Resolution 07-28

September 27, 2007

Attachment A

Technical and Clarifying Modifications to April 26, 2007 Revised Draft Air Resources Board's Proposed State Strategy for California's 2007 State Implementation Plan and May 7, 2007 Revised Draft Appendices A through G

(This page intentionally left blank.)

Attachment A

The following are technical modifications to the Revised Draft of the Proposed State Strategy for California's 2007 Implementation Plan. The changes are briefly described below, and a strikeout/underlined version of the corresponding page(s) is also attached.

Technical Modifications to April 26, 2007 Revised Draft:

1. Page 4. Changes an error in the description of estimated tons per day NOx reductions from mobile sources in the South Coast between 2006 and 2014.

2. Page 23. Adds reference to federal Bureau of Land Management.

3. Page 27. Makes a clarifying change describing SOx reductions from petroleum refining.

4. Page 29. Removes specific reference to federal and international sources.

5. Page 31. Corrects pesticide inventory numbers in the table, "San Joaquin Valley – Top sources of ROG". (Note: There is no change to the official planning inventory numbers specified in Appendix A. Incorrect numbers were inadvertently included in the table.)

6. Page 35. Adds clarifying language about ARB's and U.S. EPA's authority to control mobile sources.

7. Page 47. Adds clarifying language about ARB's and U.S. EPA's authority to control mobile sources.

8. Page 67. Adds clarifying language about ARB's and U.S. EPA's authority to control mobile sources.

9. Page 68. Adds clarifying language regarding ARB's and U.S. EPA's authority to control international sources.

10. Page 70. Adds clarifying language to the notes describing the elements of the attainment demonstration table.

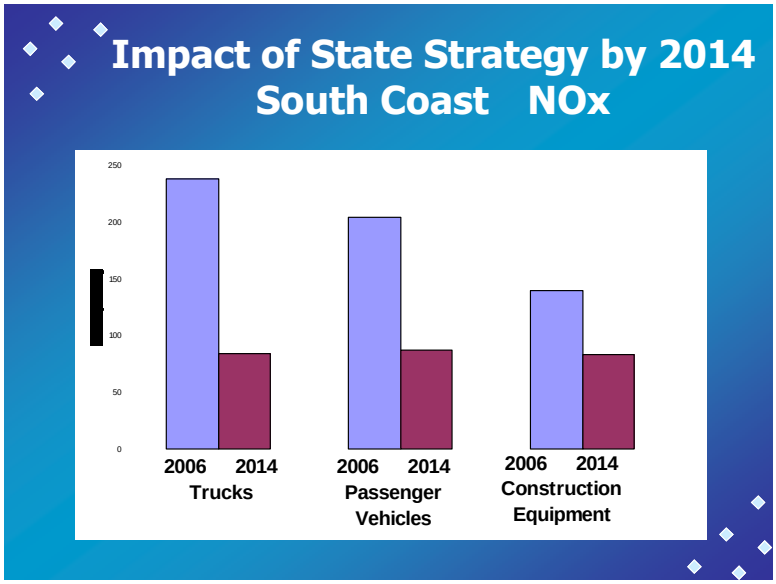
1. Appendix A, Page 100. Corrects a summation error for PM2.5 grand total numbers for the San Joaquin Valley.

2. Appendix A, Page 103. Corrects a summation error for SOx grand total numbers for the San Joaquin Valley.

3. Appendix C, Pages 1-4. Interstate Transport. Adds clarifying language to long-distance transport, clarifies district headings and make other wording clarifications.

4. Appendix D, Page 2. Deletes reference to federally-approved transport couples in regards to RFP demonstrations.

The proposed mobile source strategy and SIP commitments are described in Chapter 3. Individual measures are described in more detail in Chapter 5. The figure below shows the decrease in emissions for passenger vehicles, heavy-duty trucks, and construction equipment between now and 2014 with the proposed State Strategy. Due to increasingly more stringent mobile source controls, emissions from these categories are all on a downward trend, despite growth in population, travel, and the economy. The new measures in the proposed State Strategy would accelerate these emissions reductions. ARB staff is proposing an aggressive new emission reduction commitment of 122 tons per day of NOx reductions in the South Coast by 2014 in order to meet the region's PM2.5 attainment needs. This would bring the total mobile source NOx reductions achieved between 2006 and 2014 to about ~~450~~ 430 tons per day.



In contrast to passenger vehicles, trucks, and construction equipment that show substantial emission decreases with natural fleet turnover, locomotives and ships show an increase in emissions without the proposed State Strategy. Locomotive emissions have been decreasing in the South Coast due to the accelerated introduction of the cleanest current technology (Tier 2). However, as shown below, growth overtakes this benefit by 2014. The proposed State Strategy includes a measure to accelerate introduction of the next generation of clean technology once U.S. EPA adopts its proposed new Tier 4 standards. The 2014 benefits assume Tier 4 engines becoming available in 2012. The 70 percent reduction projected for 2020 is based on the proposed measure to accelerate the introduction of Tier 4 locomotives to California.

