# 2016 Semi-Annual Report to the Joint Legislative Budget Committee on Assembly Bill 32

(Chapter 488, Statutes of 2006)

# The California Global Warming Solutions Act of 2006

*Fulfills the Requirements of:*
*Supplemental Report of the 2012 Budget Act (Item 3900-001-0001 Air Resources Board)*
*Senate Bill 1018 (Statutes of 2012)*

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# INTRODUCTION

Assembly Bill 32 (AB 32), The California Global Warming Solutions Act of 2006, designates the California Air Resources Board (CARB or Board) as the State agency charged with monitoring and regulating sources of greenhouse gas (GHG) emissions. AB 32 set a goal for California to reduce GHG emissions to 1990 levels by 2020, and to maintain and continue reductions beyond 2020. The law tasked CARB with quantifying this goal, implementing a mandatory emissions reporting system, and adopting a Scoping Plan that describes the measures and other actions planned to achieve the target.

AB 32 also highlights the need to continue greenhouse gas reductions beyond 2020. In April 2015, Governor Brown issued Executive Order B-30-15, to establish a midterm GHG emissions reduction target of 40 percent below 1990 levels by 2030. Executive Order B-16-2012, which Governor Brown signed in March 2012, established zero emission vehicle benchmarks and affirmed a long-range climate goal for California to reduce GHG emissions to 80 percent below 1990 levels by 2050.

***Legislative Direction***. The Supplemental Report of the 2012 Budget Act Item 3900-001-0001 requires CARB to provide the Joint Legislative Budget Committee (JLBC) with multiple reports on its activities and resources to implement AB 32. These reports include:

(1) Semi-annual AB 32 updates on key climate programs, including recent developments and upcoming milestones;
(2) Annual AB 32 fiscal report for the prior fiscal year summarizing fees and proceeds coming in, and expenditures going out; and
(3) Annual AB 32 resource reports – one prospective and one retrospective – showing staffing and operations, plus contract expenses, by major program area.

Senate Bill 1018 (Budget and Fiscal Review), Chapter 39, Statutes of 2012, also requires CARB and the Secretary for Environmental Protection to submit the following report to the JLBC on the Western Climate Initiative, Incorporated (WCI, Inc.):

(4) Semi-annual report on any actions proposed by WCI, Inc. that affect California State government or entities located within the State, as well as advance notification of any planned CARB payments to WCI, Inc. over $150,000.

***Semi-Annual Report Content****.* This document provides the required semi-annual updates on items (1) and (4) listed above. It covers CARB's implementation of AB 32 and does not include the activities and resources of other State agencies to implement AB 32. The State Agency Greenhouse Gas Reduction Report Card published by the California Environmental Protection Agency (CalEPA) details the activities of each agency and department to reduce GHG emissions. For more information on the Report Card, please see: http://www.climatechange.ca.gov/climate_action_team/reports/.

# SECTION 1:

# SEMI-ANNUAL AB 32 PROGRAM UPDATE

**(January 2016 - June 2016)**

This report is required semi-annually by the Supplemental Report of the 2012-13 Budget[1] to highlight significant developments in the last six months and identify upcoming milestones in the next six months in CARB's implementation of AB 32. This semi-annual report[2] provides an update on both the AB 32 program activities for the first half of 2016, and the upcoming milestones during the second half of 2016. The report format follows the Budget directive, beginning with major regulatory measures, followed by supporting programs, then a discussion of the GHG emission reductions, and concluding with the current funding in the Greenhouse Gas Reduction Fund.

While this program update focuses on the high profile regulations and supporting programs identified in the Supplemental Budget Report, they represent a subset of CARB's activities and resources to address climate change. Additional activities include research, air monitoring, and preparing the emissions inventory (including the Mandatory Reporting Regulation), as well as the development, implementation, and enforcement of over 20 regulations that reduce GHGs as a primary objective or as a co-benefit. These other regulations affect a wide range of activities and facilities, including: passenger vehicles (including their tires and air conditioners); heavy trucks and the trailers they pull; ships at berth; and sources of high global warming potential (GWP) gases like semi-conductor manufacturing, appliance recycling, and consumer products.

[1] "The California Air Resources Board (CARB) shall submit to the Legislature an AB 32 program update every six months summarizing key program activities. Each update should highlight developments since the previous update, provide advance notice of anticipated major milestones, and include current statewide greenhouse gas (GHG) emission updates. These developments may include, but are not limited to, board hearings and release of significant documents, key support contracts, lawsuits, compliance milestones, and other actions that have the potential to substantially affect the success and effectiveness of the program.

The scope of the program updates should include: significant activities related to CARB's GHG reduction measures (for example, cap-and-trade, low-carbon fuel standard, or advanced clean cars), including an analysis of which programs are having the greatest impact in terms of GHG reductions per dollar spent; key developments on supporting activities such as updates to the AB 32 Scoping Plan, cap-and-trade auction fund regulations, coordination with entities outside of California like the Western Climate Initiative, and SB 375 sustainable communities plans; and the amount of cap-and-trade auction funds deposited into the Greenhouse Gas Reduction Fund and the current balance in that fund."

[2] For previous reports, see: http://www.arb.ca.gov/cc/jlbcreports/jlbcreports.htm.

# I. CARB GREENHOUSE GAS EMISSION REDUCTION MEASURES

This section focuses on the activities of three major CARB regulatory programs to reduce GHG emissions: Cap-and-Trade, Low Carbon Fuel Standard, and Advanced Clean Cars. Also discussed is the landfill methane regulation mentioned in the supplemental budget language, as well as developments related to reducing emissions from oil production and natural gas operations.

## A. Cap-and-Trade

### *1. Background*

California's Cap-and-Trade Regulation (Regulation) is the nation's first comprehensive market-based approach to reducing GHG emissions, and is one of the key measures identified in the AB 32 Scoping Plan. The Regulation was finalized and adopted by the Board in October 2011. Given the complexity of this Regulation and the use of many unique concepts in its design, we provide a lengthier background description below to aid the reader's understanding of these program updates.

Emissions Cap. The Regulation provides a firm declining limit, or cap, on 85 percent of California's GHG emissions. Beginning on January 1, 2013, the cap includes GHG emissions from electricity and large industrial sources. Beginning on January 1, 2015, GHG emissions from transportation fuels and residential and commercial burning of natural gas and propane are included in the cap.

The Regulation is estimated to reduce GHG emissions by about 23 million metric tons (MMT) in 2020, about 30 percent of the total needed to achieve the AB 32 target for that year. Further, the Regulation plays a key role in assuring the 2020 target is met by setting a definitive statewide limit on GHG emissions. For example, in the event that the anticipated reductions from other measures are not realized, the Regulation with its cap serves as a limit on GHG emissions.

Compliance. To comply with the Regulation, entities subject to the Regulation (entities that have one or more facilities or other sources that emit 25,000 metric tons or more of carbon dioxide equivalent ($CO_2e$) per year), termed "covered entities," must submit compliance instruments (i.e., allowances or offset credits) equal to their emissions. Each allowance or offset credit is equal to one metric ton of $CO_2e$ emissions.

Each covered entity has an annual surrender obligation under the Cap-and-Trade Regulation, and this obligation requires them to surrender compliance instruments equal to 30 percent of their emissions from the prior year. The first annual surrender obligation under the Cap-and-Trade Regulation occurred on November 3, 2014. Covered entities were required to submit compliance instruments sufficient to cover 30 percent of their 2013 emissions by that date. For this first annual obligation, all covered entities successfully transferred sufficient compliance instruments to their accounts to meet their compliance obligations. At the end of each compliance period, which is either a two- or three-year period, entities are required to submit compliance instruments equal to their remaining emissions (70 percent) from years covered by an annual surrender obligation, and all emissions from the final year of the compliance period. The first compliance period surrender obligation occurred on November 2, 2015. Covered entities were required to submit compliance instruments to cover the remaining 70 percent of their 2013 emissions and 100 percent of their 2014 emissions. The November 2, 2015 compliance surrender event saw a 99.8 percent compliance rate.

Allowances. Allowances are issued by CARB. A portion of the allowances is allocated to covered entities, some allowances are placed in a cost containment reserve, a portion is placed in a voluntary renewable electricity reserve, and the remaining allowances are auctioned. Each year, the number of allowances declines in proportion to the cap, ensuring that the Regulation achieves intended emission reductions.

In the early years of the Regulation, CARB allocated most allowances to industrial covered entities to provide transition assistance and minimize leakage, and to natural gas and electrical utilities to protect ratepayers from program costs. Beginning in 2015, CARB also provides transition assistance by allocating allowances to universities and public service facilities, power generators with legacy contracts, and public wholesale water agencies.

Leakage refers to a reduction in GHG emissions within the State that results in an increase in GHG emissions outside the State. Risk of leakage is highest for industries in which production is highly “emissions intensive” (leading to high compliance costs) and trade exposed (i.e., facing competition from out-of-State producers). CARB determined leakage risk for industrial sectors based on an evaluation of industry emissions and trade exposure. The results of this analysis informed the allocation of allowances to reduce compliance costs and maintain industry production in California.

One of the factors that CARB utilizes to calculate the number of allowances allocated for each industrial covered entity is GHG emissions efficiency. CARB uses emissions performance standards that evaluate the efficiencies of similar operations in the same industrial sector. This evaluation results in more efficient facilities within a sector receiving free allowances to cover a larger portion of their estimated compliance obligation as compared to less efficient facilities in the same sector. This process recognizes early investments to improve efficiency at facilities within the covered industrial sectors.

CARB staff developed two distinct types of allocation methodologies: (1) product-based, which is tied to production activity and applies to specific industry sectors listed in the Regulation, including the oil and gas extraction and refining sectors; and (2) energy-based, which is tied to fuel use and applies to those industry sectors without a product-based benchmark.

In addition to allocation, a number of allowances were placed in the allowance price containment reserve and the voluntary renewable electricity reserve. The allowance price containment reserve account was established to provide a safety margin for the allowance price and to help mitigate potential volatility in allowance prices. The account holds a specified number of allowances removed from the total pool of allowances at the beginning of the program. Covered entities may purchase reserve allowances at specified prices during direct quarterly reserve sales. The voluntary renewable electricity reserve account was created to support purchases of renewable electricity and renewable energy credits that are not mandated by the Renewables Portfolio Standard. Purchasers of eligible voluntary renewable electricity may request retirement of allowances on their behalf under the Regulation.

Auctions. From November 2012 through August 2014, CARB held quarterly auctions, selling only California allowances. Prior to the certification of each auction, CARB staff and the Market Monitor carefully evaluated the auction, and determined that the auction process and procedures complied with the requirements of the Cap-and-Trade Regulation.

On November 25, 2014, the first joint allowance auction was conducted with Québec under the linkage agreement between CARB and Québec. The linkage agreement became effective January 1, 2014. The second, third, fourth, and fifth joint allowance auctions were held in February, May, August, and November 2015, respectively. As discussed below, the sixth and seventh joint auctions were held in February and May of 2016, respectively. Future joint auctions will continue to include both California and Québec allowances.

Offsets. Offset credits are another type of tradable compliance instrument. Offset credits represent GHG emissions reductions or avoidance from activities outside of the capped sectors (i.e., reductions in sectors not subject to the Cap-and-Trade Regulation). Covered entities can use CARB- or Québec-issued offset credits to meet up to eight percent of their compliance obligation for each compliance period. For example, if a covered entity has 100,000 metric tons of covered emissions, they must submit no fewer than 92,000 allowances and no more than 8,000 CARB- or Québec-issued offset credits in order to meet their compliance obligation. The ability to use offset credits is an important mechanism for cost containment under the Regulation, and helps to achieve reductions from sources not covered by the program.

Offset projects are quantified under regulatory protocols that are approved by the Board and must meet the AB 32 offset criteria of being real, additional, quantifiable, permanent, verifiable, and enforceable. CARB has approved offset protocols for six project areas: forestry, urban forestry, mine methane capture, livestock digesters, the destruction of ozone depleting substances, and rice cultivation. CARB accredits third-party verifiers to independently verify all offset project reports. Accredited third-party verifiers have extensive background in related areas, including appropriate field and auditing experience, as well as the scientific and engineering knowledge required for verification.  Third-party verifiers must work through CARB accredited verification bodies and must complete CARB's training and pass a specialized test.

CARB can also approve voluntary offset registries that meet regulatory criteria to help administer the program.  Offset project registries provide general offset project guidance, reporting, and other support for verification activities.  CARB does not delegate any of its oversight or enforcement authority to the verifiers or approved registries.  Additionally, CARB does not currently issue offset credits that originate from projects located outside of the United States.  However, since California and Québec have a linked cap-and-trade program, CARB does recognize Québec-issued offsets for projects that are implemented in Canada using Québec's adopted offset project protocols.  Québec-issued offset credits can be used by California covered entities, within the same eight percent quantitative usage limit described above, to meet a portion of their compliance obligations.

Market Tracking System.  The Compliance Instrument Tracking System Service (CITSS) is a market tracking system developed to support the implementation of cap-and-trade programs for California and other jurisdictions.  CITSS provides accounts for market participants to hold and retire compliance instruments (allowances and offset credits) and to record transactions regarding compliance instruments (e.g., purchases or trades between account holders).

Market Oversight.  CARB continues to place a high priority on market oversight to ensure success in reducing emissions and the integrity of the California carbon market. CARB also established a team focused on monitoring and oversight of market activity and market participants.  CARB monitors the auctions during the three-hour bidding window and reviews submitted bids to determine if there are any indications of anti-competitive behavior.  In addition to engaging in ongoing analysis and modeling, CARB is collaborating with several organizations including the U.S. Commodity Futures Trading Commission, the Federal Energy Regulatory Commission (FERC), the California Independent System Operator (CAISO), and the State Attorney General's Office to anticipate, detect, and respond to market manipulation.  The Regulation imposes holding limits and auction purchase limits, as well as other restrictions on auction and trading activity, to prevent participants from acquiring undue market power.

Fuels in the Cap-and-Trade Program.  Beginning January 1, 2015, transportation fuels and residential and commercial burning of natural gas and propane became covered by the Cap-and-Trade Program, resulting in a broad program scope covering approximately 85 percent of California's GHG emissions.  Including fuels in the program will help achieve the objective of reducing emissions by 2020, and will also help to drive the long-term transition to cleaner fuels well into the future.

Broad Cap-and-Trade Program coverage spreads the compliance obligation across many sectors, increasing the certainty that the overall AB 32 target will be met.  This coverage also allows for covered entities to obtain the lowest cost GHG emissions reductions, which in turn minimizes the overall economic impact of the Cap-and-Trade

Program.  Including fuels under the cap will also provide significant air quality co-benefits, by providing reductions in criteria emissions.

The Low Carbon Fuels Standard and Cap-and-Trade Program are complementary; the two programs work together to encourage the development, deployment, and demand for cleaner fuels.  Investments made to comply with one program will result in reduced compliance requirements for the other program, ensuring the price impact on wholesale fuels is reduced.

Cap-and-Trade Adaptive Management.  The Cap-and-Trade Program works with complementary measures at local, State, and federal levels to reduce emissions across California.  On October 20, 2011, CARB approved an Adaptive Management Plan to closely monitor for any potential localized air quality and forest impacts that may result from implementation of the Cap-and-Trade Program.

In November 2015, CARB staff released for public input a Discussion Guide outlining the proposed Cap-and-Trade Adaptive Management Process (Proposed Process) for monitoring and responding to any potential adverse impacts due to the implementation of the Cap-and-Trade Program.  The Proposed Process will monitor changes in emissions at:

- Individual facilities covered by the Cap-and-Trade Regulation, and
- California communities with multiple facilities covered by the Cap-and-Trade Regulation.

The Proposed Process will also monitor emissions over multiple years to determine trends at individual facilities, in California communities, and across industrial sectors. To advise on key aspects of data analytics, staff established an Adaptive Management Work Group, consisting of environmental health, environmental justice, public health, air district, and industry representatives.

CARB continues to believe localized air impacts resulting from increases in criteria and toxic air pollutants due to the Cap-and-Trade Program are very unlikely.  Nevertheless, CARB, in coordination with local air district staff, continues work to achieve additional reductions.  Furthermore, staff's goal is to establish a transparent public process for addressing potential emissions increases in California communities as a result of implementation of the Cap-and-Trade Program.

