 percent of the rebate funding for fiscal years 2009-2011 was spent from April until mid-June 2011, at which time a waiting list began. Another rebate spike occurred in March 2012 after the commercial release of plug-in hybrid electric vehicles.

Figure 1a. Rebates Issued by Month

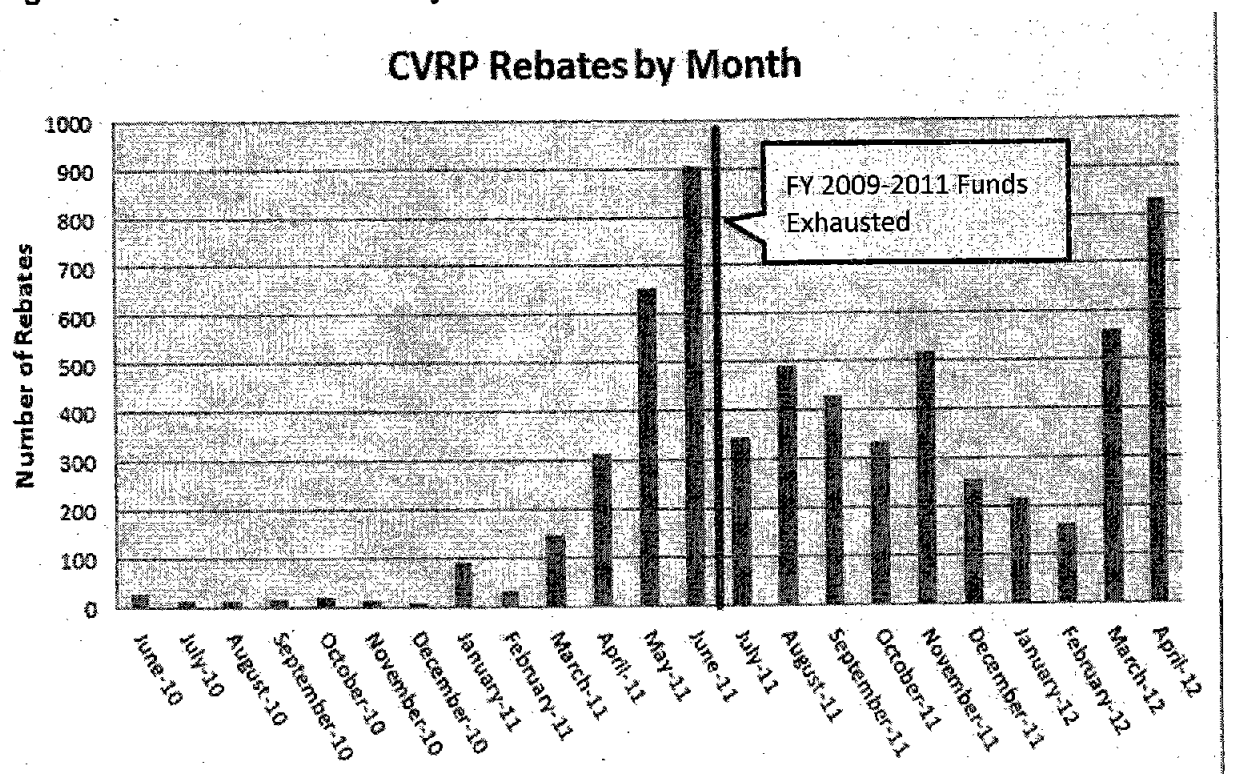
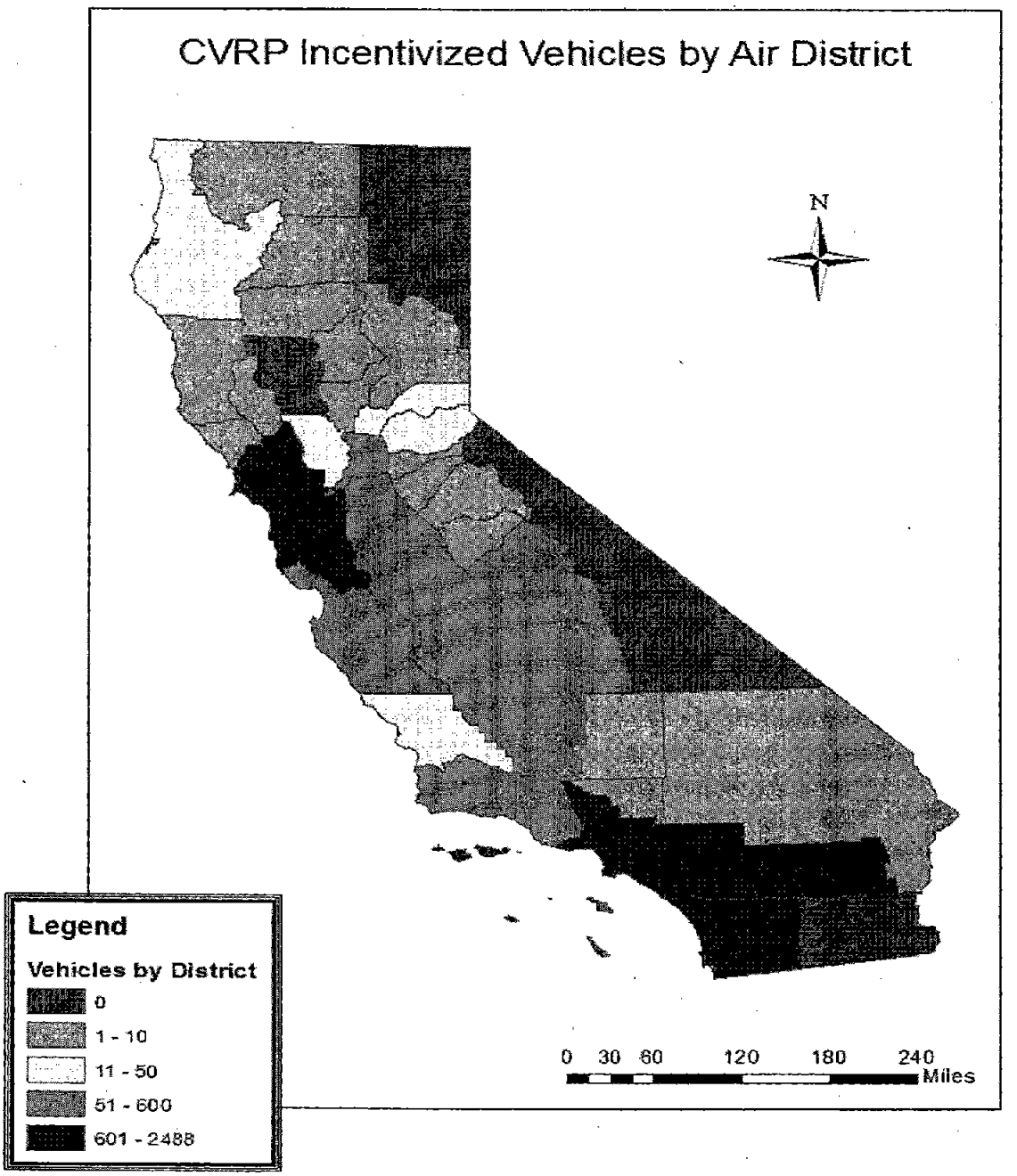


Figure 1b illustrates the statewide distribution of rebates by air district. The majority of rebates are in the Bay Area Air Quality Management District, South Coast Air Quality Management District, and San Diego County Air Pollution Control District. This distribution is due to manufacture marketing, population density, and additional incentives for charging infrastructure focused in these areas.

Figure 1b. Distribution of Rebates by Air District



C. Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project

Overview

The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project offers vouchers on a first-come, first-served basis for new hybrid and zero-emission trucks. In the first 3 AQIP funding cycles, ARB has allocated a total of $50.4 million for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project. An additional $4 million in funding was provided by the Energy Commission's AB 118 funding in mid-2011 for zero-emission trucks. ARB has made several program refinements since project inception in fiscal year 2009-10 to improve project effectiveness and transparency. In year 2, zero-emission trucks were shifted from the Clean Vehicle Rebate Project to the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project to better align with the commercial nature of truck purchases, voucher amounts were reduced for the heaviest vehicles to avoid purchasers from oversizing their vehicles, and $2 million was set aside for public fleets to address their challenges in procuring vouchers on a first-come, first-serve basis. In year 3, ARB established voucher funding tiers by purchase volume to encourage new fleets, especially small fleets, to invest in hybrid and zero-emission truck technology. In addition, to ensure continuing diversity in the marketplace, ARB limited any single manufacturer to no more than 50 percent of the fiscal year 2011-12 funds. Currently, over 50 hybrid and zero-emission truck and bus models from 11 different manufacturers are eligible for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project.

The non-profit transportation consortium Calstart has been selected via competitive solicitation to administer the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project statewide in each of the 3 fiscal years. Calstart's responsibilities include project website development and maintenance, processing voucher applications and issuing checks, consumer and dealer outreach and education, data reporting, and other duties associated with day-to-day implementation. ARB's responsibilities include program development and oversight, evaluating and approving eligible vehicles, verifying fleet owner compliance with voucher terms, and contract management and administration. The Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project webpage, at http://www.californiahvip.org/, provides a real-time accounting of voucher funds remaining, on-line application, list of eligible vehicles, training, and other project information.

Program Status as of May 1, 2012

Since the project's launch in February 2012, vouchers for over 1,000 vehicles totaling over $31 million have been issued. In July 2011, the Board approved $11 million in funding for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project for fiscal year 2011-12, bringing the cumulative project funding total $54.4 million.[1] Tables 4, 5 and 6 contain cumulative summaries of vouchers issued by eligible vehicle type,

[1] Includes $4 million from the Energy Commission in fiscal year 2011-12.

vehicle weight, and vehicle manufacturer, while Figure 1c illustrates voucher distribution by air district.

Table 4. Vouchers Issued By Vocation (Completed and In-Progress)

Vehicle Type	Vouchers Issued[1]	Total Voucher Funds	Average Voucher Amount	% of Total Vouchers	% of Total Voucher Funds
Beverage Delivery	384	$ 12,705,000	$ 33,086	36%	41%
Parcel Delivery	311	$ 8,821,000	$ 28,363	29%	28%
Uniform and Linen Delivery	108	$ 3,890,000	$ 36,019	10%	12%
Food Distribution	109	$ 2,615,000	$ 23,991	10%	8%
Other Truck	94	$ 1,785,000	$ 18,989	9%	6%
School, Shuttle or Urban Bus	28	$ 831,776	$ 29,706	3%	3%
Liquid Propane Pick-Up & Delivery	22	$ 570,000	$ 25,909	2%	2%
Total	1,056	$ 31,217,776	$ 29,562	100%	100%

1 Data includes $4 million in Energy Commission funding and vouchers completed and in-progress.
2 Commercial zero-emission vehicles incentivized through the Clean Vehicle Rebate Project in Year 1 are not included. See Table 1 for Year 1 commercial zero-emission vehicle information.

Table 5. Vouchers Issued By Gross Vehicle Weight Range (Completed and In-Progress)

Gross Vehicle Weight Range	Vouchers Issued[1]	Total Voucher Funds	% of Total Vouchers	% of Total Voucher Funds
5,001 – 6,000 lbs.	40	$ 516,000	4%	2%
6,001 – 10,000 lbs.	0	$ 0	0%	0%
10,001 – 14,000 lbs.	34	$ 715,000	3%	2%
14,001 – 19,500 lbs.	183	$ 4,200,000	17%	13%
19,501 – 26,000 lbs.	306	$ 9,985,000	29%	32%
26,001 – 33,000 lbs.	84	$ 2,151,776	8%	7%
>33,000 lbs.	409	$ 13,650,000	39%	44%
Total	**1,056**	**$ 31,217,776**	**100%**	**100%**

1 Data includes $4 million in Energy Commission funding and vouchers completed and in-progress.
2 Commercial zero-emission vehicles incentivized through the Clean Vehicle Rebate Project in Year 1 are not included.

Table 6. Rebates by Vehicle Types and Model[1]

Vehicle Types by Model	Number of Vouchers	Average Voucher Amount	Total HVIP Funding
Hybrid Vehicles			
Freightliner/FCCC	358	$27,011	$ 9,670,000
Kenworth	188	$33,963	$ 6,385,000
Ford/Azure	138	$24,565	$ 3,390,000
Navistar	90	$25,186	$ 2,266,776
Peterbilt	13	$26,923	$ 350,000
New Flyer	7	$40,714	$ 285,000
Thomas Built	5	$30,000	$ 150,000
Total	**799**	**$28,156**	**$22,496,776**
Zero-Emission Vehicles[1]			
Electric Vehicle International (Box Truck)	100	$46,000	$4,600,000
Smith Electric Vehicle (Newton)	83	$34,458	$2,860,000
Ford/Azure (Transit Connect)	40	$12,900	$ 516,000
Navistar (eStar 300)	34	$21,912	$ 745,000
Total	**257**	**$33,934**	**$8,721,000**

[1]Includes Energy Commission $4 million contribution.

Figure 1c. Distribution of Vouchers by Air District

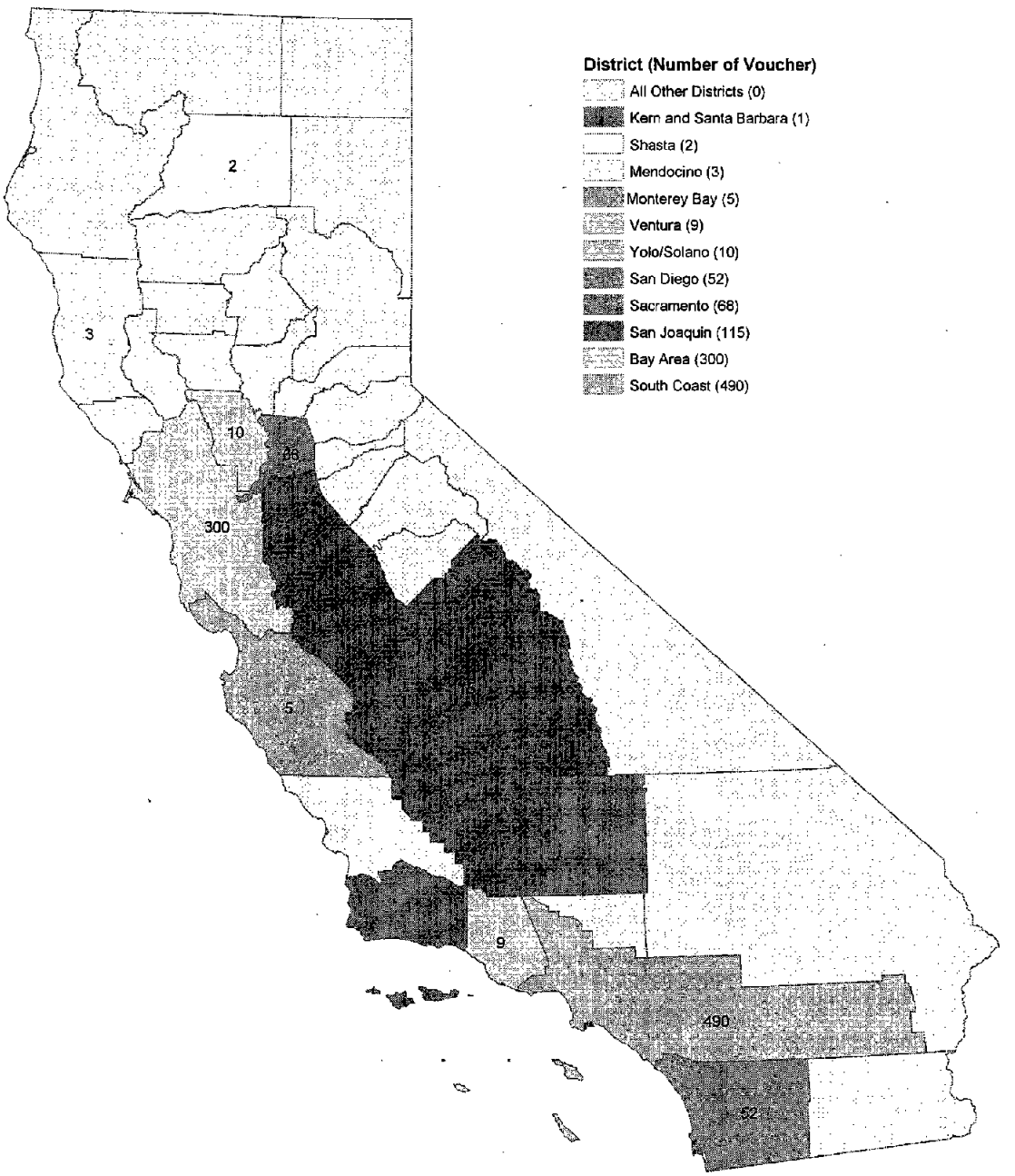
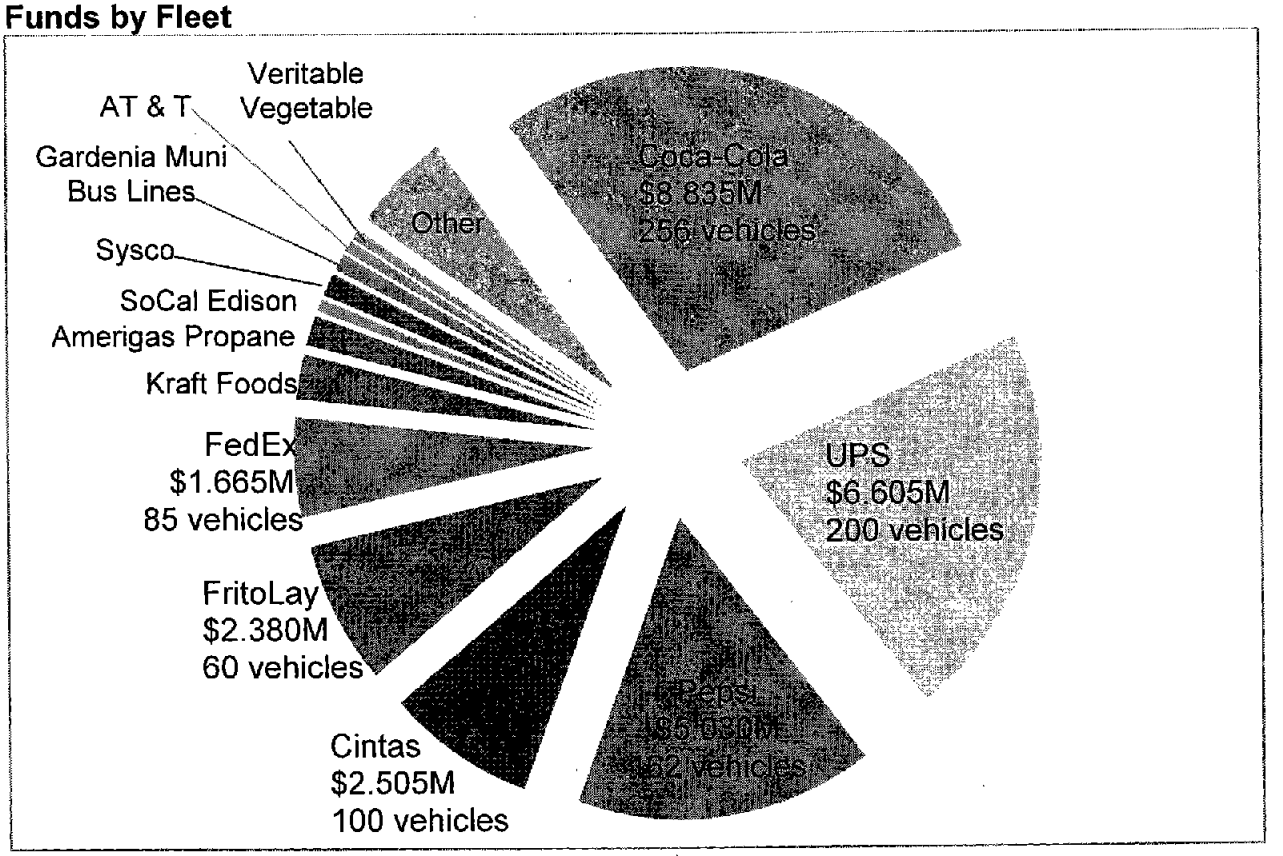


Figure 1d illustrates the number of Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project vouchers requested by each participating California fleet. These early adopter fleets have been critical in laying the foundation for hybrid and zero-emission trucks and buses to become a mainstream purchase option. The majority of Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funds thus far have gone to large national fleets, with Coca-Cola Enterprises and United Parcel Service receiving about half of program funds and the top 6 participants receiving 85 percent of all funding. Larger fleets have more resources to make the up-front investment in hybrid and zero-emission vehicle purchases and absorb perceived financial risk associated with being the first to adopt a new technology. However, more small and medium sized fleets must make the jump to these technologies in the near term for California to meet its air quality and climate change goals.

Figure 1d. Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Funds by Fleet



Hybrid Truck Testing

To complement the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project, ARB has directed approximately $700,000 for testing of hybrid heavy-duty trucks to the United States Department of Energy National Renewable Energy Laboratory. The testing will consist of data logging hybrid vehicles in order to improve

duty cycle classifications and characterization, complementary chassis emissions testing of both hybrid and conventional vehicles, and supplemental portable emissions measurements in real-world conditions. If possible, all the testing will ~~all~~ be completed on Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funded vehicles on a voluntary basis. This testing supports ARB's monetary investment in hybrid trucks and near-term updates to ARB's heavy-duty hybrid test procedures providing a better understanding of the utilization and emissions of medium- and heavy-duty hybrid vehicles in California. This effort will allow ARB and other California state agencies to strategically match advanced propulsion systems and duty cycles to optimize for fuel economy, emissions reductions, and return on grant funding or capital investment. The contracting phase is nearly complete with work to be completed within 18 months of contract execution.

D. Advanced Technology Demonstration Projects

The primary goal of Advanced Technology Demonstration Projects has been to accelerate advanced emission reducing technologies that are on the cusp of commercialization into the California marketplace. A public investment in these technologies helps to achieve significant emission reductions of criteria pollutants and toxic air contaminates sooner than would be possible otherwise. Funding advanced technology demonstration projects carries inherent risks such as the project may not meet its stated goals on schedule, or there may be a failure of the demonstration technology. ARB mitigates this risk by requiring a competitive selection process to award funding to the most promising technology, requiring a significant cost share from the technology demonstrator, and requires that the project applicant be a California-based public agency with expertise in the project category. Grants are awarded to public agencies to manage the day-to-day administration of the projects with ARB oversight. Typically public agencies are local air districts, port authorities, or public school districts, but other agencies are eligible. The team concept for demonstration projects, with technology demonstrators partnering with a local public agency and one or more end-users, has proven to be effective and is planned to continue for future projects.

Throughout the first 3 years of Advanced Technology Demonstration Projects, AQIP has funded 12 separate projects totaling $4.6 million (Table 7). AQIP investment has a corresponding $6.3 million in match funding from grantee's and technology demonstrators giving a total of $10.9 million of demonstration funding.

AQIP demonstration funds have predominately been focused toward large engine off-road mobile sources, such as marine vessels and locomotives. However, AQIP demonstration project funds have also been applied to the electrification of small horsepower engine applications such as lawn and garden equipment typically powered by gasoline engines. Additionally, AQIP demonstration project funds have supported on-road projects, with the battery-electric school bus demonstration.

The following discussion identifies all of the projects that have been pursued with Advanced Technology Demonstration Projects funding, by project category.

Table 7. AQIP Advanced Technology Demonstration Projects

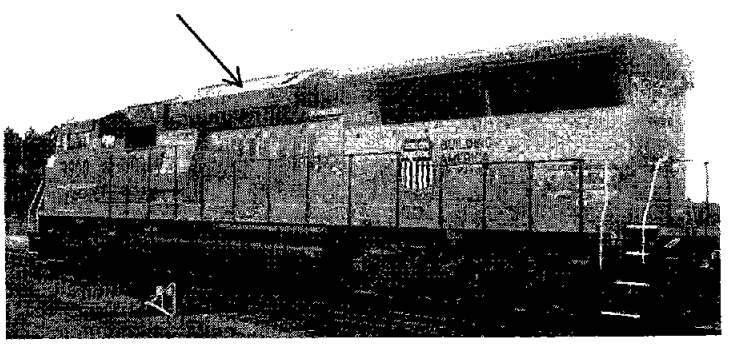
Fiscal Year	Project	Grantee	Grant Amount
2009-10	Marine	Port of Los Angeles: Hybrid Tugboat Retrofit	$1,000,000
	Locomotive	Port of Long Beach: Diesel Particulate Filter Retrofit of Switcher	$ 346,178
		Sacramento Metropolitan Air Quality Management District: Electro-Motive Diesel Incorporated Line-Haul Diesel Particulate Filter Retrofit	$ 502,865
2010-11	Marine	South Coast Air Quality Management District: Tugboat Diesel Particulate Filter /Selective Catalytic Reduction Retrofit	$ 439,000
		Bay Area Air Quality Management District: Sail Ferry Demo	$ 165,000
	Locomotive	Bay Area Air Quality Management District: Tier-4 Genset Switcher	$ 529,810
		Bay Area Air Quality Management District: Diesel Particulate Filter Retrofit on Genset Switcher	$ 270,190
	Lawn and Garden	Mojave Desert Air Quality Management District	$ 15,000
		South Coast Air Quality Management District	$ 100,000
		San Joaquin Valley Air Pollution Control District	$ 250,000
2011-12	School Bus	Kings Canyon Unified School District: Battery Bus	$ 496,696
		San Diego County Air Pollution Control District: Battery Bus	$ 502,304
	Locomotive	Tier-4 in High Horsepower Locomotives	No applications submitted
		Total	**$4,617,043**

Locomotive Category

AQIP has devoted almost half of all demonstration funds to the locomotive category demonstrating the importance of advanced technologies that have the potential to significantly reduce emissions from locomotives in California. Over the last 3 years, AQIP has funded projects that have continued a path toward lowering emission levels from locomotives. The first year focus was on retrofitting switcher and line-haul locomotives with diesel particulate filters. Second year funding was directed at further advances in retrofitting switcher locomotives with a diesel particulate filter and the development and manufacture of the world's cleanest diesel-fueled switch locomotive, projected to reach U.S. EPA Tier-4 emission levels for both oxides of nitrogen and particulate matter, using existing off-road engines. The third year was focused on technologies in high horsepower locomotives that can approach, meet, or exceed U.S. EPA Tier-4 emission levels for both oxides of nitrogen and particulate matter. However, no applications were submitted for this $1 million grant opportunity, staff believes that the $1 million was insufficient funding for locomotive engine manufacturers to accelerate introduction of their U.S. EPA Tier-4 emission engine technology.

Fiscal Year 2009-10 — Retrofit of a Line-Haul Locomotive with a Diesel Particulate Filter

Sacramento Metropolitan Air Quality Management District, Electro-Motive Diesel, and Union Pacific Railroad



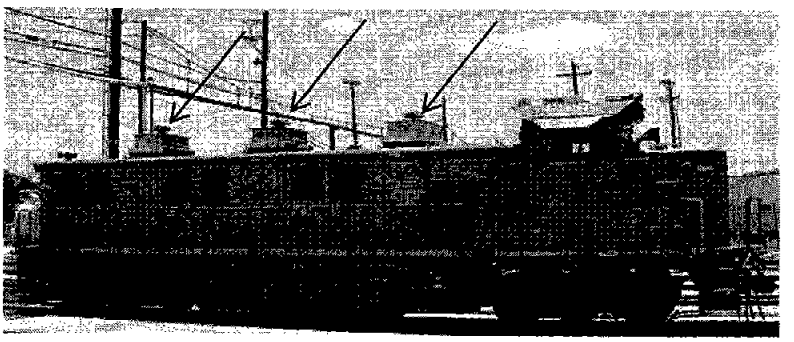
The retrofit of Electro Motive Diesel's model 710, 3,200 horsepower line-hail engine with a diesel particulate filter is a major engineering accomplishment. The retrofit can be seen in the photo as the winged area in the middle of the locomotive which houses the diesel particulate filter. This project marks the first time a large, two-stroke locomotive diesel engine has been successfully retrofitted with a diesel particulate filter, reducing particulate matter emission below U.S. EPA Tier-4 levels. This technology could be used on nine other existing in-use locomotives, and has potential for transfer into new locomotive engines. The project's main highlights are:

- Diesel particulate filter retrofit for line-haul locomotives
- Reduce particulate matter emissions beyond U.S. EPA Tier-4
- AQIP demonstration project grant: $502,865
- Will begin durability testing July 2012 for multiyear deployment

AQIP provided funding to accelerate its development and push forward the project timeline to facilitate an accelerated verification of the diesel particulate filter. This locomotive will be delivered to Union Pacific Railroad in Roseville, California, by the end of June 2012, for use between the Port of Oakland and the Roseville railyard. The

locomotive may see service as far afield as Reno or the South Coast Air Basin during its multiyear field demonstration being supervised by Sacramento Metropolitan Air Quality Management District.

Fiscal Year 2009-10 — U.S. EPA Tier-4 Particulate Matter Retrofit System for a Three Engine Genset Switch Locomotive
Port of Los Angeles, Johnson Matthey and Union Pacific Railroad



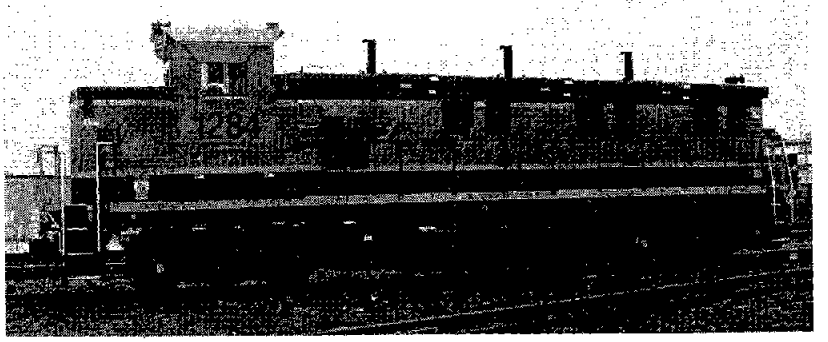
This project retrofitted all three Cummins engines in a National Railway Equipment Companies Genset switch locomotive with diesel particulate filters. In the photo of the UP2755, the retrofit devices can be seen protruding above the car body. This locomotive is currently undergoing its field demonstration at Union Pacific Railroad at the Intermodal Container Transfer Facility serving the Port of Los Angeles and Port of Long Beach. The project's main highlights are:

- Diesel particulate filter retrofit for in-use switch locomotives
- Reduce particulate matter emissions to U.S. EPA Tier-4
- AQIP demonstration grant: $346,178
- Project completion Date: June 1, 2013

The goal of this project is to receive ARB-verification of the retrofit to reduce particulate matter emissions by at least 85 percent, providing assurances that the device will perform in the demanding rail environment, and providing a pathway for public funding to incentivize the use of this retrofit on other locomotives thru programs such as the Carl Moyer Memorial Air Quality Standards Attainment Program (Carl Moyer Program). There is the potential for technology transfer to over 100 in-use genset switchers. This locomotive is currently in operation at the Intermodal Container Transfer Facility accumulating hours of operation toward its official ARB verification. Emission testing has been performed at zero hour and at 1,500 hours of operation and the devices are performing better than expected. A cumulative 3,000 hours of operation is expected to be completed and the final emission testing performed by June 2013.

Fiscal Year 2010-11 — Demonstrate U.S. EPA Tier-4 Particulate Matter Emission Control of a National Railway Equipment Company Genset Switcher Using a Catalytic Diesel Particulate Filter

Bay Area Air Quality Management District, GT Exhaust, and Burlington Northern Santa Fe Railway

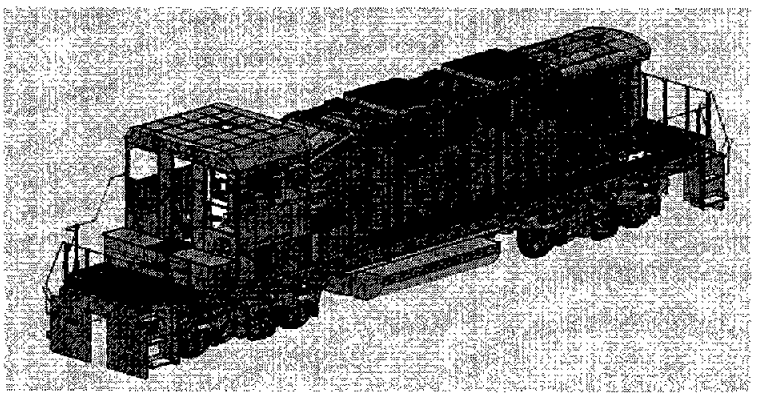


This demonstration project retrofitted all three engines on a National Railway Equipment Company genset switch locomotive with diesel particulate filters on Burlington Northern Santa Fe Railways locomotive number 1284 (Burlington Northern Santa Fe 1284). The goal of the projects was to reduce emissions of diesel particulate matter beyond 85 percent to below U.S. EPA Tier-4 for particulate matter on switch locomotives. During the baseline emission tests for this locomotive, after retrofit, particulate matter emission goal was surpassed. The retrofit devices take the place of the engine's silencer so there is no protrusion out of the locomotive car body. As a result, diesel particulate filters are almost a bolt on replacement for the engine's muffler, reducing the time and cost to retrofit additional genset switchers. There is the potential for technology transfer to over 100 in-use genset switchers. The project's main highlights are:

- Diesel particulate filter retrofit for in-use switch locomotives
- Reduce diesel particulate matter by 85 percent or more
- AQIP demonstration grant: $270,190
- Project completion date: June 30, 2013

Burlington Northern Santa Fe 1284 is currently in revenue service at Burlington Northern Santa Fe Railway's railyard in Richmond, California, accumulating durability hours before it's next emission test after 1,500 hours of use. ARB expects that this locomotive retrofit device will complete its required 3,000 hours of durability testing to apply for official ARB verification of the device before the end of fiscal year 2013.

Fiscal Year 2010-11 — Build and Deploy a Genset Switch Locomotive that Achieves U.S. EPA Tier-4 Emission Levels for Oxides of Nitrogen and Particulate Matter
Bay Area Air Quality Management District, National Railway Equipment Company, and Richmond Pacific Railroad



This project represents a major advance in the current state-of-the-art for switch locomotives. The objective of this project is to design, build, and deploy the world's cleanest diesel-fueled locomotive. The technology demonstrator, National Railway Equipment Company, is combining two Cummins QSX 15 Tier-4 off-road engines, into National Railway Equipment Company's switch locomotive car body. The locomotive, once completed, will be brought into the Bay Area Air Quality Management District for durability testing. That durability testing will be performed while in revenue service by Richmond Pacific Railroad, a family owned California company, at its facilities in Richmond, California. The project's main highlights are:

- Design, build and deploy a U.S. EPA Tier-4 switch locomotive
- Meet Tier-4 emission levels for oxides of nitrogen and particulate matter
- AQIP demonstration grant: $529,810
- Project completion date: June 15, 2013

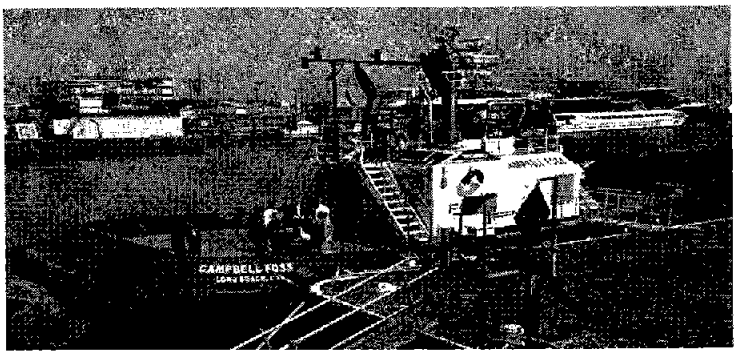
The Cummins QSX-15 Tier-4 off-road engine employs cooled exhaust gas recirculation and a diesel particulate filter to meet Tier-4 emission levels. The U.S. EPA Tier-4 switch locomotive that is developed under this project will see service beyond the end date of the demonstration project. ARB and the Bay Area Air Quality Management District have secured a commitment by National Railway Equipment Company and Richmond Pacific Railroad to operate this locomotive in the Bay Area until at least July 2016.

Marine Category

AQIP marine demonstration projects have been focused on enhancing options available to vessel owners by advancing emission-reducing technologies beyond what is required by regulation. Selected projects in the marine category have the opportunity to realize significant reductions in operational costs for vessel operators and reductions in criteria pollutants, with greenhouse gas reductions as a co-benefit. Technologies can be applied in a variety of different vessel types from tugboats to ferries.

Fiscal Year 2009-10 — Hybrid Tugboat Retrofit
Port of Los Angeles and Foss Maritime Company

The goal of this project was to seize the momentum that Foss Maritime had generated with building the world's first hybrid tugboat, the *Carolyn Dorothy* (a Dolphin Class tugboat built by Foss Maritime) by retrofitting an existing tugboat with the hybrid system that was originally developed for the *Carolyn Dorothy*. To date, the retrofit of the *Campbell Foss*, has been completed and durability testing is currently underway. The *Campbell Foss* is currently in-use at the Port of Long Beach along with her sister vessel the *Carolyn Dorothy*. The project's main highlights are:



- Retrofit an existing tugboat with hybrid system
- Substantially reduce emissions of criteria pollutants and reduce fuel usage
- AQIP demonstration grant: $1 million
- Project will be complete by June 30, 2013

The hybrid technology employed in this project is different than what is typically found in on-road vehicles; there is not regenerative braking, but there is plug-in charging. This project takes advantage of inherent efficiencies of operating diesel engines at their most efficient load and engine speed. The *Campbell Foss* employs 2 3,000 horsepower main engines, 2 smaller auxiliary diesel generators, and a series of battery packs, to safely propel the vessel as the situation dictates. In certain circumstances, it is not efficient to use 2 3,000 horsepower engines to operate the vessel, in these situations the *Campbell Foss* can be operated with batteries alone, thereby reducing main engine idling. Transiting the *Campbell Foss* around the harbor can be accomplished with the use of one auxiliary generator, rather than using the main engines under slight load. This project has demonstrated the feasibility of the hybrid system in tugboats and the next objective is ARB's validation of the technology to facilitate additional tugboat hybrid retrofits. In operation within California, there are four other Dolphin Class tugboats, nearly identical to the *Campbell Foss*, which would be good candidates for retrofit after the completion of this project. In addition, there are more than 150 other tugboats operating in California that this technology could transfer to in the future.

Fiscal Year 2010-11 — Retrofit of a Tugboat with a Diesel Particulate Filter and Selective Catalytic Reduction Device
South Coast Air Quality Management District, Hug Filtersystems, and Sause Brothers

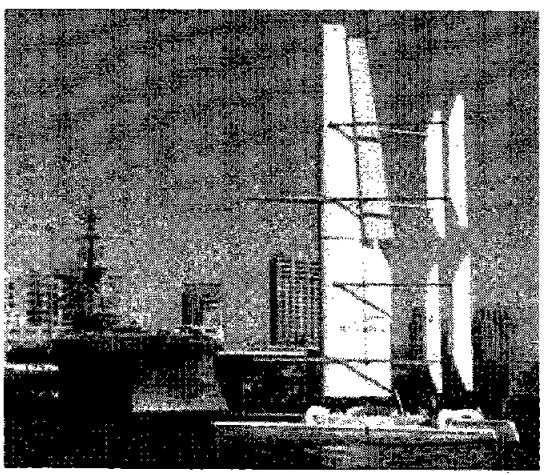
The goal of this project is to demonstrate the feasibility of retrofitting an in-use tugboat's main engines with a diesel particulate filter and a selective catalytic reduction system to reduce emissions of particulate matter and oxides of nitrogen to levels beyond what is

required by regulation. There are more than 150 other tugboats operating in California that this technology could transfer to. The project's main highlights are:

- Retrofit an existing tugboat with diesel particulate filter/selective catalytic reduction system
- Substantially reduce criteria pollutant emissions from the retrofitted vessel
- AQIP demonstration grant: $439,000
- Project will be complete by June 30, 2013.

Pursuing official ARB verification of the device at emission levels beyond what is required by regulation allows for public funding to incentivize the use of this retrofit on other similar vessels through programs such as the Carl Moyer Program.

Fiscal Year 2010-11 — Wind Assist Marine Demonstration Project
Bay Area Air Quality Management District, Wind + Wing Technologies, and Harbor Wing Technologies



The objective of this project is to evaluate the viability of using a wing-sail to provide motive power, either in whole or in part, to a vessel plying ferry routes on the San Francisco and San Pablo Bays. The number of ferries operating in the Bay Area is expected to expand beyond its current extensive service considerably in the next several years. This project evaluates the wing-sail not the vessel, to determine the potential to reduce criteria pollutant and fuel usage and influence future ferry design. If the project is successful, it can provide confidence to the Bay Area ferry districts that a purpose built ferry with the wing-sail design would perform as expected. The project's main highlights are:

- Mimic existing ferry routes and measure winds to determine potential of wing-sail to operate in the Bay Area ferry environment
- Potential to influence future ferry designs
- AQIP demonstration grant: $165,000
- In-Use testing to be completed by October 2012

The vessel is owned by the United States Navy Office of Naval Research. Once the field demonstration is complete, scientists at the University of California, Berkeley will evaluate the data and prepare a report on the feasibility of this technology for ferry service.

School Bus Category

Through the Lower-Emission School Bus Program, ARB has provided approximately $250 million toward school bus replacement and retrofit. The objective for AQIP school bus projects is to build upon the success of the Lower-Emission School Bus Program and advance the cleanest technologies for use in school buses beyond regulatory requirements and toward zero-emission. There are several benefits to demonstrating advanced technologies in schools buses:

- School transportation officials have the opportunity to try out advanced technology school buses without a major financial commitment.
- Battery-electric and hybrid-electric school buses reduce student's exposure to diesel particulate matter.
- Provides school districts experience with the financial saving that can be realized by operating advanced technology buses.
- Opportunities exist for school districts to purchase these advanced technology buses with little to no out-of-pocket expense by using local Assembly Bill 923 funds or state Lower-Emission School Bus Program funds if available, in combination with an AQIP Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project voucher.

Fiscal Year 2011-12 — Deploy and Share Two Battery-Electric School Buses Among School Districts within the San Joaquin Valley
Kings Canyon Unified School District and Trans Tech Bus

The objective of this project is to take the currently commercially available Trans Tech eTrans battery-electric school bus and allow public school districts to gain experience operating this advanced technology school bus without the financial commitment. This project gets advanced technology buses into the fleets of participating school districts within the San Joaquin Valley by allowing them to operate the buses transporting students from home to school over a several week demonstration at no cost to the participating school district. This project funds 2 eTrans buses that will be shared between 20 or more public school districts over a two year period. In addition, Kings Canyon Unified School District, the project grantee, is including a hybrid-diesel school bus in the pool of buses for school districts to select from. During each school district's demonstration, data will be collected on charge time, battery status, bus usage and other parameters to help better understand the applicability of battery electric and hybrid-electric school buses to school district fleet managers. The project's main highlights are:

- Fund two eTrans battery electric buses for sharing among many school districts
- Zero-emission operation reducing children's exposure to pollutants
- AQIP demonstration grant: $496,696
- Project will run thru June 30, 2014

Fiscal Year 2011-12 — Build and Deploy an Economical Electric School Bus for Use Among Participating San Diego School Districts
San Diego County Air Pollution Control District and TransPower

The goal of this demonstration project is to build and deploy a battery-electric school bus for use transporting students from home to school. The bus being developed is a Type-C bus, large enough to carry over 40 students, for use in daily operation by a school district and will be the largest electric school bus in operation. This bus, once approved by the California Highway Patrol, will be shared among several participating school districts over a period of several months to allow for a thorough evaluation by district school transportation officials. The objective of this project is to develop an electric school bus that can compete with diesel or alternative fueled buses of similar size and function on an economic basis. The technology demonstrator for this project, TransPower, is a California based company with manufacturing operations in San Diego County. The project's main highlights are:

- Build and deploy a battery-electric school bus
- Reducing children's exposure to criteria pollutants
- Reducing school district operational costs
- AQIP demonstration grant: $502,304
- Project will be completed by June 30, 2014

Zero-Emission Commercial Lawn and Garden Category

AQIP Advanced Technology Demonstration Projects provide funding for commercial cordless zero-emission lawn and garden equipment at a strategic time in product development with several manufacturers just beginning to bring equipment to market. A large segment of existing in-use commercial-grade lawn and garden equipment remains long-lived two-stroke engines. Significant emission reductions can be achieved by replacing this equipment with cleaner technology. It is the goal of these demonstration projects to foster market acceptance by reducing barriers of acceptance by commercial landscape firms. Those barriers include, but are not limited to, incremental cost for battery-electric equipment, confidence in the advanced technology and an existing sense of familiarity with gasoline powered equipment. Providing the end user an opportunity to operate the zero-emission equipment without a large financial outlay allows the operator to see the benefits first-hand, such as, lower maintenance and operational costs, less noise during operation, zero pollution at job site and the presentation of an environmental company image.

Fiscal Year 2010-11 — Demonstrate Zero-Emission Lawn and Garden Equipment in a Commercial Setting

In June 2011, ARB awarded $365,000 in grant funding to 3 local air districts to the following projects:

- $100,000 to South Coast Air Quality Management District to demonstrate Stanley Black & Decker Incorporated commercial grade cordless zero-emission lawn mowers, string trimmers, and hedge trimmers in a non-residential application. South Coast Air Quality Management District has partnered with Stanley Black & Decker Incorporated, Valley Crest Landscape Maintenance, and the Center for Environmental Research and Technology at University of California Riverside (CE-CERT) to test, collect, and evaluate data on Stanley Black & Decker Incorporated equipment.

- $15,000 to the Mojave Desert Air Quality Management District to demonstrate a variety of cordless zero-emission lawn and garden equipment (riding lawn mowers, blowers, chainsaws, trimmers, etc.) in the Mojave Desert's extreme climate. Mojave Desert Air Quality Management District has partnered with the City of Hesperia, City of Victorville, Stanley Black & Decker Incorporated, and STIHL® to evaluate the impact Mojave Desert's extreme climate may have on equipment performance.

- $250,000 to San Joaquin Valley Air Pollution Control District to demonstrate cordless zero-emission lawn and garden equipment in non-residential applications. San Joaquin Valley Air Pollution Control District is currently selecting one or more cordless zero-emission commercial lawn and garden equipment manufacturers and professional landscapers and is scheduled begin testing and data collection July 2012.

E. Lawn and Garden Equipment Replacement Project

Overview

The Lawn and Garden Equipment Replacement Project replaces gasoline powered residential lawn and garden equipment with cordless, zero-emission lawn and garden equipment, encouraging further development and deployment of this technology. AQIP's Lawn and Garden Equipment Replacement Project augmented local air districts program's which had proved successful in reducing criteria pollutant emissions cost-effectively, but were limited in scope partially due to deficient funding. In fiscal year 2009-10, AQIP awarded $1.6 million in funding to Lawn and Garden Equipment Replacement Project, with an additional $1 million in fiscal year 2010-11. In fiscal year 2011-12, ARB shifted zero-emission lawn mower replacement projects to the Carl Moyer Program in part based on the success of AQIP Lawn and Garden Equipment Replacement Project.

Program Status as of May 1, 2012

To date, a total of 12,403 mowers have been replaced (Table 8). AQIP funds expanded local air district programs by requiring districts to provide match funding, which resulted in the replacement of an additional 8,645 lawn mowers.

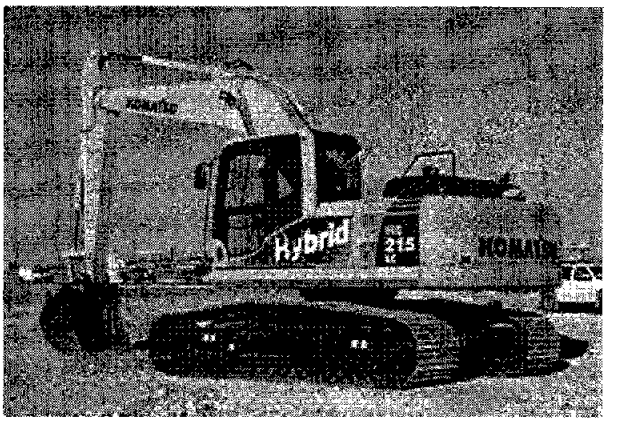
Table 8. Lawn and Garden Equipment Replacement Project Summary

District	Fiscal Year	Grant Award	Mowers Replaced[1]	Project Status
Antelope Valley Air Quality Management District	2009-10	$ 10,000	50	Complete
	2010-11	$ 10,000	39	Ongoing
Bay Area Air Quality Management District	2010-11	$ 182,025	0	June 2012 Exchange event
Mojave Desert Air Quality Management District	2009-10	$ 10,000	50	Complete
	2010-11	$ 50,000	242	Ongoing
South Coast Air Quality Management District	2009-10	$ 816,000	4,690	Complete
	2010-11	$ 494,314	2,493	Complete
San Diego Air Pollution Control District	2009-10	$ 150,000	648	Complete
San Joaquin Valley Air Pollution Control District	2009-10	$ 464,000	1,671	Complete
	2010-11	$ 183,661	735	Complete
Sacramento Metropolitan Air Quality Management District	2009-10	$ 75,000	682	Complete
	2010-11	$ 65,000	538	Complete
Ventura County Air Pollution Control District	2009-10	$ 50,000	225	Complete
Yolo-Solano Air Quality Management District	2009-10	$ 25,000	235	Complete
	2010-11	$ 15,000	105	Ongoing
Total		**$2,600,000**	**12,403**	

F. Hybrid Off-Road Equipment Pilot Project

Overview

The goal of the Hybrid Off-Road Equipment Pilot Project is to accelerate deployment of commercialized hybrid construction equipment while evaluating the emissions benefits of the equipment in real world applications. The project deployment element provides funding for up to half the incremental cost of fully commercialized hybrid off-road equipment. This project will help provide the foundation for growth in the hybrid off-road equipment fleet by spurring initial deployment of commercialized (but more expensive) hybrid equipment and providing fleets with experience using and maintaining this new technology.



ARB assembled the Hybrid Off-Road Equipment Work Group, including equipment manufacturers, fleets, and other stakeholders to identify commercially available hybrid equipment eligible for participation in the Hybrid Off-Road Equipment Pilot Project. Only 2 equipment makes/models were determined to be commercially available for California purchase in early 2011 – the Caterpillar D7E dozer and the Komatsu HB215-LC-1 excavator. Hybrid equipment in the demonstration phase of commercialization is not eligible for this project. The dozer's and excavator's respective $75,000 and $28,500 voucher amounts reflect approximately one-half of the hybrid equipment's incremental cost.

The CE-CERT was competitively selected in June 2011, to administer both the voucher distribution and emission testing elements of the Hybrid Off-Road Equipment Pilot Project. The goals of the project testing element are to determine oxides of nitrogen, particulate matter, total hydrocarbon, carbon monoxide, and carbon dioxide emission benefits of funded equipment relative to its non-hybrid counterpart. Equipment characterization and emissions testing are to be conducted on 3 hybrid Komatsu HB215-LC-1 excavators and 3 hybrid Caterpillar D7E dozers in a variety of typical vocations. In April 2012, CE-CERT began collecting activity data on funded equipment to develop appropriate in-use equipment duty cycles. CE-CERT is scheduled to complete emissions testing by late 2012 or early 2013. Table 9 details Hybrid Off-Road Equipment Pilot Project funding available for the equipment deployment and testing elements.

Table 9. Off-Road Hybrid Pilot Project Funding Distribution

	Project Implementation	Project Administration	Total
Hybrid Equipment Deployment	$ 901,578	$ 98,842	$1,000,420
Hybrid Equipment Testing 1. *Activity Characterization* 2. *Sequence of Operations/ Test Cycle Development* 3. *In-Use Emissions Testing* 4. *Data Analysis and Final Report*	$ 905,308	$ 94,272	$ 999,580
Total	**$1,806,886**	**$193,114**	**$2,000,000**

Program Status as of May 1, 2012

Since the project's launch in August 2011, vouchers for 15 pieces of equipment totaling $846,000 have been issued. Tables 10 and 11 provide cumulative summary of vouchers issued by eligible equipment type and voucher distribution by air district.

Table 10. Vouchers Issued By Equipment Make/Model (Completed and In-Progress)

Vehicle Type	Vouchers Issued	Total Voucher Funds	Average Voucher Amount	Average Equipment Purchase Price
Caterpillar Hybrid D7E Dozer	9	$675,000	$75,000	$614,380
Komatsu Hybrid HB215-LC-1 Excavator	6	$171,000	$28,500	$288,389
Total	**15**	**$846,000**	**$56,400**	**$483,984**

Table 11. Voucher Distribution by Air District

Location of Participating Fleet	Number of Vouchers	Total Funding
South Coast Air Quality Management District	5	$375,000
San Diego County Air Pollution Control District	4	$207,000
Bay Area Air Quality Management District	2	$150,000
Sacramento Metropolitan Air Quality Management District	2	$ 57,000
San Joaquin Valley Air Pollution Control District	1	$ 28,500
Shasta County Air Quality Management District	1	$ 28,500
Total	**15**	**$846,000**

Table 12 describes the California early adopter fleets that are participating in the Hybrid Off-Road Equipment Pilot Project. These fleets' early investment in hybrid construction equipment is helping lay the foundation for development of additional hybrid equipment models, greater consumer acceptance of this technology, and the eventual widespread commercialization of zero- and near-zero- equipment needed to meet California's air quality and climate change goals.

Table 12. Voucher Distribution by Fleet

Purchasing Fleet	Number of Vouchers	Total Funding
Hybrid Caterpillar D7E Dozer		
Waste Management	1	$ 75,000
Orange County Water District	2	$150,000
Republic Services, Incorporated	5	$375,000
Riverside County	1	$ 75,000
Hybrid Komatsu Excavator		
Road Machinery, Limited Liability Corporation	4	$114,000
Clairemont Equipment	2	$ 57,000
Total	**15**	**$846,000**

G. Agricultural Utility Terrain Vehicle Rebate Project

In fiscal year 2009-2010, AQIP allocated $1.1 million to the Zero-Emission Agricultural Utility Terrain Vehicle Rebate Project with the purpose of accelerating the deployment of zero-emission work vehicles for use in California agricultural operations. Eligible vehicles included zero-emission all-terrain and utility vehicles that satisfied specified horsepower, vehicle weight, payload limit, and tow capacity criteria. Over the course of the project, 41 vehicle models were approved for rebates, ranging from $1,374 to $5,250 per vehicle. Initially, the project provided rebates for 15 percent of the manufacturer's suggested retail price, up to $2,500 per vehicle (which corresponded to about half the vehicle incremental cost) to qualified individuals and entities. The rebate amount was increased from 15 percent to 25 percent of manufacturer's suggested retail price in September 2010 to further spur demand. However, even with the increased rebate amount the project did not provide enough money to encourage more agricultural operators to consider purchase a zero-emission utility terrain vehicle rather than a gasoline or diesel powered engine. As a result of insufficient consumer interest and expenditure deadlines, the project closed on December 31, 2011, and remaining funds were returned to AQIP.

