

**THE ROAD TO 2020 AND BEYOND:
THE ROLE OF THE TRANSPORTATION SECTOR IN MEETING
CALIFORNIA'S CLIMATE GOALS**

An Informational Hearing of the
Senate Transportation and Housing and Environmental Quality Committees

Tuesday, March 17, 2015
1:30 p.m. — John L. Burton Hearing Room (4203)

BACKGROUND PAPER

Introduction

The fifth assessment report from the Intergovernmental Panel on Climate Change notes that atmospheric concentrations of global warming pollutants have risen to levels unseen in the past 800,000 years. Carbon dioxide concentrations have increased by 40% since pre-industrial times. There is broad scientific consensus that these global greenhouse gases (GHGs) emission increases are leading to higher air and water temperatures as well as rising sea levels, with serious consequences for California.

As the evidence for man-made climate change has mounted over the last few decades, the state has implemented a broad climate portfolio to mitigate global warming impacts by pursuing policies that reduce GHGs. Because the transportation sector is responsible for 38% of the state's total GHG emissions, much of that portfolio targets GHG emissions from that sector. These policies include a range of regulatory and incentive programs including reduction of GHG emissions through low carbon fuels, increased fuel efficiency, near-zero and zero-emission vehicles, transit options, and sustainable, transit-oriented communities. Additionally, since the transportation sector contributes 70% of smog-forming gases each year, these policies can also significantly impact and improve public health, while providing real cost savings in the form of improved health outcomes for Californians.

This hearing will examine existing and newly developed programs designed to reduce GHG emissions from the transportation sector; whether these programs represent a coordinated and comprehensive strategy; and how these programs have provided, and will continue to provide, benefits to disproportionately impacted communities throughout the state.

This background paper is organized as follows:

- AB 32: The California Global Warming Solutions Act of 2006
- Cap-and-Trade Auction Proceeds
- Cap-and-Trade Allocations: Air Resources Board Programs
- Cap-and-Trade Allocations: California State Transportation Agency Programs
- Other Transportation-Related Emissions Reductions Programs
- Appendix A: Funding for Grant Incentive Programs Related to Reduction of Transportation-Related Emissions
- Appendix B: Additional Information on AB 32 Scoping Plan Measures to Reduce GHGs in the Transportation Sector
- Appendix C: Witnesses

AB 32: The California Global Warming Solutions Act of 2006

In 2006, the Global Warming Solutions Act of 2006 (AB 32, Núñez and Pavley, Chapter 488, Statutes of 2006) established a statewide GHG emissions goal for 2020. AB 32 defines GHGs as carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. AB 32 requires the California Air Resources Board (ARB) to determine the 1990 statewide GHG emissions level and approve a statewide GHG emissions limit equivalent to that level, to be achieved by 2020.

AB 32 requires ARB, among other things, to:

- Inventory GHGs in California;
- Implement regulations that achieve the maximum technologically feasible and cost-effective reduction of GHG emissions and impose fees for administrative implementation costs;
- Identify and adopt regulations for discrete early-action measures; and
- Prepare and approve a scoping plan to achieve the maximum technologically feasible and cost-effective reduction of GHG emissions by 2020, to be updated every five years.

The statute also specifies that ARB may include market-based compliance mechanisms in the AB 32 regulations after considering the potential for direct, indirect, and cumulative emission impacts from these mechanisms, including localized impacts in communities that are already adversely impacted by air pollution. Statute also directs ARB to design any market-based compliance mechanisms to prevent any increase in the emissions of toxic air contaminants or criteria air pollutants. AB 32 also specifies that market-based compliance mechanisms must maximize additional environmental and economic benefits for California, as appropriate.

Pursuant to AB 32, ARB approved the first Scoping Plan in 2008. The Scoping Plan outlined a suite of measures aimed at achieving 1990-level emissions, a reduction of 80 million metric tons of CO₂ (MMTCO_{2e}). Average emission data in the Scoping Plan reveal that transportation

accounts for almost 40% of statewide GHG emissions, and the electricity and commercial and residential energy sector account for more than 30% of statewide GHG emissions. The industrial sector, including refineries, oil and gas production, cement plants, and food processors, was shown to contribute 20% of California's total GHG emissions.

The 2008 Scoping Plan recommended that reducing GHG emissions from the wide variety of sources that make up the state's emissions profile could best be accomplished through a cap-and-trade program, along with a mix of other strategies. Some of those transportation-related strategies include a low carbon fuel standard, light-duty vehicle GHG standards, and regional transportation-related GHG targets.

AB 32 Scoping Plan: Major Transportation Measures

Low Carbon Fuel Standard (LCFS). The LCFS requires fuel suppliers in the state to meet certain average annual carbon limitations. The program ultimately requires a 10% reduction in the carbon intensity of a particular fuel by 2020. The carbon intensity measures the net carbon emissions of the entire life-cycle of the fuel, including carbon emitted during production, refining, and transportation, and conversion of the fuel to useable energy. Fuel suppliers can meet the standard by reducing the carbon intensity of their fuels, or by purchasing credits from other suppliers of other fuels that have carbon intensities below state requirements.