### *2. Recent Developments – January through June 2016*

CARB's activities to support the Cap-and-Trade Program during the first half of 2016 included two joint allowance auctions with Québec, ongoing issuance of compliance offset credits, and workshops in anticipation of proposed regulatory changes.  These activities are described in more detail below, along with a discussion of ongoing relevant litigation and contracts that support the Cap-and-Trade Program.

Proposed 2016 Regulation Amendments. CARB has commenced the public process to develop 2016 amendments to the Cap-and-Trade Regulation. The amendments aim to update allowance allocation, link the Program with the Canadian province of Ontario, and streamline Program implementation for the third compliance period (2018-2020). Some of the additional goals of these amendments are to prepare for California's compliance with U.S. EPA's Clean Power Plan and to extend the Program beyond 2020.

Since the October 2, 2015 kickoff workshop, staff held additional workshops throughout 2016 on cost containment and market oversight, sector-based offsets, compliance with U.S. EPA's Clean Power Plan, and electricity and natural gas sector allocation.

Auctions. As described previously, effective January 1, 2015, GHG emissions from transportation fuels and residential and commercial burning of natural gas and propane were covered by the Cap-and-Trade Program. As a result, auctioned allowances will include jurisdiction-owned allowances and the allowances consigned by California electrical distribution utilities and natural gas suppliers.

In sum, about $4.054 billion was raised by the sale of State-owned allowances at the first 15 auctions through May 18, 2016. As mentioned above, the latest seven auctions, held in November 2014, February, May, August, and November 2015, and February and May 2016, were joint auctions with Québec. More information on Cap-and-Trade auction proceeds is provided on page 38 of this report. Detailed results from the auctions are available at: http://www.arb.ca.gov/cc/capandtrade/auction/auction.htm.

Reserve Sale. Reserve sales are scheduled to occur each quarter. No covered entities or opt-in entities indicated an intent to bid for allowances or submitted a bid guarantee by the deadlines for the reserve sales scheduled through June 2016. Therefore, no reserve sales scheduled to date have been held.

Offsets. CARB continues to implement the offsets program, which reduces the costs of compliance with the Regulation and encourages investments in sustainable practices throughout the nation's economy. As of June 30, 2016, CARB has:

- Accredited 80 specially trained third-party offset verifiers, and accredited 15 verification bodies to serve as partners in evaluating the quality of offset projects submitted for approval;
- Continued to oversee and coordinate with the three existing approved offset project registries that help evaluate compliance-grade carbon offset projects under the Regulation;
- Listed 127 early action projects (the last day to list an early action offset project was December 31, 2015), and updated the listing of additional compliance projects to bring the total to over 300 (listing signifies these projects are moving toward potential issuance of CARB compliance offset credits);
- Conducted a thorough desk review of 100 percent of the compliance projects' requests for issuance; and

- Audited, either in-person or through desk review, 100 percent of the offset protocol project verifications to date.

CARB only issues compliance offset credits for verified offset projects that are developed using the six approved offset protocols and that are located within the United States. CARB issues compliance credits for those projects that comply with the full requirements set forth in the applicable offset protocol and in the Regulation. To date, CARB has issued almost 40 million compliance offset credits.

Cap-and-Trade Adaptive Management. In the first half of 2016, staff continued to refine the proposed Cap-and-Trade Adaptive Management Process; reviewed comments received during the November 2015 workshops and Board meeting; and held multiple meetings with the Adaptive Management Work Group, representatives from the California Air Pollution Control Officers Association, and Environmental Justice Advisory Committee members to discuss the proposed process.

CARB executed a contract with the University of California at Davis (UC Davis) to develop recommendations for a monitoring system for unanticipated adverse biological impacts caused by the U.S. Forest Protocol. That work is now complete. The final report, released in February 2016, concluded that the researchers could not foresee any negative adverse impacts possible from a properly implemented U.S. Forest Offset project. Because the Protocol itself calls for rigorous monitoring and verification annually, the data collected would be adequate to determine if there were any adverse impacts occurring and therefore, no additional monitoring is necessary. The report is available at: http://www.arb.ca.gov/cc/capandtrade/adaptivemanagement/finalreport3-19-14.pdf. This work was intended to address unanticipated forest impacts that could occur as part of the implementation of the Cap-and-Trade Program.

Cap-and-Trade Litigation. In the first half of 2016, there was activity in three existing court cases against CARB regarding the Cap-and-Trade Program.

*California Chamber of Commerce v. California Air Resources Board* and *Morning Star Packing Company v. California Air Resources Board:*

The related cases of *California Chamber of Commerce v. California Air Resources Board* and *Morning Star Packing Company v. California Air Resources Board* challenge CARB's Cap-and-Trade auction system. Plaintiffs/Petitioners in these cases make two main arguments. First, they challenge CARB's authority under AB 32 to conduct auctions and reserve sales under the Cap-and-Trade Program. Second, they argue the State's auction and reserve sales constitute an unconstitutional tax. Plaintiffs/petitioners brought their challenges in 2012 and 2013 before the Sacramento Superior Court. The trial court rejected the challengers' arguments, and ruled in CARB's favor on November 12, 2013.

The challengers appealed to the Third District Court of Appeal and filed their opening appellate briefs in October 2014. CARB and interveners supporting CARB's position—

the Environmental Defense Fund and Natural Resources Defense Council—filed answering briefs in March 2015. The challengers filed their reply briefs in May 2015. Five outside interests, or amici, subsequently filed briefs, and the parties filed answering briefs to the amici in June 2015. Between June 2015 and February 2016, no activity occurred while the parties awaited further direction from the appellate court.

In March 2016, one of the challengers filed a motion for calendar preference. The court granted that motion on April 7, 2016, but did not set a hearing. Instead on April 8, 2016, the court issued an order directing the parties to provide supplemental briefing on seven questions. The questions relate to the tax issue in the case. In response to that order, the parties and an outside amicus filed supplemental briefs on May 23, 2016. CARB also filed a request for judicial notice of certain documents related to their supplemental brief. Challengers filed an opposition to the judicial notice request on June 7, 2016.

The parties are now awaiting further direction from the court. The appellate court has not yet set a hearing date.

*Sowinski v. California Air Resources Board, et al.:*

The plaintiff in *Sowinski v. California Air Resources Board, et al.*, alleges that the Cap-and-Trade Program's auction platform infringes on a patent he obtained in 2003. The plaintiff also alleges claims of elder abuse under California Welfare and Institutions Code section 15610.30 and a violation of California Business and Professions Code section 17200 (the Unfair Competition Law). The plaintiff seeks both damages and injunctive relief.

The plaintiff filed his complaint in Orange County Superior Court on November 24, 2015. A co-defendant, SRA International, Inc., removed the case to federal court (the United States District Court for the Central District of California [Santa Ana]) on December 21, 2015.

On February 12, 2016, CARB and the Board members filed a motion to dismiss the complaint. Co-defendants SRA International, Inc. and Monitoring Analytics, LLC also filed motions to dismiss. The plaintiff did not file an opposition to the motion to dismiss but did file a First Amended Complaint on March 31, 2016. On April 8, 2016, co-defendants filed a reply brief to their motion to dismiss and filed a motion to strike the First Amended Complaint on April 14, 2016.

On May 4, 2016, both parties agreed to file a stipulation to withdraw the First Amended Complaint and motion to strike. The court granted in part this stipulation on May 11, 2016. The operative pleading is now the plaintiff's original complaint, and the motions under submission are the defendants' motions to dismiss.

*Kimberly Clark Worldwide, Inc. v. California Air Resources Board, et al.:*

The plaintiff, in this writ action filed in Sacramento County Superior Court on November 25, 2015, alleges that the Cap-and-Trade Program's benchmark for greenhouse gas emissions efficiency in bathroom tissue manufacturing, as found at 17 California Code of Regulations section 95891, Table 9-1, is arbitrary and capricious and was promulgated in a manner contrary to the Administrative Procedure Act. The writ petition seeks a court order striking down the existing tissue benchmark and reinstating the prior benchmark. As of June 30, 2016, CARB is close to finalizing the administrative record in this matter. The petitioner has indicated that it plans to move to augment the record. CARB's answer will be due 30 days from the date the record is certified.

Cap-and-Trade Program Contracts. Academia and private contractors are helping CARB achieve the goals of AB 32 while ensuring the cost-effectiveness of the program. Current contracting efforts are directed at accessing administrative support functions through the Western Climate Initiative, Inc. (WCI, Inc.), including support for CARB's auctions and reserve sales, financial services for auctions and reserve sales, and monitoring the carbon market; measuring and monitoring the potential for GHG emissions leakage; helping CARB develop emissions efficiency benchmarks in order to allocate allowances to minimize leakage; and implementing the forest offset and rice cultivation protocols. Key on-going contracts are discussed in the recent developments, and contracts in development are discussed in the upcoming milestones section below.

*Cap-and-Trade Program Administration Contracts:*

As part of collaborating with other jurisdictions, CARB accesses administrative support for the Cap-and-Trade Program through WCI, Inc. Section 2 of this document describes WCI, Inc. and its activities, including administrative support provided through contracts.

*Other Cap-and-Trade Program Contracts:*

- Economic researchers from Resources for the Future and the University of California at Berkeley concluded the CARB-commissioned leakage research efforts. The research established a baseline for how industries have historically responded to energy price changes, and identified metrics to evaluate future leakage risk. The contract concluded in May 2016, and in that same month the study results were presented at a workshop and posted publicly at: http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm. Staff has proposed amendments to the Regulation that would incorporate the results of this study for post-2020 industrial allocation.

- Research conducted by the California Polytechnic University in San Luis Obispo and the University of California analyzed the ability of some food processing sectors to pass on regulatory costs. The study results were presented at a workshop in May 2016, and are posted publicly at: http://www.arb.ca.gov/cc/capandtrade/meetings/20160518/calpoly-food-process-leakage.pdf. Staff is evaluating how these results might be used to update leakage risks for post-2020 industrial allocation.

- CARB completed a contract with California Polytechnic State University, San Luis Obispo, to provide technical forestry support to CARB staff, taking into account programmatic, policy, biometric, modeling, biological, and harvest management activities. The contract developed guidance to simplify highly complex calculations, and increase the understanding and accessibility of protocol requirements under CARB's compliance offset protocol for forestry projects. The guidance is being finalized prior to posting on the web.

- CARB has contracted with Michigan State University to update software to facilitate reporting of the required data and streamline calculation of emission reductions from adoption of eligible farming practices under the proposed rice cultivation protocol. This contract will aid in keeping project costs down and limit the time farmers have to spend complying with protocol requirements.

- CARB has contracted with Sjoberg Evashenk to conduct a performance audit of CARB's processes and procedures for implementing the Cap-and-Trade and Mandatory Reporting of GHG Emissions Regulations.

### *3. Upcoming Milestones – July through December 2016*

Below is a brief summary of some of the upcoming milestones CARB is working to achieve during the second half of 2016. More information on CARB activities and upcoming public meetings related to the Cap-and-Trade Program can be found at: http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm.

- The next compliance event for the first year of the second compliance period (2015) is an annual surrender obligation on November 1, 2016, during which covered entities must submit compliance instruments sufficient to cover 30 percent of their 2015 emissions.

- CARB will continue to hold quarterly joint auctions with Québec as scheduled in the Regulation (February, May, August, November).

- Staff expects to integrate any market program amendments needed to support California's compliance strategy under U.S. EPA's 111(d) Clean Power Plan into planned Cap-and-Trade Regulation amendments. Staff anticipates relying substantially on the carbon market's efforts to reduce emissions across the economy, including within the power sector. More information on the Clean Power Plan can be found on pages 27-35 of this report.

- In the coming months, CARB staff anticipates releasing a formal regulatory amendment package for potential amendments to the Cap-and-Trade Regulation for the third compliance period (2018-2020), including updates to allowance allocation and information management streamlining, offsets streamlining, and to extend the program beyond 2020.

- Staff plans to release additional information and hold at least one public meeting for the proposed Cap-and-Trade Adaptive Management Process in Fall 2016. Staff plans to seek stakeholder input on the revised process, develop an updated emissions mapping tool, and present an overall program update to the Board in November 2016.

- The last Early Action Offset Program credits will be issued on August 31, 2016. Early action offset projects may continue to receive CARB offset credits for verified emission reductions if they transition to CARB compliance offset projects using one of the Board-approved Compliance Offset Protocols.

## B. Low Carbon Fuel Standard

### *1. Background*

CARB approved the Low Carbon Fuel Standard Regulation (LCFS) in 2009 with requirements to reduce the carbon intensity (CI) of gasoline and diesel fuels by at least 10 percent by 2020. This standard sets declining annual targets between 2011 and 2020.

The LCFS requires regulated parties to submit quarterly progress and annual compliance reports to CARB. To this end, CARB developed the LCFS Reporting Tool (LRT), a secure, interactive, web-based system, through which all regulated parties are required to report data on fuel volumes and CI. A Credit Bank & Transfer System has been integrated online with the LRT to handle the recording of LCFS credit transfers. To date, there are approximately 200 regulated parties reporting in the LRT. Through their reports, these providers of transportation fuels must demonstrate that the mix of fuels they supply meets LCFS CI standards for each annual compliance period. Each fuel in the mix is assigned a CI value, based on the “life cycle” GHG emissions associated with its production, transportation, and use in motor vehicles. Each fuel's complete life cycle, from "well-to-wheels" (or from "seed-to-wheels" for biofuels made from crops), represents that fuel's "fuel pathway."

Cumulatively through the end of the first quarter of 2016, there have been a total of about 18.29 million metric tons of credits and 10.75 million metric tons of deficits, for a net total of about 7.54 million metric tons of credits.[3] This excess means that regulated parties are over-complying with the LCFS, generating additional LCFS credits that can be used for future compliance when the standard becomes more stringent.

Despite these positive indicators, the petroleum refining industry remains concerned about compliance with the LCFS in future years when the standard becomes more rigorous. Specifically, the petroleum refining industry believes that lower-CI liquid

[3] Reference: CARB “2015 LCFS Reporting Tool (LRT) Quarterly Data Summary – Report No. 4” at http://www.arb.ca.gov/fuels/lcfs/dashboard/quarterlysummary/20160415_q4datasummary.pdf.

biofuels that they prefer to blend with conventional gasoline and diesel fuels are not being developed quickly enough in commercial quantities and will not be available. Staff continues to believe that the availability of these advanced biofuels will grow sufficiently to meet demand. Additionally, liquid biofuels are just one of several paths that refiners can take to comply with the LCFS. They can also purchase LCFS credits in the marketplace from producers of lower-CI fuels, such as electricity, natural gas, biogas, and hydrogen, or they can invest in the production of these fuels to generate their own LCFS credits.

In December 2009 and early 2010, three lawsuits were filed against CARB over the LCFS—two in federal court and one in State court. The federal lawsuits were brought by trade associations of ethanol producers and refiners who claim that the LCFS is preempted under the federal Energy Independence and Security Act (EISA) of 2007 and violates the dormant Commerce Clause of the U.S. Constitution (either because the LCFS impermissibly regulates activities beyond California's borders or because it discriminates against out-of-State corn ethanol by assigning corn ethanol from the Midwest a CI value higher than that of corn ethanol made in California). Plaintiffs claim that corn ethanol will eventually be excluded from the California market in favor of more advanced biofuels that have a lower CI value. In contrast, CARB showed that many corn ethanol producers from the Midwest have in fact registered fuels with CARB CI values well below gasoline and, indeed, even less than California corn ethanol. The LCFS program allows for a determination of individualized CI numbers for each facility, provided that certain criteria are met.

In December 2011, the lower court ruled against CARB on the dormant Commerce Clause claims and issued a preliminary injunction against CARB, but did not address the federal EISA preemption issue. In April 2012, the Ninth Circuit granted CARB's request for a stay of the preliminary injunction, which allowed CARB to resume enforcement of the LCFS regulation during the pendency of the lawsuit.

On September 18, 2013, a three-judge panel of the Ninth Circuit ruled that the ethanol provisions in the LCFS are not facially discriminatory and remanded the case for the district court to determine whether the ethanol provisions discriminate in purpose or effect. Furthermore, the Ninth Circuit ruled that the LCFS crude oil provisions do not discriminate either facially or in purpose or effect. The Court left the LCFS in place. The plaintiffs filed for *en banc* hearing with the Ninth Circuit, which the court subsequently denied. The U.S. Supreme Court acted on June 30, 2014, denying three petitions for certiorari. The denial was without comment; the practical effect was to leave standing the Ninth Circuit Court of Appeals decision.

