

Semi-Annual Report
to the Joint Legislative Budget Committee
on Assembly Bill 32
(Chapter 488, Statutes of 2006)
The California Global Warming Solutions Act of 2006

July 2015

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

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INTRODUCTION

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

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

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

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

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

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

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

SECTION 1:

SEMI-ANNUAL AB 32 PROGRAM UPDATE (January 2015 - December 2015)

This report is required semi-annually by the Supplemental Report of the 2012-13 Budget¹ to highlight significant developments in the last six months and identify upcoming milestones in the next six months in ARB's implementation of AB 32. This semi-annual report² provides an update on AB 32 program activities for the first half of 2015. The upcoming milestones in this semi-annual report focus on the second half of 2015. The report format follows the Budget directive, beginning with major regulatory measures, followed by supporting programs, then a discussion of the GHG emission reductions, and concluding with the current funding in the Greenhouse Gas Reduction Fund.

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

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

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

² For previous reports, see: <http://www.arb.ca.gov/cc/ilbcreports/ilbcreports.htm>.

I. ARB GREENHOUSE GAS EMISSION REDUCTION MEASURES

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

A. Cap-and-Trade

1. *Background*

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

Emissions Cap. The Regulation provides a firm declining limit, or cap, on 85 percent of California's GHG emissions. Beginning on January 1, 2013, the cap includes GHG emissions from electricity and large industrial sources. Beginning on January 1, 2015, GHG emissions from transportation fuels and residential and commercial burning of natural gas and propane are included in the cap. Coverage of the emissions from combustion of these fuels assures that California will achieve the AB 32 target of reducing GHG emissions to 1990 levels by 2020.

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

Compliance. To comply with the Regulation, entities subject to the Regulation (entities that have one or more facilities or other sources that emit 25,000 metric tons or more of carbon dioxide equivalent (CO₂e) per year), termed "covered entities," must submit compliance instruments (i.e., allowances or offset credits) equal to their emissions. Each allowance or offset credit is equal to one metric ton of CO₂e emissions.

The first annual surrender obligation under the Cap-and-Trade Regulation occurred on November 3, 2014. Covered entities were required to submit compliance instruments sufficient to cover thirty percent of their 2013 emissions by that date. All covered entities successfully transferred sufficient compliance instruments to their accounts to meet their compliance obligations.

Allowances. Allowances are issued by ARB. A portion of the allowances is allocated to covered entities, some allowances are placed in a cost containment reserve, a portion is placed in a voluntary renewable electricity reserve, and the remaining allowances are auctioned. Each year, the number of allowances declines in proportion to the cap, ensuring that the Regulation achieves intended emission reductions. Covered entities that aggressively reduce their emissions can trade their surplus allowances to firms that find it more expensive to reduce their emissions.

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

Leakage refers to a reduction in GHG emissions within the State that results in an increase in GHG emissions outside the State. Risk of leakage is highest for industries in which production is highly “emissions intensive” (leading to high compliance costs) and trade exposed (i.e., face competition from out-of-State producers). ARB 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 ARB utilizes to calculate the number of allowances allocated for each industrial covered entity is GHG emissions efficiency. ARB uses emissions performance standards that evaluate the efficiencies of similar operations in the same industrial sector. This evaluation results in more efficient facilities within a sector receiving free allowances to cover a larger portion of their estimated compliance obligation as compared to less efficient facilities in the same sector. This process recognizes early investments to improve efficiency at facilities within the covered industrial sectors.

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

In addition to allocation, a number of allowances were placed in the allowance price containment reserve and the voluntary renewable electricity reserve. The allowance price containment reserve account was established to provide a safety valve to the allowance price and help to mitigate potential volatility in allowance prices. The account holds a specified number of allowances removed from the total pool of allowances at the beginning of the program. Covered entities may purchase reserve allowances at specified prices during direct quarterly reserve sales. The voluntary renewable electricity reserve account was created to support purchases of renewable electricity

and renewable energy credits that are not mandated by the Renewables Portfolio Standard. Purchasers of eligible voluntary renewable electricity may request retirement of allowances on their behalf under the Cap-and-Trade Program.

Auctions. From November 2012 through August 2014, ARB held quarterly auctions, selling only California allowances. On August 18, 2014, the last California-specific auction was held selling State-owned 2014 allowances, along with 2014 vintage allowances consigned by the utilities, in the current auction, and State-owned 2017 vintage allowances in the advance auction. Prior to the certification of each auction, ARB staff and the Market Monitor carefully evaluated the auction, and determined that the auction process and procedures complied with the requirements of the Cap-and-Trade Regulation.

The funds received from the sale of State-owned allowances are deposited into the State's Greenhouse Gas Reduction Fund, to be allocated in accordance with the Cap-and-Trade Auction Proceeds Investment Plan and State Budget. The funds raised by the sale of allowances consigned by utilities are returned to ratepayers in accordance with rules set by the California Public Utilities Commission³ (CPUC) or their governing boards.

On November 25, 2014, ARB conducted the first joint allowance auction with Québec under the linkage agreement between ARB and Québec, which was effective January 1, 2014. The second and third joint allowance auctions were held in February and May 2015, respectively. Future joint auctions will continue to include both California and Québec allowances. Before the first joint auction, a successful joint practice auction was held on August 7, 2014.

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 ARB- or Quebec-issued offset credits to meet up to eight percent of their compliance obligation for each compliance period. For example, if a covered entity has 100,000 metric tons of covered emissions, they must submit no fewer than 92,000 allowances and no more than 8,000 ARB- or Quebec-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.

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. ARB has approved offset protocols for five project areas: forestry, urban forestry, mine methane capture, livestock digesters, and the destruction of ozone depleting substances. ARB accredits third-party verifiers to

³ In Decision D1212033 (Decision Adopting Cap-and-Trade Greenhouse Gas Allowance Revenue Allocation Methodology for the Investor-Owned Electric Utilities), the CPUC directed the utilities to distribute the auction proceeds to ratepayers.

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 ARB accredited verification bodies and must complete ARB's training and pass a specialized test.

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

Electronic Compliance System. The Compliance Instrument Tracking System Service (CITSS) is a software program developed to hold and retire compliance instruments (allowances and offset credits) and to record transactions regarding compliance instruments (e.g., purchases, trades between account holders).

Market Oversight. ARB continues to put a priority on market oversight to ensure success in reducing emissions and the integrity of the California carbon market. ARB also established a team focused on monitoring and oversight of market activity and market participants. ARB 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, ARB is collaborating with several organizations including the U.S. Commodity Futures Trading Commission, the Federal Electricity Regulatory Commission, the California Independent System Operator (CAISO), and the State Attorney General's Office to anticipate, detect, and respond to market manipulation. The Regulation imposes holding limits and auction purchase limits, as well as other restrictions on auction and trading activity, to prevent participants from acquiring undue market power.

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

Broad Cap-and-Trade Program coverage spreads the compliance obligation across many sectors, increasing the certainty that the overall AB 32 target will be met. This coverage also allows for capped entities to obtain the lowest cost GHG emissions

reductions, which in turn minimizes the overall impact of the Cap-and-Trade Program. Including fuels under the cap will also provide significant air quality co-benefits, by providing reductions in criteria emissions.

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

2. Recent Developments – January through June, 2015

ARB activities to support the Cap-and-Trade Program during the first half of 2015 included: continued development and approval of updates to compliance offset protocols, two joint allowance auctions with Québec, and ongoing issuance of compliance offset credits. These activities are described in more detail below, along with a discussion of ongoing relevant litigation and contracts that support the Cap-and-Trade Program.

Adoption of Proposed Regulation Amendments. As described in ARB's last report, staff proposed regulatory amendments on October 28, 2014 to enhance implementation and oversight of the Cap-and-Trade Program. The Board approved Resolution 14-44 on December 18, 2014 directing staff to make appropriate modifications to the Regulation and protocols. These amendments were made available for public comment on May 20, 2015. The rulemaking documents and Board Resolution 14-44 are available at <http://www.arb.ca.gov/regact/2014/capandtradeprf14/capandtradeprf14.htm>. The amended Regulation and protocols were approved by the Board on June 25, 2015.

The following are the most significant changes to the Regulation:

- Adding a new Rice Cultivation Projects Compliance Offset Protocol.
- Updating the U.S. Forest Compliance Offset Protocol to extend eligibility to parts of Alaska.
- Specifying a mechanism for early action rice projects to transition their early action offset credits to ARB offset credits.

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

In sum, about \$2.23 billion was raised by the sale of State-owned allowances at the first eleven auctions through June 30, 2015. As mentioned above, the latest three auctions, held in November 2014, and February and May 2015, were joint auctions with Quebec. More information on Cap-and-Trade auction proceeds is provided in Section 1,

part II. D. of this report. Detailed results from the auctions are available at: <http://www.arb.ca.gov/cc/capandtrade/auction/auction.htm>.

Reserve Sale. Reserve sales are scheduled to occur each quarter. No covered entities or opt-in entities indicated an intent to bid for allowances and submitted a bid guarantee by the bid guarantee deadlines for the reserve sales scheduled through April, 2015. Therefore, no reserve sales scheduled to date have been held.

Offsets. ARB 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 October 15, 2015, ARB has: (1) accredited 97 specially trained third-party offset verifiers, and accredited 19 verification bodies to serve as partners in evaluating the quality of offset projects submitted for approval; (2) continued to oversee and coordinate with the three existing approved offset project registries that help evaluate compliance-grade carbon offset projects under the Regulation; (3) updated the listing of additional early action projects to bring the total to 121, and updated the listing of additional compliance projects to bring the total to 204 (listing signifies these projects are moving toward potential issuance of ARB compliance offset credits); and (4) 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. At this time, ARB only issues compliance offset credits for verified offset projects developed using the six approved offset protocols, and that are located within the United States. ARB issues compliance credits for those projects that comply with the full requirements set forth in the applicable offset protocol in the Regulation. To date, ARB has issued just over 29 million compliance offset credits.

Cap-and-Trade Litigation. In the first half of 2015, there was activity on all of the court cases against ARB regarding the Cap-and-Trade Program. This section describes those cases.

On November 13, 2012, the California Chamber of Commerce filed a lawsuit, *California Chamber of Commerce et al. v. California Air Resources Board et al.*, in Sacramento Superior Court to challenge ARB's authority to conduct an auction under the Cap-and-Trade Program. Alternatively, the California Chamber of Commerce alleges that if the court finds that authority exists in AB 32 for the auction, then the court should find that the auction and the sale of allowances by the State at auction constitute an unconstitutional tax. The lawsuit asks the judge to issue a decision prohibiting ARB from conducting future auctions, and asks for judicial declarations that the auction provisions of the Regulation are invalid and unenforceable, and impose an unconstitutional tax. ARB maintains that AB 32 provided it with authority to develop a Cap-and-Trade Program, including an auction, and that the auction does not constitute a tax. A hearing on the merits of the petition was held on August 28, 2013.

On April 16, 2013, Morning Star Packing Company filed a similar suit to the California Chamber of Commerce case noted above, *Morning Star Packing Company et al. v.*

California Air Resources Board et al. This case was deemed “related” to the *California Chamber of Commerce* case and thus was also heard on August 28, 2013.

On November 12, 2013, the court issued a joint decision on both the *California Chamber of Commerce* and *Morning Star Packing Company* cases, denying the two petitions and finding in favor of ARB on all counts. Specifically, the Court found that “The sale of allowances is within the broad scope of authority delegated to ARB in AB 32.” The court upheld ARB’s auction provisions, noting the extensive public outreach and stakeholder engagement throughout the Cap-and-Trade Program development. The court also found that the Legislature’s passage of several bills in 2012 directing the use of auction proceeds helped to “ratify” the Legislature’s original grant of authority in AB 32. With respect to the taxation issue, the court determined that “The primary purpose of the charges [from ARB’s auction sales] is regulatory,” and therefore that the auctions were not a tax.

