

Note to readers: The District has provided a detailed written evaluation of the Alt SIP to the authors (ISSRC). A summary of the District's evaluation is attached and the full detailed evaluation is available upon request.

Appendix P is being submitted to the SIP as the District's response to public comment. Please refer to Appendix N and Appendix O for the commenter's complete submittals. Please also refer to Appendix L for additional comments from ISSRC.

Appendix P

District Evaluation of ISSRC "Clearing The Air" Documents

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Appendix P: District Evaluation of ISSRC “Clearing The Air” Documents

International Sustainable Systems Research Center (ISSRC) is a Southern California-based non-profit organization that has worked with developing countries in Central and East Asia, Africa, and North and South America to meet “sustainability goals”. According to the organization’s website, www.issrc.org, ISSRC has conducted studies in 10 cities in developing countries aimed at better quantification of vehicular activities and enhancement of basic air quality management programs.

ISSRC was retained by the Hewlett Foundation, on behalf of environmental organizations, to prepare an alternative State Implementation Plan (Alt SIP) for the San Joaquin Valley. ISSRC was tasked with developing an “alternative SIP” that could show attainment with the 8-hour ozone standard prior to 2013. ISSRC took on this enormous task without participating in the District’s public plan-development process and without communication with the District staff. Nonetheless, the District fully appreciates ISSRC’s hard work with limited resources. After careful consideration, we believe that their effort enhanced the quality and effectiveness of the Proposed *2007 Ozone Plan*. Furthermore, the Alt SIP provided for a meaningful discussion of the enormous difficulty that the Valley faces in reaching attainment by 2013.

On February 6, 2007, ISSRC released their first version of the Alt SIP claiming attainment by 2013. This document relied on outdated inventories, contained numerous double-counting of emission reductions, several basic mathematical and technical errors, and grossly underestimated the magnitude of reductions needed to reach attainment. After the above deficiencies were communicated, ISSRC published a Revised Alt SIP on February 19, 2007.

The Revised Alt SIP no longer claimed that attainment by 2013 is possible. In fact, the Revised Alt SIP conceded to only achieving 95% of their own estimate of NO_x reductions necessary for attainment. Although certain deficiencies were corrected, the Revised Alt SIP still relied on outdated information, underestimated attainment goals, double-counted reductions, and contained basic mathematical and technical errors.

Despite the above shortcomings, the District carefully considered and evaluated all control measures proposed by ISSRC for inclusion in the 2007 Ozone plan. The District concludes that neither version of the Alt SIP is able to achieve attainment. In fact, neither version of the Alt SIP can bring the Valley into attainment under any timeline before 2024. Nevertheless, there are five concepts which have been deemed as viable, and these will be added to the *2007 Ozone Plan*.

Following discussions with ISSRC regarding the District’s concerns, a detailed analysis of the Alt SIP proposals is being made available to the public upon request. A summary of the detailed evaluation is shown below. Evaluation criteria consisted of state and

federal Clean Air Act planning requirements. State requirements cover economic, legal, social, and technological issues; federal requirements ensure that emission reductions are quantifiable, surplus, permanent, and enforceable.

SUMMARY

There are four main elements in the Alternative SIP:

- Operational restrictions: The Alt SIP proposes 100 days each year of no driving, no farm operations, and no construction activities. *(These restrictions are unenforceable, are beyond District authority, and could cripple the Valley's economy. The reductions would not achieve the level needed for attainment.)*
- \$450 million per year in incentive funding: The Alt SIP proposes increasing incentive funding starting in 2007 and continuing through 2013. *(The District cannot take federal credit for unsecured funding. The Alt SIP's expenditure plan is impractical and would not achieve the proposed reductions. The Revised Alt SIP claimed significantly more emission reductions from incentives than the first Alt SIP, while maintaining the first version's funding level.)*
- Additional stationary and area source control measures: *(Most Alt SIP reductions from stationary sources reflect double-counting. Existing and proposed District measures are more stringent.)*
- Assumes attainment can be achieved in 2013 by reaching a "carrying capacity" of 195 tons per day (tons per day) of NO_x and 230 tons per day of VOC. *(The Alt SIP used outdated emission inventories and misapplied emission inventory numbers to ozone carrying capacity isopleths.)*

DISTRICT AGREES WITH ALTERNATIVE SIP RECOMMENDATIONS

Many of the Alt SIP suggestions have either been accomplished by existing District rules or are proposed as control measures in the *2007 Ozone Plan*. However, the District is in agreement with the following five recommendations of the Alternate SIP:

- ✓ The need for incentives. Regulations alone cannot achieve the emission reductions necessary for attainment. The District concurs that mobile source emission reductions are necessary to reach attainment, and incentivization of reductions from this category is of paramount importance.
- ✓ Accelerating the Glass Melting Furnaces control measures for earlier reductions of 0.4 tons per day of NO_x.