Advanced Clean Cars. The Advanced Clean Cars program includes three regulatory mechanisms, including the Low Emission Vehicle regulations. These regulations include new GHG emission standards for cars and light trucks to reduce GHG emissions by 34% from the 2016 standard during the 2017-25 model years, as well as regulations to reduce smog-forming emissions from vehicles. The Advanced Clean Cars program also includes the Zero Emission Vehicle (ZEV) regulation, which requires that by 2025 about 15% of new car sales will be ZEVs.

SB 375 and Sustainable Communities Strategies. Under the Sustainable Communities and Climate Protection Act of 2008 (SB 375, Steinberg, Chapter 728, Statutes of 2008), ARB sets regional targets for GHG emissions reductions from passenger vehicle use. The Act requires each of California's metropolitan planning organizations to prepare a sustainable communities strategy as an integral part of its regional transportation plan, which contains land use, housing, and transportation strategies that, if implemented, would allow the region to meet its GHG emission reduction targets.

(Please see "Appendix B: More Information on AB 32 Scoping Plan Measures to Reduce GHGs in the Transportation Sector" for more information on these three programs.)

Cap-and-Trade Program. Pursuant to AB 32, ARB adopted a cap-and-trade program that places a "cap" on aggregate GHG emissions from large GHG emitters (such as large industrial facilities, electricity suppliers, and transportation fuel suppliers), which are responsible for approximately 85% of the state's GHG emissions. The cap declines over time, eventually reaching the target emission level in 2020. To implement the cap-and-trade program, ARB allocates a number of carbon allowances equal to the cap; each allowance is essentially a permit to emit one ton of carbon dioxide (or the equivalent amount for other GHGs). ARB provides

some allowances for free, making others available for purchase at quarterly auctions. Large emitters must obtain allowances, which they can purchase at auction, equal to their total emissions in a given period of time. Entities can also “trade” (buy and sell on the open market) the allowances in order to obtain enough to cover their total emissions for a given period of time.

Beginning January 1, 2015, the cap-and-trade regulation requires transportation fuel and natural gas suppliers to obtain allowances for the GHG emissions associated with the combustion of the fuels they provide. As fuels represent such a large source of greenhouse gases, the inclusion of transportation fuels approximately doubles the cap and size of the program.

Cap-and-Trade Auction Proceeds

ARB conducted nine cap-and-trade auctions between November 2012 and November 2014, generating a total of \$970 million. A tenth auction was held jointly with Quebec in February of this year; proceeds to the state will be published in mid-March.

State law specifies that the auction revenues must be used to facilitate the achievement of GHG emissions reductions and outlines various categories of allowable expenditures. Statute further requires the Department of Finance, in consultation with ARB and any other relevant state agency, to develop a three-year investment plan for the auction proceeds, which are deposited in the Greenhouse Gas Reduction Fund (GGRF). State law further requires the Department of Finance, in the investment plan, to allocate at least 25% of available monies in the GGRF to projects that provide benefits to disadvantaged communities, and at least 10% to projects located within disadvantaged communities. This requirement is commonly referred to as the SB 535 requirement (SB 535, de León, Chapter 830, Statutes of 2012). To meet the SB 535 mandate, the California Environmental Protection Agency (CalEPA) is developing options to identify disadvantaged communities for investment based on a tool called CalEnviroScreen. The Office of Environmental Health Hazard Assessment developed this tool under CalEPA’s guidance to assess census tracts across the state that are disproportionately affected by multiple types of pollution and areas with vulnerable populations.

Additionally, SB 862 (Committee on Budget and Fiscal Review, Chapter 36, Statutes of 2014) requires ARB to develop guidelines on maximizing benefits for disadvantaged communities by agencies administering GGRF funds, and guidance for administering agencies on GHG emissions reduction reporting and quantification methods.

The 2014-15 budget allocates \$832 million in GGRF revenues to a variety of transportation, energy, and resources programs aimed at reducing GHG emissions. Various agencies are in the process of implementing this funding. The budget agreement specifies how the state will allocate most cap-and-trade auction revenues in 2015-16 and beyond. For all future revenues, the legislation appropriates 25% for the state’s high-speed rail project, 20% for affordable housing and sustainable communities grants (with at least half of this amount targeted to affordable housing), 10% to intercity capital rail projects, and 5% for low-carbon transit operations. The remaining 40% is available for annual appropriation by the Legislature.

The Governor's proposed 2015-16 budget assumes the receipt of \$650 million in cap-and-trade auction revenues in 2014-15 and \$1 billion in 2015-16. The Governor's proposed 2015-16 cap-and-trade expenditures are largely the same as the 2014-15 plan, albeit with larger amounts allocated for affordable housing and sustainable communities grants, the transit and intercity rail capital program, and the low-carbon transit operations.

