STATE OF CALIFORNIA
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES	)))))	Agenda Item: 07-5-6 July 26, 2007 (continued from May 25th)

COMMENTS OF ASSOCIATED GENERAL CONTRACTORS OF AMERICA

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On behalf of—
Associated General Contractors of America

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I. INTRODUCTION

The Associated General Contractors of America (AGC) respectfully submits the following comments to the California Air Resources Board (ARB) on its recently proposed rule on off-road diesel equipment already in use. AGC previously filed comments on May 23, 2007, in opposition of this rule; AGC's initial comments are posted on ARB's Web page – online at http://www.arb.ca.gov/regact/2007/ordiesl07/ordiesl07.htm and attached at the end of this letter.

AGC is the largest and most diverse trade association in the construction industry. The Association has more than 32,000 members and 96 state and local chapters throughout the United States. Among AGC's members are more than 7,000 of the nation's leading general construction contractors and approximately 25,000 specialty contractors and other firms engaged in the construction of highways, bridges, tunnels, airport runways and terminals, buildings, factories, warehouses, shopping centers, and both water and wastewater treatment facilities.

AGC contractors need diesel-powered construction equipment to maintain the quality of life that this nation has come to enjoy. AGC members rely on such off-road equipment to construct and maintain the nation's public and private infrastructure. Given the great importance of such equipment to the construction industry, AGC appreciates the opportunity to express its views on the proposed regulation of off-road diesel equipment already in use.

II. SUMMARY OF PROPOSED RULE

The California Air Resources Board (ARB) has proposed a new rule on emissions from in-use, off-road diesel equipment. The purpose of this rule is to reduce diesel emissions from existing fleets, and to that end, the rule would require the owners of such equipment (1) to retrofit their equipment with devices that capture pollutants from the exhaust (before the equipment emits the pollutants into the air), (2) to repower their equipment (replacing older engines with newer and cleaner engines), and/or (3) to accelerate the turnover of the equipment in their fleets.

The proposed rule requires the covered fleets of equipment to steadily and dramatically reduce their average emission rates for particulate matter (PM), and in many cases, nitrogen oxide (NOx). Each year, the rule would set a target rate for average emissions of PM, and all fleets would have to either meet the target rate or apply the highest level of verified diesel emission control technology to 20 percent of its total horsepower. Each year, large and medium fleets would also have to meet a target rate for average emissions of NOx, or in the alternative, "turn over" a certain percent of their total horsepower (8 percent in early years, and 10 percent in later years). In this context, "turn over" means repower a piece of equipment with a cleaner engine, retire a piece of equipment, replace a piece of equipment, or designate a piece of equipment as low-use. If retrofits that reduce

NOx emissions become available, such retrofits may be an alternative, provided they achieve the same emission benefits.

The new rule would first apply to the fleets with more than 5,000 horsepower of covered equipment (excluding equipment operated less than 100 hours per year). For these large fleets, the first compliance dates would fall in 2010. For medium fleets with 1,501 to 5,000 horsepower of covered equipment, the first compliance dates would fall in 2013. For small fleets with 1,500 or less horsepower, and for fleets belonging to small businesses or municipalities, the first compliance dates would fall in 2015. In addition, the latter would have to meet only the targets rates for average emissions of PM, and would not have to accelerate their equipment turn over.

III. ARB'S PROPOSAL FAILS TO MEET THE SUBSTANTIVE STANDARDS AND PROCEDURAL REQUIREMENTS UNDER STATE LAW

Because ARB seeks to regulate emissions of criteria air pollutants (i.e., diesel PM and NOx) and emissions of a designated toxic air contaminant (i.e., diesel PM), ARB must comply with both the California Clean Air Act (which governs criteria air pollutants) and the Tanner Act (which governs toxic air contaminants). Both of these statutory programs are codified in the California Health & Safety Code and neither program preempts the other. *Western Oil & Gas Assn. v. Orange County Air Pollution Control Dist.*, 14 Cal.3d 411 (1975).