Environmental Justice

The SIPs consist of strategies designed to bring a region's air quality into compliance with federal standards. SIPs must be designed to ensure air quality standards throughout the entire region, so achieving air quality standards provides public health benefits to every community. This makes SIP implementation important to meeting ARB's community health and environmental justice goals. As part of our environmental justice program, ARB has initiated air quality studies in several communities and continues to focus resources on mobile source enforcement in environmental justice communities. ARB's Air Quality and Land Use Handbook, approved by ARB in May 2005, provides guidance to help improve local land use decisions that can negatively impact public health at the community level.

ARB's SIP strategies have a significant nexus to community health due to the emphasis on cleaning up the legacy fleets of diesel engines. Much of the large equipment and vehicles that help construct our buildings and highways and move our goods are not well controlled and have very long lives. Adopting rules to clean up these fleets will have an immediate and significant effect on the communities where these sources are concentrated.

Regional Haze

The same particulate air pollutants that affect public health also extinguish and scatter light, thereby obscuring visibility. The federal Clean Air Act set the far-reaching goal of achieving natural visibility conditions by 2064 in the nation's most treasured parks and wilderness areas. Of the 156 designated areas, 29 are in California, managed by the National Park Service<u>, the federal Bureau of Land Management,</u> and the U.S. Forest Service. Therefore California is working in concert with fourteen other western states to reduce controllable emissions of particulates so that regional haze is reduced in the western region of the country. In 1999, the U.S. Environmental Protection Agency published rules to guide the preparation of Regional Haze State Implementation Plans to reduce regional haze.

ARB is currently preparing the first regional haze plan for the entire State, for transmittal to EPA by the December 17, 2007 deadline. General trends in California since the 1990s show that emission controls are improving visibility in our parks and wilderness areas. The regional haze plan will show how these controls constitute reasonable progress along the path to natural visibility. In 2012, ARB will conduct a mid-course review of measured visibility changes and analyze how emission reductions implemented to achieve the 8-hour ozone and the PM2.5 standards will move the State further along the path to natural visibility in the future.

SOx. Sulfur oxide emissions are dominated by the mobile source category of ships and commercial boats. ~~Evaporative losses from petroleum~~ Petroleum refining (a stationary source) ~~are~~ is another significant source of SOx. The other sources that make up 5 percent or more of the SOx inventory are locomotives and mining and cement manufacturing.

Direct PM2.5. Directly emitted PM2.5 comes mainly in the form of smoke, soot, and dust particles. Major sources include managed burning and agricultural burning; dust generated by vehicles traveling on paved and unpaved roads, residential fireplaces, cooking and fuel combustion; and particle emissions from diesel-fueled engines on trucks, ships, and construction equipment. While soot from diesel engines is not a major portion of the entire direct PM2.5 emissions inventory, it is a major health concern, as it is a toxic air contaminant that can cause premature death.

Forecasting Future Emissions

Estimates of projected future emissions depend on two independent variables: growth and control. Different methods are used to estimate the future growth of emission sources based on their type. And future emission controls are incorporated into the projected emissions for each source category based on when the controls are implemented, how much the controls reduce emissions, and how many units (vehicles, consumer products, etc.) are affected.

The charts on the next page show the change in total projected statewide emissions for NOx, ROG, and SOx from 2006 to 2023 and the relative emissions change in each of these emission source categories. They reflect projected growth in each category combined with the benefits of the existing control program (those emission controls adopted prior to 2007). For example, SOx emissions as a category continue to grow due to ship emission increases. This makes ship SOx emissions a high priority for control in the new SIP strategy. NOx and ROG emissions are decreasing as a result of existing control programs despite substantial growth in population, travel, and the economy.

ARB uses two computer models to simulate and forecast emissions for on- and off-road sources. For cars, sport utility vehicles, minivans, and trucks, ARB used EMFAC2007. For off-road vehicles and equipment, ARB used OFFROAD2007. Both models were released for public use in November 2006 after a multi-year development process. As required by federal guidance, EMFAC2007 uses the latest fleet information for vehicles age and population. The data is developed from the California Department of Motor Vehicle registration data through 2005. For SIP purposes, as required by State law, vehicle activity is based on local transportation agency projections, or California Department of Transportation data, if local data are not available.

Here are some things we have learned by analyzing the emissions inventory for these two areas:

- South Coast NOx emissions are significantly impacted by goods movement, with the ships, trains, trucks, and off-road equipment that move goods contributing about 30 percent of all South Coast NOx emissions. Aircraft NOx emissions are also increasing.

- The impact of goods movement in the San Joaquin Valley is felt mostly by the emissions contribution of heavy-duty trucks, which are projected to remain the largest NOx emitter through 2023.

- Emissions of NOx from manufacturing and industrial sources in the San Joaquin Valley become increasingly significant as emissions from mobile sources decline in the future.

- The large population in the South Coast is the main reason why consumer product emissions are projected to become the number one ROG emissions source by 2014.

- San Joaquin Valley ROG emissions are significantly impacted by agricultural sources such as livestock waste.

- The existing emission control program will cut heavy-duty truck NOx emissions about 70 percent in the San Joaquin Valley and South Coast by 2023, but they need to be cut even more by new strategies to attain ozone and PM2.5 standards.