In August 2011, a State court case alleged that CARB did not fully comply with the Administrative Procedure Act and the California Environmental Quality Act when adopting the LCFS. In November 2011, the State Superior court ruled in favor of CARB on all fourteen causes of action raised by the plaintiffs. The plaintiffs appealed the case, and on July 15, 2013, the Court of Appeal (Fifth District, Fresno) issued its opinion, finding that CARB had committed some procedural violations in adopting the

Regulation but holding that the LCFS would remain in effect and that CARB can continue to implement and enforce the LCFS while CARB corrects certain aspects of the procedures by which the LCFS was originally adopted. Accordingly, CARB staff continued to implement and enforce the LCFS at the 2013 compliance standards while working on a 2015 rulemaking for re-adoption of a consolidated regulation package that responds to the Court's decision and contains additional amendments important for the continued success of the LCFS program. Meanwhile, the 2013 LCFS standards, which represent a 1.0 percent decrease in carbon intensity from the 2010 baseline values for gasoline and diesel, have remained in effect through 2015.

The first CARB Board hearing to consider the re-adoption of the LCFS and the adoption of the Alternative Diesel Fuel (ADF) regulations took place on February 19, 2015. The ADF regulation addresses the court's ruling that CARB did not fully consider the environmental impact of low-carbon fuels. Based on the comments and testimony received during the 45-day comment period preceding the CARB Board hearing, the Board directed staff to continue its work on the proposed LCFS and ADF regulations.

In January 2015, CARB requested an external peer review of staff's methodology in calculating fuel carbon intensities and use of three life cycle greenhouse gas emissions models, including the California-Modified Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (CA-GREET) Model, the Oil Production Greenhouse Gas Emissions Estimator (OPGEE) Model, and the Global Trade Analysis Project (GTAP-BIO) Model combined with the Agro-Ecological Zone Emissions Factor (AEZ-EF) Model. The purpose of a peer review is to determine whether the scientific portions of the regulation are based upon "sound scientific knowledge, methods, and practices," pursuant to Health and Safety Code section 57004.[4] The peer review was completed in May 2015. After completing the external peer review of staff's methodology in calculating fuel carbon intensities and use of three emissions models, each reviewer concluded that the LCFS was based upon sound scientific knowledge, methods, and practices. The written reviews submitted by the peer reviewers are posted at the following web page: http://www.arb.ca.gov/fuels/lcfs/peerreview/peerreview.htm.

The February 2015 Board hearing was followed by a second Board hearing on September 24 and 25, 2015, to consider the re-adoption of the LCFS. After hearing staff's proposed updates to the LCFS and considering all public comments and staff's responses, the Board approved the re-adoption of the LCFS regulation. The final rulemaking packages were approved by the Office of Administrative Law (OAL) on November 16, 2015, and became effective on January 1, 2016. Staff also began the re-certification process of fuel pathways on January 1, 2016.

To further assist stakeholders in transitioning to the updated LCFS regulation, staff conducted a workshop on November 6, 2015, to discuss pathway re-certification using the CA-GREET 2.0 model and the LCFS Reporting Tool and Credit Bank and Transfer System. Staff also began preliminary discussion of third-party monitoring, verification, and voluntary sustainability concepts during this workshop.

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[4] Health and Safety Code, Division 26, Part 5, Chapter 4, section 57004(d)(2).

Alternative Diesel Fuel Regulation. The ADF rulemaking effort follows several years of research and analysis to determine the air emissions and other environmental impacts of both renewable diesel and biodiesel as viable petroleum diesel fuel replacements. These two fuels are currently used in blends containing conventional petroleum-based diesel fuel and, as they become more prevalent in the market, will serve to displace petroleum-based diesel fuel. Renewable diesel is chemically indistinguishable from petroleum diesel and thus, is subject to the current petroleum diesel regulations and is not covered by the Alternative Diesel Fuel Regulation. Conversely, biodiesel is chemically different from petroleum diesel fuel; and as such, the ADF regulation establishes in-use requirements and fuel specifications for biodiesel.

Because of the incentives provided by both the LCFS and the federal renewable fuel standard, the California fuels market is experiencing an increase in innovative motor vehicle fuels that are produced from renewable sources and have lower carbon intensity, relative to conventional fuels. Most notably, alternative diesel fuels (such as biodiesel and dimethyl ether) are becoming more prevalent and as fuel proponents endeavor to bring these fuels to market, they face a complex set of federal and State regulations. To help facilitate this growing trend of diesel fuel alternatives, staff developed the new ADF regulation to provide a systematic and clear process that will result in environmental protections, while supporting rapid deployment of these fuels that may help meet the objectives of AB 32.

The ADF regulation establishes a comprehensive, three-stage process governing the commercialization of new alternative diesel fuels in California. The first stage is a pilot program which consists of a screening analysis and would allow limited sales of a regulated alternative diesel fuel while it undergoes an initial evaluation; the second stage is fuel specification development, an intermediate stage with expanded sales governed by enhanced monitoring, testing, and a multimedia evaluation; the third stage is commercial sales, a final stage with full-scale commercial sales and provisions designed to maintain environmental and public health protections as needed. In addition to the three-stage commercialization process, the proposed regulation also contains specific provisions for biodiesel to address potential oxides of nitrogen (NOx) increases associated with its use.

### *2. Recent Developments – January through June 2016*

LCFS Rulemaking. As noted, after the Board approved the re-adoption of the LCFS regulation, the final rulemaking packages became effective on January 1, 2016.

- Building off the November 2015 preliminary discussion of third-party monitoring, verification, and voluntary sustainability concepts, CARB held a workshop on March 8, 2016. Staff solicited feedback on proposed new reports, graphs, and metrics designed to improve the transparency of LCFS program performance, and presented developments in the proposal to implement mandatory third-party pathway monitoring and verification within the program.

- On June 2, 2016, staff discussed proposed amendments to clarify and enhance regulatory requirements, as well as preliminary draft regulatory language to a proposed mandatory verification program. In addition, a status update was given on the pathway application processing and unique identifiers for LCFS credits.

#### *3. Upcoming Milestones – July through December 2016*

Below is a brief summary of some of the upcoming milestones for LCFS and related programs during the second half of 2016. More information on activities and upcoming public meetings related to the LCFS can be found at: http://www.arb.ca.gov/fuels/lcfs/lcfs.htm.

Staff is planning to conduct at least two more public workshops on July 29 and October 24, 2016, to discuss the proposed amendments to enhance and clarify the LCFS program, as well as the proposed monitoring and verification programs. These items will be presented to the Board for consideration in 2018. Staff will also continue to work with stakeholders to finalize these proposals while continuing to re-certify fuel pathways.

### C. Advanced Clean Cars

#### *1. Background*

CARB developed the Advanced Clean Cars Program (Program) to reduce emissions from the transportation sector that achieve California's long-term climate goals, and to provide a comprehensive approach to further reduce criteria and GHG emissions from light-duty vehicles beyond 2016. This recent Program closely aligns the Low Emission Vehicle light-duty vehicle standards (both criteria and greenhouse gas emission regulations), and the Zero Emission Vehicle (ZEV) regulation, supported by State incentives, to lay the foundation for the next generation of ultra-clean vehicles. Specifically, the Program includes more stringent GHG emission standards, tighter criteria pollutant standards, and increased ZEV production requirements for passenger cars and trucks through the 2025 model year. This suite of regulations will reduce GHG emissions by about 3.1 MMT in 2020, approximately 4 percent of the total needed to achieve the AB 32 target for that year. These regulations are furthering California's progress toward near- and long-term climate goals, as well as aiding attainment of ambient air quality standards.

Zero Emission Vehicle Program. In January 2012, CARB approved the Advanced Clean Cars Program through rulemaking. The ZEV regulation was amended as part of the rulemaking to increase the requirements over time, projecting that about 15 percent of new car sales in 2025 will be ZEVs. The ZEV regulation focuses attention on commercialization of battery electric vehicles, hydrogen fuel cell electric vehicles, and plug-in hybrid electric vehicles. The ZEV regulation will continue as a distinct but complementary program in California and the nine other states that have also adopted it.  The program is a critical element toward meeting the 2050 GHG emissions reduction goal established by Executive Order B-16-2012, which sets a target to reduce GHG emissions in the transportation sector by 80 percent below 1990 levels.[5]

GHG Light-Duty Vehicle Standards.  More stringent GHG emission standards were developed through a joint effort with U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) that evaluated available and emerging GHG emission reduction technologies for light-duty vehicles.  These requirements will reduce new car carbon dioxide-equivalent emissions by about 36 percent and new truck carbon dioxide emissions by about 32 percent for the 2016-2025 model years.  In October 2012, U.S. EPA finalized similar GHG emission standards while NHTSA finalized fuel economy standards, which will each yield similar GHG emissions reductions as California's requirements.  Subsequently, in November 2012, the Board approved amendments to the Advanced Clean Cars regulations that allow vehicle manufacturers to demonstrate compliance with CARB regulations based on compliance with the federal standards, providing a path for vehicle manufacturers to meet a single set of national GHG emission standards through the 2025 model year.  On December 27, 2012, U.S. EPA approved CARB's request for a waiver under the Clean Air Act, giving California the "green light" on its Advanced Clean Cars package of regulations.

Because of the technology-forcing nature of the standards and California's commitment to a national program, CARB is conducting a midterm review of the adopted standards for model years 2022 to 2025 in collaboration with U.S. EPA and NHTSA.  The three agencies will release this joint technical assessment in July 2016, with a staff update to the Board in fall of 2016.  This review will be used to inform CARB and the federal agencies whether to maintain the standards as adopted or consider revising them.  To date, the automobile industry has outperformed the GHG standard by a substantial margin.[6]

Clean Vehicle Rebate Program (CVRP).  To support consumer adoption of ZEVs, CARB continues to implement CVRP.  CVRP has grown from a $4 million dollar project in 2010 to an estimated $175 million project in the 2016-17 timeframe.  Over the life of the program, about 135,000 vehicles have received rebates, totaling $287 million.  This project supports broad ZEV adoption through rebates to consumers for the purchase or lease of new plug-in hybrid electric, battery electric, and fuel cell electric vehicles.  The project is aimed at helping California meet ZEV deployment, air quality, and GHG emission reduction goals.

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[5] Executive Order S-03-05 (2005) originally established the economy-wide GHG 2050 target, whereas E.O. B-16-2012 further established that the transportation sector meet its equal share of the reductions.

[6] Reference:  http://www.epa.gov/oms/climate/ghg-report.htm.

### *2. Recent Developments – January through June 2016*

- To support the development of ZEVs, CARB staff continued to implement CVRP and is developing pilot projects to increase the deployment of advanced technology vehicles, including ZEVs, in disadvantaged communities.
- In September 2015, the Legislature appropriated to CARB $90 million in Low Carbon Transportation funding, of which $75 million was allocated to CVRP. This funding makes up only a portion of the amount identified in the Fiscal Year 2015-2016 Funding Plan, and serves as bridge funding until the Legislature acts on the remaining Cap-and-Trade auction proceeds. For CVRP, this allocation carried the project to early June 2016.

Advanced Clean Cars Research Contracts. CARB continues to pursue several contracts to support overall implementation of the Advanced Clean Cars Program and the midterm review.

- CARB has contracted with UC Davis to conduct research on ZEV consumer attitudes, barriers and motivators for purchasing ZEVs. The purpose of the research was to identify the factors that influence new-vehicle purchase decisions and the areas where additional policies, incentives, or outreach could be implemented to facilitate greater adoption rates of cleaner cars. The project has been completed. In April 2016, the final research report was posted on CARB's website (http://www.arb.ca.gov/research/apr/past/12-332.pdf) and a public research seminar was given.

- CARB has also contracted with UC Davis to conduct research on household-level plug-in electric vehicle usage and charging behavior in order to quantify emission benefits. The project is called, "Advanced Plug-in Electric Vehicle Travel and Charging Behavior," and the next phase of data collection has already begun.

- CARB has contracted with the University of California at Los Angeles (UCLA) to evaluate trends in the emerging ZEV market relative to policy and market factors. The project is called, "Examining Factors That Influence ZEV Sales in California." The final report has been drafted and will be presented to the Research Screening Committee in September 2016.

- CARB has contracted with UCLA to evaluate vehicle incentives. The goal of the project is to improve our understanding of vehicle retirement and replacement decisions in low- and moderate-income households and assess the effectiveness of different incentive structures. The project is called "Designing Light-Duty Vehicle Incentives for Low- and Moderate-Income Households."

### *3. Upcoming Milestones – July through December 2016*

Below is a brief summary of some of the upcoming milestones for Advanced Clean Cars during the second half of 2016. More information on staff's activities and upcoming public meetings on this program can be found at: [http://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc.htm](http://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc.htm).

- CARB staff continues its work on the midterm review of the Advanced Clean Cars Program, in consultation with the Board. In conjunction with U.S. EPA and NHTSA, CARB is assessing the technology used, compliance rates, and costs associated with the greenhouse gas emission standards for light-duty vehicles. The three agencies plan to release a joint Technical Assessment Report (TAR) in July 2016 that describes the newest assessment of light-duty vehicle technology and costs associated with compliance with the federal GHG and CAFÉ standards. Additionally, California is reviewing the adopted particulate matter standards and the ZEV regulation, as well as market uptake of ZEVs and plug-in hybrid electric vehicles. Staff will return to the Board in early 2017 to present the midterm review of the Advanced Clean Cars regulations, which includes a review of the ZEV regulation. This will be an informational update to the Board, and will seek the Board's direction on the future of the regulations.

- The first year of data collection for the Advanced Plug-In Electric Vehicle Travel and Charging Behavior project will be completed in mid-September 2016, with an interim report expected in early 2017. The next phase of data collection has already begun, and will continue through the summer of 2017. Because of the value of this research, CARB will be contracting with UC Davis to conduct similar household-level research with four new models of plug-in electric vehicles and fuel cell electric vehicles. This new project is projected to begin in the first quarter of 2017.

- Staff will hold an Advanced Clean Cars Technology Symposium on September 27 and 28, 2016, on all parts of the midterm review.

## D. Landfill Methane

### *1. Background*

On June 25, 2009, the Board approved the Methane Emissions from Municipal Solid Waste Landfills regulation (Landfill Regulation) that reduces emissions of methane from municipal solid waste (MSW) landfills. This regulation became effective on June 17, 2010, and requires owners and operators of certain uncontrolled MSW landfills to install gas collection and control systems, and requires existing and newly installed gas collection and control systems to operate in an optimal manner. The regulation is a discrete early action measure to reduce GHG emissions in California as described in AB 32.

The Landfill Regulation allows the local air districts to voluntarily enter into a Memorandum of Understanding (MOU) with CARB to implement and enforce the Landfill Regulation and to assess fees to cover their costs. CARB developed the MOU template in consultation with representatives from the California Air Pollution Control Officers Association. Upon signing the MOU, primary enforcement authority is transferred to the local air district. CARB retains its right to enforce the Landfill Regulation, if necessary.

Having local air districts participate in the enforcement process capitalizes on their expertise (many air districts regulate other types of emissions from landfills), takes advantage of their physical location closer to the sources, and reduces the State's cost of implementing the Landfill Regulation. This collaboration is an example of a partnership between CARB and the local air districts, working together to achieve the goals of AB 32.

### *2. Recent Developments – January through June 2016*

During the first half of 2016, CARB worked to increase enforcement activities with inspections, audits, and compliance assistance training. More information on CARB activities on this effort, and upcoming public meetings can be found at: http://www.arb.ca.gov/cc/landfills/landfills.htm.

- To date, 23 air districts have signed the MOU. No additional air districts signed the MOU in the first half of 2016. CARB continues to work with the remaining local air districts to encourage their participation in the MOU.

- CARB has provided training to 21 MOU participating air districts to assist them in implementing and enforcing the Landfill Regulation. Other local air districts that are considering signing the MOU have expressed interest in training within their regions.

- Out of the original 14 MSW landfills that were listed as uncontrolled in CARB's Staff Report: Initial Statement of Reasons for the Proposed Regulation to Reduce Methane Emissions from MSW Landfills (May 2009), seven have now installed landfill gas collection and control systems. The other seven facilities are taking action to comply with the regulation, but are not required to install control systems at this time. No new system plans were filed in the first half of 2016. Two additional landfills may be required to submit design plans to install gas collection and control systems pending reviews of their surface demonstration testing.

- CARB is continuing to work on the MOU with local air districts in order to further refine the information contained in the State's landfill database.

