Chapter 8

Innovative Strategies: Legislation, Collaboration, and Community Action

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[Note: This draft plan will continue to be revised and updated throughout the public process.]

The extreme air quality challenges of the San Joaquin Valley (Valley) demand that the San Joaquin Valley Air Pollution Control District (District) and the community take extraordinary measures in trying to attain healthy air for its citizens. The District has developed the most stringent set of rules and regulations, knowing that such stringency was necessary to get maximum results. Given tighter standards from U.S. Environmental Protection Agency (EPA) and the State of California, the District developed a world-class incentives program, distributing over $100 million annually to incent and assist Valley businesses and citizens in reducing emissions from operations, vehicles, and everyday activities. Knowing that technology for cleaner emitting vehicles and energy production were in need of additional financing to make them a reality, the District, in conjunction with ARB and South Coast Air Quality Management District (SCAQMD), developed the Technology Advancement Program to encourage innovative, but perhaps untested, technology ideas through competitive grants and subsequent acknowledgement.

In each of these efforts, which are discussed in Chapters 6 and 7 of this plan, the District has stretched beyond the required and reached for the necessary—what was necessary to improve the health and quality of life of Valley citizens. This same level of effort is the foundation for its legislative, collaborative, and informative activities. These activities may not directly generate SIP-creditable emissions reductions, but they reinforce the District's and Valley's commitment in meeting National Ambient Air Quality Standards (NAAQS) as efficiently and expeditiously as possible.

8.1 LEGISLATIVE PLATFORM

Each year the District Governing Board adopts a legislative platform to guide District advocacy and policy efforts. Through state and federal lobbying efforts and delegation visits to Washington D.C., the District informs elected officials about Valley needs and concerns based on the priorities established in the legislative platform. With persistence, the District has secured support and additional incentive funding for programs critical to emissions reductions in the Valley.

SJVAPCD 2012 Legislative Platform Priorities Impacting PM2.5 Emissions
(Partial List[1])

- Support legislation that preserves and increases funding for air quality incentive programs.
- Advance the District's Risk-based Strategy to provide for a more reasonable implementation of national ambient air quality standards by prioritizing public health.
- Promote *clean cars* and urge the State of California and the California Air Resources Board (CARB) to continue to develop and adopt expanded Low-Emission Vehicle (LEV III) standards to reduce criteria air pollutants and greenhouse gasses and to strengthen the state's Zero-Emission Vehicle (ZEV) and Clean Fuels Outlet (CFO) infrastructure.
- Support energy efficiency and alternative energy policies and initiatives that will result in emissions reductions and cost-effective alternatives to burning agricultural waste.
- Support adequate resources and policies to reduce the impact of wildfires and their attendant public health impact.

8.1.1 Incentive Funding

While the District's incentive programs have been very successful, in part thanks to significant state and federal funding sources, continued success depends on continued funding. One of the top priorities in securing funding for air quality incentive programs is the extension, or re-authorization, of Carl Moyer program funding, as currently provided by Assembly Bill 923 (AB 923) and Senate Bill 1107, and funding approved through Assembly Bill 118 and creating the *California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007*. Currently, the District receives approximately $14 million per year in Carl Moyer and other funding under AB 923. Under its original legislation, this program will sunset on January 1, 2015. Currently, AB 118 provides approximately $200 million annually (state wide) to fund air quality improvement projects and develop technology and alternative and renewable fuels. Similar to the Carl Moyer program, these funds will expire January 12, 2016 without re-authorization. AB 118 funds have not made up a significant portion of District incentive program revenue; however, the funds may become more important, particularly as the District becomes more involved in technology advancement projects. The District is engaged as a stakeholder, along with other air districts, the California Air Resources Board (ARB), and the California Air Pollution Control Officers Association (CAPCOA) to develop a framework, legislative strategy, and policy language for re-authorizing these critical funding sources for California air districts in need of further emissions reductions.