- Mobile sources ~~under~~ subject to federal and international standards ~~jurisdiction (like ships, locomotives, and aircraft)~~ contribute an increasingly greater proportion of total emissions, especially NOx, in future years as emission increases due to growth overwhelm the existing control program, while emissions of mobile sources under State jurisdiction decrease due to stringent controls.

South Coast Air Basin – Top Sources of ROG

Summer emissions, tons per day

Source Category	2006	2014	2023
PASSENGER VEHICLES	207	112	76
CONSUMER PRODUCTS	101	103	110
RECREATIONAL BOATS	64	53	51
OFF-ROAD EQUIPMENT (LAWN AND GARDEN)	52	40	38
ARCHITECTURAL COATINGS (PAINTS AND THINNERS)	31	29	31
OFF-ROAD EQUIPMENT (COMMERCIAL, INDUSTRIAL)	28	15	12
PETROLEUM MARKETING (GASOLINE EVAPORATIVE LOSSES)	27	28	31
COATINGS (PAINTS AND THINNERS - NON ARCHITECTURAL)	27	25	28
GASOLINE-FUELED COMMERCIAL TRUCKS	24	13	8
GAS CANS	21	10	7
OFF-ROAD EQUIPMENT (CONSTRUCTION AND MINING)	20	12	8
TOTAL OF TOP CATEGORIES	**600**	**441**	**399**
TOTAL	**732**	**567**	**534**
TOP CATEGORIES PERCENT OF TOTAL	**82%**	**78%**	**75%**

San Joaquin Valley – Top Sources of ROG

Summer emissions, tons per day

Source Category	2006	2014	2023
PASSENGER VEHICLES	62	37	24
WASTE DISPOSAL/COMPOSTING	57	72	80
LIVESTOCK WASTE (DAIRY CATTLE)	40	33	41
OIL AND GAS PRODUCTION (EVAPORATIVE LOSSES/FLARING)	28	26	23
CONSUMER PRODUCTS	24	26	30
PESTICIDES	~~22~~ <u>18</u>	~~20~~ <u>18</u>	~~20~~ <u>18</u>
HEAVY DUTY DIESEL TRUCKS	20	13	8
RECREATIONAL BOATS	20	17	17
FOOD AND AGRICULTURE (CROP PROCESSING AND WINERIES)	13	12	13
ARCHITECTURAL COATINGS (PAINTS AND THINNERS)	11	12	13
OFF-ROAD EQUIPMENT (COMMERCIAL, INDUSTRIAL)	10	6	4
FARM EQUIPMENT (COMBINES AND TRACTORS)	10	5	3
TOTAL OF TOP CATEGORIES	**~~317~~ <u>313</u>**	**~~279~~ <u>277</u>**	**~~277~~ <u>275</u>**
TOTAL	**452**	**410**	**414**
TOP CATEGORIES PERCENT OF TOTAL	**70%**	**68%**	**67%**

Note: Emissions do not include impact of State Strategy proposed new measures.

3. ARB's 2007 SIP STATE STRATEGY

The State Strategy maps out how to achieve the emission reductions necessary to meet federal air quality standards. The two main emission reduction components of the State Strategy are the adopted SIP measures and proposed new measures. The adopted SIP measures include those adopted through 2006. Proposed new measures include those to be adopted after 2006.

Responsibility for implementing emission reduction measures is shared between the agencies with primary responsibility for controlling air pollution in California: the Air Resources Board, 35 local air pollution control and air quality management districts, and the U.S. Environmental Protection Agency. However, given the current status of statewide emissions, ARB has the lion's share of responsibility, followed by U.S. EPA.

Agency Roles in SIP Measure Development

Local Measures

Local air districts are primarily responsible for controlling emissions from stationary and areawide sources (with the exception of consumer products) through rules and permitting programs. Examples include industrial sources like factories, refineries, and power plants; commercial sources like gas stations, dry cleaners, and paint spray booth operations; residential sources like fireplaces, water heaters, and house paints; and miscellaneous non-mobile sources like emergency generators. Districts also inspect and test fuel vapor recovery systems to check that such systems are operating as certified.

State Measures

ARB is responsible for controlling emissions from mobile sources (except where federal law preempts ARB's authority) and consumer products, developing fuel specifications, establishing gasoline vapor recovery standards and certifying vapor recovery systems, providing technical support to the districts, and overseeing local district compliance with State and federal law. The Department of Pesticide Regulation is responsible for control of agricultural, commercial and structural pesticides, while the Bureau of Automotive Repair runs the State's Smog Check programs to identify and repair polluting cars.

Federal Measures

U.S. EPA has ~~the~~ authority to control emissions from certain mobile sources, ~~including sources all or partly under exclusive federal jurisdiction~~ (like interstate trucks, some farm and construction equipment, aircraft, ~~marine vessels,~~ and locomotives based in this country) which it shares in many cases with local districts and ARB. U.S. EPA also has oversight authority for state air programs

as they relate to the federal Clean Air Act. International organizations develop standards for aircraft ~~and marine vessels~~ that operate outside the U.S.

SOx, 49 tons per day of NOx, and about 4 tons per day of direct PM2.5 in the South Coast by 2014.