The San Joaquin Valley Air Pollution Control District was selected through competitive solicitation to administer the rebate project statewide on a first-come, first-serve basis. The San Joaquin Valley Air Pollution Control District's responsibilities included evaluating and processing rebates, consumer outreach and education, project website development and maintenance, data reporting, and other duties associated with the day-to-day implementation. ARB's responsibilities included program development and oversight, updating the Implementation Manual, evaluating and approving eligible vehicles, verifying consumer compliance with rebate terms, and contract management and administration.

The San Joaquin Valley Air Pollution Control District issued a valley-wide and statewide press release with the help of ARB to launch the program. To promote the rebate project and to inform interested stakeholders, an advertisement for the Zero-Emission Agricultural Utility Terrain Vehicle Rebate Project was featured in the February and March issues of the Ag Source magazine (the premiere magazine of the World Ag Expo) to coincide with the World Ag Expo in Tulare, California. In addition, the San Joaquin Valley Air Pollution Control District contacted vehicle dealers on a routine basis to get feedback on the program. District staff also communicated with purchasers about their vehicles and experience. Two owners of Polaris Ranger Electric Vehicles spoke favorably about their all electric vehicles — enjoying reduced maintenance and battery life that lasted an entire work day. The San Joaquin Valley Air Pollution Control District suggests that the biggest hurdle was the amount of the incentive since the rebate was insufficient to cover the incremental cost.

Between February 1, 2010 and December 31, 2011, 56 rebates totaling $134,509 were issued. Table 13 presents the regional distribution of the rebates issued. As shown in

Table 14, the majority of the rebates were issued to individuals and about a third of the total rebates were provided to businesses.

Table 13. Rebates by Air District

Local Air Districts	Number of Rebates	Total Rebates	Total Dollars Spent	Total Dollars Spent	Project Dollars Spent
San Joaquin Valley Air Pollution Control District	18	32%	$ 43,407	32%	4.4%
Northern Sonoma County Air Pollution Control District	10	18%	$ 24,526	18%	2.5%
Bay Area Air Quality Management District	7	13%	$ 15,702	12%	1.6%
Feather River Air Quality Management District	5	9%	$ 2,180	9%	1.2%
San Luis Obispo Air Pollution Control District	3	5%	$ 7,105	5%	0.7%
Siskiyou Air Pollution Control District	2	4%	$ 5,975	4%	0.6%
San Diego Air Pollution Control District	2	4%	$ 5,150	4%	0.5%
Shasta Air Quality Management District	2	4%	$ 4,284	3%	0.4%
Ventura Air Pollution Control District	2	4%	$ 4,152	3%	0.4%
Colusa Air Pollution Control District	1	2%	$ 2,750	2%	0.3%
Santa Barbara Air Pollution Control District	1	2%	$ 2750	2%	0.3%
Yolo-Solano Air Quality Management District	1	2%	$ 2,499	2%	0.3%
Northern Sierra Air Quality Management District	1	2%	$ 2,499	2%	0.3%
South Coast Air Quality Management District	1	2%	$ 1,605	1%	0.2%
Total	**56**	**100%**	**$134,509**	**100%**	**13.4%**

Table 14. Rebates by Applicant Type

Type of Applicants	Rebates Issued	Percentage of Total Distributed
Private individual or sole proprietor	38	68%
California Licensed Business	18	32%
Total	**56**	**100%**

H. Air Quality Loan Program for Trucks

Background

The California Legislature directed an appropriation of first year AQIP funds for use in establishing a loan assistance program to aid small business fleet owners affected by the ARB's In-Use Truck and Bus Regulation and the Tractor-Trailer Greenhouse Gas Regulation. Formally known as the Providing Loan Assistance for California Equipment program, about $35 million is available to assist truckers. To date, ARB has implemented two Providing Loan Assistance for California Equipment program components:

- $21.3 million for a Truck Loan Assistance Program implemented in partnership with the California Pollution Control Financing Authority; and
- $714,000 for a Pilot Revolving Loan/Lease-to-Own Program implemented by Cascade Sierra Solutions.

Providing Loan Assistance for California Equipment program expands ARB's portfolio of air quality grant programs, providing additional opportunities to fund heavy-duty vehicle projects and to maximize a finite amount of State funding available for air quality incentives. On its own or coupled with ARB's traditional grant programs, the program is designed to specifically assist small business owners that face difficulty obtaining affordable financing, particularly during California's economic downturn and tight credit market. This innovative financial assistance program is an integral tool in bridging the financing gap for fleet owners that receive other ARB grant funding but still require some level of additional financing; for fleet owners that do not receive grant funding due to program oversubscription; or for projects that do not meet grant program requirements.

Program Performance

The first program component is a Truck Loan Assistance Program developed in partnership with the California Pollution Control Financing Authority within the State Treasurer's Office. Launched in April 2009, this component builds on California Pollution Control Financing Authority's highly successful California Capital Access Program, which provides a stable financing structure enabling lenders to provide competitive-rate loans to small businesses that fall just outside of conventional underwriting standards. Eligible borrowers seeking a lease-to-own option can now also finance truck purchases through Terminal Rental Adjustment Clause leases as a result of recent legislation (Senate Bill 225; Chapter 492, Statutes of 2011). In the second program component, ARB successfully demonstrated a Pilot Revolving Loan/Lease-to-Own Program administered by Cascade Sierra Solutions, a non-profit organization dedicated to saving fuel and reducing emissions from heavy-duty diesel vehicles. The pilot launched in 2009, and all funds were spent within a year. As of May 1, 2012, approximately $13 million in Providing Loan Assistance for California Equipment

program funds has been leveraged to provide $85 million in financing for the purchase of nearly 1350 cleaner trucks and about 350 exhaust retrofits.

Future Expectations

Last year ARB staff redirected approximately $12 million from the first year AQIP funds to pursue the development of a Direct Loan Program that would target the same credit-challenged borrowers as the other Providing Loan Assistance for California Equipment program components but provide ARB more direct control over interest rates and other loan terms. Due to constraints in internal resources necessary to support the program's fiscal infrastructure, this program component is suspended at this time. At the current expenditure rate, ARB staff estimates remaining funds will be fully expended by the end of 2013 and therefore does not propose additional funding for the Providing Loan Assistance for California Equipment program in the proposed Fiscal Year 2012-2013 Funding Plan. Staff will reevaluate the need for additional funding in next year's Funding Plan.

Appendix B

AQIP Program Benefits and Coordination with Other Agencies

A. Program Benefits

California's air quality challenges require the development and widespread deployment of zero- and near-zero-emission technologies. Preliminary evaluations predict that to meet these goals California will need to see a fundamental transformation of the transportation sector. Sales of conventional technology light-duty vehicles will need to end by 2040 with new sales consisting primarily of fuel cell, battery electric and plug-in hybrid electric vehicles. The overall light-duty fleet fuel economy will need to double by 2050. A similar transformation will need to occur in the heavy-duty sector with sales of conventional vehicles for in-state fleets ending by 2040 and reduced by 75 percent by 2050 for the interstate fleet. The heavy-duty fleet will need to recognize a minimum of a 175 percent increase in fuel economy by 2050. To achieve this, battery electric and hybrid trucks must penetrate the market early to pave the way for wide scale adoption of these technologies and provide a base for even more advanced technologies, such as fuel cell vehicles.

AQIP provides a modest down payment on the technologies needed to meet these needs with a focus on stimulating the widespread use of these technologies. AQIP projects provide both immediate emission reductions from the vehicles directly funded and, more importantly, set the stage for greater, indirect reductions in the future by accelerating large-scale market penetration. These longer-term program benefits accrue primarily from overcoming deployment barriers and accelerating technology transfer.

Overcoming Deployment Barriers

Significant barriers are involved when transitioning advanced technologies to widespread use in the marketplace. These barriers include, among others, the higher purchase price of the advanced technology, consumer acceptance and technology confidence, technology limitations (such as range for electric vehicles), and new infrastructure needs. AQIP funding is critical in providing assistance to overcome some of these barriers. AQIP's two main deployment projects, the Clean Vehicle Rebate Project and the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project, provide funds to partially offset the higher costs of cleaner vehicles. These benefits are provided directly to the consumer, encouraging a purchase decision that may not have occurred without the incentive. This allows the vehicle to become more cost-competitive since most consumers are reluctant to make purchasing decisions with a payback period of longer than three years. The direct incentive provides ancillary benefits to the manufacturers of these clean vehicles by increasing sales with the prospect of reducing production costs through economies of scale.

Providing a positive user experience is important to promote consumer acceptance of advanced technologies and the transition from early adopters to mainstream consumers. Mainstream purchasers are cautious about investing in new technologies that they do not fully understand. Initial consumer experience with advanced technology vehicles can play a significant role in changing perspectives for the

conventional market. By providing incentives early, more consumers are able to experience the technology at a critical time in bringing the technologies to market. These experiences can be marketed by consumer groups, manufacturers, and advocates bringing awareness to the public and fleet purchasers. Recognizing this benefit, refinements were made to the Clean Vehicle Rebate Project last year to include special provisions for car share and rental fleets since these vehicles have the opportunity to reach more consumers. Outreach continues to be a critical element of all AQIP projects and staff is investigating opportunities to better incorporate user feedback to help address consumer confidence.

Infrastructure Coordination

ARB and the Energy Commission have made a coordinated effort to ensure that both agencies' Assembly Bill 118 programs complement each other, with the authority to fund infrastructure residing in the Energy Commission's Alternative and Renewable Fuel and Vehicle Technology Program. According to the 2011 Integrated Energy Policy Report (California Energy Commission, 2011), projects funded through 2011 increased the number of electric vehicle charging stations in California by 244 percent and hydrogen fueling stations by 100 percent. In the first 4 Investment Plans, the Energy Commission has made significant investments in both electric charging infrastructure ($24.4 million) and public hydrogen fueling stations ($37.4 million). Additional commitments in the Fiscal Year 2012-13 Investment Plan include $7.5 million for electric charging infrastructure and $11 million for hydrogen fueling infrastructure. These investments help establish the infrastructure foundations for these vehicle types. The early establishment of these fueling networks as well as the consumer incentives for vehicles signals California's ongoing commitment to these advanced technology vehicles.

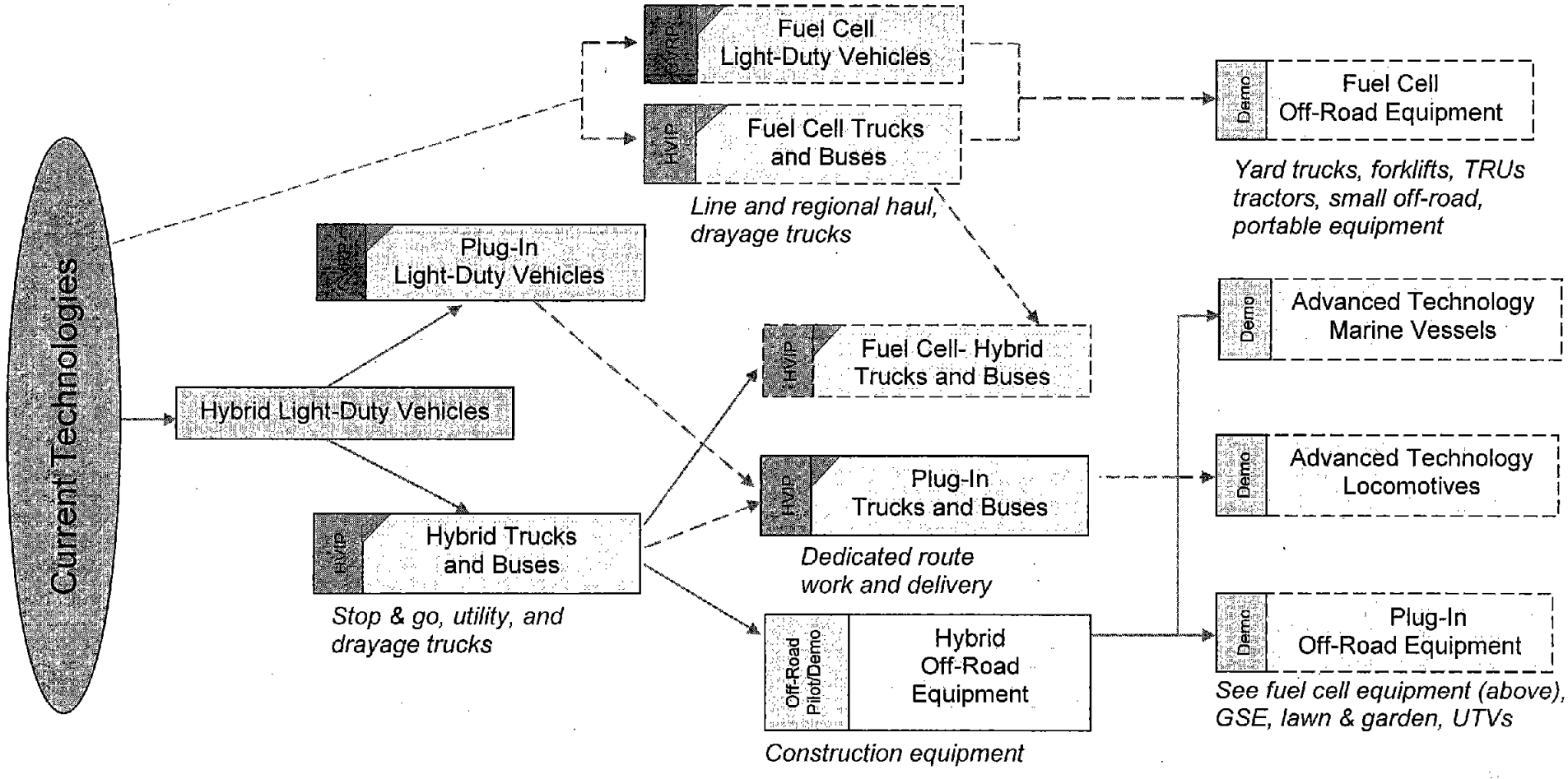
Accelerating Technology Transfer

AQIP helps to accelerate technology transfer to other sectors, such as promoting the transfer of on-road zero-emission and hybrid technologies to off-road equipment and marine vessels. While advances are still needed in the on-road transportation sector, these current technologies will need to make the leap into the other sectors to achieve long-term air quality goals. Figure 1 displays AQIP's role in advancing clean vehicle and equipment technologies. For example, light-duty hybrid electric vehicle technology was the starting point for advancing hybrid technology to the heavy-duty on-road and off-road sectors. Simultaneously, a demonstration of hybrid technology in marine vessels as occurred. AQIP invested in all levels of this technology transfer with the on-road heavy-duty deployment project through the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project, the off-road hybrid pilot project, and a marine demonstration project.

AQIP investments help to bring the cleanest advanced technologies to California and also help position the State for green job growth. Some of the vehicles or vehicle

components funded under AQIP are manufactured in California, and these vehicles and equipment are distributed through extensive local dealership networks.

Figure 2a: The AQIP's Role in Advancing Clean Vehicle and Equipment Technologies



The California Energy Commission's Assembly Bill 118 program provides funding to help accelerate development of these vehicle technologies.

B. Program Coordination

California Energy Commission

The Energy Commission receives about $100 million annually under Assembly Bill 118 to fund alternative and renewable fuel and vehicle technology projects to reduce greenhouse gas emissions. There is overlap between the vehicle projects that can be funded in each program because many advanced technologies achieve both greenhouse gas and criteria pollutant reductions. For example, Assembly Bill 118 statute lists hybrid and zero-emission technologies as eligible categories in both programs. ARB and the Energy Commission staff closely coordinate implementation of Assembly Bill 118 programs to ensure their respective investments complement one another.

Assembly Bill 118 statute does not authorize ARB to fund vehicle fueling infrastructure through AQIP. That authority resides with the Energy Commission in its Assembly Bill 118 program. The Energy Commission's investments in vehicle charging and fueling infrastructure complement ARB's incentives for clean vehicle deployment. These investments are important to ensure a successful California ZEV rollout. Staff from both agencies coordinate to match fueling infrastructure needs with advanced vehicle deployment projections.

The Energy Commission has also taken a lead in funding workforce training. It has already directed $22.3 million to workforce training projects and allocated an additional $2.5 million investment in the fiscal year 2012-13 funding cycle. ARB is working closely with the Energy Commission to ensure that these training investments support the technologies ARB is funding through AQIP.

ARB and the Energy Commission have jointly funded categories where demand exceeded each agency's available funds. Such pooling of resources is much more efficient than each agency independently providing funding for the same types of projects. In February 2011, the Energy Commission directed $2 million of its Assembly Bill 118 funding to ARB's Clean Vehicle Rebate Project to help meet the expected demand for ZEV rebates. In May 2011, the Energy Commission also directed $4 million to ARB's Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project to provide increased incentives for zero-emission truck purchases. The Energy Commission allocated $5 million in the Fiscal Year 2012-13 Investment Plan for possible use by ARB to help meet consumer demand for the Clean Vehicle Rebate Project in fiscal year 2012-13. ARB staff plans to write its AQIP grant solicitations and grant awards with the flexibility to receive Energy Commission funding.

Other Local, State, and Federal Incentive Programs

ARB is implementing AQIP in a coordinated manner with other local, state, and federal air quality programs. Staff designed AQIP projects with as much flexibility as possible

to allow AQIP funds to be combined with other incentives that may become available. For example, the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project vouchers for the purchase of a new hybrid school bus can be combined with Lower Emission School Bus Program funding. In addition, ARB encourages local air districts to coordinate their funding with AQIP. To date, three local air districts – the South Coast Air Quality Management District, Sacramento Metropolitan Air Quality Management District, and the San Joaquin Valley Air Pollution Control District– have made investments in voucher programs following the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project model established in AQIP. In March 2012, the San Joaquin Valley Air Pollution Control District re-launched their zero-emission vehicle incentive program which coordinates more closely with the Clean Vehicle Rebate Project and includes funding for electric vehicle charging infrastructure. These local investments further leverage the State's investment and will bring additional clean vehicles to California.

As new opportunities unfold, staff will evaluate ways to leverage AQIP funds – either as a match to obtain federal funds to augment California's air quality programs or through opportunities to fold other local, state, or federal funding into AQIP.

Appendix C

Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project- Early Role in Long-Term Emission Reduction Strategies and Deployment Challenges

Deployment Challenges

Dozens of hybrid and zero-emission truck and bus makes and models from multiple vehicle manufacturers are now commercially available, in vocations including delivery vehicles, utility vehicles, refuse haulers, tractors, and transit, shuttle and school buses. However, the recent decline in Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project demand illustrates that significant barriers to these vehicles' widespread commercialization remain. The staff proposal in this Funding Plan is geared towards further incentivizing development and deployment of the cleanest possible truck and bus technologies. This Appendix identifies some of the key hybrid and zero-emission truck and bus deployment challenges and steps being taken to address them.

Incremental cost. Calstart's e-Truck Task Force, created to identify and address barriers to electric truck deployment, found technology cost to be fleets' greatest concern.[1] The e-Truck Task Force recommendation that incentives provide roughly half the incremental cost of zero-emission trucks is proposed as part of this Funding Plan.

As with battery-electric vehicles, incremental cost is a significant barrier for hybrid vehicles as well. The proposed Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project voucher structure provides additional funding only for those vehicle manufacturers that ensure their vehicles achieve and maintain the expected emission benefits. Staff is proposing hybrid truck and bus manufacturers receive significantly higher voucher amounts if they: 1) quantify their vehicle's emission benefits by voluntarily Air Resources Board (ARB)-certifying their vehicles, and/or 2) comply early with ARB's Heavy-Duty Vehicle On-Board Diagnostics requirement to ensure vehicle emission controls continue to function over time.

Infrastructure and electricity costs. The cost to install electric truck charging infrastructure can range from $1,500 to $10,000 per charging station, depending upon infrastructure location, amount of conduit needed, and other factors.[2] While AQIP is not authorized to fund charging infrastructure, the Energy Commission Assembly Bill 118 program provides charging infrastructure funds to complement ARB vehicle technology incentives. ARB staff will continue working with the Energy Commission to balance the need to promote public charging infrastructure (which benefits primarily light-duty vehicles) and commercial charging infrastructure needs.

Electricity demand charges, which charge a higher electricity rate once a usage threshold has been exceeded, can also provide a disincentive for fleets' shift to electric vehicle usage. Some fleets have indicated they have limited the number of electric vehicles they will purchase due to their electricity rate structure. Some have been able to address this issue by negotiating new rate structures with their utility. To fully address this issue, ARB will work with stakeholders to simultaneously encourage

[1] Best Fleet Uses, Key Challenges, and the Business Case for e-Trucks, Findings and recommendations of the e-Truck Task Force; Calstart; 2012; http://www.calstart.org/projects/E-Truck-Project/E-Truck-Task-Force-White-Paper.aspx .

[2] Idem.

energy efficiency and California's shift from liquid transportation fuels to clean, electric vehicle technologies.

Fuel-economy uncertainties. Some fleets have stated their hybrid truck fuel economy benefits have been lower than expected. However, fuel economy benefits of hybrid trucks are driver and route dependent. Fleets are beginning to recognize the value of identifying optimal vehicle routes and driver training to maximize fuel economy. Hybrid vehicles have employed the same general driveline technology since the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project's inception in 2010. Next generation hybrid-electric drivelines will need to provide higher fuel economy at reduced costs to significantly increase this technology's market share.

ARB is in the final stages of entering into a $700,000 AQIP contract with the United States Department of Energy National Renewable Energy Laboratory, approved by the Board in Fiscal Year 2011-12 Funding Plan, to evaluate emission benefits of the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funded hybrid truck technologies. Hybrid vehicle greenhouse gas, criteria pollutant, and fuel economy benefits will be part of this United States Department of Energy National Renewable Energy Laboratory evaluation. This information will feed into United States Department of Energy National Renewable Energy Laboratory's Fleet DNA Project, designed to capture and characterize data from various vocations to further vehicle design and strategic deployment. This data will help manufacturers improve vehicle performance and fleets identify how and where vehicles should be employed to minimize their payback period. ARB is evaluating development of an on-line calculator to help fleets identify which technology provides the greatest payback for their specific vehicle vocations and/or routes.

Performance data needs. Some fleet managers have expressed concern about purchasing their first hybrid or zero-emission truck or bus without credible, unbiased information about a vehicle's performance and benefits. Fleets need better performance data on hybrid and zero-emission trucks to validate the reliability and business case of the vehicles, including guidance on best use profiles for their operation. ARB is evaluating the potential for existing Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project participants to provide feedback on their hybrid or electric truck via the project webpage or database to potential new vehicle purchasers, much like users rate and comment on their purchases from on-line retailers. ARB is also participating in Calstart's Hybrid, Efficient and Advanced Truck Technology Roadmap and other forums to identify and address barriers to advanced technology vehicle deployment.

Manufacturers must also better educate vehicle purchasers regarding how and where hybrid and zero-emission vehicles provide the most benefits, and where these vehicles may not be the best choice. For example, while hybrids generally work best in urban environments, large hydraulic hybrid door-to-door refuse haulers may work better in suburban environments where longer distances maximize opportunity for hydraulic system generation between stops.

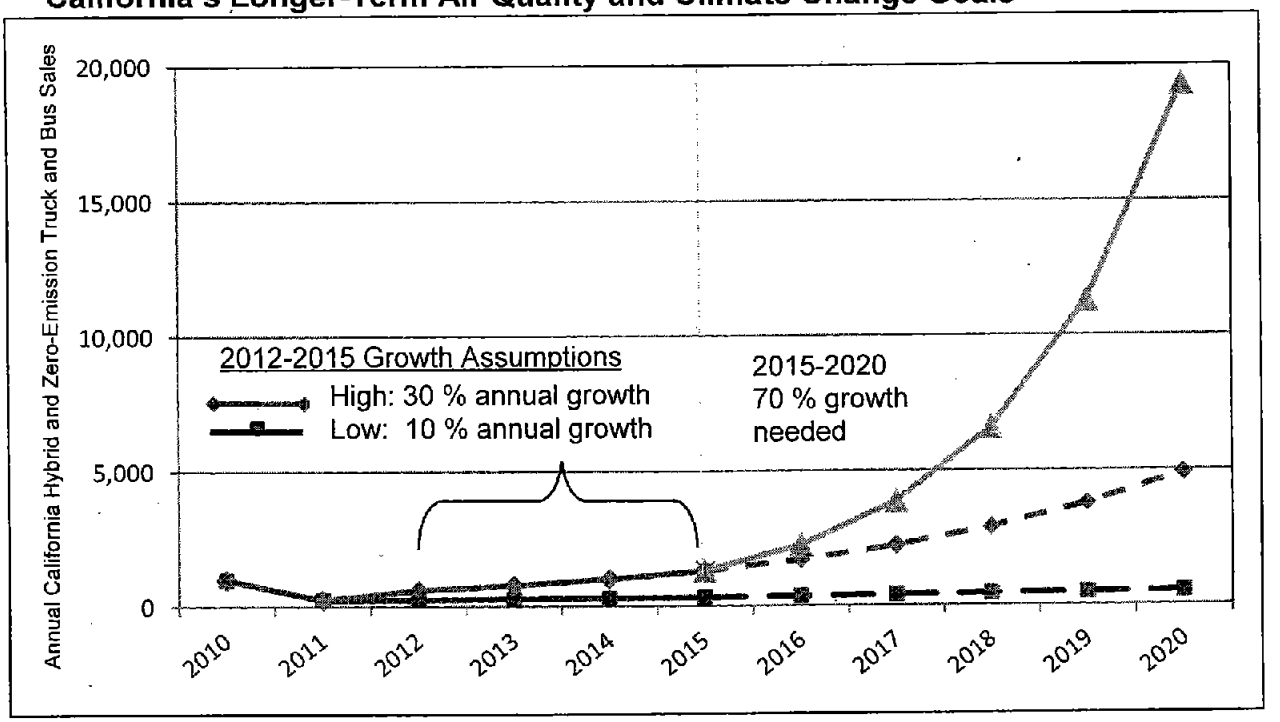
Market saturation among early adopters. Six early adopter national fleets have driven Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project demand thus far, receiving 80 percent of the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funding as of May 1, 2012. Most of these fleets responded to the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project launch by replacing their older California urban vehicle fleet with new hybrids in early 2010. Some early participants indicate that they have 'saturated' their California fleet with hybrids out of concern that first year the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project funds would be depleted quickly, and indicate they are now more cautiously evaluating which advanced technologies work best for them and where to invest their vehicle funding. Other similar incentive programs in Texas, New York, and other states, now also provide competing regions in which these companies can now invest their limited advanced technology truck funding. In the long term, these other programs will help increase hybrid technology volumes and reduce technology costs. However, California's continued investment in advanced technology truck and bus incentives is critical to ensuring our state remains a primary destination for these vehicles. In the near term, staff's proposal for a fleet's first 3 Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project vouchers to receive up to an additional $10,000 helps make the business case for additional fleets that could benefit from hybrid and zero-emission technology to participate in the program.

Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project Role in Meeting Air Quality and Climate Change Goals

ARB is developing a vision document, along with the South Coast Air Quality Management District the San Joaquin Valley Air Pollution Control District, and other stakeholders, describing possible technology scenarios for meeting California's new federal 8-hour ozone standard in the 2030 timeframe and achieving 80 percent greenhouse gas emission reductions by 2050 pursuant to Governor's Executive Order S-03-05. Because truck and bus natural turn-over rates are so slow, a significant increase in hybrid and zero-emission truck and bus deployment is needed over the next several years to meet these longer term goals.

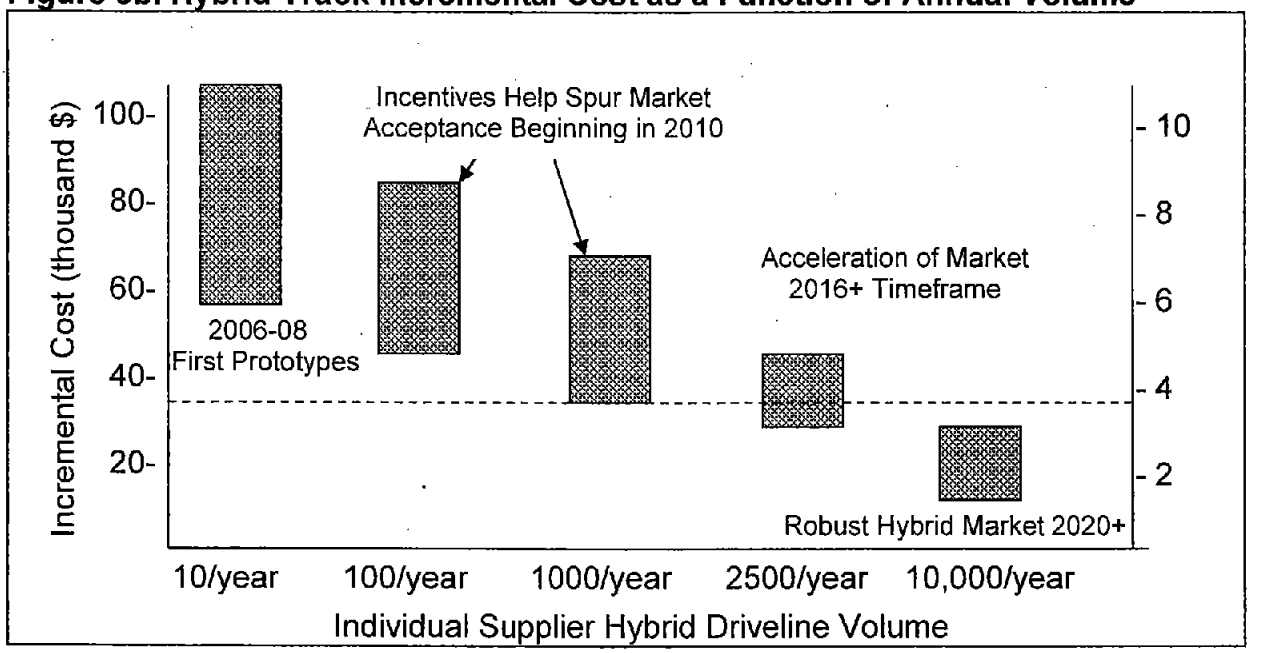
Preliminary analyses indicate close to 20,000 new hybrid and zero-emission vehicles will need to be purchased annually ~~s~~Statewide by 2020 (Figure 3a) to achieve the market penetration needed in 2030 and 2050. These figures represent 5 to 10 percent of 2020 model year heavy- and medium-duty vehicle sales. Figure 3b identifies possible scenarios for achieving these sales volumes. The low growth scenario assumes a 10 percent annual growth in hybrid and zero-emission sales volumes and a $10 million to $15 million Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project investment through 2015. The high growth scenario assumes 30 percent annual sales growth driven largely by about $30 million per year in the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project, air district, and other complementary incentives, and aided by gradually declining vehicle technology costs.

Figure 3a. Advanced Technology Truck and Bus Penetration Needed to Achieve California's Longer-Term Air Quality and Climate Change Goals



Production capacity has substantial growth potential for both hybrid and electric trucks and buses, but current low production volumes contribute to a $25,000 to $80,000 vehicle cost premium for hybrid trucks and up to $120,000 cost premium for zero emission trucks. ARB expects production costs to decline as hybrid driveline and battery production volumes increase. When this occurs, the fuel economy payback period should shorten to the point where a hybrid or zero-emission truck purchase is economical without incentives (Figure 3b). Even when this tipping point is reached, however, additional incentives or regulatory approaches may be needed for sales volumes to reach levels needed to meet California's long-term air quality and climate change goals.

Figure 3b. Hybrid Truck Incremental Cost as a Function of Annual Volume



TITLE 17. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER AMENDMENTS TO CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider proposed amendments to California greenhouse gas emissions cap-and-trade program and market-based compliance mechanisms to add security to the market system and help staff implement the cap-and-trade program.

DATE: June 28, 2012

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item may be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., June 28, 2012, and may continue at 8:30 a.m., on June 29, 2012. This item may not be considered until June 29, 2012. Please consult the agenda for the hearing, which will be available at least 10 days before June 28, 2012, to determine the day on which this item will be considered.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT OVERVIEW

Sections Affected: Proposed amendments to California Code of Regulations, title 17, to sections 95802, 95812, 95814, 95830, 95831, 95832, 95833, 95834, 95856, 95870, 95892, 95910, 95911, 95912, 95913, 95914, 95920, and 95921.

Background:

The California Global Warming Solutions Act of 2006 (Assembly Bill 32; Stats. 2006, Chapter 488) (AB 32) authorizes ARB to implement a comprehensive, multi-year program to reduce greenhouse gas (GHG) emissions in California. AB 32 required ARB to develop a scoping plan to reduce GHG emissions in California to 1990 levels by 2020. ARB's adopted Scoping Plan includes a comprehensive set of actions designed to reduce GHG emissions in California, improve the environment, reduce dependence on foreign oil, diversify energy sources, save energy, create new jobs, and enhance public health. Meeting the goals of AB 32 requires a coordinated set of strategies to reduce GHG emissions throughout the economy that work within a comprehensive tracking, reporting, verification and enforcement framework. The Scoping Plan includes a variety of measures to achieve AB 32 goals, including direct regulations, performance-

based standards, and market-based mechanisms. Many of the measures in the Scoping Plan complement and reinforce each other.

The Scoping Plan directed ARB staff to develop a cap-and-trade regulation, which is a type of market-based compliance mechanism. The cap-and-trade regulation provides a fixed limit on GHG emissions from the sources responsible for about 85 percent of the state's total GHG emissions. The cap-and-trade regulation reduces GHG emissions by applying a declining aggregate cap on GHG emissions, and creates a flexible compliance system through the use of tradable instruments (allowances and offset credits). The cap-and-trade regulation went into effect January 1, 2012.

From 2009 through 2011, ARB staff developed the overall options for program design and development. ARB staff conducted extensive public consultation, including more than 40 public meetings, to discuss and share ideas with the general public and key stakeholders on the appropriate structure of the cap- and-trade program. Staff also met regularly with individual stakeholders to hear their concerns and recommendations. ARB staff collected public comments during each public workshop, which focused on key topics and program design components.

In developing these proposed cap-and-trade regulation amendments, staff held two workshops and released discussion draft regulation amendments for public comment. ARB received more than 15 written comments on the discussion draft amendments and met regularly with stakeholders to discuss concerns and recommendations.

Description of the Proposed Regulatory Action, Objectives and Benefits

After considering the comments received, ARB staff is proposing amendments to the cap-and-trade regulation to add to the security of the market system and to aid staff in implementing the regulation. The proposed amendments include detailed Know Your Customer (KYC) requirements for information gathering during registration, and rules for a first auction on November 14, 2012 and associated amendments to dates in the current cap-and-trade regulation to implement the November 14, 2012 auction. Staff also included additional amendments to the regulation to implement the allowance and offset registry, market monitoring provisions of the regulation and collection of information necessary for the financial services operator. Details regarding the proposed amendments are included in Chapter II: Summary of Proposed Action and in Appendix A of the staff report.

Registration and Accounts

Under the proposed amendments, ARB will be responsible for tracking information regarding compliance instrument ownership, including transfers of ownership. The proposed regulation will require entities to register with ARB and provide information to ARB regarding ownership and submittal of compliance instruments. ARB will also require reporting information regarding certain transactions between market participants. Some participants submitting information could be entities that do not have compliance obligations or that are not located within California. All covered entities will

be required to register and create an account with ARB or a designated account administrator to comply with the regulation. Voluntarily associated entities will need to register with the tracking system to hold ARB allowances or offsets.

The California registry, Compliance Instrument Tracking System Service (CITSS) will track compliance instrument ownership, submittals and transactions. The primary goal of CITSS is to support ARB in effective implementation of the proposed regulation and to reduce the costs and administrative burden associated with long-term regulation responsibilities. CITSS will also provide information necessary for a secure, liquid, and transparent allowance market.

Know Your Customer (KYC) Requirements

The proposed amendments include detailed Know Your Customer (KYC) requirements for information gathering during registration. The regulation will limit registrants to individuals with a primary residence in the United States to enhance the ability of ARB to enforce the regulation. If an entity's account representative does not have an address in California, the regulation will require an agent for service of process in California. KYC amendments will require registrants to provide notarized copies of valid government issued identification, date of birth, verification of an open bank account, employer contact information and disclosure of felony convictions occurring within the past 5 years. Those with a criminal conviction constituting a felony in the United States within the last 5 years will be excluded from registration.

Consolidated Accounts

A new provision was added to require entities that have a direct corporate association to have a single set of accounts in the CITSS rather than to one set of accounts for each facility. If entities with a direct corporate association want to manage their own compliance obligation at the facility level, there is a provision to opt-out from consolidated accounts.

Number of Individuals Associated with a Set of Accounts

Amendments were made to existing provisions to identify a single individual as a primary account representative who will always receive any information related to the associated entity and its accounts in CITSS. In response to stakeholder concerns, the number of account representatives was increased to five, with the ability to assign several staff with account-viewing rights.

Auction Process

Several amendments were made to the existing provisions to clarify the auction process for auction participants and actions taken by the Executive Officer, or his designee. These provisions include timing for critical steps during the auction process, information requirements for the auction platform, and financial requirements to participate in the actual auction.

Removal of Beneficial Holdings

All provisions related to the concept of beneficial holdings were removed. These provisions allowed one entity to hold compliance instruments on behalf of another and not count those holdings against the holding limit. Staff determined that this feature would be difficult to monitor in the CITSS and could potentially lead to gaming. Due to concerns related to integrity of the program, staff recommends removing the feature in the proposed amendments.

Purchase Limits for All Covered Entities

The existing provision to exempt utilities from a purchase limit was amended to apply a 40 percent auction purchase limit. This ensures that all participants, either covered or voluntary, are subject to a purchase limit. The limit for utilities is set at a level staff believes would allow them to acquire compliance instruments to comply with the regulation with some flexibility to acquire instruments to cover power generation emissions.

Process to Adjust Holding Limit Exemption

New provisions were added to allow a covered entity to apply for an adjustment to its holding limit exemption if the entity could demonstrate that its emissions, and therefore its compliance obligation, would increase by more than 250,000 metric tons carbon dioxide equivalent (MTCO2e). This allows for an adjustment if a new facility comes on line or if a large utility experiences an increase in emissions related to imports from fossil power generation.

Adjustments to Compliance Instrument Transfer

Adjustments were made to the requirements for compliance instrument transfers between two accounts within the CITSS. Staff is proposing that two account representatives approve a transfer request to move compliance instruments from their entity account to another recipient's account, and that one account representative for the recipient's account confirm the transfer. This process ensures a multiple review and approval process for the movement of compliance instruments in the CITSS. This feature is important to the security of the CITSS.

CONSISTENCY AND COMPATIBILITY WITH EXISTING STATE REGULATIONS

Staff does not believe the proposed regulation is inconsistent or incompatible with existing state regulations

MANDATED BY FEDERAL LAW OR REGULATIONS

This regulation is not mandated by federal law or regulations.

COMPARABLE FEDERAL REGULATIONS

This regulation is not mandated by federal law or regulations, and there are no comparable federal regulations.

AVAILABILITY OF DOCUMENTS

ARB staff has prepared a Staff Report: Initial Statement of Reasons (ISOR) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The report is entitled: Proposed Amendments to The California Cap On Greenhouse Gas Emissions And Market-Based Compliance Mechanisms.

Copies of the ISOR and the full text of the proposed regulatory language, in underline and strikeout format to allow for comparison with the existing regulations, may be accessed on ARB's website listed below, or may be obtained from the Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990, on May 9, 2012.

AVAILABILITY OF FINAL STATEMENT OF REASONS

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on ARB's website listed below.

AGENCY CONTACT PERSONS

Inquiries concerning the substance of the proposed regulation may be directed to Mr. Steve Cliff, Chief of the Climate Change Program Evaluation Branch, at (916) 322-7194 or Ms. Rajinder Sahota, Manager of the Climate Change Program Monitoring Section at (916) 323-8503.

Further, the agency representative and designated back-up contact persons, to whom nonsubstantive inquiries concerning the proposed administrative action may be directed are Ms. Lori Andreoni, Manager, Board Administration and Regulatory Coordination Unit, at (916) 322-4011, or Ms. Amy Whiting, Regulations Coordinator, at (916) 322-6533. The Board staff has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

INTERNET ACCESS

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on ARB's website for this rulemaking at http://www.arb.ca.gov/regact/2012/capandtrade12/capandtrade12.htm

FISCAL IMPACT

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulations are presented below.

ECONOMIC IMPACT ASSESSMENT/ANALYSIS

The amendments proposed in this regulation would clarify the existing cap-and-trade regulation to help ARB implement, oversee, and enforce the cap-and-trade regulation. These amendments provide more specificity in the information required to be reported to ARB during registration and for the tracking of transactions, but this information was envisioned by the existing cap-and-trade regulation. The specificity does not add any cost burden to what was already required, and so has no additional economic impact.

COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulation are presented below.

Costs to State Government and Local Agencies

The Executive Officer has determined that the proposed regulatory action would not create costs or savings, as defined in Government Code sections 11346.5(a)(5) and 11346.5(a)(6), to State agencies or in federal funding to the State. The proposed regulatory action would not create costs and would impose a mandate on State and local agencies, but would not create costs or impose a mandate on school districts. Because the regulatory requirements apply equally to all covered entities and unique requirements are not imposed on local agencies, the Executive Officer has determined that the proposed regulatory action imposes no costs on local agencies that are required to be reimbursed by the State pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, and does not impose a mandate on local agencies or school districts that is required to be reimbursed pursuant to section 6 of Article XIII B of the California Constitution.

Costs to Businesses and Private Individuals

In developing this regulatory proposal, ARB staff evaluated the potential economic impacts on representative private persons or businesses. The Executive Officer has determined that representative private persons and businesses would not be affected by the cost impacts from the proposed regulatory action. Pursuant to Government Code section 11346.5(a)(7)(C), the Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, and little or no impact on the ability of California businesses to compete with businesses in other states.

The proposed regulation would not impose sufficient direct or indirect costs to eliminate businesses in California.

STATEMENT OF THE RESULTS OF THE ECONOMIC IMPACT ASSESSMENT PREPARED PURSUANT TO GOVERNMENT CODE SEC. 11346.3(b)

In accordance with Government Code section 11346.3, the Executive Officer has determined that the proposed regulatory action would not eliminate existing businesses within the State of California, and would not affect the creation of new businesses or the expansion of existing businesses currently doing business in California. The proposed regulatory action would not eliminate jobs within the State of California, and would not affect the creation of jobs within California.

In general, most small businesses in regulated sectors would not be subject to the proposed regulation because their total GHG emissions are below the GHG reporting threshold, thereby exempting them from compliance obligations under the proposed regulation. In accordance with Government Code sections 11346.3(c) and 11346.5(a)(11), the Executive Officer has found that the reporting requirements of the proposed regulation which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

SIGNIFICANT STATEWIDE ADVERSE ECONOMIC IMPACT DIRECTLY AFFECTING BUSINESS, INCLUDING ABILITY TO COMPETE

The Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

ALTERNATIVES

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed, or would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law. Since the proposed amendments do not have a fiscal, economic or environmental impact, no alternatives, other than no regulatory amendments, were considered.

ENVIRONMENTAL ANALYSIS

In accordance with ARB's certified regulatory program, California Code of Regulations, title 17, sections 60006 through 60007, and the California Environmental Quality Act, Public Resources Code section 21080.5, ARB has conducted an analysis of the potential for significant adverse and beneficial environmental impacts associated with the proposed regulatory action. The environmental analysis of the proposed regulatory action can be found in the Initial Statement of Reasons.

SUBMITTAL OF COMMENTS AND WRITTEN COMMENT PERIOD

Interested members of the public may also present comments orally or in writing at the meeting, and comments may be submitted by postal mail or by electronic submittal before the meeting. The public comment period for this regulatory action will begin on May 14, 2012. To be considered by the Board, written comments, not physically submitted at the meeting, must be submitted on or after May 14, 2012 and received **no later than 12:00 noon on June 27, 2012**, and must be addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

You can sign up online in advance to speak at the Board meeting when you submit an electronic board item comment. For more information go to: http://www.arb.ca.gov/board/online-signup.htm.

Please note that under the California Public Records Act (Gov. Code, § 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

ARB requests that written and email statements on this item be filed at least 10 days prior to the hearing so that ARB staff and Board members have additional time to consider each comment. The Board encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action.

Additionally, the Board requests but does not require that persons who submit written comments to the Board reference the title of the proposal in their comments to facilitate review.

STATUTORY AUTHORITY AND REFERENCES

This regulatory action is proposed under the authority granted in Health and Safety Code, sections 38510, 38560, 38562, 38564, 38570, 38571, 38580, 39600 and 39601.

This action is proposed to implement, interpret, and make specific sections 38530, 38560.5, 38564, 38565, 38570 and 39600 of the Health and Safety Code.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may adopt the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also adopt the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice and that the regulatory language as modified could result from the proposed regulatory action; in such event, the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15-days before it is adopted.

The public may request a copy of the modified regulatory text from ARB's Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990.

SPECIAL ACCOMMODATION REQUEST

Special accommodation or language needs can be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language; or
- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at 916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Comodidad especial o necesidad de otro idioma puede ser proveído para alguna de las siguientes:

- Un intérprete que esté disponible en la audiencia.
- Documentos disponibles en un formato alterno u otro idioma.
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la

audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

CALIFORNIA AIR RESOURCES BOARD

James N. Goldstene
Executive Officer

Date: May 1, 2012

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.arb.ca.gov.

TITLE 17. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER AMENDMENTS TO CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS TO ALLOW FOR THE USE OF COMPLIANCE INSTRUMENTS ISSUED BY LINKED JURISDICTIONS

The Air Resources Board (ARB or Board) will conduct a public hearing at the time and place noted below to consider proposed amendments to California greenhouse gas emissions cap-and-trade program and market-based compliance mechanisms to allow for the use of compliance instruments issued by linked jurisdictions.

DATE: June 28, 2012

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This item may be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., June 28, 2012, and may continue at 8:30 a.m., on June 29, 2012. This item may not be considered until June 29, 2012. Please consult the agenda for the hearing, which will be available at least 10 days before June 28, 2012, to determine the day on which this item will be considered.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT OVERVIEW

Sections Affected: Proposed amendments to California Code of Regulations, title 17, to sections 95802, 95814, 95830, 95831, 95832, 95833, 95834, 95856, 95870, 95910, 95911, 95912, 95913, 95920, 95921, 95942, 95943, 96010, and 96022.

Background:
The California Global Warming Solutions Act of 2006 (Assembly Bill 32; Stats. 2006, Chapter 488) (AB 32) authorizes ARB to implement a comprehensive, multi-year program to reduce greenhouse gas (GHG) emissions in California. AB 32 required ARB to develop a scoping plan to reduce GHG emissions in California to 1990 levels by 2020. ARB's adopted Scoping Plan includes a comprehensive set of actions designed to reduce GHG emissions in California, improve the environment, reduce dependence on foreign oil, diversify energy sources, save energy, create new jobs, and enhance public health. Meeting the goals of AB 32 requires a coordinated set of strategies to reduce GHG emissions throughout the economy that work within a comprehensive tracking, reporting, verification and enforcement framework. The Scoping Plan includes

a variety of measures to achieve AB 32 goals, including direct regulations, performance-based standards, and market-based mechanisms. Many of the measures in the Scoping Plan complement and reinforce each other.

The Scoping Plan directed ARB staff to develop a cap-and-trade regulation, which is a type of market-based compliance mechanism. As envisioned in the Scoping Plan, the cap and trade program would eventually be linked with cap and trade programs operating in other states and provinces. The cap-and-trade regulation provides a fixed limit on GHG emissions from the sources responsible for about 85 percent of the state's total GHG emissions. The cap-and-trade regulation reduces GHG emissions by applying a declining aggregate cap on GHG emissions, and creates a flexible compliance system through the use of tradable instruments (allowances and offset credits). The regulation is designed to link up with partners in other jurisdictions, beginning with the Western Climate Initiative (WCI). The cap-and-trade regulation went into effect January 1, 2012.

In 2007, California helped establish the Western Climate Initiative, a cooperative effort of seven U.S. states and four Canadian provinces (the "partners") that are collaborating to identify, evaluate, and implement policies to reduce GHG emissions, including the design and implementation of a regional cap-and-trade program. WCI developed two design documents that describe a template for state and jurisdiction cap and trade programs that could be linked to form a regional market. WCI consulted extensively with stakeholders in the development of these two documents. Since 2007, WCI has held 130 public discussions via public meeting, teleconference, discussion papers and webinars. The details of WCI's public consultation are included in Appendix B. ARB worked closely with the partners in formulating the cap-and-trade regulation, and anticipated linking to programs promulgated by the partners as they are adopted. California and Québec are currently the two WCI partner jurisdictions with enforceable cap-and-trade regulations.

ARB staff conducted an extensive public process during the development of the California cap-and-trade regulation. From 2009 through 2011, staff developed the overall options for program design and development. ARB staff conducted extensive public consultation, including more than 40 public meetings, to discuss and share ideas with the general public and key stakeholders on the appropriate structure of the cap-and-trade program. In many of these public meetings, staff discussed the concept of linking California's' cap and trade program with that of other WCI partner jurisdictions. Staff also met regularly with individual stakeholders to hear their concerns and recommendations. ARB staff collected public comments during each public workshop, which focused on key topics and program design components.

In developing these proposed cap-and-trade regulation amendments, staff held two workshops and released discussion draft regulation amendments for public comment. ARB received more than 15 written comments on the discussion draft amendments and met regularly with stakeholders to discuss concerns and recommendations. In addition, WCI held a public meeting on January 12 to discuss plans to develop a North American greenhouse gas emissions trading program through linkage with partner programs.

Description of the Proposed Regulatory Action, Objectives and Benefits

After considering the comments received, ARB staff is proposing amendments to the cap-and-trade regulation that would establish the details for common allowance auctions between California and Québec and would allow acceptance of Québec compliance instruments for compliance with California's cap-and-trade regulation. These amendments include requirements for a linked compliance instrument registry and associated registration requirements. Details regarding the proposed amendments are included in Chapter II: Summary of Proposed Action and in Appendix A of the staff report.

Linking to Other Cap-and-Trade Programs

The cap-and-trade regulation includes general requirements for linking to other programs. Establishing linkage, as proposed in these amendments, with other programs requires ARB approval under the California Administrative Procedure Act (APA) before allowances and/or offset credits from an external program can be used for compliance with California's regulation. The proposed amendments would establish linking with Québec under the framework included in the existing cap-and-trade regulation. Other WCI Partner jurisdictions will be evaluated for linking as those programs become available for review when new programs are established. Québec's cap-and-trade regulation is being amended to include auction rules in common with California's amendments proposed in this rulemaking and to establish a linkage with California. Although Québec has not yet published any documents on which staff may rely, staff is confident that Québec's amended cap-and-trade regulation will be consistent with the amended California regulation based on ongoing discussions with Québec officials and the agreed upon WCI process. ARB staff is also confident, based on these discussions, that Québec's offset provisions will follow WCI recommendations regarding offset regulations and offset process, and will be consistent with California's requirements for offsets. Québec is also anticipated to make some minor revisions to their mandatory GHG reporting regulation to address areas related to data quality. Additionally, staff anticipates Québec's amended cap-and-trade and mandatory GHG reporting regulations and new offset provisions will become publicly available during the pendency of this rulemaking. ARB will add these documents to the rulemaking file pursuant to the provisions of the APA and will make these documents available for 15-days for review once these new regulations are available.

Know Your Customer (KYC) Requirements

The proposed regulation will limit registrants to individuals with a primary residence in the United States or Canada to enhance the ability of ARB to enforce the regulation. If an entity's account representative does not have an address in Québec or California, the regulation will require an agent for service of process in either jurisdiction. Canadian entities will be required to register in Québec and US entities will be required to register in California. Those with a criminal conviction constituting a felony in the US or Canada within the last 5 years will be excluded from registration.

Auction Process

New text is proposed to allow a single auction to be conducted simultaneously in two currencies, as would be the case with a linked program between California and Québec. It is important that auction participants in each jurisdiction have equitable access during the bidding process.

CONSISTENCY AND COMPATIBILITY WITH EXISTING STATE REGULATIONS

Staff does not believe the proposed regulation is inconsistent or incompatible with existing state regulations

MANDATED BY FEDERAL LAW OR REGULATIONS

This regulation is not mandated by federal law or regulations.

COMPARABLE FEDERAL REGULATIONS

This regulation is not mandated by federal law or regulations, and there are no comparable federal regulations.

AVAILABILITY OF DOCUMENTS

ARB staff has prepared a Staff Report: Initial Statement of Reasons (ISOR) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The report is entitled: Proposed Amendments to The California Cap On Greenhouse Gas Emissions And Market-Based Compliance Mechanisms To Allow For The Use Of Compliance Instruments Issued By Linked Jurisdictions.

Copies of the ISOR and the full text of the proposed regulatory language, in underline and strikeout format to allow for comparison with the existing regulations, may be accessed on ARB's website listed below, or may be obtained from the Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990, on May 9, 2012.

AVAILABILITY OF FINAL STATEMENT OF REASONS

Upon its completion, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on ARB's website listed below.

AGENCY CONTACT PERSONS

Inquiries concerning the substance of the proposed regulation may be directed to Mr. Steve Cliff, Chief of the Climate Change Program Evaluation Branch, at (916) 322-7194 or Ms. Rajinder Sahota, Manager of the Climate Change Program Monitoring Section at (916) 323-8503.

