

2017 Annual Report to the
Joint Legislative Budget Committee
on Assembly Bill 32
(Núñez and Pavley, 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 California Air Resources
Board)
Senate Bill 1018 (Committee on Budget and Fiscal Review, Chapter 39, 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. 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. 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. This 2030 target was codified in 2016 by SB 32 (Pavley, Chapter 249, Statutes of 2016), and supports ARB's commitment to achieve the emissions goal for 2050. AB 197 (Garcia, E., Chapter 250, Statutes of 2016) provided additional legislative oversight, containing provisions related to making emissions data from stationary sources publicly available and setting priorities for the most impacted and disadvantaged communities.

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 reports 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 (SB) 1018 (Committee on 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 reports 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.

Annual Report Content. This document provides the required annual updates on items (1) through (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

(July 2016 – December 2016)

This report is required semi-annually by the Supplemental Report of the 2012 – 13 Budget¹ 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 report² provides an update on both the AB 32 program activities for the second half of 2016, and the upcoming milestones during the first half of 2017. 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 that 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 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 included 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 were included in the cap.

The Regulation is estimated to reduce GHG emissions by about 23 million metric tons (MMT) in 2020, about 30 percent³ 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 (CO₂e) 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 CO₂e 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

³ Source: https://www.arb.ca.gov/cc/inventory/data/misc/2020_forecast_base0911_2015-01-22.pdf.

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 an independent 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, seventh, eighth, and ninth joint auctions were held in February, May, August, and November 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 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.

Program Contracts. In 2016, CARB concluded three Cap-and-Trade program contracts. First, economic researchers from Resources for the Future and the University of California at Berkeley established how industries have historically responded to energy price changes, and identified metrics to evaluate future leakage risk. The contract concluded in May 2016, and results are posted publicly at: <https://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm>.

Another research contract conducted by the California Polytechnic University in San Luis Obispo and University of California analyzed the ability of food processing sectors to pass on regulatory costs. The study results were also released in May 2016, and

posted at: <https://www.arb.ca.gov/cc/capandtrade/meetings/20160518/calpoly-food-process-leakage.pdf>.

Lastly, 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.

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 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.

Staff continues to refine the proposed Cap-and-Trade Adaptive Management Process by engaging with stakeholders, including the Environmental Justice Advisory Committee.

While 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, 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 – July through December 2016

CARB's activities to support the Cap-and-Trade Program during the second half of 2016 included two joint allowance auctions with Québec, ongoing issuance of compliance offset credits, and workshops in anticipation of proposed regulatory changes. The regulatory amendment package was published on August 2, 2016, followed by an initial

Board hearing on September 22, 2016, to consider the amendments. 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.

Annual Compliance Surrender Deadline. The compliance event for the first year of the second compliance period (2015) was an annual surrender obligation that was due on November 1, 2016, during which covered entities submitted compliance instruments sufficient to cover 30 percent of their 2015 emissions. The November 1, 2016 compliance surrender event saw a 100 percent compliance rate.

Proposed 2016 Regulation Amendments. CARB 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. In addition, staff released a 45-day regulatory amendment notice package for public comment in August 2016, with the first of two Board hearings to consider the amendments on September 22, 2016. In response to public comments and further engagement with stakeholders following the Board hearing, staff released a 15-day notice package in December 2016 soliciting further comments on the proposed regulatory amendments.

Auctions. As described previously, effective January 1, 2015, GHG emissions from transportation fuels and residential and commercial burning of natural gas and propane are 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 \$4.427 billion was raised by the sale of State-owned allowances at the first 17 auctions through November 15, 2016. As mentioned above, the latest nine auctions, held in November 2014, February, May, August, and November 2015, and February, May, August, and November 2016, were joint auctions with Québec. More information on Cap-and-Trade auction proceeds is provided on page 40 of this report. Detailed results from the auctions are available at:
<https://www.arb.ca.gov/cc/capandtrade/auction/auction.htm>.

Reserve Sales. 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 December 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 December 31, 2016, CARB has:

- Accredited 71 specially trained third-party offset verifiers and 14 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 326 (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 September 2016, the Legislature passed AB 197 which requires CARB to make available, at least annually, the emissions of greenhouse gases, criteria air pollutants, and toxic air contaminants for each facility that reports to the Board and air districts. The Adaptive Management Process will play a role in meeting these requirements. To that end, the Adaptive Management Process has begun the development of a publicly available Pollution Mapping Tool (Tool) that evaluates emissions trends over time. In late 2016, staff added criteria pollutant emissions data to the Tool, which can be found at:

https://www.arb.ca.gov/ei/tools/pollution_map/pollution_map.htm.

In November 2016, CARB staff presented the Board with an update on California's Clean Air Approach, including the updated proposed Adaptive Management Process and preliminary results of emission trend assessments in select disadvantaged communities (DACs). During the update, staff noted that adaptive management is one part of the Board's broader effort to address community exposures to air pollution, and to reinforce our commitment to identify opportunities to further reduce GHGs, toxics and criteria pollutant emissions, particularly in DACs.

The Proposed Process screens for emission increases in DACs with at least one Cap-and-Trade facility. Staff will prioritize reviews by focusing first on the DACs with

the largest increases. The data analysis will investigate the causes of the air pollution increases in DACs and will involve working closely with the local air districts to find out the reasons for the changes.

Cap-and-Trade Litigation. In the second 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. The parties submitted several rounds of briefing to the appellate court in 2014, 2015, and 2016. On November 18, 2016, the appellate court set the oral argument date for January 24, 2017.

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

The plaintiff in the federal *Sowinski v. California Air Resources Board, et al.* case 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.

On August 18, 2016, the U.S. federal district court in Santa Ana, California dismissed the plaintiff's suit with prejudice. The plaintiff moved for reconsideration of the decision on September 19, 2016, and the court struck that motion. The district court's judgment against the plaintiff became final on October 25, 2016. The plaintiff subsequently appealed to the U.S. Court of Appeals for the Federal Circuit. As of December 2016, the parties have not yet briefed the case.

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.

The plaintiff filed a motion to augment CARB's certified administrative record on July 7, 2016. CARB opposed the motion to augment. On August 5, 2016, CARB filed an answer to Kimberly Clark's complaint. On September 30, 2016, the court granted Kimberly Clark's motion to augment the record as to two of the documents proposed to be added to the record, and denied the motion as to the remaining 34 suggested documents. CARB updated and recertified the administrative record on December 9, 2016. The next steps are for CARB to lodge the administrative record with the court, and to set a briefing schedule.

Cap-and-Trade Program Contracts. Academic and private contractors have helped 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; and conducting a performance audit of the processes and procedures utilized by CARB staff to implement the program. 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 4 of this document describes WCI, Inc. and its activities, including administrative support provided through contracts.

Other Cap-and-Trade Program Contracts:

CARB 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. The contract began on June 30, 2016, and is expected to be carried out through June 30, 2018.

The contract that CARB completed with California Polytechnic State University, San Luis Obispo, developed guidance to simplify highly complex calculations, and increase the understanding and accessibility of requirements under CARB's compliance offset protocol for forestry projects. The guidance is being finalized prior to posting on the web.

3. Upcoming Milestones – January through June 2017

Below is a brief summary of some of the upcoming milestones CARB is working to achieve during the first half of 2017. More information on CARB activities and

upcoming public meetings related to the Cap-and-Trade Program can be found at: <https://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>.

- CARB will continue to hold quarterly joint auctions with Québec as scheduled in the Regulation (February, May, August, November).
- Staff has proposed regulatory amendments and 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 31-32 of this report.
- CARB staff will continue to refine the regulatory amendments to the Cap-and-Trade Program and anticipates a final Board decision by mid-2017. The regulatory amendments include modifications to add linkage with Ontario beginning January 1, 2018, for the third compliance period (2018 – 2020), information management streamlining, offsets streamlining, and an extension of the program framework beyond 2020.
- In 2017, staff plans to continue the discussion on a broader effort (beyond Adaptive Management) that will include more details on further actions needed to reduce community exposures to air pollution in DACs.

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 225 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 third quarter of 2016, there have been a total of about 22.74 million metric tons of credits and 14.13 million metric tons of deficits. This results in a net total of about 8.61 million metric tons of credits.⁴ 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 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.

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.

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.

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.

Since December of 2009 the LCFS has been challenged by industry lawsuits in both federal and State court, including a State court challenge from POET LLC (POET), a Midwest ethanol producer. An appellate opinion in the POET case determined that CARB had committed procedural violations in adopting the LCFS, but allowed the LCFS to remain in effect, frozen at the 2013 standard, while CARB took corrective action.

⁴ Reference: CARB “2016 LCFS Reporting Tool (LRT) Quarterly Data Summary – Report No. 3” at https://www.arb.ca.gov/fuels/lcfs/dashboard/quarterlysummary/20170123_q3datasummary.pdf.

Accordingly, CARB staff continued to implement and enforce the LCFS at the 2013 compliance level while working on a 2015 rulemaking for re-adoption of a consolidated rulemaking package, addressing the court's concerns, and including additional amendments to improve the 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, remained in effect through 2015. In September 2015, CARB approved the re-adoption of the LCFS regulation. The final rulemaking package was approved by the Office of Administrative Law (OAL) on November 16, 2015. On October 30, 2015, POET filed its second CEQA and APA challenge ("POET II") in the same court (Fresno County Superior Court) against the LCFS regulation adopted by CARB in 2015. On November 23, 2015, CARB filed its return to the writ of mandate in the original POET lawsuit ("POET I"), explaining how CARB had fully satisfied the earlier State court instructions by setting aside the original LCFS, and adopting a new LCFS.

The readopted LCFS regulation became effective on January 1, 2016, and on January 5, 2016, the Fresno County Superior Court ordered the writ of mandate discharged, agreeing that CARB had complied with the court's instructions. On March 4, 2016, POET filed an appeal to the discharge of the writ of mandate in the Fifth District Court of Appeal, arguing that CARB had failed to adequately comply with the writ's instructions that CARB consider NOx impacts. More information on LCFS litigation is included in the following "Recent Developments" section.