[1] See http://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2012/January/FinalGBItem15_LegPlatform_011912.pdf for complete SJVAPCD 2012 Legislative Platform.

8.1.2 Risk-based Strategy

The District's Risk-based Strategy has become an overarching policy for shaping the District's attainment strategy in this and future attainment plans. The District has more fully incorporated health research, ambient data analysis, population exposure analysis, and control measure prioritization into the development of this plan and ongoing planning processes. With this emphasis and prioritization on the health risks associated with PM2.5, the District will demonstrate how the Risk-based Strategy fits within and effectively supplements EPA's current regulatory framework. Chapter 2 details the District's approach using the Risk-based Strategy.

8.1.3 Lower Mobile Source Emissions

Since 1980, Valley stationary sources have reduced emissions by approximately 84%. Alternatively, vehicle miles traveled have increased by over 300%, and mobile source emissions now represent approximately 81% of NOx emissions in the Valley. The Valley's attainment progress depends on reductions in mobile source emissions, and through its legislative platform, the District supports the adoption of expanded low-emission vehicle standards (LEV III) and the strengthening of the state's zero-emission vehicle and clean-fuels outlet infrastructure programs. Tightening and expansion of these standards and programs will not only be necessary to reduce criteria air pollutant emissions, but will also help in reducing greenhouse gas emissions to meet state goals.

8.1.4 Energy Efficiency and Clean Energy Alternatives

In January 2010, the District adopted its Regional Energy Efficiency Strategy (REES). This policy document identifies the District's commitment to fostering energy efficiency and clean energy alternatives as opportunities for emissions reductions. As an alternative to open burning of agricultural waste—a high PM2.5 emission source—the District will continue to work with stakeholders and state agencies to develop additional biomass capacity to dispose of agricultural waste. Other efforts related to energy efficiency and clean energy alternatives include

- Expansion of net metering and feed-in tariffs for use of solar and other renewable sources of energy;
- Promotion of energy efficiency programs for energy end users that will result in lower emissions and a more stable electrical distribution system; and
- Development of measures that incent and encourage low-emission technologies for use of waste gas as an alternative to waste-gas venting or flaring.

While the promotion and development of energy efficiency, renewable energy, and clean energy alternatives is central to many District policies and initiatives, quantifying emissions related to energy efficiency and grid energy displaced by renewable energy and clean energy alternatives is complicated. Overall, electricity generation in California is relatively clean when compared to emission factors (GHG and criteria pollutant) from other states. California has been on the forefront of developing renewable energy

sources, and has implemented regulations to ensure cleaner non-renewable energy. Whereas coal-fired electricity generation provides a significant percentage of electricity in other parts of the country, especially the eastern states, California relies more heavily on natural gas-fired power plants, which have lower emission rates for GHGs and criteria pollutants.

California imports 30% of its electricity from surrounding states.[2] The state's four major utility companies use this electricity, as well as resources from within the state to supply continuous, reliable electricity to its customers. The inter-related nature of California's electricity transmission leads to a complex relationship between local energy efficiency programs and emissions reductions. Energy dispatch for needed demand is time and market dependent; the closest plant does not necessarily supply energy to the closest demand. In some cases, peak energy demand is met for areas outside the District, including Los Angeles and San Diego, with marginal (peaker) power plants within the Valley. Likewise, Valley demand may be met with electricity from marginal power plants outside the Valley. To complicate matters, the marginal plant used depends on the time of day, the minute-by-minute energy market, or other highly variable factors.

Using sophisticated dispatch modeling, Synapse Energy Economics Inc. was able to estimate NOx emissions reductions for renewable energy and energy efficiency projects within California and within each of the four major utility companies.[3] In preliminary model runs, Synapse showed that approximately 45 pounds of NOx could be reduced for each gigawatt of displaced base load electricity. Likewise, 76 pounds of NOx could be reduced for each gigawatt of displaced peak load electricity displaced by targeted energy efficiency efforts during peak demand hours.

