

2018 Annual Report to the
Joint Legislative Budget Committee
on Assembly Bill 32
(Nuñez 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 (AB) 32 (Nuñez and Pavley, Chapter 488, Statutes of 2006), 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 requires California to reduce GHG emissions to 1990 levels by 2020. The law tasks 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 maintain and continue GHG reductions beyond 2020. Executive Order B-16-2012, which Governor Brown signed in March 2012, established zero emission vehicle benchmarks and affirmed California's long-range climate goal 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 Senate Bill (SB) 32 (Pavley, Chapter 249, Statutes of 2016), and supports CARB's commitment to achieve the emissions goal for 2050. AB 197 (Garcia, E., Chapter 250, Statutes of 2016) provides additional legislative oversight, contains provisions to make emissions data from stationary sources publicly available, and sets priorities for the most impacted and disadvantaged communities.

Legislative Direction. The Supplemental Report of 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.

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 contains all four items listed above, with two merged semi-annual updates for (1) key climate programs and (4) WCI, Inc. Thus,

items (1) and (4) will cover updates for January 1, 2017 through December 31, 2017. Upcoming milestones cover January 1, 2018 through December 31, 2018.

This document covers CARB's implementation of AB 32 and, for the most part, does not include the activities and resources of other State agencies to implement AB 32. The State Agency Greenhouse Gas Reduction Report Card (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:

ANNUAL AB 32 PROGRAM UPDATES **(January 2017–December 2017)**

This report¹ is required semi-annually by the Supplemental Report of the 2012–13 Budget 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 report combines what in previous years were two reports: the July and January semi-annual reports, providing updates on AB 32 program activities for the entire calendar year of 2017, and upcoming milestones for calendar year 2018. The report format follows the Budget directive. It includes updates on major regulatory measures and supporting programs, a discussion of GHG emissions reductions, and current funds in the Greenhouse Gas Reduction Fund (GGRF).

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 emission 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; semi-conductor manufacturing, appliance recycling, and consumer products.

I. CARB GREENHOUSE GAS EMISSIONS REDUCTION MEASURES

This section focuses on the activities of three major CARB regulatory programs to reduce GHG emissions: The Cap-and-Trade Regulation, Low Carbon Fuel Standard, and Advanced Clean Cars. Also discussed is the landfill methane regulation mentioned in the supplemental budget language, emissions reductions from oil production and natural gas operations program, and short-lived climate pollutants.

¹ For previous reports, see <http://www.arb.ca.gov/cc/jlbcreports/jlbcreports.htm>.

A. Cap-and-Trade Regulation

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 Board first finalized and adopted the Regulation in October 2011. Given the Regulation's complexity due to inclusion of many unique design concepts, 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 approximately 80 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 also included in the cap.

The Regulation is estimated to reduce GHG emissions by about 23 million metric tons (MMT) in 2020, about 30 percent² of the total needed to achieve the AB 32 target for that year. Further, the Regulation plays a key role in assuring that the 2020 target is met by setting a definitive statewide limit on GHG emissions. That is, in the event that the anticipated reductions from other measures are not realized, the Regulation's cap serves as a limit on GHG emissions.

Compliance. To comply with the Regulation, entities subject to the Regulation (entities with 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 Regulation, and this obligation requires them to surrender compliance instruments equal to 30 percent of their emissions from the prior year. The Regulation's first annual surrender obligation occurred on November 3, 2014. Covered entities were required to submit compliance instruments sufficient to cover 30 percent of their 2013 emissions by that date. For this first annual obligation, all covered entities successfully transferred sufficient compliance instruments to their accounts to meet their compliance obligations. At the end of each compliance period, which is either a 2- or 3-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

² Source: https://www.arb.ca.gov/cc/inventory/data/misc/2020_forecast_base0911_2015-01-22.pdf.

compliance rate. The November 1, 2016 compliance surrender event saw a 100 percent compliance rate.

Allowances. CARB issues allowances, each permitting a covered entity to emit one ton of GHG emissions. 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 emissions 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 electrical utilities to protect ratepayers from program costs and assist utilities in reducing GHG emissions. Beginning in 2015, CARB also allocated allowances to natural gas utilities and provided transition assistance by allocating allowances to universities and public service facilities, generators with legacy contracts, and public wholesale water agencies.

As mentioned above, allowance allocation is provided to industrial entities to minimize leakage. 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 to allocate to 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 allows more efficient facilities within a sector to receive 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 for industrial entities: (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 free allocation to entities, 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. However, no quarterly reserve sales have been held to date because no entities have registered to participate in such a sale.

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. Since then, California and Québec have held quarterly joint auctions, which 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 8 percent of their compliance obligation for each compliance period through 2020. 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, complete CARB's verifier 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 (and now Ontario) have a linked cap-and-trade program, CARB recognizes 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 successful emissions reductions 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 collaborates with several organizations including the U.S. Commodity Futures Trading Commission (CFTC), the Federal Energy Regulatory Commission (FERC), the California Independent System Operator, 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.

2. *Recent Developments—January through December 2017*

CARB's activities to support the Cap-and-Trade Program during 2017 included quarterly joint allowance auctions with Québec, ongoing issuance of compliance offset credits, and adoption of regulatory changes. The regulatory amendment package published in August 2016 was adopted at the July 27, 2017 Board hearing. These activities are described in more detail below, along with a discussion of ongoing relevant litigation, recent legislative direction, and contracts that support the Cap-and-Trade Program.

Annual Compliance Surrender Deadline. Compliance instruments representing 30 percent of 2016 emissions were due for the annual compliance surrender event on November 1, 2017. This was the second year of the 3-year second compliance period. All covered entities surrendered allowances as required, resulting in a 100 percent compliance rate.

Adoption of 2016 Regulation Amendments. In 2016, CARB commenced the public process to develop amendments to the Cap-and-Trade Regulation. CARB held several public workshops and proposed amendments to the Regulation and modifications to those amendments. In April 2017, CARB continued this process by proposing a second set of modifications to the Regulation amendments, reflecting public comment on the first set of revisions, discussion with stakeholders, and related analysis. The amendments were adopted by the Board on July 27, 2017, and became effective on October 1, 2017, in time for allowance allocation later in October.

The Board approved amendments to the Regulation to clarify compliance obligations for certain sectors, continue program linkage with Québec beyond 2020, and add linkage with the new cap-and-trade program in Ontario beginning January 1, 2018. The amendments provide a framework to extend the Cap-and-Trade Program beyond 2020 by establishing new emissions caps, enabling future auction and allocation of allowances, and continuing all other provisions needed to implement the Program after 2020. In adopting these amendments, the Board recognized that additional modifications to the Regulation will be needed through another rulemaking process, in order to implement post-2020 Cap-and-Trade Program requirements from AB 398 (Garcia, E., Chapter 135, Statutes of 2017). Board Resolution 17-21 directed CARB's Executive Officer to initiate this rulemaking process and, at a kickoff workshop on October 12, 2017,³ CARB began that process, which will continue in 2018.

Auctions. About \$6.45 billion was raised by the sale of State-owned allowances at the 21 auctions held through November 15, 2017. During 2017, the auctions raised \$2.02 billion from the sale of State-owned allowances. These funds are deposited into GGRF. More information on Cap-and-Trade Auction Proceeds is provided on page 48 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 2017. Therefore, no reserve sales 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, 2017, 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;

³ https://www.arb.ca.gov/cc/capandtrade/meetings/20171012/ct_presentation_11oct2017.pdf

- Continued to oversee and coordinate with the three existing approved offset project registries that help evaluate compliance-grade offset projects under the Regulation;
- Through the offset project registries, listed 391 compliance offset projects (as listing is the first step toward potential issuance of CARB compliance offset credits), and listed 126 early action projects (the deadline to list an early action project with CARB was December 31, 2015);
- 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 6 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 over 87 million compliance offset credits.

In July 2017, the Legislature signed AB 398 into law which, for post-2020 emissions, lowers the limit of offsets that covered entities may use to meet their compliance obligation: four percent for emissions years 2021–2025, and six percent for emissions years 2026–2030).

Cap-and-Trade Litigation. In 2017, 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* pertain to a challenge to CARB's auctioning of allowances in the Cap-and-Trade Program. Plaintiffs/Petitioners in these cases made the following main arguments. First, they challenged CARB's authority under AB 32 to conduct auctions and reserve sales in the Cap-and-Trade Program. Second, they argued that the State's auction and reserve sales constitute an unconstitutional tax under Proposition 13. 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 April 6, 2017, the Court of Appeal affirmed the Superior Court's decision. Subsequently, appellants petitioned for discretionary review from the California Supreme Court, which the Supreme Court denied on June 28, 2017. Therefore, the

Court of Appeal decision is final and CARB may lawfully continue to auction allowances in the Cap-and-Trade Program.

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 Dr. Sowinski 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. 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 (Federal Circuit).

On December 18, 2017, the Federal Circuit affirmed the dismissal of Dr. Sowinski's complaint, concluding that the U.S. District Court did not abuse its discretion in dismissing the case with prejudice. Dr. Sowinski did not seek rehearing before the Federal Circuit or petition for a writ of certiorari before the U.S. Supreme Court, so the Federal Circuit's dismissal is final.

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, alleged that the Cap-and-Trade Regulation's benchmark for GHG emissions efficiency for bathroom tissue manufacturing was arbitrary and capricious and was promulgated in a manner contrary to the Administrative Procedure Act. The writ petition sought a court order striking down the existing tissue benchmark and reinstating the prior benchmark. After the challenged benchmark was amended in 2017, the plaintiff dismissed its petition.

Other Relevant Litigation:

CARB is also involved in ongoing bankruptcy litigation for two covered entities to protect its interests in ensuring full compliance with the Cap-and-Trade Regulation. See:

- *In re: La Paloma Generating Company, LLC*, Case No. 16-12700 (U.S. District Court, District of Delaware, Bankruptcy Court); and
- *In re: GenOn Energy, Inc.*, Case No. 17-33695 (U.S. District Court, Southern District of Texas, Bankruptcy Court).

Cap-and-Trade Program Contracts. Academic and private contractors help 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 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 ongoing contracts, and contracts in development are discussed in the recent developments and upcoming milestones sections 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:

On June 30, 2016, CARB began a contract with Sjoberg Evashenk to conduct a performance audit of CARB's processes and procedures to implement the Cap-and-Trade and Mandatory Reporting of GHG Emissions Regulations.

CARB also has a current contract with GP Strategies to make its offset verifier training available via online training modules. The training modules will replace the in-person training sessions that were offered less than once a year, which will provide potential verifiers improved access to training.

3. Upcoming Milestones–January through December 2018

Below is a brief summary of some of the upcoming milestones for the Cap-and-Trade Regulation during 2018. 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>.

- On January 1, 2018, Ontario will join California and Québec's linked programs. Beginning in 2018, Ontario-issued offset projects will also be recognized.
- Dr. Sowinski has indicated that, in early 2018, he intends to refile a complaint containing the same dismissed claims from the *Sowinski v. California Air Resources Board, et al* case in Orange County Superior Court.
- Starting with the February 2018 joint auction, quarterly joint auctions will include California, Québec, and Ontario allowances. CARB will continue to hold quarterly joint auctions with Québec and Ontario as scheduled in the Regulation (February, May, August, and November 2018).
- On March 2, 2018, CARB staff will hold a second workshop to continue to assess and propose amendments to the Regulation to comply with AB 398 requirements. Additional workshops are scheduled for April 26, 2018 and June 21, 2018.

- At the March 22, 2018 Board hearing, CARB staff will propose narrow amendments to the Regulation to be considered and voted on by the Board. The amendments will explicitly clarify that (1) a successor entity after a change in ownership is responsible for the outstanding compliance obligation of the predecessor entity and (2) the procedure for reconciling differences between jurisdiction-specific Auction Reserve Price values.
- CARB's contract with Sjoberg Evashenk to conduct a performance audit of CARB's processes and procedures to implement the Cap-and-Trade and Mandatory Reporting of GHG Emissions Regulations is expected to be carried out through June 30, 2018.
- In October 2018, CARB staff anticipates presenting a formal regulation amendment package to comply with AB 398 for the Board's initial consideration. This amendment package is expected to incorporate public comments from the four workshops held in early 2018. AB 398 related amendments are expected to revise the cost-containment provisions of the existing Regulation by modifying the reserve tier structure and adding a price ceiling. Additional AB 398 amendments will change the percentage of offsets that may be used for compliance and increase projects that provide direct environmental benefits to the State.
- CARB will continue to implement the Regulation through the full compliance period surrender event in November 2018.
- In December 2018, CARB staff anticipates a final Board vote on Regulation amendments to comply with AB 398.

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 ten percent by 2020. This standard sets declining annual targets between 2011 and 2020.

LCFS requires regulated entities to submit quarterly progress and annual compliance reports to CARB. To this end, CARB developed the LCFS Reporting Tool and Credit Bank & Transfer System (LRT-CBTS), a secure, interactive, web-based system, through which all regulated entities must report data on fuel volumes and CI. The Credit Bank & Transfer System has been integrated online with the LCFS Reporting Tool to handle the recording of LCFS credit transfers. To date, more than 255 regulated entities report in the LRT-CBTS. Through their reports, 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 "seed-to-wheels" for biofuels made from crops) represents that fuel's "fuel pathway."

Each LCFS credit or deficit represents one metric ton of CO₂e emissions below or above, respectively, the annually declining CI standard. At the end of 2017, credit and deficit data through the second quarter of 2017 was available. Cumulatively through the end of the second quarter of 2017, regulated entities generated a total of about 30.1 million credits and 20.8 million deficits, which results in a net total of about 9.3 million credits.⁴ This excess means that regulated entities are over-complying with 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 LCFS in future years when the standard becomes more stringent. The petroleum refining industry believes that the lower-CI liquid biofuels they prefer to blend with conventional gasoline and diesel fuels are not being developed quickly enough in commercial quantities, and will not be able to meet future CI standards. 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 LCFS. They can also purchase LCFS credits in the marketplace from producers of lower-CI fuels (e.g., electricity, natural gas, biogas, and hydrogen), or they can invest in the production of these fuels to generate their own LCFS credits.

Low Carbon Fuel Standard Litigation. Since December of 2009, 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. A 2013 appellate opinion in the POET case determined that CARB had committed procedural violations in adopting LCFS, but allowed the program to remain in effect, frozen at the 2013 standard, while CARB took corrective action. The 2013 LCFS standards, which represent a 1.0 percent decrease in CI from the 2010 baseline values for gasoline and diesel, remained in effect through 2015. Meanwhile, CARB staff worked on a consolidated rulemaking package for readoption that addressed the court's concerns, and included additional amendments to improve the program. In September 2015, CARB approved the readoption of LCFS, and the final rulemaking package was approved by the Office of Administrative Law on November 16, 2015. On October 30, 2015, POET filed its second California Environmental Quality Act (CEQA) and Administrative Procedure Act challenge (POET II) in Fresno County Superior Court against the regulation adopted 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.

⁴ Reference: *2017 LCFS Reporting Tool (LRT) Quarterly Data Summary – Report No. 2*, available at https://www.arb.ca.gov/fuels/lcfs/dashboard/quarterlysummary/20171031_q2datasummary.pdf.

The readopted LCFS 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. POET argued that CARB had failed to adequately comply with the writ's instructions to consider impacts from emissions of oxides of nitrogen (NOx). More information on LCFS litigation is included in the recent developments section.

Alternative Diesel Fuel Regulation. The Alternative Diesel Fuel (ADF) Regulation is distinct from LCFS, but its implementation helps to mitigate any pollutant increases that may occur as a result of fuels used to comply with LCFS. The ADF Regulation established 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 has 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 regulation contains specific provisions for biodiesel to address potential NOx emissions increases associated with its use.

The ADF rulemaking effort followed 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 ADF 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.

2. Recent Developments—January through December 2017

From January through October 2017, staff conducted a series of topic-specific public working meetings to engage stakeholders on issues related to the upcoming LCFS amendments rulemaking. In addition, staff held three major workshops on August 7, September 22, and November 6, 2017, to engage stakeholders on the overall suite of potential LCFS amendments and to discuss draft regulatory text. These and additional

meetings are discussed below. More details on these meetings can be found at https://www.arb.ca.gov/fuels/lcfs/lcfs_meetings/lcfs_meetings.htm.

- On January 31, 2017, staff held a public working meeting focused on ethanol.
- On February 7, June 2, and October 16, 2017, staff held public working meetings focused on refinery co-processing.
- On February 10 and May 15, 2017, staff held public working meetings focused on biodiesel and renewable diesel.
- On March 17, 2017, staff held a public working meeting focused on including alternative jet fuel in LCFS.
- On April 4, 2017, staff held a public working meeting focused on updates to the California-Modified Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation model, and the Oil Production Greenhouse Gas Emissions Estimator.
- On April 17, 2017, staff held a public working meeting focused on fossil and renewable natural gas, including biomethane from dairy and livestock operations.
- On August 7, 2017, staff held a public workshop focused on program amendments that will strengthen CI reduction targets, update mandatory third-party verification and the life cycle assessment tool, and revise the credit-generating provisions, while soliciting stakeholder input on alternative approaches.
- On September 14, 2017, staff held a public working meeting focused on the refinery investment credit pilot program.
- On September 22, 2017, staff held a public workshop to discuss proposed amendments and draft regulatory text.
- On November 6, 2017, staff held a public workshop to discuss the development of program amendments, including a protocol for carbon capture and sequestration projects, crediting provisions for refineries, renewable electricity and hydrogen crediting provisions, an update to the life cycle assessment tool, and credit trading provisions.

Low Carbon Fuel Standard Litigation. The following section discusses existing court cases related to LCFS.

