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Choking on Clean Air?

It's about future generations. It's about conserving the planet. And it's about today's health. The impacts of diesel emissions have been debated for decades, but today nearly all public leaders—and virtually all reputable scientists—now agree that hydrocarbon emissions and dozens of tiny chemical particulates create health problems for the very young and very old, and are at least one major component of global warming.

There, I said it. This issue has moved beyond conjecture to observable fact. Glaciers in Montana, Alaska, Greenland and western Antarctica are melting and could approach what scientists call a “tipping point”—the point beyond which the trend is self-feeding and cannot be reversed for thousands of years. Even IF the root cause were natural climate cycles as some assert, the consequences are so severe to human life and to business, that we are obligated to do whatever possible to mitigate even natural processes that will cause the oceans to rise and Sierra snow packs to shrink.

Wait a minute!

I know some of you are moistening your fingers to turn the page, disgusted with the thought that a construction association magazine is mouthing the bad news you already know about (or still don't believe). But this is not the “liberal media,” so hang on. This impacts every construction company and many affiliates right now, and by 2010 could put some companies out of business or at the very least soak up a big chunk of business equity. This could have a bigger impact on your nest egg than the bursting of the NASDAQ stock market bubble in 2000, or any other single event since World War II.

Here come the government regulators

After the first recognized episodes of smog in Los Angeles in the summer of 1943, on June 10, 1947, California Gov. Earl Warren signed into law the Air Pollution Control Act, authorizing the creation of an Air Pollution Control District in every county of the state. In 1967, the California Air Resources Board (CARB) was created by then-Gov. Ronald Reagan. Two years later, President Richard Nixon created the federal Environmental Protection Agency (EPA). In 1988, the California Clean Air Act was signed by Gov. Deukmejian, setting forth the framework for how air quality would be managed in California until 2008. CARB has been steadily phasing increases in air quality standards beginning with on-road vehicles which account for the bulk of emissions—first the gasoline-powered and diesel-powered automobile engines, then moving through diesel trucks and busses and pretty much everything with wheels larger than the one in your hamster's cage.

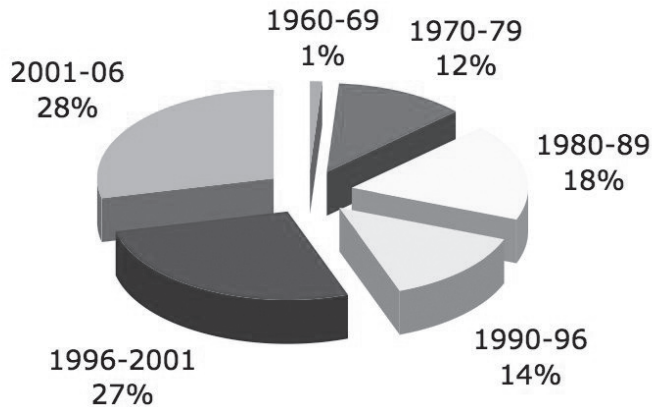
Now CARB has set its sights on off-road diesel engines, saying that of the 1.25 million diesel engines in California, two-thirds of Particulate Matter emissions come from off-road engines including agriculture, trains, marine engines and “construction and mining equipment” (which get lumped together). But of this, CARB estimates 15.77% of all Particulate Matter mobile emissions comes from diesel engines used in construction and mining (only half of one percent, if you count all emission sources including manufacturing and power generation). Construction off-road vehicles consume 11% of all off-road diesel fuel used, and produce an estimated 11.7% of mobile-source nitrogen oxides but only 1% of mobile-source carbon monoxide emissions, according to CARB. EGCA points out that these percentages are estimates which may be overstated, and we are working with the Construction Industry Air Quality Coalition (CIAQC) to help CARB determine a more accurate impact.

Quick technology primer—1996 was the turning point

Government and the engine manufacturers have worked cooperatively for years. But the engine manufacturers like Caterpillar are now racing to advance diesel engine technology to keep up with increasingly aggressive CARB requirements.

Caterpillar began engineering cleaner diesel engines in the early 1980s, long before regulations required them. But major improvements have been slow in coming. In most horsepower categories, 1996 is the turning point. Before 1996 engines are classified as Tier Zero. Diesel engines manufactured from 1996 to 2001 are generally classified as Tier One—again with some year

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Diesel Engines in Use by Year of Manufacture — per EGCA Survey

variances based on higher horsepower. Tier Two engines are not yet available in many engine classes and will only be an interim step, because by 2010 (four years away), construction fleets will need to average Tier Three emission standards – a technology not yet invented for many horsepower categories. The 2010 requirements will be the biggest step for us. By New Year's Eve this year, CARB will implement diesel emission regulations requiring reduction of particulates in engines from 175 to 750 horsepower from the current 0.4 PPM to 0.15 PPM by 2010. That's the big step.

