

Panel 2 - Control Strategies / Add-On Controls, Solvents & Coatings

Unless otherwise noted, the following recommendations and comments reflect the views of Panel members and other attendees at the 2007 Air Quality Management Plan Summit meeting.

Recommended Control Strategies

General

- Need to share the burden much more with consumers and seriously consider the balance of burden within our economy.
- Focus on consumer choices.
- Programs are needed to train end-users of cleaner products and technologies (e.g. mechanics for alternate fueled vehicles).
- If emissions are reduced, allow for the generation of offsets.
- Provide State Implementation Plan (SIP) credit for alternative strategies.
- Stationary sources are well controlled.

Urban Heat Island

- The urban heat island can be reduced by 5 degrees Fahrenheit, which would result in an ozone reduction of about 30%. This would be equivalent to making all cars electric.
- About 70% of city surfaces are man-made. Reflectivity can be significantly lowered to reduce the urban heat island and reduce ozone by 15%. Vegetation can be increased to reduce ozone by another 15%.
- Increase the reflective surfaces on roofs to reduce temperatures
- More cool color roofing materials are available today.
- Infrared reflective pigments are available and are not limited to light colors.

Energy Efficiency / Alternative Energy

- Cooler cars (e.g. more reflective) require significantly less use of air conditioning, which improves fuel efficiency.
- Can reduce basin emissions 50% by improving energy efficiency in cars and consumer products.
- Increase cogeneration to improve efficiency (e.g. exhaust carbon dioxide can be directed to greenhouses to improve plant growth)
- Condensing economizers can significantly improve efficiency of boilers and other combustion equipment. These are used extensively in Europe, and can improve fuel efficiency by 10%. The cost of an economizer can be offset in about 18 months through fuel savings.

- Provide incentives for solar power and other alternative energy sources, and include penalties for higher emission energy sources.
- Make better use of our mountain passes for wind energy.
- Consider that every rooftop is free real estate for solar power. This can be promoted by working with Southern California Edison, the Department of Water and Power, and others. Rooftops could be leased.

Coatings and Solvents

- Consider that manufacturers in Switzerland are charged for every pound of Volatile Organic Compound (VOC). This fee is not restricted to certain categories, but basically applies to any product containing VOCs. Economics can be used as a driving force to promote lower VOC materials..
- Can reduce VOCs and toxics from consumer products.
 - The District has authority in this area which is not currently being utilized (e.g. for industrial facilities).
 - Examples: aerosol cans used in automotive shops, cleaners, paint strippers.
- Medical device manufacturing and cleaning has been overlooked by air quality regulations. Presently, large quantities of isopropyl alcohol are allowed for disinfection by hospitals and medical manufacturing. Alternatives can be used.
- Unnecessarily large quantities of paint thinner are offered for sale in stores such as Home Depot.
- Lubricants and rust inhibitors - low VOC alternatives have been demonstrated
- Consider that VOCs are sometimes used as replacements for hydrofluorocarbons (HFCs) and hydrochloroflourocarbons (HCFCs) (e.g. used in foam blowing, air conditioning) to reduce global warming emissions. The District should become involved in this area.
- Tertiary-Butyl Acetate and other exempt solvents could be utilized more.
- Coatings - a VOC reactivity approach is important, but be very cautious about replacement toxics.
- Need to address the reactivity of VOCs.
 - There is currently a disconnect in the way in which regulations deal with VOCs.
 - In reality, there is not a linear relationship between mass VOC emissions and the impact of these emissions, due to variation in reactivity.
 - In some cases, the solvents used in water-based coatings can be 70-80% more reactive than the substituted solvent. This can be counterproductive.
- Reactivity is even an important issue for the very low VOC coatings (e.g. 50 grams per liter of VOC).
- Coatings - the form of the standard can remain the same if we include a reactivity adjustment to express emissions on a reactivity-mass basis.
- Technologies for low-VOC architectural coatings are transferable to other coating categories.
- Consider durability issues with zero or low VOC coatings. Poor durability can result in emission increases by requiring more coating applications.

- In coatings, some VOCs are used, but not emitted, but this issue is not properly addressed by District rules.
- Use the California Environmental Quality Act (CEQA) process to mitigate emissions from construction coatings/solvents.
- The District should address emissions from propane refueling, because these emissions are significant.

Mobile Sources / Internal Combustion Engines

- Should increase the cost for more polluting vehicles and place this money into programs that reduce emissions.
- Clarification: On a per gallon basis, sports utility vehicles can emit less than small cars. Any program that incentivizes the purchase of small cars or penalizes the purchase of larger cars would need to properly evaluate emission differences.
- Increase fleet turnover.
- Increase the electrification of vehicles.
- In the future, control technologies will rely more on urea-based SCR. This will require a urea infrastructure
- Technology can be transferred from automobiles to stationary engines.
- Although selective catalytic reduction (SCR) is not currently cost-effective for stationary engines rated at less than 500 horsepower, if SCR is developed for trucks, it could become cost-effective for these smaller engines.
- Reduce emissions from smaller generator sets and from the ports.
- For stationary generator sets (e.g., rich burn natural gas), 3-way catalyst is not very effective if the engines are not properly maintained. There are technologies available from the automotive industry that can be used to monitor the performance of these engines.
- Low cost, simplified SCR systems are becoming available that can be used on smaller engines. This was previously not cost-effective.

The panel was asked if we could develop an effective program to train-end users of cleaner products and technologies? Responses included:

- Could be accomplished, but cooperation from different agencies would be needed.
- That would be a very good idea.
- Overuse of thinners and retarders is an issue, but not sure how this can be addressed in such a program. Painters have already been instructed by coating manufacturers that less is needed, but overuse continues.

Barriers to the Introduction of Clean Air Technologies

- Cheap fuel promotes more fuel consumption, and provides a disincentive for fuel efficient technologies.

- The California Air Resources Board and the U.S. Environmental Protection Agency impede energy efficiency. The California Energy Commission has energy efficiency programs. Southern California Edison has made significant strides in their energy efficiency programs. The District should also be involved.
- Poor interaction between agencies. They need to work together better.
- There are difficulties in obtaining permits for clean air technologies from cities and counties. The District needs to educate other agencies to minimize these problems.
- Problems are often encountered in obtaining offsets.

Research Priorities for the Next 5 to 10 Years

- Support university research to develop new coating technologies.
- As part of a study, over a three year period, the California State Polytechnic University painted houses with zero-VOC paints. This study shows promise (e.g. with cross-linking resins). More research is needed in this area.
- The University of California, Riverside, has proposed a comprehensive coatings project to examine, for instance, the eco-efficiency of architectural coatings.
- Because it is difficult to experiment in the public arena with architectural coatings, more money for research and development would be valuable.