Ships

Emissions from ocean-going vessels, unlike most major pollution sources, are not projected to decrease in future years, since ships have little or no emission controls and run on high-emitting bunker fuel, and shipments of cargo containers are projected to grow significantly over the next two decades. Ships currently emit half the statewide SOx emissions, and it is estimated that ships will jump from the sixth to the second highest statewide NOx producer by 2023. It is essential to reduce ship emissions as they are entering our ports and when they are docked through application of demonstrated control technologies, use of cleaner fuels, and operational efficiencies. ~~Since ARB does not have authority to set ship engine emission standards, we~~ For maximum effectiveness, ARB needs to ~~must~~ work with ~~national and international authorities, as well as~~ the ports~~,~~ as well as coordinate with national and international authorities, to implement many of the control measures necessary to clean up these sources.

ARB took a big step in reducing emissions from ships in December 2005 by adopting a rule phasing in the use of cleaner low-sulfur fuel in ship auxiliary engines that will reduce SOx emissions from auxiliary engines by 96 percent and PM2.5 emissions by 83 percent beginning in 2010.

Proposed New Ship Measures

In addition to the 2005 auxiliary engine fuel rule, the State Strategy proposes to reduce emissions from ship auxiliary engines through cold ironing and other clean technology. Cold ironing allows ships to turn off their auxiliary engines and instead plug into an electrical system for power when they are docked at a port. This measure would phase in the number of ships capable of using cold ironing and other at-dock technologies such as the “hood”, which fits onto a ship’s exhaust stack and cleans the emissions, and is estimated to reduce NOx emissions about 19 tons per day in 2014 and 28 tons per day in 2020.

The State Strategy proposes to reduce emissions from ship main engines through a variety of measures. A main engine fuel rule, patterned after the auxiliary engine fuel rule, would help reduce emissions by introducing a cleaner, low-sulfur fuel beginning no later than 2010. Increasing the use of cleaner new engines or retrofitted engines beginning in 2010 could be implemented via regulation, incentives, voluntary agreements, or a combination of these approaches. Higher ship speeds cause much higher emissions. So a measure is proposed that would strengthen a current voluntary program by requiring ships to reduce their speeds to 12 knots within 40 nautical miles of the Ports of Los Angeles and Long Beach. The combination of ship main engine measures would reduce both NOx and SOx emissions by 20 tons per day and direct PM2.5 emissions by over 2 tons per day in 2014. These reductions would increase substantially through 2023.

Role of Funding and Incentive Programs

Over the past 40 years, California has steadily improved air quality in the face of tremendous economic and population growth. The vast majority of that progress has come from effective regulations. Accordingly, ARB staff expects State and federal regulations to play the primary role in implementing the State Strategy. In the regulatory paradigm, polluting sources pay for the necessary emission controls as part of doing business. Regulated industries may pass these costs on to consumers in the form of higher prices, although competition and other factors may prevent some companies from recouping all of their control costs. Low-interest loans with extended payment periods are available to aid smaller businesses that need upfront capital to comply.

In recent years, regulatory programs have been supplemented with financial incentives to accelerate voluntary actions, such as replacing older equipment. Incentive programs like the Carl Moyer Program are both popular and effective. They also help to demonstrate emerging technologies that then can be used to set a tougher emissions benchmark for regulatory requirements. Most of the existing incentive programs are designed to pay for the incremental cost between what is required by regulation and advanced technology that exceeds that level. The incentive programs are publicly funded through fees paid by California vehicle owners as part of their annual registrations, smog inspections or new tire purchases. California is currently investing up to $140 million per year to clean up older, higher emission sources.

The support for clean air incentive funding from Governor Schwarzenegger, the Legislature, and California's voting public is reflected in the passage on November 7, 2006, of the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. The Bond Act includes $1 billion to accelerate the cleanup of air pollution caused by goods movement activities in California. With appropriation by the Legislature, and subject to such conditions and criteria contained in a statute that it will enact, ARB will appropriate this money to fund emission reductions from activities related to the movement of freight along California's trade corridors.

Federal Actions Needed

~~Measures in the State Strategy to reduce emissions from interstate and international sources rely on the federal government to develop more stringent emission standards and to ensure these standards go into effect as soon as possible.~~ Emission reductions from locomotives, off-road equipment, marine auxiliary engines, and harbor craft are a significant part of the State Strategy. Proposed State measures would accelerate the introduction of cleaner engines and equipment, but the emission reductions rely on the availability of cleaner new engines. U.S. EPA has primary, and in some cases exclusive, authority to establish new engine emission standards for these sources.

CAA section 209(e)(2) allows California to seek authorization to adopt and enforce emission standards for some non-road mobile sources. However, it is not likely that ARB could consult with affected parties, develop and adopt regulations, and secure U.S. EPA approval to enact the regulations in time to ensure that resulting cleaner engines will be widely available by 2014. Therefore, ~~M~~measures in the State Strategy to reduce emissions from interstate and international sources rely on the federal government to develop more stringent emission standards and to ensure these standards go into effect as soon as possible.

ARB is proposing several measures to reduce ship emissions through a combination of regulations, incentives, and actions by ports and the private

sector. However, national and international action to clean up shipping fleets is also needed to fully realize our clean air goals. And aircraft emissions, which will become one of the South Coast's top five NOx sources by 2020, are unaddressed in the State Strategy due to the lack of effective international standards.