In addition, several other California statutes establish requirements for ARB's adoption of retrofit standards: (1) the California Administrative Procedure Act (APA) (for all rulemakings by state agencies), (2) the California Environmental Quality Act ("CEQA"), and (3) the provisions of the Health & Safety Code specifically relating to ARB's statutory authority. Under the Clean Air Act and the Tanner Act, *see* Health & Safety Code §§43013, 39665(b)(4)-(6), and these procedural standards, *see* 14 Cal. Code Regs., §15000 *et seq.* and Gov't Code §11340 *et seq.,* AGC challenges the feasibility, cost effectiveness, alternatives analysis, and impacts of ARB's proposed standard.

A. Proposal Is Not Economically Feasible

The federal Clean Air Act and California's Health and Safety Code both require that ARB standards be feasible, in both an economic and a technical sense. Health & Safety Code §43013(a)-(b), (d); *see also id.* §43018(a), (e) (ARB required to reduce mobile-source emissions to attain state air quality standards, "consider[ing] the effect of the standards and regulations on the economy of the state"); §§39665(b)(5), 39666(c) (ARB must consider cost of air toxic control measures); 42 U.S.C. §§7543(e)(2)(A), 7521(a)(2) (standards must "take effect *after* such period as [EPA] finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period") (emphasis added).

In its Initial Statement of Reasons (ISOR), ARB speculates that many affected businesses could pass the regulation's costs to their customers and/or absorb its costs internally.

ISOR, at 42-43 – online at http://www.arb.ca.gov/regact/2007/ordiesl07/isor.pdf. ARB staff performed a case study on the economic impacts of the regulation for seven actual California construction fleets. That analysis shows that fleets would either have to bear significantly lower profits or pass on some of the costs to their customers to increase revenue. ISOR, at 43-44.

AGC believes that ARB's proposal – which is cumulative with ARB requirements for onroad and portable equipment – would deliver an economically crippling blow to the construction industry. As explained below, ARB significantly understates the cost of its rule, overstates the industry's ability to pass the increased cost on to its customers, and completely disregards the economic effect of devaluing the construction equipment currently in use. *See* Attachment 11, *Estimating the Construction Industry Compliance Costs for CARB's Off-Road Diesel Vehicle Rule* (hereinafter M.Cubed report), p. 1-3, 7-9, 22-24. ARB should not adopt a rule that would go so far as to qualify the entire industry for variance relief. *See* Health & Safety Code §§42352(a)(2), 42352.5(a)(2), 42368(a)(2) (authorizing such relief from an arbitrary, unreasonable taking of property and the practical closing and elimination of lawful businesses).

As a threshold matter, ARB has grossly underestimated the cost of retrofitting existing equipment. In practice, the construction industry has found that that the cost of retrofitting equipment is 50 percent higher than the amount that ARB estimates, in making its economic analysis. To AGC, it is clear that ARB has neither fully nor fairly researched this critical issue, and that ARB therefore lacks reliable data on the costs purchasing, installing and maintaining retrofit technology.

ARB's economic model assumes that all retrofits will be performed with "Level 3" verified diesel emission controls (VDEC) that achieve at least 85 percent PM control. The following table sets forth ARB's estimates of the cost of retrofitting equipment. *See* ARB Technical Support Document (TSD), Appendix H, p. 11 – online at http://www.arb.ca.gov/regact/2007/ordiesl07/TSD.pdf. In stark contrast, actual installed costs that contractors are currently paying vary from $25,000 to $60,000 per engine. *See* e.g., Comment #128, Granite Construction Inc., May 21, 2007. In addition, contractors are paying for higher costs for the maintenance, repair and contingent damage to retrofitted equipment. As performance suffers, contractors are also paying for more fuel consumption over the remainder of the equipment's life. Indeed, in many cases, these other costs could well exceed the initial costs of purchasing and installing the devices needed to reduce emissions of PM.