POET, LLC v. California Air Resources Board:

POET I. On May 30, 2017, the California Court of Appeal released a second major opinion in the POET I challenge to the original LCFS adoption. The 2017 opinion reversed the Superior Court's discharge of the original writ of mandate, required CARB to conduct additional CEQA analysis to comply with an updated writ of mandate, and froze the 2017 LCFS standard for diesel fuel and its substitutes until the updated writ of mandate is discharged. The ruling concluded the following:

- CARB violated paragraph three of the original writ of mandate by using an improper CEQA project definition and baseline for NOx emissions from biodiesel when readopting LCFS in 2015. The project definition should have included the original LCFS, and baseline NOx emissions should have been 2010 or earlier rather than 2014.
- The ruling also concluded that CARB acted in bad faith when conducting its noncompliant analysis.

CARB's petition to the California Supreme Court for review and request for depublication of the Fifth District Court of Appeal's opinion were not granted. On October 18, 2017, the Superior Court issued a writ of mandate pursuant to the direction of the Court of Appeal. In response to this writ of mandate, CARB set aside the portions of the 2015 LCFS environmental analysis addressing NOx emissions from biodiesel on November 17, 2017, and is developing a supplemental environmental analysis to address the Court's concerns.

POET II. On December 21, 2017, the Fresno County Superior Court held a hearing on CARB's motion for judgment on the pleadings in the POET II litigation. CARB's motion argues that the POET II claims are moot or otherwise unable to go forward due to developments on related claims in the POET I litigation.

Rocky Mountain Farmers Union (RMFU) v. Corey:

This federal court lawsuit was originally filed against the original version of LCFS in December 2009. Fossil fuel and biofuel industry plaintiffs claim that LCFS is preempted by federal statute and violates the United States Constitution. In the LCFS federal court litigation, *RMFU v. Corey*, the District Court entered judgment in CARB's favor after granting CARB's motion to dismiss the majority of the plaintiff's claims on June 16, 2017, and then granting the plaintiff's motions to voluntarily dismiss their remaining claims on August 14, 2017. On September 13, 2017, the plaintiffs filed notices of appeal in the Ninth Circuit. On September 18, 2017, the Ninth Circuit issued a time schedule order, calling for plaintiffs-appellants to file their opening briefs on January 22, 2018.

3. Upcoming Milestones—January through December 2018

Below is a brief summary of upcoming milestones for LCFS and related programs in 2018. More information on activities and upcoming public meetings can be found at <https://www.arb.ca.gov/fuels/lcfs/lcfs.htm>.

- On January 1, 2018, the ADF NO_x mitigation provisions for biodiesel will take effect. The regulation will require producers to reduce the NO_x emissions of all biodiesel blends above the NO_x control levels (in most cases blends above B5).
- Plaintiffs-appellants opening briefs are due January 22, 2018 for the RMFU case. In the first half of 2018, parties will commence briefing in the Ninth Circuit Court of Appeals on the second RMFU appeal.
- A hearing on the merits of the POET II litigation may be scheduled for January or February 2018.
- In March 2018, staff will publish a rulemaking package with proposed LCFS amendments.
- In April 2018, staff plans to bring the proposed LCFS amendments to the Board for consideration, and will continue to work with stakeholders to finalize these proposals in late 2018. The proposed amendments are intended to do the following:
 - Strengthen CI benchmarks in order to achieve the SB 32 2030 GHG emissions reduction target;
 - Expand the fuel types to which LCFS applies;
 - Incorporate a carbon capture and sequestration accounting and permanence protocol;
 - Further ensure accuracy of the data that underlie the LCFS program and associated market;
 - Simplify and streamline application and reporting requirements for regulated entities to encourage greater participation and participant compliance;
 - Update regulatory values (e.g., energy economy ratio, energy densities) and life cycle analysis modeling tools to use more detailed or recent data;
 - Include an independent third-party verification and verifier accreditation program to ensure accuracy of LCFS reported data, and reduce requirements for regulated entities to submit pathway demonstrations and document submittals for CARB staff review;
 - Adjust the ADF Regulation's biodiesel in-use requirements sunset to ensure long-term NO_x mitigation; and
 - Make minor updates to the rule that do not materially affect requirements, such as correcting typographical errors, making clarifications, and otherwise reorganizing regulatory provisions.

- As early as possible in 2018, CARB plans to complete its corrective action pursuant to the updated POET I writ of mandate.

C. Advanced Clean Cars

1. *Background*

CARB developed the Advanced Clean Cars Program (ACC) to achieve long-term GHG emissions reductions from the transportation sector and to provide a comprehensive approach to further reduce criteria and GHG emissions from light-duty vehicles beyond 2016. ACC is supported by State incentives and lays the foundation for the next generation of ultra-clean vehicles. The program includes two key elements:

- Low-emission vehicle light-duty vehicle standards (both criteria and GHG emission regulations); and
- the Zero Emission Vehicle (ZEV) Regulation.

ACC establishes more stringent GHG emissions standards, tighter criteria pollutant standards, and increased ZEV production requirements for passenger cars and light trucks through the 2025 model year (MY). This suite of regulations will reduce GHG emissions by about 3.1 MMTCO_{2e} in 2020, is approximately four percent of the total needed to achieve the AB 32 target for that year. These regulations support California's near- and long-term climate goals, as well as attainment of ambient air quality standards.

Zero Emission Vehicle Regulation. In 1990, California embarked on a mission to reduce vehicle emissions to zero through the ZEV program. Today, the ZEV program is part of CARB's ACC package of coordinated standards that controls smog-causing pollutants and GHG emissions from passenger vehicles in California. In January 2012, CARB approved ACC and, as part of this rulemaking, the ZEV Regulation was amended to strengthen its requirements over time. The ZEV Regulation focuses on commercialization of battery electric vehicles, hydrogen fuel cell electric vehicles, and plug-in hybrid electric vehicles. Under current requirements, these vehicles are estimated to comprise about 8 percent of new sales in 2025. This regulation will continue as a distinct but complementary program in California and the 9 other states that have also adopted it. The program is also critical to transform the light-duty vehicle fleet to achieve the 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 by 2050.⁵

GHG Light-Duty Vehicle Standards. Following California's pioneering light-duty vehicle GHG emissions standards for MY 2009–2016, U.S. EPA and the National Highway Traffic Safety Administration (NHTSA) jointly developed more stringent requirements

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

through MY 2025, yielding one national program. Using available and emerging technologies for light-duty vehicles, this national program is expected to reduce CO_{2e} emissions of new MY 2025 vehicles by about 36 percent for cars and about 32 percent for light trucks, compared to their MY 2016 counterparts.

Due to the long-term nature of these standards, California committed to conduct a midterm review, as did the federal agencies (U.S. EPA and NHTSA), to assess the appropriateness of the 2022–2025 MY standards. In advance of these reviews, the agencies published a joint technical assessment report in July 2016, which found that the previously assumed technologies used to lower emissions could still be deployed cost effectively. California’s midterm review also committed to examine particulate matter standards and the ZEV Regulation. The joint technical assessment report is posted online at <https://www.epa.gov/regulations-emissions-vehicles-and-engines/midterm-evaluation-light-duty-vehicle-greenhouse-gas#TAR>.

Clean Vehicle Rebate Program (CVRP). This program supports broad ZEV adoption by providing consumer rebates for the purchase or lease of new, eligible plug-in hybrid electric, battery electric, and hydrogen fuel cell electric vehicles. The project aims to help California meet ZEV deployment, air quality, and GHG emissions reduction goals. CVRP has grown from a \$4 million dollar project in 2010 to an estimated \$186 million project in the 2016–17 timeframe. Over the life of the program, about 215,000 vehicle owners have received rebates totaling \$473 million. To support consumer adoption of ZEVs, CARB continues to implement CVRP.

2. Recent Developments—January through December 2017

Below is a brief summary of some recent developments in 2017. More information on staff’s activities and public meetings for this program can be found at <https://www.arb.ca.gov/msprog/acc/acc.htm>.

- In January 2017, CARB released its final midterm review of ACC, available at <https://www.arb.ca.gov/msprog/acc/acc-mtr.htm>. This report reviewed the adopted GHG standards, PM standards, and the ZEV Regulation, and was based on updated and extensive technical data as well as an assessment of consumer acceptance for ZEVs.
- Also in January 2017, U.S. EPA released a final determination on the GHG standards for MY 2022–2025 light duty-vehicles. This final determination concluded that the GHG standards remain appropriate and should not be changed.
- However, on March 22, 2017, the new U.S. EPA Administrator and Department of Transportation Secretary published a notice in the Federal Register announcing its intent to reconsider the final determination of the GHG standards, despite the robust record on which it is based.

- On March 24, 2017, CARB staff presented results of the California-specific midterm review to the Board at a public hearing in Riverside. CARB agreed with U.S. EPA’s final determination, concluding that the originally projected California GHG emissions benefits in 2025 will still be achieved at the same or lower cost to manufacturers. The Board found that all standards remain appropriate and directed staff to begin developing future light-duty regulations.
- CARB continued to pursue several contracts to support overall implementation of ACC. In July 2017, CARB contracted with the University of California, Davis (UC Davis) to research new ZEV model household-level usage and refueling behavior in order to quantify emission benefits. The project, “Emerging Technology ZEV Household Travel and Refueling Behavior,” has completed household recruitment and vehicle logger installation and is currently collecting data.
- In September 2017, CARB’s contract with the University of California, Los Angeles (UCLA) to evaluate trends in the emerging ZEV market relative to policy and market factors was completed. The final report, *Factors Affecting Plug-In Electric Vehicle Sales in California*, is available at https://www.arb.ca.gov/research/single-project.php?row_id=65197.
- CARB staff continued to implement CVRP and several pilot projects to increase the deployment of advanced technology vehicles, including ZEVs, in disadvantaged communities. These pilots include the Financing Assistance for Lower-Income Consumers in Disadvantaged Communities (Financing Assistance), Clean Mobility Options for Disadvantaged Communities, CVRP increased rebates for lower-income consumers, and the Enhanced Fleet Modernization Program (EFMP) Plus-Up. More information can be found at <https://www.arb.ca.gov/msprog/aqip/aqip.htm>.

3. Upcoming Milestones—January through December 2018

- No later than April 1, 2018, U.S. EPA is required to determine whether the light-duty vehicle GHG standards for model years 2022–2025 remain appropriate. Due to the reconsideration of the January 2017 final determination, U.S. EPA intends to make a new final determination regarding the appropriateness of the standards no later than this deadline. Modified federal standards, if deemed warranted, would be proposed later in 2018.
- By April 2018, CARB’s contract with UC Davis, “The Dynamics of Plug-in Electric Vehicles in the Secondary Market and their Implications for Vehicle Demand, Durability, and Emissions,” to examine the State’s used plug-in electric vehicle market, will be completed.

- In April 2018, CARB will release the One-Stop-Shop Pilot Project grant solicitation. The project will provide a single application for low-income consumers to apply and qualify for CARB's existing low carbon transportation projects (e.g., Financing Assistance, Clean Mobility Options for Disadvantaged Communities, EFMP Plus-Up pilot project, and CVRP increased rebates for lower-income consumers). This pilot will also provide coordinated community-based outreach to promote advanced technology vehicle adoption in low-income households and communities.
- In May 2018, the Financing Assistance pilot is targeted to launch statewide.
- In December 2018, CARB's service contract with UC Irvine, "Sampling and Analyzing Refrigerant Concentrations at Caldecott Tunnel," to quantify concentrations of air conditioning refrigerants for light-duty vehicles will be completed. The results could be used to investigate leakage of high global warming potential (GWP) pollutants from the State's light-duty vehicle fleet.
- In early 2018, CVRP is targeted to launch the Rebate Now program for low-income consumers in the San Diego area. Rebate Now is intended to bring the rebate closer to the point of sale by providing low-income consumers with the opportunity to be preapproved for a rebate prior to purchasing or leasing an eligible vehicle.
- In the first half of 2018, a statewide survey will be fielded for CARB's contract with UCLA, "Designing Light-Duty Vehicle Incentives for Low- and Moderate-Income Households." The contract will evaluate different clean transportation incentives and vehicle retirement decisions in low- and moderate-income households.
- In late 2018, CARB will propose new regulations to implement the Electric Vehicle Charging Station Open Access Act created by SB 454 (Corbett, Chapter 418, Statutes of 2013). Implementation is expected to make charging plug-in electric vehicles at public charging stations more accessible to consumers regardless of membership status to a charging network.
- In 2018, CARB's contract with UC Davis, "Advanced Plug-in Electric Vehicle Travel and Charging Behavior," to conduct research on household-level plug-in electric vehicle usage and charging behavior, will be augmented to quantify vehicle activity parameters to better estimate the emissions impacts of cold starts from plug-in hybrid electric vehicles.
- In 2018, CARB will contract with UC Davis to model the emissions expected under different deployment of automated vehicles and policy scenarios in a project titled, "Emission Impacts of Connected and Automated Vehicle Deployment in California."

D. Landfill Methane

1. *Background*

On June 25, 2009, the Board approved the Methane Emissions from Municipal Solid Waste Landfills Regulation (Landfill Regulation), which reduces methane emissions from municipal solid waste (MSW) landfills. This regulation took effect 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 enter voluntarily 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 (CAPCOA). 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. To date, 23 air districts have signed the MOU. CARB continues to assist these air districts with implementation and enforcement of the Landfill Regulation. To date, CARB has provided implementation and enforcement training to 21 of these districts.

Having local air districts participate in the enforcement process capitalizes on their expertise (air districts regulate criteria and toxic emissions from landfills), takes advantage of their close proximity to these sources, and reduces the State's cost to implement 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. More information on the Landfill Regulation, including recent activities can be found at <https://www.arb.ca.gov/cc/landfills/landfills.htm>.

Landfill methane emissions reductions also play a key role in the State's effort to reduce short-lived climate pollutants. For more information, see page 25 of this report.

2. Recent Developments—January through December 2017

- In May 2017, CARB submitted its State plan to U.S. EPA to demonstrate that CARB’s Landfill Regulation is equivalent to, or more stringent than, the federal regulation for municipal solid waste landfills (*Emission Guidelines and Compliance Times for Municipal Solid Waste Landfills*, 40 CFR, Part 60, Subpart Cf), promulgated August 29, 2016. To develop California’s compliance plan, CARB worked with CAPCOA, air districts, U.S. EPA Region 9, and interested stakeholders to ensure any concerns with using the Landfill Regulation to comply with U.S. EPA’s rule were addressed. Federal regulation requirements include a lower applicability threshold, enhanced surface monitoring and emissions controls, and enhanced record keeping and reporting, all of which CARB’s Landfill Regulation already addresses. On May 23, soon after CARB submitted its State plan, U.S. EPA placed a 90-day administrative stay on the rule and indicated on its website that the agency may take actions to reconsider the rule in response to comments that costs to implement the rule were too great.
- CARB and the Department of Resources Recycling and Recovery (CalRecycle) started a joint research study with California Polytechnic State University through the “Landfill Gas Collection System Efficiencies” contract to better understand statewide gas collection efficiencies. The contract will help refine emissions reduction estimates and better gauge the efficacy of the Landfill Regulation.
- CARB is assisting CalRecycle in its rulemaking to divert organics normally disposed of at landfills. These goals are consistent with SB 1383 (Lara, Chapter 395, Statutes of 2016), which requires CalRecycle, in consultation with the Board, to adopt regulations that achieve specified targets to reduce methane emissions from landfills as part of the State’s Short-Lived Climate Pollutant Reduction Strategy. SB 1383 requires a 50 percent reduction in organics disposal in landfills by 2020 and 75 percent reduction by 2025, both relative to 2014 levels.
- In 2017, CARB continued to partner with the local air districts to ensure successful implementation of the Landfill Regulation.

3. Upcoming Milestones—January through December 2018

- CARB and CalRecycle will continue to co-manage and monitor progress of the “Landfill Gas Collection System Efficiencies” contract to better understand landfill gas collection efficiencies.
- CARB plans to offer Landfill Regulation training sessions to interested local air districts.
- CARB will continue to conduct audits through inspections, document reviews, and coordination with local air districts to ensure compliance with the Landfill Regulation.

- CARB will continue to enforce the Landfill Regulation at landfills located in districts that have not signed an MOU.
- CARB will continue to assist CalRecycle in its rulemaking on organics disposal reductions at landfills.
- CARB will continue to work with U.S. EPA to obtain approval of the submitted State plan for compliance with 40 CFR, Part 60, Subpart Cf.

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

1. *Background*

The initial Scoping Plan proposed the development of a measure that reduces venting and fugitive GHG (methane) emissions associated with oil and gas production, processing, and storage. By definition, intentional releases of gases such as methane or CO₂ into the atmosphere are called “vented emissions.” 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 MMTCO₂e 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, the passage of SB 4 (Pavley, Chapter 313, Statutes of 2013) expanded CARB’s investigation to consider and reduce methane, volatile organic compound, and toxic air contaminant emissions resulting from well stimulation activities. Pursuant to SB 4, CARB staff is working with the local air districts, as well as with the Department of Conservation’s Division of Oil, Gas, and Geothermal Resources and other relevant State agencies, to coordinate efforts and maximize the effectiveness of measures that address well stimulation emissions.

2. *Recent Developments—January through December 2017*

- On March 23, 2017, CARB staff presented the proposed regulation for the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities (Oil and Gas Methane Regulation) to the Board. This was the second of two Board hearings on the proposed regulation. The Board adopted the proposed regulation with staff’s recommended changes.
- CARB staff drafted Memoranda of Agreement with local air districts to clarify the implementation, enforcement, and information-sharing roles between CARB and the districts.

