

Chapter 8

Innovative Strategies and Programs

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Chapter 8: Innovative Strategies and Programs

8.1 INTRODUCTION

Recognizing that no “silver bullet” exists and that every sector, from the public through all levels of government, business and industry, must reduce emissions (guiding principle number 3), Chapter 8 presents District proposals for innovative strategies and programs that will involve wide-ranging public and private participation. The list of innovative programs include the following: Green Contracting, expanded Spare the Air efforts, Employer Based Trip Reduction, Heat Island Mitigation, Alternative Energy Production, Energy Conservation, Enhanced Indirect Source Review, Episodic and Regionally Focused Control Measures, and Advanced Emission Reduction Options (AERO). These programs are being introduced in the San Joaquin Valley for their relevance in the reduction of ozone precursors, but many will generate secondary benefits including lower energy costs, energy independence, and less greenhouse gas emissions. The District’s implementation of innovative strategies and programs will lead to greater public awareness of air quality problems and increased public participation towards air pollution solutions.

8.2 PROGRAM DESCRIPTIONS

8.2.1 Green Contracting

Green Contracting is a practice that may be used by public agencies, to encourage contractors to use low-emission vehicles, off-road equipment, and heavy-duty on-road fleets, and to actively promote ridesharing programs. Public agencies may encourage participation in these efforts by awarding extra points to contract bidders that incorporate the use of clean fleets of vehicles and equipment into their proposals. Additional points can be gained for ride sharing programs. Contracts awarded to companies with “green” practices could also contain clauses that require participation in Spare the Air activities.

With the growing concern for global climate change, Green Contracting programs are gaining ground in cities and counties across the U.S.. Air districts do not have regulatory authority to require local government agencies to adopt these ordinances, but many have done so voluntarily. The District intends to initiate extensive Green Contracting as a practice in the San Joaquin Valley by taking the following steps:

- Developing a model ordinance/policy and promoting its adoption by cities and counties.
- Making Green Contracting an attractive option for contractors by awarding incentive funding for the retrofit of off road construction equipment, vehicle fleets, and other equipment.

- Issuing “Green Contractor Certification” to companies that fulfill certain criteria, such as meeting advanced fleet standards.
- Exploring the possibility of increasing the District’s mandate for requiring Green Contracting practices in public projects, through legislative changes to public law.

8.2.2 Expanded Spare-The-Air Efforts

Spare the Air (STA) is the voluntary summertime effort aimed at reducing ozone precursor emissions. The program works by notifying Valley residents in advance of days when air quality is forecast to reach unhealthy levels. These are designated Spare the Air days. The District notifies the public via television, radio, newspaper, and at participating worksites. Daily air quality information is also available by dialing (800) SMOG-INFO (766-4463). When a STA day has been called, residents are asked to reduce or avoid activities that cause air pollution for 24 hours. Based on previous years, there are about 25 STA days per year.

The District has partnered with approximately 750 public and private entities that receive advance notice of days when air quality is forecast to be unhealthy. With this knowledge, employees can take additional steps that will help in reducing emissions that lead to poor air quality. These can be in the form of carpooling, trip-linking, using alternative transportation, taking lunch at work, trip sharing among employees who run errands during lunchtime, and various other ways that decrease trips and vehicle miles driven. The District’s Public Information Department coordinates these valley-wide efforts and awards prizes and recognition to outstanding Spare the Air corporate and government partners. District employees enthusiastically participate in the STA program and the District’s in-house STA program provides an excellent model for other public and private entities to follow.

The District believes that participation in STA activities can be increased with the following improvements:

- Recruit more STA partners by assisting public and private agencies to organize and implement STA activities.
- Promote voluntary curtailment of activities that produce NO_x and VOC.
- Explore ways to incentivize the voluntary participation of stationary sources in curtailing activities.
- Design expanded STA projects to satisfy EPA criteria for SIP creditability.

8.2.3 Employer Based Trip Reduction

Existing trip reduction programs, such as vanpools and employer based transportation trip reduction programs, exist but are limited in scope and have not resulted in significant reductions in vehicle miles traveled (VMT). These programs are currently implemented on a voluntary basis. Health and Safety Code Section 40601(d)

authorizes the District to adopt rules and regulations that require certain businesses employing at least 100 people to establish rideshare programs.