Table 3: Cost of Retrofits

Vehicle Horsepower	Cost of Retrofit
< 50	$8,000
50 to < 175	$12,000
175 to < 400	$18,000
400 plus	$30,000

According to the minutes of the public hearing that ARB held on May 25, 2007, many industry professionals have already testified that ARB's estimated VDEC costs are too low.[1] *See e.g.*, hearing transcript, p. 258 – online at http://www.arb.ca.gov/board/mt/2007/mt052507.txt.

Second, ARB has overstated the options for repowering existing equipment. ARB's proposal assumes that a large percentage of existing construction equipment will be repowered and that all equipment over 250 horsepower can be repowered. *See* TSD, Appendix H, p. 9 ("For the purposes of calculating the costs associated with repowers and replacements, the model assumes that any vehicle that is relatively new, over 250 horsepower, and not a tier 4 will be repowered rather than replaced."). AGC research reveals, however, that most of this equipment cannot be repowered. *See* Attachment 2, Affidavit of Mike Buckantz, parag. 9 ("less than 25 percent of all of the off-road construction equipment…can successfully be repowered by an engine manufacturer"); *see also* ARB May 25, 2007, public hearing transcript, p. 175 ("Manufacturers do not supply replacement engines for a majority of our fleet."); *see also id.* p. 211 (According to Hawthorne Machinery, the San Diego County Caterpillar dealer, "there are only seven available [repower solutions] for over 300 different models working out there today."); *id.* p. 293 (According to Quinn Caterpillar, "[c]urrently about 3 percent of Caterpillar's legacy machines can be repowered to Tier 3."). This mistake has, in turn, led ARB to underestimate the number of machines that the rule would require fleet owners to replace or retire, and slanted its economic analysis.

Third, ARB has overestimated the amount of Tier 2 and Tier 3 equipment on the used-equipment market. *See* M.Cubed report, p. 1-2, 9. AGC does not find it credible to suggest that the current owners of such equipment will readily dispose of it, as Tier 4 replacement engines/equipment will not be available until very late in the compliance schedule. Until then, Tier 2 and Tier 3 machines will have to make up the bulk of any compliance fleet. *See* ARB May 25, 2007, public hearing transcript, p. 211 ("They just had a huge auction up in Riverside [Calif]. Almost no equipment was over Tier 2. Used

[1] The California APA requires ARB to keep a transcript of public hearings and to include the transcript in the final rulemaking record. Cal. Gov't Code §11347.3(a)(7) ("The file shall include . . . a transcript, recording or minutes of any public hearing connected with the adoption, amendment, or repeal of the regulation."); *see also id.* §11347.3(b)(8) (requires the final rulemaking record submitted to OAL to contain a "transcript, recording, or minutes of any public hearing connected with the adoption, amendment, or repeal of the regulation").

equipment is not an option. It won't be because nobody's going to be giving up any of the good equipment."). This mistake has compounded the effect of ARB's immediately preceding mistake, and further slanted its economic analysis. Few contractors will have the option of purchasing used Tier 2 and Tier 3 equipment at industry auctions.

Fourth, ARB has underestimated the cost of the new equipment that the rule would require fleet owners to purchase. Indeed, ARB's estimates for new equipment are significantly lower than actual quotes provided to AGC-member companies by their equipment dealers. *See* M.Cubed report, p. 19-20 (compares ARB's new machine prices with new equipment price lists compiled by Construction Industry Air Quality Coalition members and finds that firms' reported prices averaged 67 to 78 percent higher than the ARB Staff estimates); *see also* Attachment 10, Affidavit of Michael W. Lewis, parag. 6-7 (explaining CIAQC's data collection effort). Tier 3 and Tier 4 engines cost substantially more that Tier 1 and Tier 2 engines, and the cost of new machines will increase accordingly. In 2007, on-road equipment with their Tier 4 equivalent technology is costing 100 percent more than 2006 equipment with Tier 3 technology. Construction equipment prices have been escalating at eight to ten percent per year for the last decade. When the Tier 4 machines become generally available in 2015, they are likely to 70 to 80 percent more expensive than the machines they replace.