~~California must rely on~~ U.S. EPA plays an important role in ~~to~~ representing ~~its~~ California's interests before ~~foreign or~~ international ~~regulatory~~ bodies that negotiate minimum global standards governing ~~have the ability to reduce~~ emissions from international ~~goods movement~~ sources such as ocean-going vessels. In this role, U.S. EPA should advocate for the adoption of cleaner ship emission standards and less polluting practices by the International Maritime Organization.

Possible Federal Actions

Adopt more stringent standards for sources ~~under~~ subject to federal control. U.S. EPA should move as fast as possible to lower standards for sources that it can regulate ~~under its control~~, keeping in mind California's air quality challenge and attainment deadlines. There are categories of emission sources that we ~~do not~~ have the authority to regulate operational controls on these sources at the State level. We also ~~do not~~ have the ability to regulate such sources in markets outside of California ~~that then~~ when they operate within California. However, for these sources and for other sources under exclusive or concurrent federal jurisdiction, federal regulation would enable greater and faster emission reductions than otherwise would be possible with only State action. Not only would federal action lower emissions for new sources, but it would allow State and local actions to lower emissions from existing sources by setting in-use rules that speed up the integration of the cleaner engines and technology into California fleets. These sources include: ships, locomotives, harbor craft, aircraft, and off-road equipment and vehicles.

Federal incentives for cleaner technology. Federal funding sources for clean air projects, as well as federal tax incentives promoting the manufacture, sale, and purchase of cleaner vehicles, equipment, and technology, could enhance California's aggressive incentive programs.

Setting the Ozone Emission Reduction Target (tons per day)

	Nonattainment Area			
	South Coast (2023)		San Joaquin Valley (2023)	
	NOx	ROG	NOx	ROG
2006 Emissions Inventory	972	732	650	454
Carrying Capacity	114	420	160	342
Emission Reduction Target	858	312	490	112

(2006 Emissions Inventory) – (Carrying Capacity) = (Emission Reduction Target)

2006 Emissions Inventory = Amount of ozone-forming emissions.
Carrying Capacity = Pollutant emissions limit that ensures air quality standards are met.
Emission Reduction Target = Amount of emissions that must be reduced to meet the standard.

Meeting the Ozone Emission Reduction Target (tons per day)

	Nonattainment Area			
	South Coast (2023)		San Joaquin Valley (2023)	
	NOx	ROG	NOx	ROG
Emission Reduction Target	858	312	490	112
Emission Reductions from Adopted SIP Measures	467	199	355	43
Emission Reductions from New Local Measures	9	19	8	47
Emission Reductions from New State Measures	141	54	46	25
Long-Term Measures	241	40	81	--
Total Reductions	**858**	**312**	**490**	**115**

Emission Reductions from Adopted SIP Measures = Emissions reduced from State and local measures adopted through 2006.
Emission Reductions from New Measures = Emissions reduced from measures in the State Strategy or new local measures adopted after 2006.
Long-Term Measures = Emissions reduced from measures adopted after 2020 that rely on new or evolving technology, as allowed in section 182(e)(5) of the Clean Air Act.

On-Road Mobile															
LIGHT DUTY PASSENGER (LDA)	0.77	0.77	0.78	0.80	0.83	0.86	0.89	0.90	0.92	0.93	0.95	0.99	1.00	1.05	1.15
LIGHT DUTY TRUCKS - 1 (LDT1)	0.27	0.27	0.27	0.27	0.28	0.28	0.29	0.29	0.30	0.30	0.31	0.31	0.32	0.33	0.36
LIGHT DUTY TRUCKS - 2 (LDT2)	0.54	0.65	0.66	0.68	0.71	0.74	0.77	0.79	0.81	0.82	0.84	0.88	0.89	0.93	1.04
MEDIUM DUTY TRUCKS (MDV)	0.24	0.35	0.35	0.37	0.39	0.41	0.43	0.44	0.46	0.47	0.48	0.50	0.51	0.54	0.60
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.04	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.07
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.01	0.06	0.06	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.03
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.03	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.56	0.63	0.62	0.56	0.56	0.55	0.53	0.51	0.49	0.47	0.45	0.42	0.41	0.39	0.38
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	8.92	9.01	10.81	8.69	8.13	7.56	7.01	6.48	5.96	5.47	5.00	4.17	3.81	3.23	2.68
MOTORCYCLES (MCY)	0.02	0.04	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
HEAVY DUTY GAS URBAN BUSES (UB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCHOOL BUSES (SB)	0.08	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.10	0.10	0.11	0.11	0.11	0.11
OTHER BUSES (OB)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
MOTOR HOMES (MH)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
On-Road Subtotal	**11.56**	**12.05**	**13.86**	**11.70**	**11.23**	**10.74**	**10.27**	**9.77**	**9.28**	**8.81**	**8.38**	**7.62**	**7.30**	**6.82**	**6.58**
Other Mobile															
AIRCRAFT	1.33	1.36	1.43	2.02	2.08	2.19	2.31	2.35	2.39	2.44	2.48	2.57	2.62	2.72	2.72
TRAINS	0.60	0.60	0.59	0.54	0.54	0.54	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.54	0.54
SHIPS AND COMMERCIAL BOATS	0.07	0.06	0.07	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.05
RECREATIONAL BOATS	0.71	0.79	0.83	0.92	0.97	1.02	1.08	1.14	1.20	1.27	1.33	1.48	1.55	1.70	1.98
OFF-ROAD RECREATIONAL VEHICLES	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.08	0.09
OFF-ROAD EQUIPMENT	3.81	3.52	3.41	2.99	2.81	2.64	2.46	2.26	2.07	1.89	1.73	1.43	1.31	1.10	0.91
FARM EQUIPMENT	4.03	3.63	3.48	3.03	2.89	2.79	2.64	2.42	2.19	1.99	1.82	1.50	1.34	1.06	0.73
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Mobile Subtotal	**10.60**	**10.02**	**9.85**	**9.60**	**9.38**	**9.27**	**9.11**	**8.79**	**8.47**	**8.21**	**7.99**	**7.61**	**7.47**	**7.24**	**7.02**
Grand Total	**94.16**	**88.01**	**86.22**	**84.95**	**85.23**	**82.46**	**82.37**	**82.36**	**82.34**	**82.38**	**82.48**	**82.80**	**82.99**	**83.44**	**84.22**