Further, the agency representative and designated back-up contact persons, to whom nonsubstantive inquiries concerning the proposed administrative action may be directed are Ms. Lori Andreoni, Manager, Board Administration and Regulatory Coordination Unit, at (916) 322-4011, or Ms. Amy Whiting, Regulations Coordinator, at (916) 322-6533. The Board staff has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

INTERNET ACCESS

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on ARB's website for this rulemaking at http://www.arb.ca.gov/regact/2012/capandtrade12/capandtrade12.htm

FISCAL IMPACT

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulations are presented below.

ECONOMIC IMPACT ASSESSMENT/ANALYSIS

Linking with other jurisdictions will increase emission reduction opportunities and improve the liquidity of the emissions trading market. Depending on factors such as the size of the California market relative to the other jurisdictions, the stringency of the cap in the other jurisdiction, the cost of reductions in the other jurisdictions, and the availability of offsets in the other jurisdictions, the resulting allowance price may increase or decrease relative to a California-only cap-and-trade program. Linking with other jurisdictions could also provide gains from trade as a result of expanded reduction opportunities – further reducing emissions, facilitating innovative technologies, and creating the jobs to support them.

The analysis investigates the possible economic impacts to California of a cap-and-trade program that links with Québec, Canada. Québec is the first of the Western Climate Initiative partners ready to link with California. This analysis is based on an energy supply and demand model (ENERGY 2020) and E-DRAM, a model ARB uses to estimate the macroeconomic impacts on the California economy. These models are not designed to evaluate potential investment of funds in California from linked jurisdictions and their potential economic benefits, as could occur under linkage with Quebec.

The Energy 2020 model was used to estimate the potential GHG emission reductions and the changes in investment and fuel use. The Environmental Dynamic Revenue

Analysis Model (E-DRAM) was used to estimate the macroeconomic impacts of the proposed linkage regulation on the statewide economy including impacts on gross state product, personal income, and employment, based in part on outputs from Energy 2020. These analyses are presented in 2007 dollars and focus on the impacts of the proposed regulation in 2020. The analysis builds on the analysis for the 2010 cap-and-trade regulation and examines differences in impact between the proposed regulation and the current California only cap-and-trade regulation.

Under the proposed regulation, projected economic growth would continue virtually on par with current forecasts. The 2010 cap-and-trade economic analysis indicated likely allowances prices of $15 to $30 per metric ton CO2e in 2020. The impact of linkage on California allowance price in 2020 is estimated to result in no change or a slight increase. Thus, gross state product will remain virtually unchanged relative to the expected impact from a California-only program. Impacts on long-term projected growth rates in personal income and employment are similarly small. The allowance price in the cap-and-trade program creates a price incentive to reduce the consumption of energy. Reductions in the use of energy created by this price incentive may offset some or all of the potential small increases in the cost of electricity, natural gas and gasoline. Linking with other jurisdictions could provide additional gains from trade as a result of expanded reduction opportunities and a more liquid market.

ARB's economic analysis cannot predict the increased growth in sectors that could result because of new opportunities created by imposing a carbon price, such as those that design or manufacture renewable technologies, or predict the creation of so called "green jobs." This analysis can therefore be considered a conservative estimate of the potential statewide impacts from the imposition of a California cap-and-trade program linked with Québec that does not consider the potential statewide benefits from the linked program.

The economic analysis also focuses exclusively on the economic effects in California of linking the California cap-and-trade program with Québec's cap-and-trade program, and does not consider the avoided costs of inaction. The potential effects of climate change that are expected to occur in California, such as increased water scarcity, reduced crop yield, sea level rise, and increased incidence of wildfires, could cause severe economic impacts. While California has developed a Climate Adaptation Strategy to help alleviate these potential costs, the risk of potentially high economic costs from climate change in California remains real.

COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies and private persons and businesses in reasonable compliance with the proposed regulation are presented below.

Costs to State Government and Local Agencies

The Executive Officer has determined that the proposed regulatory action would create costs or savings, as defined in Government Code sections 11346.5(a)(5) and

11346.5(a)(6), to State agencies or in federal funding to the State. The proposed regulatory action would create costs and would impose a mandate on some State and local agencies, but would not create costs or impose a mandate on school districts. At least eight California public universities, several municipal utilities, two correctional facilities and the California Department of Water Resources would have a compliance obligation under the proposed regulation, as they do under the current cap and trade program. These entities would be required to surrender allowances or offsets equal to the amount of their GHG emissions during the compliance period. The expected costs to these entities ranges from no impact to slightly greater compared with the expected costs presented in the 2010 cap-and-trade regulation analysis due to the slightly higher expected allowance price with linkage. Because the regulatory requirements apply equally to all covered entities and unique requirements are not imposed on local agencies, the Executive Officer has determined that the proposed regulatory action imposes no costs on local agencies that are required to be reimbursed by the State pursuant to part 7 (commencing with section 17500), division 4, title 2 of the Government Code, and does not impose a mandate on local agencies or school districts that is required to be reimbursed pursuant to section 6 of Article XIII B of the California Constitution.

Costs to Businesses and Private Individuals

In developing this regulatory proposal, ARB staff evaluated the potential economic impacts on representative private persons or businesses. The Executive Officer has determined that representative private persons and businesses would be affected by the cost impacts from the proposed regulatory action. Representative private persons and businesses that do not exceed the emissions threshold would not be directly regulated under the proposed action, but would be indirectly affected by changes to the cost of using fossil-fuel based energy. Pursuant to Government Code section 11346.5(a)(7)(C), the Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, and little or no impact on the ability of California businesses to compete with businesses in other states.

Regulated businesses may face additional indirect costs due to slightly increased energy and input prices, and some businesses might be impacted based on the compliance path they choose to meet their obligations under the proposed regulation. However, the proposed regulation would not impose sufficient direct or indirect costs to eliminate businesses in California. It is not possible to quantify the number of businesses that will be created in response to additional investment opportunities that arise as a result of the proposed regulation. However, staff believes that startups in emerging sectors such as renewable energy and biofuel production could represent significant numbers of new, small and medium sized businesses.

STATEMENT OF THE RESULTS OF THE ECONOMIC IMPACT ASSESSMENT PREPARED PURSUANT TO GOVERNMENT CODE SEC. 11346.3(b)

A detailed assessment of the economic impacts of the proposed regulatory action can be found in the Economic Impact Analysis in Chapter V of the ISOR.

In accordance with Government Code section 11346.3, the Executive Officer has determined that the proposed regulatory action would not eliminate existing businesses within the State of California, but would affect the creation of new businesses or the expansion of existing businesses currently doing business in California. The proposed regulatory action would not eliminate jobs within the State of California, but would affect the creation of jobs within California.

ARB estimates that 360 businesses or covered entities would participate in the cap-and-trade program from the year of initial implementation through 2020. These businesses include: electricity generators; electricity importers; industrial facilities including cement plants, cogeneration facilities, hydrogen plants, petroleum refiners, and general stationary combustion facilities; and many fuel providers including wholesalers of gasoline, distillate, propane, and natural gas.

In general, most small businesses in regulated sectors would not be subject to the proposed regulation because their total GHG emissions are below the GHG reporting threshold, thereby exempting them from compliance obligations under the proposed regulation. However, small businesses may experience similar cost impacts as consumers. Cost impacts on consumers would result from no change to a potential slight increase in energy prices. Households and small businesses that consume less energy (directly by reducing their consumption of energy or indirectly by utilizing goods and services that are produced using less energy) will be less affected by higher prices than those that consume more energy. Incentive programs available to small businesses and consumers will provide access to funds for investing in energy efficient technologies, which includes low interest loans, rebates and credits. Energy savings from efficiency improvements are likely to partially offset or fully mitigate the impact of any increase in electricity prices and could mean decreased energy bills. Most California businesses will likely pass along the small cost increases to consumers in the form of slightly higher prices for their products or services.

ARB staff has considered whether any proposed alternatives would lessen potential adverse economic impacts on businesses. The alternatives that staff has considered are described in more detail in Chapter VI of the Initial Statement of Reasons.

In accordance with Government Code sections 11346.3(c) and 11346.5(a)(11), the Executive Officer has found that the reporting requirements of the proposed regulation which apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

SIGNIFICANT STATEWIDE ADVERSE ECONOMIC IMPACT DIRECTLY AFFECTING BUSINESS, INCLUDING ABILITY TO COMPETE

The Executive Officer has made an initial determination that the proposed regulatory action would not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons.

ALTERNATIVES

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board, or that has otherwise been identified and brought to the attention of the Board, would be more effective in carrying out the purpose for which the action is proposed, or would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provisions of law. ARB considered four alternatives to the proposed action including: no linkage, waiting to link with additional WCI states or jurisdictions, linkage with no Québec offsets and linkage with restricted Québec offsets. A detailed analysis of alternatives is presented in Chapter VI of the initial statement of reasons.

ENVIRONMENTAL ANALYSIS

In accordance with ARB's certified regulatory program, California Code of Regulations, title 17, sections 60006 through 60007, and the California Environmental Quality Act, Public Resources Code section 21080.5, ARB has conducted an analysis of the potential for significant adverse and beneficial environmental impacts associated with the proposed regulatory action. The environmental analysis of the proposed regulatory action can be found in Chapter IV of the Initial Statement of Reasons.

SUBMITTAL OF COMMENTS AND WRITTEN COMMENT PERIOD

Interested members of the public may also present comments orally or in writing at the meeting, and comments may be submitted by postal mail or by electronic submittal before the meeting. The public comment period for this regulatory action will begin on May 14, 2012. To be considered by the Board, written comments, not physically submitted at the meeting, must be submitted on or after May 14, 2012 and received **no later than 12:00 noon on June 27, 2012**, and must be addressed to the following:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

You can sign up online in advance to speak at the Board meeting when you submit an electronic board item comment. For more information go to:
http://www.arb.ca.gov/board/online-signup.htm

Please note that under the California Public Records Act (Gov. Code, § 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

ARB requests that written and email statements on this item be filed at least 10 days prior to the hearing so that ARB staff and Board members have additional time to consider each comment. The Board encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action.

Additionally, the Board requests but does not require that persons who submit written comments to the Board reference the title of the proposal in their comments to facilitate review.

STATUTORY AUTHORITY AND REFERENCES

This regulatory action is proposed under the authority granted in Health and Safety Code, sections 38510, 38560, 38562, 38564, 38570, 38571, 38580, 39600 and 39601. This action is proposed to implement, interpret, and make specific sections 38530, 38560.5, 38564, 38565, 38570 and 39600 of the Health and Safety Code.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Government Code, title 2, division 3, part 1, chapter 3.5 (commencing with section 11340).

Following the public hearing, the Board may adopt the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also adopt the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice and that the regulatory language as modified could result from the proposed regulatory action; in such event, the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15-days before it is adopted.

The public may request a copy of the modified regulatory text from ARB's Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, First Floor, Sacramento, California, 95814, (916) 322-2990.

SPECIAL ACCOMMODATION REQUEST

Special accommodation or language needs can be provided for any of the following:

- An interpreter to be available at the hearing;
- Documents made available in an alternate format or another language; or

- A disability-related reasonable accommodation.

To request these special accommodations or language needs, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at 916) 322-3928 as soon as possible, but no later than 10 business days before the scheduled Board hearing. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Comodidad especial o necesidad de otro idioma puede ser proveído para alguna de las siguientes:

- Un intérprete que esté disponible en la audiencia.
- Documentos disponibles en un formato alterno u otro idioma.
- Una acomodación razonable relacionados con una incapacidad.

Para solicitar estas comodidades especiales o necesidades de otro idioma, por favor llame a la oficina del Consejo al (916) 322-5594 o envíe un fax a (916) 322-3928 lo más pronto posible, pero no menos de 10 días de trabajo antes del día programado para la audiencia del Consejo. TTY/TDD/Personas que necesiten este servicio pueden marcar el 711 para el Servicio de Retransmisión de Mensajes de California.

CALIFORNIA AIR RESOURCES BOARD

James N. Goldstene
Executive Officer

Date: May 1, 2012

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.arb.ca.gov.

State of California
AIR RESOURCES BOARD

Notice of Public
Availability of Additional Documents and Information

PUBLIC HEARING TO CONSIDER ADOPTION OF AMENDMENTS TO THE CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS TO ALLOW FOR THE USE OF COMPLIANCE INSTRUMENTS ISSUED BY LINKED JURISDICTIONS

Public Hearing Date: June 28, 2012
Public Availability of Additional Documents Date: June 11, 2012
Deadline for Public Comment: June 27, 2012

At its October 2011 public hearing, the Air Resources Board (ARB or Board) adopted sections 95800 to 96023, title 17, California Code of Regulations (CCR). These sections comprise the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, including Compliance Offset Protocols (cap-and-trade regulation).

The cap-and-trade regulation provides a fixed limit on GHG emissions from the sources responsible for about 85 percent of the state's total GHG emissions. The cap-and-trade regulation reduces GHG emissions by applying a declining aggregate cap on GHG emissions, and creates a flexible compliance system through the use of tradable instruments (allowances and offset credits). The cap-and-trade regulation became effective January 1, 2012.

On May 9, 2012, Staff released a Notice of a Public Hearing to Consider Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms. Following the 45-day public comment period, the Board is scheduled to consider the amendments at its meeting on June 28, 2012.

This Notice of Public Availability of Additional Documents and Information (15-day Notice) places additional documents into the regulatory record. This Notice provides the public with two documents issued by the government of Québec. These documents contain Québec's proposed regulations covering cap-and-trade and mandatory greenhouse gas reporting. These documents will enable the public to understand ARB staff's analysis of the Québec Cap-and-Trade Program and the proposal to allow for the interchange of compliance instruments between the California and Québec Programs.

The documents added to the record represent the new regulations as proposed by the Québec government on June 8, 2012. Official government documents are available through the Québec Gazette at:

http://www2.publicationsduquebec.gouv.qc.ca/home.php#; or

http://www.mddep.gouv.qc.ca/changements/carbone/reg-PEDE-20120608-en.pdf; and

http://www.mddep.gouv.qc.ca/air/declar_contaminants/reg-mod-reg20120608-en.pdf

Staff has reviewed the draft Québec regulations related to the cap-and-trade program and greenhouse gas reporting. Based on staff's review, Québec's draft cap-and-trade regulation is consistent with the proposed amendments to the California Cap-and-Trade Regulation and ensures the same level of program security and environmental stringency. In reviewing the Québec draft greenhouse gas reporting regulation, staff determined most reporting requirements are similar to the California mandatory greenhouse gas reporting regulation and both reporting programs would provide for rigorous greenhouse gas emissions reported data. Staff did identify some differences in how the two programs address missing data. Both regulations do exceed the minimum recommendations to support a rigorous market program as developed by WCI. As part of usual program oversight, staff from both jurisdictions will monitor their programs and recommend any changes to the respective regulations, as needed.

In the Final Statement of Reasons, staff will respond to comments received on the record during the initial 45-day comment period, all comments presented at the June 28, 2012 Board hearing both orally and in writing, and comments received related to this information added to the rulemaking record by this 15-day Notice. The Administrative Procedure Act only requires that staff respond to comments on changes that are noticed.

Additional documents for this rulemaking action are available online at the cap-and-trade website referenced here:

http://www.arb.ca.gov/regact/2012/capandtrade12/capandtrade12.htm

The Board is scheduled to consider the proposed regulations on June 28, 2012. As part of finalizing the regulation, the Board will consider the related environmental analysis and written responses to environmental comments.

Additional Document(s) Added to the Record

Staff has added to the rulemaking record two documents issued by the Government of Québec.

- Cap-and-trade system for greenhouse gas emission allowances- Amendments
- Mandatory reporting of certain emissions of contaminants into the atmosphere- Amendments

These documents can be accessed at:

http://www.arb.ca.gov/regact/2012/capandtrade12/capandtrade12.htm

Contacts

Inquiries concerning the substance of the proposed regulation may be directed to Mr. Steve Cliff, Chief, Climate Change Program Evaluation Branch, at (916) 322-7194 or Ms. Rajinder Sahota, Manager, Climate Change Program Monitoring Section at (916) 323-8503.

Public Comments

In order to be considered by the Board, written comments not physically submitted at the meeting, must be submitted on or after June 11, 2012, and received no later than 12:00 noon, July 27, 2012. Only comments relating to the additional documents shall be considered by the Board, and may be submitted by postal mail or electronic mail submittal as follows:

Postal mail: Clerk of the Board, Air Resources Board
1001 I Street, Sacramento, California 95814

Electronic submittal: http://www.arb.ca.gov/lispub/comm/bclist.php

Please note that under the California Public Records Act (Gov. Code § 6250 et seq.), your written and oral comments, attachments, and associated contact information (e.g., your address, phone, email, etc.) become part of the public record and can be released to the public upon request.

If you need this document in an alternate format or another language, please contact the Clerk of the Board at (916) 322-5594 or by facsimile at (916) 322-3928 no later than five (5) business days from the release date of this notice. TTY/TDD/Speech to Speech users may dial 711 for the California Relay Service.

Si necesita este documento en un formato alterno u otro idioma, por favor llame a la oficina del Secretario del Consejo de Recursos Atmosféricos al (916) 322-5594 o envíe un fax al (916) 322-3928 no menos de cinco (5) días laborales a partir de la fecha del lanzamiento de este aviso. Para el Servicio Telefónico de California para Personas con Problemas Auditivos, ó de teléfonos TDD pueden marcar al 711.

Attachments

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see ARB's website at www.arb.ca.gov.

State of California

AIR RESOURCES BOARD

Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms to Allow for the Use of Compliance Instruments Issued by Linked Jurisdictions

Staff Report: Initial Statement of Reasons

Release Date: May 9, 2012

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State of California

AIR RESOURCES BOARD

STAFF REPORT: INITIAL STATEMENT OF REASONS FOR PROPOSED AMENDMENTS TO THE CALIFORNIA CAP ON GREENHOUSE GAS EMISSIONS AND MARKET-BASED COMPLIANCE MECHANISMS TO ALLOW FOR THE USE OF COMPLIANCE INSTRUMENTS ISSUED BY LINKED JURISDICTIONS

PUBLIC HEARING TO CONSIDER PROPOSED AMENDMENTS TO THE CALIFORNIA CAP-AND-TRADE PROGRAM

DATE OF RELEASE: MAY 9, 2012
SCHEDULED FOR CONSIDERATION: JUNE 28, 2012

Location:

California Air Resources Board
Byron Sher Auditorium
1001 I Street
Sacramento, California 95814

This report has been reviewed by the staff of the California Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

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Acknowledgments

This report was prepared with the assistance and support from many individuals within the Air Resources Board. In addition, staff would like to acknowledge the assistance and cooperation that we have received from many individuals and organizations, too numerous to list, whose contributions throughout the development process have been invaluable. Finally, staff would like to acknowledge the significant contributions from Western Climate Initiative partner jurisdictions, particularly the staff from Québec.

Executive Summary

AB 32 requires California to cut greenhouse gas emissions to 1990 levels by 2020 and to develop a comprehensive strategy to reduce dependence on fossil fuels, stimulate investment in clean and efficient technologies, and improve air quality and public health. AB 32 also requires the Air Resources Board to work with other states and nations to identify and facilitate the development of integrated and cost-effective regional, national, and international greenhouse gas reduction programs.

The cap-and-trade program is a key element of California's greenhouse gas reduction strategy. It establishes a declining limit on 85 percent of statewide GHG emissions, and creates a powerful economic incentive for major investment in cleaner, more advanced technologies. The cap-and-trade program also gives businesses the flexibility to choose the lowest-cost approach to reducing emissions.

This report presents the staff proposal to link California's cap-and-trade program with the Province of Québec's cap-and-trade program.

Background

California's cap-and-trade program was adopted by the Air Resources Board in October 2011. The regulation took effect on January 1, 2012. Under the program, the first auction of emission allowances will occur in November of this year, and the first compliance period begins on January 1, 2013.

The program establishes a hard and declining cap on approximately 85 percent of total statewide greenhouse gas emissions. ARB will issue allowances equal to the total amount of allowable emissions over a given compliance period. One allowance equals one metric ton of greenhouse gases. As the cap declines over time, fewer allowances will be available, ensuring that emission reductions occur.

Under the program, companies do not have individual or facility-specific reduction requirements. Rather, all companies covered by the regulation are required to turn in allowances in an amount equal to their total greenhouse gas emissions during each compliance period. Companies can also meet a limited portion of their compliance requirement by surrendering offset credits, which are rigorously verified emission reductions that occur from projects outside the scope of the cap-and-trade program.

The program gives companies the flexibility to trade allowances with others or take steps to cost-effectively reduce emissions at their own facilities. Companies that emit more will have to turn in more allowances or offset credits. Companies

that can cut their emissions will have to turn in fewer allowances. But as the cap declines, aggregate emissions must be reduced.

California's cap-and-trade program is purposely designed to leverage the power of the market in pursuit of an environmental goal. It opens the door for major investment in emissions-reducing technologies, and sends a clear economic signal that these investments will be rewarded.

The program has also been designed with an eye toward potential inclusion within a larger regional trading program. Since 2007, California has been a partner in the Western Climate Initiative, an effort of US states and Canadian Provinces (including Québec) working together to implement policies to combat climate change, including through the development of a regional cap-and-trade system. Participation in a regional system comprised of other cap-and-trade programs of similar scope and rigor will further enhance the opportunities for California to benefit from investment in advanced, low-carbon technologies. This proposal represents an important step in that direction.

Linking with Québec – and in time other partners – is an integral part of the cap-and-trade program design, and an important step in a process specifically designed to transform California's economy by driving innovation and investment.

Staff Proposal

The staff proposal is to link the California and Québec cap-and-trade programs. The proposed regulatory amendments harmonize certain aspects of the California and Québec programs, and also put in place specific measures to enhance the security of the market. The proposed amendments:

- Would allow for the mutual use and recognition of compliance instruments (allowances and offsets) issued under California and Québec's programs,

- Would enable allowance auctions to be held jointly and provide for the use of a unified tracking system for compliance instruments, and

- Would include additional provisions to enhance market security such as requiring submission of information to allow the verification of the identities of market participants.

With the proposal covered sources in the state must still meet the requirements of California's cap-and-trade regulation. The difference is that linking provides California businesses with more opportunities on how best to comply. California would also retain complete legal and policymaking authority over its program, including enforcement authority.

Linking with Quebec would expand the market for economic investment in low-carbon and clean energy technologies, many of which are developed by California businesses. It will also increase the efficiency of the market and provide greater opportunity for California businesses to seek out and achieve the most cost-effective emission reductions. Linking with Québec establishes a clear investment framework. By providing access to additional capital from outside the state, linkage ensures that the California program achieves its ultimate transformative goal—steering the economy to a clean energy future.

Linking California and Quebec's programs will also demonstrate the ability of jurisdictions to effectively work together to develop and implement cost-effective regional greenhouse gas emission reduction programs, providing a framework for additional partners to join and demonstrating a workable template for urgently needed action at the national and international levels to address climate change.

Staff Recommendation

Staff recommends that the Board adopt the proposed regulation to link California and Québec's cap-and-trade programs. Climate change is a global problem that requires action by states, provinces, and nations. The proposed regulation furthers California's effort to address climate change through coordinated sub-national efforts, positions our economy to benefit from investment in clean energy technologies, and will help catalyze action throughout the country and the world.

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I BACKGROUND AND INTRODUCTION

This Staff Report presents ARB staff's basis and rationale to amend the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (Cap-and-Trade Regulation) to allow for the mutual recognition and use of compliance instruments issued by California and Québec.

The Cap-and-Trade Regulation was designed to promote linkage with other Western Climate Initiative (WCI) Partners. Staff is proposing to amend the Cap-and-Trade Regulation and link the California cap-and-trade program with Québec's cap-and-trade program, a WCI Partner jurisdiction, to advance California's GHG reduction goals as required by the California Global Warming Solutions Act of 2006 (AB 32, Nuñez, Statutes of 2006, Chapter 488).

This introduction describes the structure of the Staff Report and provides a discussion of the public problem the amendments address, background information on California's *Climate Change Scoping Plan,* and *Regulation,* the Western Climate Initiative, the objectives of the proposed amendments, and the public process used to develop the cap-and-trade program.

This Staff Report, including the attached appendices, represents the Initial Statement of Reasons (ISOR) for Proposed Rulemaking required by the California Administrative Procedure Act (Government Code section 11340 *et seq*).

The Staff Report is divided into the following chapters:

- Chapter I. Background and Introduction – Describes the public problem this regulation seeks to address, provides background on California's *Climate Change Scoping Plan,* the Western Climate Initiative, Québec's cap-and-trade program, and the public process used to develop the amendments.

- Chapter II. General Summary of the Proposed Amendments – Discussion of the main amendments proposed in the regulation.

- Chapter III. Summary of the Québec Trading and Compliance Offsets Program – Summarizes selected components of Québec's cap-and-trade program and compares the program to California's cap-and-trade program. This includes Québec's reporting, trading, and compliance offset program.

- Chapter IV. Environmental Impacts of the Proposed Amendments – Describes potential impacts that the proposed regulation may have on the environment, including potential impacts from project-specific activities.

- Chapter V. Economic Impacts of the Proposed Amendments – Describes the economic impacts of the linking with Québec.

- Chapter VI. Analysis of Alternatives to the Proposed Amendments – Describes alternative amendments that were considered and why the alternatives are less effective.

- Chapter VI. Summary and Rationale for the Proposed Amendments – Describes the rationale for developing the rule provisions of the proposed amendments.

- Chapter VII. References – Provides a list of references used for development of the Staff Report.

- Appendices include the proposed regulation amendments, a summary of the WCI development and stakeholder process, supporting documents for the environmental analysis, and a description of ARB's public process for the regulatory amendments.

A. Description of the Public Problem

Climate change is one of the most serious environmental threats facing the world today. Global warming is already impacting the Western U.S., particularly California in more severe ways than the rest of the country. The 2010 Climate Action Team (CAT) report (CAT 2010) concluded that climate change will affect virtually every sector of the state's economy and most of our ecosystems. Significant impacts will likely occur even under moderate scenarios of increasing global GHG emissions and associated climate change. Compared to the rest of the country, California is particularly vulnerable to significant resource and economic impacts from at least three effects of climate change. First, as sea level rise and coastal erosion and flooding increase, California (with its long coastline) will experience loss of, and damage to, coastal property, infrastructure, recreational beaches, wildlife habitat, and coastal water supplies. Second, California relies on its snowpack for water supply and storage, and this resource is predicted to decrease substantially this century. Third, California's urban, suburban, and rural areas are highly impacted by wildfires in ways most of the country simply does not face, and climate change will increase the incidence and severity of wildfires and resulting air quality and economic impacts.

North America is also experiencing the effects of climate change. Annual mean air temperature in North America has increased over the past forty years (Füssel 2009; Pederson et al. 2010). More frequent and intense extreme weather events have impacted ecosystems, increased coastal damage, and affected a considerable proportion of people (Christensen et al. 2007; Emanuel et al. 2008).

Extreme weather events have also had severe impacts on transportation systems, energy supplies, and other industries in North America. For example,

major hurricanes in 2004 and 2005 in the United States affected oil and natural gas platforms and pipelines, creating billions of dollars in restoration costs for public utilities and transportation networks on the regional and national level (EEI 2005).
More cities are forecast to experience extreme heat waves, increasing sea levels, increased numbers of dangerous storm surges, water shortages, droughts, and increased flooding. In addition, severe heat waves, extreme weather events, and air pollution generated by climate change may cause social disruption and increase human losses and injuries, as well as vector-borne diseases.

It is important that California, and North America as a whole, works to reduce GHG emissions in order to decrease the probability of these impacts.

B. Background

Six years ago the California Global Warming Solutions Act of 2006 (AB 32, Nuñez, Chapter 488, Statutes of 2006) was enacted to begin to address this public problem by reducing GHG emissions in a cost-effective manner. AB 32 encouraged ARB to continue to be a global leader in climate change mitigation and to develop *integrated and cost-effective regional, national, and international greenhouse gas reduction programs* (AB 32, Nuñez, Chapter 488, Statutes of 2006). The amendments proposed in this regulation set us on a path to fulfill this goal.

The California Climate Change Scoping Plan laid out a comprehensive program to scale back California's greenhouse gas emissions to 1990 levels by 2020, reduce our dependence on fossil fuels, stimulate investment in clean and efficient technologies, and improve air quality and public health. The coordinated set of policies in the Scoping Plan employ strategies tailored to specific needs, including market-based compliance mechanisms, performance standards, technology requirements, and voluntary reductions. The Scoping Plan described a conceptual design for a cap-and-trade program that included eventual linkage to other cap-and-trade programs to form a larger regional trading program.

In October 2011, the Board adopted the California Cap-and-Trade Regulation. The cap-and-trade program is a key element of California's climate strategy. It creates an aggregate GHG emission limit on the sources responsible for 85 percent of California's GHG emissions, establishes a price signal needed to drive long-term investment in cleaner fuels and more efficient use of energy, and affords those regulated by the program flexibility to seek out and implement the lowest-cost options to reduce emissions. The cap-and-trade program was designed to work in concert with other measures, such as standards for cleaner vehicles, low-carbon fuels, renewable electricity, and energy efficiency. The program also complements and supports California's existing efforts to reduce criteria and toxic air pollutants. California's cap-and-trade regulation was developed concurrently with WCI design documents that describe a template for

a regional cap-and-trade program. ARB staff's participation in both efforts ensured that the two efforts were consistent, and that California's program could be linked to programs in other WCI jurisdictions.

C. Western Climate Initiative

The WCI was initiated in February 2007 as a collaboration of independent jurisdictions working together to identify, evaluate, and implement policies to tackle climate change at a regional level, including the design and implementation of a market-based mechanism, such as a regional cap-and-trade program. The five original U.S. states of California, Washington, Oregon, Arizona and New Mexico were subsequently joined in the collaboration by two additional states, Montana and Utah, and four Canadian provinces, British Columbia, Manitoba, Ontario, and Québec. Following extensive consultation with stakeholders, the WCI Partner jurisdictions released comprehensive recommendations for designing and implementing an emissions trading program. WCI is now focusing on the implementation of emissions trading programs, with five jurisdictions remaining active in the collaboration – British Columbia, Manitoba, Ontario, and Québec.

1. The WCI Regional Cap-and-Trade Program

The central component of the WCI Partner jurisdictions' comprehensive strategy is a flexible, market-based, regional cap-and-trade program that encourages the most cost-effective, reliable alternatives to reduce GHG emissions. The WCI recommends that a regional cap-and-trade program consist of each individual jurisdiction's cap-and-trade program implemented through state or provincial regulations. Each partner jurisdiction retains authority over its own regulation, and is responsible for implementation and enforcement of their own regulation. Each participating jurisdiction implementing a cap-and-trade program will issue emission allowances to meet its jurisdiction-specific emissions goal. A regional allowance market is expected to emerge as the partner jurisdictions accept each other's allowances and offsets for compliance. The compliance instruments can be traded between and among covered entities in linked jurisdictions, as well as by other market participants.

The WCI Partner jurisdictions that are currently considering emissions trading programs include California, Québec, Ontario, British Columbia, and Manitoba. Québec adopted its cap-and-trade regulation in December 2011 (Government of Québec 2011), and Québec's program is set to start in 2013.

2. WCI Cap-and-Trade Program Design

The WCI Partner jurisdictions worked collaboratively to develop a series of design recommendations for state and provincial cap-and-trade programs. Although each state and jurisdiction would need to adopt and implement their own cap-and-trade program, the design recommendations provided a template which would facilitate future linkage. California staff actively participated in the

WCI committees, which developed the design recommendations that were eventually approved by the WCI Partner Jurisdictions.

After extensive stakeholder consultation as described in Appendix B, WCI released its first set of design recommendations on September 23, 2008. These recommendations are consistent with California's cap-and-trade program. The 2008 WCI Design Recommendations for the WCI Regional Cap-and-Trade Program included a broad description of program policies such as the scope of program coverage, the point of regulation, how the cap could be set, criteria for offsets, limits on the use of offsets, inclusion thresholds, distribution of allowances, reporting criteria, regional administrative organization, role of other policies and linkage. Appendix B contains the original 2008 WCI Design Recommendations.

On July 27, 2010, the partner jurisdictions of the WCI released the Design for the WCI Regional Program (Western Climate Initiative 2010), a comprehensive strategy designed to reduce GHG emissions, stimulate development of clean-energy technologies, create green jobs, increase energy security and independence, and protect public health. The stakeholder consultation for the 2010 design document is also described in Appendix B.

This proposed linkage regulation represents one part of the joint effort undertaken by California and other WCI Partner jurisdictions to take the steps necessary to make regional trading operational. The WCI Partner jurisdictions are also working together to implement the systems that are needed to operate a cap-and-trade program including a tracking system for compliance instruments, auction services, financial services, and market monitoring. The WCI Partner jurisdictions will continue to consult with stakeholders on the development of this regional effort.

3. WCI, Inc.

In 2011, the WCI Partner jurisdictions formed a non-profit corporation, WCI, Inc., to provide coordinated and cost-effective administrative and technical support for its participating jurisdictions' emissions trading programs. The decision to form WCI, Inc., followed a comprehensive assessment of options to efficiently provide the support systems needed to facilitate linkage with states and jurisdictions. The establishment of WCI, Inc. is consistent with the model chosen by the Regional Greenhouse Gas Initiative (RGGI) in which several eastern states are participating in a regional cap-and-trade program. The planned activities for WCI, Inc. to accomplish its objective of providing coordinated administrative support are to:

a) develop, implement, and maintain a system for tracking compliance instruments for emissions trading programs;

b) develop, implement, and maintain capability to execute allowance auction and reserve sales; and

c) develop, implement, and maintain capability to conduct market monitoring.

The benefits of participating in WCI, Inc., will include reduced administrative costs through cost sharing with other jurisdictions and enhanced security and effectiveness of program infrastructure across programs, including the tracking system, auction operation, and market monitoring.

As with other voluntary agreements that ARB establishes with local air districts, states, federal government, and contractors, ARB's participation in WCI, Inc., does not confer any decision-making authority, oversight, or enforcement to WCI, Inc. Decisions concerning ARB's Cap-and-Trade Regulation are made by ARB at the direction of the Board, not WCI, Inc.

D. Reasons for Linking to Québec

This proposed regulation would link California and Québec's greenhouse gas emission trading programs. Linkage involves the reciprocal acceptance of compliance instruments issued by another system. The objectives of linking with Québec are to:

- Decrease greenhouse gas emissions to help achieve the AB 32 mandate;
- Maximize global greenhouse gas emission reductions through coordinated sub-national efforts (AB 32, Nuñez, Statutes of 2006, Chapter 488, Section 38564) by enhancing individual jurisdictions' actions through a collaborative effort;
- Broaden the compliance instrument market to provide greater flexibility to California businesses by offering a wider range of emissions reduction opportunities and greater market liquidity; and
- Maximize the additional environmental benefit.

Linking with Québec has several advantages. The reduction of greenhouse gas emissions that can be achieved collectively by the two programs is larger than what can be achieved through a California-only program. Broadening the scope of the market will also provide greater flexibility to California businesses by encompassing a wider range of emissions reduction opportunities and greater market liquidity, and may have a positive impact on the California economy.

E. Public Process for Development of Amendments

ARB staff developed the proposed amendments through an extensive public process. In 2008, staff discussed the general framework for a cap-and-trade program, which included linking to other WCI Partner jurisdictions, as part of the development of the Scoping Plan. In the past four years, ARB and WCI have held numerous public meetings. The WCI meetings are described in Appendix B. ARB's stakeholder engagement for the development of the cap-and-trade regulation that was adopted in October 2011 is described in the ISOR for that regulation (CARB 2010b). In 2012, ARB held two public workshops to discuss these proposed linkage amendments. The first public workshop occurred on February 3, 2012, and was followed by another on April 9, 2012. On March 30, 2012, ARB released draft regulatory amendments describing the proposed changes needed to link with Québec. ARB accepted public comments on the draft proposed amendment on our website until April 13, 2012 and considered other comments provided to us via email or in conversations with stakeholders. Staff also met individually with many California stakeholders to discuss proposed amendments. See Appendix D for additional information on ARB's public process to develop these proposed amendments.

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II SUMMARY OF PROPOSED ACTION

This chapter summarizes the proposed amendments to the cap-and-trade regulation in order to link California's program to Québec's.

California will only consider linking our cap-and-trade program with other programs of similar scope and stringency – that is programs of equal or greater rigor in their environmental integrity, along with similar or greater ambition of emission reduction, considering the types of sources included and complementary requirements. This helps to ensure that California businesses are not disadvantaged by linking but rather see the benefits from having a broader, more liquid market.

Both California and Québec considered the WCI Program Design recommendations while developing their own cap-and-trade regulations, ensuring general consistency in GHG reporting, cap-and-trade, and offsets. Staff's review of both programs reveals that the scope, stringency, and environmental integrity of both programs is similar. Linking the two programs would result in equitable treatment for covered entities in both jurisdictions. Due to differences in rulemaking requirements, the regulations in Québec are not as detailed as those in California in some respects, however staff's evaluation is that the end result of each regulation will be substantially similar. Staff believes that the minor differences identified between the two programs will not adversely impact the environmental integrity of a linked cap-and-trade program.

California and Québec have coordinated closely both within the WCI in the development of the WCI design document, and in development of this proposed linkage regulation. Both jurisdictions are committed to continuing that coordination as the programs are implemented. Toward that end, if this linkage regulation is approved, ARB staff will both work with Québec staff and monitor the implementation of the Québec regulation, as well as development of any modifications to their regulation, especially as they may impact the California program, California's regulated entities and the residents of California. If staff identifies that potential changes to the Québec regulation could harm attainment of the program goals, California regulated parties or California, staff would brief the Board and pursue the Board's direction. ARB staff and Québec staff is committed to working closely together to resolve any potential issues and would strive to avoid actions such as de-linking. Should ARB staff find that de-linking is necessary, the staff would need to propose regulatory action. Although staff cannot pre-suppose Board action, we expect that previously issued Québec compliance instruments would continue to be eligible for use in the California program.

A. Summary of Significant Changes to California's cap-and-trade regulation

1. Linkage With Québec

The decision to propose linkage of the California and Québec cap-and-trade programs followed extensive discussions between California staff and Québec staff on the harmonization of regulatory provisions. In these discussions, staff considered which items must be identical, which need to be consistent, and which could be different in a linked program. Staff of the jurisdictions each concluded that the remaining differences would not adversely affect the efficiency or equity in a regional program.

Subarticle 12 of California's proposed regulation contains many of the provisions that operationalize the linkage. Proposed provisions would allow program participants in a linked jurisdiction to retire compliance instruments issued by California. In return, California entities would be able to use compliance instruments issued by a linked cap-and-trade program for compliance with California's surrender obligations. The administrators of each of the linked programs would inform each other of instruments issued and retired by their respective programs. Each program would recognize entities registered into linked programs as eligible to participate in both programs.

The proposed linkage with Québec would require a number of program modifications. Some of these proposed modifications were developed in consultation with the contracted auction provider and financial services provider. The proposed modifications are discussed in the sections below.

2. Eligibility

The proposed regulation would limit eligibility to participate in California's cap-and-trade program. Entities located within the United States must register with California. Program design discussions with Partner jurisdictions of the Western Climate Initiative (WCI) led to this approach to restrict eligibility to entities located in the United States or Canada. Canadian entities would register with Québec or other provinces as they link their cap-and-trade programs with Québec and California. This decision reflected the jurisdictions' desire to ensure that each is able to take enforcement actions against program participants, as necessary.

As discussed above, each jurisdiction would recognize entities registered with a linked jurisdiction as able to hold and retire instruments from either program and participate in joint auctions.

3. Registration

The existing regulation includes requirements for any entity that wishes to hold compliance instruments. These requirements include registration with ARB. When an entity registers with ARB, it must disclose all affiliated entities, provide

information to allow ARB to oversee the market, and agree to be subject to ARB's regulatory requirements. Once registered with ARB, an entity can possess an ARB account for holding, transferring, and surrendering compliance instruments.

The proposed regulation would require the registering entity to submit additional information that would allow ARB to validate the entity's identity. This includes basic information on the entity, such as name, address, contact information, and date and place of incorporation, if that applies.

The proposed regulation would require disclosures of identification numbers that would aid staff to access commercial and government data sources. Not every entity would have everyone of these identifiers. The first would be a business number assigned to an entity by a California state agency. The second would be a U.S. federal tax Employer Identification Number (U.S. Internal Revenue Service 2012). The third would be the Data Universal Numbering System (DUNS) number, which is assigned by Dun and Bradstreet, a private business information firm. The DUNS Number is a nine-digit identification number assigned to each physical location of a business. The DUNS Number is in use worldwide, and allows a single facility to be linked to extensive information on corporate family trees (Dun and Bradstreet 2012).

The proposed regulation would also add an additional registration requirement on individuals or entities located in the United States but outside of California. Staff is proposing to require that such entities and individuals establish a local presence in California for enforcement purposes by designating an "agent for service of process" in California. That agent may be an individual who resides in California, or a corporation doing business in California that has previously registered with the California Secretary of State pursuant to California Corporations Code section 1505 (California Secretary of State 2012).

An individual who is registering as a voluntarily associated entity or an entity registering in any capacity that does not have a primary address in California would have to designate an agent for service of process. Alternatively, the registrant could establish a local presence by designating an individual residing in California as their primary or alternate account representative.

4. Account Representatives

Under the existing regulation, an account representative must be authorized to conduct transfers by the account holder. This authorization must be made at the time of registration, but it can be changed at any time. The accounts administrator, acting on behalf of the Executive Officer, would only record transfers of compliance instruments if the transfer is authorized by the account representative of the source and destination accounts.

Currently, each registered entity must appoint one alternate account representative and one alternate authorized account representative. In addition, these two account representatives may appoint electronic submissions agents to take actions in the tracking system on behalf of one of the account representatives.

Staff is proposing three changes to the system of account representatives. First, we are proposing that the authorized account representative will be renamed the primary account representative. The primary account representative would be informed of all actions taken on an account by the accounts administrator and any other account representative for that account. This would ensure every registered entity has at least one individual that is informed of all actions taken on an account.

Second, the "alternate authorized account representative" would be renamed the "alternate account representative." Stakeholders commented that the existing regulation only allowed for a total of two account representatives that could file transfer requests or take other actions. They indicated that number was not sufficient to ensure that actions could be taken in a timely manner. Staff agreed and raised the maximum number of authorized account representatives to four. Otherwise the duties of the authorized account representative are unchanged.

Third, staff proposes to remove the electronic submission agent. Staff determined that the increase in alternate account representatives made the electronic submission agent unnecessary. To allow entities to monitor their accounts, staff is proposing to create an "account viewing agent" that could access all information on the tracking system but not take any other actions.

Staff is also proposing an additional security measure--that an officer of the registered entity attests to the selection of any primary or alternate account representative or any account viewing agent. This officer would be one of the officers disclosed during the tracking system registration process.

The existing regulation specifies that transfers of compliance instruments would require one of the account representatives from each party to a transfer to independently submit a transfer request to the tracking system. Entities may enter into private transactions agreements, but the accounts system does not recognize the transaction until the accounts administrator receives valid transfer requests. Staff is proposing procedures to establish a more rigorous approach to submitting transfer requests to ensure the integrity of transfers between accounts.

Under the proposed procedure, one account representative files a transfer request, which must then be confirmed by another account representative for the same entity. The representatives must complete this process within two days of submitting a transfer request. An account representative for the destination account must confirm the transfer request within three days of the initial

submission of the transfer request. This process is sometimes referred to as 'push-push-pull.' The transfer request must also be completed no later than three days after settlement of the transaction agreement for which the transfer is submitted.

ARB is proposing the push-push-pull approach following discussions with the other WCI Partner jurisdictions and stakeholders. These discussions reviewed experiences in the EU-ETS and concluded that additional security was needed for the system of transfer requests. The push-push-pull approach was part of the solution. The second part of the response is to obtain more information to ensure the identification of the individuals who submit transfer requests. These additional proposed requirements are discussed in the next section, which is about the proposed "Know-Your-Customer" disclosures.

5. Individual Know-Your Customer Requirements

Staff is proposing that any individual given access to the tracking system will first have to provide documentation of their identity. This includes individuals registering as voluntarily associated entities, persons that will be registering as covered entities, those who will become account representatives or viewing agents, and ARB staff who have account to execute the requirements of the regulation.

First, the individual would have to provide documentation of their name, photograph, date of birth, and primary address. This would be done through national or state government-issued identification documents.

Second, the individual would have to provide the name, address, and contact information of their employer. In addition to proving identity, this information would provide a link to the entity for which an individual may become an account representative.

Third, the individual would have to provide other documentation that would allow identity verification, such as proof of a bank account.

Finally, the individual would have to disclose criminal convictions that would constitute a felony that occurred during the previous five years. The regulation would exclude anyone with such convictions from participating in the program.

6. Corporate Associations and Account Consolidation

The existing account structure in the regulation is based on the concept of facility level compliance with both emissions reporting and compliance instrument surrender. This results in corporate entities that operate several covered facilities having multiple accounts to manage. In addition, the possibility of entities controlling multiple accounts on the system creates difficulties in market monitoring. Manipulative schemes that can be detected when operated by a single entity can be more difficult to detect when operated by a number of

seemingly different entities. To address this, the existing regulation adapted the concept of corporate associations used in other emissions trading programs such as the Regional Greenhouse Gas Initiative (RGGI).

Under the regulation, entities are required to disclose any corporate associations with other registered entities and unregistered entities that may control registered entities. This disclosure aids market monitoring. Staff also structured auction purchase limits and holding limits to apply to corporate associations as if they were single entities, since they are presumed to coordinate market activity.

Staff is proposing to modify the classifications of corporate associations to clarify how the determinations are to be made. Staff is also proposing to make the joint holding and purchase limits apply only to direct corporate associations, which involve cases in which one entity clearly has ownership or control over another.

Staff has proposed to add criteria that would include partnerships as a type of association, which had previously been excluded from consideration. Staff is also proposing language that would address the organizational structure of publicly owned utilities. These entities had expressed concern that the existing criteria did not clearly apply to them.

Discussions with stakeholders made it clear to staff that the existing account system could be difficult for corporate associations to manage if they had a large number of accounts. It might also lead them to appoint a large number of account representatives, increasing the burden of the Know-your-Customer requirements. The large number of associations that would have to be drawn between accounts complicated the enforcement of purchase and holding limits. That approach would also consume significant market monitoring staff time. Finally, since emissions reporting would still be done at the facility level, staff determined that there would be a minimal loss of transparency by going to a more consolidated system of accounts.

Staff is therefore proposing to consolidate all of the individual accounts held by entities that are part of a direct corporate association. Direct corporate associations involve cases in which one entity has clear ownership or control over another. The proposed regulation would consolidate accounts by January 1, 2013. The proposed changes would include an opt-out provision for members of a direct corporate association that prefer or need to manage compliance for some of its entities separately. All entities will be required to take positive actions to establish their intent to consolidate or opt out.

7. Changes to Auctions and Reserve Sales Related to Linkage

WCI discussions led to a proposed schedule of joint quarterly auctions. Staff is proposing to have a single auction in 2012, to be held on November 14. All 2015 vintage allowances allocated for auction by Québec and California for 2012 would be offered at this auction. In addition, one-third of the 2013 vintage

allowances that are placed in limited-use holding accounts in 2012 would be consigned to the November auction.

Having a joint auction with an auction reserve price would require that a procedure be established to set a uniform auction reserve price. The proposed regulation contains a process developed during WCI discussions and with stakeholders. Both the California and Québec regulations would start with the same auction reserve price and rate of increase, but they would apply different inflation adjustment mechanisms since the prices are set in different currencies. staff is recommending a process to set the auction reserve price for each auction by applying the two inflation adjustments, using an exchange rate to convert to a common currency, then choosing the higher of the two values. By using the higher of the two values, this ensures that no linked jurisdiction would be selling its allowances below its designated floor price as the result of currency exchange rate fluctuations.

Staff is also proposing two modifications. First, to have an auction "window" open three hours on the day of the auction. Second, resolving tied bids through proportional awards, rather than by randomly assigning remaining bundles of 1,000 allowances, as in the existing California regulation.

California currently exempts electric utilities from the purchase limit since they would have to consign all of their allocated allowances to auction. They would then have to buy allowances to cover direct emissions and any emissions obligations stemming from long-term electricity purchase contracts. Staff is proposing to set the purchase limit for utilities at 40 percent. Staff believes the limit is large enough for the utilities to meet their compliance obligations and removing the exemption removes a perceived inequity between utilities and other covered entities. The purchase limit is 15 percent for industrial covered entities and 4 percent for voluntary market participants.

8. Process Changes to the Auction

Staff proposals to change the auction process resulted from comments from regulated entities and consultations with the financial services administrator. First, individuals involved in the auctions would have to complete Know-Your-Customer requirements prior to applying to participate in the auction. Second, entities registered with California would have to submit bids and bid guarantees in U.S. dollars.

The existing regulation calls for a bid guarantee. Staff is proposing that the guarantee be made payable to the financial services administrator, and that it expires no less than 21 days after the scheduled auction. This would ensure that payment can be made even if there is a delay in the auction. The proposal requires that if multiple forms of bid guarantee are provided, then they would be accessed in an order specified in the regulation. The existing requirement that the auction operator will reject bids in excess of the bid guarantee is retained in

the proposed regulation. Finally, the proposed regulation would have any unused bid guarantees returned to the entity by the financial services provider or expire after auction settlement.

Staff is also proposing to modify the mechanism for handling allowances remaining unsold at auction. Staff proposes that unsold current vintage allowances remain in the Auction Holding Account until two consecutive auctions achieve a settlement price above the Reserve Price. If allowances are put back into the auction, they would be limited to 25 percent of the amount originally scheduled for auction, to avoid another undersubscribed auction. Future vintage allowances that remain unsold after the year that they are offered at the Advance auction would be held in the Auction Holding Account until they qualify as current vintages.

9. Process Changes to the Reserve Sale

While both Québec and California intend to schedule Reserve sales for the same day, staff is proposing that covered entities may only purchase from the jurisdiction with which they register. This means only California's covered entities could purchase allowances from the California Reserve sales and only Québec's covered entities could purchase allowances from the Québec Reserve sales. Since the sales are separate, there is no need to completely harmonize the tier prices. Nevertheless, the California and Québec Reserve sales have the same structure, escalation rates, and starting prices (in each currency). Staff is proposing the same changes to settlement procedures for the Reserve sale that it is proposing for the auction. Staff is not proposing further changes to the sales determination process.

10. Trading

In addition to the proposed push-push-pull method of filing transfer requests, staff is proposing other modifications to trading provisions.

First, staff is proposing to remove all provisions that would allow beneficial holdings, the practice in which one entity holds compliance instruments that are owned by another entity. Staff determined that the provisions compromised market monitoring efforts. More importantly, these provisions were included in the existing regulation primarily to deal with the complications arising from long-term electricity contracts. These contracts gave the utilities the options of either purchasing allowances for eventual transfer to generators or paying the generator to purchase them. After conversations with stakeholders, staff concluded that the provisions did not resolve this issue sufficiently to justify the other difficulties identified.

Second, staff is proposing a five-day cure period in the event that violations of the holding limit are not detected until after a transfer is recorded into the tracking system. The regulation would require that a violator be forced to consign the allowance in excess of the holding limit if the violation is not resolved within the

five days. Depending on the specific circumstances that led to the holding limit violation, enforcement penalties may still be applied.

Third, staff is proposing that the holding limit applied to future vintage allowances sold at the advance auction would be applied separately to each future vintage year, not the whole pool of future vintage allowances as in the existing regulation. During WCI discussions, jurisdictions voiced concern that individual entity holdings of a single future vintage could be too high, and proposed reducing the size of the future vintage holding limits. To address this concern, we are proposing to apply the holding limits to each vintage, to maintain the overall size of the future vintage auction.

11. Change in Allocation Date

Staff is proposing to change the date at which allocations to accounts will be made in 2012 to September 14 for the utilities. Staff concluded that the existing earlier date is no longer needed if the staff proposal to hold the first auction on November 14, 2012 is approved.

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III SUMMARY OF QUÉBEC'S CAP-AND-TRADE PROGRAM

This chapter includes a summary of the main components of Québec's program and compares these components to the California cap-and-trade program. Québec has passed several regulations to put a cap-and-trade program in place and is in the process of revising those regulations as well as developing additional regulations to support a rigorous GHG reporting, cap-and-trade, and compliance offset programs. As a result of the many years of coordination within the Western Climate Initiative (WCI) and the development of the WCI design documents, the California and Québec programs are very similar. To support a regional cap-and-trade program, there will be provisions in each jurisdiction's regulations that must be exactly the same and other areas where the intent and approach needs to be consistent. In a few cases, there may not need to be a similar approach, and each jurisdiction has chosen its own approach to implement or develop a specific policy. An example of where the programs are not similar is the process and timing of allowance allocations. In general, the two programs provide the same level of stringency and environmental integrity while providing equitable treatment of covered entities in both jurisdictions.

A. Background

The Government of Québec has taken several actions to address climate change. In particular, "Bill 42 - An Act to amend the Environment of Quality Act and other legislative provisions in relation to climate change" (Government of Québec 2009) lays out several high level policies to address climate change, including the establishment of a cap-and-trade program. Bill 42 also allows Québec to link its cap-and-trade program with other external regulatory cap-and-trade programs. And, like AB 32, Bill 42 requires the authorities to establish a 2020 GHG emissions level for Québec relative to a 1990 emissions baseline. Whereas California's 2020 GHG emissions target is set at the 1990 GHG emissions level, Québec has a more ambitious 2020 emissions target set at 20 percent below 1990 GHG emissions levels (Government of Québec 2009a). To help reach this target, Québec has adopted a regulation for establishing an economy-wide cap-and-trade program (Government of Québec 2011). In general, Québec's cap-and-trade program is consistent with the recommendations in the Design Recommendations for the WCI Regional Cap-and-Trade Program (Western Climate Initiative 2010).

Québec's cap-and-trade program will cover approximately 75 companies, which are mainly aluminum and mining companies. All large emitters over 25,000 tonne CO2e and electricity providers will be required to surrender compliance instruments for their GHG emissions, consistent with the Design Recommendations for the WCI Regional Cap-and-Trade Program (Western Climate Initiative 2010) and the California cap-and-trade Program (Title 17, California Code of Regulations, §95812). GHG emissions from these sources are covered beginning in 2013. Beginning in 2015, all fuels are covered under the cap (Government of Québec 2011). The scope of Québec's program is

similar to California's program, and the emissions thresholds for inclusion are identical, as are the start dates for enforcement of each program.