A good model for an Employer-Based Trip Reduction program is the District's in-house alternative transportation program. The District program incentivizes employees to use alternative transportation on 60% of work days, and gets 20% participation. This level of participation is two-thirds higher than the general working population's use of alternative transportation (US Census 2000). Similar programs in other areas consistently show that incentivizing the use of alternative modes of transportation is an effective way of getting workers to forego the use of single occupancy vehicles.

The District is proposing to adopt an Employer Based Trip Reduction rule will further decrease Valley VMT:

- Adopt a rule requiring businesses with at least 100 employees, as defined in CH&SC 40601, to establish rideshare programs.
- Schedule rule development and implementation as follows: adoption by the 4th quarter 2009, compliance starts by 2010, and reductions begin by 2010.
- Implement trip reduction programs following EPA guidelines for SIP reductions.
- Explore the applicability of state laws governing parking payout programs in California, and work to strengthen that law and its enforcement in the San Joaquin Valley.

The following table (8-1) shows conservative emission reduction estimates, based on an approximate 16% increase in the use of alternative modes of transportation.

	2008	2011	2012	2014	2017	2020	2023
NOx	0.0	0.23	0.24	0.25	0.26	0.27	0.28
VOC	0.0	0.61	0.62	0.64	0.65	0.66	0.68

8.2.4 Heat Island Mitigation

"Heat Islands" in urban areas are characterized by higher air and surface temperatures, which can be 10°F higher than rural areas. Higher temperatures increase ozone formation and lead to greater use of air conditioning units, fans, and evaporative coolers, which cause power companies to bring online extra generating stations or so-called peaker units. The addition of peaker units brings a corresponding increase in ozone precursor emissions.

There is a growing body of scientific findings that shows substantial benefits from mitigating heat island effects. The Lawrence Berkeley National Laboratory (LBNL) *Heat Islands* Project found that lightly colored, high-reflectivity roofs in Sacramento used up

to 40% less energy for cooling than those with darker roofs. Computer models of Los Angeles show cooling benefits of planting more trees, combined with high-reflectivity surfaces, amounted to a savings of \$100 million per year from producing less peak period electricity. The US Department of Agriculture Forest Service estimates that midday temperature reductions range from 1 to 5.5 °F for every 15% increase in the canopy cover.

To overcome barriers that prevent the widespread adoption of heat island mitigation, the US EPA has teamed up with the Department of Energy, NASA, and LBNL to undertake the following:

- Conduct detailed analyses to quantify the potential air quality benefits from strategically placed vegetation and reflective surfaces,
- Develop "lessons learned" that will serve as guidelines for other cities interested in initiating similar types of programs and policies,
- Identify the most effective means to implement measures aimed at reducing the urban heat island, and
- Conduct outreach and educational activities to encourage other cities to implement measures intended to reverse the urban heat island effect.

For its part, the District is proposing to develop a program that will advance the implementation of heat island mitigation measures in its jurisdiction, including the following actions:

- Develop a model ordinance for heat island mitigation and promote its adoption by cities and counties, including providing incentive funding to seed projects.
- Encourage practices conducive to heat island mitigations through informational campaigns and incentives.
- Possibly include elements of heat island mitigation as a compliance option for facilities.
- Support research that adds certainty to the emission reduction potential or benefits of heat island mitigation programs.

8.2.5 Alternative Energy

Alternative sources of energy could reduce or slow the growth of NO_x emissions from utility power generation. The viability of any energy alternative would depend on how it compares in cost to utility-generated power.

There are many possible sources of alternative energy in the San Joaquin Valley. The following is a listing of some of these "alternative fuel" sources, each of which is also a source of VOC emissions:

- Landfill gas that is flared without energy recovery;
- VOC and methane from confined animal facilities;

- Agricultural waste products, such as prunings, rice stalks, and orchard removal materials;
- Biosolids generated in the Valley or in other regions; and
- VOCs from oil and gas production plants and other industrial facilities that are incinerated using flares or thermal oxidizers.