Alternative Diesel Fuel Regulation. The Alternative Diesel Fuel (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 – July through December 2016*

- On July 29, 2016, staff held a public workshop to discuss potential regulation revisions to improve data quality and reporting methods in the LCFS program, including the addition of third-party verification provisions. A status update was provided on pathway application processing.
- On October 24, 2016, staff held another public workshop to discuss a preliminary rulemaking timeline for evaluating program enhancements to meet GHG targets and other requirements under SB 32 and AB 197, as informed by the ongoing development of the 2017 Scoping Plan Update. During this workshop, staff continued the discussion of adding mandatory third-party verification to the program. A status update was also provided on the pathway application processing.
- In December 2016, staff held the first round of public working meetings that focused on specific fuels to discuss changes to the pathway carbon intensity application and evaluation process, as well as improvements to reporting and credit generation processes. During these working meetings, staff also discussed the integration of third-party verification requirements. On December 2, 2016, staff held two working meetings focused on fossil and renewable natural gas, as well as grid and renewable electricity. Staff also conducted a working meeting focused on fossil and renewable hydrogen on December 5, 2016, and a working meeting focused on refinery co-processing on December 13, 2016. Finally, staff held a public working meeting on December 19, 2016, to discuss LCFS Verification Governance and Impartiality Considerations.

- In the second half of 2016, activity occurred in three lawsuits against the LCFS Program. From July to November 2016, POET and CARB completed the briefing on POET's appeal of the discharge of the writ. From August to December, 2016, CARB and POET completed briefing on the merits in POET II. The CARB and federal court plaintiffs are currently briefing the district court regarding CARB's motions to dismiss. On October 14, 2016, CARB filed a motion to dismiss Rocky Mountain Farmers Union's third amended complaint, and a motion to dismiss and for judgment on the pleadings on AFPM's second amended complaint. Both groups of plaintiffs filed opposition briefs on December 12, 2016. CARB's reply briefs are due January 27, 2017.

3. *Upcoming Milestones – January through June 2017*

Below is a brief summary of some of the upcoming milestones for LCFS and related programs during the first half of 2017. More information on activities and upcoming public meetings related to the LCFS can be found at:
<https://www.arb.ca.gov/fuels/lcfs/lcfs.htm>.

- An oral argument on this most recent and pending POET I appeal will be conducted in March, 2017. A hearing on the merits in POET II has been scheduled for February 22, 2017.
- Staff plans to continue conducting fuel-specific working meetings in the first half of 2017. Additional fuels in focus will be ethanol, biomass-based diesel, and gasoline and diesel. Each fuel will be discussed in another round of working meetings to continue the coordination with stakeholders and the affected industry. Staff also intends to hold at least two more public workshops in March 2017 and June 2017. These workshops will be used 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, and staff will continue to work with stakeholders to finalize these proposals.

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 Program closely aligns with 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 also 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 conducted a midterm review of the adopted standards for model years 2022 to 2025 in collaboration with U.S. EPA and NHTSA. This joint technical assessment 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). This project supports broad ZEV adoption through rebates to consumers for the purchase or lease of new plug-in hybrid electric,

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.

⁶Reference: <https://www.epa.gov/sites/production/files/2016-11/documents/420r16014.pdf>.

battery electric, and fuel cell electric vehicles. The project is aimed at helping California meet ZEV deployment, air quality, and GHG emission reduction goals. 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 175,000 vehicles have received rebates, totaling \$378 million. To support consumer adoption of ZEVs, CARB continues to implement CVRP.

2. Recent Developments – July through December 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 conjunction with U.S. EPA and NHTSA, CARB assessed the technology, compliance rates and costs associated with the greenhouse gas emission standards for light-duty vehicles, and released a joint Technical Assessment Report in July 2016. The report describes the newest assessment of light-duty vehicle technology and costs associated with compliance with the federal GHG and Corporate Average Fuel Economy standards. CARB staff presented the findings of the report to the Board at its July Hearing. The report can be found at: <https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas-ghg#TAR>.
- Staff held an Advanced Clean Cars Technology Symposium on September 27 and 28, 2016, in which all parts of the midterm review were discussed.

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 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.”
- 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, was presented to the Research Screening Committee in September 2016, and is awaiting publication.

- CARB has contracted with UC Davis to examine the market for used plug-in electric vehicles in California, with a project titled, “The Dynamics of Plug-in Electric Vehicles in the Secondary Market and their Implications for Vehicle Demand, Durability, and Emissions.” Researchers will evaluate factors such as battery life, energy prices, infrastructure availability, vehicle attributes and prices, economic conditions, and whether the used plug-in electric vehicle market is expanding access to a wider array of consumers.
- 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 – January through June 2017*

Below is a brief summary of some of the upcoming milestones for Advanced Clean Cars during the first half of 2017. More information on staff’s activities and upcoming public meetings on this program can be found at:

<https://www.arb.ca.gov/msprog/acc/acc.htm>.

- CARB staff will release its final midterm review of the Advanced Clean Cars Program in January 2017. This report will include a review of the adopted particulate matter standards and the ZEV regulation, as well as an analysis of market uptake of ZEVs and plug-in hybrid electric vehicles.
- In January 2017, UC Davis intends to release an interim report titled, “Advanced Plug-in Electric Vehicle Travel and Charging Behavior Interim Report,” based on the first year of data collected. The next phase of data collection is underway.
- As part of its project, “The Dynamics of Plug-in Electric Vehicles in the Secondary Market and their Implications for Vehicle Demand, Durability, and Emissions,” UC Davis will release an interim report in early 2017. The interim report will focus on a survey of used plug-in electric vehicle owners.
- Focus groups for the UCLA project, “Designing Light-Duty Vehicle Incentives for Low- and Moderate-Income Households,” will be held in the first half of 2017.
- Staff will return to the Board in March 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.
- CARB will be contracting with UC Davis to conduct household-level research for four new models of plug-in electric vehicles and fuel cell electric vehicles. This new project is anticipated to begin in the first half of 2017.

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 close proximity to these 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 – July through December 2016*

During the second 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:

<https://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 second 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 local air districts to assist them in implementing and enforcing the Landfill Regulation. Some air districts that have signed the MOU have requested additional training within their regions for new staff being assigned to implement and enforce CARB's Landfill Regulation.

- 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 second 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 with MOU participating local air districts in order to further refine the information contained in the State's landfill database.

3. *Upcoming Milestones – January through June 2017*

- 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) and SB 1383 (Lara, Chapter 395, Statutes of 2016).

- CARB is working with CAPCOA, air districts, U.S. EPA Region 9 and interested stakeholders to develop California's compliance plan in response to new federal requirements for MSW landfills (40 CFR, Part 60, Subpart Cf), promulgated August 29, 2016. Subpart Cf also requires each affected state to develop and submit plans detailing how it will comply with the requirements.

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 CO₂ 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 CO₂e 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, Statutes of 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 – July through December 2016*

- CARB presented the proposed regulation for Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities to the Board on July 21, 2016. This was the first of two Board hearings on the proposed regulation. The Board directed staff to proceed with the recommended changes to the proposed regulation.

3. *Upcoming Milestones – January through June 2017*

- In February 2017, CARB staff plans to release a Notice of Public Availability of Modified Text and Availability of Additional Documents and/or Information for the proposed regulation for Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities.

- CARB plans to present the revised proposed regulation to the Board on March 23, 2017. This will be the second 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, the Low Carbon Fuel Standard, the Advanced Clean Cars Program, a 33 percent Renewable Portfolio Standard, and the Sustainable Communities program. More information on the Cap-and-Trade, Low Carbon Fuel Standard, Advanced Clean Cars, and Sustainable Communities programs is available on page 4, 13, 17, and 36, respectively.

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 (First Update) in May 2014. The First Update reflects public input and recommendations from business, environmental, environmental justice, and community-based organizations. The First Update also recommended the need for a 2030 midterm target to establish a continuum of actions 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 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. Setting emission reduction targets for 2030 is also 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 achieve 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. Scientists have determined that this threshold, 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-CO₂ gases, land uses such as agriculture, and natural and working lands – are all necessary to mitigate climate change. 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.

To achieve the 2030 Target, CARB was tasked with creating a new Scoping Plan Update (2017 Scoping Plan Update). CARB held a kickoff workshop on October 1, 2015, to start discussing its development. This was followed by three public meetings in the first half of 2016 to discuss the 2017 Scoping Plan Update's economic analysis, as well as natural and working lands and agriculture sectors. In June 2016, a Concept Paper for the update was released, followed by a meeting to solicit stakeholder input. The Concept Paper can be found at:
https://www.arb.ca.gov/cc/scopingplan/document/2030_sp_concept_paper2016.pdf.

Concurrent planning efforts related to energy efficiency in existing buildings such as AB 758 (Skinner, Chapter 470, Statutes of 2009), 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 2017 Scoping Plan Update.

2. Recent Developments – July through December 2016

In September 2016, the Legislature passed SB 32, which codified the Governor's 2030 GHG emissions reduction target of 40 percent below 1990 levels. In the same month, the Legislature passed companion legislation, AB 197, which provides additional direction for developing the Scoping Plan. AB 197 includes requirements that CARB make available, at least annually, the emissions of greenhouse gases, criteria air pollutants, and toxic air contaminants for each facility that reports to the Board and air districts, and to present an informational report on those emissions from all sectors

covered by the Scoping Plan at a hearing of the Joint Legislative Committee on Climate Change Policies.

Since Board approval of the First Update, 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 2017 Scoping Plan 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 second half of 2016 related to the 2017 Scoping Plan Update, and progress on other GHG reduction strategies not covered elsewhere in this report.

- Throughout the second half of 2016, CARB and the Environmental Justice Advisory Committee (EJAC) held multiple public meetings to discuss the development of the 2017 Scoping Plan Update and to assist in developing EJAC recommendations. The EJAC recommendations can be found at: <https://www.arb.ca.gov/cc/ejac/meetings/meetings.htm>.
- On August 23, 2016, the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and CARB jointly hosted a public workshop on the energy sector for the update. Staff presented current and forthcoming initiatives contributing to GHG reductions in electricity, energy efficiency, and natural gas.
- On September 14, 2016, CEC, California Office of Planning and Research, California State Transportation Agency, California Strategic Growth Council, and CARB conducted a joint public workshop on the update's transportation sector. The meeting included staff presentations on GHG reductions in vehicle and fuel technology, and a newly developed Biofuel Supply Module to aid in assessing potential low carbon fuel availability as part of the 2017 Scoping Plan Update modeling effort. A presentation was made on current initiatives contributing to vehicle miles traveled and GHG emissions. In addition, staff discussed a land use vision, and potential transportation and development strategies to achieve greater reductions of vehicle miles traveled and GHG emissions. In advance of the workshop, agencies posted a White Paper containing initial land use protection, management, and development ideas. The Biofuel Supply Module and White Paper can be found at: <https://www.arb.ca.gov/cc/scopingplan/meetings/meetings.htm>.