Québec's program also covers the same 7 GHGs listed in AB 32; carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6), and nitrogen trifluoride (NF3). Other gases may be added through regulation by the Minister (Government of Québec 2009a).

In terms of total GHG emissions, California's GHG emissions budgets for its cap-and-trade program are larger than Québec's GHG emissions budgets. The process by which California set its allowance budgets and caps are included in Appendix E of the Initial Statement of Reasons for the proposed cap-and-trade regulation, October 2010. To help inform their setting of the allowance budgets and cap, Québec used GHG emissions data collected from a pre- existing reporting regulation that applied to entities that emit more than 50,000 MTCO2e per year and data collected under other existing air quality programs (Government of Québec 2012). By using actual reported data, California and Québec have established allowance budgets that are accurate and designed to avoid over-allocation in each program. Table 1 provides the annual allowance budgets for California and Québec.

Table III-1. Annual Allowance Budgets (million metric tonnes CO_2e)

Year	California[1]	Québec[2]
2013	162.8	23.7
2014	159.7	23.3
2015[3]	394.5	63.6
2016	382.4	61.0
2017	370.4	58.5
2018	358.3	56.0
2019	346.3	53.4
2020	334.2	50.9

[1] Title 17, California Code of Regulations, §95841

[2] Annual caps on greenhouse gas emissions units relating to the cap-and-trade system for greenhouse gas emission allowances for the 2013–2020 period (Government of Québec 2011a).

[3] Transportation fuel and distributed natural gas are covered beginning in 2015.

B. Market Mechanisms and Policies

In order for California and Québec to implement a joint market program, there are key mechanisms in the two programs that must be identical. Staff from both jurisdictions worked together to develop proposed alignments of these elements of the programs while ensuring that the proposed changes continue to support an efficient and enforceable market program for their respective regulated entities. Many of the market elements are consistent with the Design Recommendations for the WCI Regional Cap-and-Trade Program (Western Climate Initiative 2010).

One feature that must be identical in both programs is the quarterly auction. This will enable joint auctions in the regional cap-and-trade program. Staff from both jurisdictions worked together to ensure that the proposed revisions to the Québec and California cap-and-trade regulations include provisions that are identical in policy and practice. These provisions cover requirements regarding eligibility for auction participation, publication of auction-related information, process for tie breaks in an auction, settlement for an auction, purchase limits by auction participant type, bidding process, dates for auctions, and financial requirements. Staff envisions that a single auction provider will facilitate a joint auction for California and Québec so it is important for both jurisdictions to have identical processes in this area.

The two programs are also proposing the same holding limits to ensure that no entities in either program are disadvantaged relative to their counterparts in the other jurisdiction, and that each program has similar design elements in place to prevent the potential for any individual or set of individuals from engaging in any exertion of market power.

Since a single compliance instrument tracking system will support the regional program, we anticipate that Québec's revised regulation will propose requirements identical to those in the proposed amendments to the California cap-and-trade regulation for moving compliance instruments from one account to another. It will take two individuals to initiate a trade and one individual from the counter-party to confirm a trade to initiate the movement of compliance instruments in the Compliance Instrument Tracking Services System (CITSS). This essentially means that it will take both the "selling party" and the "purchasing party," or counter-party, to complete a transaction in the system. The timing requirements to report the transaction and then complete the transfer in the CITSS are also expected to be identical in the two programs.

Both the California and Québec program have incorporated the concept of an Allowance Price Containment Reserve (Reserve). This feature allows regulated entities to purchase allowances at quarterly auctions at set prices. More detail about the function of the Reserve can be found in the Initial Statement of Reasons for the Proposed Cap-and-Trade regulation, October 2010. The allowances that comprise each Reserve are pulled from the annual allowance

budgets from each jurisdiction; each jurisdiction is proposing that only California regulated entities could purchase from California's Reserve and only Québec regulated entities could purchase from Québec's Reserve.

C. Compliance Requirements

In Québec's program, covered entities will have a compliance obligation for their GHG emissions starting on January 1, 2013. Unlike California's program, Québec's program only requires a compliance obligation surrender after each compliance period instead of both a partial annual compliance obligation surrender and then a triennial compliance obligation surrender after each compliance period (Government of Québec 2011 and Title 17, California Code of Regulations section 95853, section 95855, and section 95856). This difference does not affect the ability to link the programs; it only requires California entities to provide evidence of periodic acquisition and surrender of compliance instruments during the compliance period.

Every entity that is covered by Québec's cap-and-trade program is required to surrender compliance instruments equal to its covered GHG emissions. As with California's program, compliance instruments can be either an allowance or an offset credit. As in California's program, a covered entity in Québec can only meet eight percent of its compliance obligation surrender using offset credits. Staff anticipates that Québec will issue its own compliance offsets as described in Chapter III. Under these proposed amendments, Québec issued compliance offsets could be used by California entities to meet their compliance obligation, up to the 8 percent limit.

The compliance obligation will be based on the reported and verified emissions as required under Québec's GHG reporting regulation (Government of Québec 2012). This chapter also includes a description of Québec's GHG reporting and verification program. In the event a covered entity in Québec fails to provide a timely compliance obligation surrender, consistent with the Design Recommendations for the WCI Regional Cap-and-Trade Program (Western Climate Initiative 2010) and the California program, there is a three-to-one allowance obligation for each compliance instrument that was not turned in as required.

D. Enforcement

As a regulatory authority, Québec's Ministère du Développement durable, de l'Environnement et des Parcs [translation: Ministry of Sustainable Development, Environment and Parks] (Ministry) has legal authority to enforce its regulations. This authority stems in part from Québec's Environment Quality Act (QEQA 2012), which incorporates various provisions of Québec's Code of Penal Procedure (QCPP 2009). Pursuant to Québec law, penalties may be assessed for violations of its regulations, although similar to California's program, certain

actions, including criminal actions, would be referred to the Québec Attorney General or other prosecutor. Additional criminal statutes that may be applicable in the context of GHG reporting and cap-and-trade would be Canada's Competition Act (Canada Competition Act 1985) (section 52 applies to fraud) and Canada's Criminal Code (Canada Criminal Code 1985).

In addition, Québec's regulations specify the range of per-offense penalties, which may be compounded on a per-day basis pursuant to Division XIII.1, section 115.37 of Québec's Environment Quality Act (QEQA 2012). Moreover, and consistent with California's approach to enforcement, the Ministry would commence an action based on the type of offense, taking into account its specific facts. ARB staff also understands that recent changes to Québec's Environment Quality Act that relate to increased penalty amounts will be incorporated into Québec's reporting regulation, including provisions regarding "per-ton" penalties.

An additional key feature of an enforceable cap-and-trade program is to identify and locate an individual that may be subject to enforcement action. To this end, and based on discussions between ARB staff and Québec staff, Québec's revised cap-and-trade regulation will also include provisions for "know-your-customer" checks and prohibitions from registration for individuals who have been convicted of serious crimes within the last five years. Both California and Québec will require a service of process agent or account representative of covered entities to reside in the jurisdiction where the entity is registered. Only individuals that reside in the United States or Canada will be eligible to apply for an account in the CITSS through California and Québec, respectively.

E. Québec's Offset Program

1. Background

Québec's cap-and-trade program allows for the use of compliance offsets issued by the government as stated in Bill 42 (Government of Québec 2009). Québec's original cap-and-trade regulation did not include provisions for generating compliance offset credits. ARB staff understands that Québec is developing additional provisions to establish the regulatory requirements for its compliance offset program. Québec has also been an active participant in the WCI offset discussions. Québec staff has indicated that its regulation will be consistent with the criteria included in the WCI Offset System Essential Elements Final Recommendations Paper (Western Climate Initiative 2010b). It is important to note that the WCI recommendation are also consistent with the offset standards established in the California cap-and-trade regulation, thus ensuring that any offset credits issued by Québec would also meet the AB 32 criteria of being real, quantifiable, permanent, enforceable, additional, and verifiable. This close collaboration will ensure that the Québec compliance offset program will provide

compliance offsets that represent real GHG emission reductions of the same stringency as in California's program.

The following description of Québec's offset regulation is based on internal discussions over the past several years regarding Québec's intended offset regulations. Although Québec has not published any documents on which staff may rely, California is confident that Québec's regulation will follow the WCI recommendations regarding offset regulations based on ongoing discussions with Québec officials and the agreed upon WCI offset process. Additionally, ARB anticipates Québec's offset regulations will be available during the pendency of this rulemaking. ARB will add these regulations to the rulemaking file pursuant to the provisions of the Administrative Procedure Act and will make these documents available for 15 days for review once these new regulations are available.

Québec's offset program is anticipated to be consistent with California's compliance offset program.

2. Offset Criteria

Both California and Québec participated in discussions with other WCI Partner jurisdictions to develop and approve the WCI Offset System Essential Elements Final Recommendations Paper (Western Climate Initiative 2010b). This document incorporates the AB 32 offset criteria and is consistent with how California's program has defined and chosen to implement those criteria. Staff believes Québec's offset program will be consistent with the WCI recommendations and, therefore, consistent with California's compliance offset program. The descriptions included in this section are based on discussions between Québec officials and ARB staff regarding Québec's likely offset regulation as well as broader WCI discussions regarding offset credits used for compliance purposes. The descriptions include concepts agreed upon among the WCI participants. Although no WCI Partner jurisdiction is obligated to follow the WCI recommendations, the participating jurisdictions worked together to establish a set of common goals and standards among them to apply to offset projects and crediting.

Staff anticipates that Québec's offset program will require that only GHG reductions that are achieved for activities beyond those required by regulation will be eligible for offset issuance, as agreed upon within WCI. Furthermore, Québec will establish additionality performance standards for projects in the way that California has done for its compliance offset protocols. These performance standards will establish a benchmark above common practice for activity specific to each offset project type.

Staff also anticipates that Québec's offset program will require GHG reductions to be accurately and conservatively quantified, so that only real and quantifiable reductions are issued compliance offset credits. This concept is identical to how

California has established its requirements and will be implemented through the development of well-researched and prescriptively quantified compliance offset protocols.

In discussions with Québec staff, it is clear that any Québec-issued offsets must also be permanent. This is consistent with both the California program and with the WCI recommendations.

Québec also anticipates having provisions to require verification of any GHG reductions or assertions thereof, including requirements for clear monitoring and documentation of information related to the offset project within the revised cap-and-trade regulation and the compliance offset protocols.

Québec's program is also anticipated to include requirements for documentation of clear ownership of any offsets it issues and any information submitted related to an offset project. This process will ensure enforceability of the program against the signatory of any documentation related to an offset project. This concept is consistent with the documentation and attestation requirements in the California program.

All of the characteristics staff anticipates to be included in Québec's program are further identified within the WCI offset recommendations (Western Climate Initiative 2010b).

3. Offset Process

The California cap-and-trade regulation has prescriptive requirements for the process that offset project developers must follow to submit specific information to the ARB and the process they must follow to be eligible to receive compliance offset credits (Title 17, California Code of Regulations, section 95970–section 95988). This approach is consistent with the WCI Offset System Process Final Recommendation Paper (Western Climate Initiative 2012). In discussions with Québec's staff, ARB staff anticipates that their offset process for compliance offset issuance will be consistent with the WCI Offset System Process Final Recommendations paper (Western Climate Initiative 2012). The recommendations in that paper are also consistent with the California cap-and-trade program.

Based on these discussions, ARB staff anticipates that Québec's offset program will include the following elements:

- A crediting period of no more than ten years, with the ability to renew the project if it continues to be additional and any resulting offsets would continue to meet the offset criteria as described above.

- Projects may occur within Canada, the United States, and Mexico, excluding California. Each protocol would designate the specific

geographic scope for that project type. This would be identical to California's program, where the cap-and-trade regulation specifies that the Board may approve offset protocols with offset projects occurring within Canada, the United States, and Mexico, while the existing Compliance Offset Protocols each limit projects to the United States.

- Requirements to provide basic information indicating the type of offset project, location, applicable permits, and a monitoring and data plan (the equivalent of listing a project in the California compliance offset program).

- Requirements for offset project operators to have any "listing" information to be validated by a third-party accredited to international standards (validation is included as part of the first year of verification in the California compliance offset program).

- Requirements for the validation body to demonstrate conflict-of-interest requirements under its accreditation and to also have not provided any consulting services on the project it is validating.

- Requirements for annual reporting of general information and compliance offset protocol-specific information.

- Requirements for annual documentation of offset-project related information.

- Requirements for annual verification of offset project reports by an accredited third-party that is subject to conflict of interest requirements (the accreditation requirements and standards for verification are the same as those for the Québec GHG reporting program).

- Final review and issuance of offset credits by the government.

In total, these elements will ensure a thorough and rigorous system for the development of Québec-issued compliance offsets, which is consistent with the Western Climate Initiative recommendations and California's program.

One area where the two programs are expected to differ is on how to restore environmental integrity in the system once an offset must be invalidated. In California's program, the user of the offset must replace it with another valid compliance instrument if it is invalidated. Québec's program is expected to include an environmental integrity buffer account into which every offset project will contribute a small percentage of its total issued offsets. This does not obviate the need for any additional enforcement. The government of Québec will still retain all of its authority to pursue any additional remedy against anyone that provides misleading or false information related to an offset project.

4. Enforcement

As a regulatory authority, Québec's Ministère du Développement durable, de l'Environnement et des Parcs [translation: Ministry of Sustainable Development, Environment and Parks] (Ministry) has legal authority to enforce its regulations. This authority stems in part from Québec's Environment Quality Act (QEQA 2012), which incorporates various provisions of Québec's Code of Penal Procedure (QCPP 2009). Pursuant to Québec law, penalties may be assessed for violations of its regulations, although similar to California's program, certain actions, including criminal actions, would be referred to the Québec Attorney General or other prosecutor. Additional criminal statutes which may be applicable in the context of GHG reporting and cap-and-trade would be Canada's Competition Act (Canada Competition Act 1985) (section 52 applies to fraud) and Canada's Criminal Code (Canada Criminal Code 1985).

In addition, Québec's regulations specify the range of per-offense penalties, which may be compounded on a per-day basis pursuant to Division XIII.1, section 115.37 of Québec's Environment Quality Act (QEQA 2012). Moreover, and consistent with California's approach to enforcement, the Ministry would commence an action based on the type of offense, taking into account its specific facts. ARB staff also understands that recent changes to Québec's Environment Quality Act that relate to increased penalty amounts will be incorporated into Québec's reporting regulation, including provisions regarding "per-ton" penalties.

5. Compliance Offset Protocols

Based on discussions with Québec staff, ARB staff understands that similar to the California program, offset project developers will have to use Québec-approved compliance offset protocols to develop offset projects under Québec's program. It is anticipated that at the time the Québec offset provisions for its cap-and-trade regulation are drafted and approved, at least two compliance offset protocols will also be developed and approved. These protocols are expected to be a livestock digester protocol and a small landfill project protocol.

The livestock digester protocol is expected to be substantially similar to the ARB Compliance Offset Protocol Livestock Projects (CARB 2011). It is expected to be applicable for projects that are developed in Québec only, and like the ARB protocol, the Québec digester protocol will quantify GHG emission reductions that occur from both the capture and the destruction of methane. While there may be some differences related to emission factors and other equation inputs that are region-specific, in general, this protocol is anticipated to be equivalent in rigor to the ARB protocol and meet the AB 32 criteria and WCI offset criteria recommendations.

The second protocol that we expect to be completed is for small landfill projects. The size threshold for applicability is expected to be set at a level to not include landfills in Québec that are of similar size to those in California that are subject to

direct GHG reduction regulations for GHG reductions (Title 17, California Code of Regulations section 95460–section 95476). This threshold would ensure that Québec landfills do not get financial incentives through offset credit for GHG mitigation that is already required by direct regulation for similar size California landfills. ARB staff anticipates that this protocol is expected to be similar to the Climate Action Reserve U.S. Landfill Project Protocol (CAR 2011), but that it would only apply in cases where there was previously no existing methane collection and destruction technology. It will quantify GHG emissions reductions that occur from both the capture and the destruction of methane. We anticipate that this protocol will applicable in Québec only. In general, we anticipate this protocol to generate offsets that meet the AB 32 criteria and WCI offset criteria recommendations.

A third potential protocol which may be considered by Québec for approval later this year is for the destruction of ozone depleting substances. This potential Québec protocol is anticipated to be informed in part by the ARB Compliance Offset Protocol Ozone Depleting Substances Projects Protocol (CARB 2011c). Such a protocol would allow Québec to issue offset credits for the destruction of substances with high global warming potentials that are found in foams. The California protocol includes both foams and refrigerants. ARB staff understands that under existing programs, Québec requires refrigerants to be destroyed, so destruction of refrigerants would not be additional in Québec. The eligible substances may be sourced from anywhere in Canada or the United States, but would be required to be destroyed in a Canadian facility that meets certain efficiency and technology criteria, similar to the California protocol requirements. The eligible substances will be the same as those included in the California protocol for foams.

F. Québec's Greenhouse Gas Reporting Program

An important requirement for linking two jurisdictions' cap-and-trade programs is a consistent and comparable basis for the reported emissions data. Initially using California's 2007 version of the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (CARB 2007) as a prototype, the Western Climate Initiative (WCI) Partners worked together to develop a standardized set of reporting requirements called the Essential Requirements for Mandatory Reporting ("ER"; Western Climate Initiative 2010a). First published in July 2009, the ER serves as guidance for WCI Partner jurisdiction to develop reporting programs in their respective jurisdictions. WCI Partner jurisdictions which adopt GHG reporting programs based on the ER will have consistent and comparable data quality while recognizing regional differences in regulatory approaches and industrial sector makeup.

In December 2010, WCI published *Final Harmonization of Essential Reporting Requirements in Canadian Jurisdictions* (Western Climate Initiative 2010a). Québec's GHG reporting regulation is based on this version of the ER, with

certain reporting elements customized to Québec's specific circumstances. Since the publication of the harmonized ER for Canadian jurisdictions, California amended its GHG reporting regulation (CARB 2010g) to harmonize with the United States Environmental Protection Agency's (U.S.EPA) Final Rule on Mandatory Reporting of Greenhouse Gases (U.S. EPA 2009). As a result, both California and Québec used the ER as the foundation for their reporting programs and are harmonized in overall program design, although some differences exist between the jurisdictions due to their unique circumstances. Nevertheless, the GHG reporting methods and results of both reporting programs are expected to be consistent.

The following sections describe the key elements of the Québec reporting requirements.

1. General Reporting Requirements

A greenhouse gas reporting program consists of several key elements that are essential for collecting high-quality data, ensuring consistency and equity in the compliance process for affected stakeholders, and providing sufficient coverage to support GHG reduction programs.

2. Emission Threshold for Rule Applicability

Québec and California each adopted two levels of emissions thresholds: 25,000 MTCO2e and 10,000 MTCO2e. At the level of 25,000 MTCO2e emissions per year or greater, each jurisdiction requires reporting entities to meet rigorous reporting requirements (e.g., annual reporting, specific reporting methods, third party verification, accuracy requirements). For determining if the 25,000 MTCO2e threshold is met, Québec includes emissions from all six Kyoto Protocol gases, plus nitrogen trifluoride (NF3), but excludes any CO2 emissions from combustion and fermentation of biomass and biofuels. California includes CO2, CH4, and N2O emissions from sources explicitly specified in the GHG reporting regulation.

Facilities with 10,000 to 25,000 MTCO2e of annual emissions are also required to report their emissions under both programs, to monitor for leakage of facilities that are close to the cap-and-trade threshold requirements.

3. Emission Sources Covered by the Reporting Regulation

Both Québec and California require GHG reporting from the largest GHG emitters. Due to regional differences in the industrial sector makeup between California and Québec, there are some minor differences in the coverage of smaller sources which have a negligible effect on reported emissions and emissions included in the cap-and-trade program.

Québec's reporting regulation requires combustion, process, fugitive, and vented emissions associated with facilities to be reported. The fugitive and vented

emissions are considered "Reporting Only" until 2015 for some industry sectors since they are not included in the determination of the 25,000 MTCO2e cap-and-trade threshold (Québec 2012). This is consistent with the California program. Québec's regulation also includes reporting of the emissions of high global warming potential (GWP) gases in both its reporting and cap-and-trade regulations, including HFCs from cooling units, SF6 and PFCs from the electricity sector, process and fugitive emissions from magnesium production, and high-GWP gas emissions from electronic manufacturing. California has adopted separate and direct emission reduction regulations, outside of the cap-and-trade program, for each of these high-GWP gases, which require the collection of information and the reduction of emissions from these sources; these regulations are the SF6 Emissions Reductions from Gas Insulated Switchgear Regulation (CARB 2010h), the Mobile Air Conditioning regulation (CARB 2008a), and the Refrigerant Management Program (CARB 2009). As such, both California and Québec require the reporting and reduction of emissions from these sources, even though the regulatory programs are not identical.

Currently, Québec does not cover biomethane and geothermal emissions in its GHG reporting regulation because there is no presence of these sources in the province. Although these emissions are required to be reported under the California reporting regulation, both are exempt from California's cap-and-trade program. In addition, Québec's reporting regulation does not cover CO2 suppliers, but oil and gas production sources are required to report. even though there is not yet an approved reporting methodology in the Québec regulation. Quebec's regulation will be amended to include reporting methods for oil and gas

4. Reporting Entity Boundary

Overall, Québec and California have similar requirements for determining the boundaries of their reporting entities. Each jurisdiction uses its own specific terms to describe the boundaries based on the common usage of terms in each jurisdiction. The reporting entity's emission sources included under the applicability sections of both Québec's and California's reporting regulations are determined by the boundary of the reporting entity. Québec defines reporting entity boundaries using the terms "establishment," and "enterprises." Québec relies on the common usage meaning of these terms and draws reporting boundaries consistent with other regulatory programs in the province of Québec. Specifically, an "establishment" refers to a facility or multiple facilities that are located at the same site and affiliated with the same company, akin to the California "facility" definition. In Québec, the term "facility" is used to refer to a grouping of buildings, structures, or equipment of related operation. As such, overall, the emissions coverage is the same for both programs.

5. Third-Party Verification

Both California and Québec require that reporting entities use independent third-party verifiers to ensure the data quality in the submitted emission data reports.

The verification programs in the two jurisdictions are both based on International Organization for Standardization (ISO) standards, are consistent with WCI Essential Requirements recommendations, and are expected to have consistent outcomes.

For its third-party verification, Québec relies on verification bodies accredited by outside organizations—the Standards Council of Canada (SCC) and the American National Standards Institute (ANSI)—both of which are members of the International Accreditation Forum which are in compliance with the ISO 17011 program. Third-party verification is conducted in accordance with ISO 14064-3, Specification with guidance for the validation and verification of greenhouse gas assertions (ISO 2006a). Québec also relies on SCC and ANSI for oversight of their verification program.

6. Measurement Accuracy Standard

Despite some differences in the measurement accuracy standards between the jurisdictions, both approaches are expected to maintain the same degree of confidence in the reported GHG emissions.

California's reporting regulation specifies a ±5 percent meter accuracy standard for all measurement devices collecting data for use in emissions calculations, in addition to rigorous calibration requirements. Québec's reporting regulation contains calibration requirements as well, but does not specify a general accuracy standard. In Québec, it is understood that meeting calibration requirements, as defined in the ER (Western Climate Initiative 2010a), should lead to an acceptable accuracy level. Québec also indicates that most of their large emitters are certified to ISO quality management standards; therefore, maintaining accurate measurement devices is an incentive for facility operators to keep the ISO certification. Regardless, staff anticipates that Québec will propose to add a ±5 percent meter accuracy standard to its reporting regulation within the year.

7. Missing Data Substitution Procedures

Québec's missing data substitution procedures are based on WCI's harmonized ER for Canadian jurisdictions (Western Climate Initiative 2010a). These procedures are consistent with U.S. EPA requirements, which call for substitution with "before and after" values for missing high heat value, carbon content, and molecular weight numbers; and using best-available estimates for missing fuel consumption, sorbent quantity, CO2 concentration, and stack gas flow rate data (U.S. EPA 2009). Because large emitters are certified to the ISO quality management standard, facilities must adhere to periodic audits that assure their practices are complete.

California revised its reporting regulation (CARB 2010g) to be similar to WCI's and U.S. EPA's procedures, but determined that based on the needs of California's program and circumstances, it would need to be more prescriptive in

its missing data substitution requirements and added additional stringency based on the amount of data missing (CARB 2010g). California's missing data substitution procedures take a tiered approach, such that the more data that are missed, an increasingly more conservative (higher) value must be used for substitution. ARB staff understands that Québec intends to propose to incorporate some of California's approaches for missing data substitution methods into its reporting regulation.

8. Enforcement

As a regulatory authority, Québec's Ministère du Développement durable, de l'Environnement et des Parcs [translation: Ministry of Sustainable Development, Environment and Parks] (Ministry) has legal authority to enforce its regulations. This authority stems in part from Québec's Environment Quality Act (QEQA 2012), which incorporates various provisions of Québec's Code of Penal Procedure (QCPP 2009). Pursuant to Québec law, penalties may be assessed for violations of its regulations, although similar to California's program, certain actions, including criminal actions, would be referred to the Québec Attorney General or other prosecutor. Additional criminal statutes which may be applicable in the context of GHG reporting and cap-and-trade would be Canada's Competition Act (Canada Competition Act 1985) (section 52 applies to fraud) and Canada's Criminal Code (Canada Criminal Code 1985).

In addition, Québec's regulations specify the range of per-offense penalties, which may be compounded on a per-day basis pursuant to Division XIII.1, section 115.37 of Québec's Environment Quality Act (QEQA 2012). Moreover, and consistent with California's approach to enforcement, the Ministry would commence an action based on the type of offense, taking into account its specific facts. ARB staff also understands that recent changes to Québec's Environment Quality Act that relate to increased penalty amounts will be incorporated into Québec's reporting regulation, including provisions regarding "per-ton" penalties.

IV ENVIRONMENTAL, AIR QUALITY, AND ENVIRONMENTAL JUSTICE IMPACTS

A. Environmental Analysis

1. Introduction and Background

This section of the chapter provides an environmental analysis (EA) that evaluates the environmental impacts of the Proposed Amendments to California's Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (proposed amendments to California's cap-and-trade regulation). If adopted, the proposed amendments to California's Cap-and Trade Regulation would link California's cap-and-trade program to Québec's cap-and-trade program. This would allow for entities covered by California's cap-and-trade regulation to use allowances and offset credits (i.e., compliance instruments) from Québec's cap-and-trade program and entities covered by Québec's cap-and-trade regulation to use allowances and offset credits from the California cap-and-trade program.

a. Environmental Review Process

ARB is the lead agency for the proposed amendments to California's cap-and-trade regulation and has prepared this environmental analysis pursuant to its regulatory program that was certified by the Secretary of the Natural Resources Agency. The California Environmental Quality Act (CEQA) at Public Resources Code (PRC) Section 21080.5 allows public agencies with certified regulatory programs (CRP) to prepare a plan or other written document in lieu of an environmental impact report or negative declaration once the Secretary of the Resources Agency has certified the regulatory program. PRC Section 21080.5(c) directs that certified regulatory programs are exempt from Chapter 3 (PRC Sections 21100–21108) and Chapter 4 (PRC Sections 21150–21154) of CEQA, which describe certain environmental document requirements for state and local agencies. ARB's regulatory program was certified by the Secretary of the Resources Agency (California Code of Regulations [CCR], Title 14, hereafter "CEQA Guidelines" Section 15251[d]). ARB's CRP is described in CCR, Title 17, Sections 60005–60007.

As required by ARB's CRP, and by the policy and substantive requirements of CEQA, ARB has prepared this environmental analysis to assess the potential for significant adverse and beneficial environmental impacts associated with the proposed amendments to California's cap-and-trade regulation and to provide a succinct analysis of those impacts (Title 17, CCR, Section 60005). The resource areas from the CEQA Guidelines Environmental Checklist (Appendix G) were used as a framework for assessing potentially significant impacts. In accordance with ARB's CRP, for proposed regulations this analysis is included in the Staff Report: Initial Statement of Reasons (ISOR), prepared for the rulemaking (Title 17, CCR, Section 60005). Although the proposed amendments to California's

cap-and-trade regulation do not cause any direct changes to the physical environment, an environmental analysis was conducted to evaluate any reasonably foreseeable indirect physical change in the environment resulting from compliance responses with the amended regulations.

If comments received during the public review period raise significant environmental issues, staff will summarize and respond to the comments in writing. The comments and written responses to comments, including environmental comments, will be incorporated into the Final Statement of Reasons (FSOR) for the proposed regulatory amendments. In accordance with ARB's CRP, the decision maker will review and consider the written responses prior to taking final action on any proposal. If the regulation is adopted, a Notice of Decision will be posted on ARB's website and filed with the Secretary of the Natural Resources Agency for public inspection.

b. Previous Related Rulemakings

The proposed amendments would modify California's cap-and-trade regulation adopted by ARB in October 2011. As described more below, an environmental analysis was prepared for that regulation pursuant to ARB's CRP in a document referred to as the cap-and-trade Functional Equivalent Document (FED). The proposed amendments would include linkage to Québec's anticipated small landfill projects protocol, which is substantially similar to ARB's Regulation to Reduce Methane Emissions from Municipal Solid Waste Landfills (Landfill Regulation), adopted in 2010. As described more below, an environmental analysis was contained in Chapter VI of the ISOR for the Landfill Regulation. The environmental analysis for the proposed amendments to California's cap-and-trade regulation relies on the analysis conducted for the cap-and-trade regulation FED and the environmental analysis for the Landfill Regulations to the extent that the environmental impacts of the proposed amendments would be consistent with the impacts addressed in those prior documents. Rather than repeat the environmental impact evaluations from those documents, this section summarizes and refers to the relevant conclusions in those prior relevant documents.

i. California's cap-and-trade regulation

The Board adopted California's cap-and-trade regulation, including four offset protocols (California's Protocols) on October 20, 2011. The cap-and-trade regulation FED analyzed potential impacts that could result from implementation of the covered entity compliance responses and the development of offset projects. The cap-and-trade FED concluded that the reasonably foreseeable covered entities' compliance responses were: (1) Upgrade Equipment; (2) Decarbonization (fuel switching); (3) Implement Process Changes; (4) Surrender Compliance Instruments; and implementation of offset projects under California's Protocols: Ozone Depleting Substances (ODS), Livestock, Urban Forest, and Forestry. Two of the previously adopted California Protocols, ODS and Livestock,

are substantially similar to the offset protocols anticipated to be adopted within Québec's program.

The FED concluded that the entities' compliance with California's cap-and-trade regulation would result in beneficial impacts to air quality through reductions in emissions, including GHGs, criteria pollutants, and toxics, in addition to beneficial impacts to energy demand. It further concluded that the regulations would result in less-than-significant impacts or no impacts to aesthetics, agricultural and forest resources, hazards, land use, noise, employment, population and housing, public services, recreation, transportation and traffic, and utilities /service systems. The FED concluded there could be potentially significant adverse impacts to biological resources, cultural resources, geology/soils and minerals, and hydrology/water quality largely due to construction activities for facility-specific projects. Although the potential for adverse localized air quality impacts were found to be unlikely, the FED conservatively considered them potentially significant. The FED concluded that implementation of offset projects under California's protocols would also result in beneficial impacts to GHG emissions and no adverse impacts, or less-than-significant impacts, in all resource areas except for the following: California's Livestock Protocol has the potential for significant adverse impacts to odors, cultural resources, noise, and transportation/traffic; the Urban Forestry Protocol has the potential for significant adverse impacts to cultural resources; the Forest Protocol has the potential for significant adverse impacts to biological resources and land use.

The FED identified mitigation that could reduce most impacts to a less-than-significant level. The FED relied on the agencies with local permitting authority to analyze site- or project-specific impacts because the programmatic FED could not determine with any specificity the project-level impacts, and ARB does not have the authority to require project-level mitigation for specific projects carried out to comply with California's cap-and-trade regulation or protocols.

An Adaptive Management Plan for California's cap-and-trade regulation was also prepared by ARB (CARB 2011b). At least once each compliance period, ARB will use information collected through the cap-and-trade regulation that focuses on monitoring the potential for localized air quality impacts from the regulation and impacts from the Forest Protocol. The Adaptive Management Plan requires ARB to take a range of actions in these two areas to monitor and respond as appropriate to address unanticipated adverse impacts if they are identified.

ii. Regulation to Reduce Methane Emissions from Municipal Solid Waste Landfills (Landfills Regulation)

The California Office of Administrative Law (OAL) approved the rulemaking for the Landfills Regulation and filed it with the Secretary of State on June 17, 2010. The Landfills Regulation became effective on the same day, June 17, 2010. The ISOR contained an assessment of the potential environmental impacts in

Chapter VI. The ISOR for ARB's Landfill Regulation environmental analysis did not identify any adverse environmental impacts and identified possible benefits to biological resources (vegetation) and water quality. This is because implementation of the Regulation would reduce landfill gases seeping through covers and into root zones, and the effectiveness of landfill liners and operation of leachate removal systems may in some cases help reduce methane levels in groundwater (CARB 2009a).

c. Incorporation of Documents by Reference

ARB hereby incorporates the documents described above containing the environmental analysis for the cap-and-trade regulation and the Landfills Regulation. The environmental analysis prepared for the Scoping Plan is also incorporated. These documents incorporated by reference are either available at the ARB's website, or at ARB, Climate Change Program Monitoring Section, 1001 "I" Street, Sacramento, California.

2. Project Description

ARB staff is proposing two sets of regulatory amendments to the cap-and-trade regulation. The first change, proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, would add to the security of the market system and aid staff in implementing the regulation. These proposed amendments include detailed Know Your Customer (KYC) requirements for information gathering during registration, and rules for a first auction on November 14, 2012 and associated amendments to dates in the current cap-and-trade regulation to implement the November 14, 2012 auction. Staff also included additional amendments to the regulation to implement the allowance and offset registry, market monitoring provisions of the regulation and collection of information necessary for the financial services operator.

The second modification, proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms to Allow for the Use of Compliance Instruments Issued by Linked Jurisdictions, would link California's cap-and-trade regulation to Québec's cap-and-trade regulation. This would allow for entities covered by California's cap-and-trade regulation to use allowances and offset credits from Québec's emissions trading system program, and would allow entities covered by Québec's cap-and-trade regulation to use allowances and offset credits from the California market.

a. Objectives

The primary objectives of the Proposed Regulatory Amendments include the following:

- Decrease GHG emissions to achieve the AB 32 mandate.

- Maximize global GHG emission reductions through coordinated sub-national efforts (Health and Safety Code [HSC] Section 38564).

- Broaden the compliance instrument market to provide greater flexibility to California businesses by offering a wider range of emissions reduction opportunities and greater market liquidity.

- Maximize environmental benefits.

b. Covered Entities

The FED for California's cap-and-trade regulation presented an overview of the covered entities, including a description of the basic processes and emissions that would be subject to regulation and an estimate of the number and/or size of facilities and/or emissions in California.

The number of entities and facilities that would be covered was estimated to include 360 businesses representing 600 facilities. The true number of entities at any given time is subject to continual change as new facilities open while existing facilities expand or reduce their operations.

Specifically, the FED for California's Cap-and-Trade Regulation provided a list of covered entities that included the following:

- Cement Production
- Cogeneration (Combined Heat and Power)
- Glass Production
- Hydrogen Production
- Iron and Steel Manufacturing
- Lime Manufacturing
- Nitric Acid Production
- Oil and Natural Gas Systems
- Petroleum Refining
- Pulp and Paper Manufacturing
- Electricity Self-Generation
- Stationary Combustion
- First Deliverers of Electricity
- Suppliers of Natural Gas
- Suppliers of Transportation Fuels (Petroleum Products)
- Deliverers of Natural Gas Liquids
- Suppliers of Carbon Dioxide

The cap-and-trade FED also provided a program overview of the Protocols. ARB's environmental impact assessment of the Landfills Regulation describes municipal solid waste landfills.

As mentioned above, Québec's cap-and-trade program would encompass the same covered entities as those listed above for California's Program.

The covered entities and their compliance responses for this EA would not be anticipated to differ from those described above.

3. Environmental and Regulatory Setting

The FED for California's cap-and-trade regulation presents environmental setting information for all of the resource areas listed in the Appendix G of the CEQA checklist. The regulatory background information in the FED did not include information for Québec, which is discussed below.

In Canada, each level of government has powers to protect the environment. This shared nature of environmental jurisdiction makes close cooperation among the federal, provincial, territorial, and Aboriginal governments important to Canada's environmental well-being.

Canada is intricately linked to other countries around the globe economically, environmentally, and socially. While global and regional environmental problems impact Canada's vast geography (e.g., ozone depletion, persistent organic pollutants, climate change), Canada also has a responsibility to reduce its contributions to these problems. Canada has a long history of international cooperation across a broad range of environmental issues that range from informal information sharing to the adoption of formal cooperative agreements to achieve common goals. The Canadian Environmental Protection Act, 1999 (CEPA 1999) provides the means and opportunity to cooperate with international governments to achieve Canada's environmental policy and regulatory goals (Environment Canada 2012).

The Department of the Environment was first established by the Department of the Environment Act in 1971. Today, Environment Canada administers nearly two dozen acts either in whole or in part. It also assists with the administration of many others.

Environment Canada uses regulations to place strict controls on areas governed by these acts. It also enters into voluntary and regulated agreements with individuals or multiple parties in Canada and elsewhere to define mutual commitments, roles, and responsibilities and actions on specific environmental issues. Relevant environmental laws and regulation are shown in Appendix C.

4. Impact Analysis

a. Scope of Analysis and Assumptions

The impact analysis for the proposed amendments is based on the reasonably foreseeable compliance responses of covered entities. Compliance responses are actions undertaken by covered entities to satisfy their compliance obligations. These include actions that reduce GHG emissions and obtain allowances or offset credits. For the purposes of this analysis, the least expensive compliance responses would be expected to be the initial actions undertaken by covered entities. Implementation of more expensive compliance responses would typically be expected only after less-costly options have been exhausted. Nonetheless, the California cap-and-trade regulation does not stipulate how an entity must comply, and it is possible that an individual entity may choose to implement compliance responses for reasons deemed by it to be more important than cost.

The FED for California's cap-and-trade regulation described the foreseeable compliance responses of covered entities to include upgrading equipment, switching to lower-intensity carbon fuels, and implementing maintenance and process changes at existing facilities (CARB 2010o). The FED also described the compliance with offset protocols for ODS and Livestock projects. ARB staff expects that these responses would not change with the proposed amendments because the existing regulation was initially designed to link to other WCI Partner jurisdictions and the proposed regulatory changes do not modify the offset protocols. Therefore, linkage to the Québec cap-and-trade program would result in the same types of actions anticipated for compliance with the California cap-and-trade program (i.e., actions to reduce GHG emissions, obtain allowances, or obtain offset credits), and the potential for environmental impacts falls within the scope and scale of those already analyzed in the FED for California's cap-and-trade regulation.

The proposed amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms would clarify the existing cap-and-trade regulation to help ARB implement, oversee, and enforce the cap-and-trade regulation. These amendments provide more specificity in the information required to be reported to ARB by covered entities during registration and for the tracking of transactions, but this information was envisioned by the existing cap-and-trade regulation. The change to provide more specificity does not change what was already required, and so ARB staff expects the methods of compliance by covered entities to remain the same as under the existing regulation. The proposed amendments would not change how entities would comply, as evaluated in the FED for the cap-and-trade regulation. Therefore, implementation of the proposed amendments would not result in any new potentially significant adverse impacts to the environment for any of the resource areas, and no further discussion is necessary.

With regard to linking, recognizing that compliance responses would be influenced by cost, the availability of a larger supply of less-expensive offset projects through linkage with Québec could entice individual entities to purchase a greater number of offset credits than might otherwise be obtained. However, the existing regulatory limits on the percentage of offsets that may be used as compliance instruments would constrain total California and Québec demand for offset credits.

Depending on relative price and availability, linkage with Québec could incent California-covered entities to seek offset credits from projects in Québec. Therefore, this EA considers the potential for indirect environmental impacts resulting from California-covered entities acquiring offset credits from projects in Québec. Although it is unclear whether ARB is required under CEQA to analyze the potential for indirect impacts outside of California, in the interest of informed decision-making, this section of the chapter provides an analysis of these potential indirect impacts to the degree reasonably feasible.

While future actions cannot be definitively predicted at this time, ARB has made a good faith effort to find out and disclose all that it reasonably can about potentially significant environmental impacts. If after thorough investigation a particular impact is deemed too speculative for evaluation, this is noted and discussion of the impact terminated. The scope of the analysis is intended to help focus public review and to assure that any questions and comments are appropriate and meaningful.

b. Scope of Adverse Environmental Impacts Analysis

For each resource area described below, where the FED for the California cap-and-trade regulation identified an adverse environmental impact that is also applicable to the proposed amendments, this EA summarizes the issue and a reference is provided to the California cap-and-trade regulation FED.

This analysis is necessarily programmatic in nature because site-specific or project-specific aspects of environmental impacts cannot be precisely described at this time. This EA addresses broadly defined types of impacts without the ability to determine the specific GHG reduction action or offset project locations, facility size and character, or site-specific environmental characteristics affected by facilities and offset projects.

Environmental impacts may be determined to be potentially significant, because of the inherent uncertainties about the relationship between future facility design or precise offset project character and environmentally sensitive resources or conditions. This is a conservative approach (i.e., tending to overstate environmental impacts), in light of these uncertainties, to satisfy the good-faith, full-disclosure intent of CEQA. When specific projects are later proposed and subjected to project-level review, it is expected that many of the impacts recognized as potentially significant in this EA, and not already mitigated or

avoided by measures in the EA, can later be avoided or reduced to a less-than-significant level.

Another inherent uncertainty in this EA is the degree of implementation of mitigation for potentially significant impacts. While ARB is responsible for adopting the regulatory changes that comprise the proposed amendment to the California cap-and-trade regulation, it does not have authority over the proposal, approval, or implementation of GHG reduction facility modifications or offset development projects, regardless of whether the projects are in California or Québec. Other agencies are responsible for environmental analyses and/or project design review and approval of proposed facility modifications for GHG reduction and development of offset projects, along with definition and adoption of project-specific feasible mitigation and monitoring of mitigation implementation. For example, cities and counties in California and municipalities in Québec have the authority to approve proposals to develop facilities. Additionally, State, provincial, and/or federal permits may be needed for specific environmental resource impacts.

Because ARB is not responsible for implementation of specific facility improvements or offset projects, this EA's programmatic analysis does not allow for a precise description of the details of project-specific mitigation. As a result, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. Consequently, this EA takes the conservative approach in its post-mitigation significance conclusions (i.e., tending to overstate the risk that feasible mitigation may not be implemented by the government entity with jurisdiction) and discloses, for CEQA compliance purposes, that potentially significant environmental impacts may be unavoidable, where appropriate. It is expected that facility improvements and offset projects would be able to feasibly avoid or mitigate to a less-than-significant level many of these potentially significant impacts as an outcome of their project-specific environmental and/or design review processes.

c. Beneficial Effects

The primary focus of conventional CEQA impact assessment is identification of environmental impacts, in accordance with ARB's CRP, this analysis also describes any beneficial environmental impacts.

Considering the legislative intent of AB 32 and the latitude under CEQA to recognize environmental co-benefits (beneficial effects), this EA incorporates discussion of potential beneficial environmental effects when those effects are considered reasonable and foreseeable, and they are relevant to the decisions to be made by ARB regarding the proposed regulatory amendments. In most instances it is not possible to quantify these effects because of the broad nature of this programmatic analysis.

d. Aesthetics

The FED for California's cap-and-trade regulation concluded that the covered entity compliance responses of upgrading equipment, decarbonization, and implementing process change would result in less-than-significant aesthetics impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation for aesthetics was identified in the FED (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potentially significant impacts to aesthetics, as evaluated and disclosed in the FED summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities acquiring credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010b); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant aesthetics impacts (e.g., adverse effects on scenic vistas; substantially damage or degrade scenic resources, existing visual character; or create a new source of substantial light or glare that would adversely affect day or nighttime views) (CARB 2010o). Thus, no mitigation for aesthetics was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any impacts for aesthetics (CARB 2009a). Since there were no aesthetic impacts identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are anticipated to be similar, it is expected that there would be no aesthetic impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

e. Agriculture and Forestry Resources

The FED for California's cap-and-trade regulation concluded that the covered entity compliance responses of upgrading equipment, decarbonization, and implementing process change would result in less-than-significant agricultural and forest resources impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation for agricultural and forest resources was identified in the FED (CARB 2010o).

The proposed amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potentially significant agricultural and forest resources impacts, as evaluated and disclosed in the FED summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in covered entities acquiring credits from offset projects in Québec under Québec's Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant or no impacts for agricultural and forest resources (e.g., conversion of farmland to non-farmland uses, conflict with existing zoning, conflict with Williamson Act contracts, conflict with forest land or timberland zoning, or loss or conversion of forest land to non-forest uses) (CARB 2010o). Thus, no mitigation for agricultural and forest resources was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for agricultural and forest resources (CARB 2009a). Since there were no agricultural and forest resources impacts identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are anticipated to be similar, it is expected that there would be no agricultural and forest resources impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

f. Air Quality, Greenhouse Gas Emissions, and Energy

As described in the FED for California's cap-and-trade regulation, the program is designed to reduce GHG emissions. Measures that reduce GHGs are expected to also provide co-benefits in terms of reductions of criteria pollutant and toxic emissions. Statewide, the levels of GHG, criteria pollutant, and toxic emissions are expected to be reduced as a result of California's cap-and-trade program. This was identified as a beneficial effect in the FED.

The covered entity compliance responses assessed in the FED consisted of upgrading equipment, switching to lower-intensity carbon fuels, and implementing maintenance and process changes at existing facilities. Ground-disturbing activities (for example, construction, grading, and trenching) were identified to have the potential to adversely impact air quality (e.g., short-term construction-generated emissions from heavy-duty equipment). Recognized

measures to reduce this potentially significant impact were identified, but the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects. Further, the programmatic analysis did not allow project-specific details of mitigation, resulting in an inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that this potentially significant impact may be unavoidable.

It was also disclosed in the FED that there is a possibility that some covered entities might increase operation of specific equipment, which could increase local emissions. ARB believes that any resulting localized air impacts are extremely unlikely, but cannot say that such increases could never occur. ARB adopted an adaptive management plan that will require ARB to take a range of actions to monitor and respond as appropriate to address any unanticipated adverse air quality impacts (CARB 2011b). Because the authority to determine project-level impacts and require project-level mitigation lies with the local permitting agency for individual projects, and the programmatic analysis does not allow project-specific details of mitigation, there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and discloses, for CEQA compliance purposes, that this potentially significant impact may be unavoidable.

The FED concluded that all of the compliance responses would reduce long-term GHG emissions consistent with the declining emissions cap. None of the identified compliance responses would be expected to produce a net increase in long-term GHG emissions, either directly or indirectly, that could have a significant adverse impact on the environment, or conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs. Reduction of GHG emissions is a beneficial effect.

With respect to energy, the FED found that the covered entity compliance would reduce overall energy demand, a beneficial effect.

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

The FED found that the ODS and Livestock Offset Protocols would produce incidental criteria and toxic air contaminant emissions from flaring and engine use, transportation, and construction that were considered to be less than significant if the projects are incompliance with all local, state, and federal air

quality regulations. Implementation of the ODS and Livestock Protocols by their very nature were considered to have a beneficial effect on GHG emissions.

The Livestock Protocol analysis in the FED found that impacts from odors may be potentially significant. If new digester facilities were located near sensitive receptors, and there were identified potential mitigation strategies that would reduce the impact, then these recognized measures were identified as mitigation. However, because the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects, and that the programmatic analysis did not allow project-specific mitigation, there was inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts identified in the FED. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and disclosed, for CEQA compliance purposes, that the potentially significant impacts to the potential for odor impacts may be unavoidable.

Since there were odor impacts identified in the prior environmental analyses for ARB's Livestock Protocol, and Québec's Livestock Protocol is substantially similar, there could be odor impacts associated with entities that are covered under California's cap-and-trade program that acquire credits from these types of offset projects in Québec. Mitigation for this impact is described in the cap-and-trade FED. However, as described in that analysis, the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects, in this case Québec agencies, and there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce this potentially significant impact. Therefore, this impact may remain significant after mitigation.

Projects implemented under the compliance offset protocols would not increase energy demand, and as such pose no impacts or less-than-significant impacts to energy demand.

According to the environmental analysis for ARB's Landfills Regulation, implementation would result in less-than-significant criteria pollution emissions, and it is expected to result in GHG reductions. Landfill gas collection systems without energy recovery devices (e.g., boilers or engines) require energy to run the blowers and pumps. The power requirements of a gas collection and control system installed at the 14 uncontrolled landfills (out of a total 218 affected) would not be expected to place an undue burden on existing electrical generation or distribution capacities.

Since there were no significant impacts to air quality (except for odor related to the Livestock Protocol, as indicated above), GHG emissions or energy identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no significant impacts associated with entities that

are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

Please reference the additional discussion of air quality in the following sections, "Air Quality" and "Environmental Justice."

g. Biological Resources

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment and decarbonization could result in potentially significant biological impacts from construction, grading, trenching, and general site-disturbance activities. Recognized measures were identified as mitigation. However, because the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects, and the programmatic analysis did not allow project-specific mitigation, there was inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts identified in the FED. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and disclosed, for CEQA compliance purposes, that the potentially significant impacts to biological resources may be unavoidable. The FED determined that the covered entity compliance response of implementing process changes would result in less-than-significant biological resources impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation was identified for assessment of these two compliance responses (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant biological impacts (e.g., adverse effect on special status species and habitats, impacts on wetlands, and interference with movement of native or migratory fish

or wildlife) (CARB 2010o). Thus, no mitigation for biological resources was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did identify an overall beneficial impact to vegetation as implementation would reduce landfill gases seeping through the cover and into the root zone, which can be injurious to many vegetation types (CARB 2009a). Since there were no biological resources impacts identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no biological impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec, and there could be beneficial impacts such as those summarized resulting from ARB's Landfills Regulation.

h. Cultural Resources

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment and decarbonization could result in potentially significant cultural resources impacts from construction, grading, trenching, and general site-disturbance activities. Recognized measures were identified as mitigation. However, because the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects, and the programmatic analysis did not allow project-specific mitigation, there was inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts identified in the FED. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and disclosed, for CEQA compliance purposes, that the potentially significant impacts to cultural resources may be unavoidable.

The covered entity compliance response implementing process change would result in less-than-significant cultural resources impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation was identified for assessment of these two compliance responses (CARB 2010o).

The Proposed Amendments to California's cap-and-trade regulation would not change how entities would comply, as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts

that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS Protocol would result in no impacts to cultural resources and; thus, no mitigation was identified in the FED (CARB 2010o). Since there were no cultural resources impacts identified in prior environmental analyses for ARB's ODS Protocols or for ARB's Landfills Regulation, and Québec's offset projects are anticipated to be similar, it is expected that there would be no cultural resources impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

The FED for California's cap-and-trade regulation concluded that implementation of the Livestock Protocol could result in potentially significant cultural resources impacts (e.g., impacts to archaeological resources, historic resources, paleontological resources, and undocumented human remains) from ground-disturbing activities (CARB 2010o). Recognized measures were identified as mitigation. However, because the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects, and that the programmatic analysis did not allow project-specific mitigation, there was inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts identified in the FED. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and disclosed, for CEQA compliance purposes, that the potentially significant impacts to cultural resources may be unavoidable.

Since there were cultural resources impacts identified in the prior environmental analyses for ARB's Livestock Protocol, and Québec's Livestock Protocol is substantially similar, there could be cultural resources impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec. Mitigation for this impact is as described in the cap-and-trade FED. However, as described in that analysis, the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects—in this case, Québec agencies—and there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce this potentially significant impact. Therefore, this impact may remain significant after mitigation.

i. Geology and Soils

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment and decarbonization could result in potentially significant geology and soils impacts from construction, grading, trenching, and general site-disturbance activities. Recognized

measures were identified as mitigation. However, because the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects, and the programmatic analysis did not allow project-specific mitigation, there was inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts identified in the FED. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and disclosed, for CEQA compliance purposes, that the potentially significant impacts to geology and soils may be unavoidable.

The FED concluded that the covered entity compliance response of implementing process change would result in less-than-significant geology and soils impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010). Thus, no mitigation was identified for assessment of these two compliance responses (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o). The ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant or no impacts for geology and soils (e.g., seismic impacts, unstable soils impacts, and expansive soils impacts (CARB 2010o). Thus, no mitigation for geology and soils was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for geology and soils (CARB 2009a). Since there were no impacts for geology and soils identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no biological impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

j. Hazards and Hazardous Materials

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment and decarbonization would result in less-than-significant hazards and hazardous materials impacts (CARB 2010o). The covered entity compliance response of implementing process changes would result in beneficial impacts and surrendering compliance instruments would result in no impacts (CARB 2010). Thus, no mitigation for hazards and hazardous materials was identified in the FED (CARB 2010).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any hazards and hazardous materials impacts as evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant impacts for hazards and hazardous materials (e.g., impacts related to the routine transport, disposal, and transportation of hazardous materials; impacts related to the release of hazardous materials to the environment or near schools; impacts related to creating a significant hazard to the public or the environment; impacts related to creating conflicts with emergency response plans; and exposure of people to increases in wildland fire risks) (CARB 2010). Thus, no mitigation for hazards and hazardous material was identified in the FED (CARB 2010). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for hazards and hazardous materials (CARB 2009a). Since there were no impacts for hazards and hazardous materials identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no hazards and hazardous materials impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

k. Hydrology and Water Quality

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment and decarbonization could result in potentially significant hydrology and water quality impacts from construction, grading, trenching, and general site-disturbance activities. Recognized measures were identified as mitigation. However, because the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects, and the programmatic analysis did not allow project-specific mitigation, there was inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts identified in the FED. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and disclosed, for CEQA compliance purposes, that the potentially significant impacts to hydrology and water quality may be unavoidable.