Projects that can transform these “waste streams” into alternative-energy fuel stocks can be any of the following:

- Small-scale alternative energy projects that utilize locally available biomass that can be converted to methane gas, which can be used to fuel internal combustion (IC) engines or mini-turbines that drive electricity generators or which can serve as the hydrogen source for fuel cell power generation.
- Biomass and Biosolids gasification produces flammable gas that can be used in combined-cycle power generation, which combine gas turbines and steam turbines to produce energy up to as much as 60% efficiency.
- Still in the development stage is the use of biomass in biorefineries. Biomass can be transformed to component sugars that can be converted to fuels or other products, and biomass can also be converted to synthesis gas (hydrogen and carbon monoxide), which can be used for fuel or converted to other products. Advances in gas-to-liquid technologies using the cobalt-based Fischer-Tropsch (FT) process has led to the production of synthetic paraffin fuel (SPF), which is a promising hydrogen source for fuel cell power generation. This fuel type is being investigated for its potential in mobile applications of fuel cells.

As part of its innovative strategies, the District proposes the following:

- Promote alternative sources of energy that have demonstrable merits in terms of reducing ozone precursors.
- Design and implement alternative energy programs with SIP creditability as an emerging control measure, following EPA guidelines.
- Align District programs with initiatives that reduce greenhouse gas emissions.

8.2.6 Energy Conservation

By reducing energy consumption, which can be undertaken by virtually everyone in the San Joaquin Valley, the combustion of fuels to produce electricity or drive vehicles is lessened. Using less energy reduces emissions of NO_x and VOC. It also means spending less for energy. A few examples of ongoing conservation programs that have direct relevance to air quality are the following:

- Utility companies have energy conservation programs, including rebates for using energy efficient appliances and weatherization of homes and a tiered system of pricing, which encourage homeowners to stay below a certain level of energy use;
- EPA’s Energy Star Program provides homeowners and businesses with tools and resources for undertaking projects that reduce energy bills and improve

comfort. The Energy Star label is awarded to products and facilities that have a demonstrated level of energy efficiency;

- California State University, Fresno's Center for Irrigation Technology conducts the Agricultural Pumping Efficiency Program, with funding from Pacific Gas and Electric Company through 2008;
- Green building practices that are geared toward energy conservation, such as: site selection, building orientation, improved insulation, integrated structural insulation, and use of renewable energy options (solar space heating and cooling, solar water heating, purchase of green power, etc.); and
- Reducing the use of agricultural equipment by employing global positioning systems (GPS) in field operations, and other conservation management practices that simultaneously reduce PM and ozone precursors while conserving energy.

Recognizing that energy consumption will play an increasingly significant part in the Valley's future growth, the District proposes to undertake an energy conservation program with the following recommendations:

- Promote energy conservation through program mechanisms, such as identifying the availability of rebates and other incentives to green-certified homes and buildings;
- Provide incentive funding for irrigation pumping efficiency programs and other farming technologies/practices that have a demonstrable air quality benefit (See Chapter 7); and
- Design and implement energy conservation programs with SIP creditability as an emerging control measure, following EPA guidelines.
- Promote city/county ordinances for installation of solar water heaters and/or solar voltaic cells.

8.2.7 Enhanced Indirect Source Review

"Indirect source" is the term used to refer to any facility, building, structure or installation, or combination thereof which generates or attracts mobile source activity that results in the emissions of any pollutant for which there is a state ambient air quality standard. The San Joaquin Valley Air Pollution Control District adopted the nation's first indirect source review (ISR) rule, Rule 9510, on December 15, 2005. The District's ISR rule, is designed to mitigate emissions associated with development projects that exceed two tons per year of NO_x and PM₁₀. Specifically, for the construction phase of a development project, Rule 9510 requires a 20% NO_x reduction from the statewide average resulting from the use of construction equipment that is greater than 50 horsepower. For the operational emissions, defined as the combination of the area and mobile emissions associated with the project, Rule 9510 requires 33% NO_x reduction from the baseline, as computed using an APCO-approved model (e.g., URBEMIS). Onsite emission reduction measures or offsite mitigation fees can meet both sources of NO_x reductions.

At this point, the District is exploring all possibilities of gaining additional emission reductions from sources under its jurisdiction. Legal limitations in state law are also

being examined. The District invites comments and suggestions to further improve control options, within legal limitations set by state law. A future feasibility study to re-evaluate this source category is planned.

8.2.8 Episodic and Regionally-focused Control Measures

Many nonattainment areas in the country have episodic control programs, most of which are voluntary. The Valley's Spare the Air Program is one example. Advances in real-time air quality measurement and meteorological forecasting, however, have made it possible to apply regulatory controls in a more focused manner. Examples of this concept are the District's Smoke Management Program and the "Don't Light Tonight" program that implements Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters). Both programs use real-time meteorological measurements and emissions estimates to determine if next-day conditions are conducive to violations of ambient air quality standards. The District's forecasters prepare and issue forecasts that can result in episodic and geographic prohibitions on prescribed burning, agricultural burning, and residential fireplace burning.