- ✓ Encouraging model ordinances for cities and counties to require solar water heaters in new construction.
- ✓ Replacing 30,000 light/medium-duty vehicles should additional funding become available, enhancing the District's previous proposal.
- ✓ Expanding the applicability of the Graphic Arts rule to very small shops.

Incentive Funding

Like the District's *2007 Ozone Plan*, the Alt SIP proposes using incentives to gain reductions from mobile sources, which are under state and federal jurisdictions. The *2007 Ozone Plan* laid out the case for needed incentive funding in order for the District to achieve attainment of the 8-hour ozone standard by 2015 in areas affecting 50% of its population and by 2020 in areas affecting 90% of Valley residents. Without incentive funding, this figures drop to 35% by 2015 and 65% by 2020, with about 1,000,000 Valley residents experiencing unhealthy air after 2020. Furthermore, without the proposed incentives, the Valley may not reach attainment of the PM_{2.5} federal standard by 2015, as currently mandated by the federal Clean Air Act.

Glass Melting Furnaces

Glass melting furnaces were already included in the *2007 Ozone Plan* as the subject of control measure S-COM-7, and upon further analysis, it was found that stricter limits for four furnaces could be accelerated, resulting in 0.4 tons per day of additional NO_x reductions by 2012.

Residential Solar Water Heaters

The District concurs with the suggestion to promote the use of solar water heaters in new housing developments. A model ordinance will be written, and cities and counties will be encouraged to adopt it. This suggestion will reduce the NO_x emissions from this source category by approximately 0.1 ton per day.

Light/Medium Duty Vehicles

The District concurs that the replacement of high-polluting, light and medium-duty vehicles is an effective strategy to reduce mobile source NO_x emissions, and the District Board recently adopted an enhanced vehicle replacement program. As increased funding for this program becomes available, the Alt SIP goal of replacing 30,000 vehicles can be realized.

Graphic Arts

The District concurs with the suggestion to expand the applicability of Rule 4607 to sources with emissions of 60 pounds per month. While this rule change would not provide enough reductions to accelerate attainment, it would allow the District to claim reductions from currently available low-VOC technologies.

ALTERNATIVE SIP UNDERESTIMATES ATTAINMENT GOALS

The Executive Summary of the Alternative SIP used a simplistic combined NOx/VOC approach and a carrying capacity of 300 tons per day of combined NOx and VOC, apparently assuming that VOC reductions are as effective as NOx reductions. Although an aggressive combined NOx/VOC strategy would provide for attainment, a combined strategy would need approximately the same amount of NOx reductions as a NOx-only strategy, and would therefore be a very inefficient and needlessly expensive way to attain the 8-hour ozone standard. The Alt SIP prescribes reducing the amount of NOx reductions by increasing the amount of VOC reductions. In reality, according to ARB photochemical modeling, NOx reductions could be reduced by a maximum of 20 tons per day, but only by increasing VOC reductions by 150 tons per day. Using a conservative cost of \$25 million per ton of emission reduction per day, the extra VOC emission reductions could raise the cost of attainment by over \$3 billion. This amount would be in excess of the base cost of achieving the NOx reductions needed for attainment.

ALTERNATIVE SIP FALLS SHORT OF ATTAINMENT

In both versions, the Alternative SIP fell short of their own goals. Furthermore, when double-counted reductions are removed and other errors are accounted for, the remaining reductions fall significantly short, and the Alternative SIP fails in its objective of showing how attainment of the 8-hour ozone standard can be accomplished by 2013.