- CARB staff worked with districts and stakeholders to develop a spreadsheet for uniform reporting of information required by the regulation. The spreadsheet was completed prior to its due date of January 1, 2018.
- CARB staff worked with utilities on draft monitoring plans required by the regulation. The draft plans were reviewed and operators submitted their final monitoring plans before they were due on January 1, 2018.
- CARB purchased methane leak detection equipment and plans to purchase more in the future. Some of the methane leak detection equipment is intended to be used by CARB enforcement staff, but most of the equipment will be loaned to air district enforcement staff.

3. *Upcoming Milestones–January through December 2018*

- Under the requirements of the Oil and Gas Methane Regulation, on January 1, 2018:
 - Leak detection and repair inspections begin;
 - Underground natural gas storage facilities' monitoring plans are due; and
 - Equipment reporting and tank flash testing data are due.
- By July 1, 2018, CARB staff will decide to approve or request modifications of underground natural gas storage facilities' monitoring plans.
- In 2018, CARB will begin distributing \$2,000,000 among the districts according to a distribution allotment approved by CAPCOA to assist with the first year of regulation implementation.
- In 2018, CARB will arrange training for air district staff on how to use leak detection equipment.
- In 2018, CARB staff will work with a contractor to develop a web-based reporting tool to replace the reporting spreadsheet that was developed by CARB staff in 2017.
- In 2018, CARB staff will work with operators to develop a technology assessment for recirculation tank control approaches.
- In 2018, CARB staff will work with air district staff to assist operators in understanding how to comply with the regulation.

F. Short-Lived Climate Pollutants

1. *Background*

In 2017, CARB staff developed and the Board approved a Short-Lived Climate Pollutant (SLCP) Reduction Strategy. The SLCP Reduction Strategy was developed in

coordination with other State agencies pursuant to SB 605 (Lara, Chapter 523, Statutes of 2014) and SB 1383. SLCPs include methane, black carbon, and fluorinated gases including hydrofluorocarbons (HFC). These pollutants are very powerful climate forcers, but remain in the atmosphere for much less time than CO₂. Reducing these pollutants will prevent their outsized impact on climate change in the near term thereby providing immediate benefits. The SLCP Reduction Strategy identifies current measures to reduce SLCP emissions and additional measures to meet specific targets required by SB 1383, including a 50 percent reduction in anthropogenic black carbon emissions, and a 40 percent reduction in methane and HFC emissions, both from 2013 levels by 2030. These measures include reducing black carbon emissions from inefficient home heating devices, reducing methane emissions from dairy and livestock operations, and landfills, and reducing HFC emissions from refrigeration and air-conditioning systems.

SB 1383 contains detailed requirements for the reduction of methane emissions from landfills and the dairy and livestock sector. CalRecycle, in consultation with CARB, must develop regulations that reduce disposal of organic waste by 50 percent by 2020 and 75 percent by 2025, measured against a 2014 baseline. By 2030, California must reduce methane emissions from the dairy and livestock sector by 40 percent from 2013 levels. The bill designates CARB, in partnership with the California Department of Food and Agriculture (CDFA), to develop and implement regulations that reduce manure methane emissions from the dairy and livestock sector. These regulations cannot go into effect before January 1, 2024. SB 1383 requires that CARB, prior to adopting these regulations, must consult with other State agencies and stakeholders to develop a manure management strategy that promotes voluntary emissions reduction projects at California dairy and livestock operations. This will be accomplished through a combination of actions such as incentives, research, collaboration to overcome barriers, and policies that encourage renewable gas production. SB 1383 also requires State agencies to implement and promote in-State production and use of renewable gas, and CARB to provide guidance on credits generated under the LCFS program and the Cap-and-Trade offsets protocols.

2. *Recent Developments–January through December 2017*

- In March 2017, the Board approved the SLCP Reduction Strategy which is available at https://www.arb.ca.gov/cc/shortlived/meetings/03142017/final_slcp_report.pdf.

- In May 2017, CARB, CDFA, the California Energy Commission (CEC), and California Public Utilities Commission (CPUC) convened a Dairy and Livestock GHG Reduction Working Group to fulfill certain requirements of SB 1383. The purpose of the working group is to provide a forum for agencies to collaborate with a broad range of stakeholders to identify and address barriers of dairy and livestock methane emissions reduction projects. Three subgroups were formed at the May 2017 public meeting to develop policy recommendations in specific areas: fostering markets for nondigester emissions reduction projects (Subgroup #1); fostering markets for digester emissions reduction projects (Subgroup #2); and research needs, including enteric fermentation (Subgroup #3). More information is available at <https://www.arb.ca.gov/cc/dairy/dairy.htm>.
- In June 2017, CARB held a public workshop to discuss the design of a pilot financial mechanism for dairy-related projects that produce low carbon fuels, as required by SB 1383. The purpose of developing a financial mechanism is to decrease the financial risk involved with dairy digester development.
- Between June 2017 and December 2017, the three Dairy and Livestock GHG Reduction Working Group subgroups convened 12 public meetings. Subgroup #1 efforts focused on assembling a comprehensive overview of, and having discussions surrounding, available nondigester methane emissions reduction alternatives. Subgroup #2 efforts focused on assembling a comprehensive overview of, and having discussions on, dairy digester projects, including identification of potential impacts of and barriers to scaling up digester projects. Subgroup #3 focused on developing a research plan and a funding plan to fill knowledge gaps about dairy emissions including manure management and enteric fermentation.
- In September 2017, CARB released guidelines for the implementation of the Woodsmoke Reduction Pilot Program. The program offers financial incentives for California residents to replace old, inefficient, and highly polluting wood stoves, inserts, and fireplaces used as a primary source of heat with cleaner burning and more efficient home heating devices. The program aims to reduce GHG, black carbon, criteria pollutant, and air toxic emissions through the installation of new, more efficient home heating devices.
- In October 2017, CARB held a workshop to provide an overview of HFC emissions sectors, reduction efforts to date, draft regulatory language to incorporate the U.S. EPA Significant New Alternatives Policy (SNAP) Program Rule's HFC prohibitions into State regulations, and next steps on HFC mitigation strategies identified in the SLCP Reduction Strategy. SNAP HFC prohibitions were recommended for inclusion into State law because, on August 8, 2017, the District of Columbia Circuit Court ruled in *Mexichem-Fluor Inc. v. Environmental Protection Agency* that U.S. EPA had no authority to prohibit HFCs. An appeal to the decision was subsequently made by manufacturers, environmental groups, and 11 states.

- In December 2017, CARB released a draft guidance document on environmental credits generated under LCFS and the Cap-and-Trade Program. The document is available at <https://www.arb.ca.gov/cc/dairy/dsg2/dsg2.htm>.
- In December 2017, CARB released policies on energy infrastructure development and procurement to encourage dairy biomethane projects and other renewable gas projects that reduce methane emissions, as required by SB 1383. The document summarizes CARB's existing policies approved by the Board in the SLCP Reduction Strategy that meet the SB 1383 requirement as well as identifies CARB's and other State agencies' ongoing efforts and collaboration expected to encourage future policies that promote renewable gas projects in California.
- Throughout 2017, CARB staff supported CalRecycle's informal organic waste diversion rulemaking process to reduce methane emissions at landfills. For more information visit <http://www.calrecycle.ca.gov/Climate/SLCP/>.

3. Upcoming Milestones–January through December 2018

- In January 2018, a second Dairy and Livestock Working Group meeting will be held in Sacramento. The dairy subgroups will continue to hold monthly public meetings through summer 2018. Final recommendations from each subgroup will be presented at a final Working Group meeting by the end of 2018.
- On January 29, 2018, the District of Columbia Circuit Court will decide whether or not to reconsider its August 2017 ruling for *Mexichem-Fluor Inc. v. Environmental Protection Agency* that decided U.S. EPA cannot require replacement of HFCs in many circumstances.
- In February 2018, CARB will release for public review proposed regulations to incorporate the same HFC prohibitions in specific stationary refrigeration and foam end-use sectors that are included in U.S. EPA SNAP Rule 20 and 21.
- In March 2018, CARB will bring the proposed regulations to incorporate HFC prohibitions to the Board for approval.
- Throughout 2018, CARB will work with stakeholders to develop regulations that prohibit HFC refrigerants in new stationary refrigeration and air-conditioning equipment to meet the SB 1383 target of a 40 percent reduction in HFC emissions from 2013 levels by 2030. The proposed regulations are expected to go before the Board for approval in 2019.
- Throughout 2018, CARB will support CalRecycle's formal organic waste diversion rulemaking process and the development of its draft regulation for public review.

- In 2018, CARB will execute a grant agreement with CAPCOA to administer the Woodsmoke Reduction Program. CAPCOA will distribute funding to local air districts who will begin change-outs of home heating devices.

II. CARB ACTIVITIES TO SUPPORT AB 32

This section focuses on major AB 32 support activities identified in the supplemental budget language, including updates to the AB 32 Scoping Plan, coordination with entities outside California, implementation of Sustainable Communities Plans, and the use of Cap-and-Trade Auction Proceeds. Also included is developments on minimizing community health impacts from freight, which will further provide significant benefits for climate, regional air quality, and localized health risk reduction.

A. Scoping Plan

1. *Background*

AB 32 requires CARB, 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 emissions reduction actions. These actions included direct regulations, alternative compliance mechanisms, monetary and nonmonetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade program, and an AB 32 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 the first-in-the-nation economy-wide Cap-and-Trade Program, LCFS, ACC, a 33 percent Renewables Portfolio Standard, and the Sustainable Communities Plans. More information on the Cap-and-Trade Program, LCFS, ACC, and Sustainable Communities Plans is available on page 4, 12, 18, and 43, respectively.

AB 32 further requires CARB to update the Scoping Plan at least every five years, and to convene an Environmental Justice Advisory Committee (EJAC) to advise the Board in the Scoping Plan's development. 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. Throughout its development, CARB worked with EJAC to advise on climate change policies that may impact disadvantaged communities. The First Update also highlights the need for a 2030 midterm target to establish a continuum of actions to reduce emissions, not just for 2020 and 2050, but also for the years in between.

2030 Target. 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), subsequently codified by SB 32 in September 2016.

The 2030 Target is the most aggressive benchmark enacted by any government in the United States, and is critical to 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. The 2030 Target aligns with the Intergovernmental Panel on Climate Change (IPCC) scientific consensus of GHG emissions reductions needed to limit global warming to 2 degrees Celsius above preindustrial 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 (NWL), and public health. Additionally, GHG emissions reductions from gases other than CO₂ and land use are necessary to mitigate climate change. California's 2030 Target aligns with the goals of leading international governments ahead of the United Nations Climate Change Conference of Parties in Paris (COP21), held in December 2015. The 28-nation European Union established the same GHG emissions reduction target for 2030 in October 2014.

Pollution Mapping Tool. In September 2016, the Legislature passed companion legislation, AB 197, which requires CARB to make available online, at least annually, data on the emissions of GHGs, criteria air pollutants, and toxic air contaminants for each facility that reports to the Board and air districts. CARB must present an informational report on those emissions from sectors covered by the Scoping Plan at a hearing of the Joint Legislative Committee on Climate Change Policies.

To address AB 197 requirements, CARB released a publicly available Pollution Mapping Tool that allows users to search for individual facility data by name, industrial sector, year, type of facility and pollutant type, and is available online at https://www.arb.ca.gov/ei/tools/pollution_map/pollution_map.htm.

2017 Climate Change Scoping Plan Update. Following Executive Order B-30-15 and SB 32, CARB developed the 2017 Climate Change Scoping Plan Update (2017 Scoping Plan Update) that focuses on measures designed to reach the State's 2030 GHG Target. Concurrent efforts such as increasing energy efficiency in existing buildings, reducing SLCPs, increasing the sustainability of freight, investing in GGRF, and maintaining and improving forest and soil health are coordinated with, and feed into, the 2017 Scoping Plan Update.

California has already implemented several recommendations in the First Update, and plans to implement additional recommendations that are incorporated into the 2017 Scoping Plan Update. See the sections in this report on ACC, the Cap-and-Trade Program, Cap-and-Trade Auction Proceeds, Crude Oil and Natural Gas, LCFS, Sustainable Communities Plans, Sustainable Freight, and SLCPs for current activities related to each of these programs.

Forest Carbon Plan and Healthy Soils Incentives Program. The development of the 2017 Scoping Plan Update included careful consideration of NWL efforts, such as the Forest Carbon Plan and Healthy Soils Incentives Program. In August 2014, as recommended by the First Update, the Forest Climate Action Team (FCAT) was assembled with the primary purpose of developing a Forest Carbon Plan that discusses how to manage our forest landscapes in a changing climate. The Forest Carbon Plan will recommend management practices for the Department of Forestry and Fire Protection (CAL FIRE) and other agencies to implement in the near-term, providing forest health benefits that reduce GHG emissions and sequester carbon in living forests.

In September 2016, CDFA published the *Healthy Soils Action Plan*, which included a plan to develop an incentives and demonstration program that supports healthy soil practices. As such, CDFA developed the Healthy Soils Incentives Program, which provides financial incentives to California growers and ranchers to implement conservation management practices that sequester carbon, reduce GHGs, and improve soil health. The program also provides financial incentives to demonstration projects that showcase these management practices. CDFA estimates GHG benefits using quantification methodology and tools developed by CARB, CDFA, and the Natural Resources Conservation Service. For information on activities related to NWL in the Scoping Plan, see <https://arb.ca.gov/cc/natandworkinglands/natandworkinglands.htm>.

2. Recent Developments—January through December 2017

The following describes developments in 2017 related to the 2017 Climate Change Scoping Plan Update, as well as NWL activities not covered elsewhere in this report that feed into the update.

- On January 27 and February 16–17, 2017, CARB held two informational public Board meetings to discuss the *2017 Climate Change Scoping Plan Update: the Proposed Strategy for Achieving California’s 2030 Greenhouse Gas Target*, and its Draft Environmental Analysis.
- On February 9, 2017, CARB hosted a workshop to present an overview of the proposed 2017 Scoping Plan Update, refinements made to develop its final draft, and to solicit stakeholder input.
- On March 28, 2017, CARB hosted a workshop to solicit further stakeholder input on the proposed 2017 Scoping Plan Update, and additional refinements made to its emissions modeling and economic analyses.

- In July 2017, the Legislature passed AB 617 (Garcia, C., Chapter 136, Statutes of 2017). AB 617 requires CARB to identify communities most impacted by air pollution for deployment of community air monitoring systems, develop and implement a statewide strategy to reduce emissions in communities disproportionately impacted by air pollution, assess stationary source technology, and ensure environmental justice principles are incorporated into the design and implementation of these programs. In response to AB 617, CARB established the Community Air Protection Program (CAPP) to coordinate the implementation of AB 617. CARB's previous work related to AB 197, EJAC, and adaptive management will be incorporated into the implementation of AB 617 to inform the identification of communities in need of air monitoring systems. While CAPP focuses primarily on criteria air pollutants and toxic air contaminants, it demonstrates CARB's commitment to reduce community exposure to all air pollutants, particularly in disadvantaged communities.
- In July 2017, the Legislature also enacted AB 398, which, among other provisions, requires CARB to update the Scoping Plan no later than January 1, 2018, and to ensure all GHG rules and regulations adopted by the Board are consistent with the Scoping Plan.
- In August 2017, CARB released its GHG emissions benefit quantification methodology for the Healthy Soils Incentives Program, and CDFA announced a request for grant applications. The quantification methodology is available at <https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/quantification.htm>.
- On October 12, 2017, CARB held a public workshop to present updated modeling results that reflect direction provided in AB 398, and discuss the schedule to finalize the 2017 Scoping Plan Update.
- On October 13, 2017, the California Natural Resources Agency (CNRA), CDFA, and CARB jointly hosted a public workshop to present next steps on the Natural and Working Lands Implementation Plan that was proposed in the draft 2017 Scoping Plan Update. Staff also presented Version 2 of the California Natural and Working Lands Carbon and Greenhouse Gas Model (CALAND). A public comment period was opened to receive input on the NWL Implementation Plan, as well as the CALAND model.
- On October 27, 2017, CARB staff released a revised draft 2017 Scoping Plan Update. Both the January proposed update and the October revised proposed update are available at <https://www.arb.ca.gov/cc/scopingplan/meetings/meetings.htm>.
- In November 2017, CARB released its final proposed 2017 Scoping Plan Update.

- On December 14, 2017, the Board adopted the final 2017 Scoping Plan Update, *California's 2017 Climate Change Scoping Plan: the Strategy for Achieving California's 2030 Greenhouse Gas Target* which is posted online at <https://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>.
- In December 2017, CDFA announced its first round of Healthy Soils Incentives Program grant awards for 64 grower and rancher projects, and 22 demonstration projects. A list of the awardees and proposed grant amounts is posted to CDFA's website at <https://www.cdfa.ca.gov/oefi/healthysoils/IncentivesProgram.html>.
- Throughout 2017, CARB and EJAC held multiple public meetings to discuss the development of the 2017 Scoping Plan Update and to develop EJAC recommendations. As a result, the update includes opportunities to address environmental justice and equity concerns. EJAC recommendations that require further consideration given the complexity of the underlying issue or that require broader, multi-pronged approaches are being taken under advisement as CARB and the State agencies develop their programs and measures. The EJAC recommendations can be found at <https://www.arb.ca.gov/cc/ejac/meetings/meetings.htm>.

Scoping Plan Litigation. In 2017, there was activity in one court case against CARB regarding the First Update to the Scoping Plan that was released in 2014.

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, a nonprofit organization, challenged the inclusion of the California High Speed Rail Project in the 2014 AB 32 Scoping Plan Update and CARB's programmatic-level environmental document prepared under CEQA. On May 15, 2017, the court denied the petition in its entirety. The petitioners did not appeal, and the case is now closed.