Banking on the success of these programs, the District believes that episodic and regionally focused controls could be used in "surgically" controlling emissions during the worst days of the ozone season. The District will consider episodic controls and regionally-focused controls during each rule development project in order to optimize the benefits of each measure. Some of the source categories that may also be evaluated for possible episodic/regional controls are:

- Recreational vehicles, including dirt bikes and power boats;
- Non-essential structural painting and other activities;
- Non-essential through-truck traffic in urban areas;
- Industrial activities amenable to postponement;
- Diversion of heavy duty diesel truck traffic to Interstate 5; and
- Non-essential use of lawn care equipment.

8.2.9 Advanced Emission Reduction Options (AERO)

Since the formation of the San Joaquin Valley Air Pollution Control District, the District has imposed Reasonably Available Control Technology (RACT) and at least one generation of Best Available Retrofit Control Technology (BARCT) on virtually all of the stationary sources in the San Joaquin Valley Air Basin. As the District has continued to implement its clean air strategy, some industries have recently implemented fourth and fifth generations of BARCT. In developing the Draft *2007 Ozone Plan*, District staff have investigated every known source of emission reductions, and proposed a long list of measures to pursue, including regulations to address mobile sources and another generation of regulatory controls on stationary sources. Additionally, the Air Resources

Board (ARB) has published a list of planned control measures addressing source categories under their jurisdiction.

In spite of the long list of historical and proposed measures, there remains a significant need for additional reductions. Attaining the eight-hour ozone standard requires emission reductions of approximately 75% from 2005 levels. Because of this need, the District will seek to reduce emissions from source categories and industries that have been previously controlled, and for which emission reductions are relatively expensive.

To obtain additional emission reductions in the most cost effective manner possible, especially for facilities that have been heavily regulated, the District is proposing to develop rules that offer options for providing emission reductions. The District is considering the development of a set of regulatory compliance options under the general program title "AERO – Advanced Emission Reduction Options."

AERO Overview

A. Why do we need to consider AERO?

In brief, the next generations of stationary source emission control regulations are expected to be very expensive, and are expected to provide relatively small reductions. Additionally, future controls are expected to interfere more with operations than previous "end-of-the-stack" pollution controls, possibly requiring replacement of process equipment rather than retrofits. As always, resources to finance emission controls on stationary source equipment are limited. Finally, the District has limited authority to reduce emissions from the Valley's largest source category, mobile sources.

B. How would AERO help?

AERO would (1) help to lower the cost of emission reductions, (2) achieve more reductions for a given investment, and (3) provide a mechanism for stationary source operators to help achieve much needed mobile source emission reductions. AERO would also assure that alternative reductions are recognized in the State Implementation Plan (SIP).

C. What would AERO do?

As currently envisioned, AERO would set emission reduction goals for stationary sources based on advanced technologies, and it would specify several options that operators could use to comply. The specified emission reduction options would include control of the subject equipment, mitigation fees, specified offsite reductions, and alternative onsite approaches. All of these options would be well in excess of previously established RACT and BARCT levels. Each option will have adequate provisions to ensure reductions are surplus, enforceable, quantifiable, and permanent.

D. How would AERO be implemented?

Some of the District's new prohibitory rules and rule amendments would include AERO provisions. These rules would focus on achieving percentage reductions rather than specific emission concentrations. Options would include:

- Installing and operating advanced technologies (e.g. a control device achieving a specific capture and destruction efficiency)
- Paying a fee into a "Clean Air Investment Fund" that the District will use to achieve the target reductions in emissions. The target reductions would help to meet SIP commitments but not necessarily be "equivalent" to reductions from any specific technology
- Other specific offsite or onsite alternatives identified in the rule (e.g., replacing forklifts at the operators facility or at another facility)

Rather than specify in the Draft *2007 Ozone Plan* which rules/categories would have AERO provisions, the District proposes to consider AERO provisions for each stationary source control measure during the rulemaking process. District staff will work with interested stakeholders during each rulemaking project to identify the AERO eligibility of the source category/industry and the specifics of the appropriate alternative controls.