ARB Guidance on Maximizing Benefits to Disadvantaged Communities

ARB staff released preliminary guidance in the fall of last year on approaches that agencies can use to maximize the benefits of investments to disadvantaged communities and how agencies can determine whether their GGRF investments are located within, or provide benefits to, disadvantaged communities.

The guidance establishes screening criteria to determine whether a specific project qualifies toward the 25% target of funds providing benefits to a disadvantaged community, or the 10% target of investments spent within a disadvantaged community. The guidelines specify that benefits must be "direct, meaningful, and assured."

The interim guidance also recommends that agencies expending GGRF monies maximize the percentage of those funds that are allocated for projects that benefit disadvantaged communities, preferably in a way that exceeds the minimum 10% and 25% investment targets. The guidelines also suggest that agencies give priority to those projects that maximize benefits to disadvantaged communities when selecting projects for a given investment by scoring criteria that favors projects which provide multiple benefits or the most significant benefits.

These guidelines specify various criteria when considering whether transportation investments should be considered as being within or benefitting a disadvantaged community. Some of those criteria include:

- New transit lines;
- More frequent service;
- Greater capacity on existing lines that are nearing capacity;
- Improved reliability for routes in disadvantaged communities;
- Bus rapid service for disadvantaged community residents;
- Incentives for clean vehicles or equipment with a physical address in a disadvantaged community; and
- Incentives for vehicles or equipment that reduce air pollution on fixed routes that are primarily within a disadvantaged community.

These criteria all count towards the 10% of GGRF monies that must be spent within disadvantaged communities.

For determining whether projects "provide direct, meaningful, and assured benefits" to disadvantaged communities, the guidance lists:

- Improved local bus transit service;

- Improved mobility and connectivity for riders using stations accessible by walking within one-half mile of a disadvantaged community;
- Incentives for vehicles or equipment with a physical address in a ZIP code that contains a disadvantaged community census tract;
- Projects that increase intercity rail, commuter bus or rail transit ridership, with at least 25% of new riders from disadvantaged communities; and
- Projects that result in at least 25% of project work hours performed by residents of a disadvantaged community.

These criteria all count toward the 25% of GGRF monies that must be spent to benefit disadvantaged communities.

Cap-and-Trade Allocations: Air Resources Board Programs

The Legislature has allocated cap-and-trade funds to several programs under the umbrella of the Air Quality Improvement Program (AQIP), outlined below. AQIP is administered by ARB and funded through surcharges on vehicle registration fees, a portion of vessel registration fees, a portion of the Smog Abatement Fee (paid to register vehicles less than six model years old and thus exempt from smog check), and an increase in the fee for identification plates for various types of vehicles such as farm trailers and logging vehicles. AQIP provides competitive grants for projects to improve the air quality impacts of alternative fuels and vehicles, vessels, and equipment technologies.

Clean Vehicle Rebate Program (CVRP). CVRP, under the umbrella of AQIP, provides rebates of up to \$2,500 for the purchase or lease of a new ZEV or plug-in hybrid electric vehicle. CVRP is administered by ARB and its contractor, the California Center for Sustainable Energy. A large number of recipients of CVRP vouchers make more than \$100,000, sparking concerns that this program is not helping low-income individuals.

Pilot Projects in Disadvantaged Communities. In response to these concerns, SB 1275 (de León, Chapter 530, Statutes of 2014), also known as the “Charge Ahead Initiative,” requires ARB to modify CVRP to ensure that rebate levels can be phased down in increments based on cumulative sales levels; base eligibility on income; and consider converting the program to pre-qualification and point-of-sale rebates or other methods to increase participation. Accordingly, ARB is holding public workshops and issuing solicitations for a new program, which will be part of CVRP, known as Pilot Projects in Disadvantaged Communities. ARB will launch four pilot projects with FY 2014-15 funds:

- Car sharing (such as farmworker vanpools) and enhanced mobility options;
- Vehicle retirement and replacement “plus-up” (enabling individuals to combine a CVRP voucher with a voucher from the Enhanced Fleet Modernization Program, which provides incentives to scrap a high-polluting vehicle);
- Increased incentives for public fleets; and
- Financing assistance.

Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). The Legislature has also allocated cap-and-trade funds to HVIP, also under AQIP. This program is administered by ARB and its contractor, CALSTART. HVIP provides vouchers to California fleet owners to help purchase hybrid and zero-emission trucks and buses.

Zero-Emission Truck and Bus Pilot Projects. SB 1204 (Lara, Chapter 524, Statutes of 2014) requires ARB to develop a new program, the California Clean Truck, Bus, and Off-Road Vehicle and Equipment Technology Program. This program, known as Zero-Emission Truck and Bus Pilot Projects, will fund development, demonstration, pre-commercial pilot, and early commercial deployment of zero- and near-zero-emission truck, bus, and off-road vehicle technologies, with prioritization of projects located in disadvantaged communities. ARB is currently holding public workgroup meetings to solicit stakeholder input.