The court’s decision became final on December 20, 2013. The California Chamber of Commerce, Morning Star Packing Company, and an intervener supporting their position—the National Association of Manufacturers—filed notices of appeal in the Third District Court of Appeal. The appellate court found the appeals unsuitable for mediation and consolidated the cases. Appellants filed their opening briefs between October 21 and October 22, 2014. The answering briefs of ARB and interveners supporting ARB’s position—the Environmental Defense Fund and Natural Resources Defense Council—were filed on March 19, 2015, and appellants filed their reply briefs between May 1 and May 6, 2015. Five outside interests, or amici, requested the court’s permission to file their own briefs. The court granted those requests, and the amicus briefs were filed on May 26, 2015. ARB, the California Chamber of Commerce, and the National Association of Manufacturers answered the amici on June 25, 2015. The court will now set a date for hearing.

Citizens Climate Lobby and Our Children’s Earth Foundation v. California Air Resources Board challenged the inclusion of offset credits in the California Cap-and-Trade Program. The petitioners challenged the inclusion of these offset credits as a method of compliance with the program based on their assertion that such offset credits do not meet the requirements of the California Global Warming Solutions Act of 2006 (AB 32) and Health and Safety Code § 38562(d)(2) that reductions represented by offset credits are, “In addition to any greenhouse gas emission reduction otherwise required by law or regulation, and any other greenhouse gas emission reduction that otherwise would occur.” The petitioners claimed that protocols adopted by the Board violate their self-styled “integrity standard” of AB 32 and should be prohibited.

The Petition sought a writ of mandate prohibiting the issuance of offset credits meeting the adopted protocol standards as set forth in the Regulation (Cal. Code Regs., tit. 17, §§ 95975(e) and 94990), declaratory relief that any offset credits issued by ARB are invalid, and injunctive relief prohibiting the Air Resources Board (ARB) from issuing any offset credits while the case is pending.

Judge Goldsmith issued his Statement of Decision on January 25, 2013 denying the petitioners' Writ and upholding ARB's inclusion of the offset credits. The final Order and Judgment was issued on March 25, 2013. Petitioners filed a Motion to Vacate on April 9, 2013. Notice of Appeal was only filed by Our Children's Earth on May 24, 2013. Petitioner's Brief was filed on August 30, 2013.

ARB's Opposition Brief was filed October 11, 2013. Oral argument occurred in the Court of Appeal on December 9, 2014. The Court of Appeal upheld the Superior Court's decision on February 23, 2015. Petitioners requested review by the California Supreme Court. The California Supreme Court denied the petition for review on June 10, 2015. The case is now finally resolved.

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

Cap-and-Trade Program Administration Contracts:

As part of collaborating with other jurisdictions, ARB accesses administrative support for the Cap-and-Trade Program through the Western Climate Initiative, Inc. (WCI, Inc.). Section 2 of this document describes WCI, Inc. and its activities.

WCI, Inc.'s approach to coordinating administrative support is to have each jurisdiction specify its administrative requirements, and then for WCI, Inc. to provide support that meets these specifications. Most of the administrative support provided by WCI, Inc. is highly technical or specialized and has been developed through the use of contractors. As described in Section 2, WCI, Inc. has entered into administrative support contracts to provide the following support:

- Coordinating the development and administration of the Cap-and-Trade Compliance Instrument Tracking System Service (CITSS);
- Coordinating the development and administration of an allowance auction platform. The auction platform is used by California and Québec to auction emission allowances under their cap-and-trade programs and conduct reserve sales;
- Coordinating the performance of analyses to support market monitoring performed by each jurisdiction for allowance auctions and allowance and offset certificate trading; and

- Coordinating 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).

Other Cap-and-Trade Program Contracts:

- In collaboration with economic researchers from Resources for the Future and the University of California at Berkeley, ARB continued leakage research efforts to establish a baseline for how industries have historically responded to energy price changes and to identify metrics to evaluate future leakage risk. Any changes in leakage risk determinations would require regulatory amendments, which would need to be in place before industrial allocation occurs for the third compliance period in fall 2017.
- ARB initiated a study with the California Polytechnic University in San Luis Obispo and the University of California (UC) to analyze the ability of the food processing sector to pass on regulatory costs to consumers and to the agricultural sector. The analysis will be used to assess leakage risk, which will inform the allocation of allowances for the sector in the third compliance period. Researchers are currently collecting facility data and anticipate providing preliminary results in 2015.
- ARB has contracted with the University of California at Davis (UC Davis) to develop recommendations for a monitoring system for unanticipated adverse biological impacts caused by the U.S. Forest Protocol. This work supports ARB's efforts to use an adaptive management approach to address unanticipated forest impacts that could occur as part of the implementation of the Cap-and-Trade Program. The report containing the UC Davis recommendations will be released in 2015.
- ARB has contracted with California Polytechnic State University, San Luis Obispo, to provide technical forestry support to ARB staff, taking into account programmatic, policy, biometric, modeling, biological, and harvest management activities. The contract will support development of guidance to simplify highly complex calculations, and increase the understanding and accessibility of protocol requirements under ARB's compliance offset protocol for forestry projects.
- ARB has contracted with Michigan State University to update software to facilitate reporting of the required data and streamline calculation of emission reductions from adoption of eligible farming practices under the proposed rice cultivation protocol. This contract will aid in keeping project costs down and limit the time farmers have to spend complying with protocol requirements.

3. *Upcoming Milestones – July through December 2015*

Below is a brief summary of some of the upcoming milestones ARB is working to achieve during the second half of 2015. More information on ARB activities and

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

- ARB will continue to hold quarterly joint auctions with Québec as scheduled in the Regulation, each February, May, August, and November.
- Entities must surrender compliance instruments sufficient to cover the remaining seventy percent of their 2013 emissions and 100 percent of their 2014 emissions by November 2, 2015.
- ARB is continuing to develop a multi-phase proposal to assess the effects (benefits and potential impacts) of AB 32 programs on disadvantaged communities. This effort will be integrated with the Cap-and-Trade Adaptive Management process, and ARB is presenting this proposal at public meetings in 2015.
- Staff expects to complete the Final Statement of Reasons for the amendments to the Cap-and-Trade Regulation and submit the full regulatory package to the Office of Administrative Law for approval.
- Staff expects to integrate any market program amendments needed to support California's compliance strategy under U.S. EPA's "Clean Power Plan" greenhouse gas limits for existing power plants into planned Cap-and-Trade amendments. Although the design of that compliance plan is still being determined, staff anticipates that the plan can rely substantially on the carbon market's successful efforts to reduce emissions across the economy, including within the power sector. More information on the Clean Power Plan can be found in Part 1, Section II. B. 4., of this report.

B. Low Carbon Fuel Standard

1. *Background*

ARB approved the Low Carbon Fuel Standard Regulation (LCFS) in 2009 with requirements to reduce the carbon intensity (CI) of gasoline and diesel fuels by at least 10 percent by 2020. This standard sets declining annual targets between 2011 and 2020. The LCFS will reduce GHG emissions from the transportation sector in California by about 15 MMT in 2020. These reductions account for almost 19 percent of the total GHG emission reductions needed to achieve the State's mandate of reducing GHG emissions to 1990 levels by 2020.

The LCFS requires regulated parties to electronically submit all quarterly progress and annual compliance reports to ARB. To this end, ARB developed the LCFS Reporting Tool (LRT), a secure, interactive, web-based system, through which all regulated parties are required to report data on fuel volumes and CI. A Credit Bank & Transfer System has been integrated online with the LRT to handle the recording of LCFS credit

transfers. To date there are nearly 200 regulated parties reporting in the LRT. Through their reports, these providers of transportation fuels must demonstrate that the mix of fuels they supply meets LCFS CI standards for each annual compliance period. Each fuel in the mix is assigned a CI value, based on the “life cycle” GHG emissions associated with the production, transportation, and use of fuels in motor vehicles. Each fuel's complete life cycle, from "well-to-wheels" (or from "seed-to-wheels" for biofuels made from crops), represents that fuel's "fuel pathway." To date, there are approximately 250 individual fuel pathways that regulated parties can use to describe the GHG emissions associated with their fuels. Almost 200 alternative fuel facilities are registered under the LCFS and supplying low-carbon fuels to California.

Pursuant to the Board's direction, ARB continues to collaborate with stakeholders on evaluating CI for crude oils. Also, ARB continues to analyze, and recommend for approval, numerous lower CI fuel pathways for which fuel producers have applied--confirming that innovations are occurring in the fuel sector. Also of note, California is attracting significant investments in the development of advanced biofuels. In order for advanced biofuels to be available in sufficient quantities, investment in these fuels needs to occur. ARB has been monitoring investment in biofuels and has seen a slow, but steady, increase in investment. This is true both in California and nationwide. Private equity investments into low-CI fuel projects in North America have totaled \$4.85 billion since 2007.⁴ In 2012, active, low-carbon fuel projects received \$1.45 billion in new private equity investments.⁵ Of these funds, approximately \$2.3 billion, or 47 percent, has been invested in California biofuels companies.⁶

Cumulatively through the end of 2014, there have been a total of about 10.84 million metric tons of credits and 6.51 million metric tons of deficits, for a net total of about 4.33 million metric tons of credits.⁷ This excess means that regulated parties are over-complying with the LCFS, generating additional LCFS credits that can be used for future compliance when the standard becomes more stringent. In addition to banking credits, regulated parties have begun trading credits. Both of these developments are positive indicators that the LCFS is functioning as intended.

Despite these positive indicators, the petroleum refining industry is concerned about compliance with the LCFS in future years when the standard becomes more stringent. Specifically, the petroleum refining industry believes that lower-CI liquid biofuels they prefer to blend with conventional gasoline and diesel fuel are not being developed quickly enough in commercial quantities and will not be available. Staff continues to believe that the availability of these advanced biofuels will grow sufficiently to meet demand. Additionally, liquid biofuels are just one of several paths that refiners can take

⁴ E2 “[Advanced Biofuel Market Report 2013](#)”.

⁵ Ibid. Annual investment data collected from August 2012 – August 2013.

⁶ Data from PricewaterhouseCoopers/Data by Thomson Reuters, Cleantech, and Collaborative Economics. Investment data tracked from 2006.

⁷ ARB “[2014 LCFS Reporting Tool \(LRT\) Quarterly Data Summary – Report No. 4](#)”

to comply with the LCFS. They can also purchase LCFS credits in the marketplace from producers of lower-CI fuels, such as electricity, natural gas, biogas, and hydrogen, or they can invest in the production of these fuels to generate their own LCFS credits.

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

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

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

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

Regulation but holding that the LCFS would remain in effect and that ARB can continue to implement and enforce the LCFS while ARB corrects certain aspects of the procedures by which the LCFS was originally adopted. Accordingly, ARB staff is continuing to implement and enforce the LCFS while working on a 2015 rulemaking for

re-adoption of a consolidated regulation package that responds to the Court's decision and contains additional amendments important for the continued success of the LCFS program. Meanwhile, the 2013 LCFS standards, which represent a 1.0 percent decrease in carbon intensity from the 2010 baseline values for gasoline and diesel, will remain in effect through 2015.