- On September 16, 2016, the California Department of Food and Agriculture (CDFA) released its Healthy Soils Action Plan, an interagency effort to reduce GHGs and improve drought resiliency through innovative farm and ranchland practices. As part of the goals outlined in the plan, CDFA also released a tentative timeline for its Healthy Soils Incentives Program, which will solicit grant proposals and provide funding to awardees that implement approved sustainable farming practices. More information on the Healthy Soils Action Plan and the Healthy Soils Incentives Program is posted at: <https://www.cdfa.ca.gov/oefi/healthypoils/>.
- On November 7, 2016, the California Natural Resources Agency (CNRA), CDFA, California Department of Public Health, and CARB jointly hosted a public workshop to inform the 2017 Scoping Plan Update. Staff reviewed policy scenarios and associated reductions; the natural and working lands (NWL) sector including carbon sequestration modeling and CARB's NWL inventory; and public health implications of climate change and mitigation policies.
- On November 28, 2016, CARB released a Revised Short-Lived Climate Pollutant Strategy and its Draft Environmental Analysis for public review. Following the release of the Revised SLCP Strategy, on December 12, 15, and 16, 2016, ARB held regional workshops in Fresno, Diamond Bar, and Sacramento to provide a summary of changes made and to solicit stakeholder input. The Revised SLCP Strategy is posted to CARB's webpage at: <https://www.arb.ca.gov/cc/shortlived/archived-meetings-documents.htm>.
- On December 2, 2016, a Discussion Draft for the 2017 Scoping Plan Update was released, including initial Environmental Justice Advisory Committee recommendations, modeling scenarios, and supplemental information on NWL. The Discussion Draft is posted at: <https://www.arb.ca.gov/cc/scopingplan/meetings/meetings.htm>.
- On December 14, 2016, CNRA, CDFA, and CARB jointly hosted a public workshop to present carbon sequestration modeling methods and initial results for the NWL sector of the 2017 Scoping Plan Update. The workshop included a moderated discussion to gather stakeholder input for refining the method and scope.
- On December 16, 2016, CARB conducted a public workshop to present updates to the economic modeling of the 2017 Scoping Plan Update, and to solicit stakeholder input on the Discussion Draft released in December.
- 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 2017 Scoping Plan Update. More information on FCAT activities is available on the Department of Forestry and Fire Protection's (CAL FIRE's) website at: <http://www.fire.ca.gov/fcat/>.

- Discussions are on-going among the State's energy agencies and CARB regarding the energy sector recommendations identified in the First Update, the 2030 Target, SB 350 (De León, Chapter 547, Statutes of 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.

Scoping Plan Litigation. In the second half of 2016, there was activity in one existing court case against CARB regarding the Scoping Plan.

Transportation Solutions Defense and Education Fund v. California Air Resources Board:

In this writ action, filed in June 2014, Transportation Solutions Defense and Education Fund (Transdef), a nonprofit organization, challenges the inclusion of the California high speed rail project (HSR) in the State's 2014 AB 32 Scoping Plan Update (Update) and CARB's programmatic level environmental document prepared under the California Environmental Quality Act (CEQA). The CEQA claims stem from petitioner's allegation that CARB should have calculated and disclosed the greenhouse gas (GHG) emissions associated with the production of cement needed for the construction of the HSR. The petitioner also alleges that based on these alleged embedded GHG emissions (from cement used in construction of the HSR), the HSR is a net emitter of GHGs, and therefore, CARB should not have included the HSR as a continued measure in the First Update. HSR was originally included in the 2008 Plan, and identified as a continuing measure in the Update. Briefing is underway and a hearing is set for March 17, 2017.

3. Upcoming Milestones – January through June 2017

- CARB will release a Proposed 2017 Scoping Plan Update for public comment, and present it to the Board, in January 2017. In February, the Board and Environmental Justice Advisory Committee will hold a joint public meeting, where the EJAC will advise the Board on the development of the 2017 Scoping Plan Update. Staff intends to bring the final update and EJAC recommendations to the Board in late spring of 2017.
- In February 2017, a public workshop will be held to present the Proposed 2017 Scoping Plan Update titled, "The Proposed Strategy for Achieving California's 2030 Greenhouse Gas Target," to solicit stakeholder input.
- A public Board meeting will be held on March 23 and 24, 2017, during which the Revised SLCP Strategy will be presented to the Board for approval.

- In the first half of 2017, CDFA intends to conduct public meetings to gather stakeholder feedback on its Healthy Soils Incentives Program development and GHG quantification methodology. CDFA also plans to have grant proposals due by June 2017.
- The FCAT will publicly release a Draft Forest Carbon Plan in mid-2017, which will contribute to the recommendations for the natural and working lands sector of the 2017 Scoping Plan Update.
- 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 natural and working lands sector.
- CARB will continue its partnership with CDFA and other State agencies to develop the Healthy Soils Initiative and Incentives Program to support carbon sequestration and GHG emissions reductions in the agriculture sector.

More information on CARB activities regarding Scoping Plan updates and implementation can be found at:

<https://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 actions that tackle global climate change. By sharing California's programs, policies, and best practices, other entities can design programs that complement California's efforts.

One focus of CARB's efforts has been working 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.).

One such partnership is the linked cap-and-trade programs between CARB and Québec. After satisfying the requirements of SB 1018, 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 4 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 4 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: the 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, planning for compliance with this federal initiative is important, both because CARB expects it to ultimately be upheld, and also because 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 published the draft plan and extensive supporting analyses in summer 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 was codified in September 2016, by SB 32, and 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. This included a kick-off workshop in September 2015, a follow-up workshop to explore the connections between the Clean Power Plan and Cap-and-Trade Program in December 2015, and further workshops in spring 2016.

Since the 2016 U.S. Presidential election, efforts to rescind the Clean Power Plan have increased in intensity. However, the Clean Power Plan remains the law of the land, and is a critical component of national climate policy. Accordingly, CARB and its partners are also actively participating in litigation to defend the federal program.

U.S. EPA and CARB routinely coordinate on advanced transportation and fuels, as well. This includes the relationship between the federal Renewable Fuels Standard and the California Low Carbon Fuel Standard (LCFS), and CARB's work with U.S. EPA and its federal partners in developing 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.⁷ 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.⁸

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 attended 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 climate change and the environment. 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 second half of 2016, the climate change work group continued to exchange information with the Mexican Secretariat of Environment and Natural Resources (SEMARNAT) and Mexican National Forestry Commission (CONAFOR) via regular bi-weekly calls. To date, the workgroup has focused on monitoring, reporting and verification of greenhouse gas emissions, with both sides recognizing this as the necessary foundation to support carbon pricing or regulatory mechanisms, as well as forestry-related climate efforts.

Discussions have included descriptions of Mexico's Estrategia Nacional para REDD+ (ENAREDD+) program and descriptions of how California's domestic forestry offset program and potential for international forestry programs are advancing. In October 2016, the Nature Conservancy and Environmental Defense Fund facilitated a bilateral meeting between CONAFOR and CARB in Sacramento. The meeting included topics

⁷ 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.

⁸ Reference:

http://www.pacificcoastcollaborative.org/Documents/PCC_Leadership_Action_Plan_060116_signed.pdf.

on Mexican forestry programs and California's forestry offset program, and CONAFOR was able to visit a forest research project to observe carbon accounting and management practices.

The air quality workgroup continues to coordinate air quality planning efforts for airsheds along the California-Mexico border, including sharing technical knowledge and information, and improving the comparability of data collected in California and Mexico. The clean vehicles workgroup is focused on updating Mexican vehicle emission standards for criteria pollutants and greenhouse gases to align with U.S. standards, and also on advancing Mexico's efforts on compliance and enforcement of environmental standards for vehicles. During the second half of 2016, activities included separate visits by representatives of SEMARNAT and the Government of the State of Nuevo Leon to learn about California's Smog Check program and test procedures.

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. At the same time, 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 benefits to China, California, and global climate.

In 2013, California signed MOUs to cooperate on air quality efforts with China's Ministry of Environmental Protection and the Beijing Environmental Protection Bureau, as well as an MOU with the Chinese National Development and Reform Commission (NDRC), which oversees China's efforts to address climate change and much of the government's economic strategy. CARB supports these MOUs through a continuing series of exchanges of in-depth policy and technical information.

In 2013, China launched local GHG emissions trading systems (ETS) in seven cities and provinces. China is planning to launch a national ETS program during 2017, likely in the second half of the year. CARB has participated in many meetings with officials from the NDRC, several provincial governments, consultants, and university researchers regarding the design of China's provincial pilot ETS programs and to discuss details of California's Cap-and-Trade program. In 2016, officials from the NDRC visited CARB twice to discuss China's national ETS.

During the second half of 2016, CARB also continued to support the goals of California's MOUs with China for clean air collaboration. California's clean car and truck policies, including zero emission vehicles, are having a significant positive influence on China's policies. At the national level, China is looking to California for cutting-edge requirements for car diagnostics and policies that promote zero emission vehicles like California's ZEV plans. At the provincial level, Beijing has moved its programs even closer to those in California by adopting our vehicle emission standards and a number of other progressive environmental regulations. CARB also hosted 6 delegations from various provinces and government agencies in China during the second half of 2016.

regarding topics including regional air quality planning, controlling fuel emissions from gasoline stations and distribution facilities, and reducing levels of ozone in the atmosphere. Representatives from CARB also participated in the US-China Green Ports and Vessels Initiative Workshop and Study Tour in Long Beach in cooperation with U.S. EPA.

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 assessing the ability of tropical forests to address climate change. In August 2016, CARB's proposed amendments to the Cap-and-Trade Regulation rulemaking documents did not contain any measures relating to tropical forests. However, the inclusion of tropical forestry programs in future rulemaking continues to be considered.

In addition to the above activities, CARB continues to receive numerous delegations from other countries interested in California's groundbreaking climate change policies. During the second half of 2016, CARB received 8 foreign delegations to discuss climate change policies, including delegations from Japan, South Korea, France, and Denmark.

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 December 2016, staff from the Cap-and-Trade program participated in a technical workshop of the Partnership for Market Readiness in San Jose, Costa Rica.

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's 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 CO₂-equivalent per capita, by 2050. By December 2016 the MOU had been signed by 167 jurisdictions representing more than 1.09 billion people and \$25.9 trillion in combined gross domestic product, equivalent to more than 35% of the global economy.