### *3. Upcoming Milestones – July through December 2016*

- CARB originally estimated that there would be a total reduction of about 1.5 MMT of $CO_2e$ as a result of bringing 14 uncontrolled MSW landfills into compliance with the regulation by 2020, along with the implementation and enforcement of this regulation for the remaining estimated 204 affected MSW landfills (including those with gas collection systems already installed). The 1.5 MMT reduction estimate was based on assumed statewide gas collection efficiency. To reduce the uncertainty in the assumed collection efficiency, CARB and CalRecycle are planning to undertake a joint research study to verify the statewide gas collection efficiency and refine the estimated reduction.

- CARB plans to offer additional training sessions to interested local air districts, and to make available a modified version of this training to landfill owners and operators and interested governmental agencies.

- CARB will continue conducting audits through inspections, reviewing documents, and coordinating with local air districts to ensure compliance with the Landfill Regulation.

- CARB will continue to focus enforcement activities on landfills located in districts that have not signed an MOU because these landfills have a greater potential for elevated methane emissions.

- CARB, in collaboration with CalRecycle, will consider additional actions to further reduce and capture methane emissions from landfills consistent with the requirements of AB 32 and the Short-Lived Climate Pollutants (SLCP) Strategy per SB 605 (Lara, Chapter 523, Statutes of 2014) described in Section 1, Part II, A.

## E. Crude Oil and Natural Gas Production, Processing, and Storage

### *1. Background*

The initial Scoping Plan proposed the development of a measure to reduce venting and fugitive GHG (methane) emissions associated with oil and gas production, processing, and storage. This measure is known as the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities Regulation. By definition, releases of gases, such as methane or $CO_2$, into the atmosphere that are intentional, are called “vented emissions.” Those that are unintentional releases are called “fugitive emissions.” In 2009, CARB undertook a survey of the industry to improve the emissions inventory for this sector. The survey results showed that about 1.3 million metric tons of $CO_2e$ come from vented and fugitive methane emissions in the oil and natural gas production, processing, and storage sector. These emissions come from various sources, such as storage tanks, compressor seals, and leaking components including valves, flanges, and connectors.

This measure was not originally envisioned to address well stimulation, which includes hydraulic fracturing (or fracking). However, with the passage of SB 4 (Pavley, Chapter 313) in 2013, CARB has expanded its investigation to consider and reduce methane, Volatile Organic Compound (VOC), and toxic air contaminant emissions resulting from well stimulation activities. Pursuant to SB 4, CARB staff is working with the local air pollution control and air quality management districts, as well as with the Department of Conservation's Division of Oil, Gas, and Geothermal Resources (DOGGR) and other relevant State agencies, to coordinate efforts and maximize the effectiveness of measures to address well stimulation emissions.

#### *2. Recent Developments – January through June 2016*

- CARB staff held a public workshop in Sacramento on February 4, 2016, to present revised draft regulatory language and to solicit comments.

- On May 31, 2016, CARB staff released the Notice of Public Hearing to Consider the Proposed Regulation for Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities. Also on that day, staff posted the Initial Statement of Reasons for this proposed regulation, including the staff report, proposed regulatory language, Economic Analysis, and Draft Environmental Analysis.

#### **3.** *Upcoming Milestones – July through December 2016*

- CARB plans to present the proposed regulation for Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities to the Board on July 21, 2016. This will be the first of two Board hearings on the proposed regulation.

## II. CARB ACTIVITIES TO SUPPORT AB 32

This section focuses on major AB 32 support activities identified in the supplemental budget language: Updates to the AB 32 Scoping Plan, coordination with entities outside California, implementation of SB 375 sustainable communities' plans, and the use of Cap-and-Trade auction proceeds. Also included is information on the development of the Sustainable Freight Action Plan, which will drive further actions to provide significant benefits for climate, regional air quality and localized health risk reduction.

### A. Scoping Plan

#### *1. Background*

AB 32 requires CARB to take the lead, in close coordination with other State agencies, to prepare and adopt a Scoping Plan that describes how the State will reduce GHG emissions to 1990 levels by 2020. The initial Scoping Plan was first approved by the Board in December 2008, and contained a range of GHG emission reduction actions that could be taken. These actions include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade program, and an AB 32 program implementation fee to fund the program.

Since 2008, CARB has worked with other State and local agencies to implement the climate change programs outlined in the initial Scoping Plan. California has undertaken a number of notable groundbreaking climate change initiatives including the first in the nation economy-wide Cap-and-Trade Program (page 3), the Low Carbon Fuel Standard (page 13), the Advanced Clean Cars Program (page 17), a 33 percent Renewable Portfolio Standard, and the Sustainable Communities program (page 35).

AB 32 further requires that the Scoping Plan be updated at least every five years. The Board approved the first update to the Scoping Plan (2013 First Update) in May 2014. The 2013 First Update reflects public input and recommendations from business, environmental, environmental justice, and community-based organizations. The 2013 First Update also recommended the need for a 2030 midterm target to establish a continuum of action to reduce emissions, not just for stated limits in 2020 or 2050, but also for the years in between.

On April 29, 2015, Governor Jerry Brown issued Executive Order B-30-15 to establish a California GHG emissions reduction target of 40 percent below 1990 levels by 2030 (2030 Target). The 2030 Target is the most aggressive benchmark enacted by any government in the United States so far to reduce GHG emissions over the next 15 years. Setting a transformational 2030 Target is necessary to guide policy and investments in California, and sends a message around the world that California is a potential partner and model for implementing climate change mitigation strategies. To achieve these goals, CARB has been tasked with creating a 2030 Target Scoping Plan Update (Update) by the end of 2016, as a framework for achieving the Governor's 2030 targets for GHG emission reductions.

Concurrent planning efforts related to energy efficiency in existing buildings (AB 758), short-lived climate pollutants, sustainable freight, Greenhouse Gas Reduction Fund investments, forest and agriculture health, and others will be coordinated with, and feed into, the Update.

The Governor's Executive Order aligned California's 2030 GHG emission reductions target with those of leading international governments ahead of the United Nations Climate Change Conference of Parties in Paris (COP 21) held in December 2015. The 28-nation European Union had established the same greenhouse gas emission reduction target for 2030 in October 2014.

California is currently on track to meet or exceed the AB 32 target of reducing GHG emissions to 1990 levels by 2020. Setting targets for 2030 is critical to help frame the additional suite of policy measures, regulations, planning efforts, and investments in clean technologies and infrastructure needed to continue driving down emissions to the 2050 goal of 80 percent below 1990 levels. This goal aligns with the IPCC's scientific consensus of GHG emissions reduction levels needed to limit global warming to 2 degrees Celsius above pre-industrial levels -- the threshold that scientists determined that if exceeded will create more catastrophic climate disruptions including extreme droughts, major sea level rise, more frequent and intense wildfires, and heat waves;

severe smog; and extensive harm to agricultural productivity, natural and working lands, and public health. Additionally, GHG emission reductions from all sources – including non-$CO_2$ gases, land uses such as agriculture, and natural and working lands – are all necessary to mitigate climate change.

### *2. Recent Developments – January through June 2016*

Since Board approval of the 2013 First Update in May 2014, several of the recommendations in the First Update are currently being implemented, and plans to implement other recommendations are being explored and developed in the 2030 Update. See the sections in this report on Cap-and-Trade, LCFS, Advanced Clean Cars, Sustainable Communities, Oil and Gas, Sustainable Freight, and Cap-and-Trade Auction Proceeds, for a description of the current activities related to each of these programs.

The following are descriptions of the developments during the first half of 2016 related to the 2030 Target Scoping Plan Update, and progress on other GHG reduction strategies not covered elsewhere in this report.

- On January 15, 2016, CARB conducted a public workshop to discuss the economic analysis of the Update, including the use of E3's California PATHWAYS model and REMI PI+ model for evaluation of potential policies for the Update. Staff also discussed the role of the Scoping Plan Economic Reviewers.

- On March 23, 2016, CDFA, CNRA, CARB, and the Governor's Office of Planning and Research held a joint workshop in Sacramento to present a Discussion Paper containing initial ideas for the natural and working lands sector. Public comments were collected to inform the development of the Update. Another workshop was held in Fresno on April 27, 2016, that focused on the agriculture portion of the natural and working lands sector. A public comment period was offered to further inform the Update.

- CARB has continued to coordinate with the California Energy Commission (CEC), Public Utilities Commission (CPUC), Natural Resources Agency (CNRA), and Department of Food and Agriculture (CDFA) for each of the key climate change strategy pillars that were identified in Governor Brown's 2015 Executive Order B-30-15. The pillars recognize that several major areas of the California economy will need to reduce emissions to meet the 2030 Target.[7]

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[7] The pillars include: (1) reducing petroleum use in cars and trucks by up to 50 percent; (2) increasing from 33 to 50 percent the electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved in existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other SLCPs; (5) managing farms and rangelands, forests and wetlands so they can store carbon; and (6) periodically updating the State's climate adaptation strategy: Safeguarding California. More information on the pillars is available on CARB's website at: http://www.arb.ca.gov/cc/pillars/pillars.htm.

- In April 2016, CARB released the Proposed SLCP Reduction Strategy and Draft Environmental Analysis (EA), which was open to a public comment period. Three regional workshops were held thereafter in Sacramento and Bakersfield to present information and gather additional input from the public.
- In June 2016, CARB released its Scoping Plan Concept Paper to the public for comments.

- To advise the Board on the development of the 2030 Target Scoping Plan Update, CARB resumed hosting meetings for the AB 32 Environmental Justice Advisory Committee (EJAC).[8] The EJAC has met monthly since December 2015, and has heard an overview of CARB's efforts on the Update as well as other CARB programs, including the SLCP Draft Strategy, California's plan to comply with U.S. EPA's Clean Power Plan, and the Cap-and-Trade Program. Based on these overviews, the EJAC has been working on developing a set of recommendations for the Update.

- California's Forest Climate Action Team (FCAT) has continued to hold bi-monthly meetings to focus on crafting a Forest Carbon Plan. The Forest Carbon Plan will provide recommendations on how to set quantitative GHG planning targets for California's forests. The FCAT is considering how to best align the development of the Forest Carbon Plan with the goals and timeframe of the 2030 Target Scoping Plan Update. More information on FCAT activities is available on CAL FIRE's website at: http://www.fire.ca.gov/fcat.

- CDFA has been preparing for implementing the Healthy Soils Initiative in response to the Governor's climate change goals expressed in his Inaugural Address in January 2015. The Scientific Advisory Panel on Environmental Farming has continued to hold meetings that focus on the potential opportunities to rebuild carbon storage capacity in agricultural soils and discuss the potential strategies for achieving those goals.

- Discussions are on-going among the State's energy agencies and CARB regarding the energy sector recommendations identified in the 2013 First Update, the 2030 Target, SB 350 (De León, 2015), and intersections with the federal Clean Power Plan.

- CARB has been working with CalRecycle, CDFA, CAL FIRE, and other stakeholders to identify ways in which food waste, agricultural, forest, or other biomass wastes may be either composted, or harnessed to produce energy or fuels, which will reduce landfill disposal and methane emissions from decomposition, and prevent black carbon emissions from open pile burning.

[8] The Environmental Justice Advisory Committee was convened pursuant to the Health and Safety Code, section 38591.

### *3. Upcoming Milestones – July through December 2016*

- Beginning in July and throughout the second half of the year, CARB and the EJAC will jointly hold several local community meetings, located in various California environmental justice communities, including the South Coast, San Diego, the Imperial, San Joaquin, and Sacramento Valleys, and the Bay Area. Local residents in these areas will be asked to contribute to the Committee's development of the EJAC recommendations for the Update. Additional information, meeting notices and agendas are available on the CARB website at: http://www.arb.ca.gov/cc/ejac/ejac.htm.

- CEC, CPUC, and CARB intend to host a joint workshop for the energy sector in the Update, with staff presentations on current and forthcoming initiatives that contribute to GHG reductions in the electricity, energy efficiency, and natural gas sectors. Staff also intends to provide preliminary thinking on energy policy interaction across sectors, such as cross-sector trade-offs and synergies.

- CARB intends to hold additional public workshops for the draft Update throughout the second half of 2016.

- In late 2016, CARB plans to release a discussion document for the Update for public input and comment. A draft Update is expected to be completed and considered by the Board in early 2017.

- CARB will hold workshops in preparation for an early 2017 hearing to finalize the SLCP Reduction Strategy and Environmental Analysis, and prepare written responses to comments on the EA. More information and updates are posted on CARB's website at: http://www.arb.ca.gov/cc/shortlived/shortlived.htm.

- CARB will continue its partnership with CAL FIRE, CNRA, CalEPA, and other partners in setting carbon sequestration and GHG emissions reduction goals for California's forests in the natural and working lands sector. FCAT meetings will continue bi-monthly, working toward producing the Forest Carbon Plan that is expected to be complete by early 2017. The Forest Carbon Plan will feed into the recommendations for the natural and working lands sector goals of the Update.

- CARB will continue its partnership with CDFA and other State agencies to develop the Healthy Soils Initiative to support carbon sequestration and GHG emissions reductions in the agriculture sector. More information on the Healthy Soils Initiative can be found on CDFA's website at: http://www.cdfa.ca.gov/EnvironmentalStewardship/HealthySoils.html.

More information on CARB activities regarding Scoping Plan updates and implementation can be found at: http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm.

## B. Coordination with Other Entities Outside of California

### *1. Background*

AB 32 requires CARB to "consult with other states, the federal government, and other nations to identify the most effective strategies and methods to reduce greenhouse gases, manage greenhouse gas control programs, and to facilitate the development of integrated and cost-effective regional, national, and international greenhouse gas reduction programs." Pursuant to this requirement, and in the spirit of expanding international action to address global climate change, CARB engages with interested jurisdictions outside of California.

CARB works closely with other entities at the local, State, regional, national, and international levels to guarantee that the rigorous standards established by California are understood, and to encourage participation from other jurisdictions. Where other states and nations are developing or implementing their own GHG reduction programs, CARB looks to coordinate with committed partners to expand action to tackle global climate change by sharing California's programs, policies and best practices so that their program designs complement California's efforts and benefit the State to the maximum extent feasible.

One focus of CARB's efforts has been with partner jurisdictions to build an integrated, regional carbon market and expand cost-effective emission reduction opportunities. These efforts have included developing the administrative support activities managed by the Western Climate Initiative, Inc. (WCI, Inc.).

CARB has worked with Québec to link cap-and-trade programs. After satisfying the requirements of Senate Bill 1018 (Budget and Fiscal Review, Chapter 39, Statutes of 2012), and completing the Linkage Readiness Report requested by the Governor, the California and Québec cap-and-trade programs were linked on January 1, 2014. This linkage enables compliance instruments to be transferred among participants in the two programs. Linkage also enables allowance auctions to be conducted jointly. See page 3 on Cap-and-Trade for more information.

In April 2015, the Province of Ontario announced its intention to develop and implement a cap-and-trade program to reduce greenhouse gas emissions. Ontario indicated that it hopes to link its program, once developed, with the existing California and Québec linked cap-and-trade programs. In May 2015, Ontario also announced a midterm target to reduce emissions by 37 percent below 1990 levels by 2030.

### *2. Western Climate Initiative, Inc.*

WCI, Inc. is a non-profit corporation that focuses solely on providing administrative support. WCI, Inc. coordinates administrative services to cap-and-trade programs developed and implemented by states and provinces. The Board of Directors for WCI, Inc. includes officials from the provinces of Québec, Ontario, and British Columbia, and the State of California. The services provided by WCI, Inc. can be expanded to support jurisdictions that join in the future.

WCI, Inc. is solely administrative in nature. All policymaking and regulatory authority for each jurisdiction's program is retained by each jurisdiction. According to the WCI, Inc. bylaws, its administrative activities must "…conform to the requirements of State and Provincial programs…" The requirements are defined by the participating jurisdictions, such that WCI, Inc. must execute its administrative role in conformance with the requirements established by CARB and the other jurisdictions.

Section 2 of this report provides the semi-annual update to the Legislature on the activities of WCI, Inc. Please see this section for further information.

### *3. Other Federal and Other State Governments*

CARB coordinates with entities at the state, federal, and international levels that have or are developing climate-related program elements similar to those of California to ensure that important provisions are as consistent as possible, where appropriate. This coordination makes certain that the State's and stakeholders' investment in developing California regulations facilitates future broadening of policies to other jurisdictions and strengthens California's ability to compete in the global economy. CARB works closely with federal agencies including: U.S. EPA, the U.S. Department of State, the U.S. Agency for International Development, the Commodity Futures Trading Commission, and the Federal Energy Regulatory Commission (FERC), on climate change issues.