2. Recent Developments – January through June 2015

LCFS Rulemaking. The first ARB Board hearing to consider the re-adoption of the LCFS and the adoption of the Alternative Diesel Fuel Regulation took place on February 19, 2015. Based on the comments and testimony received during the 45-day comment period preceding the ARB Board hearing, the Board directed staff to continue its work on the proposed LCFS and Alternative Diesel Fuel regulations.

In addition to the 14 public workshops conducted in 2014 related to the proposed re-adoption of the LCFS, ARB conducted an additional public workshop on April 3, 2015, to discuss updates to the California-Modified Greenhouse Gases, Regulated Emissions, and Energy Use in Transportation (CA-GREET) Model, version 2.0.

Peer Review. In January 2015, ARB requested an external peer review of staff's methodology in calculating fuel carbon intensities and use of three life cycle greenhouse gas emissions models, including the CA-GREET Model, Oil Production Greenhouse Gas Emissions Estimator (OPGEE) Model, and Global Trade Analysis Project (GTAP-BIO) Model combined with the Agro-Ecological Zone Emissions Factor (AEZ-EF) Model. The purpose of a peer review is to determine whether the scientific portions of the regulation are based upon "sound scientific knowledge, methods, and practices," pursuant to Health and Safety Code section 57004.⁸ The peer review was completed in April 2015. The written reviews submitted by the peer reviewers are posted at the following web page: <http://www.arb.ca.gov/fuels/lcfs/peerreview/peerreview.htm>.

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

In 2013 and 2014, staff held six public workshops on the development of the regulation and an informational webinar to solicit feedback from stakeholders regarding a

⁸ California Air Pollution Control Laws. Health and Safety Code, Division 26, Part 5, Chapter 4, Section 57004(d)(2).

proposed regulation governing the commercialization of new alternative diesel fuels. Staff brought the proposed regulation to the Board on February 19, 2015 and is tentatively scheduled to bring it back to the Board for consideration in July 2015.

This rulemaking effort follows several years of research and analysis to determine the air emissions and other environmental impacts of both renewable diesel and biodiesel as viable petroleum diesel fuel replacements. These two fuels are currently used in blends containing conventional petroleum-based diesel fuel, and as they become more prevalent in the market will serve to displace petroleum-based diesel fuel. Renewable diesel is chemically indistinguishable from petroleum diesel and thus subject to the current petroleum diesel regulations; it is not covered by the Alternative Diesel Fuel Regulation. Conversely, biodiesel is chemically different than petroleum diesel fuel, and staff's current proposed regulation will establish it as the first alternative diesel fuel.

In general, the proposed regulation contains a three-stage process for new alternative diesel fuels to enter the commercial market: (1) the identification of any pollutants of concern associated with new alternative diesel fuels, (2) the significance level at which emissions may increase, and (3) appropriate mitigation measures required to ensure current air quality protections. In addition to the three-stage commercialization process, the proposed regulation also contains specific provisions for biodiesel to address potential nitrogen oxides (NOx) increases associated with its use.

3. *Upcoming Milestones – July through December 2015*

Below is a brief summary of some of the upcoming milestones for LCFS and related programs during the second half of 2015. More information on activities and upcoming public meetings related to the LCFS can be found at: <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>.

Staff will return to the Board in July 2015 to address public comments received on the draft environmental analysis for the proposed LCFS and Alternative Diesel Fuel regulations, and staff's proposed responses. Should the Board decide to re-adopt the LCFS and adopt the Alternative Diesel Fuel regulations, they will do so at this second hearing. Staff would then continue to complete the rulemaking effort, which would occur in the second half of 2015. The effective date of the new rule is anticipated to be January 1, 2016.

C. Advanced Clean Cars

1. *Background*

ARB developed the Advanced Clean Cars Program to reduce emissions from the transportation sector that achieve California's long-term climate goals, and to provide a comprehensive approach to further reduce criteria and GHG emissions from light-duty vehicles beyond 2016. This recent Program closely aligns the Low Emission Vehicle (LEV) light-duty vehicle standards (both criteria and greenhouse gas emission

regulations), and the Zero Emission Vehicle (ZEV) regulation, to lay the foundation for the next generation of ultra-clean vehicles. Specifically, the Advanced Clean Cars Program includes more stringent GHG emission standards, tighter criteria pollutant standards, and increased ZEV production requirements for 2017-2025 model year passenger cars and trucks. This suite of regulations will reduce GHG emissions by about 3.1 MMT in 2020, approximately 4 percent of the total needed to achieve the AB 32 target for that year. These regulations are furthering California's progress toward near- and long-term climate goals, as well as aiding attainment of ambient air quality standards.

Zero Emission Vehicle Program. In January 2012, ARB approved the Advanced Clean Cars Program through rulemaking. The ZEV Program was amended as part of the rulemaking, increasing the zero emission vehicle requirements over time to about 15 percent of new car sales in 2025. The ZEV Program focuses attention on commercialization of battery electric vehicles, hydrogen fuel cell electric vehicles, and plug-in hybrid electric vehicles. The ZEV Program will continue as a distinct but complementary program in California and the nine other states that have also adopted it. The program is a critical element toward meeting the 2050 GHG emissions reduction goal established by Executive Order B-16-2012, which sets a target to reduce GHG emissions for the transportation sector by 80 percent below 1990 levels⁹.

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

Because of the technology-forcing nature of the standards and California's commitment to a national program, ARB is conducting a mid-term review of the adopted standards for model years 2022 to 2025 in collaboration with U.S. EPA and NHTSA. The target release date for the agencies' joint technical assessment is in mid-2016, with a staff update to the Board in fall of 2016. This review will be used to inform ARB and the

⁹ Executive Order S-03-05 (2005) originally established the economy-wide GHG 2050 target, whereas E.O. B-16-2012 further established that the transportation sector meet its equal share of the reductions.

federal agencies whether to maintain the standards as adopted or consider revising them. To date, the automobile industry has outperformed the GHG standard by a substantial margin.¹⁰

2. Recent Developments – January through June 2015

- Staff returned to the Board in May 2015 to modify the ZEV regulation. The Board approved amendments to adjust the definition for intermediate volume manufacturers in recognition of their smaller size and to give them more time to bring ZEV technologies to market.
- ARB staff continue implementing the Clean Vehicle Rebate Program (CVRP) and are developing pilot projects to increase the deployment of advanced technology vehicles, including ZEVs, in disadvantaged communities.
- ARB staff have incorporated the requirements of SB 1275 (De León), which include requiring income-based eligibility for CVRP rebates, in the FY 2015-16 Funding Plan for Low-Carbon Transportation Investments and the Air Quality Improvement Program. The Funding Plan was approved by the Board in June.

Advanced Clean Cars Contracts. ARB continues to pursue several contracts to support overall implementation of the Advanced Clean Cars Program and the midterm review Board update in 2016.

- ARB has contracted with UC Davis to conduct research on the ZEV market. The objective is to capture statewide data on consumer attitudes, barriers, and motivators toward purchasing ZEVs. The purpose of the research is to identify the factors that influence new-vehicle purchase decisions and the areas where additional policies, incentives, or outreach could be implemented to facilitate greater adoption rates of cleaner cars. The project is called, “New Car Buyers’ Valuation of Zero Emission Vehicles.” The survey and interview portion of this study has been completed and a final report is being drafted for delivery later this year.
- ARB has also contracted with UC Davis to conduct research on household-level plug-in electric vehicle usage and charging behavior in order to quantify emission benefits. The project is called, “Advanced Plug-in Electric Vehicle Travel and Charging Behavior.” Preliminary testing of data loggers and household recruitment has begun. Data collection will begin later this year.
- ARB has contracted with UC Davis to conduct research on the secondary ZEV market. The project is called, “The Dynamics of Plug-in Electric Vehicles in the Secondary Market and Their Implications for Vehicle Demand, Durability, and

¹⁰ <http://www.epa.gov/oms/climate/ghg-report.htm>

Emissions.” Results will inform future decisions by ARB policymakers on the treatment of ZEVs by various ARB programs, such as incentives, durability requirements, or vehicle crediting.

- ARB has contracted with the University of California at Los Angeles to evaluate trends in the emerging ZEV market relative to policy and market factors. The project is called, “Examining Factors That Influence ZEV Sales in California.” The final report is being drafted for delivery later this year.
- ARB has completed its contract with Control-Tec to evaluate the potential for road load reduction strategies (e.g., aerodynamics, rolling resistance, and mass reduction) to contribute to GHG emission reductions. The project is called, “Technical Analysis of Vehicle Load-Reduction Potential for Advanced Clean Cars.”

3. Upcoming Milestones – July through December 2015

Below is a brief summary of some of the upcoming milestones for Advanced Clean Cars during the second half of 2015. More information on staff’s activities and upcoming public meetings on this program can be found at:

http://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc.htm.

- ARB staff continues its work on the mid-term review of the Advanced Clean Cars Program, in consultation with the Board. In conjunction with U.S. EPA and NHTSA, ARB is assessing the technology used, compliance rates, and costs associated with the greenhouse gas emission standards for light-duty vehicles. Additionally, California is reviewing the adopted particulate matter standards and the ZEV regulation, as well as market uptake of ZEVs and plug-in hybrid electric vehicles.
- Staff will report to the Board on the status of the midterm review and ACC program in September. This update will include its findings on particulate matter measurement, 2013 model year compliance with the Federal GHG standards, and updates on ZEV sales in California and the Clean Air Act section 177 states.
- Staff will return to the Board in late 2015 to present amendments to the ZEV regulation. This item will adjust regulatory provisions regarding the use of battery swapping technology for qualification as a fast refueling ZEV type under the ZEV regulation. This amendment is designed to ensure that the number of credits awarded under the fast refueling provisions for fast refueling events is representative of the fleet’s use of rapid range extending fast refueling, which could ultimately affect the number of ZEVs on the road.
- ARB staff will continue implementing CVRP and light-duty pilot projects to increase the deployment of advanced technology vehicles, including ZEVs, in disadvantaged communities.

D. Landfill Methane

1. *Background*

On June 25, 2009, the Board approved a regulation that reduces emissions of methane from municipal solid waste (MSW) landfills. The landfill methane control measure is a discrete early action measure. The Landfill Regulation, which became effective in June 2010, requires owners and operators of certain MSW landfills to install gas collection and control systems. It also requires owners of landfills with existing and newly installed gas collection and control systems to operate them in an optimal manner.

ARB originally estimated that there would be a reduction of about 0.4 MMT of CO₂e as a result of bringing 14 MSW landfills into compliance with the Regulation by 2020. The implementation and enforcement of this measure for the remaining estimated 204 affected MSW landfills (including those with gas collections systems already installed) is expected to result in an additional estimated emission reduction of 1.1 MMT of CO₂e in 2020. ARB is working with the California Department of Resources Recycling and Recovery (CalRecycle) to further refine the estimated emission reductions from the measure as additional studies become available.

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

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

2. *Recent Developments – January through June 2015*

During the first half of 2015, ARB worked to increase enforcement activities with inspections, audits, and compliance assistance training. More information on ARB activities on this topic, and any upcoming public meetings can be found at: <http://www.arb.ca.gov/cc/landfills/landfills.htm>.

- To date, 23 air districts have signed the MOU. ARB continues to work with the remaining local air districts to encourage their participation in the MOU.

- ARB has provided training to 20 local air districts that have signed the MOU to assist them in implementing and enforcing the Regulation. Other local air districts that are considering signing the MOU have expressed interest in training within their regions.
- Out of the original 14 MSW landfills that were listed as uncontrolled in ARB's Staff Report: Initial Statement of Reasons for the Proposed Regulation to Reduce Methane Emissions from MSW Landfills (May 2009), seven have now installed landfill gas collection and control systems. Two additional landfills may be required to submit design plans to install gas collection and control systems pending reviews of their surface demonstration testing.
- ARB is working on the MOU with local air districts in order to further refine the information contained in the State's landfill database.