Members of the Under 2 Coalition 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 and despite the U.S. Federal Government's change of direction on climate policy, 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) ⁹	+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 https://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.

⁹ 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 by 2020 and 2035. The GHG reductions demonstrated were 2 and 2 percent by 2020 and 2035, respectively.

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 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 – July through December 2016

- Based on staff's evaluation, SACOG's GHG quantification was accepted through an Executive Order in September 2016.
- The Butte County Association of Governments adopted its second SCS in December 2016, which is being reviewed by CARB staff for approval.

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. As of December 2016, CARB staff received target recommendations from the 8 San Joaquin Valley MPOs and 6 small MPOs. CARB staff continues to work with the remaining 4 largest MPOs on submittal of their target recommendations.

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 has and continues to provide funding for several research projects that support land use and transportation planning. Contracts currently underway, including (1) research to identify indicators for tracking

progress toward meeting the goals of SB 375, (2) research on the travel patterns and vehicle miles traveled of people living in affordable housing in transit-oriented developments, and (3) research on the use of sound walls and vegetation to mitigate exposure to near-roadway pollution. More details on these research projects as well as information on completed and future research may be found at: <https://www.arb.ca.gov/research/sustainable/landuse.htm>.

3. Upcoming Milestones – January through June 2017

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: <https://www.arb.ca.gov/cc/sb375/sb375.htm>.

- The Tahoe Metropolitan Planning Organization intends to adopt its second SCS in April 2017. Thereafter, CARB will review its Sustainable Communities Strategy 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, hold public workshops around the State, and provide an informational update to the Board in spring 2017.
- CARB staff will continue to meet with environmental and equity stakeholders to encourage their participation in the target update process.
- 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.
- 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.
- Three CARB-funded and sustainable communities-related projects will be completed, including: (1) research on the relationship between transit-oriented development and displacement of low-income residents and effectiveness of anti-displacement policies, (2) research modeling household vehicle and transportation choice and usage to help identify characteristics of households with low transportation emissions; and (3) research that identifies urban designs and traffic management strategies for Southern California that reduce air pollution exposure.
- 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. California Climate Investments: 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 Governor and 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 (Committee on 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
- Strategic planning and sustainable infrastructure.

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 that reduce GHG emissions; and
- Lessen the impacts and effects of climate change.

SB 535 requires at least 25 percent of program funding be directed to projects that provide benefits to disadvantaged communities and at least 10 percent of program

funding be spent on projects located in disadvantaged communities. CalEPA is required to identify these communities for investment purposes.¹⁰

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.

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.

Funds are appropriated to State agencies through the annual Budget Act and continuous appropriations enacted by SB 862 (Committee on Budget and Fiscal Review, Chapter 36, Statutes of 2014). The first appropriations in Fiscal Year (FY) 2013 – 14 provided over \$70 million. Subsequent appropriations in FY 2014 – 15 included over \$860 million, and set in motion a significant expansion of existing programs that provide GHG emission reductions and further the objectives of AB 32. In FY 2015 – 16, the Legislature and Governor appropriated almost \$1.7 billion, which provided funding to continue some of the programs established in the previous fiscal years. SB 862 also established continuing appropriations totaling 60 percent of GGRF monies beginning in 2015 – 16 for High Speed Rail, affordable housing and sustainable communities, transit capital projects, and low carbon transit operations. In 2016, for FY 2016 – 17, the Governor and Legislature appropriated over \$1.1 billion for existing and new programs.

Total appropriations, as of January 1, 2017, 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.

¹⁰ 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: <https://oehha.ca.gov/calenviroscreen>.

Table 1-2: Appropriations for Greenhouse Gas Reduction Fund Programs (as of January 1, 2017)			
Administering Agency	Program	2016-17 (\$M)	Total (\$M)
California Air Resources Board	Low Carbon Transportation	\$369	\$695
	Woodsmoke Reduction	\$5	\$5
Department of Transportation	Active Transportation Program	\$10	\$10
	Low Carbon Transit Operations Program	\$19	\$135
High Speed Rail Authority	High Speed Rail	\$93	\$800
State Transportation Agency	Transit and Intercity Rail Capital Program	\$172	\$381
Strategic Growth Council	Affordable Housing and Sustainable Communities	\$75	\$570
	Technical Assistance	\$2	\$2
	Transformative Climate Communities	\$140	\$140
Department of Community Services and Development	Low Income Weatherization Program	\$20	\$174
Department of Food and Agriculture	Biofuels	\$0	\$3
	State Water Efficiency and Enhancement Program	\$8	\$68
	Dairy Digester Research and Development Program	\$50	\$62
	Healthy Soils	\$8	\$8
Department of Water Resources	Turbines	\$0	\$20
	Water-Energy Grant Program	\$0	\$50
Department of Fish and Wildlife	Wetlands and Watershed Restoration	\$2	\$30
Department of Forestry and Fire Protection	Forest Health	\$25	\$49
	Urban and Community Forestry	\$15	\$33
Department of Resources Recycling and Recovery	Waste Diversion	\$41	\$71
Natural Resources Agency	Urban Greening Program	\$80	\$80
Total Program Funding		\$1,133	\$3,385

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 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 January 1, 2017)	
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
August 2016 Cap-and-Trade joint auction 8 (Québec)	\$8,387,910
November 2016 Cap-and-Trade joint auction 9 (Québec)	\$364,310,763
State Auction Proceeds Total	\$4,427,014,064

2. *Recent Developments – July through December 2016*

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

Electric Distribution Utility Auction Proceeds:

- **Utility Auction Proceeds:** For auctions held through the end of November 2016, investor-owned utilities have received a total of \$3.4 billion and publicly-owned utilities have received a total of \$550 million, from the sale of allocated allowances.
- Investor-owned utilities 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:

- In September 2016, the Legislature and Governor enacted AB 1613 (Committee on Budget, Chapter 370, Statutes of 2016), which amended the FY 2016 – 17 State Budget and appropriated auction proceeds to administering agencies to fund projects. The appropriations directed funding to existing programs and also created several new programs, including: Transformative Climate Communities, Active Transportation, Urban Greening, Healthy Soils, and Woodsmoke Reduction.
- In September 2016, the Legislature passed, and the Governor signed, AB 1550 (Gomez, Chapter 369, Statutes of 2016) which modifies the existing disadvantaged community investment requirements in SB 535, and provides new investment targets for low-income households and low-income communities. Specifically, AB 1550 requires that a minimum of 25 percent of proceeds be invested in projects that are located within and benefiting individuals living in disadvantaged communities; it requires an additional minimum of 5 percent of funds be invested in projects that benefit low-income households or communities statewide; and that an additional 5 percent be invested in projects that benefit low-income households or communities that are within a half mile of a disadvantaged community. In response, CARB and agency partners are working on transitioning to full implementation of AB 1550 as part of FY 2017 – 18 funded programs.
- In December 2016, CARB released the *Funding Guidelines Supplement for FY 2016 – 17 Funds* to provide interim direction for administering agencies implementing the September 2016 funding appropriations. The supplemental guidance includes updates for new programs, including project specific criteria for providing benefits to disadvantaged communities.
- CARB is responsible for providing the quantification methodologies to estimate GHG emission reductions from projects receiving auction proceeds. CARB staff develops the GHG emission reduction quantification methodologies to be used by grant applicants and State agencies to estimate proposed project GHG emission reductions. In 2016, CARB developed or updated 15 quantification methodologies for new and existing programs. Completed quantification methodologies are posted on CARB's website at:
<https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/quantification.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. Past reports can be found at: <https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/annualreport.htm>. 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 the fall of 2016, CARB collected data from agencies to develop the report for 2017.
- CARB contracted with academic partners at UC Berkeley to research and evaluate potential quantification methods for a number of co-benefits. Administering agencies collaborated to prioritize co-benefits for evaluation under the current effort, based on the most broadly applicable co-benefits across GGRF programs, and those with interest from multiple agencies and stakeholders. Initial co-benefit methods will be developed over the next year and are expected to be applied beginning with FY 2017 – 18 funds. Additional co-benefits may be included in subsequent years.
- CARB contracted with the Foundation for California Community Colleges (FCCC) to support agency outreach efforts statewide. The FCCC is working in partnership with the Young Invincibles, a national organization with experience promoting engagement on a range of issues. The objective of the contract is to develop and apply outreach strategies to promote and expand participation of disadvantaged communities in the California Climate Investments program. The primary deliverable for this contract is development and implementation of a combination of strategies for: outreach efforts; raising awareness; building partnerships; utilizing resources; and strengthening community capacities to successfully leverage funding opportunities.
- 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.

3. Upcoming Milestones – January through June 2017

- The Administration will complete concurrence¹¹ with FY 2014 – 15 and FY 2015 – 16 expenditure records required pursuant to SB 1018. CARB will continue to work with agencies on the developing expenditure records for programs that received appropriations in FY 2016 – 17. The expenditure records provide an overview of each agency's use of auction proceeds and are posted at:
<https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/expenditurerecords.htm>.
- CARB staff is working with agencies and stakeholders to develop updates to the Funding Guidelines. The 2017 update to the Funding Guidelines will provide guidance to all administering agencies on the implementation of AB 1550, as well as other updates to continue and expand existing accountability and transparency provisions. CARB is also developing project outcome reporting requirements to provide guidance on data collection and reporting needed to demonstrate and document the benefits of GGRF-funded projects after completion. The Funding Guidelines update in 2017 will include public workshops and multiple opportunities for public input including a CARB Board hearing in June 2017.
- CARB will compile data collected from agencies to develop the 2017 *Annual Report to the Legislature on Investments of Cap-and-Trade Auction Proceeds* for release in March 2017.
- CARB will continue to review expenditure records for the remaining FY 2016 – 17 programs.
- CARB will continue to refine and develop quantification methodologies for new and evolving programs to estimate GHG emission reductions from projects receiving monies from 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 staff will continue to work with outside experts and academic partners to update the quantification methodologies, with a particular focus on developing methodologies for evaluating co-benefits.

¹¹ Prior to expending any monies appropriated by the Legislature from GGRF, participating State agencies are required to prepare an expenditure record documenting how their investments will further the purposes of AB 32, contribute to achieving GHG emission reductions and other health and environmental co-benefits, and meet other statutory requirements. Pursuant to SB 1018, CARB reviews these expenditures. Appendix 1.A of the document, "ARB's Cap-and-Trade Auction Proceeds Funding Guidelines for Agencies that Administer California Climate Investments," contains the guidance for agencies required to prepare expenditure records. The guidelines are posted at:
<https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/arb-funding-guidelines-for-ca-climate-investments.pdf>.