The Mandatory Reporting Regulation for GHG emissions is modeled on, and periodically updated to maintain consistency with, U.S. EPA's GHG reporting rule. The Compliance Instrument Tracking System Service (the market registry and emissions trading system for California's Cap-and-Trade Regulation) was built in cooperation with U.S. EPA on the framework used in other emissions trading systems, including the federal Acid Rain Program and the Northeast states' Regional Greenhouse Gas Initiative. The industrial emissions benchmarking methodology used in California's Cap-and-Trade Program was developed in coordination with partners in other U.S. states, Canadian provinces, and the European Union. CARB coordinates with the Commodity Futures Trading Commission and Federal Energy Regulatory Commission to strengthen carbon and related energy market monitoring, oversight, and enforcement.

In August 2015, U.S. EPA finalized its "Clean Power Plan" – the first federal limitations on GHG emissions from existing power plants developed under the federal Clean Air Act, section 111(d). The final rules set GHG targets for 2030 (along with an interim target applicable from 2022-2029) for the states, based upon the application of the best system of emission reductions demonstrated for the sector. U.S. EPA identified this system as consisting of an array of demonstrated power sector measures – including efficiency improvements, fuel switching, and use of zero carbon energy resources that can displace emissions at fossil fuel-fired power plants. For flexibility, states may use these or other measures to comply, including emissions trading systems. Each state will be required to submit a federally enforceable plan to attain the federal targets. State plans were originally due in September 2016, with the possibility of one- to two-year extensions, but these deadlines have been stayed, pending litigation.

Nationally, the Clean Power Plan will provide many critical public health benefits, since power plants account for roughly one-third of all domestic GHG emissions. With the Clean Power Plan, U.S. EPA is building on trends already underway in states and the power sector. By 2030, U.S. EPA projects that its plan will result in reducing carbon emissions from the power sector by 32 percent below 2005 levels nationwide. It will also cut emissions that lead to smog and soot by more than 25 percent, which will better protect public health. The program is also expected to reduce energy bills if states comply in part by increasing the use of energy efficiency measures.

Despite the stay, compliance with the Clean Power Plan needs to be factored into ongoing planning for post-2020 climate programs. Accordingly, CARB, working with an interagency group, is developing a draft compliance plan for the Clean Power Plan, and expects to have it published by August 2016. To develop this plan, CARB, CPUC, and CEC have worked collaboratively with many stakeholders and regulatory entities, including California air districts and the California Independent System Operator.

Analysis of California's projected emissions in the 2020 – 2030 period indicates that the State will meet or exceed U.S. EPA's standards. In addition, Governor Brown's Executive Order B-30-15, signed in April 2015, directs State agencies to develop strategies to reduce GHG emissions 40 percent below 1990 levels by 2030. This executive order will further enhance the State's ability to comply with the federal Clean Power Plan. Accordingly, CARB focused on developing a State compliance plan that will continue to extend successful GHG reduction measures for the electricity sector, and operate harmoniously with the existing State Cap-and-Trade Program and other important regulatory initiatives.

Specifically, California's Cap-and-Trade Program, along with major investments in renewable energy and energy efficiency, among other programs, has put the State in a strong position to comply. Under the draft plan, power plants covered by the federal rules could participate in the State system, much as they do today. Although CARB proposes to adjust the duration of compliance periods in the State program to match those in the Clean Power Plan, the State Program will otherwise function as normal if the compliance plan is approved. Power plant operators would have a different experience only in the extremely unlikely event that California power plant emissions exceeded federal targets, in which case a trading-based backstop program, available only to affected power plants, would be used to restore required emissions levels.

The draft plan is the latest step in extensive State efforts to support and shape the federal policy. State efforts have included submitting extensive comments to U.S. EPA in December 2013 and November 2014 on its regulatory proposals, testimony by CARB

Chair Nichols to the U.S. Senate Committee on Environment and Public Works in support of the Clean Power Plan, testimony by CARB Executive Office and CPUC executive staff to the Federal Energy Regulatory Commission in support of the Plan, participation in multiple regional and national working groups, and ongoing staff efforts to evaluate options for California's compliance plan. After the rule's release, CARB and cooperating agencies promptly began the formal public process needed to fully develop and submit the compliance plan, including a kick-off workshop in September 2015, a follow-up workshop to explore the connections between the Clean Power Plan and Cap-and-Trade in December 2015, and further workshops in spring 2016. CARB and its partners are also actively participating in litigation to defend the federal program.

U.S. EPA and CARB also routinely coordinate on advanced transportation and fuels, including the relationship between the federal Renewable Fuels Standard and the California Low Carbon Fuel Standard (LCFS). Furthermore, CARB's work with U.S. EPA and its federal partners was instrumental to the success of the Advanced Clean Cars Program.

CARB has also been working with other states and provincial governments on low carbon fuels issues to share insights gained from developing and implementing California's LCFS. In October 2013, Governor Brown signed the Pacific Coast Action Plan on Climate and Energy with Oregon, Washington, and British Columbia. Among other activities, the agreement commits each jurisdiction to reduce GHG emissions by putting a price on carbon, transforming markets for energy efficiency, and adopting or maintaining low carbon fuel standards.[9] On June 1, 2016 these Pacific Coast Collaborative jurisdictions made new commitments through their Pacific Coast Climate Leadership Action Plan, updating the pledges made in 2013 and reemphasizing the need for creating a robust regional market for low carbon transportation fuels.[10]

To further these objectives, CARB staff continues to collaborate with staff in British Columbia and Oregon on their low carbon fuel standard programs. CARB staff and Executive Office members have met several times and participated in multiple conference calls with their counterparts within the Pacific Coast Collaborative to discuss the design elements and challenges of a low carbon fuel standard. In July of 2016, CARB LCFS staff will attend a workshop in Oregon to explain cost containment concepts in low carbon fuel programs, and how the lessons learned on this topic in California may be applicable to the design of Oregon's program.

#### *4. International*

California has advanced several strategic national and international partnerships, including a Memorandum of Understanding (MOU) with Mexico. This MOU, which was signed by the Governor in Mexico City on July 28, 2014, provides for cooperation on

[9] In July 2015, a transportation bill was passed in Washington that includes a provision that hinders prospects for a low-carbon fuel standard in that state.
[10] Reference: http://www.pacificcoastcollaborative.org/Documents/PCC_Leadership_Action_Plan_060116_signed.pdf.

emissions trading systems and vehicles, as well as forest management, air quality, and wildfires. The MOU is a four-year effort with four priority action areas: climate change, air quality, wildfires and clean vehicles. CARB is the California lead for three of the work groups that are organizing the work under the MOU: climate change, air quality, and clean vehicles.

During the first half of 2016, the climate change work group continued to exchange information with the Mexican Secretariat of Environment and Natural Resources (SEMARNAT) via regular bi-weekly calls. The focus of cooperation to date has been monitoring, reporting and verification of greenhouse gas emissions, with both sides recognizing this as the necessary foundation for further collaboration. With support from the Environmental Defense Fund, SEMARNAT held a workshop focused on monitoring, reporting and verification issues February 10-12, 2016, in Mexico City. CARB's Greenhouse Gas Reporting staff, as well as lead staff from the GHG verification section, attended on behalf of California. The workshop covered multiple topics related to monitoring, reporting and verification, including the requirements and implementation in California and an update on Mexico's current program.

The Mexican National Forestry Commission (CONAFOR) is now engaging with CARB directly through the biweekly calls between CARB, SEMARNAT, and CONAFOR. Discussions include descriptions of Mexico's Estrategia Nacional para REDD+ program, other forestry-related climate efforts, and descriptions of how California's domestic forestry offset program and potential for international forestry programs are advancing. The Nature Conservancy and Environmental Defense Fund, in coordination with CARB, have proposed organizing a workshop in Mexico or California that will include Mexican forestry programs as a topic. CONAFOR and CARB continue to discuss potential topics and timing.

Governor Brown, CARB and other agencies including CalEPA and CEC, have also been working with several entities in China to advance efforts to reduce GHG emissions and combat air pollution. China has recently become the world’s leading emitter of GHG emissions and is a critical partner in addressing global climate change. Similarly, many cities in China are suffering from hazardous air pollution, some of which drifts across the ocean to California. Sharing California’s leading expertise on reducing air pollution can provide mutual benefits to China, California and global climate. Accordingly, California and China entered into a number of agreements in 2013 and 2014, and have undertaken several activities under these agreements. Activities related to the relationship in the first half of 2016 include:

- On January 14, 2016, a delegation from the Guangzhou Bureau of Environmental Protection visited CARB’s Sacramento laboratories for a tour of the air monitoring station. On January 21, the same delegation visited CARB’s Sacramento headquarters to learn about California’s regulations and enforcement of air pollution emissions.

- On February 1, 2016, a delegation from China's National Development and Reform Commission visited CARB's Sacramento headquarters to discuss California's Cap-and-Trade program and AB 32 Scoping Plan.

- On March 16, 2016, a delegation from the Hong Kong Environmental Protection Department visited CARB in El Monte and Sacramento to learn about CARB's program for enforcing the marine fuel switching regulation, as well as regulations for off-road mobile sources, marine and port equipment, and consumer products. The group also toured CARB's Sacramento laboratories.

- April 11-14, 2016, Enforcement Division staff participated in two workshops and one mock inspection aboard a tanker, held in Shanghai and Beijing. The workshops were sponsored by the Natural Resources Defense Council and were designed to help Chinese Maritime Safety Administration (MSA) inspectors better understand how to enforce Emission Control Areas (ECAs) for China's ports. Not long after staff's visit, the MSA found its first noncompliant vessel on April 27. Since the initial noncompliant ship was identified, there have been a number of additional violations discovered by MSA staff using the techniques outlined in the workshops. CARB staff returned to Shanghai in June on a trip sponsored by U.S. EPA to participate in a similar workshop and training event.

- On April 14, 2016, members of a Working Group on China 6 Vehicle Emissions Standards from Dongfeng Motor Co. and Changan Automobile Co. visited CARB in El Monte to discuss On-Board Diagnostics II implementation, governance, and enforcement.

- June 5-9, 2016, Executive Officer Richard Corey traveled to Beijing with the California delegation to participate in the China Climate Summit and China-U.S. Climate-Smart/Low-Carbon Cities Summit.

- On June 17, 2016, a delegation from the China Automotive Technology and Research Center visited CARB in El Monte and Los Angeles to discuss recent regulations and policies for vehicle fuel consumption and emissions and to tour the vehicle emissions laboratories.

- On June 29, 2016, a delegation from the Bay Environmental Technology (Beijing) Corp. visited CARB in Sacramento to discuss VOC and NOx emission controls and to tour the relevant laboratories.

CARB continues to engage in discussions with other governmental agencies outside of California to share information and experiences about the design of programs aimed at reducing emissions from deforestation and forest degradation, and to begin evaluating whether and how such programs could potentially be included in California's Cap-and-Trade Regulation in the future. Aside from offset credits issued by Québec, CARB does not currently accept any offset credits from outside the United States, and any future inclusion would require new rulemaking. A description of this ongoing engagement is included in the first update to the AB 32 Scoping Plan, which describes CARB's involvement with the Governors' Climate and Forests Task Force and the importance of continuing to assess tropical forests in order to address climate change. CARB staff presented an update to the Board in July 2014 regarding CARB's work on this topic, released a white paper on October 19, 2015, and further discussed this ongoing work at public workshops on October 28, 2015, March 22, 2016, April 5, 2016, and April 28, 2016.

In addition to the above activities, CARB has received a number of visiting delegations from other countries interested in California's climate change policies. During the first half of 2016, CARB received 11 foreign delegations to discuss climate change policies, including delegations from Singapore, Colombia, Chile, and South Korea.

CARB has also participated in meetings of the Partnership for Market Readiness, a multilateral World Bank initiative that brings together more than 30 developed and developing countries to share experience and build capacity for climate change mitigation efforts, particularly those implemented using market instruments. CARB became a Technical Partner of the Partnership for Market Readiness in November 2014. In April 2016, Executive Office staff participated in a technical workshop and the 14th Meeting of the Partnership Assembly of the Partnership for Market Readiness in Lima, Peru.

On May 19, 2015, California entered into the Subnational Global Climate Leadership Memorandum of Understanding, or "Under 2 MOU," with Baden-Württemberg, Germany; Acre, Brazil; Catalonia, Spain; Wales, United Kingdom; and several Mexican states and Canadian provinces. The Under 2 MOU originated out of the desire to bring together ambitious states and regions willing to make a number of key commitments towards emissions reduction and to help galvanize action at the United Nations Framework Convention on Climate Change (UNFCCC) 21st Conference of the Parties (COP 21). Central to the agreement is that all signatories agree to reduce their greenhouse gas emissions 80 to 95 percent, or limit emissions to 2 metric tons $CO_2$-equivalent per capita, by 2050. On December 5-11, 2015, Chair Mary D. Nichols traveled to COP 21 in Paris, France, as part of Governor Brown's delegation. She spoke at many side events highlighting California's climate policies and initiatives, including the Under 2 MOU. By June 2016 the MOU had been signed by 135 jurisdictions representing more than 783 million people and $21 trillion in combined gross domestic product, equivalent to more than a quarter of the global economy. During the first half of 2016, the Under 2 MOU transitioned from a paper agreement to a coalition of the signatories (an alliance of governments for combined action) that will meet regularly to exchange knowledge and best practices, and to build capacity. CARB is providing technical expertise to knowledge exchanges facilitated by the Under 2 Coalition.

In August 2015, California launched the International Zero-Emission Vehicle (ZEV) Alliance with the Netherlands and Québec to accelerate global adoption of ZEVs. By December 2015, the alliance had grown to include 14 members: British Columbia, California, Connecticut, Germany, Maryland, Massachusetts, The Netherlands, New York, Norway, Oregon, Quebec, Rhode Island, the United Kingdom, and Vermont. In conjunction with COP 21 in Paris, the ZEV Alliance announced a goal of making all passenger vehicle sales in their jurisdictions ZEVs as quickly as possible and no later than 2050. CARB plays a key role in the ZEV Alliance on policy and technical matters.

California's programs have continued to gain international attention and recognition. Consequently, requests for CARB to host delegations, visit other states and countries, and enter into partnerships have increased. As a result of the Under 2 MOU, CARB's global influence, in efforts such as the International ZEV Alliance, Paris Climate Agreement, and other international partnerships and initiatives, is anticipated to continue.

## C. SB 375 – Sustainable Communities Plans

### *1. Background*

SB 375 (Steinberg, Chapter 728, Statutes of 2008), also known as the Sustainable Communities and Climate Protection Act, reduces GHG emissions from passenger vehicles through improved regional transportation and land use planning. SB 375 directs regions to integrate development patterns and transportation networks in a way that achieves passenger vehicle GHG emissions reductions while addressing housing needs and other regional planning objectives.

SB 375 requires CARB to set regional GHG emissions reduction targets for passenger vehicles for 2020 and 2035 for the State's federally designated Metropolitan Planning Organizations (MPO). Each MPO is then required to adopt and submit to CARB a sustainable communities strategy (SCS) that uses land use and transportation strategies to reduce the region's passenger vehicle GHG emissions. CARB's statutory responsibility under SB 375 is to then accept or reject an MPO's determination that its SCS would, if implemented, meet the targets. An MPO must develop an alternative planning strategy if its SCS fails to meet CARB targets.

In 2010, CARB set the regional GHG emissions reduction targets required under SB 375 (see Table 1-1). In the four most heavily populated regions of the State, the Board-approved targets are expected to achieve per capita GHG emissions reductions of 7 to 8 percent by 2020, and between 13 and 16 percent in 2035, compared to 2005 levels. Achieving these targets means statewide GHG emissions reductions of over 3 MMT in 2020 and 15 MMT in 2035. The regions include Southern California, the Bay Area, San Diego, and the Sacramento Metropolitan Area.

| Table 1-1: Metropolitan Planning Organization (MPO) Region | Targets * | |
|---|---|---|
| | 2020 | 2035 |
| Southern California Association of Governments (SCAG) | -8 | -13 |
| Metropolitan Transportation Commission (MTC) | -7 | -15 |
| San Diego Association of Governments (SANDAG) | -7 | -13 |
| Sacramento Area Council of Governments (SACOG) | -7 | -16 |
| 8 San Joaquin Valley Councils of Governments | -5 | -10 |
| Tahoe Metropolitan Planning Organization | -7 | -5 |
| Shasta Regional Transportation Agency | 0 | 0 |
| Butte County Association of Governments (BCAG)[11] | +1 | +1 |
| San Luis Obispo Council of Governments | -8 | -8 |
| Santa Barbara County Association of Governments | 0 | 0 |
| Association of Monterey Bay Area Governments | 0 | -5 |

* Targets are expressed as percent change in per capita GHG emissions relative to 2005.