3. Upcoming Milestones – July through December 2015

- ARB plans to offer additional training sessions to interested local air districts, and to make available a modified version of this training to landfill owners and operators and interested governmental agencies.
- ARB will continue conducting audits through inspections, reviewing documents, and coordinating with local air districts to ensure compliance with the Landfill Regulation.
- ARB will continue to focus enforcement activities on landfills located in districts that have not signed an MOU because these landfills have a greater potential for elevated methane emissions.
- ARB is exploring modifying the Landfill Regulation to streamline recordkeeping and reporting requirements and evaluate the effectiveness of the current surface methane emission limits.

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

1. Background

The initial Scoping Plan proposed the development of a measure to reduce venting and fugitive GHG (methane) emissions associated with oil and gas production, processing, and storage. This measure is known as the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities Regulation. The methane emissions come from various sources, such as storage tanks, compressor seals, and leaking components such as valves, flanges, and connectors. In 2009, ARB undertook a survey of the industry to improve the emissions inventory for this sector. The survey results show that about 1.3 million metric tons of CO₂e come from vented and fugitive sources in the oil and natural gas production, processing, and storage sector. Vented emissions are intentional, and fugitive emissions are unintentional, releases of gases to the atmosphere.

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

2. Recent Developments – January through June 2015

In order to begin to understand the air emissions from hydraulic fracturing and other well stimulation activities in California, ARB entered into a contract in August 2013 with a testing contractor to measure GHG, volatile organic compound, and toxic air contaminant emissions from these activities at a very limited number of sites. In the first half of 2015, no new well stimulation testing occurred due to the inability of gaining site access from additional operators. The contractor delivered a final report in April 2015 summarizing the limited test results.

- ARB increased its efforts working with air districts' staff to discuss methane control strategies, as well as implementation and enforcement approaches.
- In February 2015, ARB staff submitted a Standardized Regulatory Impact Assessment (SRIA) to the Department of Finance (DOF). In April 2015, ARB staff submitted a slightly revised SRIA to DOF. The SRIA is an economic assessment of a proposed regulation that must be submitted prior to the formal rulemaking process if the economic impact of the regulation is anticipated to be over \$50 million in either total costs or benefits, in a given 12-month period.
- In April 2015, ARB held two public workshops, one in Sacramento and one in Bakersfield, as part of the regulatory development for the Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities Regulation, where staff presented draft regulatory language.
- ARB continued working with its contractor to measure methane leak concentrations and flow rates at California oil and natural gas facilities, to develop methane concentration to flow rate correlation factors, and to evaluate different types of methane leak detection equipment.

3. Upcoming Milestones – July through December 2015

- ARB plans to present the proposed Greenhouse Gas Emission Standards for Crude Oil and Natural Gas Facilities Regulation to the Board.

- All of the emissions testing from the methane leak detection contract should be completed. A final report from the testing contractor will be completed.

II. ARB ACTIVITIES TO SUPPORT AB 32

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

A. Scoping Plan

1. *Background*

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

Since 2008, ARB has worked with other State and local agencies to implement the climate change programs outlined in the initial Scoping Plan. California has undertaken a number of notable groundbreaking climate change initiatives including the first in the nation economy-wide Cap-and-Trade Program (see page 3), the Low Carbon Fuel Standard (see page 12), the Advanced Clean Cars Program (see page 17), a 33 percent Renewable Portfolio Standard, and the Sustainable Communities program (see page 34). Many of these actions have been bold and ambitious.

AB 32 further requires that the Scoping Plan be updated at least every five years. The Board approved the first update to the Scoping Plan (First Update) in May 2014. The First Update reflects public input and recommendations from business, environmental, environmental justice, and community-based organizations.

The First Update was developed by ARB in collaboration with the Climate Action Team and reflects the input and expertise of a range of State and local government agencies, which identified nine key sectors for ongoing action to reduce GHG emissions. These sectors include:

- Energy
- Transportation

- Agriculture
- Water
- Waste Management
- Natural and Working Lands
- Short-Lived Climate Pollutants (including methane, black carbon, and fluorinated gases such as refrigerants)
- Green Buildings
- Cap-and-Trade.

On April 29, 2015, Governor Jerry Brown issued Executive Order B-30-15 to establish a California GHG emissions reduction target of 40 percent below 1990 levels by 2030 (2030 Target). The 2030 Target is the most aggressive benchmark enacted by any government in the United States to reduce greenhouse gas emissions over the next decade and a half. Setting a 2030 Target is necessary to guide policy and investments in California and sends a message around the world to states and regions that California is a potential partner and role model.

The Governor's Executive Order aligns California's 2030 Target with those of leading international governments ahead of the United Nations Climate Change Conference in Paris later this year. The 28-nation European Union established the same greenhouse gas emission reduction target for 2030 just last October.

The Executive Order directs State agencies to take measures consistent with their existing authority to reduce greenhouse gas emissions, and directs ARB to create a second update to the Scoping Plan to address the 2030 Target. As ARB undertakes this effort, it will be important to work with the Legislature to ensure the State achieves its climate and clean air goals.

In his Inaugural Address in January 2015, Governor Brown identified five key goals for reducing GHG emissions in California through 2030, and for showing the world the way to stabilize global warming below 2 degrees Celsius, which scientists believe is necessary to curb the worst impacts of climate change:

- Increase renewable electricity to 50 percent;
- Double energy efficiency savings achieved in existing buildings and make heating fuels cleaner;
- Reduce non-renewable petroleum use in cars and trucks by up to 50 percent;
- Reduce emissions of short-lived climate pollutants; and
- Manage farms, rangelands, forests and wetlands to increasingly store carbon.

These goals are all well-aligned with the 2030 Target. As part of an integrated strategy to help manage the electricity grid efficiently, the energy efficiency and renewable energy goals can help reduce energy costs and reduce greenhouse gases in the electricity sector to levels that are in-line with a 2030 Target.

Similarly, cutting non-renewable petroleum use in half by 2030 aligns with the 2030 Target and is necessary to make progress toward federal health-based ambient air quality standards. Emission reductions from all sources – including non-CO₂ gases and from natural and working lands – are necessary to stabilize climate change.

California is currently on track to meet or exceed the AB 32 target of reducing GHG emissions to 1990 levels by 2020. California's 2030 Target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This goal aligns with the IPCC's scientific consensus of GHG emissions reduction levels needed to limit global warming to 2 degrees Celsius above pre-industrial levels -- the threshold that scientists determined that if exceeded, will create more catastrophic climate disruptions including extreme droughts, major sea level rise, more frequent and intense wildfires, heat waves, more severe smog, extensive harm to agricultural productivity and natural and working lands, among other things.

2. Recent Developments -- January through June 2015

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

The following are highlights of the First Scoping Plan Update recommendations that were initiated in the first half of 2015, but that have not been covered in other sections of this document. Some of the workgroups that are called for in the First Update have been convened, and others are scheduled to be convened in 2015, or will be addressed in the second Scoping Plan Update.

- On May 7, 2015, ARB released a short-lived climate pollutants (SLCP) concept paper describing ways in which California can move forward aggressively to reduce GHG and smog-forming emissions from a group of chemicals with extremely high global warming potential. The SLCP Strategy, required by SB 605 (Lara, Chapter, 523, Statutes of 2013), will address current research activities related to black carbon, methane, and fluorinated gases. The Strategy will focus on identifying research gaps, emission inventories for each pollutant, current control measures being implemented, and potential new measures to provide additional reductions. ARB held a kick-off public workshop to discuss concepts for a SLCP Strategy on May 27, 2015.
- California's Forest Climate Action Team (FCAT) held a series of public meetings in late February and early March, 2015, to provide public information on the Team's proposed work for the Forest Carbon Plan, and to invite public comment. The

California Natural Resources Agency and CalEPA are lead agencies for developing the Forest Carbon Plan document.

- The California Department of Food and Agriculture (CDFA) is currently implementing the Healthy Soils Initiative in response to the Governor's climate change goals expressed in his Inaugural Address in January. On May 14th, the Environmental Farming Act Science Advisory Panel held a meeting that focused on the potential opportunities to rebuild carbon storage capacity in agricultural soils and discussed the potential strategies for achieving those goals. More information on the Healthy Soils Initiative can be found on CDFA's web site at: <http://www.cdfa.ca.gov/EnvironmentalStewardship/HealthySoils.html>.
- Discussions are on-going among the State's energy agencies regarding the energy sector recommendations identified in the First Scoping Plan Update.

3. Upcoming Milestones – July through December 2015

- In summer 2015, ARB will initiate a public process and work closely with other State agencies to initiate a Second Update to the Scoping Plan. The Second Scoping Plan Update will provide a framework for achieving the 2030 Target and will be completed and considered by the Board in 2016. As part of that process, public workshops will be held over the next several months to discuss new and existing approaches for reducing emissions on a sector-by-sector basis.
- Concurrent planning efforts related to energy efficiency in existing buildings pursuant to AB 758, short-lived climate pollutants, sustainable freight, Greenhouse Gas Reduction Fund Investments, forest health, and others will be coordinated with, and feed into, the next updated Scoping Plan. This executive action sets the stage for the important work being done on climate change by the Legislature.
- ARB expects to release the Draft SLCP Strategy report and hold public workshop(s) to discuss the Draft report in August 2015. ARB also plans to release the proposed Draft Strategy and Draft Environmental Assessment (EA) in October 2015. ARB anticipates taking the Proposed Draft Strategy to the Board for consideration in November 2015.
- ARB will continue its partnership with Cal FIRE and other State agencies in setting carbon sequestration goals for California's forests in the Natural and Working Lands sector. FCAT meetings will continue bi-monthly, working toward producing the Forest Carbon Plan that is currently scheduled to be published at the end of 2016. More information on FCAT activities is available at: <http://www.fire.ca.gov/fcat>.
- ARB will continue its partnership with CDFA and other State agencies with regard to the Healthy Soils Initiative to support carbon sequestration and GHG emission reductions in the Agriculture Sector.

- California's Department of Resources Recycling and Recovery will continue discussions with the Department of General Services on the State Agency Buy Recycled Campaign to identify potential improvements in the procurement of recycled-content products.
- As a part of ARB's Adaptive Management Program, ARB will hold public workshops and provide an update to the Board in late 2015 on defining an approach to identify potential adverse air quality impacts in disadvantaged communities from facilities subject to the Cap-and-Trade program.

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

B. Coordination with Other Entities Outside of California

1. *Background*

AB 32 requires ARB 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, ARB engages with interested jurisdictions outside of California.

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

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

ARB has worked with Québec to link cap-and-trade programs. After satisfying the requirements of Senate Bill 1018 (Committee on Budget and Fiscal Review, Chapter 39, Statutes of 2012), and completing the Linkage Readiness Report requested by the Governor, the California and Québec cap-and-trade programs were linked on

January 1, 2014. This linkage enables compliance instruments to be transferred among participants in the two programs. Linkage also enables allowance auctions to be conducted jointly. See Section 1, A. Cap-and-Trade, for more information.

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

2. *Western Climate Initiative (WCI)*

The WCI is a collaboration of independent jurisdictions working together to identify, evaluate, and implement policies to tackle climate change at a regional level. The WCI was originally established by 5 states and grew to 11 states and provinces including: Washington, Oregon, Montana, Utah, New Mexico, Arizona, California, British Columbia, Ontario, Manitoba, and Québec. California participated in the WCI as part of the effort to carry out the requirements of AB 32.