3. Upcoming Milestones—January through December 2018

- Beginning January 2018, CARB and other lead State agencies will start to develop and implement recommendations laid out in the 2017 Climate Change Scoping Plan Update, which include the following:
 - By 2018, implement the post-2020 Cap-and-Trade Program with declining annual caps and, to reflect AB 398, include assessments of quantity of allowances available at auction, price containment points, and price ceiling, to ensure a sufficient carbon price that incentivizes GHG emissions reductions.
 - By 2018, establish a carbon accounting framework for NWL as described in SB 859 (Committee on Budget and Fiscal Review, Chapter 368, Statutes of 2016).

- By November 2018, develop the integrated Natural and Working Lands Implementation Plan.
 - By 2019, develop pricing policies to support low-GHG transportation.
 - By 2019, develop regulations and programs to support organic waste landfill reduction goals laid out in the SLCP and SB 1383.
 - By 2030, implement the Short-Lived Climate Pollutant Reduction Strategy.
 - Implement the Forest Carbon Plan.
 - Implement the Mobile Source Strategy (Cleaner Technology and Fuels).
 - Implement the Sustainable Freight Action Plan.
 - Increase the stringency of Sustainable Communities Plans with 2035 GHG targets.
 - Adopt LCFS with a CI reduction of at least 18 percent.
 - Identify and expand funding and financing mechanisms to support GHG emissions reductions across all sectors.
- In January 2018, Healthy Soils Incentive Program grant awardees will begin their healthy soils conservation practices and demonstration projects.
 - In March 2018, CDFA will release its second round of Healthy Soils Incentives Program grant solicitations, the grant dollars for which total about \$1.6 million. Demonstration projects may receive up to \$500,000 total and California growers and ranchers may receive up to \$1.1 million total. Throughout March, CDFA will also hold workshops on application and program requirements in Orange County, Yuba City, and via webinar. By June 2018, CDFA intends to announce second round grant awardees.
 - By September 2018, CARB, CDFA, and CNRA will reevaluate the 2017 Scoping Plan Update's preliminary intervention-based goal to increase sequestration and avoid emissions of at least 15–20 MMTCO_{2e} from California's NWL by 2030. After this reevaluation, CARB, CDFA, and CNRA will complete the Natural and Working Lands Implementation Plan by November 2018.
 - In 2018, FCAT will publicly release a final Forest Carbon Plan. The recommendations in the Forest Carbon Plan will feed into CARB's Natural and Working Lands Implementation Plan, due in late 2018. More information on FCAT activities is available on CAL FIRE's website at <http://www.fire.ca.gov/fcat/>.
 - In 2018, CARB, in consultation with CAL FIRE and CNRA, will begin to update its inventory pursuant to SB 859, which requires a complete standardized GHG emissions inventory for NWL by the end of 2018.

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 develop or implement their own GHG emissions reduction programs, CARB seeks committed partners to expand actions that tackle global climate change together. 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 is to work with partner jurisdictions to build an integrated, regional carbon market and expand cost-effective emissions reduction opportunities. These efforts have included developing the administrative support activities managed by WCI, Inc. Another partnership is the linked cap-and-trade programs with the Canadian provinces of Québec and, starting January 1, 2018, Ontario.

Like California, Québec and Ontario have enacted legislative requirements to reduce economy-wide GHG emissions. Each jurisdiction has adopted GHG emissions reduction targets and is implementing a portfolio of programs, including a comprehensive cap-and-trade program, to meet those targets. Since linkage in 2014, California and Québec have implemented successful joined cap-and-trade programs. In collaboration with California and Québec and with support from WCI, Inc., Ontario launched its own cap-and-trade program in July 2016. After CARB demonstrated that Ontario satisfied requirements of SB 1018, CARB staff completed the Linkage Readiness Report requested by the Governor in 2017. As such, Ontario will link programs with CARB on January 1, 2018. SB 1018 included provisions intended to ensure that any decision to link market-based compliance programs under AB 32 with a program in another jurisdiction would occur only after the Governor’s consideration according to section 12894 of the Government Code. Linkage enables compliance instruments to be traded and used interchangeably across the linked programs; expands the market; enhances compliance flexibility for program participants; and allows for centralizing administrative functions, which improves efficiencies and offers

the potential to reduce governmental costs. See page 4 on the Cap-and-Trade Program for more information.

2. *Western Climate Initiative, Inc.*

WCI, Inc. is a nonprofit 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.

Please see Section 4 of this report, which provides the semi-annual update to the Legislature on the activities of WCI, Inc.

3. *Federal and State Governments*

This section discusses CARB's activities with federal and state governments outside of California. CARB coordinates with state and federal entities that develop similar climate-related programs to ensure that important provisions are as consistent as possible, and to facilitate broadening of policies to other jurisdictions. CARB works closely with federal agencies including U.S. EPA, the U.S. Department of State, the U.S. Agency for International Development, U.S. CFTC, and FERC on climate change issues.

Federal Government. CARB works with federal government on multiple efforts, some of which are described here. Accomplishments include the Mandatory GHG Reporting Regulation which 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 (ETS) for California's, Ontario's, and Québec's linked cap-and-trade programs) was built in cooperation with U.S. EPA and modeled on the framework used in other ETSs, including the federal Acid Rain Program and the Northeast states' Regional Greenhouse Gas Initiative. CARB also coordinates with U.S. CFTC and FERC to strengthen carbon and related energy market monitoring, oversight, and enforcement.

Another important endeavor CARB has undertaken is compliance with the federal Clean Power Plan. In August 2015, U.S. EPA finalized its first federal limitations on GHG emissions from existing power plants under the federal Clean Air Act, Section 111(d).

The final rules, known as the Clean Power Plan, set state GHG targets for 2030 along with an interim target applicable from 2022–2029. U.S. EPA identified the best system of emissions reductions as consisting of an array of efforts already underway in states and the power sector, including efficiency improvements, fuel switching, and use of zero-carbon energy resources that can displace GHG emissions at fossil fuel-fired power plants. For flexibility, states may use these or other measures, including ETSs, to comply with the Clean Power Plan. Each state would be required to submit a federally enforceable plan to attain the federal targets. The compliance plan and related regulatory amendments do not go into force until U.S. EPA approval.

Since the 2016 U.S. Presidential election, efforts to rescind the Clean Power Plan have increased. State plans were originally due in September 2016, with the possibility of one- to two-year extensions, but these deadlines have been stayed, pending resolution of litigation. Despite the stay, CARB is planning for compliance, both because CARB expects the Clean Power Plan to ultimately be upheld, and compliance with the program, or similar federal initiatives required by the Clean Air Act, need to be factored into ongoing planning for post-2020 climate programs. Accordingly, CARB worked with an interagency group to finalize California's compliance plan which the Board approved on July 27, 2017. In summer 2017, CARB submitted California's Clean Power Plan compliance plan to U.S. EPA. However in fall 2017, under the new Presidential Administration, U.S. EPA proposed to repeal the Clean Power Plan. In response, CARB submitted extensive comments and continues to actively oppose its repeal. CARB Board Chair Nichols has provided testimony to the U.S. Senate Committee on Environment and Public Works in support of the plan, and CARB's Executive Office and CPUC executive staff have also provided testimony to FERC in support of the plan. The Clean Power Plan and the corresponding new source rules have been challenged in federal court, and California has intervened to defend them. Both cases are in abeyance, pending U.S. EPA's statements that it may propose repealing or revising the rules. CARB continues to defend the original rules, and is actively participating in U.S. EPA administrative proceedings to urge the continuation of these important programs.

Nationally, the Clean Power Plan would provide many critical public health benefits, since power plants account for roughly one-third of all domestic GHG emissions. By 2030, U.S. EPA projects that its plan would result in reducing CO₂ emissions from the power sector by 32 percent below 2005 levels nationwide. It would reduce emissions that lead to smog and soot by more than 25 percent, which will improve public health. The program may also reduce energy bills if states comply in part by increasing the use of energy efficiency measures. California has therefore opposed repeal, and is actively supporting the Clean Power Plan in the underlying litigation. The legal and regulatory debate is expected to continue throughout 2018.

To develop California's compliance plan, CARB, CEC, and CPUC worked with many stakeholders and regulatory entities, including California air districts and the California Independent System Operator. California's submitted plan focuses on continued successful GHG emissions reduction measures for the electricity sector, and harmoniously operates with the State's Cap-and-Trade Program and other important

regulatory initiatives. Among other programs, California's Cap-and-Trade Program, and major investments in renewable energy and energy efficiency have put the State in a strong position to comply with the Clean Power Plan. Under California's compliance 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 GHG emissions exceeded federal targets, in which case a trading-based backstop program, available only to affected power plants, would be used to restore the required GHG emissions reductions.

Supporting the Clean Power Plan is one of California's efforts to sustain and shape federal policy. CARB has also filed litigation for other programs, as appropriate, to support timely and effective federal action on climate change. CARB has litigated to ensure that federal methane rules for oil and gas sources remain in force, and has filed extensive comments supporting continued rigorous federal programs for stationary and mobile sources. 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 LCFS, and CARB's work with U.S. EPA and its federal partners to develop ACC.

Other State and Provincial Governments. Some of CARB's work with other state and provincial governments includes sharing 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.

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 2017, the state of Washington introduced legislation to establish a clean fuels program, as well.⁶

4. *International*

California's programs have continued to gain international attention and recognition. Requests for CARB to host delegations, visit other states and countries, and enter into partnerships have increased. This section outlines CARB's global influence and international partnerships and initiatives to reduce GHG emissions, and strengthen California's ability to compete in the global economy.

⁶ Washington State House Bill 2338, <http://app.leg.wa.gov/billsummary?BillNumber=2338&Year=2018>.

Paris Agreement. The Paris Agreement aims to reinforce the global response to climate change by keeping this century's global temperature rise below two degrees Celsius above preindustrial levels. The agreement also seeks to limit global average temperature increase to 1.5 degrees Celsius. In 2016, the U.S. formally joined the Paris Agreement. However, in June 2017, the new Presidential Administration announced its decision to withdraw the United States from the agreement. In response, Governors Andrew Cuomo, Jay Inslee, and Jerry Brown created the United States Climate Alliance. This bipartisan coalition of states is committed to reduce GHGs consistent with the goals of the Paris Agreement. In 2017, the alliance published its first U.S. Climate Alliance Annual Report, available at <https://www.usclimatealliance.org/annual-report>. In September 2018, Governor Brown, Michael Bloomberg, Patricia Espinosa, and Anand Mahindra will hold a Global Climate Action Summit in San Francisco in support of the Paris Agreement, and to showcase subnational progress made to date to mitigate climate change.

Under 2 Coalition. The Under 2 Coalition is a global community of subnational governments publicly committed to long-term deep decarbonization and support of the Paris Agreement. The coalition brings together signatories of the Subnational Global Climate Leadership Memorandum of Understanding, or "Under 2 MOU." On May 19, 2015, California entered into the Under 2 MOU with Baden-Württemberg, Germany; Acre, Brazil; Catalonia, Spain; Wales, United Kingdom; and several Mexican states and Canadian provinces. Central to the agreement is that all signatories agree to reduce their GHG emissions 80 to 95 percent, or limit emissions to 2 metric tons CO₂e per capita, by 2050. By December 2017, the MOU had been signed by 205 jurisdictions representing more than 1.3 billion people and \$30 trillion in combined gross domestic product, equivalent to more than 40 percent 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.

México. California has advanced several strategic national and international partnerships, including an MOU with México. This MOU, which was signed by the Governor in México 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 four workgroups that are organizing the work under the MOU: climate change, air quality, and clean vehicles.

During 2017, the climate change workgroup continued bi-weekly calls with the Mexican Secretariat of Environment and Natural Resources (SEMARNAT) and the Mexican National Forestry Commission (CONAFOR) as the main forum to exchange technical information and climate policy development in each jurisdiction. To support SEMARNAT's effort to spearhead the launch of a national ETS in 2018, the climate change workgroup structured the discussions to focus on topics relevant to effective ETS design. At the request of SEMARNAT, the Canadian provinces of Ontario and

Québec joined these calls to share their experiences in cap-and-trade program development and implementation. Ontario and Québec also have agreements with México that are similar to the California-México MOU.

Throughout 2018, MOU partners will continue to hold biweekly calls as the primary forum for technical knowledge exchange as well as policy and program updates. However, additional opportunities for further engagement are expected. These opportunities include a verifier training workshop for the Mandatory Reporting Program in California during the first quarter of 2018 and online offset project verification training for the forestry sector in the second half of 2018.

The air quality workgroup continues to coordinate air quality planning efforts for airsheds along the California-México border. This coordination includes sharing technical knowledge and information and improving the comparability of data collected in California and México. The clean vehicles workgroup aims to improve Mexican vehicle emissions standards for criteria pollutants and GHGs to align with U.S. standards, and also to advance México's compliance and enforcement of vehicle standards.

China. 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 become the world's leading emitter of GHG emissions and, as such, 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 the global climate.

In June 2017, Governor Brown, Chair Nichols, and CEC Chair Weisenmiller traveled to Sichuan, Jiangsu, and Beijing, China. During that trip, California signed several MOUs with Chinese provinces regarding clean technology, energy storage, and low-carbon development. Additionally, Governor Brown signed the Friendship MOU with the Sichuan province and established the California-Sichuan Clean Tech partnership. Governor Brown and Chair Nichols met with Chinese automakers and encouraged them to invest and manufacture in California. On a follow-up trip in October 2017, California signed additional MOUs on clean technology innovation and green buildings.

In November 2017, China launched a national GHG ETS after launching local ETS programs in seven cities and provinces in 2013. CARB has participated in many meetings with officials from the National Development and Reform Commission, 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 January 2018, CARB will participate in a forum in Huzhou, China to discuss ETS and international carbon markets.

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 ZEVs, 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 emissions standards and a number of other progressive environmental regulations.

In 2017, CARB hosted nine delegations from various provinces and government agencies in China, including the Ministry of Environmental Protection, the Jinan Environmental Protection Bureau, and the Fujian Provincial Department of Environmental Protection. These visits covered a wide range of issues, including emissions reduction measures and trading systems, ZEVs, and policy framework for mitigating pollution. In 2018, CARB will focus on supporting existing MOUs and work with the Governor's Office to engage Chinese provincial delegations in the 2018 Global Climate Action Summit.

Governors' Climate and Forests Task Force. The Governors' Climate and Forests Task Force (GCF) is a subnational partnership aimed at designing jurisdiction-wide programs that reduce deforestation, benefit local communities, and protect the climate. GCF commenced in 2008–2009, and now includes 38 states and provinces from around the world including Brazil, Colombia, Ecuador, Indonesia, Ivory Coast, México, Nigeria, Peru, Spain, and the United States. Of these, 24 are signatories of the Under 2 MOU. CARB continues to engage in discussions with governmental agencies outside of California to share information and experiences about the design of programs aimed to reduce emissions from deforestation and forest degradation, and to evaluate whether and how such programs could potentially be included in California's Cap-and-Trade Regulation in the future. While the Cap-and-Trade Regulation merely contains placeholder measures related to tropical forests, including specific standards-type provisions in future rulemaking continues to be considered. The 2017 Climate Change Scoping Plan, and the 2 previous Scoping Plans, have all referenced CARB's involvement with GCF and the importance of tackling emissions from tropical forests. CARB will continue to coordinate and exchange information with partners in the Task Force, and, along with the States of Campeche, Quintana Roo, and Yucatan, will cohost the 10th Annual Meeting of the GCF on September 10–12, 2018 in San Francisco.

Partnership for Market Readiness. CARB has also participated in meetings of the Partnership for Market Readiness (PMR), 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 PMR in November 2014. In November 2017, California Secretary for Environmental Protection Matthew Rodriguez participated in a PMR panel event at the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in Bonn, Germany. Participation in the PMR is expected to continue in 2018.

International Carbon Action Partnership. Recognizing that many efforts around the world are underway to use market forces to motivate GHG emissions reductions,

California worked with more than 15 other government leaders to establish the International Carbon Action Partnership (ICAP) in 2007. ICAP provides a forum for sharing experiences and knowledge among jurisdictions that have already implemented or are actively pursuing market-based GHG programs. In August 2017, CARB participated in the ICAP Annual Meeting in Lisbon, Portugal to further these jurisdictional partnerships, and Aimee Barnes from the Governor's Office was included on an ICAP panel at the UNFCCC COP in Bonn, Germany. CARB will continue to engage on various ICAP events and meetings throughout 2018.

International Zero-Emission Vehicle Alliance. In August 2015, California launched the International Zero-Emission Vehicle Alliance (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, Germany, Netherlands, Norway, Québec, United Kingdom, and the states of California, Connecticut, Maryland, Massachusetts, New York, Oregon, Rhode Island, and Vermont. In conjunction with COP21 in Paris, the ZEV Alliance announced a goal to make all passenger vehicle sales in their jurisdictions ZEVs as quickly as possible and no later than 2050. In 2017, the ZEV Alliance participated in COP23 in Bonn, Germany, and highlighted the importance of ZEVs for climate mitigation. Each year, the ZEV Alliance selects several focus areas for in-depth exchange, webinars, and best practices reports. Accomplishments include 10 published research papers, 3 webinars, one in-person assembly, broad communication and outreach with other key international groups, and regular monthly member calls. CARB plays a key role in the ZEV Alliance on policy and technical matters.

Low Carbon Fuels. In 2017, CARB staff also engaged with representatives from the federal governments of Canada and Brazil who have begun to develop programs based on California's LCFS.⁷

Other International Coordination. In addition to the above activities, CARB continues to receive numerous delegations from other countries interested in California's groundbreaking climate change policies. During 2017, CARB received 44 foreign delegations to discuss climate change policies, including delegations from Denmark, France, Japan, and South Korea. Some of CARB's coordination spans across multiple levels of government. The industrial emissions benchmarking methodology used in California's Cap-and-Trade Program, for example, was developed in coordination with partners in other U.S. states, Canadian provinces, and the European Union.