In EGCA's survey, of 525 pieces of equipment owned by 11 EGCA contractors and one rental company, the chart above shows the year of manufacture of their diesel engines. Half are Tier Zero.

"Repowering" an older CAT 657E scraper dual-engine to move from Tier Zero to Tier One can cost \$250,000 for the pair. Those engines will be obsolete in 2008. You won't be able to sell them in California unless

you repower them at a cost of \$250 to \$300 per horsepower.

Who pays? Well, you do. To date there have been millions of dollars available to contractors through the Carl Moyer Program (federal dollars administered through CARB and our local APCD). But so far that money only gets us to Tier One and likely runs out this year.

Justice study of costs for individual contractors

Funded by CIAQC (our sister organization in Los Angeles), Long Beach-based Justice & Associates conducted a study of the costs of meeting proposed CARB standards by 2010. They looked at 19 contractors' fleets – six were EGCA contractors – including engine age and horsepower, and calculated the costs of repowering as necessary (usually to Tier Three) to comply with proposed CARB regulations. Look at the results in the graph below.

Got an extra \$3 million you're not using in the next four years?

So what is YOUR strategy? (See the Squawk Box on next page or what some EGCA leaders are thinking.) For our EGCA members we are developing fleet assessment and CARB regulation compliance planning services. The time to start evaluating and planning is now.

Meantime, EGCA is working with other industry groups like CIAQC and with CARB in Sacramento to help shape the final regulations in ways that will allow our industry to survive and maybe even prosper during this critical transition period. If you want more information or to be on our list for upcoming meetings (EGCA member or not), call (619) 692-0760. Take a deep breath, and stay tuned.

— Dan Fauchier

EGCA Contractor Number	Number of Diesel Engines in Fleet	Average Fleet HP per Machine	Cost to Repower to Comply by 2010
1	50	122	\$1.37 million
2	59	180	\$2.24 million
3	76	156	\$2.61 million
4	110	179	\$4.69 million
5	48	450	\$5.99 million
6	65	447	\$7.81 million

Squawk Box

We asked several EGCA members – contractors and equipment rental companies – what they plan to do to comply with proposed CARB diesel engine emission regulations. What they told us is both thoughtful and provocative.

**Mike Shaw,
Perry & Shaw:**

“We at Perry & Shaw have been repowering our older equipment for several years using Carl Moyer funds. We’ve repowered two dozen engines so far. We hope to keep using these programs, but are concerned that the Carl Moyer money will likely run out this year. If we have to make the conversions ourselves it could soak up our profits for years to come. That’s why I’ve been so closely involved with EGCA and CIAQC for the last three years.”

**Jeff Anderson,
Vadnais Construction:**

“We at Vadnais have a number of jobs overseas so our plan is to assess what machines do not meet new CARB standards and then either move them to projects overseas or sell them out of state. We do not anticipate repowering any engines at this time.”

**Owen Cowing,
Red Mountain Machinery:**

“One thing we have found in buying new machines is that they may have engines built a year or two earlier than the model of the machine. The logical conclusion of buying a 2006 Machine is that you would get an engine complying to 2006 standards. Unfortunately that is not true. We recently purchased some new 2006 model machines from our local dealer only to find that the engines were built in 2004 and 2005—thus not complying with 2006 standards.

“Also manufacturers have made ‘deals’ with the EPA on engine classes ... ‘banked’ some engines manufactured ahead of schedule, and made a deal to ‘flex’ a non-compliant engine to a compliant engine as a trade off. The decal on the engine tells you if it is ‘flexed’ or not. How will the CARB treat that engine? It is flexed by the manufacturer and

the EPA, but not compliant with that year standard.

“There are some rocky roads ahead in equipment buying decisions. Scrapers and tractors will be very difficult and expensive to meet the upcoming standards.”

**Wes Wise,
TC Construction:**

“... everyone will be forced to buy newer CARB-legal equipment and sell their older equipment (probably at a lower value since the market will be saturated) to states that welcome and understand the construction industry. The owners of the projects will see the most significant effect with higher bid prices and possibly less bidders.”

**David Dean
Hawthorne Equipment:**

“We tend to roll out our rental fleet models making them available for sale when they are approaching three years or 3,000 hours. Customer demands may cause them to leave earlier. In all cases, the units are replaced with new machines to keep the fleet size maintained with the most current models. Hawthorne is fully committed to our continued partnership with our customers and their equipment fleets in the area of re-powering or machine replacement, and with EGCA’s air quality coalition group keeping everyone abreast of the latest technology available for off road diesel equipment.”

**Dan Fauchier
Fauchier Group Consulting:**

“Several contractors have said, ‘Can’t someone just assess my equipment fleet, tell me what I need to do and help me make sound business decisions?’ So I’m working with a group of experts to create just that level of service for our contractors here in the San Diego region.”