Following extensive consultation with stakeholders, the WCI jurisdictions released comprehensive recommendations for designing and implementing an emissions trading program. As a result of California's coordination efforts, the WCI recommendations are consistent with the design of ARB's Cap-and-Trade Program. This consistency helps facilitate opportunities for linking California's program with other jurisdictions.

No WCI activities were conducted in the first half of 2015. Further information on WCI can be found at: <http://www.westernclimateinitiative.org>.

3. *Western Climate Initiative, Inc.*

Throughout the WCI collaboration, the WCI jurisdictions discussed the concept of having regionally coordinated administrative support for the jurisdictions' respective emissions trading programs. In November 2011, WCI, Inc. was created to fulfill this administrative role.

WCI, Inc. is a non-profit corporation that focuses solely on providing administrative support, and is separate from WCI. 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 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.

Whereas WCI has focused on collaboration of emissions trading policies, 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 ARB and the other jurisdictions.

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

4. Other Federal and State Governments

ARB coordinates with entities at the state, federal, and international levels that have or are developing climate-related program elements similar to those of California to ensure that important provisions are as consistent as possible, where appropriate. This coordination ensures that the State’s and stakeholders’ investment in developing California regulations facilitates future broadening of policies to other jurisdictions and strengthens California’s ability to compete in the global economy.

ARB works closely with federal agencies including: U.S. EPA, the U.S. Department of State, the U.S. Agency for International Development, the Commodity Futures Trading Commission, and the Federal Energy Regulatory Commission (FERC), on climate change issues.

The Mandatory Reporting Regulation for GHG emissions is modeled on, and periodically updated to maintain consistency with, U.S. EPA’s GHG reporting rule. In 2014, ARB continued to work with U.S. EPA on further consolidating reporting systems to both reduce regulatory burden on reporting entities and increase data accuracy and integrity. The Compliance Instrument Tracking System Service market registry and emissions trading system for California’s Cap-and-Trade Regulation was built in cooperation with U.S. EPA on the framework used in other emissions trading systems, including the federal Acid Rain Program and the Northeast states’ Regional Greenhouse Gas Initiative. The industrial emissions benchmarking methodology used in California’s Cap-and-Trade Program was developed in coordination with partners in other U.S. states, Canadian provinces, and the European Union. In the first half of 2015, ARB continued coordinating with the Commodity Futures Trading Commission and Federal Energy Regulatory Commission to strengthen carbon and related energy market monitoring, oversight, and enforcement.

In mid-2016, U.S. EPA plans to finalize its “Clean Power Plan” – the first federal limitations on GHG emissions from existing power plants developed under the federal Clean Air Act, section 111(d). The final rules are expected to set GHG targets for 2030 (along with an interim target for 2020-2029) for each state, based upon the application of the best system of emission reductions demonstrated for the sector. In its proposed rule, U.S. EPA identified this system as consisting of an array of demonstrated power sector measures – including heat rate improvements, fuel switching, use of zero carbon energy resources, and energy efficiency standards – that can displace emissions at fossil fuel-fired power plants. Each state will be required to submit a federally

enforceable plan to attain the federal targets. State plans are generally due in 2016, with the possibility of one- to two-year extensions.

Nationally, the Clean Power Plan will provide many critical public health benefits, since power plants account for roughly one-third of all domestic GHG emissions. With the Clean Power Plan, U.S. EPA is proposing guidelines that build on trends already underway in states and the power sector. By 2030, U.S. EPA projects that its plan will result in reducing carbon emissions from the power sector by 30 percent below 2005 levels nationwide. These emission reductions are equal to the emissions that occur from powering more than half the homes in the United States for one year. It will also cut emissions that lead to smog and soot by more than 25 percent, which will better protect public health, while likely reducing energy bills.

ARB, CPUC, and the California Energy Commission (CEC) have worked collaboratively with many stakeholders and regulatory entities, including California air districts and CAISO, to ensure that California will be able to submit an effective compliance plan in a timely manner. California's carbon market, along with major investments in renewable energy and energy efficiency, among other programs, have put the State in a strong position to comply. In addition, Governor Brown's recent Executive Order directing further State-level greenhouse gas reductions will assist the State's progress. Preliminary analysis of California's projected emissions in the 2020-2030 period indicates that the State will meet or exceed U.S. EPA's standards. Accordingly, ARB is focused on developing a State compliance plan that will continue to extend successful GHG reduction measures for the electricity sector, and operate harmoniously with the existing State carbon market and other important regulatory initiatives.

Thus far, State efforts include submitting extensive comments to U.S. EPA in December 2013 and November 2014 on its regulatory proposals, testimony by ARB Chairman Nichols to the U.S. Senate Committee on Environment and Public Works in support of the Clean Power Plan, testimony by ARB Executive Office and CPUC Executive staff to the Federal Energy Regulatory Commission in support of the Plan, participation in multiple regional and national working groups, and ongoing staff efforts to evaluate options for California's compliance plan. After U.S. EPA's final rule is released, ARB and cooperating agencies anticipate promptly starting the formal public process needed to fully develop and submit the compliance plan, along with any actions necessary to defend and enhance the finalized federal program.

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

ARB has also been working with other states and provincial governments on low carbon fuels issues to share insights gained from developing and implementing California's LCFS. To facilitate the use of consistent methodologies, staff continues to work closely with Oregon, Washington, and British Columbia on ARB's web-based LCFS Reporting

Tool. Regulated parties use the Reporting Tool to report the volumes and carbon intensities of the transportation fuels that they have introduced into the California fuels market; therefore, it is used for both reporting and compliance purposes. ARB signed software License Agreements with all three jurisdictions, which enabled Oregon, Washington, and British Columbia to use the LCFS Reporting Tool for data collection in their jurisdictions. Work continues with these governments regarding the technical details of making elements of the Reporting Tool available, including security, program maintenance, and update capabilities.

In October 2013, Governor Brown signed the Pacific Coast Action Plan on Climate and Energy with Governor John Kitzhaber of Oregon, Governor Jay Inslee of Washington, and Premier Christy Clark of 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 the objectives of the Action Plan, ARB staff has been collaborating with staff in British Columbia, Washington, and Oregon on their low carbon fuel standard programs. ARB 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. Finally, staff participates in a routine, bi-weekly conference call with Washington staff on their development of a low carbon fuel standard.

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

5. *International*

California has advanced several strategic national and international partnerships, including an MOU with Mexico. This MOU, which was signed by the Governor in Mexico City on July 28, 2014, provides for cooperation on emissions trading systems and vehicles, as well as forest management, air quality, and wildfires. The MOU is a four-year effort with four priority action areas: climate change, air quality, wildfires and

clean vehicles. ARB is the California lead for three of the work groups that are organizing the work under the MOU: climate change, air quality, and clean vehicles.

During the first half of 2015, the climate change work group began to exchange information with the Mexican Secretariat of Environment and Natural Resources (SEMARNAT). This exchange has included the review of Mexico's emissions reporting regulation and a comparison with California's program. SEMARNAT is currently reviewing ARB's reporting program. ARB also discussed its Cap-and-Trade Program with a delegation of Mexican electricity officials in April, who were in California meeting with CPUC as part of implementing the MOU.

Governor Brown, ARB and other agencies including CalEPA and CEC, have also been working with several entities in China to advance efforts to reduce GHG emissions and combat air pollution. China has recently become the world's leading emitter of GHG emissions and is a critical partner in addressing global climate change. Similarly, many cities in China are suffering from hazardous air pollution, some of which drifts across the ocean to California. Sharing California's leading expertise on reducing air pollution can provide mutual benefits to China, California and global climate. Accordingly, California and China entered into a number of agreements in 2013 and 2014, and have undertaken several activities under these agreements. In 2013, California formalized working relationships with China on climate programs. Activities related to the relationship in the first half of 2015 include:

- On January 6, 2015, Lawrence Berkeley National Laboratory visiting scholar Dr. Xiong Ling, who took part in the design of China Hubei Emissions Trading System, met with ARB Cap-and-Trade Program managers and lead staff to discuss several topics about the design of California's cap-and-trade system, with a focus on the allocation of allowances.
- On January 20-22, 2015, two technical staff from the Chinese Ministry of Environmental Protection Vehicle Emission Control Center visited ARB's El Monte labs for three days of training regarding motor vehicle On Board Diagnostics.
- On January 21, 2015, Dr. Dong Zhao from the China Meteorological Administration met with ARB staff in Sacramento to discuss California's air pollution control history. Dr. Zhao returned to ARB during the week of June 1-5, 2015, to meet with staff at ARB's Sacramento and El Monte locations in support of his research of the history of air pollution control in California and how that experience and the lessons learned can be applied to the air quality problems in Beijing. Dr. Zhao is currently a Hubert H. Humphrey Fellow at UC Davis.
- On April 22, 2015, a group of six officials from the Chinese Henan Province's provincial and municipal environmental protection bureaus visited ARB's Monitoring and Laboratory Division facilities in Sacramento. The visit focused on the history of air pollution control in California, laboratory methods, and emergency response.

- On June 3-9, 2015, Deputy Executive Officer Alberto Ayala traveled to Shanghai for a meeting of the China Council for International Cooperation on Environment and Development. He also traveled to Beijing to participate in a workshop for Chinese national and provincial authorities on heavy-duty emission certification and compliance, to have discussions with their Vehicle Emission Control Center on the preliminary proposal for national China 6 emission standards, to participate in a meeting of the UC Davis/ITS China-California ZEV Policy Laboratory, and to visit the Beijing Environmental Protection Bureau to follow up on MOU activities.
- On June 16, 2015, ARB management and staff met with a delegation of five officials from the Tianjin, China Environmental Protection Bureau on the topic of port emissions. The Port of Tianjin is the largest port in Northern China, the main maritime gateway to Beijing, and the tenth busiest container port in the world. In addition to visiting ARB, the delegation also visited the Port of Oakland.

ARB has also received a number of visiting delegations from other countries interested in California's climate change policies. During the first half of 2015, ARB received ten foreign delegations to discuss climate change policies, including delegations from Canada, France, Mexico, the United Arab Emirates, and Kazakhstan. In addition, on May 26-29, 2015, ARB Cap-and-Trade program management traveled to Barcelona to participate in meetings and panels at Carbon Expo 2015, the world's largest multi-sectoral climate finance and carbon market conference and fair.

ARB has also participated in meetings of the Partnership for Market Readiness, a multilateral World Bank initiative that brings together more than 30 developed and developing countries to share experience and build capacity for climate change mitigation efforts, particularly those implemented using market instruments. In November 2014, ARB became a Technical Partner of the Partnership for Market Readiness. ARB's Assistant Executive Officer participated in a meeting of the Pacific Market Readiness in London in March 2015, and Cap-and-Trade staff participated in a Partnership for Market Readiness meeting in Barcelona in May 2015.

California's climate change policies and programs have generated strong interest from other states, countries and subnational jurisdictions. Many governments are adopting or looking to adopt their own climate-related policies in recognition of the real threat of climate change, and in preparation for the United Nations Framework Convention on Climate Change Conference of the Parties 21 (COP 21) in December 2015, during which a new global climate treaty will be crafted. ARB has been active in the lead-up to COP 21.