Advanced Technology Freight Demonstration Projects. The Legislature has also allocated cap-and-trade funds to Advanced Technology Freight Demonstration Projects under AQIP. This program provides grants to local air districts and other public agencies to fund advanced technology vehicle, equipment, or emission-control projects that are not yet commercialized.

Cap-and-Trade Allocations: California State Transportation Agency (CalSTA) Programs

The Legislature has also allocated cap-and-trade funds to several programs under the purview of CalSTA.

High-Speed Rail Project. The Legislature has allocated several hundred million dollars of cap-and-trade funds to construction of the state's High-Speed Rail Project. The 2014-15 budget provides for a continuous appropriation of 25% of cap-and-trade funds to high-speed rail beginning in 2015-16.

Low Carbon Transit Operations Program. The Legislature has also allocated cap-and-trade funds to the newly created Low Carbon Transit Operations Program. This program provides operating and capital assistance to transit agencies to reduce GHG emissions and improve mobility, with a priority on serving disadvantaged communities. Eligible projects include expanded, new, or enhanced transit services; conversion or retrofit of transit vehicles and equipment to zero-emission; expanded intermodal transit facilities; and infrastructure to support zero-emission or plug-in hybrid vehicles. The 2014-15 budget provides for a continuous appropriation of 5% of cap-and-trade funds for this program beginning in 2015-16. The state Department of Transportation (Caltrans) and ARB are currently reviewing applications.

Transit and Intercity Rail Capital Program. In addition, the Legislature has allocated cap-and-trade funds to the newly created Transit and Intercity Rail Capital Program. This program funds capital improvements that integrate state and local rail and other transit systems, including projects located in disadvantaged communities and projects that provide connectivity to the high-speed rail system. The 2014-15 budget provided for a continuous appropriation of 10% of cap-and-trade funds to this program beginning in 2015-16. CalSTA is currently soliciting applications.

Other Transportation-Related GHG Emission Reduction Programs

In addition to the programs that have already received cap-and-trade funding, there are a variety of state programs aimed at reducing vehicle-related GHG emissions, including the following.

AB 118 (Núñez, Chapter 750, Statutes of 2007) established the Air Quality Improvement Program, the Enhanced Fleet Modernization Program, and the Alternative and Renewable Vehicle Fuel and Technology Program. AB 118 authorized fees including a \$3 increase in the annual vehicle registration fee, an \$8 increase in the Smog Abatement Fee (paid to register vehicles less than six model years old and therefore exempt from smog check), a \$10 fee increase to register a vessel in California, and a \$5 increase in the fee for identification plates for various types of vehicles such as farm trailers and logging vehicles operated on public roads.

Air Quality Improvement Program (AQIP). AQIP is administered by ARB in conjunction with local air districts. This program provides competitive grants for projects to improve the air quality impacts of alternative fuels and vehicles, vessels, and equipment technologies. Although AQIP is designed to focus on reducing criteria air pollutant emissions, the programs created pursuant to AQIP enable both GHG, as well as criteria pollutant, emissions reductions.

Truck Loan Assistance Program. In addition to the programs discussed above (please see “Cap-and-Trade Allocations: Air Resources Board Programs”), AQIP includes the On-Road and Heavy-Duty Vehicle Air Quality Loan Program (Truck Loan Assistance Program). This program, administered by ARB and the California Pollution Control Financing Authority’s California Capital Access Program, provides loans to fleets to help implement ARB emissions reduction regulations related to trucks, buses, and heavy-duty (tractor-trailer) vehicles.

Enhanced Fleet Modernization Program (EFMP). EFMP, administered by ARB and the Bureau of Automotive Repair (BAR), provides funds for the voluntary retirement of eligible passenger vehicles and light- and medium-duty trucks that are high polluters. The statewide component of this program, administered by ARB in consultation with BAR, offers a voucher to eligible vehicle owners to retire a high-polluting vehicle. The local component of the program, administered by ARB and authorized only in the San Joaquin Air Pollution Control District and the South Coast Air Quality Management District, offers an additional voucher to eligible owners to replace a high-polluting vehicle.

Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP). ARFVTP, administered by the California Energy Commission, provides funding for the development and deployment of alternative and renewable fuels and advanced transportation technologies to help attain AB 32 goals. Eligible projects include development, improvement, and production of alternative and renewable low-carbon fuels; improvement of light-, medium-, and heavy-duty vehicle technologies; and expansion of infrastructure connected with existing fleets, public transit, and transportation corridors.