The FED concluded that the covered entity compliance response of implementing process change would result in less-than-significant hydrology and water quality impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation was identified for assessment of these two compliance responses (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant or no impacts for hydrology and water quality (e.g., impacts related to violation of existing water quality standards and waste discharge requirements, depletion of groundwater, alteration of existing drainage, degradation of water quality, and exceedance of the capacity of existing stormwater systems) (CARB 2010o). Thus, no mitigation for hydrology and water quality was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation stated that there would

be no expected impacts on the effectiveness of liners or the operation of leachate removal systems and, in some cases, may help reduce methane levels in groundwater (CARB 2009a). Since there were no impacts for hydrology and water quality identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no hydrology and water quality impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

I. Land Use and Planning

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment, decarbonization, and implementing process change would result in less-than-significant land use and planning impacts (CARB 2010o). The FED concluded that the covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation for land use and planning was identified in the FED (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potentially significant land use and planning impacts, as evaluated and disclosed in the FED summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant impacts for land use and planning (e.g., impacts related to conflicts with relevant plans or policies and impacts related to division of an established community (CARB 2010o). Thus, no mitigation for land use and planning was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for land use and planning (CARB 2009a). Since there were no impacts for land use and planning identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no land use and planning impacts associated with entities that are covered under

California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

m. Mineral Resources

Please refer to the Geology and Soils discussion above.

n. Noise

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment, decarbonization, and implementing process change would result in less-than-significant noise impacts (CARB 2010). The FED concluded that the covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation for noise was identified in the FED (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potentially significant impacts to noise, as evaluated and disclosed in the FED summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS Protocol would result in less-than-significant impacts to noise; therefore, no mitigation was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for noise (CARB 2009a). Since there were no noise impacts identified in prior environmental analyses for ARB's ODS Protocols and the Landfills Regulation, and Québec's offset projects are substantially similar, it is expected that there would be no noise impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

The FED found noise impacts related to the exposure of people residing or working in the area to excessive airport-related noise levels to be less than significant for the Livestock Protocol. However, it found that implementation of the Livestock Protocol could result in potentially significant noise impacts (e.g., impacts related to generation of noise in excess of applicable standards, exposure of sensitive receptors to excessive groundborne vibration, and

substantial increases in ambient noise levels) (CARB 2010o). Recognized measures were identified as mitigation. However, because the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects, and the programmatic analysis did not allow project-specific mitigation, there was inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts identified in the FED. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and disclosed, for CEQA compliance purposes, that the potentially significant noise impacts may be unavoidable.

Since there were noise impacts identified in the prior environmental analyses for ARB's Livestock Protocol, and Québec's Livestock Protocol is substantially similar, there could be noise impacts associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec. Mitigation for this impact is as described in the cap-and-trade FED. However, as described in that analysis, the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects—in this case, Québec agencies—and there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce this potentially significant impact. Therefore, this impact may remain significant after mitigation.

o. Population and Housing

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment, decarbonization, and implementing process change would result in less-than-significant population and housing impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation for population and housing was identified in the FED (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant impacts for population and housing (e.g., impacts related to displacement of housing or people and substantial inducement of population growth) (CARB 2010o). Thus, no mitigation for population and housing was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for population and housing (CARB 2009a). Since there were no impacts to population and housing identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no impacts to population or housing associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

p. Public Services

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment, decarbonization, and implementing process change would result in less-than-significant public services impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation for public services was identified in the FED (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant impacts for public services (e.g., impacts related to the provision of public services) (CARB 2010o). Thus, no mitigation for public services was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for public services (CARB 2009a). Since there were no impacts to public services identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset

projects are substantially similar, it is expected that there would be no impacts to public services associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

q. Recreation

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment, decarbonization, and implementing process change would result in less-than-significant recreation impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation for recreation was identified in the FED (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant impacts for recreation (e.g., impacts to recreational facilities) (CARB 2010o). Thus, no mitigation for recreation was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for recreation (CARB 2009a). Since there were no impacts to recreation identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no impacts to recreation associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

r. Transportation / Traffic

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment, decarbonization, and implementing process change would result in less-than-significant transportation/traffic impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts

(CARB 2010o). Thus, no mitigation for transportation/traffic was identified in the FED (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS Protocol would result in less-than-significant impacts to transportation/traffic and; thus, no mitigation was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for transportation/traffic (CARB 2009a). Since there were no impacts for transportation/traffic identified in prior environmental analyses for ARB's ODS and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no impacts to transportation/traffic associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

The FED found that implementation of the Livestock Protocol could result in potentially significant transportation/traffic impacts (e.g., impacts to surrounding roadways, conflicts with congestion management programs) (CARB 2010o). Recognized measures were identified as mitigation. However, because the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects, and that the programmatic analysis did not allow project-specific mitigation, there was inherent uncertainty in the degree of mitigation ultimately implemented to reduce the potentially significant impacts identified in the FED. Consequently, the FED took the conservative approach in its post-mitigation significance conclusion and disclosed, for CEQA compliance purposes, that the potentially significant transportation/traffic impacts may be unavoidable.

Since there were transportation/traffic impacts identified in the prior environmental analyses for ARB's Livestock Protocol, and Québec's Livestock Protocol is substantially similar, there could be transportation/traffic impacts

associated with entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec. Mitigation for this impact is as described in the cap-and-trade FED. However, as described in that analysis, the authority to determine project-level impacts and require project-level mitigation lies with the permitting agency for individual projects—in this case, Québec agencies—and there is inherent uncertainty in the degree of mitigation ultimately implemented to reduce this potentially significant impact. Therefore, this impact may remain significant after mitigation.

s. Utilities and Service Systems

As described in the FED for California's cap-and-trade regulation, the covered entity compliance responses of upgrading equipment, decarbonization, and implementing process change would result in less-than-significant utilities and service systems impacts (CARB 2010o). The covered entity compliance response of surrendering compliance instruments would result in no impacts (CARB 2010o). Thus, no mitigation for utilities and service systems was identified in the FED (CARB 2010o).

The Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

Implementation of the Proposed Amendments to California's cap-and-trade regulation could result in entities that are covered under California's cap-and-trade program to acquire credits from offset projects in Québec under the Digesters (i.e., livestock), ODS, and Landfill Gas Offset Protocols. The FED for California's cap-and-trade regulation evaluated and disclosed potential impacts that could result from offset projects under California's ODS and Livestock Offset Protocols (CARB 2010o); and the ISOR for ARB's Landfills Regulation evaluated and disclosed potential impacts that could result from compliance (CARB 2009a), as summarized below.

As described in the FED for California's cap-and-trade regulation, implementation of the ODS and Livestock Protocols would result in less-than-significant impacts for utilities and service systems (e.g., impacts to wastewater services, stormwater facilities, water demand and supply, and landfill capacity) (CARB 2010o). Thus, no mitigation for utilities and service systems was identified in the FED (CARB 2010o). The ISOR for ARB's Landfills Regulation did not identify any potential impacts for utilities and service systems (CARB 2009a). Since there were no impacts for utilities and service systems identified in prior environmental analyses for ARB's ODS and Livestock Protocols and the Landfills Regulations, and Québec's offset projects are substantially similar, it is expected that there would be no impacts for utilities and service systems associated with

entities that are covered under California's cap-and-trade program acquiring credits from these types of offset projects in Québec.

5. Mandatory Findings of Significance

Consistent with the requirements of State CEQA Guidelines, Appendix G, Environmental Checklist, Section 18, the FED for California's cap-and-trade regulation addressed the mandatory findings of significance as discussed below. The FED for California's cap-and-trade regulation also included discussions on significant and unavoidable environmental effects and significant and irreversible environmental changes.

As with all of the environmental effects and issue areas, the precise nature and magnitude of impacts would depend on the types of projects authorized, their locations, their aerial extent, and a variety of site-specific factors that are not known at this time but that would be addressed by environmental reviews at the project-specific level. For projects within California, all of these issues would be addressed through project-specific environmental reviews that would be conducted by local land use agencies or other regulatory bodies at such time that the projects are proposed for implementation. Outside of California, and in this case Québec, other provincial, state and local agencies would consider the proposed projects in accordance with their laws and regulations. ARB would not be the agency responsible for conducting the project-specific environmental or approval reviews because it is not the agency with authority for making land use or project implementation decisions.

The FED, in its entirety, addressed and disclosed potential environmental effects associated with implementation of California's cap-and-trade regulation. As described in the impact analyses for the FED and in this EA, potential environmental impacts, the level of significance prior to mitigation, mitigation measures, and the level of significance after the incorporation of mitigation measures is disclosed.

(1) Does the project have impacts that are individually limited, but cumulatively considerable?

Cumulative impacts were discussed in the FED for California's cap-and-trade regulation and referred to in this in the EA (See Section 6).

(2) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

While changes to the environment that could indirectly affect human beings would be represented by all of the designated CEQA issue areas, those that could directly affect human beings include air quality, geology and soils, hazards and hazardous materials, hydrology and water quality, noise, population and housing, public services, transportation/traffic, and utilities, which are all

addressed in Chapter 4, "Impact Analysis" of the FED and referred to in this EA (See Section 4).

Since the environmental analyses for California's cap-and-trade program and the Landfills Regulation concluded that there would be no substantial adverse effects on human beings, either directly or indirectly, it is expected that the proposed amendments would also not result in any such impacts.

6. Cumulative and Growth-Inducing Impact

Cumulative impacts are impacts on the environment that result from the incremental impacts of a proposed project when added to other past, present, and reasonably foreseeable future actions. Such impacts can result from individually minor, but collectively significant actions taking place over time. The discussion of cumulative impacts need not provide as much detail as the discussion of effects attributable to the project alone.

The FED for California's cap-and-trade regulation disclosed cumulative impacts for resource topics in general qualitative terms, recognizing the programmatic nature of the FED, as they pertain to reasonably foreseeable development. The cumulative impacts are required to be addressed when the cumulative impacts are expected to be significant and when the project's incremental contribution to the effect is cumulatively considerable. Where a lead agency is examining a project with an incremental effect that is not "cumulatively considerable," a lead agency need not consider that effect significant, but must briefly describe its basis for concluding that the incremental effect is not cumulatively considerable. ARB considered in the FED the cumulative impacts analysis of other projects that, like cap-and-trade, are designed to reduce annual emissions of GHGs, and not simply every project that emits GHGs. This approach is "guided by the standards of practicality and reasonableness" and serves the purposes of the cumulative impacts analysis, which is to provide "a context for considering whether the incremental effects of the project at issue are considerable" when judged "against the backdrop of the environmental effects of other projects." (*CBE v. Cal. Res. Agency* (2002) 103 Cal.App.4th 98, 119).

The level of detail in the cumulative and growth-inducing impacts discussion in the FED was guided by what is practical and reasonable, and contained the following elements (CARB 2010o):

- An analysis of related future projects or planned development that would affect resources in the project area similar to those affected by the proposed project.
- A summary of the expected environmental effects to be produced by those projects with specific reference to additional information stating where that information is available.
- A reasonable analysis of the cumulative impacts of the relevant projects. An environmental document must examine reasonable feasible options for

mitigating or avoiding the project's contribution to any significant cumulative effects.

Due to the reach of California's cap-and-trade program and, consequently, also the reach of the Proposed Amendments to the cap-and-trade regulation, the impact analysis is inherently cumulative in nature, rather than site-or project-specific. As a result, the character of impact conclusions in the resource-oriented impact analysis discussions are cumulative, considering the potential effects of the full range of reasonably foreseeable methods of compliance, along with expected background growth in California, as appropriate.

For purposes of the cumulative analysis contained in the cap-and-trade regulation FED, impacts were based on the program's contribution to environmental impacts in combination with the environmental effects of the ongoing, adopted, and reasonably foreseeable Scoping Plan measures, and the State Implementation Plan (SIP), which includes goods movement measures (heavy-duty vehicle efficiency, ship electrification, port drayage truck measures, and vessel speed reduction). The ongoing, adopted, and foreseeable Scoping Plan measures (as numbered in the Scoping Plan) are as follows:

Measures in Capped Sectors

Transportation

- T-1 Advanced Clean Cars
- T-2 Low Carbon Fuel Standard
- T-3 Regional Targets (SB 375)
- T-4 Tire Pressure Program
- T-5 Ship Electrification
- T-7 Heavy Duty Aerodynamics
- T-8 Medium/Heavy Hybridization
- T-9 High Speed Rail

Electricity and Natural Gas

- E-1 Energy Efficiency and Conservation
- CR-1 Energy Efficiency and Conservation
- CR-2 Solar Hot Water (AB 1470)
- E-3 Renewable Electricity Standard (20 percent–33 percent)
- E-4 Million Solar Roofs

Industrial Measures

- I-1 Energy Efficiency and Co-Benefits Audits for Large Industrial Sources

Measures In Uncapped Sources/Sectors

- H-1 Motor Vehicle A/C Refrigerant Emissions
- H-2 SF_6 Limits on non-utility and non-semiconductor applications

H-3 Reduce Perfluorocarbons in Semiconductor Manufacturing
H-4 Limit High GWP use in Consumer Products
H-6 Refrigerant Tracking/Reporting/Repair Deposit Program
H-6 SF_6 Leak Reduction and Recycling in Electrical Applications
F-1 Sustainable Forests
RW-1 Landfill Methane Control Measure

The cumulative impact analysis determined the combined effect of California's cap-and-trade regulation and other closely related, reasonably foreseeable projects. The discussion of cumulative impacts need not provide as much detail as the discussion of effects attributable to the program alone. The level of detail in the FED was guided by what was practical and reasonable.

As disclosed in the FED, implementation of California's cap-and-trade regulation was determined to potentially result in cumulatively considerable impacts. While suggested mitigation was provided for each potentially cumulatively considerable impact, the mitigation would need to be implemented by other agencies. Where impacts could not be feasibly mitigated, the FED recognized the impact as significant and unavoidable. The Board adopted Findings and a Statement

As explained above, the Proposed Amendments to the cap-and-trade regulation would not change how entities would comply as evaluated in the FED for California's cap-and-trade regulation. Therefore, implementation of the Proposed Amendments to the cap-and-trade regulation would not result in any potential cumulative impacts in addition to those already evaluated and disclosed in the FED, as summarized above.

7. Alternatives Analysis

Under ARB's CRP, an environmental analysis shall address "feasible alternatives to the proposed action [that] would substantially reduce any significant adverse impact identified" (CCR, Title 17, Section 60005[b]). Additionally, any ARB action or proposal for which significant adverse environmental impacts have been identified shall not be approved or adopted as proposed, if there are "feasible alternatives available [that] would substantially reduce such adverse impact" (CCR, Title 17, Section 60006). CEQA Guidelines, CCR, Title 14, Section 15126.6(a) also indicates the need for an evaluation of "a range of reasonable alternatives to the project, or the location of the project, [that] would feasibly attain most of the basic project objectives but would avoid or substantially lessen any of the significant effects, and evaluate the comparative merits of the alternatives."

The purpose of the alternatives analysis is to determine whether or not a variation of the proposed action would reduce or eliminate significant project impacts, within the framework of achieving the basic project objectives. The proposed action could be designed differently, which provides opportunities to

define alternatives for the EA analysis. This section of the chapter describes and analyzes a reasonable range of alternatives that could feasibly avoid or lessen any significant environmental impacts while substantially attaining the basic project objectives.

a. No Project Alternative

i. Description and Consistency with Project Objectives

CEQA requires a specific alternative of "No Project" to be evaluated. The "No Project" Alternative defines a scenario in which ARB would not link the California cap-and-trade program to Québec's cap-and-trade program. Under this alternative, California entities could not use Québec-issued allowances or offsets to comply with their surrender obligation, nor could Québec entities use California-issued allowances or offsets to comply with their surrender obligation.

The primary objectives of the Proposed Amendments to California's cap-and-trade regulation include the following:

- Decrease GHG emissions to achieve the AB 32 mandate.
- Maximize global GHG emission reductions through coordinated sub-national efforts (Health and Safety Code [HSC] Section 38564).
- Broaden the compliance instrument market to provide greater flexibility to California businesses by offering a wider range of emissions reduction opportunities and greater market liquidity.
- Maximize additional environmental benefits.

By not linking with Québec, California would miss an opportunity to enable a broader, more liquid and better functioning market, and greater GHG emissions reductions under a regional program with more covered entities. By foregoing linking, ARB would also be in conflict with direction in AB 32 (AB 32, Nuñez, Statutes of 2006, Chapter 488, Section 38564) that requires the maximizing of GHG emission reductions through coordinated sub-national efforts by enhancing individual jurisdictions' actions through a collaborative effort.

While linkage would require California to forfeit some control over where the reductions occur (i.e., out-of-state versus in-state), staff believes the establishment of a regional program with Québec will demonstrate the viability of a regional program and will encourage other WCI states and jurisdictions to join and establish an even broader market with greater GHG emissions reductions. Furthermore, the economic analysis suggests that it is possible additional

reductions will be realized in California if our program is linked to Québec's program relative to unlinked California and Québec programs.

ii. Environmental Impacts

There would be no new environmental impacts under the No Project Alternative, because compliance responses by covered entities would be the same as under the existing regulatory environment.

b. Wait to link with additional WCI States or Jurisdictions

i. Description and Consistency with Project Objectives

Another alternative to adopting the proposed amendments to the cap-and-trade regulation would be to defer linkage to Québec until additional WCI member states or jurisdictions are ready for linkage. If this alternative were pursued, California entities would not be able to use Québec-issued allowances or offsets to comply with the California regulation. Nor could Québec entities use California-issued allowances or offsets to comply with their compliance obligations.

As with the "No Project" alternative, the benefits of a broader market for California entities would also not be seen if there were a deferral in linking California and Québec's cap-and-trade programs. ARB would also be seen as nonresponsive to AB 32 requirements to pursue sub-national collaborative efforts to achieve greater GHG emissions reductions than California could achieve on its own.

Under this alternative, it is also unclear when any future program linkage would occur. While the WCI emissions trading group consists of several Canadian provinces that have been active in the development of the requirements for a regional WCI market program, at this time only Québec has established a cap-and-trade program (Government of Québec 2011).

While deferring linkage may allow for a broader market than one with just linkage to Québec, it is important to take this first step now and develop a regional program to which other jurisdictions can link. As described in Appendix B, significant time and effort have been spent to develop and enable a regional cap-and-trade program. The successful linkage of the California and Québec cap-and-trade programs will be a clear signal that California is taking the next step to work with other sub-national jurisdictions to address climate change and increase GHG emission reductions through cost-effective methods for its covered entities.

(1) Sub-Alternatives

ARB received comments suggesting consideration of two alternatives to the proposed action that fall within this delay linkage alternative.

(a) Suggestion A. Consider delaying linkage until after California and Québec's programs have started operating.

If Suggestion A were pursued, California entities would not be able to use Québec-issued allowances or offset credits to fulfill their compliance obligation until an undetermined period. The equivalent would be true for Québec. It is unclear how long the program would need to "operate" before beginning to pursue linkage.

As with the pervious alternative, the Suggestion A would prevent California from further maximizing global greenhouse gas emission reduction, broadening the compliance market, and maximizing environmental benefits.

For the reasons described, staff does not recommend endorsing this alternative.

(b) Suggestion B. Delay linkage until other provisions in California's regulation are finalized.

Staff does not believe Suggestion B is an alternative to linking California and Québec's cap-and-trade programs. Staff already finalized the provisions of California's cap-and-trade regulation. The provisions became effective on January 1, 2012. Consequently, Suggestion B will not be considered as an alternative to the proposed action, as it does not present anything other than the "No Project" alternative already listed.

ii. Environmental Impacts

As stated above, under these alternatives it is unclear when and if linkage would occur. Until then, there would be no new environmental impacts under this alternative, because compliance responses by covered entities would be the same as under the existing regulatory environment. If linkage were to occur, the types of impacts under this alternative would be the same as the Proposed Amendments.

c. Linkage with No Québec Offsets

i. Description and Consistency with Project Objectives

Another alternative to the proposed amendments to the cap-and-trade regulation is to link the California and Québec cap-and-trade programs, but only Québec-issued allowances would be fungible in the California program. Under this alternative, California entities could use Québec-issued allowances to comply with compliance obligations, but not Québec-issued offsets. Québec entities could still use both California-issued allowances and offsets to comply with their compliance obligations if the Québec regulation were to allow this.

This alternative for linkage would be inconsistent with the design of a regional cap-and-trade program as provided for in the Design Recommendations for the

WCI Regional cap-and-trade program (Western Climate Initiative 2010). The WCI regional cap-and-trade program envisioned fungibility of both allowances and offsets between linked jurisdictions. This design maximizes the amount and types of compliance instruments for all entities in the regional program, thus establishing a broad and liquid market. This alternative would not support the establishment of a truly broad and liquid market for all entities. It does not make it possible for California entities to fully benefit from the cost benefit provided by offsets in providing a cap on allowance prices as would occur with the inclusion of all available compliance instruments in a regional program (CARB 2010b).

Under this alternative, California entities may have a greater demand for Québec-issued allowances. Québec entities may maximize the use of Québec or California-issued offsets to comply with their compliance obligations to make Québec allowances available for California's entities. As a result, Québec may see fewer GHG emissions reductions within its province due to an increase in the use of offsets that may originate anywhere in Canada and the United States (issued by Québec and California, respectively). This alternative does not equitably maximize the potential for onsite reductions at entities within California and Québec. It also does not equitably maximize the potential for any additional environmental benefits associated with onsite GHG emission reductions at entities within California and Québec. Subnational collaboration can only be successful if all linked jurisdictions are equally able to benefit from the broad market established in a regional program.

ii. Environmental Impacts

The types of impacts under this alternative would be the same as the Proposed Amendments. Although, California entities would not be permitted to use offset credits for compliance they could still purchase allowances from Québec, thereby effectively incenting the development of additional offset projects in Québec.

d. Linkage with Restricted Québec Offsets

i. Description and Consistency with Project Objectives

Another alternative to the proposed amendments to the cap-and-trade program is to link with Québec but restrict the types of offsets that California entities could use to comply with the California regulation. Under this alternative, allowances originating from either California or Québec could be used to comply with both programs. However, only offset credits generated from project types in Québec, which are issued for the same project types as those approved in the California program, could be used for compliance by California entities.

As part of this rulemaking process, staff discussed how the Québec offset program would work and expect that it will meet the requirements of the WCI (Western Climate Initiative 2012) and expect it will be equivalent in rigor to California's program. The description of these discussions with Québec's officials can be found in Chapter III. This alternative would restrict the types of

Québec issued offsets accepted by California based on project type and no other criteria.

Linkage with restricted offsets would result in the same types of abatement response as the proposed regulation at potentially greater costs since offsets from Québec would not be available for use by covered entities in California.

To date, California has adopted four protocols for forestry projects, urban forestry projects, ozone depleting substances projects, and livestock projects (title 17, California Code of Regulations, section 95973). Under this alternative, California would only allow participants in California's cap-and-trade program to use offsets issued by Québec for these four project types. The list of project types would expand as California and Québec adopt additional compliance offset protocols that are for the same project types. This means the Québec-issued offset credits for small landfill projects, once Québec has a regulation in place to issue these offset credits, would not be allowed in California as California does not have a small landfill project protocol. This is just one example of how each jurisdiction will be allowed to adopt compliance offset protocols that meet the regional additionality test and AB 32 and WCI offset criteria (Western Climate Initiative 2010b), but may not be applicable across all jurisdictions.

This alternative would result in similar types of behavior by Québec and California entities as described in the 'No Linkage with Québec Offsets' alternative. This alternative would not support the establishment of a broader and more liquid market for all entities. Nor, does it make it possible for California entities to fully benefit from the cost containment benefits provided by offsets as would occur with the inclusion of all available compliance instruments (both offsets and allowances) in a regional program (CARB 2010b).

As described above, no alternative considered by the agency would be more effective in carrying out the purpose for which the regulation amendments are proposed or would be as effective or less burdensome to affected private persons than the proposed amendments.

ii. Environmental Impacts

The types of impacts under this alternative would be same as the Proposed Amendments. No impacts were identified for California entities acquiring credits from Québec's landfill protocol, so there would be no change impacts under this alternative.

B. Air Quality

The Emissions Assessment for the California cap-and-trade regulation evaluated the air quality impacts of a variety of compliance response at capped entities and from the compliance offsets program. The compliance responses resulting from the proposed amendments are expected to be within the bounds of those

anticipated in the cap-and-trade regulation. Consequently, the resulting air quality impacts and benefits will fall within the range of those already identify in the cap-and-trade Emissions Assessment and the cap-and-trade FED (CARB 2010p).

Since greenhouse gas emissions and criteria pollutants are correlated for a number of capped combustion sources, a small increase in the allowance price as a result of linking with Québec, could lead to air quality improvements in California if these entities find it more cost-effective to reduce greenhouse gas emissions on site than to purchase allowances or offset credits. The exact location and nature of the potential additional reductions is unknown and will depend on a variety of factors.

Moreover, a higher allowance price could lead to the development of additional offset projects that would otherwise have not been cost-effective. The resulting greenhouse gas emission and air quality impact in California would depend on the offset project type and location. However, the impacts would still fall within those already identified in the cap-and-trade FED (CARB 2010o).

C. Environmental Justice

State law defines environmental justice as the fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. ARB is committed to making environmental justice an integral part of its activities. The Board approved its Environmental Justice Policies and Actions (Policies) on December 13, 2001, to establish a framework for incorporating environmental justice into ARB's programs consistent with the directives of State law (CARB 2001). These policies apply to all communities in California, but recognize that environmental justice issues have been raised more in the context of low-income and minority communities.

As part of the economic, emissions, and environmental assessment of the cap-and-trade regulation, staff assessed the emission reduction opportunities available to California sources covered by the proposed amendments to this regulation. This evaluation considered the potential for the incentives and flexibility inherent in the cap-and-trade program to result in direct, indirect, and cumulative emission impacts, including localized impacts in communities that are already adversely affected by air pollution. Based on the available data and current law and policies that control localized air pollution, and expected compliance responses to the cap-and-trade regulation, ARB concluded that increases in localized air pollution (including toxic air contaminants and criteria air pollutants) attributable to the cap-and-trade program are extremely unlikely. For more information see Chapter VII. Co-Pollutant Emissions Assessment of the cap-and-trade ISOR and Appendix P: Co-Pollutant Emissions Assessment of the cap-and-trade regulation (CARB 2010b; CARB 2010p). Since the compliance

response resulting from the proposed amendments is expected to be within those already evaluated in the cap-and-trade regulation, staff anticipates that the impacts and benefits will be equivalent.

Nevertheless, as part of ARBs Adaptive Management Plan, at least once each compliance period, ARB will use information collected through the mandatory reporting regulation, the cap-and-trade regulation, the industrial efficiency audit, and other sources to evaluate how facilities are complying with the cap-and-trade regulation (CARB 2011b). ARB will also solicit information from local air districts regarding permit modifications and new permit applications for covered sources. This information will be used to identify compliance activities that could lead to increased emissions and to determine whether further investigation of potential criteria pollutant and toxic emissions is warranted.

If unanticipated adverse localized emissions impacts in California can be attributed to the cap-and-trade regulation (including the proposed amendments) during this periodic review, ARB will consider whether these impacts affect the achievement of the program objectives. If so, ARB will promptly develop and implement appropriate responses. Potential responses ARB would consider include, but are not limited to, using allowance value from the cap-and-trade program to mitigate localized emissions increases, providing incentives for energy efficiency and other emissions-reduction activities within the community, or restricting trading or prohibiting certain compliance responses in specifically identified communities. These potential future responses are not, however, warranted based on currently available information, and their imposition today would unnecessarily conflict with AB 32's other objectives.

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V ECONOMIC IMPACTS OF THE PROPOSED REGULATION

A. Summary of Economic Impacts

This analysis evaluates the possible economic impacts to California of linking its cap-and-trade program with the cap-and-trade program in Québec, Canada. Québec is the first of the Western Climate Initiative partners ready to link with California. Economically, linking is the harmonization of markets – allowing the exchange of allowances and offsets between the two programs – which results in the convergence of allowance and offset prices of the two programs.

The economic advantages of linking with other jurisdictions are analogous to the benefits of including multiple sectors under a broad California cap-and-trade program. Expanding the number of sources that are able to trade allowances will reduce the overall cost of achieving the desired level of emission reductions and improve the efficiency of the emissions trading market. In these ways, linking benefits each jurisdiction – the direct result of lower costs of abatement and expanded reduction opportunities.

While the particular effect of linking on the allowance price will depend on factors such as the relative size, stringency, cost of reductions, and availability of offsets in the California and Québec markets, the analysis indicates that the impact of linking with Québec could cause the allowance price in California to remain unchanged or increase slightly. Among the potential impacts that staff analyzed, is a small increase in revenues flowing into the California economy as a result of regulated entities in Québec seeking to reduce their cost of complying with the Québec program by purchasing California allowances. Fully accounting for the potential in-flow of revenue from Québec resulted in positive impacts to California. Additionally, linking with Québec could lead to greater criteria pollutant and greenhouse gas emissions reductions in California. Overall, staff finds no significant adverse impacts on California businesses or consumers as a whole as a result of the proposed regulation compared with impacts previously presented in the October 2010 analysis of the cap-and-trade regulation.

B. Legal Requirements

Section 11346.3 of the Government Code requires State agencies to assess the potential for adverse economic impacts on California business enterprises and individuals when proposing to adopt or amend any administrative regulation. The assessment must include consideration of the impact of the proposed regulation on California jobs; the expansion, elimination, or creation of businesses; and the ability of California businesses to compete with businesses in other states.

Also, State agencies are required to estimate the cost or savings to any State or local agency and school district in accordance with instructions adopted by the Department of Finance (DOF). The estimate shall include any non-discretionary

cost or savings to local agencies and the cost or savings in federal funding to the State.

Finally, Health and Safety Code section 57005 requires ARB to perform an economic impact analysis of submitted alternatives to a proposed regulation before adopting any major regulation. A major regulation is defined as a regulation that will have a potential cost to California business enterprises in an amount exceeding $10 million in any single year. This Chapter provides a description of the methodology used to estimate costs, as well as ARB staff's analysis of the economic impacts on California businesses and State and local agencies.

C. Analytical Approach

To estimate the possible economic impacts of the regulation it is necessary to have an estimate of the California allowance price in both unlinked and linked cap-and-trade programs. Estimates of allowance prices are developed using preliminary modeling results from WCI's Economic Modeling Team (EMT). The WCI modeling results have been derived with technical and modeling support from ICF International and Systematic Solutions, Inc.

The analytic approach is similar to what was done in the cap-and-trade regulation analysis. ENERGY 2020 is used to create an abatement cost curve for the cap-and-trade program. Abatement cost is the cost incurred by capped sectors to directly reduce their emissions. Subsequent analysis outside of the ENERGY 2020 model then incorporates the effects of allowance banking and offsets so that the cumulative emissions limit created by the jurisdictional allowance budgets (i.e., the emissions cap) is achieved by the program.

Highlights of WCI Phase 4 Energy 2020 modeling include: (Economic Modeling Team 2012a)

- Updated economic growth and energy price forecasts;
- Updated reference case and complementary policy case assumptions;
- Updated model input data (emission factors, historical energy demand, nuclear power plant refurbishments, etc.); and
- Improved treatment of electricity imports.
- The primary modeling design elements of the cap-and-trade program are described in Table V-1.

Table V-1: Cap-and-Trade Program Elements

1.	Jurisdictions	California and Québec
2.	GHG Pollutants	California - CO_2, CH_4, N_2O Québec - CO_2, CH_4, N_2O, HFC, PFC, SF_6
3.	Covered Emissions	Energy and Non-energy
4.	Covered Sectors	
	2013–2014	Electricity and large industrials
	2015–2020	Electricity, large industrials, transportation fuels, commercial and residential fuels, and small industrials
5.	Cap Trajectory	Uses actual jurisdictional allowance budgets for 2013–2020
6.	Offsets	8 percent of emissions
7.	Banking	Allowed without limitation
8.	Allowance Floor Price	$10 in 2012
8.	Allowance Reserve	Reserve filled with 1, 4, and 7 percent of the allowance budgets for the first, second, and third compliance periods, respectively Additional allowances made available, with prices in 2012 at $40, $45, and $50/metric ton of carbon dioxide equivalent ($MTCO_2e$), increasing to $60, $67, and $75/$MTCO_2e$ in 2020
9.	Compliance Periods	Compliance periods are 2013–2014, 2015–2017, and 2018–2020

D. Costs and Benefits

1. Expenditure Changes

The cap-and-trade program does not specify how or where emissions reductions will be made within a jurisdiction or, when jurisdictions link, across jurisdictions. Reductions will be made by covered sources if the cost of making reductions is less than the cost of acquiring allowances or offsets. Reductions will be made by all other sectors of the economy as a result of changes in the prices of energy which will induce marginally greater investment in energy efficiency and/or energy conservation and by small changes in the purchase of all other goods and services, particularly energy-intensive goods and services.

Since the cap-and-trade program does not specify how or where emissions reductions will occur, it is impossible to know exactly what covered or non-covered entities will do in response to the cap-and-trade program emission limits and emission prices. Possible compliance responses must therefore be

estimated using models. The ENERGY 2020 model was used to estimate the changes in energy prices and changes in capital investment, process operations, operation and maintenance practices, and fuel expenditures in response to prices on greenhouse gas (GHG) emissions

ENERGY 2020 is a detailed energy supply and demand and emissions accounting system of the Western United States. The model simulates the demand for all fuels for 3 residential categories, over 40 commercial and industrial categories, and 3 transportation categories. ENERGY 2020 is not a macroeconomic model and does not estimate the downstream effects of energy prices, costs, and cost savings on factors such as economic output, household income, trade, and employment. Additional detail on the ENERGY 2020 model is presented later in this section.

Methods available for emissions reductions in the ENERGY 2020 model include the following:

- Switching to lower carbon fuels
- Improved building efficiency
- Slightly earlier replacement of devices
- Improved appliance efficiency

2. Economic Impacts

The overall impacts on the State economy were estimated using the Environmental Dynamic Revenue Assessment Model (E-DRAM). E-DRAM is a computable general equilibrium (CGE) model of the California economy. Computable general equilibrium models are standard tools of empirical analysis designed to assess the regional costs of GHG emission limits that take into account all secondary effects that these policies could have on prices, commodity and factor substitutions, and incomes.

The E-DRAM model was developed by Dr. Peter Berck of the University of California, Berkeley, in collaboration with the California Department of Finance and the Air Resources Board. The current model includes 188 distinct sectors: 120 industrial sectors, 2 factor sectors (labor and capital), 8 household sectors, 9 consumption sectors, 1 investment sector, 45 government sectors, and 1 sector that represents the rest of the world. More detail on the E-DRAM model is presented later in this section.

E. Economic Analysis

A large number of technological and policy factors influence the allowance price (EAAC 2010). Technological and behavioral factors include the ease of substitution by firms to low-GHG methods of production, the extent to which

consumers shift to low-GHG products in response to changes in prices, and the pace of technological progress. Policy factors include the stringency of the cap, the reductions from other greenhouse gas policies, the extent of output-based updated free allocation, linkages with other markets, the availability and price of offsets, provisions for allowance banking, and borrowing. Given the uncertainties surrounding a number of these factors, it is impossible to predict with precision the allowance price trajectory. This analysis estimates the price under various scenarios.

In California, the 2013 to 2020 emissions cap covers 2,387 MMTCO2e, while the Québec cap covers 371 MMTCO2e—making the California market roughly six times the size of the Québec market. Linking markets should equate to a linked price that is predominantly determined by the larger California market. This conclusion is supported by the results from the WCI Phase 4 economic modeling analysis (Economic Modeling Team 2012b).

To gauge the magnitude of the potential price difference, linked and unlinked allowance prices are estimated across a number of different scenarios with a range of offset supply assumptions. With both California and Québec implementing an eight percent offset use limit, a potential of 240 million offsets could be used over the 2013–2020 time period.

If regulated entities fully utilize offsets as allowed in the regulation, the price in the linked market is determined by the original California price, and the linked price difference is zero. In other words, there is no change in the California allowance price as a result of linking with Québec in this scenario. As part of the analysis, different assumptions on offset use were considered. If it is assumed that the use of offsets falls below 80 percent of that allowed in the regulation, greater reductions are needed by covered sources. In response to this assumption, the allowance price in California increases with linking by up to 14 percent, with the maximum price change being about $5 per metric ton of carbon dioxide equivalent (MTCO2e). As the offset use assumption declines below 67.5 percent of that allowed, the effect of linking on the California price gets smaller, because the California price prior to linking is closer to the Québec price prior to linking.

The results imply that the allowance price in California will not change in response to linking if 80 percent or more of the allowable limit for offsets is used to comply. If less than 80 percent of the allowed limit for offsets is used, allowances prices in response to linking could increase by up to about 14 percent. To create a conservative estimate of possible economic impacts to the state, 5 percent and 15 percent increases are applied respectively to the $15 to $30 allowance price range estimated previously for the cap-and-trade regulation: yielding 2020 allowance price increases due to linking with Québec of $0.75 to $4.50 per allowance. If there is no change to the allowance price, then the

possible economic impacts are the same as presented in the 2010 cap-and-trade regulatory proposal.

For this analysis, the impacts computed for the cap-and-trade regulation likely range of allowance prices (i.e., $15.00 to $30.00) are adjusted to reflect the new linked prices, and impacts are computed as the additional impact from the price increase. That is, impacts are presented for the change in price from $15.00 to $15.75 and from $30.00 to $34.50.

If the allowance price were to rise – a potential outcome presented in the Western Climate Initiative (WCI) linkage analysis – facilities in California would be able to invest in cost-effective emission reductions and sell excess allowances to facilities in Québec. Figure V-1 depicts the economic dynamics that would arise if linking with Québec increases the California allowance price.

Figure V-1: Diagram of Economic Impacts to California of Linking with Québec

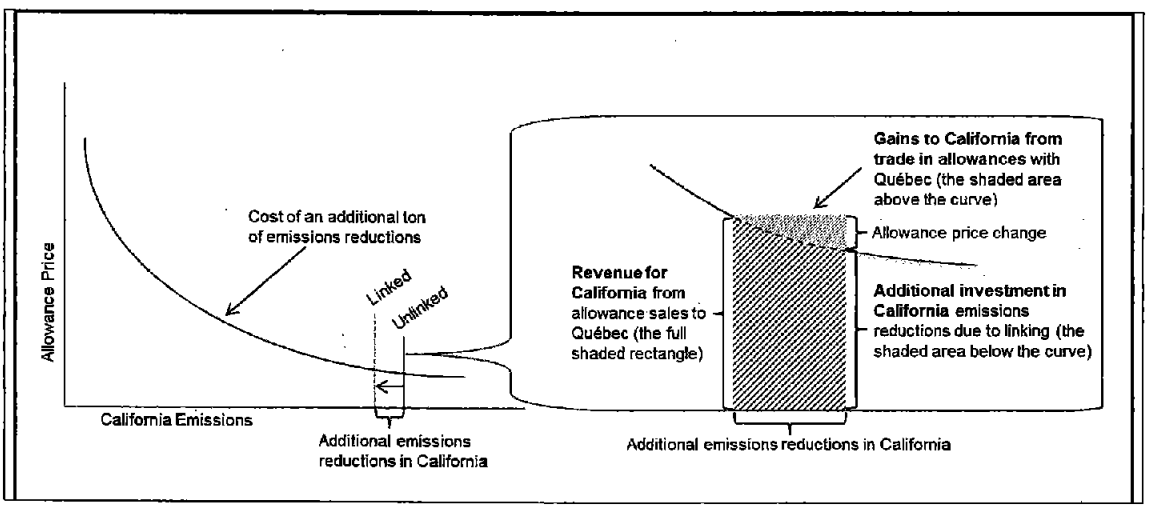


Figure V-1 depicts the economic dynamics that will arise if linking with Québec results in an increase to the California allowance price. What does this mean for California? To understand the potential changes, it is necessary to first examine how facilities make decisions about reducing their emissions. The left panel of Figure V-1 shows the marginal cost of making additional reductions. The marginal cost of additional reductions is the added cost to achieve the next ton of emissions reductions that businesses will choose to make on-site in response to a higher carbon price. Whenever the allowance price rises above the cost of making additional emissions reductions on-site, businesses will choose to make those reductions. The economic analysis demonstrates that linking with Québec could result in California facilities making more on-site emissions reductions. These reductions would be financed by sales of allowances to Québec. This would result in net benefits to California.

The left panel of Figure V-1 indicates the possible change in California's allowance price. Because the California market is much larger than the Québec market, even significant initial differences in allowances prices are unlikely to move the California price substantially in a linked market. The right panel qualitatively depicts the anticipated costs and benefits associated with actions taken by California facilities in response to linkage with Québec. The area of the shaded rectangle underneath the marginal abatement cost curve (the curved line) represents the sum of cost-effective investments that would be undertaken by California facilities in response to the price increase. The whole of the shaded rectangle (above and below the curve) represents the revenues that will flow from Québec to California. This revenue will more than compensate facilities for their investments in emission reductions. Accordingly, the portion of the shaded

rectangle above the marginal abatement cost curve represents the gains from trade accruing to California. Fundamentally, trading via a linked market is beneficial to both jurisdictions — on one side an entity can buy allowances at a lower cost than it can make reductions, on the other side an entity can sell allowances at a price that is greater than the cost of reducing emissions.

The purpose of analysis of trade flow is to estimate the gains from trade, as described above, and to quantify the economy-wide effects of changes in the allowance price. Staff performed this analysis using the energy supply and demand model (ENERGY 2020) operated by Systematic Solutions, Inc., which has previously been used by ARB and the WCI to estimate allowance and offset prices and associated impacts, and the Environmental Dynamic Revenue Analysis Model (E-DRAM), a model ARB uses to estimate the macroeconomic impacts of regulations on the California economy. E-DRAM, which was provided under contract to ARB by Dr. Peter Berck of the University of California, Berkeley, was used to estimate the macroeconomic impacts of the proposed regulation on the statewide economy, including impacts on domestic product, personal income, and employment.

Following the framework presented in Figure V-1, Energy 2020 was used to estimate the direct costs of incremental investments made in California and the amount of revenue accruing to California from the sale of allowances to Québec, while E-DRAM was used to estimate the 2020 economy-wide effects of changes in the allowance price and the flow of revenues accruing to California. A drawback of this approach is that E-DRAM is a not a model of the combined California and Quebec economies. That is, it is not designed to evaluate the effects of trade flows or investment of funds in California from linked jurisdictions, as is projected to occur under linkage with Québec. To account for this, staff supplemented our traditional use of the E-DRAM model by performing a sensitivity analysis, further described in section G.

F. ENERGY 2020 Estimated Energy Price Changes

Table V-2 presents the estimated 2020 energy price increases that might result from a slightly higher California allowance price. The estimated change in energy price from linking is small and potentially zero if offsets used to comply as a share of the offset use limit is 80 percent of greater. If there is no change to the allowance price, then the possible economic impacts are the same as presented in the 2010 cap-and-trade regulatory proposal. At expected energy prices, total energy demand in California decreases by about 0.1 to 0.4 percent with additional California emissions reductions of up to about 0.5 $MMTCO_2e$.

Table V-2: ENERGY 2020 Estimated Cap-and-Trade Energy Percentage Price Changes in 2020 over Changes Estimated in the October 2010 Cap-and-Trade Regulation Package

	Percentage Price Change $15.00 to $15.75 /MMTCO$_2$e (%)	Percentage Price Change $30.00 to $34.50 /MMTCO$_2$e (%)
Residential		
Electric	0.1	0.4
Gas	0.3	1.8
Oil	0.2	1.4
LPG	0.1	0.6
Commercial		
Electric	0.1	0.5
Gas	0.4	2.1
Oil	0.3	1.6
LPG	0.1	0.8
Industrial		
Electric	0.1	0.5
Gas	0.3	1.7
Coal	1.8	7.8
Oil	0.2	1.1
Transportation		
Gasoline	0.2	1.1
Diesel	0.1	0.6

LPG = liquefied petroleum gas

Tables V-3 and V-4 present the estimated changes in investments and fuel expenditures for 2020 and the cumulative 2013 through 2020 changes that might result from a slightly higher California allowance price. These values are additional to the changes reported in the cap-and-trade regulation economic analysis.

In the Energy 2020 model expenditure, changes are based on historical responses to energy prices and changes in economic activity. The investments are annualized using a 5 percent real capital recovery factor over the lifetime of the asset.

Table V-3: ENERGY 2020 Estimated 2020 Changes in Annualized Expenditures over Changes Estimated in the October 2010 Cap-and-Trade Regulation Package (Millions of 2007 Dollars)

	Price Change $15.00 to $15.75	Price Change $30.00 to $34.50
Investment		
Residential	8.0	47.8
Commercial	6.9	41.2
Energy-Intensive Industry	0.2	1.3
Other Industry	0.1	0.7
Transportation	-4.2	-25.1
Total	11.0	65.9
Fuel Expenditures		
Residential	-3.7	-22.2
Commercial	-0.8	-4.8
Energy-Intensive Industry	-2.7	-15.9
Other Industry	-2.4	-14.4
Transportation	-9.0	-53.9
Total	-18.5	-111.2
Net Total		
Residential	4.3	25.6
Commercial	6.1	36.4
Energy-Intensive Industry	-2.4	-14.6
Other Industry	-2.3	-13.7
Transportation	-13.2	-79.0
Total	-7.5	-45.3

1. Energy-Intensive Industry includes Paper, Chemicals, Petroleum, Nonmetallic Minerals, Primary Metals, Mining except Oil and Gas, Oil and Gas Extra.
2. Fuel Expenditures do not include allowance value.

Table V-4: ENERGY 2020 Estimated Cumulative (2013–2020) Changes in Annualized Expenditures over Changes Estimated in the October 2010 Cap-and-Trade Regulation Package (Millions of 2007 Dollars)

	Price Change $15.00 to $15.75	Price Change $30.00 to $34.50
Investment		
Residential	26.7	160.1
Commercial	23.8	142.6
Energy-Intensive Industry	4.3	25.9
Other Industry	1.0	5.8
Transportation	-12.0	-72.2
Total	43.7	262.2
Fuel Expenditures		
Residential	-12.5	-75.1
Commercial	-5.4	-32.2
Energy-Intensive Industry	-13.5	-81.0
Other Industry	-11.6	-69.8
Transportation	-27.6	-165.7
Total	-70.6	-423.8
Net Total		
Residential	14.2	85.0
Commercial	18.4	110.4
Energy-Intensive Industry	-9.2	-55.2
Other Industry	-10.7	-64.0
Transportation	-39.7	-238.0
Total	-26.9	-161.7

1. Energy-Intensive Industry includes Paper, Chemicals, Petroleum, Nonmetallic Minerals, Primary Metals, Mining except Oil and Gas, Oil and Gas Extra.
2. Fuel Expenditures do not include allowance value.

G. Economy-Wide Impacts from the cap-and-trade program

The economy-wide modeling assumes that the California economy will grow by about 2.36 percent per year in the absence of a California cap-and-trade program. The implementation of the cap-and-trade program, including linking with Québec, will not have a substantive impact on this growth—the economy will continue to grow. To assess the economy-wide effects of the proposed regulation, the estimated allowance price, the expenditure changes, and offset expenditures for 2020 (Table V-3) are used as inputs to the E-DRAM model.

As described in section E, the projected macroeconomic effect of linking with Québec is that some additional investment will flow into the state, as a result of Québec paying for lower cost reductions in California. At allowance prices of $15.75 and $34.50, the modeling indicates that Québec could purchase about

18.3 and 14.4 million allowances, respectively, from California resulting in a flow of revenue into California of about $287 and $498 million.

This investment flow is not explicitly modeled in E-DRAM, since it is a model of California with a lesser developed world trade sector. However, to account for the effects of linking, staff simulated the economy-wide impact by injecting various amounts of revenue into California from outside of the state to capture the purchase of California allowances by entities in Québec. While this approach cannot provide a precise estimate of the economy-wide effect of linking with Québec, it does show that the cumulative effects of linkage on the growth rate of the broader economy are likely to be small, whichever the direction of impact.

Table V-5 reports the effects of linkage on Gross State Product, Personal Income, Income Per Capita, and Labor Demand for each of the highest and lowest values included in our sensitivity analysis. In each case, the economy continues to grow. While growth does slow slightly in the case where no investment flows to California, this scenario should be thought of as a lower bound on the range of outcomes. As described above, it is improbable that linking with Québec could result in higher prices in California without simultaneously spurring purchases of California allowances by facilities in Québec. Table V-5a reports the percent change in Gross State Product and Personal Income for the various values of flows within the range simulated in our sensitivity analysis ($0-$500 million). These results reinforce that while certain entities may benefit from allowance sales or greater investment in emissions reductions, at the state level the linking regulation will not have a substantial impact on California business or consumers.

Table V-5: E-DRAM Estimated 2020 Economic Impacts of the California Cap-And-Trade Program Linking With Québec

	$15.00 Reference[1]	$30.00 Reference[1]	Price Change $15.00 to $15.75		Price Change $30.00 to $34.50	
Gains to California from sale of allowances to Québec			**$0**	**$300 Million**	**$0**	**$500 Million**
Gross State Product ($ Billions)	$2,495	$2,491	$2,494	$2,495	$2,490	$2,491
Personal Income ($ Billions)	$2,021	$2,019	$2,021	$2,022	$2,018	$2,020
Income Per Capita ($Thousands)	$46.0	$46.0	$46.0	$46.0	$46.0	$46.0
Labor Demand (Millions)	18.34	18.30	18.34	-[2]	18.29	-[2]
			Percent Change			
Gross State Product	-	-	-0.01%	0.02%	-0.04%	0.02%
Personal Income	-	-	-0.01%	0.03%	-0.03%	0.03%
Income Per Capita	-	-	0.00%	0.03%	-0.01%	0.04%
Labor Demand	-	-	-0.02%	-	-0.07%	-
	Average Annual Growth (2007–2020)					
Gross State Product	2.35%	2.34%	2.35%	2.35%	2.33%	2.34%
Personal Income	2.37%	2.36%	2.37%	2.37%	2.35%	2.36%
Income Per Capita	1.21%	1.21%	1.21%	1.22%	1.21%	1.21%
Labor Demand	0.89%	0.87%	0.89%	-	0.86%	-

1. Cap-and-trade ISOR Appendix N Table N-8 Estimated size of economy at with no cap-and-trade program and at allowance prices of $15.00 and $30.00.
2. The manner in which revenue from the sale of California allowances to Quebec was reintroduced into E-DRAM did not affect the calculation of Labor Demand in the model. In the actual economy, labor demand would be affected by this inflow of revenue. .

Table V-5a: E-DRAM Estimated 2020 Economic Impacts of the California Cap-And-Trade Program Linking With Québec under Various Assumptions of Allowance Sales Revenue

	Percent Change from No Linking Case Revenue from the Sale of California Allowances to Québec ($Millions)					
	$0	$100	$200	$300	$400	$500
$15.00 to $15.75						
Gross State Product	-0.01%	0.00%	0.01%	0.02%	n/a	n/a
Personal Income	-0.01%	0.00%	0.02%	0.03%	n/a	n/a
$30.00 to $34.50						
Gross State Product	-0.04%	-0.03%	-0.02%	-0.01%	0.00%	0.02%
Personal Income	-0.03%	-0.02%	-0.01%	0.01%	0.02%	0.03%

H. Potential Impacts on Small Business

Very few small businesses have enough emissions to be regulated directly under the cap-and-trade program. Most small business impacts will be indirect and result from changes in energy expenditures. There is no single definition of "small business," but using a simple classification of less than 100 employees, roughly 98 percent of California businesses could be considered small.

Dun and Bradstreet (D&B) provided ARB with data that estimates the portion of revenue that businesses spend on energy. The data are based on D&B marketing files from approximately 17 million businesses nationwide, including over 2.1 million in California. The annual spending on electricity and natural gas was calculated for affected businesses as follows: D&B collected data on monthly electric and natural gas bills for approximately 628,000 businesses nationally from 18 electrical utility providers nationwide, including two California utilities, from April 2007 to March 2008.

Annual spending on electricity and natural gas were calculated for these businesses by summing up monthly bills.

Of the 628,000 businesses nationwide, D&B has revenue data for 210,000 of these businesses.

Revenue data were available for a greater number of large businesses in the sample. Thus, the sample distribution was adjusted to represent the true universal distribution of the D&B database of 17 million businesses.

Table V-6 provides a list of the California industries with the greatest expenditures on energy as percentage of their revenue and an estimate of the change in spending on energy that could result from the proposed regulation. These industries are primarily service-related and serve local markets and most businesses in these industries would be considered small businesses. The spending change is estimated as follows:

Spending Change = (Change in 2020 energy prices) x (% of revenue spent on electricity and natural gas)

Table V-6: Range of Impact on Average Percentage of Revenue Spent on Energy (%)

SIC	Business Category	Energy Expenditures/ Revenue (%)	Change $15.75 (%)	Change $34.50 (%)
7215	Coin-Operated Laundries and Cleaning	22	0.07	0.36
7219	Laundry and Garment Services	15	0.04	0.21
8641	Civic and Social Associations	14	0.03	0.16
7021	Rooming and Boarding Houses	14	0.04	0.18
7041	Membership-Basis Organization Hotels	14	0.03	0.18
7033	Trailer Parks and Campsites	13	0.03	0.15
7241	Barber Shops	12	0.03	0.14
6719	Holding Companies	12	0.03	0.14
7011	Hotels and Motels	11	0.03	0.13
7032	Sporting and Recreational Camps	11	0.02	0.10
8351	Child Day-Care Services	10	0.02	0.12
8231	Libraries	10	0.02	0.10
5461	Retail Bakeries	10	0.02	0.10
5813	Drinking Places	10	0.02	0.11
7231	Beauty Shops	10	0.02	0.11

SIC = Standard Industrial Classification code

Under the possible change in allowance price, most sectors experience less than a half of a percent change in the share of revenue spent on energy. The majority of the listed business categories are those that serve local markets such as trailer parks and camps, hotels, barbershops, and bakeries). Out-of-state businesses cannot serve these local markets. As a result, most California small businesses are not likely to face competitiveness issues relative to out-of-state businesses.

I. Potential Impacts on Individual Consumers

Individual consumers will not be directly affected by the cap-and-trade program, but will be indirectly affected though changes in energy prices. Households that produce less CO2 (directly via energy consumption and indirectly via consumption of goods and services that are produced or distributed using energy) will be less affected than those that produce more CO2. Assessing how energy price changes affect consumer welfare will depend on how income from allowance auctions is used to compensate consumers.