Fifth, ARB has overestimated the natural turnover rate for off-road construction equipment. ARB's rulemaking documents state that the baseline rate of turnover for the statewide fleet is about 5 percent per year. ISOR, at 52. AGC's research shows that the turnover for off-road construction equipment is actually in the range of 2.5 to 3 percent per year. *See* ARB May 25, 2007, public hearing transcript, p. 296 (According to Quinn Company, a California Caterpillar dealership, "[ARB] staff should consider the natural turnover of 2 to 3 percent per year instead of the unrealistic 8 to 10 percent."); *see also* M.Cubed report, p. 19 (new equipment sales data from the Equipment Manufacturers Association shows the retirement rate to be 40 percent less than ARB estimates). ARB's model yields an artificially low cost of compliance by putting too much of that cost into the category of natural turnover.

Sixth, ARB has overstated the resale value of the equipment that the proposed rule would prevent fleet owners from using in the future. ARB reasons that California is just one state, and that the equipment inflating a fleet's average emissions could be sold to operators in other states <u>at nearly the same price at which it could be sold today</u>. ARB merely acknowledges that the regulation would "tend to decrease the value of older, dirtier vehicles." Its assumption is that the change in value would be limited to the cost of transporting Tier 0 equipment out of state (which ARB estimates to be $10 per horsepower). ISOR, at 45. It is not, however, reasonable for ARB to assume that it can eliminate the demand for certain equipment, and simultaneously increase the supply of the same equipment, by an equal amount, without having a dramatic impact on its market value. *See* Attachment 4, Affidavit of Kenneth Coate, parag. 7 (ARB's economic analysis gives "inadequate consideration of the market effect of the vast numbers of non-qualifying equipment entering the out-of-state used equipment market; they use minor adjustments that completely ignore supply-side modeling."). While ARB can do much, it

cannot repeal the laws of supply and demand! If other states (such as New York) took a serious interest in adopting the same rule, the effect would only be more dramatic. *Id.* ("I believe this equipment would be worth a fraction of staff's [ARB's] anticipated costs."). One AGC member estimates that the market value of its Tier 0 equipment would immediately fall 20-40 percent, and that the market value of its Tier 1 equipment would fall by a similar amount—beyond normal depreciation—within 5 years. *See, e.g.*, Comment #128, Granite Construction Inc., May 21, 2007.

Seventh, ARB has exaggerated the market power of any one construction contractor. Collectively, the nation's contractors wield great economic power, but their industry remains highly fragmented and intensely competitive, and few if any of them have the power to compel their clients to absorb the cost of compliance with the proposed rule. *See* Attachment 4, Affidavit of Kenneth Coate, parag. 8 ("Customers are not going to use a higher bidder [just] because they have greater compliance costs."). Those performing highly specialized work may be able to build a portion of that cost into their bids and quotes, but most contractors will have to bear all of it. Public owners typically require open competitive bidding for public construction contracts, and just as typically, they must award such contracts to the lower responsive and responsible bidder. Many private owners take the same approach. In such a world, a contractor can pass the cost of compliance along to its clients only if and to the extent that all of its competitors must incur the same or greater expense to come into compliance and its competitors build that cost into their bids and quotes. If any one contractor fully absorbed its cost of compliance, all of the other firms competing for the same contracts would quickly find that they had to do the same. Firms that tried to recover even a portion of that cost would win little if any work. *Id.* (ARB "does not give adequate consideration to the 'low bidder' competitive market"); *see also* Attachment 5, Affidavit of Kenneth Simonson, parag. 14 ("Companies cannot pass the full costs of equipment retrofit or replacement on to the construction-funding agencies and private customers . . . ."). In an industry as large and diverse as the construction industry, ARB has to assume that some firms can and will choose to absorb the cost of compliance, and that competition will therefore prevent most contractors from passing that cost along to their clients.