To quantify emissions from projected energy efficiency programs, the District will engage in efforts to develop a detailed energy production and demand model for the Valley, likely in conjunction with upcoming ozone attainment planning. These efforts will include the use of dispatch and transmission modeling to quantify reductions not only in NOx and SOx, but greenhouse gas emissions. These efforts will be developed in coordination with a growing collaboration between state agencies and other air districts to integrate climate change planning, criteria pollutant attainment planning, and exposure planning with energy and efficiency planning.

8.1.5 Reduce Wildfire Public Health Impacts

Air pollution from wildfires exceeds the total industrial and mobile source emissions in the Valley, resulting in adverse health effects in the region and throughout California. During the summer of 2008, California experienced a record number of wildfires, and the resulting emissions caused unprecedented levels of PM2.5 and ozone in the Valley, both with associated elevated health risks.

[2] California Energy Commission [CEC]:Total Electricity System Power, 2011 Total System Power in Gigawatt Hours. (2012). Retrieved August 21, 2012 from http://energyalmanac.ca.gov/electricity/total_system_power.html

[3] California Energy Commission. (2011, May). *Emission Reductions from Renewable Energy and Energy Efficiency in California Air Quality Management Districts: Final Project Report* (Draft). Synapse Energy Economics, Inc. for CEC Public Interest Energy Research (PIER) Program. CEC-XXX-XXX-XXX.

Reducing the threat of wildfires and the resulting air pollutants requires a sustained and multi-faceted approach that employs effective measures to reduce fuel supplies and adequate resources to manage fires when they occur. The District supports policies and initiatives that encourage rapid and efficient disposal of fuel through additional financial and staffing resources for public- and private-land prescribed burning. The District also supports funding for additional resources to manage wildfires once they occur. At the policy level, the District supports making environmental protection policies more consistent in their approach to fuel reduction measures, specifically with regards to using mechanized methods and prescribed burning to reduce fuel supply when other options are not feasible. Lastly, the District will continue to advocate for the incorporation of air quality concerns in prescribed burning and fire management techniques in federal policies.

8.2 COLLABORATION—VISION FOR CLEAN AIR: 2012 TO 2050

While the District's air quality challenges are significant, many aspects of those challenges are not unique, and they are not isolated to the boundaries of the Valley air basin. Strategies for reducing emissions in the Valley are enhanced through partnerships and collaborations with other air districts and state agencies. The District seeks out opportunities for such collaborations to build strong relationships and even stronger attainment strategies.

In 2011, the District and South Coast Air Quality Management District assisted ARB in developing the *Vision for Clean Air: 2012 to 2050*. The goal of this collaboration is to draft and implement a common vision for mobile and stationary source strategies that integrate the need to meet federal air quality standards for PM2.5 and ozone, the need to reach California's greenhouse gas goals, and the need to reduce public exposure to toxics (e.g. diesel particulates). This collaborative effort will take advantage of the efficiencies inherent in dealing with these three issues as inter-dependent problems with inter-dependent solutions.

Through this collaborative effort, the three agencies will evaluate pollutant reductions needed to meet overlapping requirements for 2019, 2023, 2035, and 2050. These reductions will depend on the integration of transformative measures and emerging technologies (including zero-emission goods movement) with long-range planning and control strategies. Critical to the attainment of targets will be the evaluation of the potential policies, legislation, infrastructure, and efficiencies that will ensure that South Coast, the Valley, and California are prepared to meet the long-term goals.

8.3 COMMUNITY INFORMATION AND OUTREACH

The District's outreach programs are integral to the development, implementation, and success of the *2012 PM2.5 Plan*. Throughout all planning processes, including the development of attainment plans, the District engages the community for input about their concerns and goals. Through ongoing engagement, the District has developed a keen awareness and understanding of Valley needs and has used this understanding to

develop many programs that allow the community to take part in improving Valley air quality and, ultimately, the public health.