⁷ "Brazil to Launch Ambitious Biofuels Program @EthanolMagazine." *Ethanol Producer Magazine – The Latest News and Data About Ethanol Production*, Nov. 2017: <http://ethanolproducer.com/articles/14803/brazil-to-launch-ambitious-biofuels-program>; and Environment and Climate Change Canada. "Clean Fuel Standard: Discussion Paper." Feb. 2017: http://ec.gc.ca/lcpe-cepa/D7C913BB-13D0-42AF-9BC7-FBC1580C2F4B/CFS_discussion_paper_2017-02-24-eng.pdf.

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 the Bay Area, Sacramento Metropolitan Area, San Diego, and Southern California.

Table 1-1: Metropolitan Planning Organization (MPO) Region	Targets*	
	2020	2035
Association of Monterey Bay Area Governments	0	-5
Butte County Association of Governments (BCAG) ⁸	+1	+1
Metropolitan Transportation Commission (MTC)	-7	-15
Sacramento Area Council of Governments (SACOG)	-7	-16
San Diego Association of Governments (SANDAG)	-7	-13
8 San Joaquin Valley Councils of Governments	-5	-10
San Luis Obispo Council of Governments	-8	-8
Santa Barbara County Association of Governments	0	0
Shasta Regional Transportation Agency	0	0
Southern California Association of Governments (SCAG)	-8	-13
Tahoe Metropolitan Planning Organization	-7	-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 emissions 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. CARB's methodology can be found at https://www.arb.ca.gov/cc/sb375/scs_review_methodology.pdf.

The Regional Transport Plan/SCS updates occur on a rolling four-year schedule. By September 2014, all eight of the San Joaquin Valley MPO Boards adopted their first SCSs. The Board accepted the GHG quantifications, with the exception of those for Madera and Merced, which did not meet the GHG emissions reduction targets. As a result, Madera and Merced prepared amended SCSs and worked on completing their data submittals to CARB staff for evaluation, discussed in the recent developments and upcoming milestones sections below. All eight Central Valley MPOs are also in the process of developing, or have completed, their second SCS, and some MPOs are developing their third.

Of the major MPOs (MTC, SACOG, SANDAG, SCAG), all four have adopted their second SCS and CARB's Executive Officer accepted plans from three of the four. SANDAG's plan was accepted in 2015, and SACOG's and SCAG's plans were accepted in 2016. MTC's evaluation is pending.

Sustainable Communities Research Contracts. CARB continues to provide funding for several research projects that support land use and transportation planning. Contracts currently underway include research to identify indicators that can track progress of

⁸ 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 emissions reductions demonstrated were 2 and 2 percent by 2020 and 2035, respectively.

meeting goals in SB 375 and research on the travel patterns and vehicle miles traveled of residents in affordable housing in transit-oriented developments. 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>.

2. Recent Developments—January through December 2017

- In March 2017, CARB staff conducted a set of workshops in the cities of Fresno, Los Angeles, and Sacramento, to provide an update and obtain feedback on MPO target analysis, recommendations received, and next steps. CARB staff also provided an informational update to the Board on March 23, 2017. Updates on the SB 375 target setting process were also presented at the 2017 Climate Change Scoping Plan Update workshop for the transportation sector in March 2017.
- In April 2017, the Tahoe Regional Planning Agency adopted its second SCS, and worked on completing its data submittal to CARB staff for review and approval.
- In May 2017, Butte MPO adopted its second SCS and based on staff's evaluation, CARB's Executive Officer accepted the GHG determination through Executive Order on behalf of the Board.
- In June 2017, CARB released a staff report, *Proposed Update to the SB 375 Greenhouse Gas Emission Reduction Targets*, which contains proposed target ranges for each MPO. An accompanying Draft Environmental Assessment was also released for a 45-day public review starting June 13, 2017, and ending July 28, 2017. CARB staff conducted another round of workshops in June 2017 in the cities of Bakersfield, Los Angeles, and San Francisco, to receive feedback on the proposed targets and environmental document.
- MTC adopted its second SCS in July 2017, and worked on completing its data submittal to CARB. MTC's plan evaluation is pending.
- In August 2017, the Santa Barbara County Association of Governments adopted its second SCS, which was reviewed by CARB staff and is pending approval.
- The Merced County Transportation Commission submitted an amended SCS in August 2017, and worked on completing its data submittal to CARB.
- The Madera County Association of Governments amended and submitted their first SCS in September 2017, and then completed a data submittal in December 2017 which is pending CARB staff review and approval.

- In October 2017, CARB staff released a second staff report with proposed target recommendations for each individual MPO. Based upon comments received, CARB staff provided a second informational update to the Board in December 2017, with revised target recommendations and proposed changes to the way the Board evaluates MPO plans moving forward.
- In October 2017, SB 150 (Allen, Chapter 646, Statutes of 2017) was passed into law, and gives CARB new SB 375 program responsibilities. The bill requires CARB to prepare a report to the Legislature starting in 2018, and every four years thereafter, that discusses regional changes in GHG emissions, as well as best practices and challenges to achieve greater reductions under SB 375. This report will use data-supported metrics to assess progress, as well as the effect of State policies and funding programs. CARB staff has begun collecting data for this effort.
- As of December 2017, CARB staff received target recommendations and/or supporting technical information from all 18 MPOs. Staff met with MPOs individually and in small groups regarding region-specific factors and technical information that informed proposed target recommendations.
- In 2017, SACOG, SANDAG, and SCAG began development of their third SCS.
- Throughout 2017, under a June 2015 contract with CARB, the University of California, Irvine (UC Irvine) continued to work on conducting a comprehensive review of existing vehicle miles traveled estimation methodologies and will identify the weaknesses and advantages of each. This study will also propose alternate quantification methods to better represent interregional travel, and to make recommendations on data needs and modeling policy.

3. Upcoming Milestones–January through December 2018

As each MPO adopts a new SCS, CARB staff evaluates the plan to determine whether the SCS, if implemented, would achieve the GHG emissions reduction targets. CARB periodically reports 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>.

- In January and February 2018, staff will hold public workshops around the State and present final SB 375 target recommendations for Board consideration in March 2018. CARB staff will continue to work with MPOs, environmental, and equity stakeholders, as directed by the Board, to develop recommendations for revised program GHG emissions reduction targets.
- In June 2018, both the Association of Monterey Bay Area Governments and Shasta Regional Transportation Agency intend to adopt their second SCSs. Thereafter, CARB will review their SCSs for approval.

- Between June and August 2018, the eight MPOs within the San Joaquin Valley (Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare) intend to adopt their second SCSs. Thereafter, CARB will review the SCSs for approval.
- By September 1, 2018, CARB staff will begin to prepare its first program progress report due to the Legislature, to fulfill the requirements of SB 150. Prior to the report's release, CARB will conduct stakeholder outreach in the first half of 2018. The report will discuss regional changes in GHG emissions, as well as best practices and challenges to achieve greater reductions under SB 375.
- In the first quarter of 2018, CARB expects to release the results of UC Irvine's review of methodologies used to estimate interregional travel. The results will inform future regional modeling approaches.
- In the first half of 2018, Merced plans to complete its first SCS data submittal to CARB staff for review and approval.
- In spring 2018, UCLA will complete a CARB-funded, sustainable communities research project that identifies indicators for tracking progress of goals in SB 375. In addition to identifying indicators and the data needed to construct them, UCLA piloted the indicators for Los Angeles County to test the calculation process and compare the results with other empirical data. The California Department of Transportation (Caltrans) is currently funding the complementary Phase 2 portion of this project, which will scale up the work from Phase 1 to the statewide level.
- UC Irvine is expected to complete its final report on interregional travel estimation by summer 2018.
- CARB staff will revise its Technical Review Methodology for how SCS evaluations are conducted, and what information and data from the MPOs are necessary to make a determination on whether the SCS, if implemented, would meet the GHG emissions reduction targets.
- 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.
- UC Berkeley will also continue its research, using surveys and global positioning system data, on real-world travel patterns of affordable housing residents near and away from transit throughout the spring.
- Based on direction from the Board, CARB staff and its sister State agencies will convene a series of working group discussions with MPOs, local agencies, advocates, and subject experts, to identify and develop additional local and State strategies for increasing the use of clean transportation options in California.

- CARB staff will continue to engage with the California Department of Housing and Community Development, the California Transportation Commission, Caltrans, and the Strategic Growth Council on SB 1 (Beall, Chapter 5, Statutes of 2017) transportation funding, recent housing bills, and GGRF revenues appropriated for SCS program implementation, to help enable GHG emissions reductions, along with numerous community and environmental co-benefits.
- CARB staff will complete SCS evaluations for the Bay Area, Madera (first SCS), Merced (first SCS), Santa Barbara, and Tahoe regions, and issue Executive Orders on whether the MPOs can meet the per capita passenger vehicle-related GHG emissions targets.

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 GGRF, for appropriation by the Governor and Legislature, to invest in projects that support the goals of AB 32 and subsequent related legislation. These projects are known as California Climate Investments. Strategic investment of proceeds furthers AB 32 implementation and supports 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, Statutes of 2012), SB 535 (De León, Chapter 830, Statutes of 2012), and SB 1018—that established that the GGRF will receive the State’s portion of the auction proceeds. This legislation also provided the framework for how those auction proceeds will be allocated, by establishing broad categories of GHG emissions-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 required 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.⁹

AB 1550 (Gomez, Chapter 369, Statutes of 2016) modifies the existing disadvantaged community investment requirements in SB 535, and provides new investment targets for low-income households and communities. Under the AB 1550 investment requirements, at least 35 percent of the available monies for California Climate Investments must be allocated as described below:

- Allocate a minimum of 25 percent to projects located within the boundaries of, and benefiting individuals living in, disadvantaged communities;¹⁰
- Allocate an additional minimum 5 percent to projects that benefit low-income households or to projects located within the boundaries of, and benefiting individuals living in, low-income communities located anywhere in the State; and
- Allocate an additional minimum 5 percent to projects that benefit low-income households that are outside of, but within ½-mile of, disadvantaged communities, or to projects located within the boundaries of, and benefiting individuals living in, low-income communities that are outside of, but within ½-mile of, disadvantaged communities.

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, develops and submits to the Legislature a three-year Cap-and-Trade Auction Proceeds Investment Plan (Investment Plan). This Investment Plan identifies priority programs for investment of proceeds to support the State’s GHG emissions reduction goals. The Department of Finance submitted the first three-year Investment Plan in May 2013, and the second in January 2016. The Investment Plans can be accessed at <http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/investmentplan.htm>.

⁹ 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, visit <https://oehha.ca.gov/calenviroscreen>.

¹⁰ “Disadvantaged Communities” must still be determined in accordance with SB 535’s statutory requirements, per Health and Safety Code Section 39711.

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). SB 862 requires 60 percent of GGRF monies to be appropriated each year, beginning in Fiscal Year (FY) 2015–16, to High Speed Rail, affordable housing and sustainable communities, transit capital projects, and low carbon transit operations. The first appropriations in FY 2013–14 provided over \$70 million from the GGRF. Subsequent appropriations in FY 2014–15 included over \$860 million, and set in motion a significant expansion of existing programs that provide GHG emissions reductions and further the objectives of AB 32. The Legislature and Governor appropriated almost \$1.7 billion in FY 2015–16, more than \$1.1 billion in FY 2016–17, and \$1.5 billion in FY 2017–18. Recent appropriations have created a suite of new programs across the investment sectors.

Total appropriations, as of January 1, 2018, 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 online at <https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/expenditurerecords.htm>.

**Table 1-2:
Appropriations for Greenhouse Gas Reduction Fund Programs
(as of January 1, 2018)**

Administering Agency	Program	2017-18 (\$M)	Total (\$M)
Transportation and Sustainable Communities			
California Air Resources Board	Agricultural Equipment	\$85	\$85
	Community Air Protection	\$255	\$255
	Low Carbon Transportation	\$560	\$1,255
Department of Transportation	Active Transportation Program	--	\$10
	Low Carbon Transit Operations Program*	5%	\$231
High Speed Rail Authority	High Speed Rail*	25%	\$1,286
State Transportation Agency	Transit and Intercity Rail Capital Program*	10%	\$574
Strategic Growth Council	Affordable Housing and Sustainable Communities*	20%	\$914
	Sustainable Agricultural Lands Conservation ¹¹		\$44
	Climate Research	\$11	\$11
	Technical Assistance	--	\$2
	Transformative Climate Communities	\$10	\$150
Clean Energy and Energy Efficiency			
California Air Resources Board	Woodsmoke Reduction	--	\$5
Department of Community Services and Development	Low-Income Weatherization Program	\$18	\$189
Department of Food and Agriculture	Biofuels	--	\$3
	State Water Efficiency and Enhancement Program	--	\$66
Department of Water Resources	State Water Project Turbines	--	\$20
	Water-Energy Grant Program	--	\$50
Energy Commission	Renewable Energy in the Agricultural Sector	\$6	\$6
	Research and Development for Food Processors	\$60	\$60
Natural Resources and Waste Diversion			
Coastal Conservancy	Climate Readiness and Conservancy Programs	\$6	\$6
Conservation Corps	Training and Work Program	\$5	\$5
Department of Fish and Wildlife	Wetlands and Watershed Restoration	\$15	\$42

Table 1-2: Appropriations for Greenhouse Gas Reduction Fund Programs (as of January 1, 2018)			
Administering Agency	Program	2017-18 (\$M)	Total (\$M)
Department of Food and Agriculture	Dairy Digester Research and Development and Alternative Manure Management	\$99	\$161
	Healthy Soils	--	\$8
Department of Forestry and Fire Protection	Fire Protection and Forest Health	\$75	\$75
	Sustainable Forests (previously Urban and Community Forestry and Forest Health)	\$220	\$302
Department of Resources Recycling and Recovery	Waste Diversion	\$40	\$111
Natural Resources Agency	Urban Greening Program	\$26	\$106
Office of Emergency Services	Wildfire Response and Readiness	\$25	\$25
Wildlife Conservation Board	Climate Adaptation and Conservation Easements	\$20	\$20
Total Program Funding		60% + \$1,536	\$6,077

*These agencies are continuously appropriated a percentage of revenue from each quarterly auction pursuant to SB 862. The actual dollar amounts are not known until after the quarterly auctions close. The total amount shown reflects auctions held through 2017.

CARB is responsible for the fiscal management of GGRF, while the Legislature and Governor authorize these expenditures through legislation. Table 1-3 shows the proceeds deposited into GGRF from the auctions (from the sale of California-owned allowances), including the auctions held jointly with the Canadian provinces of Québec and, beginning January 2018, with Ontario.

¹¹ The Strategic Growth Council determines what portion of their 20 percent continuous appropriation will be allocated to the Sustainable Agricultural Lands Conservation program.

Table 1-3: Proceeds from the Sale of State-Owned Allowances Deposited in the Greenhouse Gas Reduction Fund (as of January 1, 2018)	
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
February 2017 Cap-and-Trade joint auction 10 (Québec)	\$8,163,884
May 2017 Cap-and-Trade joint auction 11 (Québec)	\$51,052,645
August 2017 Cap-and-Trade joint auction 12 (Québec)	\$642,137,265
November 2017 Cap-and-Trade joint auction 13 (Québec)	\$862,813,992
State Auction Proceeds Total	\$6,451,181,852

2. Recent Developments—January through December 2017

Activities related to Cap-and-Trade Auction Proceeds in 2017 are provided below.

Electric Distribution Utility and Natural Gas Utility Auction Proceeds:

- For utility auctions held through the end of November 2017, investor-owned utilities received a total of \$4.4 billion, and publicly owned utilities received a total of \$655 million, from the sale of allocated allowances.
- Investor-owned electric 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 February 2017, CalEPA and CARB jointly held three community meetings and a statewide webinar to discuss how to identify disadvantaged and low-income communities, and assess whether California Climate Investment projects will benefit the individuals living there. Community meetings were held in Fresno, Los Angeles, and Oakland, and the webinar was based in Sacramento. Participants provided input on the AB 1550 Draft Concept Paper and discussion document on identifying disadvantaged communities. More than 80 people attended the meetings in person and more than 140 people participated in the webinar. During the open comment period, 25 comment letters were submitted. Links to the documents can be found below.
 - *Cap and Trade Auction Proceeds—Community Input on Assembly Bill 1550 Implementation:*
https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/community_input_AB1550_implementation.pdf.
 - *Identifying Disadvantaged Communities:*
https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/sb_535_identifying_disadvantaged_communities_1_31_17.pdf.
- In July 2017, the Legislature enacted AB 398 and AB 617, which support CARB’s continued community-focused climate change and air quality actions. Throughout 2017, CARB has deepened its commitment to improve air quality at the community level. AB 398 provides direction on a post-2020 Cap-and-Trade Program, and identifies a list of priorities for the Legislature to consider for future GGRF appropriations. CARB will incorporate direction provided in AB 398 into its guidance documents and policies for agencies that administer California Climate Investments. In updating the guidance documents, CARB emphasizes the importance of addressing community needs and will provide agencies with greater flexibility to implement their programs with increased community engagement. AB 617 establishes a Community Air Protection Program, which is designed to provide measurable localized reductions in criteria pollutant and air toxics emissions and exposure in disadvantaged communities.
- In August 2017, CARB released the *Cap-and-Trade Auction Proceeds Draft Funding Guidelines for Agencies Administering California Climate Investments* and held a series of community meetings to obtain additional public input. Community meetings were held in Fresno, Los Angeles, and Oakland, and a workshop was held in Sacramento with a webcast. More than 60 people attended the community meetings in person, representing over 45 organizations, and more than 110 people participated via webcast. Links to the draft funding guidelines and its discussion document are found below.

