

# West Coast Diesel Emissions Reductions Collaborative

June 15, 2004—San Francisco, CA

## Summary: Track 4—Construction and Distributed Generation

### Attendees

Facilitator: Rick Albright, EPA R10

Recorder: Karen Irwin and John Brock EPA Region 9

Barbara Roberts	Office of Air and Radiation/Immediate Office
Brad Edgar	Cleaire
Barry Wallerstein	South Coast Air Quality Management District
Bob Evans	Ramos Oil Co. w/ Sacramento
Bob Lucas	California Council for Environmental and Economic Balance
Clayton Miller	Construction Industry Air Quality Coalition
Fred Minassian	South Coast Air Quality Management District
Gay MacGregor	EPA Office of Transportation and Air Quality
Howard Gollay	Southern California Edison
Kate Larsen	Environmental Defense
Larry Sherwood	Sacramento Metropolitan Air Quality Management District
Michael Murphy	Bay Area Air Quality Management District
Mike Bandrowski	EPA Region 9
Sarah Doll	Oregon Environmental Council
Sara Rees	Washington Dept. of Ecology
Steve Hurd	Caterpillar Inc.
Tom Chapple	Alaska Department of Environmental Conservation
Tom Hudson	Puget Sound Clean Air

### Overview of Current Activities

#### *California*

- Carl Moyer Program results include 500 construction engines repowered for a reduction of 1,500 tons/year of NO<sub>x</sub>. The proposed state funding for the Moyer Program budget is \$61 mill/year.
- CARB recently adopted an air toxics control measure (ATCM) for diesel generators.
- SCAQMD supports engine replacements, e.g., natural gas, use of alt fuels and fuel emulsions to reduce NO<sub>x</sub>, early intro of ultra low sulfur diesel (ULSD—i.e., 15 ppm) and CALTRANS contractual incentives. SCAQMD uses advanced technology funds and sometimes penalty dollars to fund engine replacements/retrofits. With respect to distributed power, SCAQMD uses rate-based initiatives, grant funding, microturbines, and fuel cells (residential and industrial). Environmental justice plays a role in project selection.
- Sacramento looking at SIP credit for early incentive programs. Cost-effectiveness is an important criteria and flexibility at district level.

## *Alaska*

Distributed power is a large focus because there's very little grid power and many small, rural communities rely on diesel generators for electricity (\$0.35/kw) and heating. The largest generators are about 5 MW (70,000 hp). Unlike the rest of the U.S., mobile represents only 5% of demand for diesel. Communities are sensitive to raises in electricity cost, so cost-benefit analysis of retrofits and switching to ULSD is important.

## *National*

EPA has a national workgroup (led by an Associated General Contractors representative) to develop incentives to reduce diesel emissions.

### **Cleaner Fuel Infrastructure and Access**

The group recognized that sulfur content in California fuel is much lower (500 ppm or less) relative to other northwestern states, due to California regulation. Therefore, projects that upgrade to ULSD would have a higher emissions benefit in other states versus California. The biggest challenge with alternatives to diesel is additional cost (\$0.15/gal vs. \$0.4/gal). Off-road fuel is taxed at a lower level than on-road, so there is little incentive to switch to on-road fuel. Tax rebates are also available at national level.

Discussion of fuel or technology demonstration projects:

- Existing demo projects for PuriNOX (emulsified diesel) soon on SF Bay area Alcatraz ferries and at ports of LA/Long Beach
- Existing demo project with Port of Oakland truck fleet (use of ULSD and DOC)
- Sacramento has school buses operating on CNG
- ULSD produces emissions reductions with or without retrofits (although they are more significant where fuel with higher sulfur content is being replaced)—this makes sense for old engines not amenable to PM traps
- There are potential concerns—power loss of construction equipment using PuriNOX and fuel poisoning from fuel mixing (although EPA's new national standards will help address the latter)
- SCAQMD has funded natural gas infrastructure that is compatible for future conversion to hydrogen fuel
- SCAQMD has funded construction equipment demos using PM traps but SCR technology (for NOx reductions) has not been demonstrated
- SCAQMD has incentives for truck stop electrification
- Hertz rental company has a clean fuel demonstration project for construction equipment
- Caterpillar projects to date have mostly replaced old non-certified engines with Tier I engines. Tier II prototypes are out now, but Tier III is a jump ahead. It may make sense to simply replace the entire engine of an old piece of equipment rather than try to retrofit it to meet Tier III. Providing incentives for Tier III engines would be a long-term project.