Smog Check Program. The Department of Consumer Affairs administers the Motor Vehicle Inspection Program (Smog Check Program) through BAR. The Smog Check Program generally requires vehicle owners to have their vehicles tested every two years, with some exceptions,

including gas-powered vehicles manufactured prior to 1976, alternatively fueled vehicles, and vehicles six model years or newer. BAR administers a Consumer Assistance Program as part of the Smog Check Program that provides, for eligible customers, an opportunity to renew registration even if the car does not pass a smog test, provided the owner has spent a certain amount on repairs; repair cost assistance; or a voucher in return for “retiring” (scrapping) the vehicle. BAR in effect co-manages both the Smog Check Program and EFMP, described above.

Active Transportation Program (ATP). ATP was established by the 2013-14 budget. This program, administered by Caltrans, aims to encourage increased use of active modes of transportation such as bicycling and walking. ATP consolidates various bicycle- and pedestrian-related programs into a single program to, among, other goals, advance the efforts of regional agencies to achieve their GHG reduction goals.

**APPENDIX A: FUNDING FOR TRANSPORTATION-RELATED EMISSIONS REDUCTION
GRANT INCENTIVE PROGRAMS (Dollars in Millions)**

Programs	2014-15	2015-16 (Proposed)	Funding Sources
<u>Air Resources Board:</u>			
Clean Vehicle Rebate Program (CVRP)	\$116	111*	GGRF, AB 118
Pilot Projects in Disadvantaged Communities (SB 1275)	\$9	9*	GGRF
Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)	\$15	80*	GGRF
Zero-Emission Truck and Bus Pilot (SB 1204)	\$20	0*	GGRF
Advanced Technology Freight Demonstrations	\$50	0*	GGRF
Truck Loan Assistance Program	\$10	0*	AB 118
<u>California State Transportation Agency:</u>			
High-Speed Rail Project	\$250	\$650	GGRF
Low Carbon Transit Operations Program	\$25	\$50	GGRF
Transit and Intercity Rail Capital Program	\$25	\$100	GGRF
Active Transportation Program (ATP)	\$128	\$120	SHA, federal funds
<u>California Energy Commission:</u>			
Alternative and Renewable Fuel and Vehicle Technology Program (ARFVTP)	\$100	\$100	GGRF, AB 118
<u>Bureau of Automotive Repair/ARB</u>			
Enhanced Fleet Modernization Program (EFMP)	\$41	\$41	AB 118
Smog Check Program	\$107	\$114	VIRF

*Note: AQIP amounts for 2015-16 are not yet available as staff is currently vetting proposed 2015-16 AQIP funding for these programs.

GGRF = Greenhouse Gas Reduction Fund, which is funded from cap-and-trade auction revenues.

AB 118 = AB 118 (Nunez) of 2007 established a number of programs, which are funded through surcharges on vehicle registration fees, a portion of vessel registration fees, a portion of the Smog Abatement Fee (paid to register vehicles less than six model years old and thus exempt from smog check), and an increase in the fee for identification plates for various types of vehicles such as farm trailers and logging vehicles. These fees were extended by AB 8 (Perea) of 2013.

VIRF = Vehicle Inspection and Repair Fund. The Smog Check Program is funded by the Smog Certification Fee of \$8.25 and \$2 of the Smog Abatement Fee, which is imposed on vehicles six years or newer (which are exempt from smog check). The Consumer Assistance Program under Smog Check is funded by \$6 of the Smog Abatement Fee, in addition to citation fees imposed on smog check stations by BAR.

SHA = State Highway Account. Funding sources include state excise taxes on gasoline and diesel fuel, truck weight fees.

**APPENDIX B:
Additional Information on AB 32 Scoping Plan Measures to
Reduce GHGs in the Transportation Sector**

The 2008 Scoping Plan recommended that reducing GHG emissions from the wide variety of sources that make up the state's emissions profile could best be accomplished through a cap-and-trade program, along with a mix of other strategies. Some of those transportation-related strategies include a low carbon fuel standard, light-duty vehicle GHG standards, and regional transportation-related GHG targets.

Low Carbon Fuel Standard (LCFS)

The LCFS requires the reduction of the carbon intensity (CI) of transportation fuels used in California by an average of 10% by 2020. CI is a measure of the direct and indirect GHG emissions associated with each of the steps in the full lifecycle of a transportation fuel. According to the 2008 Scoping Plan, the LCFS is projected to result in 15 MMTCO₂e of the 80 MMTCO₂e of emissions reductions needed to reach the 2020 GHG emissions reductions goal.

A party's overall CI for its transportation fuels needs to meet each year's specified CI level target. If the reduction in intensity exceeds the target, the provider earns a credit, which can be sold or carried forward. Providers of clean fuels that meet the 2020 target are exempt from the regulation but can opt in to earn credits. Regulated fuel providers can meet their annual CI levels by making low-GHG fuels, carrying forward credits from previous years from their own production process, buying credits from other fuel producers, or reducing the amount of fuel they sell.