Under the law, CARB has specific statutory responsibility to determine whether the SCS, if implemented, would achieve the GHG emission reduction targets. In July 2011, CARB staff released to the public a methodology that details how CARB evaluates MPO SCSs in order to fulfill its responsibility under the law. CARB's methodology can be found at http://www.arb.ca.gov/cc/sb375/scs_review_methodology.pdf.

Of the major MPOs, San Diego's SCS was adopted by the San Diego Association of Governments in October 2011, followed by the Southern California Association of Governments' and the Sacramento Area Council of Governments' plans in 2012, and the Metropolitan Transportation Commission's plan in 2013. Staff presented status updates to the Board on the development of these plans. Based on staff's evaluation, CARB's Executive Officer accepted all four SCSs through Executive Orders on behalf of the Board. In December 2012, the Tahoe and Butte MPOs adopted their respective plans; in August 2013 the Santa Barbara region adopted its plan, and in June 2014 the Monterey Bay region adopted its plan. The Board approved resolutions accepting these four SCSs.

By September 2014, all eight of the San Joaquin Valley MPO Boards adopted their first SCSs. CARB staff completed its evaluations of all these plans with the exception of those for Merced and Madera, which did not meet the GHG emission reduction targets. As a result, the Merced County Association of Governments and the Madera County Transportation Commission are preparing revised SCSs. The Board approved resolutions accepting the GHG quantifications for the Fresno Council of Governments (COG) in January, for the San Joaquin COG in May, for the Stanislaus COG in June, and for the Kern COG in July of 2015. In October 2015, the Board accepted the Kings

[11] At the time these targets were established, BCAG's targets were based on the performance of its adopted Regional Transportation Plan. However, BCAG's 2012 SCS demonstrated a reduction in per capita GHG emissions of 2 percent by 2020 and an additional 2 percent by 2035.

County Association of Governments' and Tulare County Association of Governments' GHG quantifications.

The San Luis Obispo COG adopted its SCS in April 2015, and CARB staff's technical evaluation was presented to the Board and approved in June 2015. The Shasta Regional Transportation Agency (SRTA) adopted its SCS in June 2015 and CARB staff's technical evaluation was presented to the Board and approved in October 2015.

Because RTP/SCS updates occur on a rolling 4-year schedule, some MPOs are already developing their second SCSs. SANDAG adopted its second SCS in October 2015. Based on staff's evaluation, CARB's Executive Officer accepted SANDAG's GHG quantification through an Executive Order in December 2015.

### *2. Recent Developments – January through June 2016*

SACOG adopted its second SCS in February 2016 and SCAG adopted its second SCS in April 2016. Based on staff's evaluation, SCAG's GHG quantification was accepted through an Executive Order in June 2016. CARB staff is nearing completion of its evaluation of SACOG's GHG determination.

Target Update. CARB staff has developed a process and timeline to update the SB 375 targets in 2017. Staff has been meeting with MPOs individually and in small groups regarding region-specific factors and technical information that will inform proposed target recommendations. CARB staff has encouraged all MPOs to submit recommended targets that are supported by technical documentation. All MPOs intend to submit their target recommendations no later than December 2016.

Interregional Travel. Because of its potential impact on GHG quantification, CARB is funding research to better understand how interregional travel is currently estimated. Under contract with CARB, the University of California at Irvine (UC Irvine) is conducting a comprehensive review of existing methodologies and will identify the weaknesses and advantages of each. This study will also propose alternate methods to better represent interregional travel, and to make recommendations on data needs and modeling policy. CARB has continued to monitor this research, with results expected in mid-2017.

Sustainable Communities Research Contracts. CARB is providing funding for several research projects to support land use and transportation planning, including research on the following: indicators for a future monitoring system for the implementation of sustainable communities strategies; the relationship between transit-oriented development and displacement of low-income residents and effectiveness of anti-displacement policies; modeling household vehicle and transportation choice and usage to help identify characteristics of households with low transportation emissions; and the travel patterns and vehicle miles traveled of people living in affordable housing in transit-oriented developments. In addition, CARB is funding two research projects aimed at finding solutions to the exposure of sensitive land uses to near-roadway pollution. More details on these research projects as well as information on completed

and future research may be found at:
http://www.arb.ca.gov/research/sustainable/landuse.htm.

### *3. Upcoming Milestones – July through December 2016*

As each MPO adopts a new SCS, CARB staff will evaluate the plan to determine whether the SCS, if implemented, would achieve the GHG emission reduction targets. CARB will periodically report to the Board on these actions. More information on staff's activities and upcoming meetings can be found at:
http://www.arb.ca.gov/cc/sb375/sb375.htm.

- The Butte County Association of Governments and the Tahoe Metropolitan Planning Organization are expected to adopt their second SCSs in December 2016. Thereafter, CARB will review these Sustainable Communities Strategies for approval.

- CARB staff will continue to work with the MPOs, as directed by the Board, to develop recommendations for updating their GHG emissions reduction targets. Staff will develop draft target recommendations, with MPO input, and provide an informational update to the Board in spring 2017.

- CARB staff will continue to meet with stakeholders to advance the development of tools, metrics, and methods for estimating the co-benefits of SCS implementation as part of the target update process.

- CARB staff will continue to meet with environmental and equity stakeholders to encourage their participation in the target update process.

- CARB staff will complete its technical evaluation of SACOG's second SCSs and CARB's Executive Officer will either accept or reject SACOG's GHG determination through an Executive Order.

- CARB staff will continue to engage with the Strategic Growth Council on the Greenhouse Gas Reduction Fund revenue appropriated for SCS program implementation, to help enable GHG reductions from SB 375, along with numerous other community and environmental co-benefits.

- CARB staff will continue to monitor UC Irvine's research on interregional travel with the goal of informing improvements in future regional modeling approaches.

## D. Cap-and-Trade Auction Proceeds

### *1. Background*

A portion of the allowances required for compliance with the Cap-and-Trade Regulation are sold at quarterly auctions and reserve sales. The auctioned allowances are a mix of

State-owned allowances, Québec-owned allowances, and allowances consigned to auction by publicly-owned and investor-owned utilities. The proceeds from the sale of State-owned allowances are deposited into the Greenhouse Gas Reduction Fund (GGRF) for appropriation by the Legislature to invest in projects that support the goals of AB 32. Strategic investment of proceeds furthers AB 32 implementation, including support of long-term, transformative efforts to improve public and environmental health and develop a clean energy economy.

State-Owned Allowances: In 2012, the Legislature passed and Governor Brown signed into law three bills—AB 1532 (Pérez, Chapter 807), SB 535 (De León, Chapter 830), and SB 1018 (Budget and Fiscal Review, Chapter 39)—that established the GGRF to receive the State's portion of the auction proceeds and provided the framework for how those auction proceeds will be allocated. This legislation established the broad categories of GHG emission-reducing projects that may be funded, including investments in:

- Clean and efficient energy;
- Low-carbon transportation;
- Natural resource conservation and management and solid waste diversion; and,
- Sustainable infrastructure and strategic planning.

In addition to reducing GHG emissions in California, the implementing legislation established the following goals for this funding, where applicable and feasible:

- Maximize economic, environmental, and public health benefits;
- Create jobs;
- Complement efforts to improve air quality;
- Invest in projects that benefit disadvantaged communities;
- Provide opportunities for businesses, public agencies, nonprofits, and others to participate in efforts to reduce GHG emissions; and,
- Lessen the impacts and effects of climate change.

At least 25 percent of program funding is to be directed to projects that provide benefits to disadvantaged communities and at least 10 percent of program funding must be spent on projects located in disadvantaged communities. CalEPA is required to identify these communities for investment purposes.[12]

AB 1532 established a two-step process for allocating proceeds from the sale of State-owned allowances. The two-step process involves developing an investment plan and then appropriating the funds through the annual Budget Act, in accordance with that investment plan.

[12] CalEPA and the Office of Environmental Health Hazard Assessment identify disadvantaged communities based on a tool called the California Communities Environmental Health Screening Tool (CalEnviroScreen). For more information on CalEnviroScreen: http://oehha.ca.gov/ej/ces042313.html.

1. *Three-Year Investment Plan*: The Department of Finance, in consultation with CARB and other State agencies, develop and submit to the Legislature a three-year Cap-and-Trade Auction Proceeds Investment Plan (Investment Plan) identifying priority programs for investment of proceeds to support achievement of the State's GHG emission reduction goals. The first three-year Investment Plan was submitted in May 2013, and the second was submitted in January 2016. The Investment Plans can be accessed at: http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/investmentplan.htm.

2. *Annual Budget Appropriations:* Funding is appropriated by the Legislature and Governor through the annual Budget Act, consistent with the Investment Plan.

On March 1, 2014, Governor Brown signed SB 103 (Budget and Fiscal Review), Chapter 2, Statutes of 2014, to provide $70 million in GGRF monies to three State agencies for projects that improve water use efficiency and reduce GHG emissions associated with water conveyance.

On June 20, 2014, Governor Brown signed the FY 2014-15 Budget Act and SB 862 (Budget and Fiscal Review), Chapter 36, a budget trailer bill, which establishes requirements for State agencies receiving appropriations of GGRF monies in FY 2014-15 and later years. The 2014 Budget Act included $832 million in appropriations from the GGRF to administering agencies to invest in projects, consistent with the Investment Plan, and to support the administration of their programs. SB 862 also established continuing appropriations totaling 60 percent of the GGRF monies beginning in 2015-16 for High Speed Rail, affordable housing and sustainable communities, transit capital projects, and low carbon transit operations. In March of 2015, the Legislature enacted an emergency drought bill, AB 91 (Budget), Chapter 1, Statutes of 2015 to amend the Budget Act of 2014 in order to provide an additional $30 million from the GGRF for water-energy efficiency programs.

The 2015 Budget Act was enacted with appropriations to support administrative costs. Subsequent budget appropriations in September 2015 allocated FY 2015-16 funds to a subset of existing programs, including low carbon transportation, low-income weatherization programs, and water-energy efficiency programs. These appropriations are in addition to the continuing appropriations established in 2014 by SB 862.

Total appropriations, as of June 30, 2016, are listed in Table 1-2. Prior to expending funds, each department must complete an Expenditure Record pursuant to SB 1018. CARB reviews these expenditure records and posts them on the CARB website.

| **Table 1-2: Appropriations for Greenhouse Gas Reduction Fund Programs** (as of June 30, 2016) | | | |
|---|---|---|---|
| **Program and State Agency** | **FY2013-14** Millions | **FY2014-15** Millions | **FY2015-16** Millions |
| High Speed Rail (California High Speed Rail Authority) | | $250 | $457* |
| Transit and Intercity Rail Capital Program (California Department of Transportation/California Transportation Commission) | | $25 | $183 |
| Low Carbon Transit Operations Program (California Department of Transportation to local agencies) | | $25 | $91 |
| Affordable Housing and Sustainable Communities (Strategic Growth Council) | | $130 | $366 |
| Low Carbon Transportation (California Air Resources Board) | $30 | $200 | $95 |
| Weatherization Upgrades/Renewable Energy (Department of Community Services and Development) | | $75 | $79 |
| Energy Efficiency in Public Buildings (California Energy Commission) | | $20 | $0 |
| Agricultural Energy and Operational Efficiency and Water Efficiency (California Department of Food and Agriculture) | $10 | $25 | $40 |
| Water-Energy Efficiency (Department of Water Resources) | $30 | $20 | $20 |
| Wetlands and Watershed Restoration (Department of Fish and Wildlife) | | $25 | $2 |
| Sustainable Forests (California Department of Forestry and Fire Protection) | | $42 | $0 |
| Waste Diversion (California Department of Resources Recycling and Recovery) | | $25 | $6 |
| **Total Program Funding** | **$70** | **$862** | **$1,339** |

*****In addition to the table shown above, SB 862 states that $400 million shall be available to the High Speed Rail Authority beginning in FY 2015-16, as repayment of a loan to the General Fund. This money shall be repaid as necessary, based on the financial needs of the High Speed Rail project.

CARB is responsible for the fiscal management of the fund, with expenditures authorized by the Legislature and the Governor through legislation. Table 1-3 shows the proceeds deposited into the GGRF from the auctions (from the sale of State-owned allowances), including the auctions held jointly with the Canadian province of Québec.

| **Table 1-3: Proceeds from the Sale of State-Owned Allowances Deposited in the Greenhouse Gas Reduction Fund** (as of June 30, 2016) | |
|---|---|
| November 2012 Cap-and-Trade auction 1 | $55,760,000 |
| February 2013 Cap-and-Trade auction 2 | $83,923,548 |
| May 2013 Cap-and-Trade auction 3 | $117,580,484 |
| August 2013 Cap-and-Trade auction 4 | $138,494,503 |
| November 2013 Cap-and-Trade auction 5 | $136,799,446 |
| February 2014 Cap-and-Trade auction 6 | $130,706,470 |
| May 2014 Cap-and-Trade auction 7 | $71,140,023 |
| August 2014 Cap-and-Trade auction 8 | $98,741,583 |
| November 2014 Cap-and-Trade joint auction 1 (Québec) | $135,983,387 |
| February 2015 Cap-and-Trade joint auction 2 (Québec) | $629,516,452 |
| May 2015 Cap-and-Trade joint auction 3 (Québec) | $626,534,995 |
| August 2015 Cap-and-Trade joint auction 4 (Québec) | $645,330,534 |
| November 2015 Cap-and-Trade joint auction 5 (Québec) | $656,779,307 |
| February 2016 Cap-and-Trade joint auction 6 (Québec) | $516,987,990 |
| May 2016 Cap-and-Trade joint auction 7 (Québec) | $10,036,672 |
| **State Auction Proceeds Total** | **$4,054,315,394** |

### *2. Recent Developments – January through June 2016*

Activities related to Cap-and-Trade Auction Proceeds in the first half of 2016 included:

Electric Distribution Utility Auction Proceeds:

- Utility Auction Proceeds: For the auctions held through the end of June 2016, the IOUs have received a total of $2,715,716,416 from the sale of allocated allowances and publicly-owned utilities have received a total of $364,214,823 from the sale of allocated allowances.

- IOUs continued to provide a credit to ratepayers on utility bills as part of implementing the CPUC decision pursuant to SB 1018. This credit appears on utility bills twice per year, in April and October.

State-Owned Allowance Auction Proceeds:

- To ensure project benefits and outcomes can be consistently reported to the Legislature and included in annual reports required by AB 1532, CARB continues to work with implementing agencies to develop program materials consistent with statute, and to make certain that projects reduce GHG emissions, maximize benefits to disadvantaged communities, and estimate GHG emission reductions from potential projects.

- CARB is responsible for providing the quantification methodologies to estimate GHG emission reductions from projects receiving monies from GGRF. CARB staff is developing the GHG emission reduction quantification methodologies to be used by grant applicants and State agencies to estimate proposed project GHG emission reductions. Completed quantification methodologies are posted on CARB's website at http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/quantification.htm.

- As of July 1, 2016, the Administration has completed concurrence with all FY 2014-15 and the majority of FY 2015-16 expenditure records required pursuant to SB 1018, and CARB continues to work with agencies on the remaining ones. The expenditure records provide an overview of each agency's use of auction proceeds and are posted at: http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/expenditurerecords.htm.

- Each year the Department of Finance (Finance) is required to submit an annual report to the Legislature on the status and outcomes of the investment of Cap-and-Trade auction proceeds, referred to as California Climate Investments, pursuant to AB 1532. In March 2016, Finance submitted the *2016 Annual Report to the Legislature on Investments of Cap-and-Trade Auction Proceeds*. The report, developed by CARB, describes the status of funded programs and lists the projects funded. It also provides estimates of the GHG reductions expected from project investments and provides key statistics on benefits to disadvantaged communities, demand for funding, and the leveraging of additional funding sources.

- In May, CARB posted a list of each California Climate Investment project in the State. CARB also posted information on investment locations and the total amount of funding provided to each individual region, county, legislative district, and Metropolitan Planning Organization. This additional data can be found at: http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/annualreport.htm.