E. AERO Guiding Principles

1. For projects with high-cost reductions, allow operators multiple compliance options to facilitate more cost effective and feasible ways to provide emission reductions.
2. The "add-on" control techniques proposed to achieve emission reductions at the stationary source should be technically feasible and not cost prohibitive for the subject stationary source equipment.
3. AERO should provide more reductions than normal compliance.
4. AERO reductions should be equivalent to reductions from normal compliance methods in terms of creditability (i.e., the reductions will be surplus, enforceable, quantifiable, permanent), environmental justice, and environmental impacts. AERO would employ the guidance developed for the Moyer Program and similar programs to assure that emission reductions are creditable.
5. AERO program documents will show all analysis, input data, sources, and assumptions.
6. The AERO program will include a backstop mechanism. As part of the AERO program, the District will adopt a backstop regulation that will engage if the alternative reductions do not continue. The backstop regulation would assure that the AERO program as a whole achieves emission reductions equivalent to traditional command and control regulations.
7. Reductions necessary to comply with federal RACT requirements are not eligible for AERO.

District Authority to Impose Mitigation Fees

Note that this preliminary analysis narrowly considers the District's authority to levy emissions fees to raise funds for incentive programs. This analysis does not consider whether State Implementation Plan (SIP) credit could be approved for the reductions generated by the incentive program using the funds identified here. The question of SIP approval for the incentive programs is being addressed through a separate dialogue and process, and this analysis does not seek to address or resolve those issues. Also note that this analysis is preliminary and is not meant to be conclusive or exhaustive.

The key question is, does the District have authority to levy emission fees on a source even if the source is meeting all requirements of federal prohibitory rules? California law provides broad authority to the air districts to levy fees on sources (including indirect and area sources) in order to fund district programs that are "related to" the regulation of the sources paying the fees. The outer limit of this authority is the California Constitution's prohibition against collecting a "special tax" without a two-thirds vote of the electorate. Thus, the cases on this topic have tried to distinguish between permissible regulatory fees and unlawful special taxes.

We believe the District may legally levy such emission fees, provided it carefully tailor its fee program to demonstrate that: (1) fees collected from a particular source category are used to reduce pollution of the same type emitted; (2) that the fees paid by any particular source were related to the contribution of that source to the air pollution problem; and (3) that the fees paid by sources under the program were earmarked and used only to generate the designated reductions (and were not placed in a general revenue pool). However, such a broad emission fee program does not appear to have yet been attempted by any California district, and its legality would require breaking new ground in interpreting the applicable fee statutes.

Although case law makes clear that the determination of whether a regulatory fee is also an unlawful special tax is an inexact science and that the determination is made on a case-by-case basis, the cases do provide a guide to how the courts might treat a District rule that imposed a emissions-based fee on sources to fund District incentive programs.

First, it is clear that the broader the use to which the funds are put, the more likely that a court would view the fee as a tax. It would be important that the District used the levied fees to mitigate pollution that is fully fungible with the pollution created by the source targeted by the rule so that the fees could be viewed as offsetting the burden that those sources are creating through their activities. In this regard, a District fee program may want to segregate funds raised through source-specific fees to be used in only those parts of the incentive program that produce reductions in the appropriate pollutants.

Second, the District would carefully document that the fees are reasonably related to the burden created by the source. Apportioning the fees by each source's level of emissions would seem to ensure that this relationship exists, and the court has already found that such an apportionment scheme is lawful.

Finally, the District must also ensure that a tracking system is in place to demonstrate the reasonable costs of the incentive programs using any fees levied. The accounting system should not only demonstrate that the costs of the incentive program projects undertaken are reasonable, but should also show that the fees paid by the source were earmarked for those projects.

Although it appears that no emissions fee similar to the one explored here has been imposed by any district in the past, it does not appear that there is any explicit obstacle in statutes or case law to the District attempting to do so. As long as the District's program met the requirements noted above, it appears the key issue would be whether the incentive programs funded by the fees are sufficiently "related to" the sources' permits to fall within the statutory authority of the district to impose fees. That precise question does not appear to have been addressed yet by the courts and would likely involve setting new legal precedent if it was challenged by industry.

Categories Being Considered for AERO

As discussed above and as referenced in the Candidate Control Measures in Appendix I, source categories that were previously regulated and for which further controls are very expensive are candidates for AERO. During the rulemaking process for each control measure, there will be an opportunity to consider whether a category is appropriate for AERO. The District is seeking public comment on the scope and concepts for AERO.

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