The LCFS achieves a 10% reduction in average CI by establishing an initial intensity level for specified providers of transportation fuels ("regulated parties") and incrementally lowering the allowable CI in each subsequent year. For example, modest targeted reductions of 0.5% and 1.0% were required for 2012 and 2013, respectively. The reductions become more substantial with each year, such that by 2020, the 10% average reduction will be achieved. This reduction makes room for low-CI alternative fuels to enter the market.

The CI has been frozen at 1% since 2013 as a result of pending litigation. To comply with a state appellate court's finding that ARB, in adopting the LCFS, violated elements of the California Environmental Quality Act and the Administrative Procedures Act, the ARB plans to readopt the LCFS sometime later this year. After readoption, the CI will begin to decrease toward the 10% reduction required by 2020.

SB 375 and Sustainable Communities Strategies

In response to concerns that production of more fuel-efficient cars and using low-carbon fuel would not be sufficient to meet AB 32 goals, the Sustainable Communities and Climate Protection Act of 2008 (SB 375, Steinberg, Chapter 728, Statutes of 2008) aims to reduce vehicle

miles traveled by aligning planning for housing, land use, transportation, and GHG emissions at the regional level.

SB 375 requires ARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, ARB established these targets for 2020 and 2035 for each region covered by one of the state's 17 metropolitan planning organizations (MPOs). ARB will periodically review and update the targets, as needed. SB 375 requires each of California's MPOs to prepare a sustainable communities strategy (SCS) as part of its regional transportation plan (RTP).

Each SCS contains land use, housing, and transportation strategies that, if implemented, will allow the region to meet its GHG emissions reduction targets. Once adopted by the MPO, the RTP/SCS guides the transportation policies and investments for the region. ARB must review each adopted SCS to confirm and accept the MPO's determination that the SCS, if implemented, would meet the regional GHG targets. If the combination of measures in the SCS would not meet the regional targets, the MPO must prepare a separate alternative planning strategy to meet the targets.

Advanced Clean Cars

In 2002, prior to AB 32, AB 1493 (Pavley, Chapter 200, Statutes of 2002) required ARB to develop and adopt, by January 1, 2005, regulations to achieve the maximum feasible and cost-effective reduction of GHG emissions from light-duty vehicles applicable no sooner than the 2009 model year. ARB developed these regulations but automaker lawsuits threatened their implementation, and the U.S. Environmental Protection Agency initially denied California's request for a waiver needed under federal law to implement them. The parties involved reached an agreement in May 2009. Based on this agreement, ARB implemented its regulations to reduce GHG emissions in new passenger vehicles from 2009 through 2016, such that GHG emissions from cars will be about 30% lower in 2016 than in 2009. These regulations are commonly referred to as the Pavley regulations, or Pavley I.

In January 2012, ARB built on the Pavley I standards with its Advanced Clean Cars program, established pursuant to AB 32. This program encompasses a suite of regulations that combines the control of smog-causing pollutants and GHG emissions into a single coordinated package of requirements applicable to vehicles for model years 2017 through 2025.

In October 2012, the federal government adopted similar GHG emissions (and mileage) standards for vehicles, so it is possible for automakers to demonstrate compliance with California's regulations based on compliance with federal standards. The Advanced Clean Cars program includes regulatory mechanisms such as regulations on stricter GHG emissions standards for cars and light trucks, building off the Pavley I standard; regulations for the production of ZEVs by automakers; and regulations on providing fueling stations for low-emission vehicles and ZEVs.

In 2013, AB 8 (Perea, Chapter 401, Statutes of 2013) extended various vehicle-related surcharges through 2023 to fund several incentive programs. These programs include the Air Quality Improvement Program, administered by ARB, that primarily provides rebates for ZEVs,

and the Alternative and Renewable Fuel and Vehicle Technology program, administered by the California Energy Commission, which focuses on development and deployment of innovative vehicle and fuel technologies to combat climate change. These incentive programs and state subsidies are intended to help shift market forces toward low- and zero-emission vehicles resulting in a vehicle fleet transformation toward these vehicles by 2050.

The longer term timeframe (beyond 2020) and the 2017 implementation date for the full Advanced Clean Car regulations are the primary reasons for the relatively minor GHG reductions estimate contribution (4 MMTCO₂e) for meeting AB 32's 2020 emissions reductions target.

APPENDIX C: WITNESSES

PANEL 1:

Ashley Conrad-Saydah, Deputy Secretary for Climate Policy, CalEPA

Ashley Conrad-Saydah, the California Environmental Protection Agency's Deputy Secretary for Climate Policy, was appointed by Governor Edmund G. Brown Jr. in April 2012. She works across sectors and with multiple agencies and stakeholders to achieve the state's ambitious climate goals and implement climate mitigation strategies throughout the state's communities, ecosystems and industries. Prior to joining CalEPA, Ms. Conrad-Saydah served as California's Renewable Energy Program Manager for the U.S. Department of Interior, Bureau of Land Management, beginning her tenure as a Presidential Management Fellow. Ms. Conrad-Saydah earned degrees from Princeton University and the Donald Bren School of Environmental Science and Management at the University of California, Santa Barbara, where she was a Doris Duke Conservation Fellow.