The District developed the following outreach programs to address health-based PM2.5 control measures and strategies.

8.3.1 Real-Time Air Advisory Network (RAAN)

Pollution levels can vary greatly during the day. While the District issues a daily air quality forecast for each county in the air basin, localized air quality often deviates from these generalized, county-wide forecasts. Access to real-time data compensates for such deviations and helps ensure that outdoor activity can be limited to periods of the day when air quality is acceptable and healthier.

The District launched the Real-time Air Advisory Network (RAAN) in 2010. This program is the first communication network in the nation to provide automated notification of poor or changing local air quality to the public throughout the air basin. While the District initially developed the program for schools as a tool to determine appropriate levels of outdoor activity for their students, the District expanded the program in 2011, and it is now available to all Valley residents.

The District combines local air quality information with specific, concentration-based health recommendations that allow RAAN subscribers to make informed decisions about when and for whom outdoor activities should be limited. The knowledge that exercise magnifies the health risks of PM2.5 exposure motivated the District to develop the RAAN program. Heavy breathing, as during exercise, allows air pollutants, especially the smallest particles (those less than 0.1 microns (PM0.1), also referred to as ultrafine particles), to more easily penetrate the alveolar region of the lungs. Particles that make it to this region are absorbed directly into the body's bloodstream. A 2003 study[4] found that during moderate exercise, 80% of inhaled PM0.1 were deposited in the lungs, compared to 60% lung retention while a person is at rest. However, because the volume of air exchanged per minute increased substantially during exercise, overall PM0.1 deposition increases by as much as 450%.

Anyone can subscribe to RAAN at no charge through the District's website (www.valleyair.org); all that is required is the subscriber's email address. Once subscribed, the District will send email notifications with a link to the real-time data of the closest monitoring station within the District's extensive monitoring network. The District sends automated notifications on an hourly basis when air quality deteriorates or improves.

[4] Daigle, C.C., Chalupa, D.C., Gibb, F.R., Morrow, P.E., Oberdörster, G., Utell, M.J., and Frampton, M.W. (2003). Ultrafine Particle Deposition in Humans During Rest and Exercise. *Inhalation Toxicology*, 15, 539–552. DOI:10.1080/08958370390205065

8.3.2 Real-Time Outdoor Activity Risk (ROAR)

To support the expanded RAAN program, the District developed the Real-time Outdoor Activity Risk (ROAR) scale. The levels of this scale provide specific recommendations and limitations for increasing levels of activity, from recess through competitive athletic events. This scale is based on the Air Quality Index system that is used for the daily air quality forecasts, but provides more detailed activity recommendations based on the latest health science. The ROAR system, when used in conjunction with the Air Quality Flag Program and daily air quality forecasts, is part of a comprehensive set of tools available to schools and the public for effective health protection.

8.3.3 Air Quality Flag Program

The Air Quality Flag Program is provided free of charge to hundreds of elementary and secondary schools throughout the Valley. The District provides to each school a set of colored flags mirroring the levels of the Air Quality Index (AQI), which are used to convey the daily air quality forecast. These flags represent a visual cue for students, faculty, and staff as to the daily air quality and potential risks associated with the expected air quality. School site training is a critical component of the flag program, providing school staff with the background and knowledge to effectively execute this program.

8.3.4 Check Before You Burn

The Check-Before-You-Burn outreach program is critical to the implementation of District Rule 4901—Wood Burning Fireplaces and Wood Burning Heaters. Rule 4901 was adopted in 2003 and, along with the Check-Before-You-Burn program, is credited with reducing levels of PM2.5 emissions during the winter season to historically low levels. The rule and outreach program was amended in 2008 to reflect more stringent federal health-based standards, and together they have achieved the highest level of public recognition and compliance of any District program, with 83% of Valley residents professing awareness of it based on a 2010 public survey.[5] According to the same survey, half the respondents (valley-wide) with wood-burning devices never used them. These statistics are a testament to heightened public awareness resulting from the District's multilingual, multimedia, targeted public outreach campaigns.