On May 19, Governor Brown signed the Under 2 Memorandum of Understanding (MOU) with Baden-Württemberg, Germany; Catalonia, Spain; Wales, United Kingdom; and several Mexican states and Canadian provinces. During the week of May 19-24, 2015, Chairman Mary D. Nichols participated in the Business & Climate Summit 2015, the cornerstone event of Climate Week Paris. While in Paris, Chairman Nichols also hosted a reception with European partners as part of the effort to recruit additional

global partners to the Subnational Global Climate Leadership MOU (“Under 2 MOU”), a first-of-its-kind agreement between California and 11 other states and provinces, collectively representing more than \$4.5 trillion in Gross Domestic Product and 100 million people, to limit the increase in global average temperature to less than two degrees Celsius. Additionally, ARB’s Executive Officer and the Chief of ARB’s Research Division traveled to Ljubljana, Slovenia to give presentations on fluorinated gases and sustainable freight at an international conference on short-lived climate pollutants convened by ClimateWorks Foundation.

As California’s programs have continued to gain international attention and recognition, requests to host delegations, visit other states and countries, and enter into partnerships have continued and increased. As a result of the Under 2 MOU and the interest in California’s climate programs as a model for countries that will be making commitments to reduce greenhouse gases at the United Nations Framework Convention on Climate Change COP 21, the number of strategic international partnerships, initiatives, and requests made of ARB for information sharing is anticipated to increase during the second half of 2015.

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.

ARB is required 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 ARB a sustainable communities strategy (SCS) that uses land use and transportation strategies to reduce the region’s passenger vehicle GHG emissions. ARB’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 ARB targets.

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

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

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

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

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

2. Recent Developments – January through June 2015

By September 2014, all eight of the San Joaquin Valley MPO Boards adopted their SCSs. ARB staff has begun to evaluate these plans. While all eight San Joaquin Valley MPOs have adopted their 2014 regional transportation plans containing their SCSs, two of those regions’ SCSs (those for Merced and Madera) do not meet the GHG emission reduction targets. As a result, the Merced County Association of Governments and the Madera County Transportation Commission will prepare alternative planning strategies. ARB staff’s technical evaluation of the San Joaquin Valley SCSs has been enhanced by having copies of the travel models provided by the MPOs of Fresno, San Joaquin, Stanislaus and Kern counties. The Board approved

resolutions accepting the GHG quantifications for the Fresno Council of Governments in January 2015, for the San Joaquin Council of Governments in May 2015, and for the Stanislaus Council of Governments in June 2015.

The San Luis Obispo Council of Governments adopted its SCS in April 2015, and ARB staff's technical evaluation was presented for Board action in June 2015. The Shasta Regional Transportation Agency adopted its SCS in June 2015 and ARB staff's technical evaluation will be presented for Board action in October 2015. In addition, some MPOs, including SANDAG, SCAG, SACOG, and MTC, are in varying stages of developing their second SCSs. ARB staff provided the Board an informational update in June 2015 on its evaluation of SANDAG's second SCS.

Following the Board's direction, staff continues to work with MPOs and stakeholders on the process and timeline for updating the SB 375 targets. Staff anticipates presenting target recommendations to the Board for action in the third quarter of 2016.

Staff has convened a group of modeling experts to participate in an Interregional Travel Workgroup, which has met four times, with the last meeting held in June 2015. The purpose of this workgroup is to understand how interregional travel is currently estimated, and to explore alternative methodologies that could be used to improve these estimates for use in future SCS development. The workgroup has been reviewing data from the California Statewide Travel Demand Model and is working with the California Department of Transportation (Caltrans) to develop interregional vehicle miles travelled estimates by county.

ARB staff participated in an advisory group to the Strategic Growth Council (SGC) as it developed guidelines and implementation criteria for SGC's Affordable Housing and Sustainable Communities Program funded through the Greenhouse Gas Reduction Fund. This program funds projects that reduce GHG emissions by supporting more compact infill development patterns, encouraging active transportation and transit usage, and protecting agricultural land from sprawl development.

Sustainable Communities Contracts. ARB is providing funding for several research projects to support land use and transportation planning, including research on: the economic benefits and costs of smart growth strategies, effects of complete streets on travel behavior, the relationship between transit-oriented development and displacement of low-income residents and effectiveness of anti-displacement policies, the impact of light rail transit on travel behavior in Southern California, and modeling household vehicle and transportation choice and usage. ARB is also providing funding for a project to monitor and track land use indicators that measure the success of SB 375 implementation; the scope of this work is currently being developed. In addition, ARB is funding three research projects aimed at finding solutions to the exposure of sensitive land uses to near-roadway pollution. More details on these research projects, as well as information on completed and future research may be found on ARB's website at: <http://www.arb.ca.gov/research/sustainable/landuse.htm>.

3. Upcoming Milestones – July through December 2015

As each additional MPO adopts an SCS, ARB staff will evaluate the plan to determine whether the SCS, if implemented, would achieve the GHG emission reduction targets. ARB will periodically report to the Board on these actions. More information on staff's activities and upcoming meetings can be found at:

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

- In fall of 2015, ARB staff will complete its technical evaluations of the remaining SCSs from the San Joaquin Valley MPOs, and will release written reports prior to returning to the Board with staff recommendations on each MPO's GHG determination.
- ARB staff will begin review of the SCS from the Shasta region once it is submitted, which is expected in the third quarter of 2015.
- ARB staff will begin review of SACOG's and SCAG's second SCSs, each scheduled for adoption in early 2016.
- ARB staff will work with the MPOs, as directed by the Board, to develop target recommendations for updating their emission reduction targets.
- ARB staff will continue to meet with stakeholders, in a roundtable format, at key milestones in the target update process to advance the development of tools, metrics, and methods for estimating co-benefits of SCS implementation.
- ARB staff will continue to engage with SGC on the Greenhouse Gas Reduction Fund revenue appropriated for SCS program implementation, to ensure that GHG reductions from SB 375 are effectively realized, along with numerous other community and environmental co-benefits.

D. Cap-and-Trade Auction Proceeds

1. Background

A portion of the allowances required for compliance with the Cap-and-Trade Regulation is 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 electric utilities. The Legislature and Governor approve the expenditure of the State's portion of these auction proceeds (which does not include the proceeds from Québec-owned allowances or allowances consigned to auction by the utilities) to invest in projects that support the goals of AB 32. Strategic investment of proceeds furthers AB 32 implementation, including support of long-term, transformative efforts to improve public and environmental health and develop a clean energy economy.

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

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

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

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

At least 25 percent of program funding is to be directed to projects that provide benefits to disadvantaged communities and at least ten percent of program funding must be spent on projects located in disadvantaged communities. CalEPA is required to identify these communities for investment purposes.¹¹

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 ARB and other State agencies, developed and submitted to the Legislature the first three-year Cap-and-Trade Auction Proceeds Investment Plan (Investment Plan)¹² identifying priority programs for investment of proceeds to support achievement of the State’s GHG emission reduction goals.

¹¹ CalEPA and the Office of Environmental Health Hazard Assessment identify disadvantaged communities based on a tool called the California Communities Environmental Health Screening Tool (CalEnviroScreen). For more information on CalEnviroScreen: <http://oehha.ca.gov/ej/ces042313.html>

¹² The first three year Cap-and-Trade Auction Proceeds Investment Plan can be found here: <http://www.arb.ca.gov/cc/capandtrade/auctionproceeds/auctionproceeds.htm>

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

On March 1, 2014, Governor Brown signed SB 103 (Budget and Fiscal Review), Chapter 2, Statutes of 2014, to provide \$70 million in GGRF monies to three State agencies for projects that improve water use efficiency and reduce GHG emissions associated with water conveyance. On June 20, 2014, Governor Brown signed the FY 2014-15 Budget Act and SB 862 (Budget and Fiscal Review), Chapter 36, a budget trailer bill, which establishes requirements for State agencies receiving appropriations of GGRF monies in FY 2014-15 and later years. The Budget appropriated approximately \$832 million in GGRF monies to 11 agencies for projects that reduce GHG emissions and provide benefits to the State's most disadvantaged communities. Three of these agencies, the Strategic Growth Council, the California Department of Transportation, and the California High-Speed Rail Authority, received continuous appropriations.

The Governor proposed FY 2015-16 funds to expand the FY 2014-15 programs and create several new programs. See Table 1-2 for a detailed list. Prior to expending funds, each department must complete an Expenditure Record pursuant to SB 1018. ARB reviews these expenditure records and posts them on the ARB website.

| Table 1-2: Appropriations for Greenhouse Gas Reduction Fund Programs (as of June 30, 2015) | | | |
|---|-------------------------------|-------------------------------|--|
| Program and State Agency | FY2013-14 Millions | FY2014-15 Millions | Proposed FY2015-16 Millions |
| High Speed Rail (California High-Speed Rail Authority) | | \$250 | \$500 |
| Transit and Intercity Rail Capital Program (California Department of Transportation/California Transportation Commission) | | \$25 | \$265 |
| Low Carbon Transit Operations Program (California Department of Transportation to local agencies) | | \$25 | \$100 |
| Affordable Housing and Sustainable Communities (Strategic Growth Council) | | \$130 | \$400 |
| Low Carbon Transportation (California Air Resources Board) | \$30 | \$200 | \$350 |
| Weatherization Upgrades/Renewable Energy (Department of Community Services and Development) | | \$75 | \$140 |
| Energy Efficiency in University and College Buildings (UC/CSU) | | | \$60 |
| Energy Efficiency in State Buildings (Department of General Services) | | | \$40 |
| Energy Efficiency in Public Buildings (California Energy Commission) | | \$20 | |
| Water and Energy Efficient Technology and Rebate Program (California Energy Commission) | | | \$60 |
| Agricultural Energy and Operational Efficiency and Water Efficiency (California Department of Food and Agriculture) | \$10 | \$15 + \$10 (drought) | \$25 |
| Water-Energy Efficiency (Department of Water Resources) | \$30 | + \$20 (drought) | \$60 |
| Wetlands and Watershed Restoration (Department of Fish and Wildlife) | | \$25 | \$65 |
| Healthy Soils Program (California Department of Food and Agriculture) | | | \$20 |
| Sustainable Forests (California Department of Forestry and Fire Protection) | | \$42 | \$92 |
| Waste Diversion (California Department of Resources Recycling and Recovery) | | \$25 | \$60 |
| Total Program Funding | \$70 | \$862 | \$2,237 |

Greenhouse Gas Reduction Fund

On March 25, 2015, Governor Brown signed AB 91 (Budget and Fiscal Review), Chapter 1, Statutes of 2015, to provide \$30 million in GGRF monies to two State agencies for projects that improve water use efficiency and reduce GHG emissions associated with water conveyance.

The GGRF was created via SB 1018 as a special fund in the State Treasury. ARB is responsible for the fiscal management of the fund, with expenditures authorized by the Legislature and the Governor through legislation. Table 1-3 shows the proceeds deposited into the GGRF from the auctions (from the sale of State-owned allowances), including the auctions held jointly with the Canadian province of Québec.

| Table 1-3: Proceeds from the Sale of State-Owned Allowances Deposited in the Greenhouse Gas Reduction Fund (as of June 30, 2015) | |
|---|------------------------|
| 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 |
| State auction proceeds total | \$2,225,180,890 |

2. Recent Developments – January through June 2015

Cap-and-Trade Auction Proceeds-related activities in the first half of 2015 included:

- Utility Auction Proceeds: For the auctions held through the end of June 2015, the IOUs have received a total of \$1,954,003,918 from the sale of allocated allowances and publicly-owned utilities have received a total of \$224,191,891 from the sale of allocated allowances.
- IOUs continued to provide a credit to ratepayers on utility bills as part of implementing the CPUC decision pursuant to SB 1018. This credit appears on utility bills twice per year, in April and October.