- AB 1532 identifies GHG reduction opportunities and potential priorities for the next three years of auction proceeds funding. CARB, the Department of Finance, and other State agencies conducted an extensive public process to develop the second Investment Plan. In January, Department of Finance submitted the final second Investment Plan to the Legislature in conjunction with the Governor's proposed budget.

### *3. Upcoming Milestones – July through December 2016*

- CARB will continue to review expenditure records for the remaining FY 2015-16 and FY 2016-17 programs.

- CARB will continue to develop quantification methodologies to estimate GHG emission reductions from projects receiving monies from the GGRF.

- CARB is developing a web-based application to report and share information on program implementation and outcomes. CARB staff and contracted resources are currently developing and testing the system prior to full scale deployment.

- CARB will release an initial version of a California GGRF Project Map that will undergo additional development over time. The map will display information on implemented projects funded through the GGRF as of December 2015.

- CARB is developing Phase 2 reporting requirements to provide guidance on data collection and reporting needed to demonstrate and document the benefits of GGRF-funded projects after completion.

- In late summer, CARB will begin working with agencies to collect information for the 2017 *Annual Report to the Legislature on Investments of Cap-and-Trade Auction Proceeds*.

- As needed, CARB will develop supplemental guidance and updates to the Funding Guidelines as the program evolves. These updates may reflect the addition of new programs, including the addition of criteria for providing benefits to disadvantaged communities.

- CARB will work with a contractor and administering agencies to expand and enhance disadvantaged community outreach activities across the State.

## E. California Sustainable Freight Action Plan

### *1. Background*

The trucks, locomotives, ships, harbor craft, aircraft, cargo handling equipment, and transport refrigeration units that carry and move freight in California are significant sources of air pollution. Freight transport equipment and associated facilities like ports, rail yards, airports, freeways, distribution centers, and border crossings contribute over six percent (and growing) of the GHG emissions in the State, as well as a significant portion of the black carbon emissions that also contribute to climate change. Currently, freight equipment accounts for about half of the statewide diesel particulate matter emissions, and approximately 45 percent of the statewide nitrogen oxides emissions.

California's freight transport system has already successfully undergone major improvements toward shared efficiency and environmental objectives. Proposition 1B, passed by voters in 2006, provided almost $20 billion in funding for California's transportation infrastructure, with over $2 billion dedicated to the improvement of the State's freight network and $1 billion in funding for cleaner freight vehicles and equipment. Local and regional groups such as port commissions and metropolitan planning organizations are also taking action to improve freight operations. Large ports have adopted Clean Air Action Plans and many regional planning organizations have adopted regional freight plans that prioritize infrastructure improvements and improve land use to better operationalize logistics activities in their region. Industry has made substantial investments to transition its mostly diesel-fueled freight equipment to cleaner models, while refineries retooled to produce cleaner fuels. These approaches have enabled CARB, industry, and State, local, and federal agency partners to reduce harmful air pollution from freight-related activities.

Despite this progress, California will need to transform the freight transport system to further reduce the localized health risk around freight facilities, meet State and federal air quality standards, and achieve long-term climate goals. Without further action, the cancer risk to residents living near major freight hubs will remain elevated. In 2016, CARB will be submitting a State Implementation Plan (SIP)[13] for ozone to U.S. EPA, as required by the Clean Air Act. CARB's 2012 *Vision for Clean Air: A Framework for Air Quality and Climate Planning* showed that meeting ozone health-based standards and climate goals will require similar transformative emission reduction strategies. The success of the SIP will depend on a successful transition of the current California freight system to one with zero or near-zero emissions over the long-term.

In 2013, CARB launched the Sustainable Freight effort to develop a sustainable freight strategy for California. CARB staff conducted outreach with freight industry representatives; local, State and federal government agencies; and community and environmental advocates to discuss the need for transformation and to seek input on a collaborative process throughout 2014. CARB staff participated in over 180 individual meetings and conference calls with over 220 organizations representing local, State, national, and international interests to identify, prioritize, and discuss various concepts that will move California towards a sustainable freight transport system.

CARB staff released the Sustainable Freight Pathways to Zero and Near-Zero Discussion Document (Discussion Document) in 2015, which sets out CARB's vision of a clean freight system, together with the immediate and near-term steps that CARB will take to support use of zero and near-zero emissions technology. Caltrans and CEC completed complementary planning activities. Caltrans focused on infrastructure, to support development of a Freight Mobility Plan and to meet new federal directives for freight planning. CEC updated the Integrated Energy Policy Report to provide policy recommendations regarding resource conservation; environmental protection; maintenance of a reliable, secure, and diverse energy supply; and statewide economic enhancement.

In 2014, CARB also began technology assessments to evaluate the current state and projected development over the next 5 to 10 years of mobile source technologies and fuels. These technology and fuels assessments will support State-level planning and regulatory efforts, including the Discussion Document, California Sustainable Freight

[13] Federal clean air laws require areas with unhealthy levels of criteria air pollutants (e.g., ozone and inhalable particulate matter) to develop State Implementation Plans (SIPs). SIPs are comprehensive plans that describe how an area will attain national ambient air quality standards (NAAQS). The 1990 Amendments to the federal Clean Air Act set deadlines for attainment based on the severity of an area's air pollution problem.

Action Plan (Action Plan) development, SIP development, and CARB's mobile source control program.

On July 17, 2015 Governor Brown issued Executive Order B-32-15, which directs the secretaries of Transportation, Environmental Protection, and Natural Resources to lead other relevant State departments including CARB, Caltrans, CEC, and the Governor's Office of Business and Economic Development to improve freight efficiency and transition to zero emission technologies, while continuing to support California's economy.

In May 2016, multi-agency State partners released the draft Action Plan for public comment and will submit the final Action Plan in July 2016. The Action Plan is an unprecedented effort, identifying State policies, programs, and investments to establish a high level vision that achieves the targets specified in the Governor's Executive Order. It provides a recommendation and broad direction on a high level vision, intended to integrate investments, policies, and programs across several State agencies. The Action Plan will help to realize a singular vision for California's freight transport system, which serves our State's transportation, environmental, and economic interests. The plan is informed by existing State agency strategies, including the California Freight Mobility Plan, the Discussion Document, and CEC's Integrated Energy Policy Report, as well as broad stakeholder input.

Executive Order-B-32-15 also directs the State to initiate work on corridor-level freight pilot projects within the State's primary trade corridors that integrate advanced technologies, alternative fuels, freight fuel infrastructure, and local economic development opportunities.

### *2. Recent Developments – January through June 2016*

A broad coalition of interests is needed to develop a California vision for a sustainable freight transport system, define the system changes (logistics, infrastructure, equipment) needed to implement the vision, secure support and public/private funding, and build/deploy the system. This approach offers the potential to help meet the State's air quality, climate, energy, and economic needs with a clean freight system that aligns with and supports a competitive logistics industry and associated jobs.

CARB activities in the first half of 2016 included:

- On January 21, 2016, CARB presented an informational update to the Board on the progress of the immediate and near-term measures outlined in the Discussion Document and the activities underway as the result of Governor Brown's Executive Order B-32-15 to develop the Action Plan.

- On January 25, 2016, the multi-agency State partners presented an informational update on activities underway to develop the Action Plan at an Assembly Transportation Committee hearing.

- On January 26, 28, and February 1 and 5, 2016, the multi-agency State partners co-hosted a webinar and public regional workshops throughout California to discuss development of the Action Plan, including the freight system efficiency and zero emission technology targets; preliminary concepts for actions to help make progress toward meeting the targets; initial pilot project ideas; local perspectives on both progress to date and regional priorities for California's freight transport system.

- On February 10, 2016, a California Freight Advisory Committee meeting was held in which discussion of the development of the Action Plan continued with interested public and private sector freight stakeholders.

- In March 2016, in various locations throughout California, the multi-agency State partners convened and participated in meetings of the Native American Advisory Committee and co-hosted three tribal listening sessions to solicit input on the development of the Action Plan.

- On April 26, 2016, CARB staff released a Draft Technology and Fuels Assessment document that evaluates the current state and projected development of technologies and fuels for freight locomotives. On June 23, 2016, staff released a supplemental report on near-zero emission rail in California.

- On May 3, 2016, the multi-agency State partners released the draft Action Plan for public comment through July 6, 2016.

- On May 10, 18, and 19, 2016, the multi-agency State partners presented informational updates on the draft Action Plan at meetings for the California Freight Advisory Committee, California Transportation Commission, and CARB Board, respectively.

- On June 20, 2016, the multi-agency State partners presented an informational update on the draft Action Plan at a joint legislative hearing of the Assembly Transportation Committee and Select Committee on Ports.

- The multi-agency State partners continue to convene and participate in additional topic-specific meetings and conversations with interested stakeholder groups (e.g., local and regional government agencies, utilities, environmental and health groups), as needed, while the Action Plan is being developed.

- CARB incentive-funded projects continue to replace older freight equipment and vehicles through the Proposition 1B, Air Quality Improvement and Carl Moyer programs, which will achieve further reductions of $PM_{2.5}$, reactive organic gases, and $NO_X$ over the life of the grant contracts and/or lifetime of the upgraded vehicles.

- CARB staff continues to develop regulatory near-term measures, as identified in the Sustainable Freight Pathways to Zero and Near-Zero Discussion Document, to promote cleaner combustion technologies, including the introduction of near-zero emission technology, and to accelerate use of zero emission technologies.

### *3. Upcoming Milestones – July through December 2016*

- In July 2016, the secretaries of Transportation, Environmental Protection, and Natural Resources will submit to the Governor the final Action Plan.

- In late summer 2016, the multi-agency State partners anticipate hosting meetings of both the competitiveness and efficiency stakeholder workgroups as part of Action Plan implementation.

- In September 2016, the multi-agency State partners anticipate discussing Action Plan implementation at a meeting of the California Freight Advisory Committee, and anticipate providing additional periodic updates at future California Freight Advisory Committee meetings.

- CARB incentive-funded projects will continue to replace older freight equipment and vehicles through the Proposition 1B, Air Quality Improvement and Carl Moyer programs, which will achieve further reductions of $PM_{2.5}$, reactive organic gases, and $NO_X$ over the life of the grant contracts and/or lifetime of the upgraded vehicles.

- CARB staff will continue to develop actions and implementation steps, as identified in the Action Plan, to promote cleaner combustion technologies, including the introduction of near-zero emission technology, and to accelerate use of zero emission technologies. To make additional reductions on the freight transport system, CARB will explore several different avenues including: incentives, additional fleet rules, quantifying efficiency gains, and a facility-based performance target approach.

- CARB staff will continue to release Draft Technology and Fuels Assessment Overview documents that evaluate the current state and projected development of mobile source technologies and fuels, and anticipate releasing documents related to marine, fuels and aviation technology.

## III. GREENHOUSE GAS EMISSIONS AND REDUCTIONS

CARB periodically updates estimates of GHG emissions in California, which change over time as the science advances, national and international accounting methodologies are updated, growth forecasts are revised, and California makes progress in reducing emissions. CARB and international climate change organizations use the scientifically established global warming potential (GWP) values developed by the Intergovernmental Panel on Climate Change (IPCC) in its Fourth Assessment Report, which includes updated GWP values for GHGs.[14] CARB expresses the emissions of other non-carbon dioxide GHGs in terms of carbon dioxide equivalent ($CO_2e$), which factor in how long the GHG remains in the atmosphere and how strongly it absorbs energy relative to carbon dioxide.

For the 2013 First Scoping Plan Update, CARB adjusted the 2020 statewide GHG emissions limit based on the updated GWP values from the IPCC Fourth Assessment Report and the level of 1990 GHG emissions. As a result, the 2020 emissions limit is now 431 MMT of $CO_2e$. CARB currently estimates that GHG emissions in 2020 would be 509 MMT of $CO_2e$ in a "business as usual" (BAU) scenario without the State's actions to reduce GHGs. Therefore, the new reduction required, based on the First Scoping Plan Update, is 78 MMT $CO_2e$ by 2020. In the previous version of the 2020 BAU scenario in 2010 using GWP values from the IPCC Second Assessment Report, the 2020 BAU was 507 MMT $CO_2e$, and the 2020 emissions limit was 427 MMT $CO_2e$, requiring a reduction of 80 MMT $CO_2e$.

CARB maintains and updates the statewide GHG emission inventory to track California's progress toward the 2020 statewide emissions limit. When the statewide emissions limit was first developed in 2008, the target was developed using statewide, top-down data. As AB 32 programs are being implemented and data are being collected directly from those programs, CARB will be evaluating how data directly collected from AB 32 programs can inform the GHG inventory process in tracking progress toward the 2020 statewide emissions limit. To estimate if California is on track to achieve the AB 32 emission reduction goal, CARB first projects 2020 emissions under a BAU scenario, and then subtracts from it the estimated reductions from adopted and anticipated measures expected by 2020. This demonstrates that the Program is on course to achieve the 2020 emissions limit (see Table 1-4).

As mentioned previously, under a BAU scenario, 2020 forecast emissions are projected to be 509 MMT of $CO_2e$. To meet the 2020 target (431 MMT$CO_2e$), the climate program must reduce 78 MMT of $CO_2e$ emissions by 2020. Table 1-4 shows the amount of GHG reductions expected to result from sector-based measures in order to meet this goal.

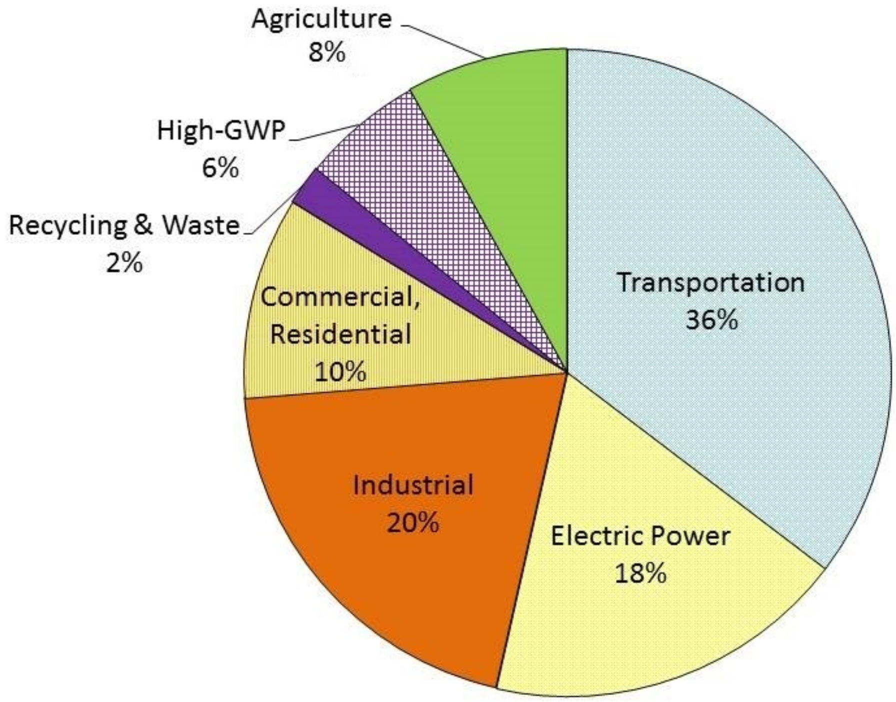
[14] The initial Scoping Plan relied on the IPCC's 1996 Second Assessment Report to assign the GWPs of greenhouse gases. Recently, in accordance with the United Nations Framework Convention on Climate Change, international climate agencies have agreed to begin using the GWP values in the IPCC's Fourth Assessment Report that was released in 2007. These more recent GWP values incorporate the latest available science and are therefore regarded as more accurate than the prior values.

| Table 1-4: Meeting the 2020 Emissions Target | |
|---|---|
| **Category** | **2020 ($MMTCO_2e$)**** |
| AB 32 Baseline 2020 Forecast Emissions (2020 BAU) | 509 |
| Expected Reductions from Sector-Based Measures | |
| Energy | 25 |
| Transportation | 23 |
| High-GWP | 5 |
| Waste | 2 |
| Cap-and-Trade Reductions | 23* |
| 2020 Limit | 431 |

*Cap-and-Trade emission reductions depend on the emission forecast.
**Based on IPCC Fourth Assessment Report GWP values.

Figure 1 shows how the 2020 emissions are likely to be spread across the sectors after compliance with the AB 32 2020 target. The 2030 Target Scoping Plan Update, currently under development, will focus on key areas with potential for further emission reductions after 2020, to reach the 2030 target. These sectors include transportation, industry, energy, energy efficiency and green buildings, waste, water, natural and working lands, and agriculture.