Kate White, Deputy Secretary of Environmental Policy and Housing Coordination, CalSTA

In September 2013, Governor Brown appointed Kate White as Deputy Secretary of Environmental Policy and Housing Coordination of the new California State Transportation Agency (CalSTA), which has replaced the Business, Transportation and Housing Agency (BT&H) with a new agency focused solely on transportation. The new CalSTA portfolio remains one of the largest in the State of California. Its operations address a myriad of transportation issues that directly impact the state's economic vitality and quality of life including public safety, construction and maintenance, and intercity and high-speed rail.

Prior to joining the Agency, Ms. White spent two decades in the sustainable development field, including terms as Initiative Officer at the San Francisco Foundation's Great Communities Collaborative, Executive Director of the Urban Land Institute Bay Area District, founding Executive Director of the San Francisco Housing Action Coalition, and founding Co-Director at City CarShare. Ms. White also worked for Urban Ecology and the National Low Income Housing. She earned a bachelor's degree in political science at Oberlin College, and Master of Public Administration degree from San Francisco State University.

PANEL 2:

Richard Corey, Executive Officer, ARB

Mr. Corey is Executive Officer of the California Air Resources Board (ARB). He has nearly 30 years of professional experience in the air pollution field with more than 20 years of that experience in a management capacity at ARB. Prior to his appointment as Executive Officer, he served as Deputy Executive Officer and Chief of the Stationary Source Division.

Mr. Corey's team of approximately 1,400 staff, including engineers, scientists, and analysts, is responsible for a broad range of programs including those concerning fuels, mobile sources,

climate, incentives, and air toxics. Some of the key programs his team is responsible for implementing include low-emission vehicle programs, the low carbon fuel standard, cap-and-trade regulation, and measures and incentives to reduce emissions from a variety of goods movement sources including port trucking, transport refrigeration units, cargo handling operations, and maritime operations. His team also develops and implements measures to reduce emissions from stationary and portable diesel engines as well as several strategies to reduce toxic air contaminants from a wide variety of sources, and develops key planning documents to keep California on track to meeting health-based air-quality standards and climate goals. Mr. Corey has an undergraduate degree in Environmental Toxicology as well as an M.B.A from the University of California, Davis.

Janea A. Scott, Commissioner, California Energy Commission

Janea A. Scott is one of five Commissioners on the California Energy Commission. Ms. Scott was appointed by Governor Edmund G. Brown Jr. in February 2013 to serve as the Commission's public member. She is the lead commissioner on transportation and western regional planning, and last year Ms. Scott led the 2014 Integrated Energy Policy Report Update. Ms. Scott serves as the chair of the California Plug-In Electric Vehicle Collaborative, a public/private organization focused on accelerating the adoption of PEVs to meet California's economic, energy, and environmental goals. She is also a member of the U.S. Department of Energy's Hydrogen and Fuel Cell Technical Advisory Committee. Ms. Scott earned her J.D. from the University of Colorado, Boulder, Law School and her M.S. and B.S. in earth systems from Stanford University.

Brian Annis, Undersecretary, CalSTA

In July 2013, Governor Edmund G. Brown Jr. appointed Brian Annis as Undersecretary. Prior to this appointment, Mr. Annis served as Deputy Secretary for Transportation at the Business, Transportation and Housing Agency. Mr. Annis served in various positions for the Senate Committee on Budget and Fiscal Review, including deputy staff director, principal consultant and consultant. He also served in various positions at the California Department of Finance, including principal program budget analyst, staff finance budget analyst and research analyst.

Mr. Annis has been an adjunct professor of economics at American River College and an economist for the Bureau of Labor Statistics at the U.S. Department of Labor. He holds a bachelor's degree in political economy of natural resources from the University of California, Berkeley, and a master's degree in economics from the University of Washington.

PANEL 3:

Curt Augustine, Director of Policy and Government Affairs, Alliance of Automobile Manufacturers

Curt Augustine is the Director of Policy and Government Affairs for the Alliance of Automobile Manufacturers, an association of 12 domestic and foreign vehicle manufacturers which produce 80 percent of the cars sold in the United States. Mr. Augustine serves as the Alliance's chief representative before policymakers and is responsible for formulating policy-based strategies to respond to legislative and regulatory issues. He has more than 20 years of experience around state government in both the public and private sectors. Mr. Augustine served as Deputy

Legislative Secretary to Governor Arnold Schwarzenegger where he was chief advisor and strategist on legislation related to transportation, business, financial, economic development, and local government issues. Additionally, Mr. Augustine served for eight years at the Department of Consumer Affairs in the Wilson Administration and was the head of a nonprofit association tasked with workforce development for the construction industry.