121.98 116.94 117.17 113.92 113.84 110.72 110.26 109.85 109.48 109.17 108.99 108.94 109.04 109.41 110.34

On-Road Mobile															
LIGHT DUTY PASSENGER (LDA)	0.26	0.18	0.18	0.17	0.18	0.18	0.19	0.19	0.20	0.20	0.21	0.22	0.22	0.23	0.25
LIGHT DUTY TRUCKS - 1 (LDT1)	0.12	0.09	0.09	0.06	0.06	0.06	0.07	0.07	0.07	0.07	0.07	0.08	0.08	0.08	0.09
LIGHT DUTY TRUCKS - 2 (LDT2)	0.13	0.11	0.11	0.10	0.11	0.11	0.11	0.12	0.12	0.12	0.12	0.13	0.13	0.14	0.15
MEDIUM DUTY TRUCKS (MDV)	0.09	0.09	0.09	0.08	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10	0.10	0.10	0.11
LIGHT HEAVY DUTY GAS TRUCKS - 1 (LHDV1)	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.03
LIGHT HEAVY DUTY GAS TRUCKS - 2 (LHDV2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01
MEDIUM HEAVY DUTY GAS TRUCKS (MHDV)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HEAVY HEAVY DUTY GAS TRUCKS (HHDV)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LIGHT HEAVY DUTY DIESEL TRUCKS - 1 (LHDV1)	0.00	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LIGHT HEAVY DUTY DIESEL TRUCKS - 2 (LHDV2)	0.02	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MEDIUM HEAVY DUTY DIESEL TRUCKS (MHDV)	0.18	0.23	0.23	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04
HEAVY HEAVY DUTY DIESEL TRUCKS (HHDV)	1.47	1.76	2.20	0.22	0.23	0.23	0.24	0.24	0.25	0.26	0.27	0.28	0.29	0.31	0.33
MOTORCYCLES (MCY)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HEAVY DUTY DIESEL URBAN BUSES (UB)	0.02	0.03	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HEAVY DUTY GAS URBAN BUSES (UB)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCHOOL BUSES (SB)	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OTHER BUSES (OB)	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOTOR HOMES (MH)	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
On-Road Subtotal	**2.36**	**2.62**	**3.04**	**0.71**	**0.73**	**0.75**	**0.77**	**0.78**	**0.80**	**0.82**	**0.84**	**0.89**	**0.91**	**0.95**	**1.02**
Other Mobile															
AIRCRAFT	0.42	0.45	0.45	0.50	0.51	0.52	0.54	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61
TRAINS	0.68	0.71	0.73	0.07	0.07	0.07	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
SHIPS AND COMMERCIAL BOATS	0.25	0.31	0.33	0.12	0.13	0.08	0.08	0.09	0.09	0.10	0.10	0.12	0.12	0.14	0.16
RECREATIONAL BOATS	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
OFF-ROAD RECREATIONAL VEHICLES	0.08	0.06	0.07	0.07	0.08	0.08	0.08	0.09	0.09	0.09	0.10	0.10	0.11	0.11	0.13
OFF-ROAD EQUIPMENT	0.46	0.48	0.49	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
FARM EQUIPMENT	0.51	0.51	0.51	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
FUEL STORAGE AND HANDLING	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other Mobile Subtotal	**2.41**	**2.53**	**2.58**	**0.87**	**0.89**	**0.86**	**0.83**	**0.84**	**0.86**	**0.88**	**0.90**	**0.93**	**0.95**	**0.99**	**1.05**
Grand Total	**~~3.63~~**	**~~3.74~~**	**~~3.79~~**	**~~2.07~~**	**~~2.10~~**	**~~2.06~~**	**~~2.03~~**	**~~2.04~~**	**~~2.06~~**	**~~2.07~~**	**~~2.09~~**	**~~2.12~~**	**~~2.14~~**	**~~2.18~~**	**~~2.23~~**

27.14 28.55 29.29 25.6 25.85 26.13 26.41 26.73 27.07 27.4 27.75 28.34 28.65 29.24 30.12

Introduction

Sections 110 (a)(1) and (2) of the Clean Air Act require states to submit SIPs that implement, maintain, and enforce a new or revised national ambient air quality standard within 3 years following promulgation of the standard. Among the SIP elements identified in Section 110(a)(2) is the requirement to address the transport of pollutants between states. This section also requires states to ensure that their SIP does not interfere with another state's program to prevent significant deterioration of its air quality or interfere with visibility in another state.