- CARB will continue to work with contractors 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 such as 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 seaport commissions and metropolitan planning organizations are also taking action to improve freight operations. Large seaports 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 released for public comment a proposed State Implementation Plan (SIP)¹² for ozone. 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

¹² 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.

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. The California Department of Transportation (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 support State-level planning and regulatory efforts, including the Discussion Document, California Sustainable Freight Action Plan (Action Plan) implementation, SIP development, and CARB's mobile source control program.

In May 2016, multi-agency State partners released the draft Action Plan for public comment and submitted 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 for 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.

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.

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.

2. *Recent Developments – July through December 2016*

CARB activities in the second half of 2016 related to implementing measures identified in the Action Plan:

- In July 2016, the secretaries of Transportation, Environmental Protection, and Natural Resources submitted the final Action Plan to the Governor.
- In late July 2016, CARB staff released a draft Technology Assessment Overview Document that evaluates the current state and projected development of transport refrigeration technology. This was followed by a webinar in August 31, 2016, where staff and clean technology manufacturers discussed clean transport refrigeration unit technology options.
- In September 2016, the California Freight Advisory Committee held a meeting in which multi-agency State partners discussed implementation of the Action Plan. Periodic updates at future California Freight Advisory Committee meetings are anticipated.
- On October 20, 2016, CARB staff presented an informational update to the Board on the Federal Phase 2 GHG Standards for heavy-duty engines and vehicles and discussed opportunities to further reduce GHG emissions in future California rulemakings.
- On October 20, 2016, CARB staff presented an informational update to the Board on the status of developing low-NOx emission standards for heavy-duty on-highway engines. On November 3, 2016, staff held a public workshop to discuss various elements of the low NOx rulemaking and provided an update on CARB's current low-NOx related research activities.
- On November 1, 2016 a public workshop was held to discuss a strategy to expand advanced clean technologies in last-mile delivery and local trucks. Staff reviewed data collection efforts to support this strategy, as well as the implementation of measures outlined in the Action Plan.

- On November 8, 2016, multi-agency partners held the first of the next phase of meetings for the California Freight Efficiency Group led by Caltrans. The Efficiency Group consists of a diverse cross-section of public and private sector freight stakeholders, including representatives of seaports, shipping, trucking, air cargo, rail, and related freight associations, as well as industry workforce, academia, and environmental groups. This meeting identified five near-term efficiency strategies to improve California's freight transportation system, consistent with the objectives of the Action Plan.
- CARB staff held a public workshop December 1, 2016 to discuss proposed changes to the Carl Moyer Program guidelines to reflect new opportunities provided by SB 513 (Beall, Chapter 610, Statutes of 2015) that will take effect January 1, 2016.
- On December 5, 2016, CARB staff released a Final Technology Assessment for Freight Locomotives.
- CARB staff has conducted regular meetings with interagency and local partners to develop work plans for the Pilot Project outlined in the Action Plan. The intended release date for the work plans is June 2017.
- The multi-agency State partners continue to convene and participate in additional topic-specific meetings and conversations with interested stakeholders (e.g., local and regional government agencies, utilities, environmental and health groups), as needed, while the Action Plan is being developed.

3. Upcoming Milestones – January through June 2017

- CARB staff anticipates the release of a draft "Freight Hub Survey for Truck Stops" on January 20, 2017. The survey will be open for public comment, and should be distributed in February 2017. Staff is designing this survey to gather specific facility and equipment information from California based truck stops. The data gathered in this survey will help CARB staff better understand the activity that occurs at truck stops in California, assess the potential for emission reductions, and assist with the development of strategies for potentially reducing emissions at trucks stops. The information will also be used to determine the costs associated with any potential actions and direct future funding assistance efforts.
- On January 25, 2017, a California Freight Advisory Committee meeting will be held to discuss ongoing implementation of the Action Plan with public and private freight stakeholders.
- In early 2017, staff anticipates submitting a petition to the U.S. EPA requesting amendments to the emission standards for remanufactured locomotives in 2023 and newly built locomotives in 2025 to achieve critical NOx and PM reductions, as identified in the Action Plan.

- On February 22, 2017, the California Freight Efficiency Group led by Caltrans will meet to adopt the group's charter and five near-term efficiency strategies. The group is expected to discuss and outline the next steps toward deployment of strategies, potential project ideas and solutions. This group will meet quarterly to facilitate the development of the freight efficiency strategies.
- In February 2017, CARB staff anticipates holding a public workshop to discuss California's proposed adoption of the federal Phase 2 GHG standards and potential amendments to CARB's existing Tractor-Trailer GHG regulation.
- CARB staff anticipates holding public workshops to discuss the development of the Heavy-Duty Inspection and Maintenance program, beginning in January 2017 and continuing throughout 2018 and 2019.
- In spring 2017, the multi-Agency State partners anticipate conducting California Sustainable Freight Action Plan implementation workshops to discuss development and coordination of various elements of the Action Plan with public and private stakeholders.
- CARB staff will continue to hold interagency meetings and meetings with local, public and private partners to develop the Pilot Project work plans. Staff anticipates discussing the pilot projects at the Action Plan implementation workshops. Staff expects the work plans to be released in July 2017.
- In summer 2017, the agency Secretaries and Chairs will convene a Freight Think Tank meeting with freight strategists, forecasters, and innovators as part of a long-term planning strategy for the future freight transport system, as outlined in the Action Plan. A report will be published at the end of 2017 summarizing the key findings from these discussions.
- CARB incentive-funded programs 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 lifetime of the grant contracts and/or 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 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.¹³ 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).

¹³ 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.

As mentioned previously, under a BAU scenario, 2020 forecast emissions are projected to be 509 MMT of CO₂e. To meet the 2020 target (431 MMTCO₂e), the climate program must reduce 78 MMT of CO₂e 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.

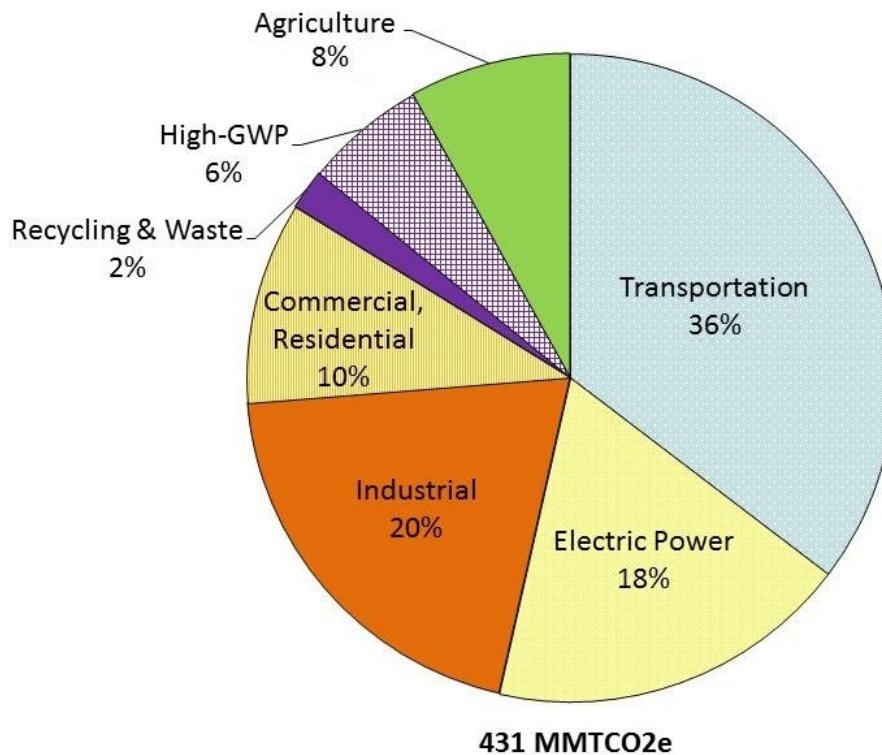
Table 1-4: Meeting the 2020 Emissions Target	
Category	2020 (MMTCO₂e)**
AB 32 Baseline 2020 Forecast Emissions (2020 BAU)	509
Expected Reductions from Sector-Based Measures	
Energy	25
Transportation	23
High-GWP	5
Waste	2
Cap-and-Trade Reductions	23*
2020 Limit	431

*Cap-and-Trade emission reductions depend on the emission forecast.

**Based on IPCC Fourth Assessment Report GWP values.

Figure 1 shows forecasted 2020 emissions and how they are likely to be spread across the sectors after compliance with the AB 32 2020 target.¹⁴ The 2017 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
Forecasted 2020 Greenhouse Gas Emissions By Sector
With Adopted Regulations and Programs



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).

¹⁴ The 2020 emissions by sector are estimated based on the reductions expected from the measures described in the First Update to the AB 32 Scoping Plan (2014).

SECTION 2:

ANNUAL AB 32 FISCAL REPORT **(Fiscal Year 2015 – 16: July 2015 – June 2016)**

This report is required annually by the Supplemental Report of the 2012 – 13 Budget¹⁵ to quantify the major revenues and expenses for CARB to implement the AB 32 program for the prior fiscal year. This report focuses on Fiscal Year (FY) 2015 – 16. The report format follows the Budget language, from funding received (Cost of Implementation Fee and Cap-and-Trade auction proceeds), followed by CARB expenses for the AB 32 program as a whole and breakdowns by specified major program areas, the total funds from Cap-and-Trade allowance auctions, and concludes with the activities of the Emissions Market Assessment Committee.

I. FY 2015 – 16 FUNDS RECEIVED AND EXPENDED

This element of the report covers the FY 2015 – 16 funds received related to AB 32 implementation, as well as the FY 2015 – 16 funds expended by CARB to support activities that provide climate benefits.

Structure and Funding for Regulatory Activities. The resources estimated in this section of the report are used to support all activities that provide a climate benefit, whether as the primary objective, or as a co-benefit. In each year, CARB's resources to support the climate program equal or exceed the amount budgeted exclusively for AB 32 activities that are funded by the AB 32 Cost of Implementation Fee. CARB relies on other funding sources; the specific source is related to the activity for two reasons.