Table V-4 detailed the estimated cumulative (2013–2020) changes in investment, operating, and maintenance and fuel expenditures for the residential and transportation sectors resulting from the proposed regulation. Together these sectors increase their spending on energy efficiency by about $14.6 to $87.9 million or about 0.3 to 1.5 percent. With about 12.2 million households in the state, an average household might spend less than $1.00 per year extra from the

proposed regulation. Furthermore, energy savings could offset some or all of these increased expenditures.

J. Potential Cost to Local, State, and Federal Agencies

The proposed linking regulation could increase direct compliance costs for the State Department of Water Resources (DWR), which directly imports electricity from Reid Gardner, a coal-fired plant. ARB understands that the DWR will not import power from Reid Gardner after July 2013. Based on 2009 annual emissions of about 1.2 million tons per year, at higher allowance prices DWR could incur additional costs of $0.3 to $1.9 million in FY 2012–13 and $0.06 to $0.3 million in FY 2013–14 (Table V-7).

Table V-7 Estimated Annual Cost to State Entities

	Additional Allowance Purchase Costs* ($ Millions)		
	FY 2012–2013	FY 2013–2014	FY 2014–2015
University of California	0.2–1.2	0.4–2.5	0.4–2.6
California State University	0.02–0.1	0.05–0.3	0.05–0.3
DWR (Reid Gardner)	0.3–1.9	0.1–0.3	0.0
Total	0.5–3.2	0.5–3.1	0.5–2.9

*Assumes that the allowance price grows at a rate of 5 percent per year between 2013 and 2020 terminating at either $15.75 or $34.50 in 2020 instead of $15.00 and $30.00.

The regulation could also impose additional costs on the University of California and California State University systems. GHG emissions from eight on-site electricity generation units were 744,315 tons and 84,487 tons in 2009 for the UC system and CSU system, respectively.

At higher allowance prices, the University of California system could incur additional costs of $0.2 to $1.2 million in FY 2012–13, $0.4 to $2.5 million in FY 2013–14, and $0.4 to $2.6 million in FY 2014–15. The California State University system could incur additional costs of $0.02 to $0.1 million in FY 2012–13, $0.05 to $0.3 million in FY 2013–14 and $0.05 to $0.3 million in FY 2014–15.

K. Assessment of Alternatives[1]

Alternative 1, No Project Alternative: No linkage

The "No Project" Alternative defines a scenario in which ARB would not link the California cap-and-trade program to Québec's cap-and-trade program. Under this alternative, California entities could not use Québec-issued allowances or

[1] See ISOR Chapter VI, Alternatives Analysis, for a complete description of the alternatives.

offsets to comply with their surrender obligation, nor could Québec entities use California-issued allowances or offsets to comply with their surrender obligation.

By not linking with Québec, California would miss an opportunity to enable a broader, more liquid and better functioning market, and greater GHG emissions reductions under a regional program with more covered entities. By foregoing linking, ARB would also be in conflict with direction in AB 32 (AB 32, Nuñez, Statutes of 2006, Chapter 488, Section 38564) that requires the maximizing of GHG emission reductions through coordinated sub-national efforts by enhancing individual jurisdictions' actions through a collaborative effort.

Alternative 2, Wait to link with additional WCI States or Jurisdictions

California would defer linkage with Québec until additional WCI member states or jurisdictions are ready for linkage. Under this alternative, no allowances or offset credits in Québec's program could be used for compliance in the California market at this time.

The benefits and costs of this alternative are impossible to quantify without knowing exactly which jurisdictions would be linking with the California market and when. Differences could be positive or negative.

ARB also considered two variations to Alternative 2.

A. Delay linkage until after California and Québec's programs have started operating.

B. Delay linkage until other provisions in California's regulation are finalized.

In either variation, delaying linking simply shifts any price change (and therefore economic impact of the program) to a later date. Any air quality benefit would also be shifted to a later date.

Alternative 3, Unilateral Linkage without Offsets

Allowances directly allocated or auctioned by California and Québec would be accepted for compliance in both programs. However, offset credits generated in Québec would not be accepted for compliance within the California program.

This alternative will yield either the same benefit and cost as the regulation or greater costs since some potentially lower cost offsets would not be available for use in California. It is impossible to quantify the difference without knowing the volume and price of Québec offsets that would have been used in the California that would now excluded.

Alternative 4, Linkage with Restricted Québec Offsets

Allowances originating from either California or Québec could be used to comply with both programs. However, only offset credits generated from project types in Québec, which are the same as those approved in the California program, could be used for compliance by California entities.

This alternative will yield either the same benefit and cost as the regulation or greater costs, since some potentially lower cost offsets would not be available for use in California. It is impossible to quantify the difference without knowing the volume and price of Québec offsets that would have been used in the California that would now excluded.

L. Model Details

1. ENERGY 2020

ENERGY 2020 is an integrated multi-region energy model that provides complete and detailed simulations of the demand and supply picture for all fuels. The model simulates demand by three residential categories, over 40 North American Industrial Classification System (NAICS) commercial and industrial categories, and three transportation services. There are approximately six end-uses per category and six technology/mode families per end-use. Currently the technology families correspond to six fuel groups (oil, gas, coal, electric, solar, and biomass) and 30 detailed fuel products.

Supply sectors include electricity, oil, natural gas, refined petroleum products, ethanol, landfill gas, and coal supply. For electricity, the model includes endogenous (i.e., calculated by the model) simulation of capacity expansion/construction, rates/prices, load-shape variation due to weather, and changes in regulation. For the other supply sectors the prices are set exogenously. The model includes pollution accounting for combustion (by fuel, end-use, and sector), non-combustion, and non-energy (by economic activity) for six GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs).

The model simulates decisions by energy users for each end-use, including: fuel choice; investment in end-use efficiency (e.g., by purchasing devices that are more efficient than the minimum required by standards); and end-use utilization (i.e., how much the device is used). End-use-specific choices are simulated as needed, such as mode choice for freight movement and passenger transportation. Choices are simulated based on costs (e.g., increased capital costs versus the value of fuel saved) as well as on non-price attributes (e.g., convenience or the acceptance of the technology). Past purchasing behavior is used to calibrate the non-price choice parameters for each end-use.

ENERGY 2020 can provide insight into the following:

- Changes in fuel prices associated with allowance prices

- Emissions reductions by year and sector
- Changes in fuel expenditures by year and sector
  Changes in investment by year and sector

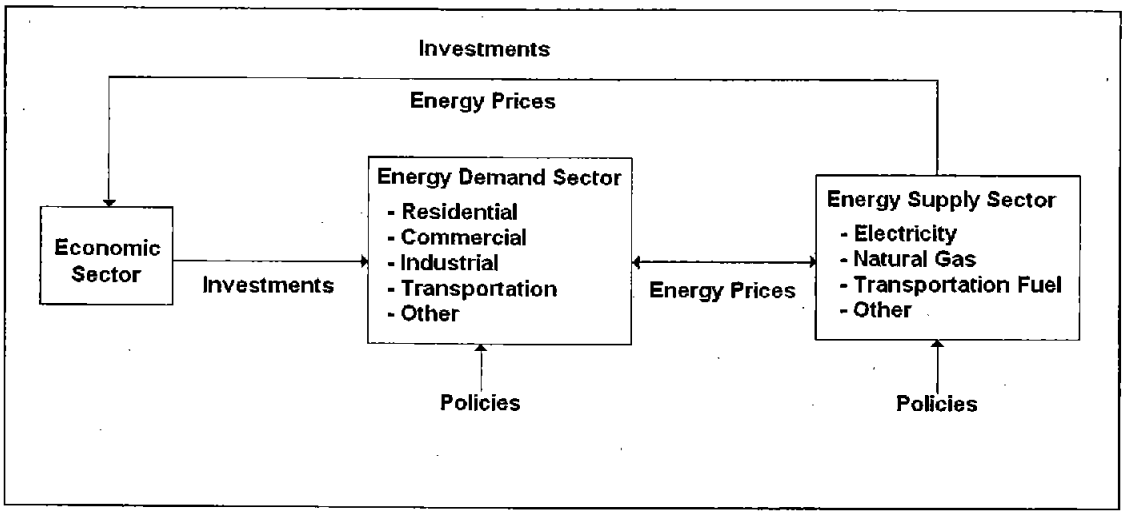
ENERGY 2020 does not estimate changes in state output, income, employment, or the redistribution of potential allowance revenue. These questions are addressed using the E-DRAM model, discussed below.

The general structure of ENERGY 2020 is provided in Figure V-1. The energy demand Sector interacts with the energy supply sector to determine the equilibrium levels of demand and energy prices. The energy demand sector is driven by the economic sector, but it also feeds back inputs to the economic sector in terms of investments (in energy-using equipment and processes) and energy prices. The model has a simplified economic sector so as to capture the linkages between the energy system and the overall economy. However, the model is best run when combined with a macroeconomic model.

The model assumes that energy demand results from using capital stock in the production of output. For example, the industrial sectors produce goods, which require energy for production; the commercial sectors require buildings in order to provide services; and the residential sector needs housing. The amount of energy consumed in any end-use is based on energy efficiencies. For example, the energy efficiency of a house, along with the efficiency of the furnace, determines how much energy the house uses to provide the desired warmth.

The model simulates investment in energy-using capital (e.g., buildings and equipment) from installation to retirement through three age classes, or *vintages.* This capital represents embodied energy requirements that will result in a specified energy demand as the capital is utilized, until it is retired or modified.

Figure V-1: ENERGY 2020 Overview



The size and efficiency of the capital stock, and therefore the energy demands, change over time as consumers make new investments and retire old equipment. Consumers determine which fuel and technology to use for new investments based on perceptions of cost and utility. Marginal tradeoffs between changing fuel costs and efficiency determine the capital cost of the chosen technology. These tradeoffs are dependent on perceived energy prices, capital costs, operating costs, risks, access to capital, regulations, and other imperfect information.

The model formulates the energy-demand causally using historical relationships of output, energy demand, and technology. Rather than using price elasticities to determine how demand reacts to changes in price, the model explicitly identifies the multiple ways in which price changes influence the economics of alternative technologies and behaviors, which in turn determine consumers' demand. The model accurately recognizes that price responses vary over time, depending on factors such as the rate of investment, age and efficiency of the capital stock, and relative prices of alternative technologies.

The energy requirement embodied in the capital stock can be changed only by new investments, retirements, or retrofitting. The efficiency with which capital uses energy has a limit determined by technological or physical constraints. The efficiency of the new capital purchased depends on the consumer's perception of the trade-off between efficiency and other factors such as capital costs. For example, as fuel prices increase, the efficiency that consumers choose for a new furnace is increased despite higher capital costs. The amount of the increase in efficiency depends on the perceived price increase and its relevance to the

consumer's cash flow. Cumulative investments determine the average "embodied" efficiency. The efficiency of new investments versus the average efficiency of existing equipment is one measure of the gap between realized and potential conservation savings.

2. E-DRAM Model

The Environmental Dynamic Revenue Assessment Model (E-DRAM) is a static computable general equilibrium (CGE) model of the California economy.2 Computable general equilibrium models are standard tools of empirical analysis, and they are widely used to analyze the aggregate impacts of policies whose effects may be transmitted through multiple markets. The E-DRAM model was developed by Dr. Peter Berck of the University of California, Berkeley, in collaboration with the California Department of Finance and the Air Resources Board. The current model includes 188 distinct sectors: 120 industrial sectors, 2 factor sectors (labor and capital), 8 household sectors, 9 consumption sectors, 1 investment sector, 45 government sectors, and 1 sector that represents the rest of the world.

The E-DRAM model does not a produce a forecast of the future. Rather, it constructs a future-year reference case from existing forecasts of income, population, and energy use. Together, income and energy growth imply an estimate of technical progress. In this analysis, growth in E-DRAM has been set so that it is in agreement with the growth assumptions used in ENERGY 2020.

The model solves for the set of commodity and factor prices, and the levels of industry activity and household income that clear all markets in the economy, given aggregate factor endowments, households' consumption technologies (specified by their utility functions), and industries' transformation technologies (specified by their production functions). The model derives a price for the output of each of the 120 industrial sectors, a price for labor (called the "wage"), and a price for capital services (the "rental rate").

The basic relationships in E-DRAM are shown in the circular-flow diagram in Figure V-2. The outer set of flows, shown as solid lines, are the flows of "real" items, goods, services, labor, and capital. The inner flows, shown as dashed lines, are monetary flows.

Households buy goods and services from the goods-and-services markets and give up their expenditure as compensation. They sell capital and labor services

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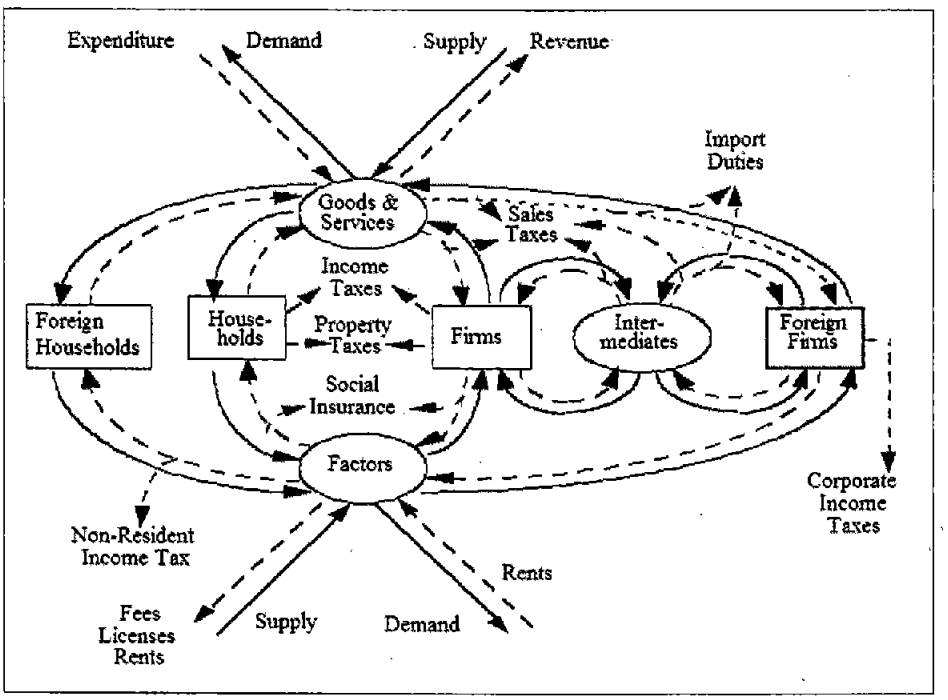
[2] *Static* in this respect means that E-DRAM solves for a single year and that the solution in that year is not tied to decisions made in previous years.

on the factor markets and receive income in exchange. There are eight separate household types distinguished by California marginal personal income tax brackets. A detailed description of the demand for goods and services is given in Chapter III of the DRAM report (Berck 1996).

Figure V-2: The Complete E-DRAM Circular-Flow Diagram



Firms supply goods and services to the goods-and-services market in return for revenues. Firms demand capital and labor from the factor markets and in return pay wages and rents. Firms also purchase intermediate goods from other firms. The expense of buying the input is a cost of production. Chapter IV of the DRAM report contains the model specification for these types of transactions, which are based on a national input-output table.

California is an open economy, which means that it trades goods, services, labor, and capital readily with other states and countries. In this model, all agents outside California are aggregated into one group, called "Rest of World." That is, no distinction is made between the rest of the United States and foreign countries. California interacts with two types of rest-of-world agents: foreign consumers and foreign producers.

Producers sell goods on the (final) goods-and-services markets and on the intermediate markets (i.e., they sell goods to both households and firms). The model takes these goods as being imperfect substitutes for the goods made in California. The degree to which foreign and domestic goods substitute for each

other is very important, and the evidence is described in Chapter V of the DRAM Report. Foreign households buy California goods and services on the goods-and-services markets. They and foreign firms both can supply capital and labor to the California economy, and domestic migration patterns are described in Chapter VIII of the DRAM Reports.

Finally, government is considered by combining the taxing and spending effects of the three levels of government (federal, state, and local). Government buys goods and services and gives up expenditures. It supplies goods and services, for which it may or may not receive revenue. Government also supplies factors of production, such as roads and education. And government makes transfers to households, which are not shown in the diagram. Chapter II of the DRAM Report includes a detailed description of the government activities in the model.

3. ENERGY 2020 in Combination with E-DRAM

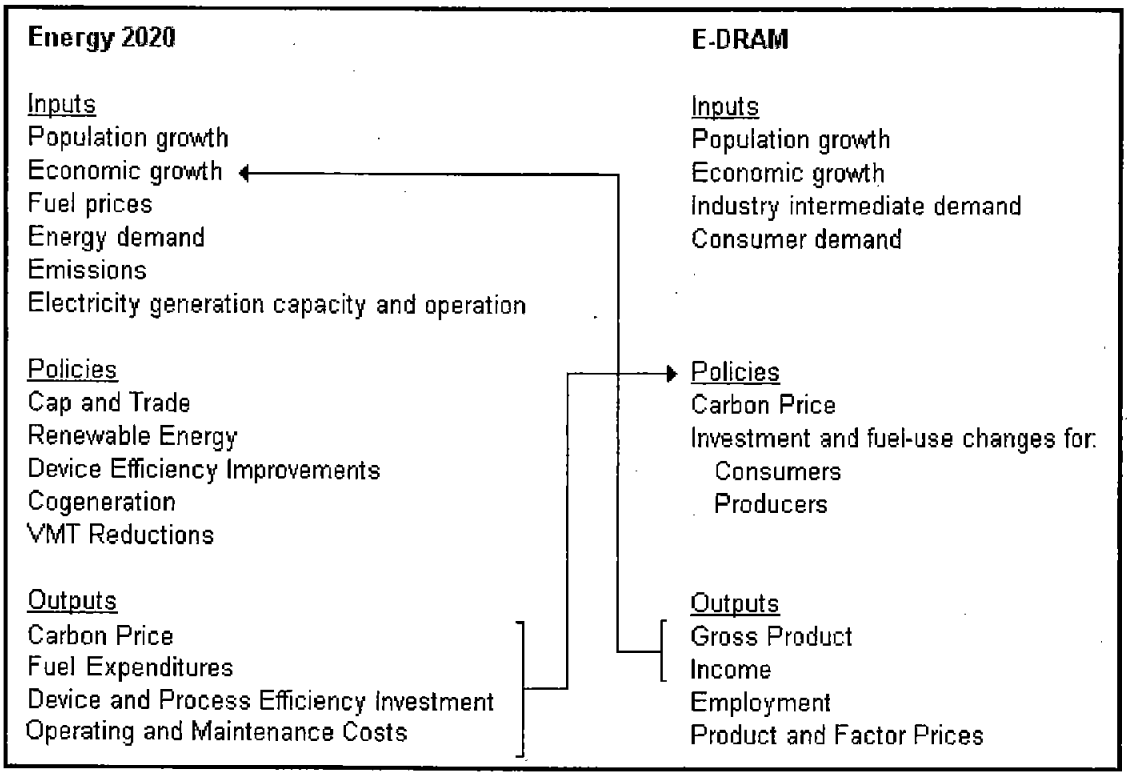
Results from ENERGY 2020 are used in combination with the E-DRAM model to further examine the potential economic impacts of the cap-and-trade program. Figure V-3 provides a summation of the information presented in the previous sections and highlights how further analysis can be performed using ENERGY 2020 together with E-DRAM.

As shown, both models rely on some of the same input data, but ENERGY 2020 focuses more on energy supply and demand, while E-DRAM focuses on the economic relationships between producers, consumers, and government. The intent of this portion of the analysis is to use the information produced by the detailed energy model to further investigate the broader economic impacts of the cap-and-trade program, which are better estimated in E-DRAM.

The ENERGY 2020 model results that are passed on to E-DRAM include:

- CO_2 allowance price
- Changes in device and process efficiency investment
- Changes in operating and maintenance costs
- Changes in fuel expenditures

Figure V-3: ENERGY 2020 and E-DRAM Models



CO_2 Allowance Price. The allowance price is represented in E-DRAM by increasing the prices of electricity, natural gas, and transportation fuel by amounts that reflect the average carbon content of each fuel at a given allowance price. For this analysis, all allowance value is assumed to remain in state and is returned to Californians as income.

Investment and Fuel Expenditure Changes. The changes in investment and fuel expenditure generated by ENERGY 2020 are captured in the E-DRAM model as changes in technology and consumer-expenditure patterns.

The ENERGY 2020 model simulates energy demand and investment at the end-user, or consumer, level. Therefore, all ENERGY 2020 results are applied in E-DRAM at the consumer level. The consumer in this respect is both a household that consumes finished goods and a producer that consumes intermediate goods in the production process.

Figure V-4 provides a picture of the ENERGY 2020 to E-DRAM model-to-model mapping of expenditures. Column 1 indicates the ENERGY 2020 expenditure category that will be passed on to E-DRAM. Column 2 indicates the level of aggregation that will be used in both models. The two models each have

considerable detail, but to make the sharing of information tractable, it is preferable to deal with aggregations. In this analysis, the ENERGY 2020 investment and fuel-expenditure changes are applied in E-DRAM to six broad sector aggregations. These groupings are Residential, Commercial, Energy-Intensive Industrial, Other Industrial, Passenger Transportation, and Freight Transportation.[3] Column 3 provides information about the ENERGY 2020 end-uses, which are useful for determining the appropriate E-DRAM categories that are on the receiving end of the expenders (shown in Column 4).

For example, the Residential sector demands energy to operate different devices. Implementing the cap-and-trade program in ENERGY 2020 causes expenditures by the Residential sector on these devices, and thereby the fuel needed to power these devices to change. In E-DRAM, these changes are represented as increases or decreases in spending by the Residential sector to the appropriate E-DRAM device and fuel sectors.

These expenditure changes are implemented in E-DRAM by adjusting the model's Social Accounting Matrix (SAM), which represents all of the economic transactions that take place within a regional economy during a particular benchmark period. The entries along a row in the SAM show each payment received by a particular sector. The entries down a column in the SAM show the expenditures made by a particular sector. For accounting purposes, a SAM must balance—that is, each row sum and corresponding column sum must be equal. This balancing ensures that all money received by firms is spent and that no money leaks out of the economy. The original SAM provides the basis for what the reference-case economy looks like, and the altered SAM indicates what the economy looks like with the imposition of a cap-and-trade program.

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[3] *Industrial sectors* are the goods-producing sectors, while *commercial sectors* are the non-goods-producing sectors such as wholesale trade, retail trade, or services.

Figure V-4: ENERGY 2020 Mapping to E-DRAM

Expenditure	Energy Consumer	End-use	E-DRAM Sector
Device	Residential Commercial	Air Conditioning Lighting Refrigeration Space Heating Water Heating Other Non-Subs* Other Subs**	Refrigeration and Air Conditioning Wholesale Durable Goods Machinery Manufacture
	Industrial - Energy-Intensive - Other	Motors Process Heat Other Subs Off Road Miscellaneous	Refrigeration and Air Conditioning Wholesale Durable Goods Machinery Manufacture
	Transportation - Passenger - Freight	Vehicle type	Retail Vehicles and Parts Automobile Manufacturing
Process	Residential Commercial Industrial - Energy-Intensive - Other	Building Efficiency	Retail Building Materials
Operating and Maintenance	Residential Commercial Industrial - Energy-Intensive - Other		General increase in all intermediate goods
Fuel	Residential Commercial Industrial - Energy Intensive - Other Transportation - Passenger - Freight	All end-uses	Electrical Power Distribution Natural Gas Distribution Retail Gasoline Stations

* Other Non-Subs = Other devices that operate only on electricity
** Other Subs = Other devices that operate on multiple fuel types

As shifts in expenditures are made, the SAM is rebalanced so that the sum of the rows equals the sum of the columns. In particular, the increase in Consumer Transportation sector spending for automobiles has the effect of reducing expenditures on all other Consumer Transportation goods. The decrease in fuel expenditures has the effect of increasing expenditures on all other Consumer Transportation goods. The model is then resolved for a new set of commodity

and factor prices, and the levels of industry activity and household income that clear all markets—and their impacts—are measured as the change from the original SAM reference solution.

VI ALTERNATIVES ANALYSIS

This Chapter provides an analysis of the alternatives to the proposed amendments for the cap-and-trade regulation that staff considered. The discussion below describes the alternatives for linking California's and Québec's cap-and-trade programs. For each of the alternatives, staff outlines the costs and benefits of the approach and explains why it chose to propose the cap-and-trade regulation and incorporated design features.

A. Alternatives to the Proposed Amendments to the cap-and-trade program

Staff analyzed four alternatives to the proposed amendments to the cap-and-trade regulation:

- Do not link the California and Québec cap-and-trade programs. (no project).
- Wait to link with additional WCI states or jurisdictions.
- Linkage with no Québec offsets.
- Linkage with restricted Québec offsets.

In evaluating these alternative approaches to the proposed regulation, ARB staff found that none were as, or more, effective than a linked cap-and-trade program in carrying out the goals of AB 32. Further, none of the options that would have enabled California to meet AB 32 goals were as cost-effective as the proposed cap-and-trade regulation. Staff provides a discussion of each alternative in the following sections.

1. No Linkage ("No Project" Alternative)

The "No Project" Alternative defines a scenario in which ARB would not link the California cap-and-trade program to Québec's cap-and-trade program. Under this alternative, California entities could not use Québec-issued allowances or offsets to comply with their surrender obligation, nor could Québec entities use California-issued allowances or offsets to comply with their surrender obligation.

By not linking with Québec, California would miss an opportunity to enable a broader, more liquid and better functioning market, and greater GHG emissions reductions under a regional program with more covered entities. By foregoing linking, ARB would also be in conflict with direction in AB 32 (AB 32, Nuñez, Statutes of 2006, Chapter 488, Section 38564) that requires the maximizing of GHG emission reductions through coordinated sub-national efforts by enhancing individual jurisdictions' actions through a collaborative effort.

While linkage would require California to forfeit some control over where the reductions occur (i.e., out-of-state versus in state), staff believes the establishment of a regional program with Québec will demonstrate the viability of a regional program and will encourage other WCI states and jurisdictions to join and establish an even broader market with greater GHG emissions reductions. Furthermore, the economic analysis suggests that it is possible additional reductions will be realized in California if our program is linked to Québec's program relative to unlinked California and Québec programs.

2. Wait to link with additional WCI States or Jurisdictions

Another alternative to adopting the proposed amendments to the cap-and-trade regulation would be to defer linkage to Québec until additional WCI member states or jurisdictions are ready for linkage. If this alternative were pursued, California entities would not be able to use Québec-issued allowances or offsets to comply with the California regulation. Nor could Québec entities use California-issued allowances or offsets to comply with their compliance obligations.

As with the "No Project" alternative, the benefits of a broader market for California entities would also not be seen if there were a deferral in linking California and Québec's cap-and-trade programs. ARB would also be seen as nonresponsive to AB 32 requirements to pursue sub-national collaborative efforts to achieve greater GHG emissions reductions than California could achieve on its own.

Under this alternative, it is also unclear when any future program linkage would occur. While the WCI emissions trading group consists of several Canadian provinces that have been active in the development of the requirements for a regional WCI market program, at this time only Québec has established a cap-and-trade program (Government of Québec 2011).

While deferring linkage may allow for a broader market than one with just linkage to Québec, it is important to take this first step now and develop a regional program to which other jurisdictions can link. As described in Appendix B, significant time and effort have been spent to develop and enable a regional cap-and-trade program. The successful linkage of the California and Québec cap-and-trade programs will be a clear signal that California is taking the next step to work with other sub-national jurisdictions to address climate change and increase GHG emission reductions through cost-effective methods for its covered entities.

a. Sub-Alternatives

ARB received comments suggesting consideration of two alternatives to the proposed action that fall within this delay linkage alternative.

i. Suggestion A. Consider delaying linkage until after California and Québec's programs have started operating.

If Suggestion A were pursued, California entities would not be able to use Québec-issued allowances or offset credits to fulfill their compliance obligation until an undetermined period. The equivalent would be true for Québec. It is unclear how long the program would need to "operate" before beginning to pursue linkage.

As with the pervious alternative, the Suggestion A would prevent California from further maximizing global greenhouse gas emission reduction, broadening the compliance market, and maximizing environmental benefits.

For the reasons described, staff does not recommend endorsing this alternative.

ii. Suggestion B. Delay linkage until other provisions in California's regulation are finalized.

Staff does not believe Suggestion B is an alternative to linking California and Québec's cap-and-trade programs. Staff already finalized the provisions of California's cap-and-trade regulation. The provisions became effective on January 1, 2012. Consequently, Suggestion B will not be considered as an alternative to the proposed action, as it does not present anything other than the "No Project" alternative already listed.

3. Linkage with No Québec Offsets

Another alternative to the proposed amendments to the cap-and-trade regulation is to link the California and Québec cap-and-trade programs, but only Québec-issued allowances would be fungible in the California program. Under this alternative, California entities could use Québec-issued allowances to comply with compliance obligations, but not Québec-issued offsets. Québec entities could still use both California-issued allowances and offsets to comply with their compliance obligations if the Québec regulation were to allow this.

This alternative for linkage would be inconsistent with the design of a regional cap-and-trade program as provided for in the Design Recommendations for the WCI Regional cap-and-trade program (Western

Climate Initiative 2010). The WCI regional cap-and-trade program envisioned fungibility of both allowances and offsets between linked jurisdictions. This design maximizes the amount and types of compliance instruments for all entities in the regional program, thus establishing a broad and liquid market. This alternative would not support the establishment of a truly broad and liquid market for all entities. It does not make it possible for California entities to fully benefit from the cost benefit provided by offsets in providing a cap on allowance prices as would occur with the inclusion of all available compliance instruments in a regional program (CARB 2010b).

Under this alternative, California entities may have a greater demand for Québec-issued allowances. Québec entities may maximize the use of Québec or California-issued offsets to comply with their compliance obligations to make Québec allowances available for California's entities. As a result, Québec may see fewer GHG emissions reductions within its province due to an increase in the use of offsets that may originate anywhere in Canada and the United States (issued by Québec and California, respectively). This alternative does not equitably maximize the potential for onsite reductions at entities within California and Québec. It also does not equitably maximize the potential for any additional environmental benefits associated with onsite GHG emission reductions at entities within California and Québec. Subnational collaboration can only be successful if all linked jurisdictions are equally able to benefit from the broad market established in a regional program.

4. Linkage with Restricted Québec Offsets

Another alternative to the proposed amendments to the cap-and-trade program is to link with Québec but restrict the types of offsets that California entities could use to comply with the California regulation. Under this alternative, allowances originating from either California or Québec could be used to comply with both programs. However, only offset credits generated from project types in Québec, which are issued for the same project types as those approved in the California program, could be used for compliance by California entities.

As part of this rulemaking process, staff discussed how the Québec offset program will work and expect that it will meet the requirements of the WCI (Western Climate Initiative 2012) and expect it will be equivalent in rigor to California's program. The description of these discussions with Québec's officials can be found in Chapter III. This alternative would restrict the types of Québec issued offsets accepted by California based on project type and no other criteria.

Linkage with restricted offsets, would result in the same types of abatement response as the proposed regulation at potentially greater costs since offsets from Québec would not be available for use by covered entities in California.

To date, California has adopted four protocols for forestry projects, urban forestry projects, ozone depleting substances projects, and livestock projects (title 17, California Code of Regulations, section 95973). Under this alternative, California would only allow participants in California's cap-and-trade program to use offsets issued by Québec for these four project types. The list of project types would expand as California and Québec adopt additional compliance offset protocols that are for the same project types. This means the Québec-issued offset credits for small landfill projects, once Québec has a regulation in place to issue these offset credits, would not be allowed in California as California does not have a small landfill project protocol. This is just one example of how each jurisdiction will be allowed to adopt compliance offset protocols that meet the regional additionality test and AB 32 and WCI offset criteria (Western Climate Initiative 2010b), but may not be applicable across all jurisdictions.

This alternative would result in similar types of behavior by Québec and California entities as described in the 'No Linkage with Québec Offsets' alternative. This alternative would not support the establishment of a broader and more liquid market for all entities. Nor, does it make it possible for California entities to fully benefit from the cost containment benefits provided by offsets as would occur with the inclusion of all available compliance instruments (both offsets and allowances) in a regional program (CARB 2010b).

As described above, no alternative considered by the agency would be more effective in carrying out the purpose for which the regulation amendments are proposed or would be as effective or less burdensome to affected private persons than the proposed amendments.

Justification for adoption of regulations different from federal regulations contained in the Code of Federal Regulations

The federal government has not adopted a cap-and-trade program. Therefore, California's regulations are not different from those regulations. If the federal government adopts a cap-and-trade program, California will review its own program to ensure the programs are complementary.

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VII SUMMARY AND RATIONALE FOR PROPOSED REGULATION

The proposed amendments to the Cap-and-Trade Regulation are designed to help staff implement the cap-and-trade program and increase market security. This section discusses the requirements and rationale for each provision of the proposed amendments to the Cap-and-Trade Regulation.

Subarticle 2. Purpose and Definitions.

Section 95802. Definitions.

Summary of Section 95802(a)(1).

New section 95802(a)(1) is added to provide a definition of account viewing agent.

Rationale for Section 95802(a)(1).

The Account viewing agent is authorized by a registered entity to view all information contained in the tracking system on the entity's accounts. The account viewing agent replaces the existing provisions for electronic submission agent.

Summary of Section 95802(a)(6).

Existing section 95802(a)(6) is deleted to remove the definition for "agent" as it is used in the context of beneficial holdings provisions in section 95834.

Rationale for Section 95802(a)(6).

The definition is removed to reflect the removal of beneficial holdings language from section 95834.

Summary of Section 95802(a)(9).

Existing section 95802(a)(9) is modified to reflect the change in terminology from "alternate authorized account representative" to "alternate account representative" contained in section 95832.

Rationale for Section 95802(a)(9).

The change is needed as the definitions of account representatives and agents have changed to reflect the central role that will be played by the primary account representative. That person will be informed of all actions taken on the represented entity's accounts.

Summary of Section 95802(a)(17).

Existing section 95802(a)(17) is modified to reflect an expansion of the allowance auction from only selling California GHG allowances to include the sale of allowances from any linked jurisdiction.

Rationale for Section 95802(a)(17).

This provision is needed to ensure auction rules apply to all allowances auctioned and to allow the auction of other jurisdictions' allowances.

Summary of Section 95802(a)(21).

Existing section 95802(a)(21) is deleted to remove the definition for "Authorized Account Representative."

Rationale for Section 95802(a)(21).

The term "authorized account representative" is replaced with the term "primary account representative," the definition for which is added to new section 95802(a)(206). The change is needed to reflect the central role that will be played by the primary account representative. That person will be informed of all actions taken on the represented entity's accounts.

Summary of Section 95802(a)(28).

Existing section 95802(a)(28) is deleted to remove the definition for "beneficial holding."

Rationale for Section 95802(a)(28).

This change is needed to reflect the removal of beneficial holdings language from section 95834.

Summary of Section 95802(a)(44).

Existing section 95802(a)(44) is modified to remove the term "six" used ahead of the term "primary greenhouse gasses." The section is also renumbered to section 95802(a)(42).

Rationale for Section 95802(a)(44).

This change is needed to clarify that there are more than six primary greenhouse gases with the addition of nitrogen trifluoride (NF3) to the definition of greenhouse gases to new definition 95802(a)(119).

Summary of Section 95802(a)(55).

Existing section 95802(a)(55) is modified to expand the definition of "compliance instrument" to include instruments issued by linked jurisdictions.

Rationale for Section 95802(a)(55).

This provision is needed to reflect the new provisions that entities registered into California may use compliance instruments from a linked jurisdiction, and that California rules will apply to the use of those instruments.

Summary of Section 95802(a)(62).

Existing section 95802(a)(62) is modified to remove an extra space between words, and the section is renumbered to section 95802(a)(60).

Rationale for Section 95802(a)(62).

The change is needed for clarity.

Summary of Section 95802(a)(121).

Existing section 95802(a)(121) is modified to include nitrogen trifluoride (NF3) in the definition of greenhouse gases.

Rationale for Section 95802(a)(121).

This change is needed to ensure that regulation contains all of the greenhouse gases as defined in Assembly Bill 32.

Summary of Section 95802(a)(131).

Existing section 95802(a)(131) is edited to add additional wording and capitalization. Existing section 95802(a)(131) is also modified to expand the definition of "hold" to include reference to compliance instruments issued by a linked jurisdiction.

Rationale for Section 95802(a)(131).

This change is needed for clarity and consistency of terminology and to reflect the new provisions that entities registered into California may use compliance instruments from a linked jurisdiction, and that California rules will now apply to the use of those instruments.

Summary of Section 95802(a)(206).

New section 95802(a)(206) is added to provide a definition of "primary account representative."

Rationale for Section 95802(a)(206).

This definition is needed to reflect the replacement of "authorized account representative" with the new term "primary account representative." The primary account representative will play a more central role in representing an account than did the authorized account representative, as the primary account representative will be informed of all actions taken on the represented entity's accounts.

Summary of Section 95802(a)(208).

New section 95802(a)(208) is added to provide a definition of "primary residence."

Rationale for Section 95802(a)(208).

This definition of "primary residence" is needed as it defines the residence that must be disclosed under Know-Your-Customer requirements that are added to section 95834(b)(2). The primary residence is also a requirement to determine eligibility to participate in the cap-and-trade program.

Summary of Section 95802(a)(209).

Existing section 95802(a)(209) is deleted to remove the definition of "principal" as it is used in the context of beneficial holdings provisions in section 95834.

Rationale for Section 95802(a)(209).

This definition is removed to reflect the removal of beneficial holdings language from section 95834.

Subarticle 3. Applicability.

Section 95812. Inclusion Thresholds for Covered Entities.

Summary of Section 95812(b).

Existing section 95812(b) is modified to change the data years used to determine whether an entity's historical emissions place it above the threshold used to determine whether an entity is a covered entity. The data years listed in the existing text include 2008 to 2011. The modification changes the range of years to 2009 through 2011.

Rationale for Section 95812(b).

This change corrects a contradiction between sections 95812 and 95853 with respect to which years' reported emissions are used to determine inclusion as a covered entity.

Section 95814. Voluntarily Associated Entities and Other Registered Participants.

Summary of Section 95814(a).

Section 95814(a) is modified and sections 95814(a)(1), (2), and (3) are replaced to include more detailed requirements for eligibility as voluntarily associated entities (VAE). New sections 95814(a)(1)(A), (B), and (C) contain the original text in section 95814(a). This is a formatting change.

Rationale for Section 95814(a).

The change is needed to accommodate a longer list of eligibility requirements for entities that qualify as voluntarily associated entities. The language remains the same.

Summary of Section 95814(a)(2).

New 95814(a)(2) adds a requirement that an individual registering as a voluntarily associated entity must be located within the United States, demonstrated by the location of the individual's primary residence.

Rationale for Section 95814(a)(2).

This provision is added to ensure that ARB has the ability to take effective enforcement action against violators. Staff has limited resources to take enforcement actions against participants outside of the United States.

Summary of Section 95814(a)(3).

New section 95814(a)(3) requires that entities must be located in the United States to be eligible to register as a VAE.

Rationale for Section 95814(a)(3).

This requirement was added to ensure that ARB has the ability to take effective enforcement action against violators. Staff has limited resources to take enforcement actions against participants located outside of the United States.

Summary of Section 95814(c).

Existing section 95814(c) is modified to change a reference to section 95921(g)(3).

Rationale for Section 95814(c).

The change is needed to reflect reorganization of section 95921.

Subarticle 5: Registration and Accounts

Section 95830. Registration with ARB.

Summary of Section 95830(c)(1)(A).

Existing section 95830(c)(1)(A) is modified to include the physical and mailing addresses and contact information for an entity applying for registration, along with the date and place of incorporation.

Rationale for Section 95830(c)(1)(A).

This change is necessary to provide staff with more information to track the corporate associations in which the entity is involved, which will improve market monitoring.

Summary of Section 95830(c)(1)(B).

Existing section 95830(c)(1)(B) is renumbered to new section 95830(c)(1)(G).

New section 95830(c)(1)(B) is added to require disclosure of names and addresses of an entity's directors and officers.

Rationale for Section 95830(c)(1)(B).

This change is required to accommodate additional requirements and support a new numbering structure.

The new text regarding the disclosure is needed to ensure that delegations of account representatives and account viewing agents pursuant to section 95832 are made by persons with authority to legally bind an entity. This information will also be used to investigate potential corporate associations.

Summary of Section 95830(c)(1)(C).

Existing section 95830(c)(1)(C) is renumbered to section 95830(c)(1)(H), with a slight modification to include all three types of corporate associations now defined in section 95833, including corporate, direct, and indirect associations.

New section 95830(c)(1)(C) is added to require disclosure of names and contact information of individuals controlling over 10 percent of the voting rights attached to securities that may have been issued by the entity.

Rationale for Section 95830(c)(1)(C).

This change is required to accommodate additional requirements and support a new numbering structure.

The new text is needed because the term "disclosable" corporate associations is not used and criteria to establish "corporate" associations are added. The new requirement for disclosure of an entity's owner is needed to enable investigations for potential corporate associations.

Summary of Section 95830(c)(1)(D).

Existing section 95830(c)(1)(D) is renumbered to section 95830(c)(1)(I). Existing text in section 95830(c)(1)(D) is removed because it contains rules governing disclosure of beneficial holdings pursuant to existing section 95834.

New text in section 95830(c)(1)(D) is added to require that any entity disclose an assigned business number (if it has one) assigned to it by a California state agency.

Rationale for Section 95830(c)(1)(D).

The existing text is removed because all provisions involving beneficial holdings in section 95834 are eliminated. This change is required to accommodate additional requirements and support a new numbering structure.

The new text is needed to enable investigations of potential corporate associations. Most businesses operating within California would have such a number.

Summary of Section 95830(c)(1)(E).

Existing section 95830(c)(1)(E) is deleted and the text was moved to new section 95830(c)(1)(I), with only a minor change to clarify that the withholding of information is separate from providing misleading information.

New section 95830(c)(1)(E) is added to require disclosure of an entity's federal tax Employer Identification Number if one has been assigned.

Rationale for Section 95830(c)(1)(E).

This change is required to accommodate additional requirements and support a new numbering structure.

This new text regarding the disclosure is needed to enable investigations of potential corporate associations.

Summary of Section 95830(c)(1)(F).

New section 95830(c)(1)(F) is added to require the disclosure of a Data Universal Numbering system number if one has been assigned to the entity.

Rationale for Section 95830(c)(1)(F).

This disclosure will allow market monitors to utilize existing data resources on corporate associations.

Summary of Section 95830(c)(1)(G).

Existing section 95830(c)(1)(B) is renumbered to section 95830(c)(1)(G).

Rationale for Section 95830(c)(1)(G).

This change is required to accommodate additional requirements and support a new numbering structure.

Summary of Section 95830(c)(1)(H).

Existing section 95830(c)(1)(C) is renumbered to section 95830(c)(1)(H) and modified to reflect the change in terminology for corporate associations.

Rationale for Section 95830(c)(1)(H).

This change is required to accommodate additional requirements, support a new numbering structure, and reflect modifications to terminology used for corporate associations in section 95833.

Summary of Section 95830(c)(1)(I).

New section 95830(c)(1)(I) consists of text from existing section 95830(c)(1)(E). The text is also modified to clarify that the withholding of information is separate from providing misleading information.

Rationale for Section 95830(c)(1)(I).

This is a primarily a formatting change with some editing for clarity.

Summary of Section 95830(c)(2).

Existing section 95830(c)(2) was modified to require any individual listed by a registering entity in its registration application as needing access to the tracking system to comply with the Know-Your-Customer requirements of modified section 95834. Existing language related to the temporary holding of allowances in exchange clearing holding accounts is removed.

Rationale for Section 95830(c)(2).

The new language is needed to clarify that not every officer whose identity is disclosed under section 95830(c)(1)(B) needs to complete the Know-Your-Customer requirements because they do not need access to the tracking system.

However, if one of those officers is to be designated as the entity's primary account representative, then the officer would need to complete the Know-Your-Customer requirements before accessing the tracking system as the primary account representative.

The existing text exempted entities which provide clearing services from reporting requirements under beneficial holdings provisions. The provisions are no longer needed due to the removal of beneficial holdings provisions from section 95834.

Summary of Section 95830(c)(3).

Existing section 95830(c)(3) is modified to reflect the change in designation from authorized and alternate authorized account representative to primary and alternate account representative, as well as an increase in the number of alternate account representatives from one to four.

In addition, an individual registering as a voluntarily associated entity may elect to serve as both primary and alternate account representatives or designate additional persons.

Rationale for Section 95830(c)(3).

The changes are needed to accommodate the new central role given to the primary account representative and increase in the number of alternate account representatives. Stakeholders had commented to ARB that they needed more than two representatives to be able to implement the new push-push-pull transfer request process contained in section 95921.

The provision allowing individuals registering as VAE is needed to give flexibility to individuals who view involving other persons in their account activity as a decrease in security.

Summary of Section 95830(c)(4).

New section 95830(c)(4) is added to establish additional requirements for individuals that register as voluntarily associated entities that reside in the United States but not in California. If the individual registers with California, the individual must designate an agent for the service of process in California. The agent must be an individual residing in California or a corporation doing business in California that has already registered with the California Secretary of State under California Corporations Code section 1505.

Rationale for Section 95830(c)(4).

This provision ensures that ARB will have legal access to a registered participant for enforcement and other legal purposes, even if the individual does not reside in California.

Summary of Section 95830(c)(5).

New section 95830(c)(5) is added to require an entity that is applying for registration that is not also an individual or an entity supplying exchange clearing to establish a local presence in California.

Rationale for Section 95830(c)(5).

This requirement is needed to ensure California can enforce the regulation against noncompliant entities not located in California.

Summary of Section 95830(c)(5)(A).

New section 95830(c)(5)(A) is added to allow an entity to establish a local presence by designating at least one primary or alternate account representative that has a primary residence in California.

Rationale for Section 95830(c)(5)(A).

This provision is needed to provide a way for out-of-state entities to comply with the requirement to establish a local presence.

Summary of Section 95830(c)(5)(B).

New section 95830(c)(5)(B) is added to allow an entity to establish a local presence by designating an agent for service of process. The agent for service may be an individual or corporation that is registered with the California Secretary of State to be an agent.

Rationale for Section 95830(c)(5)(B).

This provision is needed to provide a specific means of complying with the requirement to establish a local presence.

Summary of Section 95830(f)(3).

Existing section 95830(f)(3) is modified to reflect a changed cross reference.

Rationale for Section 95830(f)(3).

The change is needed for accuracy and clarity.

Summary of Section 95830(g).

Existing section 95830(g) is modified to add new text to designate certain information submitted regarding individuals listed in the subsections to 95830(g) confidential unless it is needed for oversight, investigation, enforcement and prosecution. The new text is an extension of the text that is removed from existing section 95830(g)(1).

Rationale for Section 95830(g).

The new text is needed to make clear which data collected during registration will be protected as confidential to the extent possible.

Summary of Section 95830(g)(1).

New section 95830(g)(1) replaces existing section 95830(g)(1) and clarifies that individuals' information collected during registration pursuant to sections 95830(c)(1)(B) and (C) will be held as confidential.

Rationale for Section 95830(g)(1).

The new section is needed to make clear which information would be protected as confidential.

Summary of Section 95830(g)(1)(A).

Existing section 95830(g)(1)(A) is removed.

Rationale for Section 95830(g)(1)(A).

This section is no longer needed because it contained a reference to information collected related to beneficial holdings. All provisions for beneficial holdings have been removed from the regulation.

Summary of Section 95830(g)(1)(B).

Existing section 95830(g)(1)(B) is removed.

Rationale for Section 95830(g)(1)(B).

This section is no longer needed because staff added more specific language in new sections 95830(g)(1), (2), and (3).

Summary of Section 95830(g)(2).

New section 95830(g)(2) replaces existing section 95830(g)(2) and text is added to clarify that information collected on individuals during registration pursuant to the Know-Your-Customer requirements contained in section 95834 would be held as confidential.

Rationale for Section 95830(g)(2).

This new section is needed to make clear which information would be protected as confidential.

Summary of Section 95830(g)(3).

New section 95830(g)(3) is added to clarify that individuals' information collected during registration pursuant to section 95832 will be held as confidential.

Rationale for Section 95830(g)(3).

This new section is needed to make clear which information will be protected as confidential.

Summary of Section 95830(h).

New section 95830(h) applies when California links its Cap-and-Trade Program with a program operated by another jurisdiction. When linking occurs, the new text requires that the jurisdiction into which an entity will register in depends on where the entity is located. The location information disclosed during the registration process will determine the registration jurisdiction.

Rationale for Section 95830(h).

This provision is needed to ensure that entities will register with jurisdictions that have the clearest possible regulatory and enforcement authority and that entities cannot go "jurisdiction shopping."

Summary of Section 95830(h)(1).

New section 95830(h)(1) requires that an entity located in California or in a linked jurisdiction register with the jurisdiction in which they are located, California or the linked jurisdiction.

Rationale for Section 95830(h)(1).

This provision will ensure that entities will register with the jurisdiction that has the clearest regulatory and enforcement authority over the entity because the entity will register with its "home" jurisdiction.

Summary of Section 95830(h)(2).

New section 95830(h)(2) requires that an entity located in the United States register with California.

Rationale for Section 95830(h)(2).

This provision ensures that U.S. law applies to anyone that registers with California.

Summary of Section 95830(h)(3).

New section 95830(h)(3) authorizes ARB to recognize an entity that registers into a linked as eligible to participate in California's Cap-and-Trade Program as a registered entity.

Rationale for Section 95830(h)(3).

This provision is needed to allow entities registered into linked programs to hold and retire California compliance instruments or engage in other activities involving California's program, based on the type of registration the entities completed.

Section 95831. Account Types.

Summary of Section 95831(b)(2)(B).

The section is modified to incorporate a changed reference to section 95921.

Rationale for Section 95831(b)(2)(B).

The change is needed to reflect reorganization of section 95921.

Summary of Section 95831(b)(3)(B).

This section is modified to add capitalization and correct terminology.

Rationale for Section 95831(b)(3)(B).

This section is modified to ensure consistent terminology and capitalization throughout the regulation.

Summary of Section 95831(d).

New section 95831(d) is added to allow the Executive Officer to create additional accounts if needed to implement the Cap-and-Trade Program.

Rationale for Section 95831(d).

This provision is needed to allow the Executive Officer to create accounts not specified in section 95831. This would allow the Executive Officer to accommodate unforeseen circumstances associated with implementation.

Section 95832. Designation of Authorized Account Representative.

Summary of Section 95832.

The title of section 95832 is changed to Designation of Representatives and Agents.

Rationale for Section 95832.

The title is changed to reflect the change in terminology involving the two types of account representatives as well as the creation of the new type of agent, the account viewing agent.

Summary of Section 95832(a).

Existing section 95832(a) is modified to reflect changes designed to clarify the roles of individuals acting on behalf of a registered entity. Text that allows the alternate authorized account representative to act on behalf of the authorized account representative is also removed.

Rationale for Section 95832(a).

This change is needed to reflect three significant changes to the roles played by account representatives and electronic submission agents. The authorized account representative is now defined as the primary account representative. This reflects a change in role, as the primary account representative will be notified of any action concerning the entity's account taken by the accounts administrator or any other representative of the entity. This change is made to ensure that one person representing a registered entity will have complete knowledge of all activity concerning an entity's accounts.

The alternate authorized account representative is now defined as the alternate account representative for clarity, as all designated representatives are authorized. The regulation also allows designation of at least one and up to four alternate account representatives, an increase from one in the existing text. This change accommodates suggestions from stakeholders, who noted that they may need multiple account representatives to ensure stakeholder staff is available to take timely action. Staff also believes that the change in the transfer request procedure creates shorter response periods which support the need for multiple representatives.

Finally, the removal of text that allowed the alternate account representatives to act on behalf of the primary account representative clarifies that the accounts administrator and Executive Officer cannot communicate with alternate account representatives without also communicating with the primary account representative.

Summary of Section 95832(a)(1).

Existing section 95832(a)(1) is modified to require additional information from account representatives, to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative, and to include the disclosure of same information for the new category of account viewing agent.

Rationale for Section 95832(a)(1).

This change is needed to ensure identification of the individuals involved in the tracking system.

Summary of Section 95832(a)(2).

Existing section 95832(a)(2) is replaced with new section 95832(a)(2). The existing text requiring organization name is removed. The new section includes text requiring identification of the organization in whose interest a primary and any alternate account representatives would act.

Rationale for Section 95832(a)(2).

This change will ensure that account representatives will have the proper authority to take actions that will bind the registered entity.

Summary of Section 95832(a)(3).

Existing section 95832(a)(3) was deleted. New section 95832(a)(3) replaces original section 95832(a)(4) and was modified. Please see summary under section 95832(a)(4).

Rationale for Section 95832(a)(3).

Existing section 95832(a)(3) was removed because the beneficial holdings procedures would require extensive staff effort to monitor and could create potential for undetected violations of the holding limit. The text is replaced by existing section 95832(a)(4), which is now new section 95832(a)(3) due to renumbered and modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative.

Summary of Section 95832(a)(4).

New section 95832(a)(4) requires an officer of an entity selecting primary or alternate account representatives and account viewing agents to sign an attestation verifying the selection. The officer must be one of the officers of the company whose identity was disclosed pursuant to section 95830(c)(1)(B).

Rationale for Section 95832(a)(4).

This provision is needed to ensure that individuals allowed to view or take action on an entity's account are authorized to do so by someone in authority in that entity.

Summary of Section 95832(a)(5).

Existing section 95832(a)(5) is modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative.

Rationale for Section 95832(a)(5).

This change is needed to ensure the signatures for account representatives are obtained from the correct individuals.

Summary of Section 95832(c).

Existing sections 95832(c)(2) and (3) are modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative.

Rationale for Section 95832(c).

The changes are needed to clarify the change in account representative roles.

Summary of Section 95832(d).

Existing section 95832(d) is modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative. In addition, the language referring to multiple entities owning compliance instruments is removed because only a single entity can have an ownership interest in the compliance instruments in its account. Finally, an extraneous quotation mark is removed.

Rationale for Section 95832(d).

These changes are needed to clarify the change in account representative roles. This change is also needed because provisions for beneficial holdings were removed from the regulation.

Summary of Section 95832(f).

Existing section 95832(f) is modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative. The language referring to multiple entities owning compliance instruments is removed.

Rationale for Section 95832(f).