Annual Check-Before-You-Burn outreach campaigns feature District Governing Board members in outdoor, radio, and video media speaking to the public about how to get involved in clean air activities. The District also uses extensive social media posts (Facebook and Twitter) to reach even more segments of the Valley's population. In addition, the District's toll-free information line and website receives hundreds of "hits"

[5] San Joaquin Valley Air Pollution Control District: Memorandum to SJVUAPCD Governing Board, District's Comprehensive Public Outreach and Education Program. Fresno, CA: Public Governing Board Study Session, September 29–30, 2010. Available at http://www.valleyair.org/Board_meetings/GB/agenda_minutes/Agenda/2010/Study_Session/Agenda_Item_13_Sep_29_2010.pdf

during the wood-burning season, specifically to access wood-burning forecast information.

8.3.5 Healthy Air Living

Most of the District's outreach activities and programs are covered by the Health Air Living umbrella. As a year-round message, the Healthy Air Living idea of "make one change" promotes and encourages voluntary measures that Valley residents can do for reduced emissions and improved air quality. Many of the emission-reduction recommendations address PM2.5 emissions, either directly emitted or as byproducts of other pollutants (e.g. reducing the number of miles traveled in a car reduces NOx and, therefore, particulates).

Components of the Health Air Living message include the *For Reel Video Contest*, aimed at middle-school, high-school, and college-aged students; the *Healthy Air Living Kids Calendar* for kindergarteners through high-school students; and *Healthy Air Living Pledge Cards*, which are customized for residents, businesses, schools, and faith-based organizations. In addition to these specific programs and others, the Healthy Air Living logo and message are incorporated into the District's communications, collateral, incentive materials, and outreach efforts.

8.4 OTHER INNOVATIVE STRATEGIES UNDER INVESTIGATION

District staff are continually looking for opportunities for further emissions reductions. As technologies advance, costs decrease, or old ideas become new again, staff evaluate potential control strategies and measures for their applicability within the Valley. The following strategies are under close evaluation by District staff.

8.4.1 Urban Heat Island Mitigation

In 2011 through 2012, the District worked with the Bay Area Air Quality Management District and the Sacrament Metro Area Air Quality Management District through the San Joaquin Valleywide Air Pollution Study Agency (Study Agency) to investigate other innovative strategies to help address the challenges of attaining more stringent health-based standards. While the investigation, conducted by Providence Engineering and Environmental Group LLC, focused on reducing ozone levels, NOx emissions reductions associated with reducing ozone also serve to reduce PM2.5 precursors. Specifically for the District, the final report offered an evaluation of urban heat island (UHI) mitigation measures to reduce ozone levels in the Valley. While the current science and modeling capabilities related to quantifying emissions reductions related to UHI measures are not as refined as needed for including such emissions in a SIP, the proposed measures are worth continued investigation and season-specific modeling. The measures include cool-roof applications and reduced-albedo paving surfaces.

8.4.2 Eco-Driving

Given that mobile source emissions now represent approximately 81% of the NOx emissions in the Valley, and that mobile sources are essentially outside the regulatory

control of the District, finding ways through education and outreach to reduce such emissions in the Valley is critical to future attainment. One such program in development is Eco-Driving. Eco-Driving refers to everyday techniques that drivers can do to maximize the fuel economy of their vehicles. These include observing good operating maintenance, such as proper tire pressure, wheel alignment, and oil viscosity; improving aerodynamics; traveling at efficient speeds; choosing the appropriate gear for manual transmissions; driving defensively to avoid unnecessary braking; accelerating at a constant pace; and other simple, yet often forgotten, driving techniques.

As with other informational activities conducted by the District, an Eco-Driving program could be encompassed under the Healthy Air Living umbrella.

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