In April 2005, the U.S. EPA notified states of their failure to make the required SIP submission addressing interstate transport of pollutants related to ozone and PM2.5. This "failure to submit" finding for the required interstate transport SIPs started a 24-month clock for U.S. EPA to issue a final Federal Implementation Plan (FIP) for any state that does not submit a plan and receive U.S. EPA approval within that time period.

On August 15, 2006, U.S. EPA issued guidance for submitting interstate transport or "Good Neighbor" SIPs. In accordance with that guidance, this document contains ~~documents~~ the findings that California meets the requirements of sections 110 (a)(1) and (2) of the Clean Air Act for both the federal 8-hour ozone standard and the federal PM2.5 standard.

Closest Nonattainment Areas to California

Ozone*:* The closest 8-hour ozone nonattainment areas are Las Vegas, Nevada, and Phoenix-Mesa, Arizona.

PM2.5*:* The closest PM2.5 nonattainment area is Libby, Montana. Libby is more than 900 miles away from the San Joaquin Valley, the nearest PM2.5 nonattainment area in California.

Evaluation of significant contribution to nonattainment or interference with maintenance of attainment standards in another state

U.S. EPA did an analysis for its Clean Air Interstate Rule or CAIR to identify states that were contributing significantly to nonattainment of PM2.5 and ozone in adjacent states. In the preamble to that rule, U.S. EPA stated that:

> "In analyzing significant contribution to nonattainment, we determined it was reasonable to exclude the Western U.S., including the States of Washington, Idaho, Oregon, California, Nevada, Utah and Arizona from further analysis due to geography, meteorology, and topography. Based on these factors, we concluded that the PM2.5 and 8-hour ozone nonattainment problems are not likely to be affected significantly by pollution transported across these States' boundaries. Therefore, for the

> purpose of assessing State's contributions to nonattainment in other States, we have only analyzed the nonattainment counties located in the rest of the U.S."[1] (emphasis added)

The meteorological discussions below provide more detail.

Ozone*:* Ozone episodes over the Southwestern United States are normally associated with strong high pressure systems centered over the Southwest Desert. These meteorological patterns are characterized by clear skies, warm temperatures, and light winds and result in very stagnant conditions over the region. Ozone is not transported over long distances under these conditions. On occasion, the strong high pressure is weakly impacted by migrating low pressure systems over the Pacific Ocean. This has the dual effect of maintaining stagnant conditions over most of the region while allowing weak pressure systems to push air that is high above the surface eastward and to transport ozone trapped in this layer over long distances.

PM2.5*:* The technical support document for the PM2.5 designation of Lincoln County, Montana (containing Libby, Montana) found that the nonattainment area is "localized within and around the vicinity of the town of Libby due to topographical features and meteorology in the area impacted by emissions." Therefore, Libby, Montana's nonattainment status is not affected by emissions produced in other areas and transported to the Libby area.

U.S. EPA's conclusion in CAIR preamble plus the above meteorological summary support the finding that California does not significantly affect nonattainment areas in other states.

California's existing stringent motor vehicle control program, consumer product regulations, stationary source permitting, new source review programs, and new commitments outlined in the California SIP further strengthened by the 8-hour ozone and PM2.5 SIPs will result in steadily decreasing emissions. ~~This greatly reduces the likelihood~~ Even with the occasional possibility of ozone being transported over long distances, California's air quality programs greatly reduce the likelihood that emissions from California will contribute significantly to nonattainment in any downwind state.

[1] *Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (Interstate Air Quality Rule Preamble),* 69 FR at 4581, January 30, 2004.

Evaluation of interference with Prevention of Significant Deterioration Measures of any other State

U.S. EPA guidance[2] for interstate transport SIPs advises states to make a SIP submission to confirm that major sources in the State are currently subject to prevention of significant deterioration (PSD) and nonattainment new source review (NNSR) preconstruction permitting programs that apply to the 8-hour ozone standard.

For the PM2.5 standard, the guidance advises states to provide a SIP submission to confirm that major sources in the State are subject to PSD and NNSR permitting programs implemented in accordance with U.S. EPA's interim guidance calling for use of PM10 as a surrogate for PM2.5 in the PSD and NNSR programs.

In California, all areas are subject to some form of preconstruction program for ozone and PM2.5. These rules are as stringent, or more stringent, than the federal preconstruction programs (PSD and NNSR). For ozone, California is on track to submit SIPs per the Phase II 8-hour Ozone Implementation Rule. For PM 2.5, California's preconstruction programs are being implemented in accordance with EPA's interim guidance calling for the use of PM10 as a surrogate for PM2.5 emissions.

The following air districts are in attainment of the federal 8-hour ozone and PM2.5 standards and have a SIP approved PSD rule.