- In March 2015, ARB and the Department of Finance delivered to the Legislature the *Annual Report to the Legislature on Investments of Cap-and-Trade Auction Proceeds*, pursuant to AB 1532. This 2015 Annual Report describes the status of the programs, including major implementation milestones. The report provides program accomplishments through January 31, 2015, and fiscal data through December 31, 2014.
- To ensure project benefits and outcomes can be consistently reported to the Legislature and included in annual reports required by AB 1532, ARB continues to work with implementing agencies to develop program materials, consistent with statute, to ensure projects reduce GHG emissions, maximize benefits to disadvantaged communities, and estimate GHG emission reductions from potential projects. Interim approaches are being developed for this first FY 2014-15.
- ARB is responsible for providing the quantification methodologies to estimate GHG emission reductions from projects receiving monies from GGRF. ARB staff is developing the GHG emission reduction quantification methodologies to be used by grant applicants and State agencies to estimate proposed project GHG emission reductions for FY 2014-15 funds. Completed quantification methodologies are posted on ARB's website at <http://www.arb.ca.gov/auctionproceeds>.
- ARB developed and released a draft of the full funding guidelines in June 2015. The Funding Guidelines include investment and implementation guidance, including the interim expenditure record and SB 535 guidance, project tracking and reporting guidance, and additional direction to help agencies meet the statutory requirements. Administering agencies are responsible for incorporating the Full Funding Guidelines into their programs. ARB has held one public workshop in June 2015 in which it received comments on the draft funding guidelines, and plans additional workshops later in the summer.

3. Upcoming Milestones – July through December 2015

- In August 2014, ARB released the Interim Guidance to Agencies Administering Greenhouse Gas Reduction Fund Monies: Expenditure Record and Fiscal Procedures to guide agencies appropriated GGRF monies in developing the Expenditure Record required by SB 1018. As of June 30, 2015, ARB has concurred with the following FY 2014-15 expenditure records, which have been posted at: <http://www.arb.ca.gov/auctionproceeds>.
 - High-Speed Rail Authority: Initial Operating Segment and Design Work on the Statewide High-Speed Rail System
 - Department of Transportation: Low Carbon Transit Operations Program
 - Air Resources Board: Low Carbon Transportation
 - Department of Community Services and Development: Weatherization and Renewable Energy

- California Energy Commission: Energy Efficiency and Renewable Energy Projects in Public Buildings
 - Department of Food and Agriculture: Alternative and Renewable Fuels
 - Department of Food and Agriculture: Dairy Digester Research and Development
 - Department of Water Resources: Water Energy Efficiency Projects
 - Department of Fish and Wildlife: Delta and Coastal Wetland Restoration
 - Department of Fish and Wildlife: Mountain Meadow Restoration
 - Department of Resources Recycling and Recovery: Organics Diversion and Recycling.
- The next two Cap-and-Trade joint auctions for FY 2014-15 are scheduled to take place on August 18, 2015 and November 17, 2015.
 - ARB intends to present the full funding guidelines to the Board for approval in mid-2015.
 - ARB will continue to review expenditure records for FY 2015-16 programs.
 - ARB will continue to develop quantification methodologies to estimate GHG emission reductions from projects receiving monies from the GGRF.
 - The second Investment Plan is currently being developed by the Administration, and will cover Fiscal Years 2016-17 through 2018-19. The development of this Plan will follow a public process, including the release of an Investment Plan Concept Paper and a series of workshops in summer 2015. The Investment Plan will be submitted by the Department of Finance to the Legislature in January 2016 in conjunction with the Governor's proposed budget.

E. Sustainable Freight Strategy

1. *Background*

The trucks, locomotives, ships, harbor craft, aircraft, cargo handling equipment, and transport refrigeration units that carry and move freight in California are significant sources of air pollution. Freight transport equipment and associated facilities like ports, railyards, airports, freeways, distribution centers, and border crossings contribute over six percent (and growing) of the GHG emissions in the State, as well as a significant portion of the black carbon emissions that also contribute to climate change. The diesel engines that power these freight sources are responsible for about half of the diesel soot that increases the health risk in nearby communities, and nearly half of all nitrogen oxide emissions that result in regional ozone and fine particulate matter pollution in California.

ARB has adopted a series of regulations to reduce the diesel pollution and health risk near freight facilities over the last decade. U.S. EPA and other federal agencies have promulgated national emission standards and supported international agreements for

cleaner ships, ship fuels, and aircraft. In addition, the State's largest ports have developed their own plans to cut air pollution. The railroads have implemented voluntary emission reduction agreements to bring the cleanest locomotives to California. Businesses and government have made substantial investments in lower-emission technology and fuels. The combined impact on diesel particulate matter emissions is dramatic – a 70 percent or higher risk reduction at the largest ports and an approximately 75 percent risk reduction at California's highest risk railyards since 2005.

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

In 2013, ARB launched the Sustainable Freight effort to develop a sustainable freight strategy for California. ARB 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. ARB 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. Caltrans and CEC were also undertaking complementary planning activities. Caltrans focused on infrastructure, to support development of a Freight Mobility Plan and to meet new federal directives for freight planning. CEC updated the Integrated Energy Policy Report to provide policy recommendations regarding the conservation of resources; protecting the environment; ensuring reliable, secure, and diverse energy supplies; and enhancing the State's economy. ARB is pursuing opportunities to integrate these efforts.

In 2014, ARB also began technology assessments to evaluate the current state and projected development over the next 5 to 10 years of mobile source technologies and fuels. These technology and fuels assessments will support state-level planning and

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

regulatory efforts, including Sustainable Freight Strategy development, SIP development, and ARB's mobile source control program.

2. Recent Developments – January through June 2015

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

ARB activities in the first half of 2015 included:

- Release of the Draft Technology and Fuels Assessment Overview document that provides a status update of the heavy-duty technology assessment, and describes key observations to date.
- Release of the Sustainable Freight Pathways to Zero and Near-Zero Emissions Discussion Draft (Discussion Draft) document that identifies immediate- and near-term measures, and ARB's long-term vision to reducing emissions from the freight transport system.
- Presentation of the Discussion Draft document and update on sustainable freight activities to the Board. Continued efforts with the State's environmental, energy, transportation agencies, and the Governor's Office of Business and Economic Development, along with local partners and stakeholders, to develop a comprehensive, integrated plan – the California Sustainable Freight Strategy (SFS).

3. Upcoming Milestones – July through December 2015

- ARB staff will continue engagement with all freight stakeholders including transportation, energy, business, industry, and environmental justice groups. ARB staff will also continue coordination on other transportation planning efforts.
- ARB staff will continue to work with our sister agencies: Caltrans, CEC, and the Governor's Office of Business and Economic Development (GO-Biz) to develop the SFS.
- ARB incentive funding will replace older freight equipment and vehicles in 2015 through the Proposition 1B, the Air Quality Improvement Program and the Carl Moyer Program, which will achieve further reductions of Particulate Matter under 2.5 micrometers in diameter (PM_{2.5}), reactive organic gases, and oxides of nitrogen (NO_x) over the life of the grant contracts and/or lifetime of the upgraded vehicles, as part of the immediate measures identified in the Discussion Draft.

- ARB staff will continue to develop the regulatory near-term measures, as identified in the Discussion Draft, to promote cleaner combustion technologies including the introduction of near-zero emission technology, and to accelerate use of zero emission technologies.
- ARB staff will return to the Board with an update in late 2015, and in mid-2016 with the proposed SFS for Board consideration.

III. GREENHOUSE GAS EMISSIONS AND REDUCTIONS

ARB periodically updates estimates of GHG emissions in California, which change over time as the science advances, growth forecasts are revised, and California makes progress in reducing emissions. ARB and international climate change organizations use the scientifically established global warming potential (GWP) values developed by the Intergovernmental Panel on Climate Change (IPCC) in its Fourth Assessment Report, which includes updated GWP values for GHGs.¹⁴ ARB expresses the emissions of other non-carbon dioxide GHGs in terms of carbon dioxide equivalent (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 Scoping Plan Update, ARB adjusted the 2020 statewide GHG emissions limit based on the updated GWP values from the IPCC Fourth Assessment Report and the level of 1990 GHG emissions. As a result, the 2020 emissions limit is now 431 MMT of CO₂e. ARB currently estimates that GHG emissions in 2020 would be 509 MMT of CO₂e in a “business as usual” (BAU) scenario without the State’s actions to reduce GHGs. Therefore, the new reduction required, based on the 2014 First Scoping Plan Update, is 78 MMT CO₂e by 2020. In the previous version of the 2020 BAU scenario projected in 2010 using GWP values from the IPCC Second Assessment Report, the 2020 BAU was 507 MMT CO₂e, and the 2020 emissions limit was 427 MMT CO₂e, requiring a reduction of 80 MMT CO₂e.

ARB maintains and updates the statewide GHG emission inventory to track California’s progress toward the 2020 statewide emissions limit. To determine if California is on track to achieve the AB 32 emission reduction goal, ARB projects 2020 emissions under a BAU scenario and subtracts the estimated reductions from adopted and anticipated measures expected by 2020 to demonstrate that the Program is on course to achieve the 2020 emissions limit (see Table 1-4).

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

To meet the target, the climate program must reduce 78 MMT of CO₂e emissions by 2020. California is on track to achieve this AB 32 goal. Table 1-4 shows the expected GHG reductions from sector-based measures.

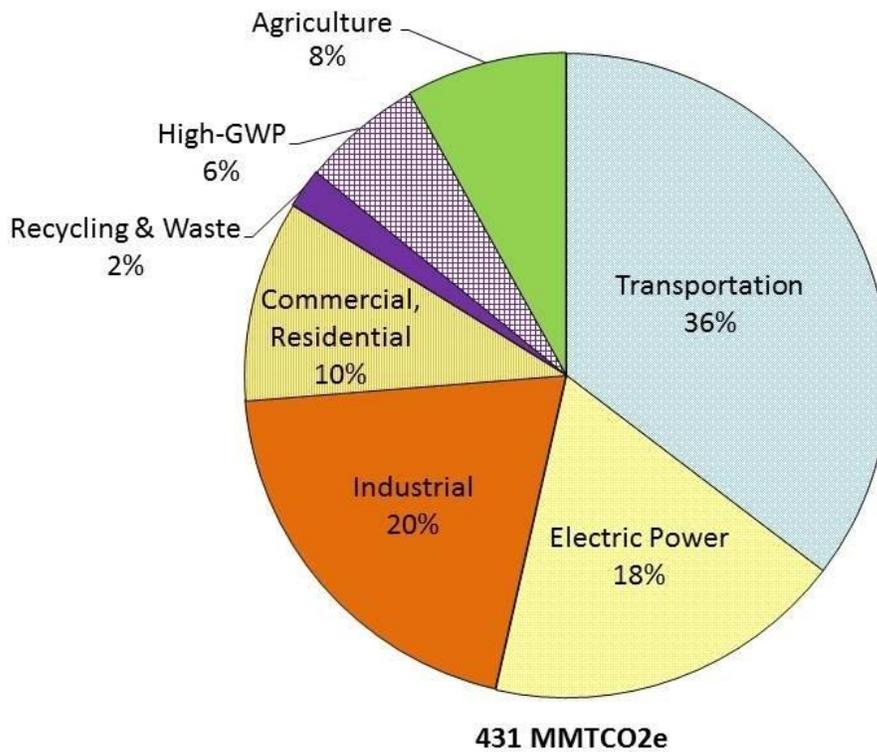
| Table 1-4: Meeting the 2020 Emissions Target | |
|---|------------------------------------|
| Category | 2020 (MMTCO₂e)** |
| AB 32 Baseline 2020 Forecast Emissions (2020 BAU) | 509 |
| Expected Reductions from Sector-Based Measures | |
| Energy | 25 |
| Transportation | 23 |
| High-GWP | 5 |
| Waste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

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

**Based on IPCC Fourth Assessment Report GWP values.

Figure 1 shows how the 2020 emissions are likely to be spread across the sectors after compliance with the AB 32 target. The Scoping Plan Update focuses on key areas with potential for further emission reductions after 2020. These sectors include transportation, energy, waste, water, and agriculture.