- *Cap-and-Trade Auction Proceeds Draft Funding Guidelines for Agencies Administering California Climate Investments:*
https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/2017_draft_funding_guidelines.pdf.
 - *California Climate Investments: 2017 Draft Funding Guidelines Discussion Document:*
https://www.arb.ca.gov/cc/capandtrade/auctionproceeds/2017_draft_funding_guidelines_discussion_doc.pdf.
- After releasing the draft funding guidelines, CARB accepted public comments for 6 weeks through September 15, 2017. During the open comment period, 13 comment letters were submitted.
 - In September 2017, the Legislature and Governor enacted AB 109 (Committee on Budget, Chapter 249, Statutes of 2017) and AB 134 (Committee on Budget, Chapter 254, Statutes of 2017), which amended the FY 2017–18 State Budget and appropriated auction proceeds to administering agencies. The appropriations directed funding to existing programs and also created several new programs, including: Agricultural Equipment, Climate Adaptation and Conservation Easements, Climate Readiness and Conservancy Programs, Climate Research, Community Air Protection, Conservation Corps Training and Work Program, Fire Protection and Forest Health, Renewable Energy in the Agricultural Sector, Research and Development for Food Processors, Sustainable Forests, and Wildfire Response and Readiness. For Community Air Protection, AB 134 appropriated \$255 million. To support early actions under this program, CARB staff is working with community groups and air districts to deploy these funds. Specifically, AB 134 appropriated the \$255 million as follows:
 - Up to \$250 million shall be used to implement projects pursuant to the Carl Moyer Memorial Air Quality Standards Attainment Program in support of Community Air Protection goals. Of these funds, 43 percent is directed to the South Coast Air Quality Management District, 32 percent to the San Joaquin Valley Unified Air Pollution Control District, 20 percent to the Bay Area Air Quality Management District, and 5 percent to the California Air Resources Board for distribution to other districts in the State as determined by the Board in consultation with the districts.
 - Up to \$5 million shall be used for technical assistance grants for community organizations to fund activities that assist in their participation in the implementation of AB 617.

- Each year the Department of 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 <http://www.caclimateinvestments.ca.gov/>. The report, developed by CARB, describes the status of funded programs. It also provides estimates of the GHG emissions reductions expected from project investments and provides key statistics on benefits to disadvantaged communities, demand for funding, and the leveraging of additional funding sources. The 2017 *Annual Report to the Legislature on Cap-and-Trade Auction Proceeds* was accompanied by an online map of implemented projects. In late 2017, CARB began collecting data from agencies to inform the 2018 report.
- CARB is responsible for providing the quantification methodologies to estimate GHG emissions reductions from projects receiving auction proceeds. In 2017, CARB updated 15 existing quantification methodologies and developed 7 new methodologies for programs or subprograms. Additional work on quantification methodologies is ongoing. Completed quantification methodologies are posted on CARB's website at www.arb.ca.gov/cci-quantification.
- Administering agencies completed concurrence¹² for all FY 2014–15, FY 2015–16, and FY 2016–17 expenditure records pursuant to SB 1018. The expenditure records provide an overview of each agency's use of auction proceeds and are posted at www.arb.ca.gov/cc/capandtrade/auctionproceeds/expenditurerecords.htm.
- CARB developed a web-based application, California Climate Investments Reporting and Tracking System, to allow administering agencies to report and share information on program implementation and outcomes.
- CARB continued to work with academic partners under contract 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. UC Berkeley completed a comprehensive literature review of the prioritized co-benefits, posted at www.arb.ca.gov/cci-cobenefits. UC Berkeley is currently in the process of developing assessment methods for the prioritized co-benefits, where feasible.

¹² 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 emissions 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, *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 www.arb.ca.gov/cci-fundingguidelines.

- CARB contracted with the Foundation for California Community Colleges (FCCC) to support agency outreach efforts statewide in order to raise awareness, build partnerships, utilize resources, and strengthen community capacities to successfully apply for GGRF funds. FCCC developed new outreach materials, including a California Climate Investments website, a telephone hotline, a social media campaign, a newsletter, and printed materials for each agency's programs in English and Spanish. CARB and FCCC have been attending three to five community meetings each month to educate the general population on opportunities and community benefits of auction proceeds.

3. Upcoming Milestones–January through December 2018

- CARB will compile data collected from agencies to develop the 2018 *Annual Report to the Legislature on Investments of Cap-and-Trade Auction Proceeds*, scheduled for release in March 2018.
- Prior to a Board hearing in April 2018, CARB and the air districts will conduct a number of community meetings for public input to consider modifications to the Carl Moyer program that will better support the goals of AB 617. CARB staff will continue to work with community groups and air districts to deploy the funds reserved for Community Air Protection through AB 134.
- In April 2018, CARB expects to make the first draft of the Revised 2018 Funding Guidelines available for public comment. CARB staff will continue to develop the Revised 2018 Funding Guidelines to accommodate the breadth of new programs created with the 2017 legislation.
- In April and May 2018, CARB will hold community meetings to further inform these guidelines.
- Beginning in 2018, CARB intends to collect semi-annual data from the California Climate Investments Reporting and Tracking System. CARB will provide guidance as needed to agencies on using the system to upload program data and report project status and outcomes.
- In summer 2018, CARB will present the Revised 2018 Funding Guidelines to the Board.
- CARB staff will continue to work with administering agencies, outside experts, and academic partners to develop and/or update project-level quantification methodologies to capture additional information on environmental, public health, and economic benefits of the California Climate Investments projects.
- CARB staff will continue to work with contractors and administering agencies to expand and enhance outreach activities across the State with an emphasis on disadvantaged communities, low-income communities, and low-income households.

E. Minimizing Community Health Impacts from Freight

1. *Background*

The trucks, locomotives, ships, harbor craft, aircraft, cargo handling equipment, and transport refrigeration units (TRU) 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 6 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 NOx 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 needs 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 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.

In 2014, CARB also began technology assessments to evaluate the current state and projected development over the next five to ten years of mobile source technologies and fuels. These technology and fuels assessments support State-level planning and regulatory efforts, including State Implementation Plan (SIP) development, CARB's

mobile source control program, and the sustainable freight discussion document discussed below.

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

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

In 2016, CARB released for public comment a proposed SIP¹³ 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 require similar transformative emissions 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 July 2016, the multi-agency State partners published the *California Sustainable Freight Action Plan* (Action Plan). 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 Executive Order B-32-15. It provides recommendations 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 that 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 IEPR, as well as broad stakeholder input.

A broad coalition of interests is needed to develop a California vision for a sustainable freight transport system, define the system changes (logistics, infrastructure,

¹³ Federal clean air laws require areas with unhealthy levels of criteria air pollutants (e.g., ozone and inhalable particulate matter) to develop 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.

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—January through December 2017

CARB activities in 2017 related to freight include:

- In January 2017, CARB staff released the draft *Freight Hub Survey: Truck Stops*. CARB staff is currently analyzing the data gathered in this survey to understand the activity that occurs at truck stops in California and to assess the potential for emissions reductions. The results will assist with the development of strategies to potentially reduce emissions at trucks stops.
- On January 20 and August 30, 2017, CARB staff held workgroup meetings to discuss costs of advanced and conventional truck technologies in the California market, development of the advanced technologies market, and factors affecting the demand of zero-emission vehicles.
- On January 25 and May 24, 2017, the multi-agency State partners discussed ongoing implementation of the Action Plan with public and private freight stakeholders at the California Freight Advisory Committee meetings. The multi-agency State partners will provide periodic updates on Action Plan implementation at future California Freight Advisory Committee meetings.
- In February 2017, CARB staff published its final *Freight Hub Survey: Truck Stops*, available at <https://www.arb.ca.gov/gmp/sfti/sfdatacollect/truckstopsurvey.pdf>.
- On February 24, 2017, CARB staff held a public workshop to begin discussion on how to accelerate the deployment of zero-emission vehicles that transport passengers to airports and between airport facilities.
- Starting in March 2017, staff initiated work to identify new actions to minimize criteria pollutant, toxic air contaminant, and GHG emissions, as well as community health impacts from freight facilities. Through technical assessments and an extensive public process, staff developed concepts for additional actions to reduce emissions from commercial harbor craft, cargo handling equipment, and drayage trucks to transition those sources to zero- or near-zero emissions operation, as well as potential new rules for rail yard and locomotive emissions not preempted by the federal Clean Air Act.
- On April 13, 2017, CARB submitted a petition requesting that U.S. EPA exercise its authority to adopt more stringent emissions standards for locomotives so all states can meet federal air quality standards and climate goals, and address issues affecting public health and welfare.

- On April 25, 2017, CARB staff held a workshop to provide an overview of potential regulatory concepts to expand the Advanced Clean Local Trucks rule that would apply to chassis manufacturers.
- In May 2017, the multi-agency State partners conducted Action Plan implementation workshops to discuss development and coordination of various elements of the Action Plan with public and private stakeholders. At the Action Plan implementation workshops, staff also discussed pilot projects designed to demonstrate on-the-ground progress towards a sustainable freight transport system. To develop the pilot project work plans, CARB staff continued to hold interagency meetings with local, public and private partners.
- In July 2017, staff released the pilot project work plans described below.
 - The Advanced Technology Corridors at Border Ports of Entry project at the California-México border focuses on improving freight mobility by reducing wait times and improving air quality along the California-México border.
 - The Dairy Biomethane for Freight Vehicles project in the San Joaquin Valley demonstrates a commercial-scale dairy biogas to biomethane production system.
 - The Advanced Technology for Truck Corridors project in Southern California deploys emerging technologies along Southern California freight corridors.
- On July 19 and 20, 2017, the agency Secretaries and Chairs convened a Freight Think Tank Symposium with freight strategists, forecasters, and innovators. The purpose of the symposium was to gain insight into participants' visions and goals related to the future freight transport system and to identify solutions and actions to overcome barriers and achieve this vision. Agency Secretaries and Chairs included:
 - CalEPA Secretary for Environmental Protection Matthew Rodriguez
 - California Governor's Office of Business and Economic Development Director Panorea Avdis
 - Caltrans Director Malcolm Dougherty
 - CARB Chair Mary Nichols
 - CEC Commissioner Janea Scott
 - CNRA Secretary John Laird
 - Transportation Agency Secretary Brian Kelly
- CARB staff held public workshops in August 2017 and a workgroup meeting in November 2017 to discuss a proposed new regulation to reduce residual risk from TRUs by transitioning to zero-emission technologies.

- In August and September 2017, CARB staff held public workshops to share concepts of amendments to the Airborne Toxic Control Measure for Auxiliary Diesel Engines Operated on Ocean-Going Vessels At-Berth in a California Port (At-Berth Regulation).

3. *Upcoming Milestones—January through December 2018*

- In February 2018, CARB staff will hold public outreach meetings to discuss how to minimize community health impacts from seaports, railyards, warehouses/distribution centers, and other freight hubs. Transitioning to a less-polluting, more efficient, modern freight transport system is essential to meet our public health mandates, climate goals, and economic needs.
- In March 2018, CARB staff expects to update the Board on progress to develop actions and a range of alternatives to promote cleaner combustion technologies, including the introduction of near-zero emission technology, and to accelerate use of zero-emission technologies. CARB will explore several different strategies including incentives, quantifying efficiency gains, facility-based approaches, and source-specific regulations.
- A full multi-agency progress report led by Caltrans on Action Plan implementation is anticipated for summer 2018.
- CARB staff will work to develop the Advanced Clean Local Trucks Regulation, and anticipates adoption in fall 2018.
- CARB staff will work on regulatory language for the transition to zero-emission technologies for TRUs, and expects to present this language for public comment in fall 2018.
- CARB staff will convene workgroups focused on the development of a freight handbook document that identifies best practices for the siting, design, construction, and operation of freight facilities to minimize community exposure to air pollution, incorporate the use of zero-emission technologies, install any needed fueling/charging infrastructure, and maximize the capacity of freight transportation infrastructure.
- CARB staff will participate in the San Pedro Bay Ports' development of gate rates that assist in the transition to zero and near-zero heavy-duty trucks operating at the ports. This rate will apply to the beneficial cargo owners for all heavy-duty trucks that enter the port terminals.

- CARB staff anticipates the release of the Freight Hub Survey for Railyards survey and Freight Hub Survey for Seaports survey. These surveys will gather specific facility and equipment information from these freight facilities to understand the activity at railyards and seaports in California, assess the potential for emissions reductions, and assist with the development of strategies for potentially reducing emissions at these freight facilities.
- Throughout 2018, CARB will propose concepts and begin development of a group of new actions, including regulations that require equipment owners and facility operators to participate in the transition to zero emissions. Staff will continue to support any air district's facility based measures, advocate for stricter federal standards for trucks and locomotives and international standards for ships, work together to protect communities near freight facilities, and support the goals of CAPP established under AB 617.
- Ongoing stakeholder outreach will continue in the form of public workshops, monthly calls with the California Cleaner Freight Coalition, quarterly meetings with the California Freight Advisory Committee, and periodic meetings with workforce development and economic competitiveness working groups.
- CARB incentive-funded programs will continue to replace older freight equipment and vehicles through the Volkswagen settlement, Proposition 1B, Low Carbon Transportation Air Quality Improvement, and Carl Moyer programs, which will collectively achieve further reductions of fine particulate matter (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 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.
- The multi-agency State partners will 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 implemented.

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 GWP values developed by IPCC in its Fourth Assessment Report, which

includes updated GWP values for GHGs.¹⁴ CARB expresses the emissions of all GHGs in terms of CO₂e, which factor in how long the GHG remains in the atmosphere and how strongly it absorbs energy relative to carbon dioxide.

For the First Update to the Scoping Plan, approved in May 2014, CARB adjusted the 2020 statewide GHG emissions limit¹⁵ 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 431 MMTCO₂e.

In the First Update, CARB estimated that 2020 emissions would be 509 MMT of CO₂e in a “business as usual” (BAU) scenario, without the State’s intervention to reduce GHGs. Consequently, CARB estimated that California would need to reduce its emissions by 78 MMTCO₂e in 2020 to stay under the 431 MMTCO₂e limit. Based on analyses in the 2017 Scoping Plan Update, CARB updated the forecasted 2020 BAU GHG emissions to 416 MMTCO₂e, indicating that California will likely meet the AB 32 GHG emission target of 431 MMTCO₂e in advance of 2020. This estimate reflects that California’s climate programs are delivering the real GHG emissions reductions it expected. A decade of successful climate programs is already providing lower-carbon fuel, cleaner cars, trucks and buses, more renewable energy, and more efficient homes and appliances. In addition, these emissions reductions are keeping California on track to meet the 2030 Target of 260 MMTCO₂e while setting the State’s economy on a trajectory to achieve greater GHG emissions reductions needed to limit global temperature rise below 2 degrees Celsius in this century.

CARB maintains and updates the statewide GHG emission inventory to track California’s progress toward its statewide emissions limits. When the 2020 statewide emissions limit was first developed in 2008, the target was quantified using statewide, top-down data. As AB 32 programs are implemented and data are collected directly from those programs, CARB incorporates the data directly into the GHG inventory process to track progress towards meeting the State’s 2020 emissions limit. The same applies to the 2030 statewide emissions limit. As the State develops and implements the 2017 Scoping Plan Update measures, CARB will collect and incorporate data from those programs into the GHG emission inventory process.

CARB currently estimates that GHG emissions in 2030 will be 389 MMTCO₂e in a BAU scenario without further State action to reduce GHGs. To meet the 2030 Target of 260 MMTCO₂e, the climate programs must reduce emissions by 129 MMTCO₂e in

¹⁴ The initial Scoping Plan relied on the IPCC’s 1996 Second Assessment Report to assign the GWPs of GHGs. In accordance with the UNFCCC, international climate agencies have agreed to use 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.

¹⁵ In 2010, CARB conducted a 2020 BAU scenario that used GWP values from the IPCC’s Second Assessment Report. In this version, the BAU estimate was 507 MMTCO₂e and the 2020 emissions limit was 427 MMTCO₂e, requiring a reduction of 80 MMTCO₂e by 2020.