These changes involving account representative terminology are needed to clarify the change in account representative roles. This change is needed because provisions for beneficial holdings were removed from the regulation.

Summary of Section 95832(f)(1).

Existing section 95832(f)(1) is modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative. In addition, the language referring to multiple entities owning compliance instruments is removed.

Rationale for Section 95832(f)(1).

The changes involving account representative terminology are needed to clarify the change in account representative roles. This change is needed because provisions for beneficial holdings were removed from the regulation.

Summary of Section 95832(f)(2).

Existing section 95832(f)(2) is modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative. In addition, the language referring to multiple entities owning compliance instruments is removed.

Rationale for Section 95832(f)(2).

These changes involving account representative terminology are needed to clarify the change in account representative roles. This change is needed because provisions for beneficial holdings were removed from the regulation.

Summary of Section 95832(f)(3).

Existing section 95832(f)(3) is removed because it includes language concerning the change in entities that have an ownership interest in an account.

Rationale for Section 95832(f)(3).

This section is no longer required because the removal of beneficial holdings language from section 95834 means multiple entities can no longer have an ownership interest in compliance instruments in a single account.

Summary of Section 95832(f)(4).

Existing section 95832(f)(4) is removed because it includes language concerning the change in entities that have an ownership interest in an account.

Rationale for Section 95832(f)(4).

This section is no longer required because the removal of beneficial holdings language from section 95834 means multiple entities can no longer have an ownership interest in compliance instruments in a single account.

Summary of Section 95832(g).

Existing sections 95832(g), (g)(2), and (g)(3) are modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative.

Rationale for Section 95832(g).

These changes are needed to clarify the change in account representative roles.

Summary of Section 95832(h).

Existing section 95832(h) is modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative.

Rationale for Section 95832(h).

These changes are needed to clarify the change in account representative roles.

Summary of Section 95832(h)(1).

Existing section 95832(h)(1) is modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative. Existing text allowing an authorized account representative to designate a person or persons to make electronic submissions to the accounts administrator on behalf of the representative is removed.

Rationale for Section 95832(h)(1).

This change is needed because staff determined this category of representative is unnecessary because the number of alternate account representatives is raised to four, pursuant to section 95832(a). The section is modified to allow a primary or alternate to delegate the ability to view the information contained in an account on the tracking system to account viewing agents.

The section allows for the designation of up to five account viewing agents. These agents replace the electronic submission agents which were included in the previous text. These agents have the ability to view all of the registered entity's information on the tracking system but are not able to take any actions on the tracking system. The account viewing agents fill the need for entities to have

staff to monitor their accounts without creating a security risk that would arise if too many individuals could take action on the tracking system.

Summary of Section 95832(h)(2).

Existing section 95832(h)(2) is removed, since it consists of text allowing an alternate authorized account representative to designate a person or persons to make electronic submissions to the accounts administrator on behalf of the representative.

Rationale for Section 95832(h)(2).

This change is needed because staff determined this category of representative was unnecessary because the number of alternate account representatives is raised to four, pursuant to section 95832(a).

Summary of Section 95832(h)(3).

Existing section 95832(h)(3) is renumbered to 95832(h)(2). It is also modified to require a notice that an account representative must submit to the accounts administrator to delegate account viewing authority to another person.

Rationale for Section 95832(h)(3).

This change is needed to ensure that registered entities have sufficient staff to monitor activities and information concerning the entity's account. This creates a clear procedure to delegate authority to an account viewing agent.

Summary of Section 95832(h)(3)(A).

Existing section 95832(h)(3)(A) is renumbered to 95832(h)(2)(A). It is also modified to remove the disclosure of a facsimile transmission number for the account representative, and to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative.

Rationale for Section 95832(h)(3)(A).

This change in numbering is needed to reflect other regulation changes. The changes in account representative terminology are needed for consistency in the regulation.

Summary of Section 95832(h)(3)(B).

Existing section 95832(h)(3)(B) is renumbered to 95832(h)(2)(B). It is also modified to create the designation of "account viewing agent" as the recipient of the account viewing authority which may be assigned pursuant to section

95832(h)(1). The requirement to disclose the facsimile transmission number for the account viewing agent is also removed.

Rationale for Section 95832(h)(3)(B).

This change in numbering is needed to reflect the deletion of another requirement. The changes are needed to reflect the decreased reliance on facsimile transmittal and to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative, as well as the existence of the account viewing agent.

Summary of Section 95832(h)(3)(C), and Sections 95832(h)(3)(D) through (D)2..

Existing sections 95832(h)(3)(C) and 95832(h)(3)(D), (D)1. and (D)2. are removed because they address electronic submission agents' submissions, a feature that has been removed from the regulation.

Rationale for Section 95832(h)(3)(C), and Sections 95832(h)(3)(D) through (D)2..

These sections must be removed to avoid confusion because the regulation no longer uses electronic submission agents.

Summary of Section 95832(h)(2)(C).

New section 95832(h)(2)(C) is added to require an officer of an entity selecting account viewing agents to sign an attestation verifying the selection. The officer must be one of the officers of the company whose identity was disclosed pursuant to section 95830(c)(1)(B).

Rationale for Section 95832(h)(2)(C).

This provision is needed to ensure that individuals allowed to view or take action on an entity's account are authorized to do so by someone in authority in that entity.

Summary of Section 95832(h)(4).

Existing section 95832(h)(4) is renumbered to 95832(h)(3). The text is also modified to reflect the change in terminology from authorized and alternate authorized account representative to primary and alternate account representative, the removal of the electronic submission agent, and the creation of account viewing agent.

Rationale for Section 95832(h)(4).

These changes in account representative terminology are needed to clarify the change in account representative roles.

Summary of Section 95832(h)(5).

Existing section 95832(h)(5) is removed because submissions by electronic submission agents have been removed from the regulation.

Rationale for Section 95832(h)(5).

This section must be removed to avoid confusion since all provisions concerning electronic submission agents are removed from the regulation.

Section 95833. Disclosure of Direct and Indirect Corporate Associations.

Summary of section 95833.

The title of the section is changed to Disclosure of Corporate Associations.

Rationale for section 95833.

This change in title is needed to clarify that the section applies to corporate associations as well as direct and indirect associations.

Summary of Section 95833(a).

Existing section 95833(a) requiring disclosure of direct and indirect associations is removed and replaced with a title.

Rationale for Section 95833(a).

This is a formatting change and is made to accommodate an expansion of the criteria requiring disclosure in new subsections of section 95833(a).

Summary of Section 95833(a)(1).

New section 95833(a)(1) is added to introduce the criteria defining a corporate association. It replaces text introducing criteria defining direct corporate associations.

Rationale for Section 95833(a)(1).

These criteria are needed to establish the existence of a corporate association at a level that implies coordination between the two entities is possible, but not guaranteed. This level of corporate association is used to focus market monitoring resources on entities that may pursue joint strategies in the compliance instrument markets.

Summary of Section 95833(a)(1)(A) through (a)(1)(E).

New section 95833(a)(1)(A) adds the determination that two entities have a corporate association if one holds more than 20 percent of any class of listed shares, or the option or any other right to acquire such shares in the other entity.

New section 95833(a)(1)(B) adds the determination that two entities have a corporate association if one holds or can appoint more than 20 percent of common directors of the other entity.

New section 95833(a)(1)(C) adds the determination that two entities have a corporate association if one holds more than 20 percent of the voting power of the other entity.

New section 95833(a)(1)(D) adds the determination that two entities in a partnership other than a limited partnership have a corporate association if one controls more than 20 percent of the interests of a partnership.

New section 95833(a)(1)(E) adds the determination that two entities in a limited partnership have a corporate association if one entity controls the general partner.

Existing sections 95833(a)(1), (1)(A), (1)(B), and (1)(C) are renumbered as sections 95833(a)(2), (2)(A), (2)(B) and (2)(C), respectively.

Rationale for Section 95833(a)(1)(A) through (a)(1)(E).

These sections are needed to explain how ARB will determine when entities have a corporate association. The regulation requires entities to disclose the association to ARB but does not apply joint holding and purchase limits.

The first three criteria in the list exist in the current regulation text. The criteria involving limited partnerships and partnerships are new, and address an oversight in the original approach. Staff is concerned that partnerships could be created to mask associations. The new criteria will aid market monitoring by requiring disclosure of who controls these entities.

Summary of Section 95833(a)(2) through (2)(E).

New section 95833(a)(2) introduces the criteria establishing a "direct corporate association" between two entities. Renumbered sections 95833(a)(2)(B) and (C) are edited only for clarity and to reflect the addition of new sections 95833(a)(2)(D) and (E).

New section 95833(a)(2)(D) adds the determination that two entities in a partnership other than a limited partnership have a direct corporate association if one controls more than 50 percent of the interests of a partnership.

New section 95833(a)(2)(E) adds the determination that two entities in a limited partnership have a direct corporate association if one entity controls the general partner.

Existing section 95833(a)(2) contains a definition of direct corporate association that applied to two entities that shared a common, but unregistered, parent. This section is removed then reintroduced as section 95833(a)(3)(A).

Rationale for Section 95833(a)(2) through (2)(E).

These criteria are needed to explain how ARB will determine that a corporate association at a level that implies coordination exists between the two entities and is under the control of one of the entities. This level of corporate association is used to apply joint holding limits pursuant to subarticle 11 and joint purchase limit pursuant to subarticle 10.

The first three criteria in the list exist in the current regulation text. The criteria involving limited partnerships and partnerships are new, and address an oversight in the original approach. Staff is concerned that partnerships could be created to mask associations. The new criteria will aid market monitoring by requiring disclosure of who controls these entities.

Summary of Section 95833(a)(3) through (a)(3)(B).

New section 95833(a)(3) is added to identify two additional cases in which entities warrant being classified as having a direct corporate association. The first case is new section 95833(a)(3)(A) in which two entities share a common unregistered parent. The second case in section 95833(a)(3)(B) establishes that an entity that has a direct corporate association with a second entity has a direct corporate association with any other entity with whom the second entity has a direct corporate association. Existing section 95833(a)(3) is renumbered as section 95833(a)(4) and modified for clarity. It introduces the criteria establishing when two entities have an indirect corporate association.

Rationale for Section 95833(a)(3) through (a)(3)(B).

Both of these sections are added to address chains of corporate associations that involve more than two entities. Section 95833(a)(3)(A) makes clear that the chains of corporate association are not broken due to the existence of an unregistered entity in the chain.

Summary of Section 95833(a)(4).

Existing section 95833(a)(4) is renumbered to section 95833(c) but otherwise is modified only for clarity. It contains a provision for entities that are legally prohibited from coordinating market activities that exempts them from disclosures or other acts that would violate state or federal rules.

Rationale for Section 95833(a)(4).

The change is needed to accommodate the new criteria establishing the different types of corporate associations and make clear that the exemption it contains applies to all types of associations.

Summary of Section 95833(a)(4)(A).

New section 95833(a)(4)(A) clarifies that two entities cannot have an indirect corporate association if they meet the criteria of a direct corporate association.

Rationale for Section 95833(a)(4)(A).

This clarifies that the application of the criteria for an indirect association cannot lead to a reclassification of a direct association. This is important because the joint holding and purchase limits apply to a direct corporate association not to an indirect corporate association. The existence of indirect corporate associations is important to allow market monitors to focus on groups of related entities that may coordinate their market activities.

Summary of Section 95833(a)(4)(B).

Existing section 95833(a)(3)(A) is renumbered to section 95833(a)(4)(B). It clarifies that the chain of associations may be at less than the level of direct corporate associations.

Rationale for Section 95833(a)(4)(B).

This clarification is needed to ensure that the criteria are sufficient to capture the associations needed for proper market monitoring.

Summary of Section 95833(a)(4)(C).

Existing section 95833(a)(3)(B) is renumbered to section 95833(a)(4)(C) and modified to explain that the measures of control used to establish the existence of a corporate association in section 95833(a)(1) also establish the existence of an indirect corporate association when the achieve a value above 20 percent and less than or equal to 50 percent as applied through a chain of associations.

Rationale for Section 95833(a)(4)(C).

This section provides the method for calculation that establishes indirect corporate associations.

Summary of Section 95833(a)(5).

New section 95833(a)(5) is added to establish that publicly-owned utilities and joint power agencies that operate generating facilities or entities that import electricity have a direct corporate association with those entities.

Rationale for Section 95833(a)(5).

This provision is needed because the criteria establishing the existence of direct corporate associations do not match the typical organizational and governance structure of publicly-owned utilities and joint power agencies.

Summary of Section 95833(c).

Existing section 95833(c) is removed. New section 95833(c) contains the text removed from existing section 95833(a)(4).

Rationale for Section 95833(c).

The existing section is no longer needed due to the addition of new section 95833(a)(1).

Summary of Section 95833(d).

The existing text in section 95833(d) is removed and replaced with language requiring the disclosure of information for any entity with a corporate, direct corporate, or indirect corporate association with another entity.

Rationale for Section 95833(d).

The change is needed to reflect the changes in the criteria determining the types of corporate associations made in section 95833(a).

Summary of Section 95833(d)(1).

The existing text in section 95833(d)(1) is removed and replaced with a detailed list of information required to identify any associated entities.

Rationale for Section 95833(d)(1).

The more extensive list is needed to ensure that staff can evaluate the accuracy of disclosures of corporate associations. In addition, staff will need sufficient data to investigate whether undisclosed corporate associations exist between entities that appear to be coordinating their activities in the compliance instrument markets.

Summary of Section 95833(d)(1)(A).

New section 95833(d)(1)(A) requires the disclosure of the name of each associated entity, along with its contact information and physical address.

Rationale for Section 95833(d)(1)(A).

The change is needed because this information will allow staff to compare physical locations of entities to evaluate the accuracy of disclosures.

Summary of Section 95833(d)(1)(B).

New section 95833(d)(1)(B) requires the entity to define whether the associated entity is a parent or subsidiary.

Rationale for Section 95833(d)(1)(B).

The change is needed because this information will allow staff to evaluate the accuracy of disclosures.

Summary of Section 95833(d)(1)(C).

New section 95833(d)(1)(C) requires disclosure of the associated entity's holding account number, if it has one.

Rationale for Section 95833(d)(1)(C).

The change is needed because disclosure of a holding account number is the quickest way for staff to evaluate associations with registered entities.

Summary of Section 95833(d)(1)(D).

New section 95833(d)(1)(D) requires disclosure of the associated entity's primary account representative, if it has one.

Rationale for Section 95833(d)(1)(D).

This change will aid staff in contacting associated entities for additional information.

Summary of Section 95833(d)(1)(E).

New section 95833(d)(1)(E) requires disclosure of the entity's Data Universal Numbering System (DUNS) Number, if it has one. The DUNS Number is assigned by Dun and Bradstreet, a private business information firm. The DUNS Number is a nine-digit identification number assigned to each physical location of a business. The DUNS Number is in use worldwide, and allows a single facility's Number to be linked to extensive information on corporate family trees.

Rationale for Section 95833(d)(1)(E).

Disclosure of this Number would allow staff to access commercially available information on corporate associations to properly evaluate the accuracy of disclosures.

Summary of Section 95833(d)(1)(F).

New section 95833(d)(1)(F) requires disclosure of the entity's U.S. Federal tax Employer Identification Number, if one has been assigned.

Rationale for Section 95833(d)(1)(F).

Disclosure of this Number would allow staff to access information on corporate associations to properly evaluate the accuracy of disclosures.

Summary of Section 95833(d)(1)(G).

New section 95833(d)(1)(G) requires disclosure of the place and date of incorporation, if applicable.

Rationale for Section 95833(d)(1)(G).

This disclosure would allow staff to investigate the creation of a corporation, to determine if the entity has any undisclosed links to other entities.

Summary of Section 95833(d)(2).

Existing section 95833(d)(2) is rewritten for clarity.

Rationale for Section 95833(d)(2).

This change is needed to require entities to explain how they evaluated the criteria in section 95833(a)(1)for determining the type of corporate association to be disclosed.

Summary of Sections 95833(d)(2)(A), (B), (C), (D) and (E).

Existing sections 95833(d)(2)(A), (B), (C), (D) and (E) are removed.

Rationale for Sections 95833(d)(2)(A), (B), (C), (D) and (E).

These sections are removed because they are no longer necessary given the changes to section 95833(d)(2).

Summary of Sections 95833(e)(2) and (e)(3).

Existing sections 95833(e)(2) and (3) were edited to replace the term "disclosable" with the term "corporate" and to change a reference.

Rationale for Sections 95833(e)(2) and (e)(3).

The changes are needed because the term "disclosable" has been removed from the regulation for consistency, since any of the three types of corporate associations must be disclosed. The change in reference is needed due to the reorganization of section 95833.

Summary of Section 95833(f).

New section 95833(f) introduces the procedure for consolidating accounts. The system of registration and accounts created in existing sections 95830 and 95831 is designed around the facility-level approach to emissions reporting, calculation of the compliance obligation, and the surrender of allowances.

Rationale for Section 95833(f)

The changes are necessary in response to extensive comment by stakeholders that identified the complexity associated with this approach, especially for entities that control several individual facilities. Staff agreed with these comments, and concluded that consolidating the accounts for direct corporate associations would reduce the complexity.

Summary of Section 95833(f)(1).

New section 95833(f)(1) establishes that the Executive Officer will consolidate any existing accounts into a single set of accounts by January 1, 2013 for all entities that are registered with California and are part of a direct corporate association. Section 95833)(f)(3) provides an optional procedure for those who wish to avoid consolidation.

Rationale for Section 95833(f)(1).

This deadline is needed because entities are already registered into the system and their accounts on the tracking system will exist before this regulatory change comes into effect. Staff determined that registered entities will need to know when the process will be completed to plan their operations. The section also establishes consolidation as the default outcome for direct corporate associations.

Since the provision only applies to entities that are registered with California, an entity registered into a linked jurisdiction would not have its accounts consolidated with an entity registered in California, even if the two did have a direct corporate association. This provision is intended to provide clear jurisdiction by California, and other jurisdictions operating External GHG ETS to which California has linked, over the entities that register with each program.

Summary of Section 95833(f)(2).

New section 95833(f)(2) establishes the primary or an alternate account representative of an entity intending to consolidate any existing accounts into a single set of accounts must take specified actions by October 1, 2012.

Rationale for Section 95833(f)(2).

The section is needed to establish a timeline for completion of the consolidation process.

Summary of Section 95833(f)(2)(A).

New section 95833(f)(2)(A) requires the entity to provide confirmation of the corporate association.

Rationale for Section 95833(f)(2)(A).

This change is needed to ensure the Executive Officer performs the consolidation based on the most recent and correct information.

Summary of Section 95833(f)(2)(B).

New section 95833(f)(2)(B) requires the entity to confirm its intent to have its accounts consolidated.

Rationale for Section 95833(f)(2)(B).

This change is needed to ensure that the entity's intent is clear.

Summary of Section 95833(f)(2)(C).

New section 95833(f)(2)(C) requires the entity to change its primary and any alternate representatives to new representatives that will serve as the primary and alternate representatives for the consolidated accounts.

Rationale for Section 95833(f)(2)(C).

This requirement will result in all entities choosing to have their accounts consolidated having the same account representatives. This will ensure that consolidation will not be impeded if there are unresolved transfers or communications during the consolidation process.

Summary of Section 95833(f)(3).

New section 95833(f)(3) establishes that the primary or an alternate account representative of an entity intending to opt out of consolidation must take specified actions by October 1, 2012.

Rationale for Section 95833(f)(3).

The section is needed to establish a timeline for completion of the consolidation process.

Summary of Section 95833(f)(3)(A).

New section 95833(f)(3)(A) requires the entity to provide confirmation of the corporate association.

Rationale for Section 95833(f)(3)(A).

This is needed to ensure the Executive Officer performs the consolidation based on the most recent and correct information.

Summary of Section 95833(f)(3)(B).

New section 95833(f)(3)(B) requires the entity to confirm its intent to not consolidate its accounts by the officer of the entity that is responsible for appointing the account representatives.

Rationale for Section 95833(f)(3)(B).

This change is needed to ensure that the entity's intent is clear.

Summary of Section 95833(f)(3)(C).

New section 95833(f)(3)(C) requires the entity's primary or alternate account representative to confirm the opt-out decision. The confirmation of the opt-out must also be made by a new representative that will serve as the primary and alternate representative for the remaining consolidated accounts.

Rationale for Section 95833(f)(3)(C).

This is needed to ensure that the controlling entity within the direct corporate association confirms any opt-out decisions.

Summary of Section 95833(f)(4).

New section 95833(f)(4) contains the process that the Executive Officer will follow to consolidate the accounts through a set of instructions to the accounts administrator.

Rationale for Section 95833(f)(4).

This section is needed to clarify to registered entities the process the Executive Officer will follow in consolidating accounts.

Summary of Section 95833(f)(4)(A).

New section 95834(f)(4)(A) require the Executive Officer to instruct the accounts administrator to create a single set of accounts for members of a direct corporate association that accept consolidation.

Rationale for Section 95833(f)(4)(A).

This section is needed to establish the new consolidated accounts.

Summary of Section 95833(f)(4)(B).

New section 95834(f)(4)(B) require the Executive Officer to instruct the accounts administrator to include a compliance account in the consolidated set of accounts only if a member entity in the association already has one.

Rationale for Section 95833(f)(4)(B).

This section is needed to ensure that covered entities have a compliance account after consolidation.

Summary of Section 95833(f)(4)(C).

New section 95834(f)(4)(C) require the Executive Officer to instruct the accounts administrator to include a limited use holding account in the consolidated set of accounts only if a member entity in the association already has one.

Rationale for Section 95833(f)(4)(C).

This section is needed to ensure that electric utilities that consign allowances to auction have a limited use holding account after consolidation.

Summary of Section 95833(f)(4)(D).

New section 95834(f)(4)(D) require the Executive Officer to instruct the accounts administrator to complete all valid transfer requests in the tracking system involving accounts for the members of the association.

Rationale for Section 95833(f)(4)(D).

This section is needed to ensure that account balances are correct before consolidation occurs.

Summary of Section 95833(f)(4)(E).

New section 95834(f)(4)(E) require the Executive Officer to instruct the accounts administrator to transfer all existing compliance instruments from the accounts being consolidated into the consolidated set of accounts.

Rationale for Section 95833(f)(4)(E).

This section is needed to ensure that the compliance instruments held by members of the corporate association end up in the correct accounts.

Summary of Section 95833(f)(4)(F).

New section 95834(f)(4)(F) require the Executive Officer to instruct the accounts administrator to close the existing accounts originally held by the members of a corporate association that have accepted consolidation.

Rationale for Section 95833(f)(4)(F).

This section is needed to ensure that entities do not have multiple sets of accounts and to prevent errors in future transfer requests.

Section 95834. Disclosure of Beneficial Holding Relationships.

Summary of Section 95834.

The title of section 95834 is changed to: Section 95834. Know-Your-Customer Requirements.

Rationale for Section 95834.

The change is needed because the existing title refers to beneficial holding relationships, and all provisions allowing beneficial holdings have been removed from the regulation. The new title reflects the new contents of the section, which detail the information disclosures required of individuals participating in the Cap-and-Trade Program.

Summary of Section 95834.

Existing sections 95834(a), (b), and (c) are removed.

Rationale for Section 95834.

The change is made to remove all provisions related to beneficial holdings. Staff determined that monitoring beneficial holdings to prevent abuse requires significant expenditure of staff time and market monitoring resources. Staff made several modifications to the language to address complications from contracts between electric utilities and generators that have flexibility related to who actually purchases and holds compliance instruments for emissions obligations. Since the procedures did not seem to resolve the keys issues with the electricity contracts, staff determined that the benefit of keeping these provisions was less than the cost of building them into the tracking system and monitoring for abuses.

Summary of Section 95834(a)(1).

This section prevents the accounts administrator from giving access to the tracking system to any individual until the Executive Officer has determined that the individual has complied with all of the requirements of section 95834. This would include individuals who have registered into the cap-and-trade system or that represent entities that have registered.

Rationale for Section 95834(a)(1).

The section is needed to verify the identity of individuals who will be able to view and take action on tracking system accounts.

Summary of Section 95834(a)(2).

This section explains that completion of the requirements of section 95834 does not affect any information disclosure requirements elsewhere in the regulation.

Rationale for Section 95834(a)(2).

The section is needed to clarify that the information collected in section 95834 is only part of the information that may need to be disclosed.

Summary of Section 95834(a)(3).

The section requires documents submitted to the Executive Officer shall be in English.

Rationale for Section 95834(a)(3).

This requirement is needed because program participants will need to submit documents in a language ARB can process.

Summary of Section 95834(a)(4).

The section prohibits individuals with a criminal conviction in the last five years that would be a felony in the United States from participating in the cap-and-trade program.

Rationale for Section 95834(a)(4).

This section is needed to protect program participants from harm by preventing individuals with criminal activity from participating.

Summary of Section 95834(b)(1).

The section requires individuals to provide documentation of their name.

Rationale for Section 95834(b)(1).

This section is needed to establish the identity of the person attempting to participate in the cap-and-trade program.

Summary of Section 95834(b)(2).

The section requires individuals to provide documentation of the address of their primary residence.

Rationale for Section 95834(b)(2).

This section is needed to establish the identity of the person attempting to participate in the cap-and-trade program by requiring proof of address of their primary residence. This allows staff to investigate an individual's identity through examination of other records containing the individual's address. The definition of primary residence contained in section 95802(a)(209) is based on the approach used by United States Internal Revenue Service.

Summary of Section 95834(b)(2)(A).

The section requires individuals to provide documentation of their primary residence address in the form of a valid identity card issued by a state that also has an expiration date.

Rationale for Section 95834(b)(2)(A).

This section is needed to provide a specific list of documents that would meet the address disclosure requirement.

Summary of Section 95834(b)(2)(B).

The section requires individuals to provide documentation of their primary residence address in the form of any other government-issued identity document which contains the address of the individual's primary residence.

Rationale for Section 95834(b)(2)(B).

This section is needed to provide a specific list of documents that would meet the address disclosure requirement.

Summary of Section 95834(b)(2)(C).

The section requires individuals to provide documentation of their primary residence address through any other document that is customarily accepted by the State of California.

Rationale for Section 95834(b)(2)(C).

This section is needed to provide a specific list of documents that would meet the address disclosure requirement.

Summary of Section 95834(b)(3).

The section requires individuals to provide documentation of their date of birth.

Rationale for Section 95834(b)(3).

This section is needed to establish the identity of the person attempting to participate in the cap-and-trade program by requiring proof of address of date of birth. This allows staff to investigate an individual's identity through examination of other records containing the individual's date of birth.

Summary of Section 95834(b)(4).

The section requires individuals to provide documentation of their employer name and address.

Rationale for Section 95834(b)(4).

This section is needed to establish the identity of the person attempting to participate in the cap-and-trade program by requiring disclosure of the identity of their employer name, contact information, and address. This is especially critical when the individual is to become an account representative. This allows staff to investigate an individual's identity through contact with an employer.

Summary of Section 95834(b)(5).

The section requires individuals to provide documentation of either their passport number or a driver's license number, if one has been issued.

Rationale for Section 95834(b)(5).

This section is needed to establish the identity of the person attempting to participate in the cap-and-trade program by requiring disclosure of either their passport number or their driver's license number, if they have one issued. This allows staff to investigate an individual's identity through a secure document.

Summary of Section 95834(b)(6).

The section requires individuals to provide documentation of an open bank account in the United States.

Rationale for Section 95834(b)(6).

This section is needed to establish the identity of the person attempting to participate in the cap-and-trade program by requiring disclosure of a bank account. Individuals must provide banks with identity information when opening accounts, so this requirement provides an additional check on identity and local presence.

Summary of Section 95834(b)(7).

The section requires individuals to provide documentation of their employment by or other relationship with an entity registered with California.

Rationale for Section 95834(b)(7).

This section is needed to establish the identity of the person attempting to participate in the cap-and-trade program by requiring disclosure of their relationship with an entity registered into the Cap-and-Trade Program. The requirement provides staff with identity information that can easily be verified with the registered entity.

Summary of Section 95834(b)(8).

The section requires individuals to provide documentation of their identity and date of birth through government-issued documents.

Rationale for Section 95834(b)(8).

This section is needed to establish the identity of the person attempting to participate in the cap-and-trade program by requiring disclosure of their identity and date of birth through documents that require an individual to comply with government identity verification procedures.

Summary of Section 95834(b)(8)(A).

This section specifies that a valid identity card issued by a U.S. state can be used to document identity and date of birth.

Rationale for Section 95834(b)(8)(A).

This section is needed to provide a list of specific documents that meet identity and date of birth requirements.

Summary of Section 95834(b)(8)(B).

This section specifies that a passport can be used to document identity and date of birth.

Rationale for Section 95834(b)(8)(B).

This section is needed to provide a list of specific documents which meet identity and date of birth requirements.

Summary of Section 95834(b)(9).

The section requires individuals to provide disclose a conviction occurring in the last 5 years that would constitute a felony in the United States.

Rationale for Section 95834(b)(9).

This section is needed to enforce the requirements of section 95834(a)(4), which prevents individuals with such convictions from participation.

Summary of Section 95834(c).

This section requires submission of a copy of all documents establishing identity to be notarized as a true copy by a notary public no later than three months before submittal.

Rationale for Section 95834(c).

This section is needed to explain how to comply with the documentation requirements of section 95834.

Subarticle 7. Compliance Requirements for Covered Entities.

Section 95856. Timely Surrender of Compliance Instruments by a Covered Entity.

Summary of Section 95856(b)(2).

The section is modified to change the word "any" to "a," in a reference to which vintage of allowances can be used for annual versus triennial compliance.

Rationale for Section 95856(b)(2).

The modification is needed to clarify when an allowance may be usable for an annual versus triennial obligation.

Subarticle 8. Disposition of Allowances.

Section 95870. Disposition of Allowances.

Summary of Section 95870(d).

The section contains a change in the date on which the Executive officer will allocate allowances to electrical distribution utilities from the existing date of July

15, 2012 or the first business day thereafter to the new date of September 14, 2012.

Rationale for Section 95870(d).

The change is made because the original date was chosen to have the allocation in effect so that allowances could be consigned by the utilities in time for the August auction. If the staff proposal to schedule the first auction for November is accepted, then the earlier date is not needed.

Subarticle 9. Direct Allocations of California GHG Allowances.

Section 95892. Disposition of Allowances.

Summary of Section 95892(b)(2).

The section is modified to clarify the process of allocation to publicly owned electric utilities and electrical cooperatives. The new text clarifies that when a utility or cooperative is eligible to receive a direct allocation it shall inform the Executive Officer into which account the allowances should be directed. Text requiring only that the utility or cooperative must inform the Executive Officer of the account prior to receiving the allocation is removed.

Rationale for Section 95892(b)(2).

The change is needed to clarify the process and date by which the Executive Officer must be informed. This section now clearly describes what action the eligible utilities or cooperatives must take, while a specific deadline has been added as new section 95892(b)(3).

Summary of Section 95892(b)(3).

This section sets a deadline of September 1 of each year for a publicly owned electric utility or electrical cooperative to inform the Executive officer into which accounts directly allocated allowances should be placed.

Rationale for Section 95892(b)(3).

The change is needed because the original text in section 95892(b)(2) requiring the communication has been rewritten and does not contain a specific deadline.

Summary of Section 95892(c)(1).

The section is changed so that one third of the allowances placed in each electrical distribution utility's limited use holding accounts in 2012 must be consigned to the single auction taking place in 2012. The original text specified

that one-sixth of the allowances must be consigned to each of the two auctions taking place in 2012.

Rationale for Section 95892(c)(1).

The change is needed to reflect the change in the number of auctions in 2012 from two to one while keeping constant the total number of allowances consigned to auction in 2012.

Summary of Section 95892(c)(2).

The section is modified to clarify that a reference to a limited use holding account refers to an account held by a utility that must consign the allowances placed in the account.

Rationale for Section 95892(c)(2).

The change is needed for clarity.

Summary of Section 95892(e).

The section is modified to change the date by which each electrical distribution utility must report to the Executive Officer a report of how the utility used the auction proceeds from consigned allowances. The date of the first report is changed from June 30, 2013 to June 30, 2014.

Rationale for Section 95892(e).

The change is needed to reflect the removal of any allocation of 2012 allowances.

Subarticle 10. Auction and Sale of California GHG Allowances.

Section 95910. Auction of California GHG Allowances.

Summary of Section 95910(a)(1).

The existing text of the section is removed. The new text requires that one auction will be held in 2012, on November 14.

Rationale for Section 95910(a)(1).

The change is needed to reflect the cancellation of the auction originally scheduled for August 15, 2012.

Summary of Section 95910(b).

The existing text stating that an allowance may be auctioned prior to its vintage year is removed. The new text consists of a section title that introduces a list of general requirements.

Rationale for Section 95910(b).

The change is needed to accommodate a longer list of requirements.

Summary of Section 95910(b)(1).

The new section adds a provision that allowances allocated to the Auction Holding Account pursuant to section 95870(f) will be designated for specific auctions pursuant to section 95910(c).

Rationale for Section 95910(b)(1).

The section is needed to explain to auction participants how the allowances issued by ARB will be designated for sale at each auction.

Summary of Section 95910(b)(2).

The new section permits allowances to be designated for auction before or after their calendar year vintage.

Rationale for Section 95910(b)(2).

This section is needed to clarify that allowances will be sold at the Advance auction before their vintage years and the Current auction may include older vintage allowances that remained unsold at auction.

Summary of Section 95910(c).

The existing text stating that the Executive Officer will conduct two separate auctions each quarter is removed. New text establishes one quarterly auction for future vintage allowances and a separate quarterly auction for current vintage allowances.

Rationale for Section 95910(c).

The change is needed to clearly distinguish separate quarterly auctions for different allowance vintages.

Summary of Section 95910(c)(1)(A).

New text establishes the auction of current and prior budget year allowances as the Current Auction.

Rationale for Section 95910(c)(1)(A).

The change is needed to identify the allowance vintage for the Current Auction.

Summary of Section 95910(c)(1)(B).

Text referring to section 95870(f) is removed. Existing text is modified to specify that one quarter of the allowances allocated to auction each year will be designated for sale at each quarterly Current Auction beginning in 2013.

This section was renumbered from existing section 95910(c)(1)(A).

Rationale for Section 95910(c)(1)(B).

The existing provision was clarified that allowances allocated each year for auction will be divided equally among the four auctions.

Summary of Section 95910(c)(1)(C).

The section is modified to indicate that consigned allowances will be offered for sale at the current auction.

This section was renumbered from existing section 95910(c)(1)(B).

Rationale for Section 95910(c)(1)(C).

This section is added to clarify which auction will sell consigned allowances.

Summary of Section 95910(c)(1)(D).

Existing text referring to the return of allowances remaining unsold at auction is removed. New text is added to clarify that because of this feature, allowances from current and previous vintage years may be sold at Current auctions. This section was renumbered from existing section 95910(c)(1)(C).

Rationale for Section 95910(c)(1)(D).

The text is modified to clarify that allowances remaining unsold at previous auctions may be offered at later auctions. These allowances may be from older vintages. The intent of the provision is unchanged from the existing text.

Summary of Section 95910(c)(2)(A).

New text establishes the auction of future budget year allowances as the Future Auction.

Rationale for Section 95910(c)(2)(A).

The change is needed to identify the allowance vintage for the Future Auction.

Summary of Section 95910(c)(2)(B).

Text referring to each auction and referring to Section 95870(b) is removed. New text is added to reflect one advance auction of future vintage allowances in 2012 at which all 2015 vintage allowances designated for sale will be offered.

This section was renumbered from existing section 95910(c)(2)(A).

Rationale for Section 95910(c)(2)(B).

This change is needed to specify one 2012 future vintage auction at which all 2015 vintage allowances available for designation by Executive Officer will be sold.

Summary of Section 95910(c)(2)(C).

Text referring to Section 95870(b) is removed. New text is added to clarify that one fourth of the allowances from the vintage year three years subsequent to the current calendar year that are allocated for auction ahead of their vintage year will be designated for sale at each quarterly Advance auction. This section was renumbered from existing section 95910(c)(2)(B).

Rationale for Section 95910(c)(2)(C).

The change is needed for clarity.

Summary of Section 95910(c)(2)(D).

Text is added to refer to Advance Auction and to Section 95911(f)(3) instead of Section 95911(b)(4).

This section was renumbered from existing section 95910(c)(2)(C).

Rationale for Section 95910(c)(2)(D).

The reference to the Advance Auction is needed for clarity. The reference to Section 95911(b)(4) reflects changes to numbering in Section 95911.

Summary of Section 95910(c)(3).

This section specifying separate auctions of allowances from different budget years is removed.

Rationale for Section 95910(c)(3).

The section is no longer needed as revisions to Section 95910(c) and 95910(d) specify a separate Current Auction and Advance Auction with allowances from different budget years for each auction.

Summary of Section 95910(d)(2).

Text is added referring to accounts containing more allowances than the holding limit specified in Section 95920(b)(5) and to change a reference.

Rationale for Section 95910(d)(2).

This change is needed to allow the Executive Officer to consign for sale at the next auction excess allowances above the holding limit in an entity's account.

The changed reference is needed to reflect the reorganization of section 95921.

Summary of Section 95910(d)(4)(A).

The text is revised to "auction" instead of "auctions" and "the" replacing "each."

Rationale for Section 95910(d)(4)(A).

These changes are needed since a single auction will be held in 2012 instead of two auctions.

Section 95911. Format for Auction of California GHG Allowances.

Summary of Section 95911(a)(4).

The existing text is replaced by new text requiring the entities registered into the California Cap-and-Trade program must submit bids in whole U.S. dollars and whole cents.

Rationale for Section 95911(a)(4).

The change is needed to clarify that the requirement only applies to entities that register with California.

Summary of Section 95911(a)(5).

New section 95911(a)(5) provides that California GHG allowances may be auctioned along with allowances from linked jurisdictions.

Rationale for Section 95911(a)(5).

This provision is needed to enable joint auctions of allowances from linked jurisdictions. It also informs participants that they may be receiving allowances from other jurisdictions.

Summary of Section 95911(b)(3) through (b)(6).

These sections are removed.

Rationale for Section 95911(b)(3) through (b)(6).

The change is needed because new section 95911(f) has been added. It contains a more detailed process for auctions which result in unsold allowances.

Section 95911(b)(6)(A) and (B) are renumbered to sections 95911(c)(1) and (c)(3)(A), respectively, and slightly modified.

Summary of Section 95911(c).

This new text is a section title that introduces the method for setting the Auction Reserve Price.

Rationale for Section 95911(c).

The change is needed due to the addition of a more detailed method for setting the Auction Reserve Price.

Summary of Section 95911(c)(1).

Existing text was modified and moved to this section from section 95911(b)(6)(A). It was modified to include a $10 Auction Reserve Price for 2013 vintage allowances sold in 2012.

Rationale for Section 95911(c)(1).

This change was needed to establish a calendar year starting point and a $10 starting point for the Auction Reserve price.

Summary of Section 95911(c)(2).

The new text requires the Auction Administrator, beginning in 2012, to announce the next calendar year's reserve price on the first day in December that is a business day in California. The new text requires that the Reserve Price be stated in U.S. dollars.

Rationale for Section 95911(c)(2).

This change was needed to establish when the Auction Reserve Price would be communicated to auction participants.

Summary of Section 95911(c)(3).

This section heading requires the auction administrator to take specific steps to calculate the auction reserve price.

Rationale for Section 95911(c)(3).

This change is needed to define a method for adjusting the reserve price to account for the time value of money and inflation in calendar years after 2012 in California.

Summary of Section 95911(c)(3)(A).

The new text requires that the U.S. dollar reserve price be the previous calendar year reserve price increased by 5 percent plus the U.S. rate of inflation as measured by the Consumer Price Index for all Urban Consumers.

Existing text was modified and moved to this section from section 95911(b)(6)(B).

Rationale for Section 95911(c)(3)(A).

The reserve price adjustment is part of existing text that was modified and moved to this section from section 95911(b)(6)(B).

Summary of Section 95911(c)(3)(B).

The new text requires the auction administrator to announce the auction reserve price.

Rationale for Section 95911(c)(3)(B).

This change is needed to complete the process of a reserve price for the auction.

Summary of Section 95911(c)(3)(C).

New section 95911(c)(3)(C) requires the auction administrator to announce an exchange rate between U.S. and Canadian dollars prior to the opening of the auction window on the day of auction. The rate will be the most recently available daily buying rate published by the Bank of Canada.

Rationale for Section 95911(c)(3)(C).

This provision is required to inform auction participants of the exchange rate used to convert the U.S. and Canadian auction reserve prices to a common value for comparison.

Summary of Section 95911(c)(3)(D).

New section 95911(c)(3)(D) provides that the Auction Reserve Price will be in Canadian dollars equal to the Auction Reserve Price in Canadian dollars for the previous year, plus five percent, plus a measure of inflation.

Rationale for Section 95911(c)(3)(D).

This provision is needed to calculate the Auction Reserve Price in Canadian dollars, which will be compared to the Auction Reserve Price in U.S. dollars.

Summary of Section 95911(c)(3)(E).

New section 95911(c)(3)(E) requires the auction administrator to use the announced exchange rate to convert the earlier calculated U.S. and Canadian dollar auction reserve prices to a common currency. The reserve price used on the day of the auction is the higher of the U.S. and Canadian dollar auction reserve prices after the exchange rate adjustment.

Rationale for Section 95911(c)(3)(E).

This provision is needed to complete the process of calculating a single reserve price for the auction.

Summary of Section 95911(c)(4).

The new text requires the auction administrator to announce the auction reserve price in effect for the auction prior to the opening of the bid window; this auction reserve price is in effect during the time the bid window is open.

Rationale for Section 95911(c)(4).

This change is needed to communicate when the auction reserve price is announced and when it is in effect for an auction.

Summary of Section 95911(c)(5).

New section 95911(c)(5) provides that the Auction Reserve Price in section 95911(c)(2) will be announced on the first day in December that is a business day in California and in any linked jurisdiction. The Auction Reserve Price will be announced in the currency of each linked jurisdiction.

Rationale for Section 95911(c)(5).

This provision is needed to ensure that the Auction Reserve Price is announced at the beginning of the year to aid participants in their acquisition strategies.

Summary of Section 95911(d).

This section is renumbered from section 95911(c).

Rationale for Section 95911(d).

The change is needed to reflect the earlier introduction of new section 95911(c).

Summary of Section 95911(d)(1).

The term "disclosable" is replaced by the term "direct."

Rationale for Section 95911(d)(1).

The change is needed because the purchase limit has been modified to only apply to entities with a direct corporate association.

Summary of Section 95911(d)(3).

The section is modified for clarity and a reference changed.

Rationale for Section 95911(d)(3).

The change was needed for clarity and to have a reference reflect changes to the organization of section 95910.

Summary of Section 95911(d)(4).

The section is modified to include a reference to section 95910(c)(1).

Rationale for Section 95911(d)(4).

The change is needed to clarify that it applies to the current auction.

Summary of Section 95911(d)(4)(B).

The section imposes a forty percent auction purchase limit on electrical utilities and removes extra text related to electric utilities.

Rationale for Section 95911(d)(4)(B).

Staff wants to ensure an equitable process for auctions be providing a purchase limit for all auction participants, but set the limit at 40 percent to recognize that electric utilities must consign their allowances and have large exposures to emissions obligations through electricity purchase contracts.

Summary of Section 95911(e)(3).

The section is modified to clarify that the bid acceptance process applies to bids from a single bidder, not multiple bidders. In addition, it provides that the auction operator shall reject a bid for a bundle of 1,000 allowances based on conditions contained in subsections (A) through (C).

Rationale for Section 95911(e)(3).

The change is needed to clarify that the auction operator will evaluate the bids from each bidder separately. The text stating that a bid that may be rejected is for a bundle of 1,000 allowances is needed to clarify that rejection of a bid is only

for each bundle that does not qualify, and not for all bundles for which an entity bids. Summary of Section 95911(e)(3)(A) and (C).

A reference in each section is changed to reflect reorganization of sections 95911 and 95912.

Rationale for Section 95911(e)(3)(A) and (C).

The change is needed for clarity.

Summary of Section 95911(e)(4).

Bids from all bidders will be ranked. The existing text is also rewritten for clarity.

Rationale for Section 95911(e)(4).

The changes are needed for clarity.

Summary of Section 95911(e)(4)(B).

The text is modified to change a reference.

Rationale for Section 95911(e)(4)(B).

The change is needed to reflect changes to section 95911.

Summary of Section 95911(e)(5).

Text is added to this section to introduce a process that will be followed when there are tied bids.

Rationale for Section 95911(e)(5).

The change is needed to introduce the procedure for resolving tied bids.

Summary of Section 95911(e)(5)(A).

The new section provides that the auction administrator will calculate the share of allowances to go to each tied bidder as the quantity of allowances the bids bid for at the settlement price by the total quantity of bids accepted at that price by the auction administrator. Existing section 95911(e)(5)(A) is removed.

Rationale for Section 95911(e)(5)(A).

The change is needed to implement the procedure now contained in 95911(e)(5)(B).

Summary of Section 95911(e)(5)(B).

The number of allowances awarded to each bidder will equal the bidder's share calculated pursuant to 95911(e)(5)(A) times the number of bids accepted at the settlement price. Existing section 95911(e)(5)(B) is removed.

Rationale for Section 95911(e)(5)(B).

The new text provides that bidders will receive allowances at the settlement price in proportion to the total bids accepted at that price.

Staff is concerned that the assignment of lots by random number would not give an equal result to all tied bidders.

Summary of Section 95911(e)(5)(C).

A random number process will be used to distribute any remaining allowances.

Rationale for Section 95911(e)(5)(C).

Bidders will receive allowances at the settlement price in proportion to the total bids accepted at that price. This section addresses any allowances remaining unsold due to rounding error in the process in section 95911(e)(5)(B).

Staff is concerned that the assignment of lots by random number would not give an equal result to all tied bidders.

Summary of Section 95911(f).

This section introduces a process to be used if allowances remain unsold at auction.

This section was renumbered from section 95911(b)(3), (4), and (5) and modified.

Rationale for Section 95911(f).

The change is needed for clarity.

Summary of Section 95911(f)(1).

This section provides that in the event of unsold allowances, allowances from consigned sources shall be sold first, ahead of allowances allocated for sale by ARB.

Rationale for Section 95911(f)(1).

This provision is needed to ensure that consigned allowances rarely have to be held over for subsequent auction. Staff expects that beginning in 2015 there will be enough allowances directly allocated for auction that consigned allowances would never remain unsold.

Summary of Section 95911(f)(1)(A).

This section sets first priority for sale at auction on allowances consigned from closed accounts or from accounts which hold allowances in excess of the holding limit.

Rationale for Section 95911(f)(1)(A).

This provision is needed because these allowances are to be sold and the proceeds returned to the original account holders. Staff does not want to carry these for a later auction, so they are given the highest priority.

Summary of Section 95911(f)(1)(B).

This section sets the second priority for sale at auction on allowances consigned from limited use holding accounts.

Rationale for Section 95911(f)(1)(B).

This provision is needed to ensure allowances consigned by electric utilities are sold as quickly as possible. Utilities are required to consign the allowances and use the proceeds for the benefit of their ratepayers and staff prefers to make the revenue stream as predictable as possible by giving these allowances priority over ARB allowances.

Summary of Section 95911(f)(1)(C).

This section sets the third priority for sale at auction on allowances that remain unsold from previous auctions.

Rationale for Section 95911(f)(1)(C).

This provision is needed to ensure that allowances carried over from previous auctions are sold as quickly as possible. This reduces the burden on staff to evaluate at each auction whether the allowances are allowed to return to the auction.

Summary of Section 95911(f)(1)(D).

This section sets the fourth priority for sale at auction on allowances that are directly allocated to auction by ARB.

Rationale for Section 95911(f)(1)(D).

This provision assigns the last priority for sale at auction to allowances allocated by ARB because carrying the allowances to the next auction carries the lowest inconvenience to auction participants.

Summary of Section 95911(f)(2).

This section provides that when there are insufficient bids to exhaust the allowances from one of the categories of consignment considered in section 95911(f)(1), the auction operator will sell an equal proportion of the allowances from each source.

Rationale for Section 95911(f)(2).

The provision is needed to give equal access to the auction for all consigning entities.

Summary of Section 95911(f)(3).

This section introduces the process by which allowances allocated for auction by ARB which remain unsold at auction will be carried over for subsequent auction.

Rationale for Section 95911(f)(3).

The section is needed to introduce the procedure.

Summary of Section 95911(f)(3)(A).

This section provides that allowances allocated for auction by ARB that remain unsold will remain in the auction holding account.

Rationale for Section 95911(f)(3)(A).

The provision is needed to clarify that the unsold allowances remain allocated for auction.

Summary of Section 95911(f)(3)(B).

This section provides that allowances allocated by ARB to auction that remain unsold may return to auction after two consecutive auctions result in a settlement price above the auction reserve price.

Rationale for Section 95911(f)(3)(B).

The provision is needed to ensure that returning unsold allowances to the auction will not perpetuate an oversupply condition. Waiting until two auctions reach a settlement price above the reserve price would prevent this from happening.

Summary of Section 95911(f)(3)(C).

This section limits the number of unsold allowances returned to auction to an amount not exceeding 25 percent of the allowances originally scheduled to be auctioned.

Rationale for Section 95911(f)(3)(C).

This provision is needed to prevent the next auction from resulting in unsold allowances.

Summary of Section 95911(f)(3)(D).

If allowances remain unsold at an Advance auction beyond the first year they are allocated for sale, they will be held in the Auction Holding Account until their vintage year equals the current year. They will then be sold as current vintage allowances.

Rationale for Section 95911(f)(3)(D).

The section also simplifies the treatment of future vintage allowances. Staff determined that the more speculative nature of purchases from the Advance auction would imply that oversupply conditions will be harder to correct than in the Current auction, where the supply of allowances is continuously decreased by surrender obligations.

Summary of Section 95911(f)(4)(A).

This section provides that allowances consigned from limited use holding accounts that remain unsold at auction will stay in the Auction Holding Account until they can be resold.

Rationale for Section 95911(f)(4)(A).

This section is needed to clarify that the consignment decision by the account holder is final and the allowances will not return to their control.

Summary of Section 95911(f)(4)(B).

This section provides that allowances consigned from closed or suspended accounts that remain unsold at auction will stay in the Auction Holding Account until they can be resold.

Rationale for Section 95911(f)(4)(B).

This section is needed to clarify that the consignment decision by the Executive Officer is final and the allowances will not be returned to the original holder.

Section 95912. Auction Administration and Registration.

Summary of Section 95912.

The title of section 95912 is changed to: Section 95912. Auction Administration and Participant Application.

Rationale for Section 95912.

The change is needed to reflect the replacement of the term "auction registration" with Participant Application. The change is needed because of the confusion over the use of the term registration in the auction context with the program registration requirements in section 95830.

Summary of Section 95912(c).

This new section clarifies the content of the auction notification to be issued by the auction administrator at least 60 days before the auction. This section contains the same deadline as existing section 95912(c)(1), which is removed, and provides detail not contained in the original section

Rationale for Section 95912(c).

The change is needed to introduce the list of items to be included in the auction notification.

Summary of Section 95912(c)(1) through (c)(7).

These sections contain the list of information that is to be included in the auction notification. These include the date and time of the auction; the application requirements and instructions; the form and manner for submitting bids; the procedure the auction administrator will use to conduct the auction; the administrative requirements for participation; the number of allowances available at the auction; and for the auction in the first quarter of the year, an announcement of the number of allowances available and the Auction Reserve Price for the year.

Rationale for Section 95912(c)(1) through (c)(7).

The changes are needed to inform registered entities of all the steps they must take to participate in the auction and of the information they need to develop and submit bids.

Summary of Section 95912(c)(8).

New section 95912(c)(8) provides that the Auction Notification shall contain the number of allowances from a linked jurisdiction that will be sold at each auction.

Rationale for Section 95912(c)(8).

This provision is needed to ensure that auction participants know the number of allowances being auctioned and to reinforce that they may receive allowances from each participating jurisdiction.

Summary of Section 95912(d).

This section introduces a list of participation requirements for entities that may apply to participate in the auction. The section is renumbered from 95912(c) to 95912 (d) to reflect insertion of a new section 95912(c). Existing text requiring the auction application to be completed at least 30 days prior to auction is removed, as section 95912(d)(4) contains the deadline and information to be disclosed in the application.

Rationale for Section 95912(d).

The change is needed to introduce the requirements and for clarity.

Summary of Section 95912(d)(1).

This new section is existing section 95912(c)(3), and is needed to provide that the Executive Officer must approve an entity's application prior to the auction. Existing text is removed and replaced by new section 95912(c).

Rationale for Section 95912(d)(1).

This change is needed to ensure that entities complete the application. Applications can also be rejected based on rule violations pursuant to section 95914(a).

Summary of Section 95912(d)(2).

The section requires that entities must be registered into California's cap-and-trade program before they can apply to participate in the auction.

Rationale for Section 95912(d)(2).

This change is needed to ensure entities have accounts on the tracking system and their information disclosures have been approved by the Executive officer.

Summary of Section 95912(d)(3).

New test in this section deals with two cases involving entities whose accounts have been suspended or revoked.

First, an entity whose holding account has been suspended or revoked cannot participate in an auction.

Second, an individual who is associated with an entity whose holding account has been suspended or revoked may not participate in an auction in any capacity.

The existing text in this section is moved to new section 95912(d)(1).

Rationale for Section 95912(d)(3).

The changes are needed to ensure that those entities and individuals that have engaged in significant violations of this regulation cannot participate in the auction. Individuals serving as account representatives and in other capacities for entities that violate the regulation are likely involved in the violations and should be held accountable by being prohibited from participating in the auctions on behalf of any entity.

Summary of Section 95912(d)(4).

This section is renumbered from 95912(c)(2). It is also modified for clarity.

Rationale for Section 95912(d)(4).

The change is needed for clarity and to reflect reorganization of the section.

Summary of Section 95912(d)(4)(B).

The section contains a change in a reference.

Rationale for Section 95912(d)(4)(B).

The change is needed so the reference reflects the reorganization of section 95914.

Summary of Section 95912(d)(4)(C).

The section is renumbered from 95912(d)(4)(C). It is modified to include securities and financial markets in the list of markets for which entities must disclose violations or investigations.

Existing text for the section referring to beneficial holdings is removed.

Rationale for Section 95912(d)(4)(C).