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



ARB regulations and programs providing the greatest GHG reductions align with where ARB is dedicating resources (funded primarily by the AB 32 Cost of Implementation Fee). The Cap-and-Trade and LCFS Programs are the two single largest contributors to meeting the 2020 emission reduction target.

SECTION 2:

SEMI-ANNUAL UPDATE ON WESTERN CLIMATE INITIATIVE, INC. ACTIVITIES (January 2015 – December 2015)

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

I. BACKGROUND

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

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

- Coordinated support ensures that all the linked programs use the same highly secure computer program infrastructure, including the compliance instrument tracking system and auction platform.
- Coordinated support ensures that analyses performed to support market monitoring in each jurisdiction are conducted consistently and effectively for the entire compliance instrument market across all the linked programs.

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

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

WCI, Inc.'s approach to coordinating administrative support is to have each jurisdiction specify its administrative requirements, and then for WCI, Inc. to provide support that meets these specifications. Currently, British Columbia, California, and Québec participate in WCI, Inc. California and Québec are currently implementing cap-and-trade programs to reduce GHG emissions.

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. is undertaking the following activities:

- Coordinating the development and administration of the Cap-and-Trade Compliance Instrument Tracking System Service (CITSS);
- Coordinating the development and administration of an allowance auction platform, used by California and Québec to auction emission allowances under their cap-and-trade programs and to conduct reserve sales;
- Coordinating the performance of analyses to support market monitoring performed by each jurisdiction of allowance auctions and allowance and offset certificate trading; and
- Coordinating 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).

Whereas WCI has focused on collaboration on emissions trading policies, 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 ARB and the other jurisdictions.

II. UPDATE

A. Introduction

This report describes the activities of WCI, Inc. from January 2015 through June 2015, and presents WCI, Inc.'s anticipated activities in the second half of 2015.

Highlights of recent activities include:

- An independent audit of WCI, Inc.'s 2014 financial statements was performed and presented to the WCI, Inc. Board. The auditor did not find any significant or relevant issues regarding WCI, Inc. oversight of the financial reporting process.
- Federal and State tax forms were completed and filed.
- WCI, Inc. released a Request for Proposals for Auction and Reserve Sale Administrative Services.
- WCI, Inc. released a Request for Proposals for Auction and Reserve Sale Financial Services.

In the second half of 2015, WCI, Inc. anticipates continuing to coordinate administrative support to the California and Québec programs. The Executive Director will continue the development of the organization, including, as previously reported, hiring an Assistant Director to be located in Québec.

As previously reported to the JLBC, WCI, Inc. expects to release additional requests for proposals, including for Auction and Reserve Sale Financial Services and Market Analysis Services, and for continued development and hosting of CITSS.

B. Corporate Governance

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

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

No new policies were adopted by the WCI, Inc. Board during the first half of 2015.

The directors from California remain unchanged as of June 2015:

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

The WCI, Inc. Board officers were selected at the September 26, 2014 annual meeting of the Board and remain unchanged as of June 2015:

- Chair, Matthew Rodriguez (California)
- Vice Chair, Geneviève Moisan, (Québec)
- Treasurer, Mary Nichols (California)
- Secretary, Jean-Yves Benoit (Québec)

The WCI, Inc. Board met in a publicly noticed open meeting on May 6, 2015. Additionally, the Board met in a publicly noticed Executive Session on that same day, May 6, 2015. 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>.

On April 13, 2015 the Province of Ontario announced its intention to implement a cap-and-trade program to reduce greenhouse gas emissions (see: <http://news.ontario.ca/opo/en/2015/04/cap-and-trade-system-to-limit-greenhouse-gas-pollution-in-ontario.html>). Ontario officials have expressed interest in naming directors to WCI, Inc., which is provided for in the WCI, Inc. bylaws.

C. Staffing and Operations

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

- Project Managers: WCI, Inc. has two part-time project managers to oversee contracts related to CITSS, the auction platform, financial administration, and market analysis. In June 2015 one project manager departed. The Executive Director is in the process of hiring a replacement.
- Business Services: WCI, Inc. has used a contractor to support day-to-day business operations and has engaged the services of an accountant. In June 2015 an administrative manager was hired who will be taking over most of the duties of the contractor.
- Insurance and Banking: WCI, Inc. has retained insurance coverage and banking services.

- Office: WCI, Inc. has an office in Sacramento, California.
- WCI, Inc. has contracted for the services of a corporate counsel.

As previously reported, WCI, Inc. is planning to hire an Assistant Director located in Québec to support the Executive Director with all operational and business requirements.

The Audit Committee contracted with an independent auditor (Crowe Horwath LLP), according to the requirements in the Audit Committee Charter, to conduct the audit and review the annual tax filings. The independent auditor submitted its audit report to the Audit Committee stating that it did not find any significant or relevant issues regarding WCI, Inc.'s "oversight of the financial reporting process." The audit was subsequently presented by the auditor to the WCI, Inc. Board at the May 6, 2015 Board meeting. Also at the meeting, the federal and State tax filings were presented to the Board. The tax filings, audited financial statements, and audit report prepared in 2015 are available on the WCI, Inc. website: <http://wci-inc.org/documents.php>.

D. Delivery Capability

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

- CITSS Development and Hosting: In May 2012, WCI, Inc. contracted with SRA International, Inc. for the continued development of the CITSS. CITSS provides accounts for program participants to hold compliance instruments and to record transactions of compliance instruments with other account holders. Program participants access CITSS online. CITSS is supporting the programs in California and Québec. At the December 5, 2014 Board meeting, the Board approved amending the contract to support additional CITSS development required by the participating jurisdictions in the first half of 2015.
- Auction Platform: In January 2013, WCI, Inc. contracted with Markit Group Limited for the continued development of the auction platform. The auction platform is used by program participants to apply for each auction or reserve sale and to enter their bid information. Program participants access the auction platform online. California and Québec use the platform to monitor the auctions and reserve sales, and to ensure that all auction and reserve sale requirements are met. At the May 6, 2015 Board meeting, the Board approved amending the contract to support auctions and reserve sales through 2016.
- Market Analysis: In January 2013, WCI, Inc. contracted with Monitoring Analytics, LLC for analyses in support of market monitoring. The contract supports multi-jurisdictional monitoring for California and Québec linked auctions and linked markets. This work builds upon the substantial efforts by California and Québec for market monitoring.

- Auction and Reserve Sale Financial Administration: In September 2013, WCI, Inc. contracted with Deutsche Bank Trust Company Americas for auction and reserve sale financial administration, which includes evaluation of bid guarantees and settlement (transferring the payments from the auction and reserve sale purchasers to the sellers). At the May 6, 2015 Board meeting, the Board approved amending the contract to support auctions and reserve sales through 2016.
- CITSS Help Desk Support: In October 2012, WCI, Inc. contracted with ICF Incorporated, LLC for help desk services to respond to inquiries from CITSS users. At the May 6, 2015 Board meeting, the Board approved amending the contract through 2016.

In the first half of 2015, WCI, Inc. initiated procurements for service contracts that expire in 2015. The participating jurisdictions are providing the specifications for the services required from WCI, Inc., which informs the basis for conducting the procurements. WCI, Inc. is involving jurisdiction staff in the preparation and execution of the procurements to ensure that the services procured satisfy jurisdiction requirements.

The Request for Proposals for Auction and Reserve Sale Services has been released, and is posted at: <http://www.wci-inc.org/rfp-auction-admin.php>. Proposals have been received and are being evaluated as of June 2015.

The Request for Proposals for Auction and Reserve Sale Financial Services has been released, and is posted at: <http://wci-inc.org/rfp-auction-finance.php>. Proposals for Auction and Reserve Sale Financial Services are due July 27, 2015.

Procurements for the following services are anticipated in the second half of 2015:

- Market Analysis Services; and
- CITSS Development and Hosting.

As specified in the WCI, Inc. Procurement Policy (available at: http://www.wci-inc.org/docs/2012-01-12_WCI-Inc_Procurement_Policy_Final.pdf), the procurement process shall ensure open and effective opportunities for competition in order to obtain the best value for the Corporation. The contracts resulting from the procurements are expected to exceed \$150,000.

As mentioned above, the Province of Ontario has announced its intention to implement a cap-and-trade program. If Ontario participates in WCI, Inc., the service contracts may be adjusted to support the Ontario program. Ontario would be expected to provide funding to WCI, Inc. in order to gain access to these WCI, Inc. services.

E. Budget and Funding

As reported previously, the WCI, Inc. Board adopted the WCI, Inc. budget for calendar years 2014 and 2015 at its December 2013 WCI, Inc. Board meeting. The budget was reviewed at the July 9, 2014 meeting of the Board in light of the State budget enacted in California and the Provincial budget approved in Québec. A revised 2015 budget was reviewed and adopted at the December 5, 2014 Board meeting.

The WCI, Inc. budgets are available on the WCI, Inc. website: <http://www.wci-inc.org/documents.php>.

As reported previously, WCI, Inc. entered into funding agreements with California and Québec that correspond to the approved budget for calendar years 2014 and 2015. The share of funding provided by each in 2014 and 2015 was determined in three parts:

- The cost of running WCI, Inc. (personnel and operating costs) is divided equally between ARB and Québec.
- The cost of the cap-and-trade service contracts is divided based on the total emissions covered by each jurisdiction's trading program, 85 percent to ARB and 15 percent to Québec.
- The cost of jurisdiction-specific administrative support is assigned fully to each jurisdiction. This support focuses primarily on the execution of reserve sales that are conducted individually for each of the Québec and California programs using the auction platform and financial administrative services.

Based on this approach, ARB funding for 2014 and 2015 is \$4 million. The fully executed funding agreement is available on the WCI, Inc. website: <http://www.wci-inc.org/docs/13-407%20Final%20STD%20%20213.pdf>.

The Québec funding for 2014 and 2015 is \$1,937,024 (US dollars). The fully executed funding agreement is available on the WCI, Inc. website: <http://www.wci-inc.org/docs/Entente-de-financement-WCI-inc-2014-2015-%20EN-2014-14-07-FINAL.pdf>.

F. Payments to WCI, Inc.

For calendar years 2014 and 2015, ARB's share of the WCI, Inc. budget is \$4 million. The funding agreement with WCI, Inc. specifies that ARB will make quarterly payments to WCI, Inc. The payments are presented in Table 2-2.

| Table 2-2: Payments from ARB to WCI, Inc. for Calendar Years 2014 and 2015 | | |
|---|---------------------------------|--------------------|
| Payment | Payment Date | Amount |
| 2014 Q1 Payment | July 15, 2014 | \$500,000 |
| 2014 Q2 Payment | October 8, 2014 | \$500,000 |
| 2014 Q3 Payment | December 26, 2014 | \$500,000 |
| 2014 Q4 Payment | March 2, 2015 | \$500,000 |
| 2015 Q1 Payment | June 1, 2015 | \$500,000 |
| 2015 Q2 Payment | To be invoiced: July 1, 2015 | \$500,000 |
| 2015 Q3 Payment | To be invoiced: October 1, 2015 | \$500,000 |
| 2015 Q4 Payment | To be invoiced: January 1, 2016 | \$500,000 |
| Total | | \$4,000,000 |