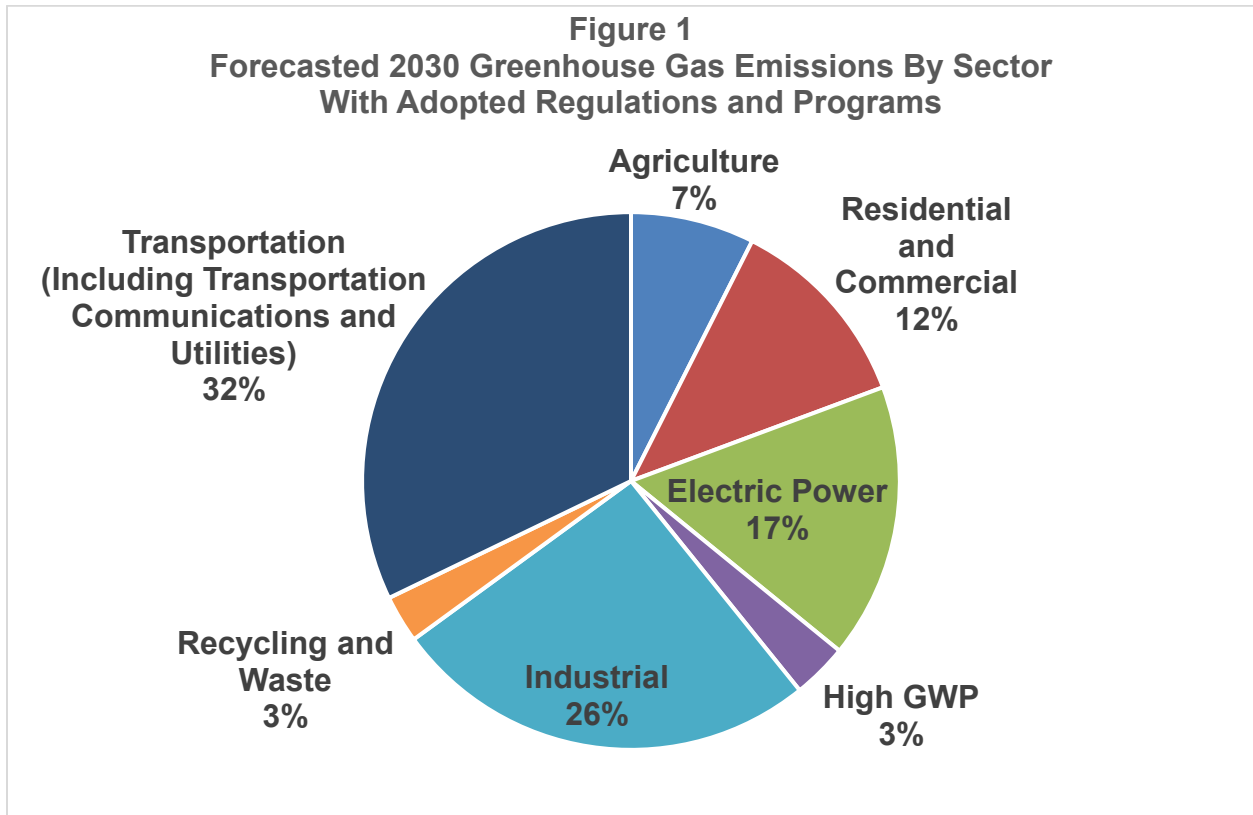
2030. Table 1-4 shows the GHG emissions reductions expected to result from the 2017 Scoping Plan Update measures in order to meet the SB 32 goal.

Table 1-4: Forecasted 2030 Emissions Reductions	
Category	2030 GHG Emissions (MMTCO_{2e})**
SB 32 Baseline 2030 Forecast Emissions (2030 BAU)	389
Expected Reductions from Sector-Based Measures	
Agriculture	12
Residential and Commercial	3
Electric Power	9
High GWP	18
Industrial	6
Recycling and Waste	2
Transportation	19
Cap-and-Trade Program	60*
2020 Emissions Limit	260

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

**Based on forecast from 2017 Climate Change Scoping Plan Update.

Figure 1 shows forecasted 2030 GHG emissions by economic sector.^{16,17} This forecast assumes that the 2030 Target is achieved. The economic sectors include agriculture, residential and commercial, electric power, high GWP gases, industrial, waste, and transportation.



In allocating resources to its GHG emissions reduction programs, CARB seeks to prioritize programs that are likely to achieve the greatest reductions.

¹⁶ The 2030 emissions by economic sector are estimated based on the reductions expected from the measures described in the 2017 Climate Change Scoping Plan Update.

¹⁷ The 2017 Climate Change Scoping Plan Update model (PATHWAYS) includes transportation communications and utilities under the Transportation sector for purposes of forecasting 2030 GHG emissions in the Scoping Plan scenario. For more information see https://www.arb.ca.gov/cc/scopingplan/comparison_graphs_6cases101817.xlsm.

SECTION 2:

ANNUAL AB 32 FISCAL REPORT (Fiscal Year 2016–17: July 2016–June 2017)

This report is required annually by the Supplemental Report of the 2012–13 Budget¹⁸ to quantify the major revenues and expenses for CARB to implement the AB 32 program for the prior FY. This report focuses on FY 2016–17, and summarizes funds received from the AB 32 Cost of Implementation Fee and overall resources to implement AB 32, followed by CARB expenses for the AB 32 program as a whole, with breakdowns by specific major program area. For information on Cap-and-Trade Auction Proceeds, see page 48 of this report.

I. FY 2016–17 FUNDS RECEIVED AND EXPENDED

This element of the report covers the FY 2016–17 funds received related to AB 32 implementation, as well as the FY 2016–17 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. CARB’s resources to support the climate program 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, and 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

¹⁸ “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.” -*Supplemental Report of the 2012–13 Budget Package*: http://www.lao.ca.gov/reports/2012/supp_report/supp_report_2012_052013.pdf.

provide a climate co-benefit by simultaneously reducing GHG emissions. Although the GHG emissions reductions associated with these other measures are counted towards the State's AB 32 targets 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 At-Berth Regulation 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 PM2.5 to meet health-based air quality standards in each region;
- Reducing the localized health risk from air toxics (such as benzene, hexavalent chromium, and diesel particulate matter); and
- Reducing GHG and short-lived climate pollutant emissions 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 industry by providing a consolidated set of requirements.

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

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 Regulation required revenue for FY 2016–17 is \$52,045,000. Table 2-1 displays the Cost of Implementation Fee appropriations from the FY 2016–17 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 2016–17)		
Department	Positions	Funding
California Air Resources Board	189	\$46,491,000
Department of Food and Agriculture	7	\$1,210,000
Department of Forestry and Fire Protection	3	\$433,000
Department of Housing and Community Development	1	\$344,000
Department of Public Health	0	\$389,000
Department of Resources Recycling and Recovery	6	\$576,000
Department of Water Resources	3	\$359,000
Office of Environmental Health Hazard Assessment	3	\$645,000
Secretary for Environmental Protection	4	\$675,000
Secretary of the Natural Resources Agency	1	\$290,000
State Controller	0	\$60,000
State Water Resources Control Board	2	\$573,000
Total Appropriations and Adjustments	219	\$52,045,000

Source: Enacted Budget Act for FY 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/Enacted/GovernorsBudget/3890/3900.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 could range from an under-collection due to differences in the timing of payments to contractors and salary adjustments made after the total required revenue is determined, to an over-collection due to staff attrition. 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 collected for FY 2016–17, from the recently enacted Budget Act for FY 2016–17. The value of \$198,000, listed in Table 2-2 below as “Total Adjustments,” represents the balance in the account from the previous year. The balance was subtracted from the required revenue to get the total required revenue.

Table 2-2: Total AB 32 Cost of Implementation Fee Expenses and Revenue For All Agencies (FY 2016–17)	
Total department expenditures (required revenue)	\$52,045,000
Total adjustments	(\$198,000)
Total required revenue	\$51,847,000
Fee Revenue Collected for FY 2016–17	
	\$51,775,000

Source: Enacted Budget Act for FY 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/Enacted/GovernorsBudget/3890/3900.pdf>.

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

Table 2-3 shows the actual FY 2016–17 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 \$3,595,000. Pro rata charges are a form of overhead, and are defined in the 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.”

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 2016–17 Expenditures that Support AB 32 For CARB Only	
Category	Funding
Personnel and operations expenses* (salary, benefits, overhead, equipment, travel, training)	\$46,242,000
Contract expenditures (includes encumbered funds)	\$2,259,000
Pro rata	\$3,595,000
Total Resources	\$52,096,000

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

*Approximately \$4.7 million in funding for personnel and operations expenses other than the AB 32 Cost of Implementation Account (3237) funds were used to support AB 32 activities. These funds were transferred from the Public Utilities Commission Utilities Reimbursement Account General Fund (0462), Oil, Gas, and Geothermal Administrative Fund (3046), and Air Pollution Control Fund (0115).

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

C. Program-Specific CARB FY 2016–17 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, operations, and 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 2016 Fiscal and Resource Reports, CARB is reporting on the Climate Change Program (Fund 3510), of which the majority is appropriated from the Cost of Implementation Account (Fund 3237) but also includes appropriations from other funds that support climate change activities. These include the Air Pollution Control Fund (0115), Public Utilities Commission Utilities Reimbursement Account (Fund 0462), and Oil, Gas, and Geothermal Administrative Fund (3046). Climate change programs may also receive funding from other sources that target criteria and toxic air pollutants and also reduce GHGs, and non-GHG short-lived climate pollutants.

2. Retrospective Resources by Program Area

Table 2-4 shows actual resources used to support CARB's AB 32 programs with a climate benefit, during FY 2016–17.

Table 2-4: CARB Expenditure of Funds in FY 2016–17 for Program Activities that Support AB 32			
AB 32 Program Area	Personnel & Operations Expenses	Contract Dollars Expended	Total by Program Area
Air Quality Data Analysis	\$2,119,000		\$2,119,000
Air Quality Monitoring and Emissions Testing	\$988,000		\$988,000
Cap-and-Trade Program	\$6,267,000	\$279,000	\$6,546,000
Economic Analysis	\$694,000	\$97,000	\$791,000
Emission Inventory Development and Emission Factors	\$1,563,000		\$1,563,000
Enforcement of GHG Reduction Measures	\$1,171,000		\$1,171,000
Industry & Electricity (includes Energy)	\$774,000	\$1000	\$775,000
Laboratory Analysis	\$508,000	\$107,000	\$615,000
Landfill Methane	\$1,147,000	\$50,000	\$1,197,000
Low Carbon Fuel Standard (LCFS)	\$7,420,000		\$7,420,000
Mandatory Reporting Regulation (MRR)	\$1,505,000	\$120,000	\$1,625,000
MRR & LCFS Data Certification and Verification	\$926,000		\$926,000
Oil/Gas Operations*	\$2,902,000		\$2,902,000
Other AB 32 Activities*	\$11,157,000		\$11,157,000
Research	\$2,544,000	\$25,000	\$2,569,000
SB 1371 (Leno, Chapter 525, Statutes of 2014) (Natural Gas Leakage)*	\$150,000		\$150,000
SB 375	\$2,039,000	\$75,000	\$2,114,000
Scoping Plan	\$2,200,000	\$5,000	\$2,205,000
Western Climate Initiative	\$168,000	\$1,500,000	\$1,668,000
Total	\$46,242,000	\$2,259,000	\$48,501,000

Explanations: For contract expenses, CARB relied on its records of actual and encumbered expenditures. All dollars are rounded to the nearest thousand. Table does not include pro rata of \$3,595,000.

Source: Personnel and operations expenses are obtained from manual monthly tracking reports submitted by CARB staff under the Climate Change Program (Fund 3510).

*Approximately \$4.7 million in funding for personnel and operations expenses other than the AB 32 Cost of Implementation Account (3237) funds were used to support AB 32 activities. These funds were from the Public Utilities Commission Utilities Reimbursement Account General Fund (0462), Oil, Gas, and Geothermal Administrative Fund (3046), and Air Pollution Control Fund (0115). Other AB 32 support activities include environmental justice, AB 32 Fee Regulation, short-lived climate pollutants, and human resources.

SECTION 3:

ANNUAL REPORTS ON AB 32 RESOURCES

(Fiscal Year 2016–17: July 2016–June 2017 and
Fiscal Year 2017–18: July 2017–June 2018)

Item 3900-001-0001 California Air Resources Board Supplemental Report of the 2012–13 Budget¹⁹ requires quantification and detailing of CARB’s resources to implement AB 32, prospectively and retrospectively. The prospective report covers the current FY 2017–18. The retrospective report focuses on FY 2016–17 and therefore includes some of the same material previously presented in Section 2: Annual AB 32 Fiscal Report. This report quantifies AB 32 Cost of Implementation Fee appropriations and overall CARB resources to implement AB 32, followed by CARB resources for the AB 32 program as a whole, with breakdowns by specific major program area. For information on Cap-and-Trade Auction Proceeds, see page 48 of this report.

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. CARB’s resources to support the climate program 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 GHG emissions. Although the GHG emissions reductions associated with these other measures are counted towards achieving the AB 32 targets and are considered part of the climate program, those activities may not necessarily be fully funded by the AB 32 Cost of Implementation Fee.

¹⁹ In addition, CARB shall provide two resource reports each year to the Legislature that quantify the CARB AB 32 staffing and operations expenses and 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 Program, Low Carbon Fuel Standard, Cost of Implementation Fee, and the AB 32 Scoping Plan Update). 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).

For example, the At-Berth Regulation 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 like ozone and PM2.5 to meet health-based air quality standards in each region;
- Reducing the localized health risk from air toxics (like benzene, hexavalent chromium, and diesel particulate matter); and
- Reducing the GHG and short-lived climate pollutant emissions 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 industry by providing a consolidated set of requirements.

I. AB 32 PROSPECTIVE RESOURCE REPORT FOR FY 2017–18

The FY 2017–18 State Budget approved CARB to use up to \$50,247,000 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 2017–18

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 FY. The AB 32 Cost of Implementation required revenue for FY 2017–18 is \$70,500,000.

Table 3-1: AB 32 Cost of Implementation Fee Appropriations (FY 2017–18)		
Department	Positions	Funding
California Air Resources Board	207	\$50,247,000
Department of Food and Agriculture	9	\$1,862,000
Department of Forestry and Fire Protection	3	\$385,000
Department of Housing and Community Development	1	\$189,000
Department of Public Health	0	\$358,000
Department of Resources Recycling and Recovery	12	\$1,238,000
Department of Water Resources	3	\$374,000
Energy Resources Conservation and Development Commission	38	\$9,060,000
Financial Information System for California	0	\$65,000
Governor's Office of Business and Economic Development	1	\$227,000
Office of Environmental Health Hazard Assessment	3	\$665,000
Secretary for Environmental Protection	4	\$1,153,000
Secretary of the Natural Resources Agency	1	\$934,000
State Water Resources Control Board	2	\$539,000
Statewide General Administrative Expenditures (Pro Rata)	NA	\$3,204,000
Total Expenditures and Adjustments	284	\$70,500,000

Source: Enacted Budget Act for FY 2017–18. See the Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2017-18/pdf/Enacted/GovernorsBudget/3890/3900.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 FYs. Adjustments include discrepancies between agency positions and funding amount. This could range from an under-collection due to differences in the timing of payments to contractors and salary adjustments made after the total required revenue is determined, to an over-collection

due to unfilled positions. 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 2017–18. The value of \$1,981,000 listed in Table 3-2 under “Total Adjustments” represents a balance in the account from the previous FY that was subtracted from this year’s required revenue to get the total required revenue. This overage is likely a result of unfilled positions for new programs funded through the AB 32 Cost of Implementation account. Refer to Section 2.1.C for more information on the new programs.

Table 3-2: Total AB 32 Cost of Implementation Fee Appropriations and Revenue For All Agencies (FY 2017–18)	
Total department appropriations (required revenue)	\$70,500,000
Total adjustments	(\$1,981,000)
Total Required Revenue	\$68,519,000
Fee Revenue Collected for FY 2017–18	\$68,202,000

Explanation: As of January 2018, there are two outstanding invoices for a total of \$437,540 in outstanding fees. CARB has been in contact with these fee payers and expects to collect payment before determining next FY’s (FY 2018–19) total required revenue. All dollars are rounded to the nearest thousand.

Source: Enacted Budget Act for FY 2017–18. See the FY 2017–18 Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2017-18/pdf/Enacted/GovernorsBudget/3890/3900.pdf>.

B. Overall CARB FY 2017–18 Resources to Implement AB 32

Table 3-3 shows the estimated FY 2017–18 expenditures for CARB only. Contract expenditures include both paid costs and encumbrance balances. Total resources expended also include a pro rata cost of \$3,204,000. 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 73, CARB also expects to rely on other sources of funding for activities that provide a climate co-benefit.

Table 3-3: Projected Overall FY 2017–18 Resources to Implement AB 32 For CARB Only	
Category	Funding
Personnel and operations expenses (salary, benefits, overhead, equipment, travel, training)	\$51,466,000
Contracts budgeted	\$3,433,000
Pro rata	\$3,204,000
Total	\$58,103,000

Explanations: Costs are estimated from monthly timesheet tracking reports for the previous FY submitted by CARB staff, then adjusted to include a five percent increase in employee compensation as well as an estimated expense from Legislature-approved budget change proposals. Contract funding refers to FY 2017–18 monies that have been or will be encumbered during the FY but may be expended through June 30, 2020. All dollars are rounded to the nearest thousand.

C. Program-Specific CARB FY 2017–18 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 2017–18 funds that may be encumbered via existing contracts this FY, but could be appropriated up to June 30, 2020. Legislature-approved budget change proposals include approximately \$1 million in contract funding and \$3 million in personnel and operations expenses; specific program funding includes: \$826,000 to implement Short-Lived Climate Pollution Measures (SB 1383), \$1,389,000 to implement Scoping Plan Updates (AB 197), \$857,000 to form the new Environmental Justice Unit, and \$798,000 for the Near-Zero Clean Truck and Bus Program, and ACC.

Table 3-4: Program-Specific CARB FY 2017–18 Resources to Support AB 32

AB 32 Program Area	Estimated Personnel and Operations Expenses	Contract Dollars Allocated	Estimated Total by Program Area
Air Quality Data Analysis	\$2,864,000	\$750,000	\$3,614,000
Air Quality Monitoring and Emissions Testing	\$1,038,000		\$1,038,000
Cap-and-Trade Program	\$6,580,000	\$76,000	\$6,656,000
Economic Analysis	\$729,000	\$162,000	\$891,000
Emission Inventory Development and Emission Factors	\$1,641,000		\$1,641,000
Enforcement of GHG Reduction Measures	\$1,230,000		\$1,230,000
Industry & Electricity (includes Energy)	\$813,000		\$813,000
Laboratory Analysis	\$534,000		\$534,000
Landfill Methane	\$1,204,000	\$200,000	\$1,404,000
Low Carbon Fuel Standard (LCFS)	\$7,791,000	\$500,000	\$8,291,000
Mandatory Reporting Regulation (MRR)	\$1,580,000	\$375,000	\$1,955,000
MRR & LCFS Certification and Verification	\$972,000	\$210,000	\$1,182,000
Oil/Gas Operations*	\$3,047,000	\$300,000	\$3,347,000
Other AB 32 Activities*	\$13,187,000	\$710,000	\$13,897,000
Research	\$2,672,000		\$2,672,000
SB 1371 (Natural Gas Leakage)*	\$158,000	\$150,000	\$308,000
SB 375/Advanced Clean Cars	\$2,939,000		\$2,939,000
Scoping Plan	\$2,310,000		\$2,310,000
Western Climate Initiative	\$177,000		\$177,000
Total	\$51,466,000	\$3,433,000	\$54,899,000

Explanations: Costs are estimated from CARB staff monthly tracking reports from the previous fiscal year. These are adjusted to include a five percent increase to employee compensation and additional expenditures from Legislature approved budget change proposals. Contract funding refers to monies for FY 2017–18 that have been or will be encumbered in during the FY, but may be expended through June 30, 2020. All dollars are rounded to the nearest thousand. Other AB 32 support activities include environmental justice, AB 32 Fee Regulation, short-lived climate pollutants, and human resources. Table does not include pro rata of \$3,204,000.