- Mendocino County Air Pollution Control District
- Monterey Bay Unified Air Pollution Control District
- Northern Sonoma County Air Pollution Control District
- North Coast Unified Air Quality Management District
- Sacramento Metro Air Quality Management District (PM2.5)

On a case-by-case basis, U.S. EPA has delegated partial PSD permitting authority to the following air districts that are in attainment of the federal 8-hour ozone and PM2.5 standards.

- Antelope Valley Air Quality Management District
- Bay Area Air Quality Management District
- San Diego Air Pollution Control District

For all other areas that are in attainment of federal standards, U.S. EPA retains federal PSD permitting authority.

[2] *Guidance for State Implementation Plan (SIP) Submissions to Meet Current Outstanding Obligations Under Section 110(a)(2)(D)(i) for the 8-Hour Ozone and PM2.5 National Ambient Air Quality Standards*, memo from William T. Harnett to Regional Air Division Directors dated August 15, 2006, Page 8.

The following air districts are nonattainment of the federal 8-hour ozone standard and have new source review rules or are on track to submit an NSR rules as part of their 8-hour ozone SIP development process. These rules are or will be equivalent to or more stringent than the federal requirements.

- Antelope Valley Air Quality Management District (Antelope Valley and Western Mojave Desert Nonattainment Area)
- Amador County Air Pollution Control District (Central Mountain Counties Nonattainment Area)
- Bay Area Air Quality Management District
- Butte County Air Quality Management District
- Calaveras County Air Pollution Control District (Central Mountain Counties Nonattainment Area)
- El Dorado County Air Pollution Control District (Sacramento Federal Nonattainment Area)
- Feather River Air Quality Management District ~~(Sacramento Federal Nonattainment Area)~~
- Imperial Air Pollution Control District
- Kern County Air Pollution Control District (Eastern Kern Nonattainment Area)
- Mariposa County Air Pollution Control District (Southern Mountain Counties Nonattainment Area)
- Mojave Desert Air Pollution Control District (Antelope Valley and Western Mojave Desert Nonattainment Area)
- Northern Sierra Air Quality Management District (Western Nevada County Nonattainment Area)
- Placer County Air Pollution Control District (Sacramento Federal Nonattainment Area)
- Sacramento Metropolitan Air Quality Management District (Sacramento Federal Nonattainment Area)
- San Joaquin Valley Unified Air Pollution Control District
- South Coast Air Quality Management District
- Tuolumne County Air Pollution Control District (Southern Mountain Counties Nonattainment Area)
- Ventura County Air Pollution Control District
- Yolo Solano Air Quality Management District (Sacramento Federal Nonattainment Area)

The following air districts are nonattainment of the federal PM2.5 standard and already have NSR rules in place for PM10. These rules are equivalent to or more stringent than the federal requirements.

- South Coast Air Quality Management District
- San Joaquin Valley Unified Air Pollution Control District

For RFP, nonattainment areas classified serious and above must demonstrate an 18 percent reduction in ROG and/or NOx emissions from the 2002 baseline ROG inventory by 2008. In the years that follow, they must demonstrate, on average, an additional 3 percent per year reduction in ROG and/or NOx emissions until their attainment year. Serious areas are: San Joaquin Valley, Coachella Valley and Sacramento. Note that for the reasons given above, Coachella Valley is subject to a 15 percent ROG-only reduction requirement from 2002 to 2008. The South Coast Air Basin is classified as severe.

For moderate and above 8-hour ozone nonattainment areas, a limited amount of NOx reductions may also be used, to a point, as a substitution for ROG reductions for RFP. NOx emission reductions creditable toward the RFP requirement cannot be greater than the cumulative NOx reductions that are necessary to demonstrate attainment. This attainment consistency requirement is meant to prevent the substitution of NOx reductions for progress purposes that would not lead toward attaining the ozone standard.

U.S. EPA has taken the position in guidance, and not in regulation, that for nonattainment areas classified under Subpart 2, reductions needed for progress in the attainment year should equate to those needed for attainment. ARB staff disagrees. We believe a plain reading of the Act indicates that a 3 percent reduction per year is needed between the next-to-last milestone year and the attainment year. For example, in a severe-15 area, the next-to-last milestone year is 2017 and the attainment year is 2018. A 45 percent reduction is needed in 2017 for RFP. Therefore, the RFP requirement for the next year (2018) is three percent more, or 48 percent – and not the reductions needed for attainment.

Upwind Emissions in RFP Demonstrations

Ozone levels are influenced by ROG and NOx emitted both within a nonattainment area and transported from upwind locations. U.S. EPA acknowledges this relationship by allowing emission reductions from upwind locations outside the nonattainment area to be included for RFP, up to 100 kilometers for ROG and 200 kilometers for NOx.

The inclusion of transport contributions of ROG and NOx provides key emission reductions in RFP analyses for the following nonattainment areas: Antelope Valley and Western Mojave Desert, Central Mountain Counties, Coachella Valley, Eastern Kern, Southern Mountain Counties and Western Nevada. Their emission inventories for RFP purposes include ROG and NOx emissions from counties that are (1) entirely within the designated 100km and 200km distances, and (2) part of the area's established ~~federally~~ Board-approved transport couples.

Federal Motor Vehicle Control Program Adjustments