*Question:* How is diesel delivered to construction sites?

*Answer:* Some contractors (big projects) use portable tank trucks that refuel on-site storage tanks and typically service multiple contractors. Others use a wet hosing service in which a tanker truck delivers fuel for the equipment. Switching from diesel to alternative fuel (e.g., natural gas) presents infrastructure considerations vs. switching to ULSD, which can be used with the existing fuel system. Also, some PM trap technologies don't require ULSD.

## Ideas for Short-Term and Long-Term Projects

- Provide incentives for engine upgrades to Tier I or II (outside California) and Tier III in California (long-term)
- Fund alternative fuels and infrastructure
- Fund fuel switching to low sulfur diesel (LSD) or ULSD or provide tax incentives
  - Issue of ULSD availability outside of California
- Initiate a contract bid pilot project to give competitive advantage for use of cleaner construction equipment (e.g., federal highway funded project, office building project or State DOT contract on I-5)
  - Either establish bid specs or award points to contractors that meet specs (technology neutral and focused on emissions reductions potential)
  - Provide additional funds in the bid to pay for the cost of equipment upgrades/cleaner fuel
  - Project in EJ area preferable
  - Need to protect local contractors from large interstate contractors relocating equipment from other areas and locking locals out
  - For short-term success, it's best to keep project specific to a local/regional level rather than at the national DOT level
- Initiate pilot projects at airports or hospitals (PM filters or Diesel Oxidation Catalyst (DOC) retrofits)
- Initiate pilot projects for cement trucks or aggregate trucks with PM traps (3-4 technologies verified by CARB) and expand to off-road equipment taking duty-cycle into account
- Create a list that matches up off-road engine duty cycles and effective retrofit technologies
- Provide early availability incentives and find willing partners for upgrades to ULSD
- Demonstrate an actively regenerated trap not dependent on duty cycle
- Fund switching of construction equipment/diesel generators from off-road diesel fuel to on-road diesel fuel (Washington/Oregon)
- Create an EPA recognition program as incentive for retrofits/fuel switching
- Fund projects to replace small diesel engines with electric engines
  - Issue of providing power to site
- Initiate a pilot project with a construction equipment rental company similar to existing Hertz rental demonstration
  - Construction rental companies are interested in repowering engines
  - Issue of supplying a decentralized system for use of LSD or ULSD

- Initiate a pilot project in Alaska to supply LSD to distributed diesel generators in a community for a day or a season and/or in California to supply ULSD to diesel generators at schools or in EJ communities
- Expand California's voluntary smoking engine program (1-800-CUTSMOG hotline) to construction equipment. Have an individual check for smoking construction equipment and send letters requesting voluntary tune-ups. Award responsive companies with a tank of ULSD or other EPA recognition
- Encourage the use of Moyer funds for repowering additional numbers of construction equipment
- *Added via email:* Establish a Clean Diesel Zone at medical complexes such as Pill Hill, a medical center complex in Portland that consists of four hospitals providing care for more than 187,000 infants, children and adults every year and trained more than 3,500 students, interns, residents, fellows and clinical trainees last year. It is Portland's largest business and Oregon's fourth largest, with more than 11,000 employees. The Clean Diesel Zone would establish a precedent with institutional requirements for all construction equipment to be "clean diesel" as well as ongoing service providers like transit, garbage service and delivery vehicles to operate clean diesel vehicles.