First, CARB has several measures and program areas that were originally designed to achieve other air quality goals and rely on different funding sources, but nonetheless provide a climate co-benefit by simultaneously reducing GHGs. Although the GHG

¹⁵ Each year, beginning January 10, 2013, CARB shall provide the Legislature an AB 32 fiscal report. This annual report is to be retrospective and is intended to quantify the major revenue and CARB expenses for the AB 32 program for the prior fiscal year. The scope of the annual fiscal report should include: the AB 32 cost of implementation fee revenue, loans repaid, and overall AB 32 program expenses (staff, operations, and contracts) for the prior fiscal year; the total cap-and-trade auction funds; a summary of CARB AB 32 expenditures; the balance for the prior fiscal year; and allowance auction prices in order to assess trends. The annual fiscal report should include an update on activities and findings of the Market Surveillance Committee, as well as track and detail all expenses and revenues, including the following categories: all AB 32 costs, all cap-and-trade costs, low-carbon fuel standards, Renewable Portfolio Standards, Green Building strategy, and landfill methane capture.

emission reductions associated with these other measures are counted towards achieving the AB 32 target and considered as part of the climate program, those activities may not necessarily be solely funded by the AB 32 Cost of Implementation Fee. For example, the ships-at-berth rule was initiated to reduce the community health risk from ship pollution, but the rule also provides substantial GHG co-benefits associated with using shore-based electrical power rather than burning fuel in onboard engines when the ships are in port.

Second, CARB's regulatory program has grown and evolved to address the agency's responsibilities under State and federal law to improve air quality at the local, regional, and global levels. CARB adopts, implements, and enforces regulations focused on meeting several different objectives:

- Reducing criteria pollutants (such as ozone and fine particulate matter) to meet health-based air quality standards in each region;
- Reducing the localized health risk from air toxics (such as benzene, hexavalent chromium or diesel particulate matter); and
- Reducing the greenhouses gases and short-lived climate pollutants that contribute to global climate change.

Although the statutory foundation for each of these regulatory programs is distinct, to the extent feasible, CARB looks to develop regulations and comprehensive programs that meet two or more of these objectives simultaneously. This approach enables CARB to use resources most efficiently and benefits the industry by providing a public process that results in a consolidated set of requirements.

A. AB 32 Cost of Implementation Fee for FY 2015 – 16

The expenditure of funds that support AB 32 programs at multiple agencies is established in the California Budget Act, and is referred to in the AB 32 Cost of Implementation Regulation as "required revenue." The AB 32 Cost of Implementation required revenue for FY 2015 – 16 is \$46,275,000. Table 2-1 displays the Cost of Implementation Fee appropriations from the Budget for State agencies authorized to use the AB 32 Cost of Implementation Account.

Table 2-1: AB 32 Cost of Implementation Fee Appropriations (FY 2015 – 16)		
Department	Positions	Funding
Secretary for Environmental Protection	4	\$658,000
Secretary of the Natural Resources Agency	2	\$493,000
Department of Housing and Community Development	1	\$315,000
Department of Resources Recycling and Recovery	6	\$564,000
Department of Forestry and Fire Protection	3	\$354,000
Department of Water Resources	3	\$348,000
California Air Resources Board	173	\$42,384,000
State Water Resources Control Board	2	\$584,000
Department of Public Health	0	\$357,000
State Controller	0	\$76,000
Department of Food and Agriculture	1	\$142,000
Total Appropriations and Adjustments	195	\$46,276,000

Source: Enacted Budget Act for Fiscal Year 2015 – 16. See the FY 2015 – 16 Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2015-16/pdf/GovernorsBudget/3890/3900FCS.pdf>.

Adjustments are made to the required revenue to account for any over- or under-collections from the previous fiscal years. Adjustments include discrepancies between agency positions and funding amount. This is due to differences in contracted dollars and salary adjustments made after the total required revenue is determined. Other adjustments include those made to invoices such as refunds or additional fees collected that occur for various reasons, including, but not limited to, late discovery of misreporting of fee-covered emissions or billing errors. CARB corrects for these adjustments in subsequent year billings.

Table 2-2 shows the total required revenue, along with updated information on the regulatory fees, actually collected for FY 2015 – 16, from the recently enacted Budget Act for Fiscal Year 2016 – 17. The value of \$3,379,000 listed in Table 2-2 below, as “Total Adjustments,” represents an under-collection. A significant portion of this adjustment was used to cover increases made to employee compensations that occurred midway through the fiscal year.

Table 2-2: Total AB 32 Cost of Implementation Fee Expenses and Revenue For All Agencies (FY 2015 – 16)	
Total Department Expenditures (Required Revenue)	\$46,276,000
Total Adjustments	\$3,379,000
Total Required Revenue	\$49,655,000
Fee Revenue Collected for FY 2015 – 16	\$51,512,000

Source: Enacted Budget Act for Fiscal Year 2015 – 16. See the FY 2015 – 16 Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2015-16/pdf/GovernorsBudget/3890/3900FCS.pdf>.

B. Overall CARB FY 2015 – 16 Resources to Implement AB 32

Table 2-3 shows the actual fiscal year 2015 – 16 expenditures for climate change programs, for CARB only. Contract expenditures include both paid costs and encumbrance balances. Total resources expended also include a pro rata cost of \$2,631,000. Pro rata charges are a form of overhead. They are defined in State Administrative Manual (SAM) 8754 as “...the sharing of central service costs by funds other than the General Fund and the Central Service Cost Recovery Fund.” SAM 8753 defines central service costs as “amounts expended by central service departments and the Legislature for overall administration of state government and for providing centralized services to state departments.” The actual total resources spent by CARB for FY 2015 – 16 are \$45,177,000, which is less than the adjusted expenditure of \$45,432,000, and more than the original expenditure of \$42,384,000. Original fee appropriations for CARB are listed in Table 2-1 above, and the adjusted appropriations for CARB are listed in Table 3-5.

Table 2-3: Overall FY 2015 – 16 Expenditures that Support AB 32 For ARB Only	
Category	Funding
Personnel and operations expenses (salary, benefits, overhead, equipment, travel, training)	\$37,630,000
Contract expenditures (includes encumbered funds)	\$4,916,000
Pro rata	\$2,631,000
Total Resources	\$45,177,000

Explanations: For contract expenses, CARB relied on its records of actual and encumbered expenditures. All dollars are rounded to the nearest thousand.

Source: Personnel and operations expenses are obtained from manual monthly tracking reports submitted by CARB staff.

C. Program-Specific CARB FY 2015 – 16 Resources to Implement AB 32

1. *Data Sources and Methodology*

Historically, CARB has tracked AB 32 programs and activities to implement AB 32 in totality, not at the level of individual regulations. To comply with all mandates (State laws, regulations, and policies on fiscal programs), CARB uses the CALSTARS system, which is the State's accounting system.

In response to requests by the Legislature to see more detailed information regarding the costs to implement AB 32, CARB has committed to manually track and report on AB 32 expenditures for personnel and operations, plus contracts, for the major elements of the climate program. CARB began collecting information on hours worked in specific AB 32 program areas from all affected employees, beginning with the October 2013 pay period. On July 1 2015, CARB employees began tracking hours worked using specific task codes for major program areas. Starting with the 2015 Fiscal and Resource Reports on AB 32 Programs, CARB is reporting only Cost of Implementation Account expenditures and resources. However, programs primarily funded by Cost of Implementation fees may also receive funding from other sources that target criteria and toxic air pollutants (e.g., development of the Advanced Clean Cars Regulation that reduces toxic and criteria air pollutants, and also reduces greenhouse gases, and short-lived climate pollutants).

2. Retrospective Resources by Program Area

Table 2-4 shows actual resources used to support AB 32 programs with a climate benefit, at CARB only, during FY 2015 – 16.

Table 2-4: CARB Expenditure of Funds in FY 2015 – 16 for Program Activities that Support AB 32			
AB 32 Program Area	Personnel & Operations Expenses	Contract Dollars Expended	Total by Program Area
Cap-and-Trade	\$9,359,000	\$713,000	\$10,072,000
Low Carbon Fuel Standard	\$5,996,000	\$541,000	\$6,537,000
Mobile/Transportation	\$1,784,000	--	\$1,784,000
Energy	\$659,000	\$1,000	\$660,000
Inventory/Monitoring/Research/Cost of Implementation Fee	\$7,759,000	\$252,000	\$8,011,000
Scoping Plan	\$3,757,000	\$110,000	\$3,867,000
Other AB 32 Support Activities*	\$8,316,000	\$3,300,000	\$11,616,000
Total	\$37,630,000	\$4,916,000	\$42,547,000

Explanations: For contract expenses, CARB relied on its records of actual and encumbered expenditures. All dollars are rounded to the nearest thousand.

Source: Personnel and operations expenses are obtained from manual monthly tracking reports submitted by CARB staff using the AB 32 COIA (3237) fund.

*A small amount of funding (\$100,000 for personnel and operations expenses and \$150,000 for contracts) other than AB 32 COIA funds were used to support AB 32 activities, these funds were transferred from Public Utilities Commission Utilities Reimbursement Account, General Fund (0462).

SECTION 3:

ANNUAL REPORTS ON AB 32 RESOURCES

**(Fiscal Year 2015 – 16: July 2015 – June 2016 and
Fiscal Year 2016 – 17: July 2016 – June 2017)**

Item 3900-001-0001 California Air Resources Board Supplemental Report of the 2012 – 13 Budget¹⁶ requires quantification and detailing of CARB's resources to implement AB 32 – prospectively and retrospectively. The prospective report covers the current Fiscal Year 2016 – 17. The retrospective report focuses on Fiscal Year 2015 – 16 and therefore includes some of the same material previously presented in Section 2: Annual AB 32 Fiscal Report. The format for each report follows the elements of the Budget directive, focusing on quantifying the resources to support five key activities: Cap-and-Trade, Low Carbon Fuel Standard, AB 32 Cost of Implementation Fee, AB 32 Scoping Plan, and the Greenhouse Gas Reduction Fund. The reports also identify resources to support other AB 32-related activities.

Structure and Funding for Regulatory Activities. The resources estimated in this report are those used to support activities that provide a climate benefit, whether as the primary objective, or as a co-benefit. In each year, CARB's resources to support the climate program equal or exceed the amount budgeted exclusively for AB 32 activities that are funded by the AB 32 Cost of Implementation Fee. CARB relies on other funding sources; the specific source is related to the activity. There are two reasons.