Tim Carmichael, President, California Natural Gas Vehicle Coalition

Tim Carmichael is the President of the California Natural Gas Vehicle Coalition. The Coalition is an association of natural gas vehicle and engine manufacturers, utilities, fuel providers and fleet operators serving the state. The Coalition works with legislators and regulators to develop policies that will increase alternative fuel and vehicle use, support new initiatives, and provide up-to-date information on NGV technology and market developments.

Mr. Carmichael previously worked with the Coalition for Clean Air, one of California's leading environmental advocacy organizations, and led efforts to reduce pollution from ports and freight transportation, increase the use of advanced transportation technologies, reduce the use of toxic chemicals, and include community health protections in California's strategy for addressing climate change. Prior to joining the Natural Gas Vehicle Coalition, Mr. Carmichael also worked briefly with Conscious Ventures Group, an environmental consulting group working on renewable energy policy issues. Mr. Carmichael attended UCLA, where he received bachelor's degrees in economics and history.

Jamie Hall, Policy Director, CALSTART

Jamie Hall is Policy Director at CALSTART, where he focuses on legislation, regulations, and incentives that affect the clean transportation technology industry. He provides policy support for CALSTART's members and program areas by acting as a bridge between industry leaders, policymakers, and other stakeholders. Mr. Hall has successfully led CALSTART's recent legislative and regulatory efforts around incentive programs for clean vehicles and fuels in California. He has also authored reports on a variety of clean transportation industry and policy issues in California and at the federal level. Mr. Hall arrived at CALSTART in 2008 with a background in energy and environmental policy issues. Immediately prior to joining CALSTART, he worked with Environmental Entrepreneurs to support the AB 32 Economic and Technology Advancement Advisory Committee's work related to implementation of California's landmark climate change legislation. Mr. Hall holds a master's degree in public policy from the Goldman School of Public Policy at UC Berkeley and a bachelor's degree in political economy from Princeton University.

Bill Magavern, Policy Director, Coalition for Clean Air

Bill Magavern joined CCA in 2012 and serves as its Policy Director, based in Sacramento. An environmental advocate since 1988, Mr. Magavern worked as staff attorney for the U.S. Public Interest Research Group, Director of Public Citizen's Critical Mass Energy Project, Sacramento Director of the Committee to Bridge the Gap, and Director of Sierra Club California. He has authored numerous reports and articles on energy and environmental issues, and testifies frequently before the State Legislature, Air Resources Board, and other agencies. Mr. Magavern received his J.D. from SUNY-Buffalo Law School and his bachelor's degree in American civilization from Brown University.

Simon Mui, Ph.D., Senior Scientist and Director, California Vehicles and Fuels, Natural Resources Defense Council

Simon Mui is a senior scientist at NRDC and directs its advocacy and research on clean vehicles and fuels in California. Simon has engaged in various efforts to cut climate pollution from the transportation sector for more than a decade. Prior to joining NRDC, Simon worked at the U.S. Environmental Protection Agency in Washington, D.C., where he authored studies on plug-in hybrid electric vehicles and on climate mitigation strategies for the transportation sector. Simon has also served as a fellow at Harvard's Kennedy School of Government and as an engineer at a battery start-up in California.

Simon, a native of California, received his undergraduate degrees from UC Berkeley and his master's and doctorate from MIT.

Catherine Reheis-Boyd, President, Western States Petroleum Association

Catherine Reheis-Boyd has been President of WSPA since January 1, 2010. She oversees the trade organization's operations and advocacy in California, Arizona, Nevada, Washington, and Oregon, and beyond those borders into Canada and abroad. Ms. Reheis-Boyd manages a broad range of Association activities, including legislative and regulatory issues associated with transportation fuels policy, air and water quality, climate change, renewable fuels and alternative energy issues, crude oil and natural gas.

Ms. Reheis-Boyd has been affiliated with WSPA since 1990 and previously was the Association's Executive Vice President. She served as Chief Operating Officer and managed WSPA's personnel as Chief of Staff since March, 2003. Ms. Reheis-Boyd received her bachelor's degree in natural resource management from California Polytechnic State University, San Luis Obispo, and pursued post-graduate studies in environmental engineering at the University of Southern California.

Mary Solecki, Western States Advocate, E2

Ms. Solecki is the Western States Advocate for Environmental Entrepreneurs (E2), covering state legislative and regulatory issues in California, Oregon, and Washington. E2 is a nonprofit advocacy organization whose business members support policy with both economic and environmental benefits. Ms. Solecki researches, informs and advocates for environmental policies that will drive economic opportunities. Her work includes clean-fuel standards, carbon-reduction programs and water efficiency. She is a topic expert on the Low Carbon Fuel Standard. Ms. Solecki has been consulting on energy policy since 2008, and has a background in sales and communications. She received her B.S. in business from Indiana University and got her M.B.A. from Presidio Graduate School in San Francisco.