**Figure 1**
**2020 Greenhouse Gas Emissions By Sector**
**With Adopted Regulations and Programs**




**431 MMTCO2e**

In allocating resources to its GHG reduction programs, CARB seeks to prioritize programs that are likely to achieve the greatest reductions (funded primarily by the AB 32 Cost of Implementation Fee).

# SECTION 2:

# SEMI-ANNUAL UPDATE ON WESTERN CLIMATE INITIATIVE, INC. ACTIVITIES

**(January 2016 – June 2016)**

This report is required by the provisions of Senate Bill 1018 (Chapter 39, Statutes of 2012)[15], that require advance notice of any California Air Resources Board (CARB) payments to the Western Climate Initiative, Incorporated (WCI, Inc.) over $150,000 and semi-annual updates on the actions proposed by Western Climate Initiative, Inc. (WCI, Inc.) that affect California government or entities. This update focuses on recent WCI, Inc. actions, as CARB provides separate notices to the Joint Legislative Budget Committee prior to any transfer or expenditure to WCI, Inc. over $150,000.

## I. BACKGROUND

WCI, Inc. is a non-profit corporation that focuses solely on providing administrative support for jurisdictions' cap-and-trade programs, and is separate from the Western Climate Initiative (WCI). WCI, Inc. was formed in 2011 to coordinate administrative services to cap-and-trade programs developed and implemented by states and provinces. The Board of Directors for WCI, Inc. includes officials from the provinces of Québec, Ontario, British Columbia, and the State of California. The administrative support provided by WCI, Inc. can be expanded to support jurisdictions that join in the future.

The coordinated administrative support from WCI, Inc. benefits California and the other participating programs.

- Coordinated support ensures that all the linked programs use the same highly secure computer program infrastructure, including the compliance instrument tracking system and auction platform.

- Coordinated support makes it possible for analyses performed to support market monitoring in each jurisdiction to be conducted consistently and effectively across the entire compliance instrument market, including all the linked programs.

[15] Government Code, section 12894(d) "The Chairperson of the State Air Resources Board and the Secretary for Environmental Protection, as the California voting representatives on the Western Climate Initiative, Incorporated, shall report every six months to the Joint Legislative Budget Committee on any actions proposed by the Western Climate Initiative, Incorporated, that affect California state government or entities located within the state."

- Coordinated support enables the linked programs to share the cost of developing and maintaining program infrastructure, thereby reducing the costs for each jurisdiction.

WCI, Inc.'s approach to providing administrative support is to have each jurisdiction specify its administrative requirements, and then for WCI, Inc. to provide support that meets these specifications.  California and Québec are currently implementing cap-and-trade programs to reduce GHG emissions.  Ontario has adopted a cap-and-trade program to reduce GHG emissions, and its implementation is anticipated to begin in the second half of 2016.

Most of the administrative support provided by WCI, Inc. is highly technical or specialized, and has been developed through the use of contractors.  WCI, Inc. has entered into contracts (discussed in the following section) to provide administrative support, including the following:

- Coordinating the development and administration of the Cap-and-Trade Compliance Instrument Tracking System Service (CITSS);

- Coordinating the development and delivery of CITSS help desk services to California and Québec cap-and-trade program participants;

- Coordinating the development and administration of an allowance auction platform, used by California and Québec to auction emission allowances under their cap-and-trade programs and to conduct reserve sales;

- Coordinating the performance of analyses to support market monitoring performed by each jurisdiction of allowance auctions and allowance and offset credit trading; and

- Coordinating auction and reserve sale financial administration, which includes evaluation of bid guarantees and settlements (transferring payments from the auction and reserve sale purchasers to the sellers).

WCI, Inc. is solely administrative in nature.  All policymaking and regulatory authority for each jurisdiction's program is retained by each jurisdiction.  According to the WCI, Inc. bylaws, its administrative activities must "…conform to the requirements of State and Provincial programs…"  The requirements are defined by the participating jurisdictions, such that WCI, Inc. must execute its administrative role in conformance with the requirements established by CARB and the other jurisdictions.

## II. UPDATE

### A. Introduction

This report describes the activities of WCI, Inc. from January 2016 through June 2016, and presents WCI, Inc.'s anticipated activities in the second half of 2016.

Highlights of recent activities include:

- On March 15, 2016, the WCI, Inc. Board approved funding agreements with Québec, Ontario, and CARB for calendar years 2016 and 2017.
- An independent audit of WCI, Inc.'s 2015 financial statements was performed and presented to the WCI, Inc. Board. The auditor did not find any significant or relevant issues regarding WCI, Inc. oversight of the financial reporting process.
- Federal and State tax forms were completed and filed.
- WCI, Inc. released a Request for Expression of Interest (REI) for Auction and Reserve Sale Financial Services.
- WCI, Inc. entered into a new contract with Markit Group Limited for Auction and Reserve Sale Services.

In the second half of 2016, WCI, Inc. anticipates continued coordination of administrative support to the California and Québec programs and the provision of administrative support to the Ontario program. At its annual meeting on September 29, 2016, the WCI, Inc. Board of Directors will select its officers.

### B. Corporate Governance

WCI, Inc. is governed by a Board of Directors according to its bylaws and the policies adopted by the WCI, Inc. Board. The bylaws and policies are posted on the WCI, Inc. website: http://www.wci-inc.org/documents.php. Table 2-1 lists the policies that have been adopted by the WCI, Inc. Board.

No new policies were adopted by the WCI, Inc. Board during the first half of 2016. The Funds Management Policy was revised at the March 14, 2016 WCI, Inc. Board meeting. As presented and discussed at the meeting, the allowable asset allocation was amended so that the lower allocation limit for cash was changed from 25 percent to 0 percent. This change was made to improve the ability of WCI, Inc. to meet two of the Policy's objectives, supporting cash flow requirements and preserving principal.

| Table 2-1: WCI, Inc. Corporate Policies (as of December 31, 2015) |
|---|
| Records Availability Policy (Adopted December 9, 2013) |
| Open Meeting Policy (Adopted May 8, 2013) |
| Accounting Policies and Procedures (Adopted May 8, 2013) |
| Employee Handbook (Adopted April 15, 2013) |
| Funds Management Policy (Adopted October 30, 2012, Revised March 14, 2016) |
| Procurement Policy (Adopted January 12, 2012) |
| Audit Committee Charter (Adopted November 3, 2011) |
| Ethical Guidelines and Conflict of Interest Policy (Adopted November 3, 2011, Revised December 9, 2013) |
| Retention of Business Records Policy (Adopted November 3, 2011) |
| Whistleblower Protection Policy (Adopted November 3, 2011) |

The directors from California remain unchanged as of December 2015:

- Secretary for Environmental Protection, Matthew Rodriquez
- Chair of the Air Resources Board, Mary Nichols
- Assembly Member Richard Bloom, appointed by the Speaker of the Assembly (non-voting director)
- Mr. Kip Lipper, appointed by the Senate Rules Committee (non-voting director).

The WCI, Inc. Board officers were selected at the November 20, 2015 annual meeting of the Board:

- Chair, Mary Nichols (California)
- Vice Chair, Robert Fleming (Ontario)
- Treasurer, Matthew Rodriquez (California)
- Secretary, Jean-Yves Benoit (Québec).

During the first half of 2016, the WCI, Inc. Board met in publicly noticed open meetings on March 14, 2016 and May 12, 2016. The Board met in a publicly noticed Executive Session on June 14, 2016. The meeting announcements, agendas, and materials were posted on the WCI, Inc. website.

The agendas and minutes of the WCI, Inc. Board meetings are posted at: http://www.wci-inc.org/documents.php.

### C. Staffing and Operations

In addition to the Executive Director, WCI, Inc. staffing includes the following:

- Project Managers: WCI, Inc. has one full-time and one part-time project manager to oversee contracts related to CITSS, the auction platform, financial administration, and market analysis.
- Business Services: WCI, Inc. has one full-time administrative manager to support day-to-day business operations and has engaged the services of an accountant.
- Insurance and Banking: WCI, Inc. has retained insurance coverage and banking services.
- Office: WCI, Inc. has an office in Sacramento, California.
- WCI, Inc. has contracted for the services of a corporate counsel.

In March 2016, WCI, Inc. hired an Assistant Executive Director. The Assistant Executive Director is located in Québec and supports the Executive Director, located in Sacramento, with operational and business requirements. The operational requirements are activities required to operate WCI, Inc., including providing administrative support to the participating jurisdictions. The business requirements are those required to run WCI, Inc. as a business, such as cash flow, employee management, and taxes. Operational and business requirements include all aspects of WCI, Inc. activities.

The Audit Committee contracted with an independent auditor (Crowe Horwath LLP), according to the requirements in the Audit Committee Charter, to conduct the audit of WCI, Inc.'s 2015 financial statements and to review the annual tax filings. The independent auditor submitted its audit report to the Audit Committee stating that it did not find any significant or relevant issues regarding WCI, Inc.'s "oversight of the financial reporting process." The audit was subsequently presented by the auditor to the WCI, Inc. Board at the May 12, 2016 Board meeting. Also at the meeting, the federal and State tax filings were presented to the Board. The tax filings, audited financial statements, and audit report prepared in 2016 are available on the WCI, Inc. website: http://wci-inc.org/documents.php.

### D. Delivery Capability

WCI, Inc. has entered into the following contracts to provide support to State and provincial programs.

- CITSS Development and Hosting: In May 2012, WCI, Inc. contracted with SRA International, Inc. for the continued development of CITSS. CITSS provides accounts for program participants to hold compliance instruments and to record transactions of compliance instruments with other account holders. Program participants access CITSS online. CITSS is supporting the programs in California and Québec, and will support the Ontario program starting in the second half of

2016. Because Ontario's program is not yet linked with California's and Québec's, Ontario's activity is separated in CITSS by a "virtual wall."

- Auction Platform: In January 2013, WCI, Inc. contracted with Markit Group Limited for the continued provision of Auction and Reserve Sale Services, including the development and operation of the auction platform. The auction platform is used by program participants to apply for each auction or reserve sale and to enter their bid information. Program participants access the auction platform online. California and Québec use the platform to monitor the auctions and reserve sales, and to ensure that all auction and reserve sale requirements are met. In March 2015, WCI, Inc. conducted a competitive procurement to re-compete the Auction and Reserve Sale Services contract. A contract was awarded to SRA International and its subcontractor EnerNOC. However, it was soon discovered that the SRA International team would not be able to carry out the agreement. WCI, Inc. and SRA International agreed to terminate the contract, and this termination agreement was posted to the WCI, Inc. website in the second half of 2016.[16] WCI, Inc. reviewed the other bids received in response to the March 2015 Request for Proposals and awarded a contract to Markit Group Limited in June 2016. The term of the new contract with Markit Group Limited runs through January 31, 2021. Ontario will use the Markit Group Limited platform starting in the second half of 2016.

- Market Analysis: In October 2015, WCI, Inc. entered into a new contract with Monitoring Analytics, LLC to continue analyses in support of market monitoring. The contract supports multi-jurisdictional monitoring for California and Québec linked auctions and linked markets. This work builds upon the substantial efforts by California and Québec for market monitoring.

- Auction and Reserve Sale Financial Administration: In September 2013, WCI, Inc. contracted with Deutsche Bank Trust Company Americas for auction and reserve sale financial administration, which includes evaluation of bid guarantees and settlements (transferring the payments from the auction and reserve sale purchasers to the sellers). In 2015, WCI, Inc. issued a Request for Proposals for Auction and Reserve Sale Financial Administration. No responsive proposals were received, and WCI, Inc. is evaluating its options, and in the meantime extended the contract with Deutsche Bank Trust Company Americas to ensure continued delivery capability. In February 2016, WCI, Inc. released a Request for Expression of Interest (REI) to procure Auction and Reserve Sale Financial Administration Services. An amended REI was released in April 2016. In the second half of 2016, WCI, Inc. expects to complete its review of responses to the REI and to award a contract for Auction and Reserve Sale Financial Administration Services. The original and amended REIs

[16] The termination agreement between WCI, Inc. and SRA International is posted to the WCI, Inc. website at: http://www.wci-inc.org/docs/SRA_Auction_and_Reserve_Sale_2015__Redacted_FINAL%20(10-08-15).pdf.

are posted to the WCI, Inc. website at: http://www.wci-inc.org/rei-auction-finance.php.

- CITSS Help Desk Support: In October 2012, WCI, Inc. contracted with ICF Incorporated, LLC for help desk services to respond to inquiries from CITSS users. In 2015, WCI, Inc. extended this contract.

Also in the second half for 2016, WCI, Inc. expects to procure the services of a qualified contractor to conduct a Technology Audit of CITSS. The purpose of the Technology Audit is to assess current technology management practices as compared to accepted industry standards and practices. As specified in the WCI, Inc. Procurement Policy (available at: http://www.wci-inc.org/docs/2012-01-12_WCI-Inc_Procurement_Policy_Final.pdf), the procurement process will be conducted in a manner to ensure open and effective opportunities for competition in order to obtain the best value for WCI, Inc.

Each of the WCI, Inc. contracts for administrative services in support of jurisdiction programs is posted to the WCI, Inc. website.[17] WCI, Inc. retains the right to terminate these contracts at any time.

### E. Budget and Funding

The budget for WCI, Inc. for 2016 and projected expenses for 2017 were adopted at the November 20, 2015 meeting of the WCI, Inc. Board of Directors. The total expenses for the two-year period are $8,879,788. The budget and projected expenses are available on the WCI, Inc. website at:
http://www.wci-inc.org/docs/WCI_Inc_2016 Budget and Projected Expenses for 2017_English_Final.pdf.

Funding for WCI, Inc. is provided by CARB, Québec, and Ontario. The share of funding being provided by each in 2016 and 2017 was determined in three parts:

- The cost of running WCI, Inc. (personnel and operating costs) is divided equally among CARB, Québec, and Ontario.

- The cost of the cap-and-trade service contracts is divided based on the total emissions covered by each jurisdiction's trading program. For administrative support that is shared solely by CARB and Québec, 85 percent of the cost is allocated to CARB and 15 percent to Québec. For support that is shared by all three jurisdictions, 65 percent of the cost is allocated to CARB, 24 percent to Ontario, and 11 percent to Québec.

- The cost of jurisdiction-specific administrative support is assigned fully to each jurisdiction.

[17] The administrative support contracts posted to the WCI, Inc. website are available at: http://www.wci-inc.org/documents.php.

Based on this approach, CARB funding for 2016 and 2017 is $4 million.

WCI, Inc. funding agreements with CARB, Québec and Ontario were approved at the March 14, 2016 meeting of the WCI, Inc. Board of Directors. The fully executed CARB funding agreement is available on the WCI, Inc. website: http://www.wci-inc.org/docs/CA%20ARB%20Funding%20Agreement%20(2016).pdf.

The Québec funding for 2016 and 2017 is $1,892,556 (US dollars). The fully executed funding agreement is available on the WCI, Inc. website: http://www.wci-inc.org/docs/Quebec%20Funding%20Agreement_English%20(2016-2017).pdf. The Ontario funding for 2016 and 2017 is $2,735,855 (US dollars). The fully executed funding agreement is available on the WCI, Inc. website: http://www.wci-inc.org/docs/ON%20Funding%20Agreement%20(01-01-2016).pdf.

## F. Payments to WCI, Inc.

For calendar years 2016 and 2017, CARB's share of the WCI, Inc. budget is $4 million. The funding agreement with WCI, Inc. specifies that CARB will make quarterly payments to WCI, Inc. The planned payments are presented in Table 2-2.

**Table 2-2: Payments from CARB to WCI, Inc. for Calendar Years 2016 and 2017**

| Payment | Payment Date | Amount |
|---|---|---|
| 2016 Q1 Payment | Invoiced April 1, 2016 | $500,000 |
| 2016 Q2 Payment | To be invoiced: July 1, 2016 | $500,000 |
| 2016 Q3 Payment | To be invoiced: October 1, 2016 | $500,000 |
| 2016 Q4 Payment | To be invoiced: January 1, 2017 | $500,000 |
| 2017 Q1 Payment | To be invoiced April 1, 2017 | $500,000 |
| 2017 Q2 Payment | To be invoiced: July 1, 2017 | $500,000 |
| 2017 Q3 Payment | To be invoiced: October 1, 2017 | $500,000 |
| 2017 Q4 Payment | To be invoiced: January 1, 2018 | $500,000 |
| **Total** | | **$4,000,000** |