First Alt SIP NOx and VOC Reductions

The first Alt SIP relied on an outdated emissions inventory (version 1.04). The updated inventory (version 1.06), has a combined year 2013 NOx+VOC total of 846 tons per day (482 tons per day of NOx, 364 tons per day of VOC). Even if it is assumed that the reductions in the Alt SIP could be achieved, this new inventory results in a shortfall of approximately 66 tons per day of combined NOx and VOC for the first Alt SIP. In the detailed evaluation, it is shown that several errors, especially in double counting emission reductions, make the first Alt SIP highly flawed, which is also the case with its revised version.

Revised Alt SIP NOx and VOC Reductions

The Revised Alt SIP misapplied the 2012 isopleth from the October Draft of the 2007 Ozone Plan to come up with an emission level of 195 tons per day of NOx and 230 tons per day of VOC, which the Alt SIP claims would be sufficient for attainment. The proper application – using the 2012 emission inventory from the October Drafts of the 2007 Ozone Plan in conjunction with the 2012 isopleths - would actually result in a lower emission level of 164 tons per day of NOx and 195 tons per day of VOC, which requires more emission reductions than is contained in the Revised Alt SIP. The actual carrying capacity for NOx is approximately 160 tons per day.

The Revised Alt SIP admits a 5% shortfall in NO_x reductions. In reality, the Alt SIP falls even further short, since the carrying capacity from modeling results actually equate to 164 tons per day of NO_x and 195 tons per day of VOC.

EVALUATION OF ALTERNATIVE SIP CONTROL MEASURES

Control measures in state implementation plans must conform to requirements of the Federal Clean Air Act (FCAA) and California's Health and Safety Code (CH&SC). To be deemed SIP-creditable, emission reductions must be surplus, quantifiable, enforceable, and permanent (FCAA, 42 U.S.C. Section 7410 (a)(2)(F)). Surplus reductions must come from measures beyond what existing rules and regulations require and must clearly be shown as not "double-counted."

Several California statutes cover the viability of control measures. CH&SC Section 40406 states that, "best available retrofit control technology" means an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy, and economic impacts by each class or category of source." In addition, "all feasible measures" in state law and in CEQA guidelines mean: "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors." These federal and state requirements were considered in the evaluation of proposed Alt SIP control measures.

Double-Counting

The District found double counting errors, which are reductions that the Alt SIP claimed, even though these reductions already have occurred or will occur due to existing rules and proposed measures.

Technological Feasibility

Several of the control measures suggested in the Alt SIP rely on untested technologies. For example, the effectiveness of controls for confined animal facilities and after-treatment controls for diesel-powered equipment are unverified. The Alt SIP recommends these unverified technologies in their methodology to attain the 8-hour ozone standard by 2013.

Legal and Practical Constraints

Several of the Alt SIP control measures present legal and practical obstacles for the District. For example, retrofitting on-road and off-road vehicles with selective catalytic reduction (SCR) technology is presented by the Alt SIP as a silver bullet-like solution, described as follows: "this single strategy is essential for achieving clean air in the valley," (February 19 Alt SIP, page 57). In reality, the District does not have the authority to require retrofits. On a practical level, retrofitting on-road and off-road vehicles cannot effectively be done at the District level, since many of these vehicles are from out-of-state and from other districts.

Economic Impacts

Operational controls called for by the Alt SIP, such as shutdown of sources during episodes of high ozone, would cause serious economic harm to many industries, including agriculture, construction, and landscaping. Since there are no known technologies that would make it possible to achieve the reductions proposed by the Alt SIP, these reductions could only be accomplished by shutting down various activities which are critical to the Valley's economy. The Alt SIP's reduction projections are premised on the availability of BACT level technology, which will be installed by equipment users, in order to avoid non-operation during high ozone days, or as stated in the Alt SIP, "In this example, waiver of the operational restriction is the incentive for using clean technology" (Revised Alt SIP, page 54).

The operational restrictions are also considered by the Alt SIP as enabling the District to lower the amount of incentive funding necessary, or as stated on pages 54-55 of the Revised Alt SIP, "These types of techniques allow the District to reduce emissions from these sources without many times raising incentive funding." The District foresees legal obstacles in using operational restrictions as a "stick" in forcing the installation of clean technology. In combination with the absence of secured incentive funding sources, the federal approvability of the Alt SIP's "Park it or Fix It" strategy is highly unlikely.

A detailed evaluation of the Alt SIP has been submitted to ISSRC . The full detailed evaluation of the Alt SIP's control measures is available upon request.