*Approximately \$5 million in funding for personnel and operations expenses other than the AB 32 Cost of Implementation Account (3237) funds were used to support AB 32 activities. These funds were from the Public Utilities Commission Utilities Reimbursement Account General Fund (0462), Oil, Gas, and Geothermal Administrative Fund (3046), and Air Pollution Control Fund (0115).

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

II. AB 32 RETROSPECTIVE RESOURCE REPORT FOR FY 2016–17

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

Table 3-5 displays the adjusted appropriations for the Cost of Implementation Account for FY 2016–17 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, including the statewide general administrative expenditures (pro rata) cost of \$3,595,000.

Table 3-5: AB 32 Cost of Implementation Fee Adjusted Appropriations (FY 2016–17)	
Department	Funding
California Air Resources Board	\$44,916,000
Department of Food and Agriculture	\$1,210,000
Department of Forestry and Fire Protection	\$384,000
Department of Housing and Community Development	\$193,000
Department of Public Health	\$363,000
Department of Resources Recycling and Recovery	\$582,000
Department of Water Resources	\$374,000
Office of Environmental Health Hazard Assessment	\$665,000
Secretary for Environmental Protection	\$658,000
Secretary of the Natural Resources Agency	\$258,000
State Controller	\$60,000
State Water Resources Control Board	\$539,000
Statewide General Administrative Expenditures (Pro Rata)	\$3,595,000
Total Appropriations and Adjustments	\$53,797,000

Source: Enacted Budget Act for FY 2017–18. See the FY 2016–17 Cost of Implementation, Air Pollution Control Fund Condition Statement at <http://www.ebudget.ca.gov/2017-18/pdf/Enacted/GovernorsBudget/3890/3900.pdf>.

Table 3-6 shows the required revenue, adjustments, and updated information on the revenue actually collected for FY 2016–17. At the start of each FY, adjustments are made to the required revenue to “zero” 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 FY 2017–18 adjusted the FY 2016–17 appropriated expenditures from \$52,045,000 to \$53,797,000. The total required revenue adjustment includes an overage of \$198,000 from the previous FY. Total revenue collected was less than the total required revenue because there were fewer

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 FY.

Table 3-6: Total Adjusted Cost of Implementation Fee Expenses and Revenue (FY 2016–17)	
Total department appropriations, required revenue (Budget Year 2016–17)	\$52,045,000
Total adjustments	(\$198,000)
Total Required Revenue	\$51,847,000
Fee Revenue Collected for FY 2016–17	\$51,775,000

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

Sources: FY 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/Enacted/GovernorsBudget/3890/3900FCS.pdf>.

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

Table 3-7 shows the actual FY 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 \$3,595,000. 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.” 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 2016–17 Expenditures that Support AB 32 For CARB Only	
Category	Funding
Personnel and operations expenses (salary, benefits, overhead, equipment, travel, training)*	\$46,242,000
Contract expenditures	\$2,259,000
Pro rata	\$3,595,000
Total	\$52,096,000

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

*Approximately \$4.7 million in funding for personnel and operations expenses other than the AB 32 Cost of Implementation Account (3237) funds were used to support AB 32 activities. These funds were transferred from Public Utilities Commission Utilities Reimbursement Account General Fund (0462), Oil, Gas, and Geothermal Administrative Fund (3046), and Air Pollution Control Fund (0115).

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

C. Program-Specific CARB FY 2016–17 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, operations, and 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 with the 2016 Fiscal and Resource Reports on AB 32 Programs, CARB is reporting on the Climate Change Program (Fund 3510), of which the majority funding is appropriated from the Cost of Implementation Account (Fund 3237), but also includes appropriations from other funds that support expenditures and resources for climate change activities. These funds include the Air Pollution Control Fund (0115), Public Utilities Commission Utilities Reimbursement Account (Fund 0462), and Oil, Gas, and Geothermal Administrative Fund (3046). 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, criteria air pollutants, and GHG and short-lived climate pollutant emissions).

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 2016–17.

Table 3-8: CARB Expenditure of Funds in FY 2016–17 for Program Activities that Support AB 32			
AB 32 Program Area	Personnel & Operations Expenses	Contract Dollars Expended	Total by Program Area
Air Quality Data Analysis	\$2,119,000		\$2,119,000
Air Quality Monitoring and Emissions Testing	\$988,000		\$988,000
Cap-and-Trade Program	\$6,267,000	\$279,000	\$6,546,000
Economic Analysis	\$694,000	\$97,000	\$791,000
Emission Inventory Development and Emission Factors	\$1,563,000		\$1,563,000
Enforcement of GHG Reduction Measures	\$1,171,000		\$1,171,000
Industry & Electricity (includes Energy)	\$774,000	\$1000	\$775,000
Laboratory Analysis	\$508,000	\$107,000	\$615,000
Landfill Methane	\$1,147,000	\$50,000	\$1,197,000
Low Carbon Fuel Standard (LCFS)	\$7,420,000		\$7,420,000
Mandatory Reporting Regulation (MRR)	\$1,505,000	\$120,000	\$1,625,000
MRR & LCFS Data Certification and Verification	\$926,000		\$926,000
Oil/Gas Operations*	\$2,902,000		\$2,902,000
Other AB 32 Activities*	\$11,157,000		\$11,157,000
Research	\$2,544,000	\$25,000	\$2,569,000
SB 1371 (Natural Gas Leakage)*	\$150,000		\$150,000
SB 375	\$2,039,000	\$75,000	\$2,114,000
Scoping Plan	\$2,200,000	\$5,000	\$2,205,000
Western Climate Initiative	\$168,000	\$1,500,000	\$1,668,000
Total	\$46,242,000	\$2,259,000	\$48,501,000

Explanations: For contract expenses, CARB relied on its records of actual and encumbered expenditures under the Climate Change Program (Fund 3510). All dollars are rounded to the nearest thousand. Other AB 32 support activities include Environmental Justice, AB 32 Fee Regulation, Short-Lived Climate Pollutants, and Human Resources.

*Approximately \$2 million in funding other than the AB 32 Cost of Implementation Account funds were used to support AB 32 activities. These funds were from the Public Utilities Commission Utilities Reimbursement Account, General Fund (0462), Oil, Gas, and Geothermal Administrative Fund (3046), and Air Pollution Control Fund (0115).

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

SECTION 4:

ANNUAL UPDATES ON WESTERN CLIMATE INITIATIVE, INC. ACTIVITIES (January 2017–December 2017)

This report is required by the provisions of SB 1018 (Committee on Budget and Fiscal Review, Chapter 39, Statutes of 2012)²⁰, 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 report combines what in previous years were two reports: the July and January semi-annual reports, providing updates on WCI, Inc. activities for the entire calendar year of 2017, and upcoming milestones for calendar year 2018. 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.

WCI, Inc. is a nonprofit corporation that focuses solely on providing administrative support for jurisdictions' cap-and-trade programs, and is separate from the Western Climate Initiative. WCI, Inc. formed in 2011 to coordinate administrative services to cap-and-trade programs developed and implemented by states and provinces. WCI, Inc. can also expand its administrative services to support additional jurisdictions in the future as needed. WCI, Inc.'s Board of Directors includes officials from the provinces of Québec, Ontario, British Columbia, and the State of California. Currently, California, Québec, and Ontario are implementing linked cap-and-trade programs to reduce GHG emissions.

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

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

²⁰ 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 market monitoring in each jurisdiction to be effective and consistent across linked programs.
- Coordinated support enables linked programs to share program infrastructure maintenance and development costs, thereby reducing the costs for each jurisdiction.

WCI, Inc. provides administrative support based on each jurisdiction’s specified administrative requirements. 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:

- Coordinating the development and administration of the 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, Québec, and Ontario to auction emission allowances under their cap-and-trade programs and to conduct reserve sales;
- Coordinating the analyses of allowance auctions and allowance and offset credit trading to support market monitoring performed by each jurisdiction; 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: WCI, INC.

A. Introduction

This report provides an update for WCI, Inc. activities from January 2017 through December 2017, as well as its anticipated activities in 2018. Highlights of recent activities are listed below.

- At its annual meeting held on October 12, 2017, the WCI, Inc. Board:
 - Approved a budget for calendar year 2018 and projected expenses for 2019 and 2020;
 - Amended the WCI, Inc. bylaws and Procurement Policy;
 - Approved a contract amendment with the SRA International, Inc., a CSRA Company;
 - Approved an employee Health Benefits Plan; and
 - Selected its Board officers.

- WCI, Inc. completed the procurement for the following services:
 - CITSS Information Technology Assessment: In June 2017, WCI, Inc. contracted with Gelder, Gingras & Associates (GGA) to prepare an Information Technology (IT) assessment plan, conduct an IT assessment, and develop a final report.
 - Support for carbon pricing discussions for the State of Oregon: In October 2017, WCI, Inc. contracted with Ross & Associates Environmental Consulting, Ltd., (Ross Strategic) to support the Pacific Coast Collaborative (PCC) to convene a working group to discuss carbon pricing program design and implementation. The PCC is a working group consisting of the states of Oregon, California, and Washington and the province of British Columbia.

In 2018, 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 current bylaws and policies are posted on the WCI, Inc. website at <http://www.wci-inc.org/documents.php>. Table 4-1 lists the policies that have been adopted by the WCI, Inc. Board.

- During 2017, the WCI, Inc. Board revised its bylaws and two existing policies (Procurement Policy and Funds Management Policy).

- The amended bylaws were approved at the October 12, 2017, WCI, Inc. annual Board meeting. As presented and discussed at the meeting, changes to the bylaws were for clarity and efficiency in governance and operations. Changes related to defining the “Board” and “Entire Board” and the classifications of Directors included in each, the dollar amount threshold for contracts that require approval of two-thirds of the Board, matters in which a single dissenting director be allowed to block approval, and updated requirements for directors serving on the Executive Committee.

- The revised Procurement Policy was approved at the same October 12, 2017, WCI, Inc. annual Board meeting. As presented and discussed at the meeting, the changes to the policy were made to be consistent with the changes in the WCI, Inc. bylaws.
- The revised Funds Management Policy was approved at the April 20, 2017, WCI, Inc. Board meeting. As presented and discussed at the meeting, the revised policy allows WCI, Inc. to hold uninsured cash and recognizes that funds received through checks, wire transfers, or other transfers may be placed on temporary hold by a financial institution.

Table 4-1: WCI, Inc. Corporate Policies (as of December 31, 2017)
Accounting Policies and Procedures (Adopted May 8, 2013, Revised December 6, 2016)
Audit Committee Charter (Adopted November 3, 2011)
Employee Handbook – Québec (Adopted December 6, 2016)
Employee Handbook – U.S. (Adopted April 15, 2013)
Ethical Guidelines and Conflict of Interest Policy (Adopted November 3, 2011, Revised December 9, 2013)
Funds Management Policy (Adopted October 30, 2012, Last Revised September 29, 2016 April 20, 2017)
Open Meeting Policy (Adopted May 8, 2013)
Procurement Policy (Adopted January 12, 2012, Revised October 20, 2017)
Records Availability Policy (Adopted 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 2017:

- Secretary for Environmental Protection, Matthew Rodriguez;
- Chair of the California Air Resources Board, Mary Nichols;
- Assemblymember Richard Bloom, appointed by the Speaker of the Assembly (nonvoting director); and
- Mr. Kip Lipper, appointed by the Senate Rules Committee (nonvoting director).

The WCI, Inc. Board officers were selected at the October 12, 2017 annual Board meeting:

- Chair, Matthew Rodriguez (California);
- Vice Chair, Jim Whitestone (Ontario);
- Treasurer, Jean-Yves Benoit (Québec); and
- Secretary, Mary Nichols (California).

During 2017, the WCI, Inc. Board met in publicly noticed open meetings on March 27, April 20, and October 12, 2017. The Board met in publicly noticed Executive Sessions on June 27 and July 26, 2017. 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 and operations projected expenditures include 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 two full-time project managers to oversee contracts related to CITSS, the auction platform, financial administration, and market analysis.
- Business Analyst: WCI, Inc. has one full-time business analyst to support Project Managers in the documentation and coordination of cap-and-trade services.
- Operations Manager: WCI, Inc. has one full-time operations manager to support day-to-day business operations.
- 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 accounting services.
- 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 hosting and development of CITSS. CITSS provides accounts to program participants to hold compliance instruments, record transactions of compliance instruments with other account holders, and to apply for each auction or reserve sale. At the October 12, 2017 meeting of the WCI, Inc. Board of Directors, the Board approved an amendment of the CITSS Agreement with SRA International, Inc. to extend the term of the agreement to December 31, 2018. The amendment also added \$1,968,496 to the agreement to support hosting and development work necessary to support the cap-and-trade programs being implemented by the Participating Jurisdictions. CITSS can be accessed by program participants online, and is currently supporting cap-and-trade programs in California, Québec, and Ontario. The California Cap-and-Trade Program, Québec Cap-and-Trade System, and Ontario Cap-and-Trade Program will link on January 1, 2018, allowing mutual acceptance of compliance instruments issued by each jurisdiction and joint auction of GHG allowances. Prior to 2018, Ontario's program was not yet linked with California's and Québec's, and Ontario's activity was separated in CITSS by a "virtual wall." Linkage with Ontario in CITSS will be enabled January 3, 2018—the first business day following January 1 that is common to all jurisdictions. For more information, visit <https://www.arb.ca.gov/cc/capandtrade/linkage/linkage.htm>.
- Auction Platform:** In June 2016, WCI, Inc. contracted with Markit Group Limited for the continued provision of Auction and Reserve Sale Services, including the hosting, development, and operation of the auction platform. The auction platform is used by program participants to enter their bid information and to obtain auction results. Program participants access the auction platform online. California, Québec, and Ontario use the platform to monitor the auctions and reserve sales, and to ensure that all auction and reserve sale requirements are met. Ontario will join California's and Québec's linked programs on January 1, 2018. Quarterly joint auctions will include California, Québec, and Ontario allowances starting with the February 2018 joint auction.
- Market Analysis:** In October 2015, WCI, Inc. entered into a contract with Monitoring Analytics, LLC to continue analyses in support of market monitoring. In 2017, the contract supported multi-jurisdictional monitoring for California and Québec linked auctions and linked markets and Ontario's standalone market and auctions. This work builds upon the substantial efforts by California, Québec, and Ontario for market monitoring. Starting in 2018, the contract will support multijurisdictional monitoring for California, Québec, and Ontario linked auctions and linked markets.
- 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 started using the auction and reserve sale financial administration services in 2017.

Also in 2017, WCI, Inc. conducted a procurement for a qualified contractor to conduct an IT assessment of CITSS. The purpose of the IT assessment is to conduct a review of CITSS to determine the scalability and sustainability of the application. The procurement resulted in a contract with Gelder, Gingras and Associates to complete the CITSS IT assessment. An IT assessment report is expected in the first quarter of 2018.

Each of the WCI, Inc. contracts for administrative services in support of jurisdiction programs is posted to the WCI, Inc. website.²¹ WCI, Inc. retains the right to terminate these contracts at any time.

E. Budget and Funding

The Budget for Calendar Year 2018 was adopted at the October 12, 2017 meeting of the WCI, Inc. Board of Directors. The Budget for Calendar Year 2018 is available on the WCI, Inc. website at http://wci-inc.org/docs/2018%20Budget%20and%20Projected%20Expenses%20for%202019-2020_English.pdf.

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

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

CARB funding for 2018 and 2019 is \$5 million, comprised of \$4 million to obtain access to the administrative support that WCI, Inc. is developing and providing, plus \$1 million for California jurisdiction-specific administrative support required to implement AB 398 requirements. On February 9, 2018, the WCI, Inc. Board of Directors will vote to approve the funding agreement with CARB. The fully executed funding agreement is available on the WCI, Inc. website at http://www.wci-inc.org/docs/WCI%20Inc_California%20Funding%20Agreement_2018-2019.pdf.

²¹ The administrative support contracts posted to the WCI, Inc. website are available at <http://www.wci-inc.org/documents.php>.

F. Payments to WCI, Inc.

Payments to WCI, Inc. in 2017 are presented in Table 4-2.

Table 4-2: Payments from ARB to WCI, Inc. for Calendar Year 2017		
Payment	Payment Date	Amount
2017 Q1 Payment	7/13/2017	\$500,000
2017 Q2 Payment	10/12/2017	\$500,000
2017 Q3 Payment	12/6/2017	\$500,000
2017 Q4 Payment	3/2/2018	\$500,000

When approved, the new funding agreement will require CARB to pay annual membership dues of \$2,000,000 over the course of two years of the contract. Dues will be billed on a quarterly basis at \$500,000. Additionally, CARB will pay \$1,000,000 for AB 398 implementation and CITSS support, billed in arrears and included on the quarterly invoices with the membership dues. Payments are planned for each contract year to occur quarterly in April, August, October, and January of the subsequent year at an amount of \$500,000 plus expenses directly related to AB 398 implementation.