The removal of the text on beneficial holdings is needed to reflect the removal of language from section 95834 that allowed for beneficial holdings.

The expansion of the list of markets in which the entity may have been involved in investigations and violations is needed to ensure that entities with a history of rule violations do not participate in auctions.

Summary of Section 95912(d)(4)(D).

The section is renumbered from section 95912(d)(4)(E).

Rationale for Section 95912(d)(4)(D).

The change is needed to reflect the reorganization of the section.

Summary of Section 95912(d)(5).

This new section is added to impose additional requirements on account representatives who will be submitting bids to the auction on behalf the entities they represent.

Rationale for Section 95912(d)(5).

The change is needed to improve security of bidding at the auction.

Summary of Section 95912(d)(5)(A).

The section is added to require account representatives to have complied with the Know-Your-Customer requirements of section 95834 before submitting any bids.

Rationale for Section 95912(d)(5)(A).

The change is needed to verify the identity of a representative that may be binding the entity they represent to significant financial commitments.

Summary of Section 95912(d)(5)(B).

The section is added to require account representatives to have complied with the disclosures to the financial services administrator as required in Appendix A before submitting any bids.

Rationale for Section 95912(d)(5)(B).

The change is needed to allow the financial services administrator to complete identity verification checks before arranging financial transactions.

Summary of Section 95912(e)(1).

The section is renumbered from 95912(d)(1). It has been modified for clarity, to change a reference to section 95914, and to include changes in registration information as a reason to require an entity to file a new auction application.

Rationale for Section 95912(e)(1).

The changes are needed for clarity and to recognize that the information contained in the auction application may need to be reassessed if there are changes to the information disclosed at registration.

Summary of Section 95912(e)(2)).

The term auction operator is replaced by the term auction administrator.

Rationale for Section 95912(e)(2).

The change is needed to reflect the terminology used throughout the regulation.

Summary of Section 95912(f).

The section is modified for clarity and the term auction operator is replaced by the term auction administrator.

The section is renumbered from section 95912(e).

Rationale for Section 95912(f).

The change is needed for clarity and to reflect the terminology used throughout the regulation. The change is also needed to reflect the reorganization of the section.

Summary of Section 95912(g).

Existing text on the confidentiality of information in existing section 95912(f)(1), is moved to section 95912(g) and modified. The modified text provides that the Executive Officer will protect information contained in the auction application and not scheduled for release pursuant to section 95912(j)(5) to the extent permitted by law.

The section is renumbered from section 95912(f).

Text contained in existing section 95912(f)(2) is now part of section 95912(j)(5).

Rationale for Section 95912(g).

The formatting change is needed to enable the reorganization of the section.

Summary of Section 95912(h).

Existing section 95912(g) is renumbered and edited to make clear that the bids do not go to the Executive Officer.

Rationale for Section 95912(h).

The change is needed for clarity and to reflect the reorganization of the section.

Summary of Section 95912(i).

The section is renumbered from 95912(h) and changes the deadline for submission of the bid guarantee to twelve days prior to the auction.

Existing section 95921(i) is moved to be part of section 95912(c).

Rationale for Section 95912(i).

The change is made in response to discussions with California's contracted financial services administrator regarding the time needed to review the bid guarantees.

The renumbering is needed to reflect a change in the organization of the section.

Summary of Section 95912(i)(1)(A) through (C).

These sections exist in the current regulation. They have been reordered.

Rationale for Section 95912(i)(1)(A) through (C).

The change is needed to accommodate new section 95912(i)(6), which specifies that if multiple bid guarantee types are submitted then they will be accessed in the order listed in section 95912(i)(1). This change will clarify to both bidders and the financial services

Summary of Section 95912(i)(1)(D).

This section is modified to provide that entities registering with California must submit bid guarantees in U.S. dollars.

Rationale for Section 95912(i)(1)(D).

The change is needed to ensure bid guarantees are in a currency that can be accepted by the financial services administrator.

Summary of Section 95912(i)(1)(E).

New section 95912(i)(1)(E) requires entities to submit a bid guarantee in the currency of the jurisdiction with which they are registered.

Rationale for Section 95912(i)(1)(E).

This provision is needed to ensure that the financial services administrator of each jurisdiction is capable of processing the bid guarantees submitted.

Summary of Section 95912(i)(2).

Existing text is removed and replaced with text clarifying that the amount of the bid guarantee must be greater than or equal to the maximum value of the bids to be submitted.

Rationale for Section 95912(i)(2).

The change is needed to clarify the amount of the bid guarantee must be at least as great as the value of bids submitted.

Summary of Section 95912(i)(2)(A).

The section provides that the value of a set of bids, evaluated at each price at which the bidder submits a bid, equals the quantity of allowances bid for at or above that price times that price.

Rationale for Section 95912(i)(2)(A).

The change is needed to evaluate the value of a set of bids in a single price auction. In single price auctions, bidders do not pay their bid price. Instead, the auction settlement price is set at a level that would clear all the bids, as long as it remained greater than or equal to the auction reserve price. For example, a bid for 1,000 allowances at $20 would have a value of $20,000 if auction settled at that price. However, the value of the same bid would be only $15,000 if the auction settled at $15.

Bidders would calculate the value of their bids at each of the prices they bid. The value at each of the prices would be calculated using the quantity bid at that price plus any quantity bid at any higher price. This reflects the fact that the bidder would receive the allowances bid for at any price equal to or above the auction settlement price.

The value of the bids changes with each bid price used in the calculations.

Summary of Section 95912(i)(2)(B).

This section provides that the maximum value of the set of bids is the maximum of the values calculated pursuant to section 95912(i)(2)(A).

Rationale for Section 95912(i)(2)(B).

The change is needed to clarify that the bid guarantee must cover the highest payment the bidder may have to make to pay for allowances awarded. Since the value of a set of bids may be different when calculated at different bid prices, the highest value calculated at any price is the value used to set the bid guarantee.

Summary of Section 95912(i)(3).

The section clarifies that the bid guarantee is payable to the financial services administrator.

Rationale for Section 95912(i)(3).

The change is needed so the bid guarantees are sent to the financial services administrator which is hired to provide expertise in evaluating financial instruments.

Summary of Section 95912(i)(4).

The section requires that bid guarantees expire no sooner than 21 days after the auction.

Rationale for Section 95912(i)(4).

The provision is needed to ensure that any form of bid guarantee that has an expiration date remain valid long enough for the financial services administrator to access it to cover payments if the auction settlement is delayed.

Summary of Section 95912(i)(5).

The section provides that the financial services administrator will evaluate the bid guarantee and inform the auction operator of the value accepted by the Executive Officer.

Rationale for Section 95912(i)(5).

The provisions are needed because the Executive Officer must approve determinations made by the financial services administrator. The auction administrator needs the bid guarantee values to determine which bids to accept.

Summary of Section 95912(i)(6).

If a bidder submits multiple guarantee forms, the financial services administrator will access them in the order they are listed in section 95912(i)(1).

Rationale for Section 95912(i)(6).

This provision is needed to give the financial services administrator a clear order in which to access the guarantees.

Summary of Section 95912(i)(7).

The section provides that if a bidder submits a single guarantee to cover both the current and advance auctions then the auction administrator will apply the values to the current auction first and then the remaining value to the advance auction.

Rationale for Section 95912(i)(7).

The provision is needed to give clear instruction to the auction operator in conducting the bid acceptance procedure.

Summary of Section 95912(j).

The section is added to introduce a set of actions the Executive Officer will take following the auction.

Existing section 95912(j) is removed.

Rationale for Section 95912(j).

The section is needed to clarify the activities undertaken by the Executive Officer after the auction operator has determined the winners and auction settlement price.

Summary of Section 95912(j)(1).

This section requires the Executive Officer to review the conduct of the auction by the auction administrator and determine whether the auction has been conducted pursuant to this regulation.

Rationale for Section 95912(j)(1).

The change is needed to ensure that ARB has the opportunity to review the auction results and clear up any irregularities before the auction proceeds to financial settlement. This is partly to ensure the procedures were followed correctly, but Staff will work with a market monitor to review the auction for potential manipulation or other violations. These steps are needed to ensure the integrity of the auction.

Summary of Section 95912(j)(2)(A).

This section requires the Executive Officer to direct the financial services administrator to notify the winning bidders of the price, quantity awarded, and information concerning deadlines and method for payment.

Rationale for Section 95912(j)(2)(A).

The provision is needed to clarify the auction settlement process.

Summary of Section 95912(j)(2)(B).

Existing section 95912(j)2(A) is renumbered and modified to set the deadline for cash payment to within seven days of notification.

Rationale for Section 95912(j)(2)(B).

The provision is needed to clarify the auction settlement process.

Summary of Section 95912(j)(2)(C).

This provision authorizes the financial services administrator to access the bid guarantees if bidders fail to make cash payments in the seven day limit.

The text replaces existing section 95912(j)(2)(B) which is removed.

Rationale for Section 95912(j)(2)(C).

The provision is needed to clarify the auction settlement process.

Summary of Section 95912(j)(2)(D).

Existing section 95912(j)(2)(C) is renumbered.

Rationale for Section 95912(j)(2)(D).

The change is needed to accommodate additional requirements.

Summary of Section 95912(j)(2)(E).

Existing section 95912(j)(2)(D) is renumbered.

Rationale for Section 95912(j)(2)(E).

The change is needed to accommodate additional requirements.

Summary of Section 95912(j)(2)(F).

This section is added to require the financial services administrator to return an unused bid guarantee to the bidder.

Rationale for Section 95912(j)(2)(F).

The change is needed to reduce the costs of auction participation.

Summary of Section 95912(j)(5)(A) through (5)(C).

This section contains the requirements contained in existing section 95912(f)(2), which is removed.

Rationale for Section 95912(j)(5) (A) through (5)(C).

The change is needed to clarify the information released after the auction is concluded.

Section 95913. Sale of Allowances from the Allowance Price Containment Reserve.

Summary of Section 95913(c).

This new section specifies that only covered and opt-in covered entities are eligible to purchase from California's Reserve. It also makes clear that there will be requirements placed on the individual account representatives for eligible entities that must be completed before participation in Reserve sales. Existing section (c) is removed.

Rationale for Section 95913(c).

The change is needed to introduce the requirements on account representatives. The existing requirements on timing and conduct of the sale originally contained in section 95913(c) and its subsections are moved to new section 95913(d).

Summary of Section 95913(c)(1).

This new section adds the requirement that account representatives that will be submitting bids to the reserve sale must have completed the Know-Your-Customer requirements contained in section 95834. Existing text specifying eligibility requirements for entities is removed.

Rationale for Section 95913(c)(1).

The change is needed to ensure that all individuals participating in the financial transactions that accompany Reserve sales have completed identity verification procedures before committing the entities they represent to financial obligations. The existing provisions on entity eligibility were moved to new section 95913(c).

Summary of Section 95913(c)(2).

This new section requires account representatives to have submitted the additional identification information contained in Appendix A to the regulation that is required by the financial services administrator. Existing text for the section, covering the requirement that all allowances in the Reserve will be offered at each sale, is moved to new section 95913(e)(2).

Rationale for Section 95913(c)(2).

The change is needed to ensure that all individuals participating in the financial transactions that accompany Reserve sales have completed identity verification procedures developed by the financial services administrator. One of the main reasons ARB contracted with a private financial services provider to handle financial transactions was to gain access to the expertise in evaluating and protecting personal information.

Summary of Section 95913(c)(3)(A), (B), and (C).

These sections are removed and modified as new section 95913(d)

Rationale for Section 95913(c)(3)(A), (B), and (C).

The change is needed for clarity.

Summary of Section 95913(d)(1).

This section consists of existing text from section 95913(c)(3)(A).

Rationale for Section 95913(d)(1).

The change is needed for clarity.

Summary of Section 95913(d)(2).

The section sets the reserve sales to occur six weeks after auctions.

Rationale for Section 95913(d)(2).

The change is needed to clarify that the auction will occur on the first business day six weeks after an auction..

Summary of Section 95913(d)(3).

This section requires the reserve sale administrator to inform eligible participants of the number of allowances available at least four weeks before the sale.

Rationale for Section 95913(d)(3).

This provision is needed to assist covered entities in planning their acquisitions.

Summary of Section 95913(d)(4).

New section 95913(d)(4) provides that Reserve sales will be conducted on the first day six weeks after each quarterly allowance auction scheduled that is also a business day in California and any linked jurisdiction.

Rationale for Section 95913(d)(4).

This provision is needed to ensure that Reserve sales are scheduled on the same day in linked jurisdictions.

Summary of Section 95913(e)(1).

This section clarifies that the Executive Officer creates the Reserve tiers.

Rationale for Section 95913(e)(1).

The change is needed since the Executive Officer must take this action.

Summary of Section 95913(e)(2).

This section contains text moved from existing section 95912(c)(2).

Rationale for Section 95913(e)(2).

This is a formatting change and does not involve any new text.

Summary of Section 95913(e)(3).

The section is renumbered from section 95913(d)(2).

Rationale for Section 95913(e)(3).

The is a formatting change and does not involve any new text.

Summary of Section 95913(e)(4).

The section is renumbered from section 95913(d)(3) and edited for clarity.

The use of the inflation adjustment factor is revised to refer to use of the most recently available value.

Rationale for Section 95913(e)(4).

The change is needed for clarity. The use of the most recently available inflation factor reflects the schedules for the release and revision of such calculations.

Summary of Section 95913(f).

The section includes a change to the deadline for submitting bid guarantees, to twelve days. It also requires the guarantee to be greater than or equal to the maximum value of the bids to be submitted by an entity.

This section contains modified text from existing section 95913(e)(1), which is removed.

Rationale for Section 95913(f).

The existing deadline is two weeks. The proposed deadline is the result of discussions with the financial services administrator.

The change is needed to add additional detail to the process and is more specific than "two weeks."

Summary of Section 95913(f)(1).

This section changes the calculation of the bid guarantee to reflect the possibility of bids to multiple tiers.

Rationale for Section 95913(f)(1).

The change is needed to guide participants to calculate the correct value for the bid guarantee.

Summary of Section 95913(f)(2)(A), (B), and (C).

This section moves existing text from existing section 95912(e)(2)(A), (B), and (C) and changes the order in which the instruments are listed.

Rationale for Section 95913(f)(2)(A), (B), and (C).

The change is needed to accommodate the addition of more detailed steps in the process and to reflect the new order in which bid guarantees will be accessed

Summary of Section 95913(f)(3).

The section provides that the bid guarantee will be sent to the financial services administrator. This requirement is moved from existing section 95912(e)(2).

Rationale for Section 95913(f)(3).

The change is needed to accommodate the addition of more detailed steps in the process.

Summary of Section 95913(f)(4).

This section adds a provision to require that the bid guarantee expires in not less than 21 days.

Rationale for Section 95913(f)(4).

This provision is needed to ensure the guarantee can be accessed if the auction settlement is delayed.

Summary of Section 95913(f)(5).

This section is renumbered from existing section 95912(e)(2)(E).

Rationale for Section 95913(f)(5).

The change is needed to accommodate the addition of more detailed steps in the process and is a formatting change.

Summary of Section 95913(f).

Section 95913(f) is renumbered to section 95913(g).

Rationale for Section 95913(f).

This is a format change.

Summary of Section 95913(g)(1).

Section 95912(g)(1) is modified to provide that sales will be conducted beginning with bids to the lowest tier and moving to bids to higher tiers.

Rationale for Section 95913(g)(1).

The change is needed to clarify the order in which bids will be processed.

Summary of Section 95913(g)(2).

The section is added to clarify the procedure for operating the bid window for the Reserve sale. The window will be open at 10 a.m. Pacific Standard Time or Daylight Savings Time, whichever is in effect.

Rationale for Section 95913(g)(2).

The provision is needed to tell participants when they may submit bids and clarifies that the time will be the same regardless of whether Daylight Saving Time is in effect.

Summary of Section 95913(g)(2)(A).

This section adds a provision that bids will be in multiples of 1,000 allowances, priced in U.S. dollars, and each bid must be to one of the three tiers.

Rationale for Section 95913(g)(2)(A).

The change is needed to provide specificity regarding how entities may submit bids.

Summary of Section 95913(g)(2)(B).

The section adds a provision that entities may make multiple bids.

Rationale for Section 95913(g)(2)(B).

The change is needed because the existing provisions implied a single bid is allowed which is not what was intended.

Summary of Section 95913(g)(3).

The section is renumbered from existing section 95912(f)(2). It is modified to provide that bids are for bundles of 1,000 allowances.

Rationale for Section 95913(g)(3).

The change is needed to accommodate the addition of more detailed steps in the process, and to clarify that the procedure describing the acceptance of bids will apply to the bids in separate 1,000 allowance bundles. The practical implication of the change is that the Reserve administrator can reject some of the quantities bid without having to reject a bid in its entirety.

Summary of Section 95913(g)(3)(A).

Existing text is modified to reflect the longer list of requirements by removing punctuation and the word "or."

Rationale for Section 95913(g)(3)(A).

The change is needed to accommodate the addition of more detailed steps in the process.

Summary of Section 95913(g)(3)(B).

Existing text is modified to change a reference.

Rationale for Section 95913(g)(3)(B).

The reference is changed to reflect reorganization of the section.

Summary of Section 95913(g)(3)(C).

The section adds a requirement that a bid to a tier will be accepted only if it is for a number of allowances less than or equal to the number available in the tier.

Rationale for Section 95913(g)(3)(C).

The change is added to accommodate concerns raised in WCI discussions that entities may bid for more than the quantity in the tier if they expect the reserve tier to be depleted to take advantage of the tied bid resolution process.

Summary of Section 95913(g)(4)(B).

Existing section 95913(f)(3) is renumbered to 95913(g)(4).

The text includes a change to a reference.

Rationale for Section 95913(g)(4)(B).

The change is needed to accommodate the reorganization of the section.

Summary of Section 95913(g)(5)(B).

Existing section 95913(f)(4) is renumbered to 95913(g)(5).

The text includes a change to a reference.

Rationale for Section 95913(g)(5)(B).

The change is needed to accommodate the reorganization of the section.

Summary of Section 95913(g)(6).

Existing section 95913(f)(5) is renumbered to 95913(g)65).

The text includes a change to a reference.

Rationale for Section 95913(g)(6).

The change is needed to accommodate the reorganization of the section.

Summary of Section 95913(h).

Existing section 95913(g) is renumbered to 95913(h) and modified to consist solely of a title introducing the process of resolution of sales.

Rationale for Section 95913(h).

The change is needed for clarity and to accommodate the reorganization of the section.

Summary of Section 95913(h)(1).

The section is modified to clarify the provision that the Executive Officer must certify whether the sale was run in accordance with the regulation.

Rationale for Section 95913(h)(1).

The change is needed for clarity.

Summary of Section 95913(h)(2).

The section is modified to introduce a list of actions.

Rationale for Section 95913(h)(2).

The change is needed for clarity.

Summary of Section 95913(h)(2)(A).

This section adds a provision that the financial services administrator will notify participants of their purchases and total cost.

Rationale for Section 95913(h)(2)(A).

The change is needed to give participants time to pay for the allowances and to let participants know how many allowances they purchased.

Summary of Section 95913(h)(2)(B).

The section contains text moved from existing section 95913(g)(2) and modifies it for clarity.

Rationale for Section 95913(h)(2)(B).

The change was needed to clarify the sequence of actions by the financial services administrator.

Summary of Section 95913(h)(2)(C).

The section adds a provision directing the financial services administrator to access the bid guarantees in the order listed in section 95913(f)(2) for entities that do not meet the deadline to pay cash for allowances.

Rationale for Section 95913(h)(2)(C).

The change was needed to clarify the sequence of actions by the financial services administrator.

Summary of Section 95913(h)(2)(D).

The section adds a provision requiring the return of any unused bid guarantee.

Rationale for Section 95913(h)(2)(D).

The change was needed to clarify the sequence of actions by the financial services administrator.

Summary of Section 95913(h)(3).

The section is modified by a change in punctuation.

Rationale for Section 95913(h)(3).

The change is needed for clarity.

Summary of Sections 95913(h)(4) and (5).

The sections are modified to explicitly mention the Executive Officer.

Rationale for Sections 95913(h)(4) and (5).

The changes are needed to clarify the role of the Executive Officer.

Summary of Section 95913(i).

New section 95913(i) provides that entities registered in a linked jurisdiction are not eligible to purchase from the Reserve.

Rationale for Section 95913(i).

This provision is needed to enact the policy decision made within the WCI to limit Reserve sales conducted by each jurisdiction to entities registered with that jurisdiction. The decision reflects the different objectives to be served by different jurisdictions' Reserves.

Section 95914. Auction participation and Limitations.

Summary of Sections 95914(a), (a)(1) through (a)(5).

New section 95914(a) explains that the Executive Officer may cancel or restrict a previously approved auction participation application or reject a new application based on a set of criteria contained in subsections (a)(1) through (a)(5). Existing text in section 95914(a) is removed.

New section 95914(a)(1) states that the Executive Officer may take action against an auction application if the Executive Officer has determined that the auction participant has provided false or misleading facts. The text is moved from section 95914(c), which has been removed.

New section 95914(a)(2) states that the Executive Officer may take action against an auction application if the Executive Officer has determined that the auction participant has withheld material information from its application. The text is moved from existing section 95914(c)(4).

New section 95914(a)(3) states that the Executive Officer may take action against an auction application if the Executive Officer has determined that the auction participant has violated any part of the auction rules contained in subarticle 10.

New section 95914(a)(4) states that the Executive Officer may take action against an auction application if the Executive Officer has determined that the auction participant has violated the registration requirements contained in subarticle 5.

New section 95914(a)(5) states that the Executive Officer may take action against an auction application if the Executive Officer has determined that the auction participant has violated the rules governing trading contained in subarticle 11.

Rationale for Section 95914(a).

The changes are needed to provide a clearer set of criteria governing when the Executive Officer may withhold approval of an auction participation application or cancel or modify a previously approved application. The existing requirement that entities must be registered into the cap-and-trade program pursuant to section 95830 before they participate in the auction has been moved to section 95912(d)(2).

New section 95914(a)(1) is needed so the Executive Officer can reject or modify auction application approval if the auction applicant has attempted to conceal information or provided false information. The information disclosures in the auction application are intended primarily to aid in market monitoring. The Executive Officer must ensure complete and accurate disclosures to maintain auction integrity.

New section 95914(a)(2) is needed so the Executive Officer can reject or modify auction application approval if the auction applicant has attempted to withhold material information. The information disclosures in the auction application are intended primarily to aid in market monitoring. The Executive Officer must ensure complete and accurate disclosures to maintain auction integrity. New section 95914(a)(3) is needed so that the Executive Officer can reject or modify auction application approval if the auction applicant has violated any part of the auction rules. Staff added the requirement so that entities undermining the integrity of the auction cannot continue to do so. This action would be in addition to any penalties assessed in other sections of the regulation.

New section 95914(a)(4) is needed so that the Executive Officer can reject or modify auction application approval if the auction applicant violated any part of the registration requirements of Subarticle 5. The information disclosures in Subarticle 5 are intended to aid in market monitoring. The Executive Officer must ensure complete and accurate disclosures to maintain auction integrity.

New section 95914(a)(5) is needed so that the Executive Officer can reject or modify auction application approval if the auction applicant has violated the rules governing trading contained in Subarticle 11. These rules are designed to prevent the manipulation or disruption of markets. Violations of these rules should result in less access to the auction to minimize the chances of further rule violations.

Summary of Section 95914(b).

New section 95914(b) introduces a list of actions that the Executive Officer may take if any violations fitting the criteria in 95914(a) are found. The existing text is modified and moved to new section 95912(d)(3).

Rationale for Section 95914(b).

Staff added the section to clarify the specific actions the Executive Officer may take if violations are detected.

Summary of Section 95914(b)(1).

New section 95914(b)(1) states the Executive Officer may instruct the auction administrator to cancel a previously approved application or reject new applications from a specified entity.

Rationale for Section 95914(b)(1).

The change is needed so the Executive Officer can prevent violators from participating in the auction, because an approved application is a required to participate in the auction.

Summary of Section 95914(b)(2).

New section 95914(b)(2) states that the Executive Officer may instruct the auction administrator to restrict the auction application approval for a corporate associate of an entity to prevent the purchase of allowances for later transfer to the violator. This text was moved from existing section 95914(c)(1) and slightly modified to delete a reference to "agents.".

Rationale for Section 95914(b)(2).

The change is needed so that the Executive Officer can prevent violators from participating in the auction through agents or corporate associates who purchase at auction and then transfer allowances to the violator, working around the regulation's prohibitions. The reference to an agent was deleted because it referred to an agent that was part of a beneficial holding relationship. All beneficial holdings provisions are removed from the regulation.

Summary of Section 95914(b)(3).

New section 95914(b)(3) states that any action taken on an auction application by the Executive Officer may be permanent or for a specified number of auctions. This text was moved from existing section 95914(c)(3).

Rationale for Section 95914(b)(3).

The change is needed so the Executive Officer can adjust the severity of the remedy according to the severity of the violation.

Summary of Section 95914(b)(4).

New section 95914(b)(3) contains a requirement moved from existing section 95914(c)(2) that any cancellation or restriction of an auction application by the Executive Officer may be in addition to other penalties assessed.

Rationale for Section 95914(b)(4).

The change is needed so the Executive Officer can adjust the severity of the remedy according to the severity of the violation.

Summary of Existing Section 95914(c), (c)(1) through (c)(4).

These sections have been moved to sections 95914(a) and (b) as explained above, except for a reference to beneficial holdings contained in existing section 95914(c)(1) which is removed.

Rationale for Existing Section 95914(c), (c)(1) through (c)(4).

The changes were needed to place the existing requirements of section 95914(c) into the larger lists of criteria and actions contained in sections 95914(a) and (b). The reference to beneficial holdings is removed because all provisions allowing for beneficial holdings are removed from the regulation.

Summary of Section 95914(c).

Section 95914(d) has been renumbered to section 95914(c).

Rationale for Section 95914(c).

The change is needed due to the removal of original section 95914(c).

Summary of Section 95914(c)(1).

Section 95914(d)(1) has been renumbered to section 95914(c)(1).

The section is modified to include a condition that auction information cannot be disclosed to anyone other than an auction advisor or other entities with which an entity has a direct corporate association.

Rationale for Section 95914(c)(1).

The change is needed because staff removed original section 95914(c).

The clarification is needed because staff assumes that direct corporate associates will be coordinating auction strategies, which is why they share a joint purchase limit.

Summary of Section 95914(c)(1)(D).

Section 95914(d)(1)(D) has been renumbered to section 95914(c)(1)(D).

The section is modified to make clear that the bid guarantee is provided to the financial services administrator, not the auction operator.

Rationale for Section 95914(c)(1)(D).

The change is needed to clarify the restrictions on communication of information.

Summary of Section 95914(c)(1)(E).

Section 95914(d)(1)(E) has been renumbered to section 95914(c)(1)(E).

The section is modified to make clear that communication of information described as confidential information in the auction application is restricted.

Rationale for Section 95914(c)(1)(E).

The change is needed to clarify the restrictions on communication of information.

Summary of Existing Sections 95914(c)(3) and (c)(4).

These sections are removed.

Rationale for Existing Sections 95914(c)(3) and (c)(4).

Sections 95914(d)(3) and (d)(4) were renumbered to sections 95914(c)(3) and (c)(4).

Section 95914(c)(3) is removed because it refers to entities in beneficial holdings relationships. All beneficial holdings provisions are removed from the regulation.

Section 95914(c)(4) is removed because it is no longer needed given the changes to section 95914(c)(1).

Summary of Section 95914(d).

Section 95914(e) has been renumbered to section 95914(d).

Rationale for Section 95914(d).

The change is needed due to the removal of original section 95914(c).

Summary of Section 95914(d)(1).

The section is modified to remove the term "indirect" and a reference has been changed.

Rationale for Section 95914(d)(1).

The change is needed because the joint purchase limit is no longer imposed on members of indirect corporate associations. The reference was changed to reflect a reorganization of section 95911.

Summary of Section 95914(d)(2).

The section is modified to remove the term "indirect." Additional text has been added specifying how each entity's share of the purchase limit is to be calculated.

Rationale for Section 95914(d)(2).

The removal of the term "indirect" is needed because the joint purchase limit is no longer imposed on members of indirect corporate associations. The text on calculation of the entity's share of a joint purchase limit is added for clarity.

Summary of Sections 95914(e)(2)(A), (B), and (C).

These sections are removed.

Rationale for Sections 95914(e)(2)(A), (B), and (C).

Sections 95914(e)(2)(A) is moved to new section 95914(d)(4). Section 95814(e)(2)(B) is no longer needed due to changes to section 95910(d). Section 95914(e)(2)(C) has been made part of section 95914(e)(2).

Summary of Section 95914(e)(3).

The section has been renumbered to section 95914(d)(6).

Rationale for Section 95914(e)(3).

The change is needed due to the removal of original section 95914(c) and additional requirements added to section 95914(d).

Summary of Section 95914(d)(3).

This section sets out a procedure to divide the joint purchase limit among members of a direct corporate association that includes both covered entities and voluntarily associated entities.

Rationale for Section 95914(d)(3).

The section is needed because the existing joint purchase limit provisions do not consider a corporate association that has both covered and voluntary entities.

Summary of Section 95914(d)(3)(A).

This section assigns the joint purchase limit to 15 percent, unless the association contains electrical distribution utilities, in which case the limit is 40 percent.

Rationale for Section 95914(d)(3)(A).

The change is needed to set the proper joint purchase limit.

Summary of Section 95914(d)(3)(B).

This section sets the total purchase limit assigned to the voluntarily associated entities that are members of the association to total no more than 4 percent.

Rationale for Section 95914(d)(3)(B).

The change is needed to ensure voluntarily associated entities cannot increase their purchase limit by joining a corporate association with covered entities.

Summary of Section 95914(d)(3)(C).

This section sets the purchase limit for the covered entities in a corporate association to no more than the joint limit less the amount assigned to members that are voluntarily associated entities.

Rationale for Section 95914(d)(3)(C).

The change is needed to properly divide the joint purchase limit among members of an association.

Summary of Section 95914(d)(4).

This section contains the text removed from existing section 95914(e)(2)(A).

Rationale for Section 95914(d)(4).

The section was moved to make clear the process for applying the purchase limit to corporate associations.

Summary of Section 95914(d)(5).

This section states that the purchase limit allocation submitted by a corporate association applies to the auction for which the application has been submitted.

Rationale for Section 95914(d)(5).

The section was moved to make clear the process for applying the purchase limit to corporate associations.

Summary of Section 95914(d)(6).

This section contains text in existing section 95914(e)(3), which has been renumbered. It also removes a reference to indirect corporate associations.

Rationale for Section 95914(d)(6).

The renumbering was needed due to the removal of existing section 95914(c). The reference to indirect corporate associations was removed because joint purchase limits are no longer applied to indirect corporate associations.

Subarticle 11. Trading and Banking.

Section 95920. Trading.

Summary of Section 95920(a).

This section is modified to remove a reference to "indirect" corporate associations.

Rationale for Section 95920(a).

This change is needed because the holding limit has been modified to apply to members of a direct corporate association, not to entities with only an indirect corporate association.

Summary of Section 95920(b)(3).

This section is modified to clarify how the holding limit will be applied to exchange clearing holding accounts. The allowance will count against the holding limit of the destination account when a transfer from the exchange clearing holding account is recorded.

Rationale for Section 95920(b)(3).

This change is needed to clarify how the holding limit will be calculated when transactions are cleared.

Summary of Section 95920(b)(4).

The section is modified to clarify that the Executive Officer will not approve transfers that violate the holding limit.

Rationale for Section 95920(b)(4).

The change was made to clarify the procedure and to correct references.

Summary of Section 95920(b)(5).

This section is added to create a process to deal with cases in which violations of the holding limit are not discovered until after transfers are recorded into the tracking system.

Rationale for Section 95920(b)(5).

The provision is needed because the existing text covering this case in section 95920(b)(4) has been removed.

Summary of Section 95920(b)(5)(A).

This section adds the provision that the accounts administrator will notify the entity of the violation.

Rationale for Section 95920(b)(5)(A).

This provision is needed to initiate a process of correcting the violation.

Summary of Section 95920(b)(5)(B).

This section adds the provision that an entity in violation of the holding limit will have five days to correct the violation, or the Executive Officer will consign any excess above the holding limit to auction.

Rationale for Section 95920(b)(5)(B).

This provision is needed to ensure that violators have an opportunity to correct the violation. The consignment provision also ensures the correction will happen in a timely manner.

Summary for Section 95920(b)(6).

This section states that penalties may be applied whether violations are detected before or after transfers are recorded. This text is moved from 95929(b)(4) and modified.

Rationale for Section 95920(b)(6).

This text was modified to address violations that are detected either before or after they are recorded.

Summary of Section 95920(c)(1).

This section is modified to replace operative text with a title introducing a set of criteria.

Rationale for Section 95920(c)(1).

The change is needed to clarify application of the list of criteria used to define the pool of allowances that are considered to be of current vintage.

Summary of Section 95920(c)(1)(A).

This section explains that allowances with a vintage year from current or previous vintages are included in the same pool.

Rationale for Section 95920(c)(1)(A).

The change is needed to clarify application of the list of criteria used to define the pool of allowances that are considered to be of current vintage.

Summary of Section 95920(c)(1)(C).

This section explains that allowances originally purchased at the Advance auction but with a vintage year now equal to the current year are included in the same pool.

Rationale for Section 95920(c)(1)(C).

The change is needed to clarify application of the list of criteria used to define the pool of allowances that are considered to be of current vintage.

Summary of Section 95920(c)(2).

This section clarifies the definition of the second pool of allowances to which the holding limit is applied to include allowances purchased at advance auction that still have a vintage year greater than the current year.

Rationale for Section 95920(c)(2).

The change is needed to clarify application of the list of criteria used to define the pool of allowances that are considered to be of future vintage.

Summary of Sections 95920(d)(3), (3)(A) through (3)(E).

This section introduces a procedure to petition the Executive Officer to grant a temporary adjustment to the limited exemption from the holding limit if an entity experiences an increase in emissions. This would allow an adjustment to the limited exemption before the emissions are reflected in the following year's verified emission reports.

Section 95920(d)(3)(A) allows a covered entity to submit evidence of an increase in emissions during a calendar year and request a temporary increase in the limited exemption. The request must be submitted by October 1 of the calendar year of the increase.

Section 95920(d)(3)(B) sets a minimum level of increase to the exemption of 250,000 metric tons CO2e.

Section 95920(d)(3)(C) provides that the Executive Officer will review the evidence and make a determination on the adjustment.

Section 95920(d)(3)(D) provides that if an adjustment is granted, then the limited exemption will be increased immediately.

Section 95920(d)(3)(E) provides that when the verified emissions report is received for the year for which the adjustment was granted the Executive Officer will use the verified report in place of the adjustment to evaluate the limited exemption.

Rationale for Sections 95920(d)(3), (3)(A) through (3)(E).

The provisions are needed to deal with facilities that may experience an increase in emissions that would not be reflected in the limited exemption because the exemption is calculated on lagged emissions reports. The October 1 deadline to submit the request ensures that the adjustment is made in a timely manner. The minimum increase is designed to limit the requests to increases that are so large that they could not be accommodated under the holding limit. This is also intended to limit workload for staff to cases requiring adjustment. The provisions on review and adjustment clarify that the petition is not automatically granted. The adjustment would go into effect as soon as the determination is made to

enable to entity to stay under the holding limit. Finally, the provision to replace the adjustment with verified data is a reasonable method to provide flexibility without introducing permanent errors into the calculation of the exemption.

Summary of Section 95920(e).

This section is modified to apply the holding limit to each vintage year for which allowances are sold at advance auction. The limits apply as long as the allowances remain classified as in the future vintage pool pursuant to section 95920(c)(2).

The section also changes the calculation of the holding limit to replace the compliance period allowance budget with the annual allowance budget. This yields a holding limit value for each year. The section also adds a provision to define the annual allowance budget as applying to a single calendar year.

Rationale for Section 95920(e).

The change is needed to implement a holding limit to each of the future vintage years separately rather than applying it to the whole pool. This decision arose from concerns that entities could accumulate too many allowances from a single vintage year, which could cause problems with the holding limit when the vintage becomes a current vintage.

Summary of Section 95920(f)(1).

The section is modified to remove a reference to indirect corporate associations. It also clarifies that the entities must adhere to the limits for both the current and future vintage pools.

Rationale for Section 95920(f)(1).

The change is needed to reflect that the joint holding limit no longer applies to indirect corporate associations. The existing text only pointed to one holding limit, and the revision adds references to both limits.

Summary of Section 95920(f)(2).

The section is modified to remove a reference to indirect corporate associations.

Rationale for Section 95920(f)(2).

The change is needed to reflect that the joint holding limit no longer applies to indirect corporate associations.

Summary of Section 95920(f)(3).

The section is modified to clarify that the allocation of the holding limit applies only to members of a direct corporate association that choose to opt out of consolidation.

Rationale for Section 95920(f)(3).

The change is needed to reflect changes to corporate associations made in section 95833, especially creation of the opt-out procedure. Entities choosing to opt out of consolidation must specify a distribution of the holding limit among the entities remaining separate.

Summary of Section 95920(f)(3)(A).

The section is modified to clarify that the primary or alternate account representatives are the ones responsible to communicate distributions of the holding limit to the accounts administrator.

Rationale for Section 95920(f)(3)(A).

The change is needed to clarify the procedure for allocating the holding limit to members of a corporate association.

Summary of Section 95920(f)(3)(B).

The section is modified to clarify that the primary or alternate account representatives are the ones responsible to communicate changes to the distributions of the holding limit to the accounts administrator.

Rationale for Section 95920(f)(3)(B).

The change is needed to clarify the procedure for allocating the holding limit to members of a corporate association.

Summary of Section 95920(f)(4).

This section is removed.

Rationale for Section 95920(f)(4).

The section is no longer necessary since allocation of the holding limit is only needed for entities opting out of consolidation, and they must specify an allocation as a condition of opting out.

Summary of Section 95920(g).

Existing section 95920(g) was removed. New section 95920(g) provides that the holding limit applies to holdings of California allowances as well as allowances from all linked jurisdictions.

Rationale for Section 95920(g).

The existing provision is no longer needed because it refers to beneficial holdings. All provisions allowing for beneficial holdings have been removed from the regulation.

The new provision is needed to clarify the calculation of the holding limit.

Summary of Section 95920(h).

New section 95920(h) provides that the "Annual Allowance Budget" in sections 95920(d) and (e) is calculated as the sum for the current budget year of the annual compliance budgets of California and all linked jurisdictions.

Rationale for Section 95920(h).

This provision is needed to reflect the calculation of the holding limit as applying to holdings of California allowances as well as allowances from all linked jurisdictions.

Section 95921. Conduct of Trade.

Summary of Section 95921(a)(1).

The section is modified to clarify that transfers will not be recorded into the tracking system until the accounts administrator receives a transfer request that the Executive Officer has determined meets the requirements of the regulation.

Rationale for Section 95921(a)(1).

The revision is needed to clarify the process.

Summary of Section 95921(a)(1)(A).

The section modifies the process for submitting a transfer request. The revised text requires an account representative for the source account of the transfer to submit a transfer request to the accounts administrator.

Rationale for Section 95921(a)(1)(A).

This provision removes the existing requirement that one account representative from each account that is party to the transfer submit identical transfer requests

within three days of the settlement of the transaction agreement. The revision is needed to provide a clear start to the process.

Summary of Section 95921(a)(1)(B).

This section requires the transfer request to be separately confirmed to the accounts administrator by a second account representative for the entity submitting the request, within two days of initial submission of the transfer request.

Rationale for Section 95921(a)(1)(B).

The revision is needed to provide an additional level of security against theft by requiring two representatives from a source account to file the transfer request. Staff considers two days to be enough time to ensure confirmation.

Summary of Section 95921(a)(1)(C).

This section requires an account representative for the destination account to confirm the transfer request. Confirmation must occur no later than three days following the initial submission of the transfer request.

Rationale for Section 95921(a)(1)(C).

The change is needed to implement the "push-push-pull" model agreed upon during discussions in the WCI and the CITSS contractor. The decision to adopt the process reflects concerns about theft of allowances from accounts on other GHG ETS.

Summary of Section 95921(a)(1)(D).

This section is renumbered existing section 95921(B).

The section has been modified to clarify that the Executive Officer must determine the transfer meets the requirements of the regulation based on the information available at the time of transfer.

Rationale for Section 95921(a)(1)(D).

The modification is needed to clarify that the Executive Officer's evaluation is based on the information available at the time of transfer. The determination can be changed based on information discovered later pursuant to new section 95921(c)(2).

This change is needed to clarify the final step in the transfer approval process for transfers between entities. The section is renumbered to reflect the addition of new section 95921 (1)(B).

Summary of Section 95921(a)(1)(E).

The section has been modified to clarify that the completed transfer request must be received by the accounts administrator no more than three days following the day of settlement of the transaction agreement for which the transfer request is submitted.

Rationale for Section 95921(a)(1)(E).

The section contains the text in existing section 95921(a)(1)(A), modified to reflect the new push-push-pull process. The change from "within" to "no later than" reflects the expectation that the transfer process may be built into the settlement process.

Summary of Section 95921(a)(2).

The section replaces the existing section 95921(a)(2), and lists the transfers that do not require confirmation.

Rationale for Section 95921(a)(2).

This change is necessary to avoid unnecessary actions by staff.

Summary of Section 95921(a)(2)(A).

This new section provides that transfers initiated by the Executive Officer do not require confirmation.

Rationale for Section 95921(a)(2)(A).

This change is necessary to avoid unnecessary actions by staff.

Summary of Section 95921(a)(2)(B).

This new section provides that transfers between a single entity's holding and compliance accounts do not require confirmation.

Rationale for Section 95921(a)(2)(B).

This change is necessary to avoid unnecessary actions by entity staff.

Summary of Section 95921(a)(3)(A).

This section provides that parties to a transfer will be in violation and penalties may apply if the transfer process is completed more than three days after initial submission of the transfer request.

Rationale for Section 95921(a)(3)(A).

This change is needed to clarify that the failure to complete the transfer request pursuant to section 95921(a)(1) would be a violation.

Summary of Section 95921(a)(3)(B).

This section provides that parties to a transfer will be in violation and penalties may apply if the transfer process is completed more than three days after settlement of the transaction agreement for which the transfer request is submitted.

Rationale for Section 95921(a)(3)(B).

This change is needed to clarify that the failure to complete the transfer request pursuant to section 95921(a)(1) would be a violation.

Summary of Section 95921(b).

All of existing section 95921(b) has been removed.

Rationale for Section 95921(b).

This section is no longer needed because new section 95921(c) contains expanded requirements for dealing with transfer request deficiencies.

Summary of Section 95921(b)(1).

The section contains existing text modified to clarify the information on account numbers and account representatives for the source account.

Rationale for Section 95921(b)(1).

The changes are needed to clarify the information included on the transfer request and to reflect the change in terminology involving the account representatives.

Summary of Section 95921(b)(2).

The section is modified to clarify the information on account numbers and account representative for the destination account.

Rationale for Section 95921(b)(2).

The changes are needed to clarify the information included on the transfer request and to reflect the change in terminology involving the account representatives.

Summary of Section 95921(b)(3).

The section is modified to require inclusion of the serial numbers involved in the transfer.

Rationale for Section 95921(b)(3).

The change is needed for clarity.

Summary of Section 95921(b)(4).

The section is modified to specify that the date of the transaction agreement refers to the transaction for which the transfer request submitted.

Rationale for Section 95921(b)(4).

The change is needed for clarity.

Summary of Section 95921(b)(5).

The section is modified to to require disclosure of the actual or expected settlement date.

The section is also edited to insert the work "the."

Rationale for Section 95921(b)(5).

The modification is needed to clarify that entities should disclose the expected date of settlement if the transaction has not settled, in which there is no actual settlement date.

The change is also needed for clarity.

Summary of Section 95921(b)(6).

. The section is added to specify that entities need not report a price for transfers between members of a direct corporate association or between an entity's holding and compliance accounts.

Rationale for Section 95921(b)(6).

Staff determined that the disclosure is not needed because transfers between affiliates may not be made through market mechanisms that would generate a meaningful price. Transfers between holding and compliance accounts would not involve a market price. Summary of Section 95921(b)(7).

The section adds a provision that parties to a transfer request agree to provide documentation on the transaction for which the transfer request was submitted upon request of the Executive officer.

The section removes a requirement to disclose the identity of an entity for whom the compliance instruments are to be held in benefit, since provisions allowing beneficial holdings are removed from the regulation.

Rationale for Section 95921(b)(7).

The new provision is needed to ensure that the Executive Officer can properly investigate any transactions that may constitute violations of this regulation. The documentation may also be used to determine whether entities have submitted false or misleading information.

Summary of Section 95921(b)(8).

New section 95921(b)(8) provides that if California links to a program operated by a Canadian jurisdiction, then the price of the compliance instrument reported in a transfer request may be reported in Canadian dollars.

Rationale for Section 95921(b)(8).

This provision is needed to ensure that prices are accurately reported and that entities filing transfer requests are not unnecessarily burdened with converting the price to a second currency.

Summary of Section 95921(c)(1).

The section establishes a process to apply if a deficiency in a transfer request is detected before the transfer is recorded.

Rationale for Section 95921(c)(1).

The section is needed to replace and expand on the requirements of existing section 95921(b) which is removed.

Summary of Section 95921(c)(1)(A).

The section is added to require the accounts administrator to notify the entities submitting the transfer request of the deficiency.

Rationale for Section 95921(c)(1)(A).

The provision is needed to give the entities the chance to remedy the deficiency within the three day period to avoid a violation.

Summary of Section 95921(c)(1)(B).

The section is added to give the entities time to resubmit the request within the original three day time limit.

Rationale for Section 95921(c)(1)(B).

The provision is needed to give the entities the chance to remedy the deficiency within the three day period to avoid a violation.

Summary of Section 95921(c)(1)(C).

The section is added to deal with the case in which the entities fail to correct the deficiency within the three day time limit. They could either withdraw the request, in which case ARB would not recognize the transfer of control of the allowances, or they can file an entirely new request. Filing a new request would amount to a violation of the three day time limit, but it would not require unwinding the transaction.

Rationale for Section 95921(c)(1)(C).

The section is added to clarify the process that applies when the time limit is violated, and that penalties would apply.

Summary of Section 95921(c)(2).

The section is added to specify the process that applies when the accounts administrator detects a deficiency in a transfer request after it is recorded into the system.

Rationale for Section 95921(c)(2).

The provisions are needed to explain what happens if deficiencies are not detected until after transfers are recorded into the tracking system.

Summary of Section 95921(c)(2)(A).

The section requires the accounts administrator to notify the Executive Officer and the parties to the transfer of the deficiency.

Rationale for Section 95921(c)(2)(A).

The provisions are needed to inform the parties of the deficiency, and to alert the Executive Officer to a potential violation for investigation.

Summary of Section 95921(c)(2)(B).

The section adds the provision that if the entities that submitted the transfer request cannot correct the deficiency within 5 business days after notification by the accounts administrator, the Executive officer may instruct the accounts administrator to reverse the transfer.

Rationale for Section 95921(c)(2)(B).

The provisions are needed to address cases in which there is a significant deficiency that parties to the transfer do not remedy within the specified time. The provisions give the Executive Officer the final ability to refuse to recognize the deficient transfer, if needed.

Summary of Section 95921(d)(1).

This section is added to provide that a request to transfer compliance instruments to an exchange clearing holding account lists the exchange clearing holding account as the destination account.

Rationale for Section 95921(d)(1).

This provision is needed to clarify the transfer request process when it involves entities that clear transactions.

Summary of Section 95921(d)(2).

This section is added to require that compliance instruments received by an exchange clearing holding account be transferred to one or more destination accounts within five days of receiving them.

Rationale for Section 95921(d)(2).

The provision is needed to ensure that the account take only temporary possession of compliance instruments for the purposes of clearing.

Summary of Section 95921(d)(3).

This section is added to exempt transfer requests submitted by an exchange clearing holding account from the requirement to have a confirmation by an account representative of the destination account..

Rationale for Section 95921(d)(3).

This provision is needed to avoid adding an unnecessary burden to entities providing exchange clearing services.

Summary of Section 95921(d)(4).

This section is added to exempt transfer requests submitted by an exchange clearing holding account from the requirement to have the transfer request confirmed by a second account representative.

Rationale for Section 95921(d)(4).

This provision is needed to avoid adding an unnecessary burden to entities providing exchange clearing services.

Summary of Section 95921(e).

The section is modified to introduce a list of actions the Executive officer may take to ensure the confidentiality of information.

The section is renumbered from section 95921(d) in the existing text.

Rationale for Section 95921(e).

The change is needed to clarify the process for protecting confidential information and to reflect changes to the organization of section 95921.

Summary of Section 95921(e)(1).

The section clarifies a provision requiring the accounts administrator to release information on transfers in a timely manner that protects the confidentiality of the parties to a transfer.

Rationale for Section 95921(e)(1).

The change is needed to clarify the intent of the provision to restrict the publication of information when that may reveal the identities if parties to a transfer.

Summary of Section 95921(e)(2).

The section is modified to change the term "transaction reports" to "transfer requests."

Rationale for Section 95921(e)(2).

The change is needed to update the terms to reflect their current usage in the regulation.

Summary of Section 95921(f)(1).

The section is modified to prohibit beneficial holdings.

Rationale for Section 95921(f)(1).

The change was needed to reflect the removal of all provisions allowing beneficial holding and to add an explicit prohibition of the practice.

Summary of Section 95921(f)(2).

Existing section 95921(e)(3) is renumbered to section 95921(f)(2), and the existing text for section 95921(e)(2) is removed.

Rationale for Section 95921(f)(2).

The change was needed to reflect the removal of all provisions allowing beneficial holding.

Summary of Section 95921(f)(2)(B).

The section was modified to refer to a "compliance" instrument rather than a "regulated" instrument.

Rationale for Section 95921(f)(2)(B).

The change was needed to clarify that the prohibition applies to actions involving California compliance instruments.

Summary of Section 95921(g).

Existing section 95921(g) is renumbered to section 95921(h).

Rationale for Section 95921(g).

Existing section 95921(g) is renumbered to section 95921(h).

Summary of Section 95921(h).

Existing section 95921(g) is renumbered to section 95921(h).

Rationale for Section 95921(h).

The renumbering is needed to reflect the removal of existing section 95921(b).

Summary of Section 95921(h)(2).

The section is modified to change a reference to renumbered section 95921(b).

Rationale for Section 95921(h)(2).

The renumbering is needed to reflect the removal of existing section 95921(b).

Summary of Section 95921(h)(3).

The section is modified to change a reference to renumbered section 95921(b).

Rationale for Section 95921(h)(3).

The section is modified to change a reference to renumbered section 95921(b).

Subarticle 12: Linkage to External Greenhouse Gas Emissions Trading Systems.

Section 95942. Approval of Compliance Instruments from External GHG ETS.

Summary of Section 95942.

The existing title for section 95942 is changed.

Rationale for Section 95942.

This change is needed to reflect the acceptance of compliance instruments from one linked program into another, including California's Cap-and-Trade Program. The existing title implied a "one-way" linkage, that is, that compliance instruments issued by a linked jurisdiction could be used for compliance in California but not vice versa.

Summary of Section 95942(d).

New section 95942(d) adds a provision allowing California compliance instruments to be used for compliance in a linked jurisdiction.

Rationale for Section 95942(d).

This provision is needed to enable the interchange of compliance instruments between linked programs.

Summary of Section 95942(e).

New section 95942(e) adds a provision allowing compliance instruments from a linked jurisdiction to be used for compliance in California.

Rationale for Section 95942(e).

This provision is needed to enable the interchange of compliance instruments between linked programs.

Summary of Section 95942(f).

New section 95942(f) requires linking agreements to specify that the account administrators from a linked jurisdiction must inform the Executive Officer if any California compliance instruments are retired in the linked jurisdiction.

Rationale for Section 95942(f).

This provision is needed to ensure instruments are not retired twice in different systems.

Summary of Section 95942(g).

New section 95942(g) requires the Executive Officer to inform the account administrators for a linked jurisdiction if California retires any compliance instruments from the linked jurisdiction.

Rationale for Section 95942(g).

This provision is needed to ensure instruments are not retired twice in different systems.

Summary of Section 95942(h).

New section 95942(h) requires the Executive Officer to register compliance instruments issued by California that are retired by a linked jurisdiction into the Retirement Account, along with information identifying the jurisdiction retiring them.

Rationale for Section 95942(h).

This provision is needed to ensure instruments are not retired twice in different systems.

Summary of Sections 95943 and 95943(a).

New sections 95943 and 95943(a) specify that California covered entities may use compliance instruments issued by the Government of Québec.

Rationale for Sections 95943 and 95943(a).

These provisions are necessary to specify that compliance instruments issued by the listed jurisdictions will be accepted in California's Cap-and-Trade Program. Currently, California is only adding the Government of Québec to the listed government programs.

Subarticle 15: Enforcement and Penalties

Section 96010. Jurisdiction.

Summary of Section 96010(b).

Existing section 96010(b) is modified to indicate that if a registered entity is participating in the Cap-and-Trade Program through a linked jurisdiction (for

purposes of this regulation, the Government of Québec) that California does not assert jurisdiction over those participating entities.

Rationale for Section 96010(b).

California cannot assert jurisdiction over entities that do not voluntarily avail themselves of California's jurisdiction. Further, WCI discussions with California indicated that each jurisdiction is responsible for enforcement actions against participating entities registered through each jurisdiction's program. The modifications to this section are necessary to ensure that each jurisdiction's participants are clear regarding the laws governing their actions related to the cap-and-trade program.

96022. Jurisdiction of California.

Summary of Section 96022.

Existing section 96022 stating that any party participating in the California Cap-and-Trade Program is subject to the jurisdiction of California is modified to add an exception for entities that are registered into a linked jurisdiction.

Rationale for Section 96022.

This change is needed to clarify the jurisdiction of California and the jurisdictions that operate linked programs.

Summary of Appendix A.

This section contains a list of the information disclosure requirements the financial services administrator will need in order to conduct secure financial transactions on behalf of the California Cap-and-Trade Program.

Rationale for Appendix A.

The section is needed to ensure the financial services administrator can conduct the financial transactions associated with the auction and Reserve sale. If entities do not supply the information they would not be able to participate in either the auction or the Reserve sale.

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