First, CARB has several measures and program areas that were originally designed to achieve other air quality goals and rely on different funding sources, but nonetheless provide a climate co-benefit by simultaneously reducing GHGs. Although the GHG emission reductions associated with these other measures are counted towards achieving the AB 32 target and are considered part of the climate program, those activities may not necessarily be fully funded by the AB 32 Cost of Implementation Fee. For example, the ships-at-berth rule was initiated to reduce the community health risk from ship pollution, but the rule also provides substantial GHG co-benefits associated

¹⁶ In addition, CARB shall provide two resource reports each year to the Legislature that quantify the CARB AB 32 staffing and operations expenses, as well as CARB contracts, by major AB 32 program area. First, CARB shall provide a prospective resource report with anticipated expenses each year by January 10. Second, CARB shall provide a retrospective resource report each year on or before January 10. The scope of the resources reports is to include the CARB resources (staffing, operations, and contracts) that were used to support major AB 32 program areas (cap-and-trade, low carbon fuel standard, cost of implementation fee, and the update to the AB 32 Scoping Plan). In addition, CARB is to provide an estimate of the combined resources for the other climate change-related activities (implementation of adopted regulations and coordination with other agencies).

with using shore-based electrical power rather than burning fuel in onboard engines when the ships are in port.

Second, CARB's regulatory program has grown and evolved to address the agency's responsibilities under State and federal law to improve air quality at the local, regional, and global levels. CARB adopts, implements, and enforces regulations focused on meeting several different objectives:

- Reducing criteria pollutants (like ozone and fine particulate matter) to meet health-based air quality standards in each region;
- Reducing the localized health risk from air toxics (like benzene, hexavalent chromium or diesel particulate matter); and
- Reducing the greenhouses gases and short-lived climate pollutants that contribute to global climate change.

Although the statutory foundation for each of these regulatory programs is distinct, to the extent feasible, CARB looks to develop regulations and comprehensive programs that meet two or more of these objectives simultaneously. This approach enables CARB to use its resources most efficiently and benefits the industry by providing a public process that results in a consolidated set of requirements.

I. AB 32 PROSPECTIVE RESOURCE REPORT FOR FY 2016 – 17

The FY 2016 – 17 State Budget approved CARB to use up to \$46,491,000 from the AB 32 Cost of Implementation Fund to support AB 32 climate change programs. CARB also expects to rely on other sources of funding for activities that provide a climate co-benefit.

A. AB 32 Cost of Implementation Fee for FY 2016 – 17

Table 3-1 displays the Cost of Implementation Fee appropriations from the Budget for State agencies authorized to use the AB 32 Cost of Implementation Fee revenue during this fiscal year. The AB 32 Cost of Implementation required revenue for FY 2016 – 17 is \$52,045,000.

Table 3-1: AB 32 Cost of Implementation Fee Appropriations (FY 2016 – 17)		
Department	Positions	Funding
Secretary for Environmental Protection	4	\$675,000
Secretary of the Natural Resources Agency	1	\$290,000
Department of Housing and Community Development	1	\$344,000
Department of Resources Recycling and Recovery	6	\$576,000
Department of Forestry and Fire Protection	3	\$433,000
Department of Water Resources	3	\$359,000
California Air Resources Board	189	\$46,491,000
State Water Resources Control Board	2	\$573,000
Office of Environmental Health Hazard Assessment	3	\$645,000
Department of Public Health	0	\$389,000
Department of Food and Agriculture	6.8	\$1,210,000
Financial Information System for California	0	\$60,000
Total Expenditures and Adjustments	218.8	\$52,045,000

Source: Enacted Budget Act for Fiscal Year 2016 – 17. See the Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2016-17/pdf/Enacted/GovernorsBudget/3890/3900FCS.pdf>

Funding used to support AB 32 programs at multiple agencies is established in the most recently approved California Budget Act; this is referred to by the Fee Regulation as the required revenue. Adjustments are made to the required revenue to account for any over- or under-collections from the previous fiscal years. Adjustments include discrepancies between agency positions and funding amount. This is due to differences in contracted dollars and salary adjustments made after the total required revenue is determined. Other adjustments include those made to invoices such as refunds or additional fees collected. These occur for various reasons, including, but not limited to, late discovery of misreporting of fee-covered emissions and billing errors. CARB corrects for these adjustments in subsequent year billings.

Table 3-2 shows the adjusted or total required revenue, along with updated information on the revenue actually collected for FY 2016 – 17. The value of \$198,000 listed in

Table 3-2 below, under “Total Adjustments,” represents an overage in required revenue from the previous fiscal year’s invoice adjustments.

Table 3-2: Total AB 32 Cost of Implementation Fee Appropriations and Revenue For All Agencies (FY 2016 – 17)	
Total Department Appropriations (Required Revenue)	\$52,045,000
Total Adjustments	\$(198,000)
Total Required Revenue	\$51,847,000
Fee Revenue Collected for FY 2016 – 17	\$51,796,000

Explanation: As of January 2017, there are two outstanding invoices. CARB has been in contact with these Fee Payers and expects to resolve these issues before determining next fiscal year’s (FY 2017 – 18) total required revenue. All dollars rounded to the nearest thousand.

Source: Enacted Budget Act for Fiscal Year 2016 – 17. See the FY 2016 – 17 Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2016-17/pdf/GovernorsBudget/3890/3900FCS.pdf>.

B. Overall CARB FY 2016 – 17 Resources to Implement AB 32

Table 3-3 shows the estimated fiscal year 2016 – 17 expenditures for CARB only. Contract expenditures include both paid costs and encumbrance balances. Total resources expended also include a pro rata cost of \$2,761,000. Pro Rata charges are a form of overhead. They are defined in SAM 8754 as “...the sharing of central service costs by funds other than the General Fund and the Central Service Cost Recovery Fund.” SAM 8753 defines central service costs as “amounts expended by central service departments and the Legislature for overall administration of state government and for providing centralized services to state departments.” As noted on page 61, CARB also expects to rely on other sources of funding for activities that provide a climate co-benefit.

**Table 3-3: Projected Overall FY 2016 – 17 Resources to Implement AB 32
For CARB Only**

Category	Funding
Personnel and operations expenses (salary, benefits, overhead, equipment, travel, training, etc.)	\$41,507,000
Contracts budgeted	\$4,429,000
Pro rata	\$2,761,000
Total	\$48,697,000

Explanations: Costs are estimated from monthly timesheet tracking reports for the previous fiscal year submitted by CARB staff, then adjusted to include a 5% increase in employee compensation, as well as an estimated expense from Legislature-approved budget change proposals. Contract costs are estimated based on encumbering funds according to the schedule for existing contracts, and known expenditures. Estimated pro rata costs are included in the estimated total by program area amount. All dollars are rounded to the nearest thousand.

C. Program-Specific CARB FY 2016 – 17 Resources to Implement AB 32

Table 3-4 provides a breakdown by major program area of resource estimates for personnel and operations, plus contract dollars allocated, for all CARB activities that provide a climate benefit to implement AB 32. The contract dollar amounts allocated show the FY 2016 – 17 funds that may be encumbered via existing contracts. Legislature-approved budget change proposals that are included in the “Other AB 32 Support Activities” are implementing methane measurements as part of AB 1496 (Thurmond, Chapter 604, Statutes of 2015) for up to \$1.43 million dollars; and investigating, implementing, and enforcing short-lived climate pollutant measures (SB 605 and SB 1383) for up to \$1.415 million dollars. The Legislature also appropriated up to \$485,000 for CARB to implement the Clean Energy and Pollution Reduction Act of 2015 (SB 350). This is included in the “Energy” program area.

Table 3-4: Program-Specific CARB FY 2016 – 17 Resources to Support AB 32

AB 32 Program Area	Estimated Personnel and Operations Expenses	Contract Dollars Allocated	Estimated Total by Program Area
Cap-and-Trade	\$9,827,000	--	\$9,827,000
Low Carbon Fuel Standard	\$6,295,000	--	\$6,295,000
Mobile/Transportation (SB 375)	\$1,873,000	--	\$1,873,000
Inventory/Monitoring/Research	\$8,975,000	\$599,000	\$9,574,000
Scoping Plan	\$4,765,000	--	\$4,765,000
Energy	\$1,177,000	--	\$1,177,000
Other AB 32 Support Activities	\$8,593,000	\$3,830,000	\$12,423,000
Total	\$41,505,000	\$4,429,000	\$45,934,000

Explanations: Costs are estimated from CARB staff monthly tracking reports from the previous fiscal year. These are adjusted to include a 5% increase to employee compensation, and additional expenditures from Legislature approved budget change proposals. Contract funding refers to FY 2016 – 17 monies that have been or will be encumbered in during the fiscal year, but may be expended through June 2019. All dollars are rounded to the nearest thousand.

Source: See the Department of Finance's webpage, <http://www.dof.ca.gov/>, under Budget Details for the Legislature approved budget change proposals.

II. AB 32 RETROSPECTIVE RESOURCE REPORT FOR FY 2015 – 16

A. AB 32 Cost of Implementation Fee for FY 2015 – 16

Table 3-5 displays the adjusted appropriations for the Cost of Implementation Account for FY 2015 – 16 as authorized from the most recently enacted Budget (FY 2016 – 17). Table 2-1 shows the original fee appropriations that were used to determine the required revenue.

Table 3-5: AB 32 Cost of Implementation Fee Adjusted Appropriations (FY 2015 – 16)	
Department	Funding
Secretary for Environmental Protection	\$676,000
Secretary of the Natural Resources Agency	\$502,000
Department of Housing and Community Development	\$327,000
Department of Resources Recycling and Recovery	\$583,000
Department of Forestry and Fire Protection	\$354,000
Department of Water Resources	\$359,000
California Air Resources Board	\$45,432,000
State Water Resources Control Board	\$584,000
Department of Public Health	\$357,000
State Controller	\$76,000
Department of Food and Agriculture	\$147,000
Total Appropriations and Adjustments	\$49,397,000

Source: Enacted Budget Act for Fiscal Year 2016 – 17. See the FY 2015 – 16 Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2016-17/pdf/GovernorsBudget/3890/3900FCS.pdf>.

Table 3-6 shows the required revenue, adjustments, and updated information on the revenue actually collected for FY 2015 – 16. At the start of each fiscal year, adjustments are made to the required revenue to balance the AB 32 Cost of Implementation Account. The total adjustments account for any discrepancies between agency positions and funding amount, and for any changes made to invoices such as refunds or additional fees collected. The most recently enacted Budget for Fiscal Year 2016 – 17 adjusted the FY 2015 – 16 appropriated expenditures from \$46,276,000 to \$49,397,000. This represents an underage of \$3,121,000 in required revenue needed to implement AB 32. This adjustment was for increased salary costs that occurred mid-way through the fiscal year. The total adjustment also included an underage of \$258,000 from the previous fiscal year's invoice adjustments. Total revenue collected is greater than the total required revenue because there were additional fees collected as a result of reporting errors and invoice adjustments. This amount was carried over into the total required revenue adjustments for the next fiscal year.

Table 3-6: Total Adjusted Cost of Implementation Fee Expenses and Revenue (FY 2015 – 16)	
Total Department Appropriations, Required Revenue (Proposed Budget Year 2015-16)	\$46,276,000
Total Department Adjusted Appropriations (Revised Current Year 2015-16)	\$49,397,000
Total Adjustments	\$3,379,000
Total Required Revenue	\$49,656,000
Fee Revenue Collected for FY 2015-16	\$51,512,000

Explanation: Total department adjusted appropriations for FY 2015-16 are listed in the FY 2016-17 Enacted Budget.

Sources: Fiscal Year 2015 – 16 and 2016 – 17. See the FY 2015 – 16 Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2015-16/pdf/GovernorsBudget/3890/3900FCS.pdf> and Fiscal Year 2016 – 17 Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2016-17/pdf/Enacted/GovernorsBudget/3890/3900FCS.pdf>.

B. Overall CARB FY 2015 – 16 Resources to Implement AB 32

Table 3-7 shows the actual fiscal year 2015 – 16 expenditures for CARB only. Contract expenditures include both paid costs and encumbrance balances. Total resources expended also include a pro rata cost of \$2,631,000. Pro rata charges are a form of overhead. They are defined in SAM 8754 as “...the sharing of central service costs by funds other than the General Fund and the Central Service Cost Recovery Fund.” SAM 8753 defines central service costs as “amounts expended by central service departments and the Legislature for overall administration of state government and for providing centralized services to state departments.” The actual total resources spent by CARB for FY 2015 – 16 are \$45,177,000 which is less than the adjusted expenditure of \$45,432,000, and more than the original expenditure of \$42,384,000. Original fee appropriations for CARB only are listed in Table 2-1 and the adjusted appropriations for CARB are listed in Table 3-5.

Table 3-7: Overall FY 2015 – 16 Expenditures that Support AB 32 For CARB Only	
Category	Funding
Personnel and operations expenses (salary, benefits, overhead, equipment, travel, training, etc.)	\$37,630,000
Contract expenditures	\$4,916,000
Pro rata	\$2,631,000
Total	\$45,177,000

Explanations: For contract expenses, CARB relied on its records of actual and encumbered expenditures. All dollars rounded to the nearest thousand.

Source: Personnel and operations expenses are obtained from manual monthly tracking reports submitted by CARB staff.

C. Program-Specific CARB FY 2015 – 16 Resources to Implement AB 32

1. *Data Sources and Methodology*

Historically, CARB has tracked AB 32 programs and activities to implement AB 32 in totality, not at the level of individual regulations. To comply with all mandates (State laws, regulations, and policies on fiscal programs), CARB uses the CALSTARS system, which is the State's accounting system.

In response to requests by the Legislature to see more detailed information regarding the costs to implement AB 32, CARB committed to manually track and report on future AB 32 expenditures for personnel and operations, plus contracts, for the major elements of the climate program. CARB began collecting information on hours worked in specific AB 32 program areas from all affected employees beginning with the October 2013 pay period. CARB is using these data for current and future reports to the Legislature.

On July 1 2015, CARB employees began tracking hours worked using specific task codes for major program areas. Starting for the 2015 Fiscal and Resource Reports on AB 32 Programs, CARB is reporting only Cost of Implementation Account expenditures and resources. However, programs primarily funded by Cost of Implementation fees may also receive funding from other sources that target criteria and toxic air pollutants (e.g., development of the Advanced Clean Cars Regulation that reduces air toxics, and criteria air pollutants, and also reduces greenhouse gases, and short-lived climate pollutants).

2. Retrospective Resources by Program Area

Table 3-8 shows actual resources used to support AB 32 programs with a climate benefit at CARB only during FY 2015 – 16.

Table 3-8: CARB Expenditure of Funds in FY 2015 – 16 for Program Activities that Support AB 32			
AB 32 Program Area	Personnel & Operations Expenses	Contract Dollars Expended	Total by Program Area
Cap-and-Trade	\$9,359,000	\$713,000	\$10,072,000
Low Carbon Fuel Standard	\$5,996,000	\$541,000	\$6,537,000
Mobile/Transportation	\$1,784,000	--	\$1,784,000
Energy	\$659,000	\$1,000	\$660,000
Inventory/Monitoring/Research/Cost of Implementation Fee	\$7,759,000	\$252,000	\$8,011,000
Scoping Plan	\$3,757,000	\$110,000	\$3,867,000
Other AB 32 Support Activities*	\$8,316,000	\$3,300,000	\$11,616,000
Total	\$37,630,000	\$4,916,000	\$42,547,000

Explanations: For contract expenses, CARB relied on its records of actual and encumbered expenditures. All dollars rounded to the nearest thousand.

*A small amount of funding (\$100,000 for personnel and operations expenses and \$150,000 for contracts) other than AB 32 COIA funds were used to support AB 32 activities, these funds were transferred from Public Utilities Commission Utilities Reimbursement Account, General Fund (0462).

Source: Personnel and operations expenses are obtained from manual monthly tracking reports submitted by CARB staff.

SECTION 4:

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

(July 2016 – December 2016)

This report is required by the provisions of SB 1018 (Committee on Budget and Fiscal Review, Chapter 39, Statutes of 2012)¹⁷, 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 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 linked programs use the same highly secure computer program infrastructure, including the compliance instrument tracking system and auction platform.

¹⁷ 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 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 linked programs.
- 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 involves each jurisdiction specifying its administrative requirements, and then WCI, Inc. providing support that meets these specifications. California, Québec, and Ontario are currently implementing cap-and-trade programs to reduce GHG emissions. Ontario recently began its implementation 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, Québec, and Ontario 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 (and planned to be used by Ontario);
- 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 settlement (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 July 2016 through December 2016, and presents WCI, Inc.'s anticipated activities in the first half of 2017.

Highlights of recent activities include:

- At its annual meeting held on September 29, 2016, the WCI, Inc. Board
 - Approved a budget for calendar year 2017,
 - Revised the Funds Management Policy, and
 - Selected its Board officers.
- Completion of a procurement for Auction and Reserve Sale Financial Administration.

In the first half of 2017, WCI, Inc. anticipates continuing to coordinate administrative support to the California, Québec, and Ontario programs.

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 4-1 lists the policies that have been adopted by the WCI, Inc. Board.

One new policy was adopted and two existing policies were revised by the WCI, Inc. Board during the second half of 2016. The first revised policy was the Funds Management Policy at the September 29, 2016 WCI, Inc. annual Board meeting. As presented and discussed at the meeting, the changes to the policy clarify the ability of the Corporation to use bank accounts in Québec. The new policy adoption, and second policy revision, occurred at the December 6, 2016 Board meeting where the Board adopted the Québec Employee Handbook, and revised the Accounting Procedures and Policies. Both actions were undertaken to define requirements for WCI, Inc. to operate in Québec.

Table 4-1: WCI, Inc. Corporate Policies (as of December 31, 2016)
Employee Handbook – Québec (Adopted December 6, 2016)
Records Availability Policy (Adopted December 9, 2013)
Open Meeting Policy (Adopted May 8, 2013)
Accounting Policies and Procedures (Adopted May 8, 2013, Revised December 6, 2016)
Employee Handbook – U.S. (Adopted April 15, 2013)
Funds Management Policy (Adopted October 30, 2012, Revised September 29, 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 2016:

- Secretary for Environmental Protection, Matthew Rodriguez
- Chair of the California 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 September 29, 2016 annual meeting of the Board:

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

During the second half of 2016, the WCI, Inc. Board met in publicly noticed open meetings on September 29, 2016 and December 6, 2016. The Board met in a publicly noticed Executive Session on October 18, 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:

- Assistant Executive Director: WCI, Inc. has one full time Assistant Executive Director, located in Québec, to assist the Executive Director in the operation of WCI, Inc.
- 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.

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, Québec, and Ontario. 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 June 2016, 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 the second half of 2016, Ontario started to use the Markit Group Limited platform to prepare for its first auction, expected in the first half of 2017.

- Market Analysis: In October 2015, WCI, Inc. entered into a 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. Ontario is expected to use the market analysis services in the first half of 2017.
- Auction and Reserve Sale Financial Administration: In October 2016, WCI, Inc. contracted with Deutsche Bank Trust Company Americas to continue to provide auction and reserve sale financial administration, which includes evaluation of bid guarantees and settlement (transferring the payments from the auction and reserve sale purchasers to the sellers). Ontario is expected to use the auction and reserve sale financial administration services in the first half of 2017.
- 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 of 2016, WCI, Inc. conducted a procurement for 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. The procurement did not result in a contractor being selected to perform the Technology Audit of CITSS. Therefore, WCI, Inc. will continue to assess how best to conduct the Technology Audit in the first half of 2017.

Each of the WCI, Inc. contracts for administrative services in support of jurisdiction programs is posted to the WCI, Inc. website.¹⁸ WCI, Inc. retains the right to terminate these contracts at any time.

E. Budget and Funding

The budget for WCI, Inc. for 2017 and projected expenses for 2018 were adopted at the September 29, 2016 annual meeting of the WCI, Inc. Board of Directors. The total expenses for the two-year period are \$8,724,887. The budget and projected expenses are available on the WCI, Inc. website at:

[http://www.wci-inc.org/docs/2017%20Budget%20and%20Projected%20Expenses%20for%202018 English Final%20\(10-11-16\).pdf](http://www.wci-inc.org/docs/2017%20Budget%20and%20Projected%20Expenses%20for%202018%20English%20Final%20(10-11-16).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:

¹⁸ The administrative support contracts posted to the WCI, Inc. website are available at: <http://www.wci-inc.org/documents.php>.

- 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.

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

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 4-2.

Table 4-2: Payments from ARB to WCI, Inc. for Calendar Years 2016 and 2017		
Payment	Payment Date	Amount
2016 Q1 Payment	July 7, 2016	\$500,000
2016 Q2 Payment	October 31, 2016	\$500,000
2016 Q3 Payment	November 29, 2016	\$500,000
2016 Q4 Payment	Invoiced: January 3, 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