Eighth, ARB has failed to account for the rule's inevitable impact on construction contractors' borrowing and bonding capacity. As explained, the rule would dramatically devalue Tier 0 and Tier 1 equipment. In the process, the rule would make it far more difficult for contractors to raise cash. *See* Attachment 3, Affidavit of Ralph E. Potter, parag. 6 ("Contractors rely heavily on the ability to convert equipment to cash to adjust their fleets, reduce expenses, and reduce debt. The hidden equity in depreciated equipment also provides borrowing capacity . . . ."). At the same time, the rule would limit a contractor's bonding capacity, making it much more difficult for the contractor to grow its revenue. *See* Attachment 4, Affidavit of Kenneth A. Coate, parag. 6 (explaining that a contractor's bonding capacity is a relatively fixed function of its net worth, working capital and depreciated equipment market value, and concluding that "the ability of California contractors to effectively bond the infrastructure going forward will be severely impacted."). ARB cannot assume that additional revenue would drop directly to a contractor's bottom line. Additional costs—for labor, materials and overhead and the

like—would have to come out of such revenue, and nothing guarantees that any of it would be available for the purchase of new equipment or the retrofit of existing machines. The proposed rule would, however, limit the volume of at least public work that a contractor could even qualify to perform, complicating if not defeating any effort to raise additional revenue, in the hope that at least some of that revenue could go into compliance. *See* Attachment 3, Affidavit of Ralph E. Potter, parag. 10 ("[C]ontractors must bond for the full amount of their contracts . . . ."). The proposed rule would squeeze contractors from not one but two sides, requiring them to incur great costs and simultaneously depriving them of the net worth, working capital and hidden equity they would require to finance such costs. In the end, the rule would force most of the small, medium and other thinly capitalized contractors that dominate the construction industry to shrink their equipment fleets and to cut their staffing. *See also* M.Cubed report, p. 7-9 and 22-24.

Ninth, ARB has underestimated the amount of equipment that the proposed rule would affect. ARB estimates that about 180,000 pieces of equipment would be subject to the rule, ISOR, at 17, and in defense of this estimate of the baseline inventory, ARB cites the following surveys:

- MacKay & Co. Construction Universe Study (2003);
- TIAX Public Fleet Survey (2003);
- Yengst equipment analysis reports (2005);
- ARB Off-road Equipment Survey (2005); and
- ARB Off-road Mini Survey (2006).

ARB also cites stakeholders and argues that its OFFROAD2007 Model incorporated its latest data in November 2006. *See also* ARB, TSD, at 57, 67-68 & Appendix E, at E-2, E-28 to -29 (making similar arguments). AGC has found, however, that national data (such as the Yengst reports) is not representative of the California market. *See* M.Cubed report, p. 1 and 3. Moreover, the 2002 Economic Census (prepared by the U. S. Census Bureau) reveals that there are more than 67,000 construction firms with employees (and more than 167,000 small firms with no payroll) in California. ARB's emissions inventory can now account for only 180,000 pieces of off-road construction equipment. If ARB's baseline estimate is nevertheless correct, the ratio of machines to contractors with employees is still an unrealistically low 2.68. *See* ARB Hearing Transcript, p. 206 (refers to experts at hearing who own 50 to 60 pieces of large equipment).

Tenth, ARB has understated the number of jobs that California would be likely to lose.[2] ARB has projected that the cost of compliance with the propose rule would reduce California employment by just 1,000 jobs (0.01 percent) in the peak year of 2010. TSD, at 181. ARB has also stated that this loss of employment jobs would be spread

[2] Sections 11346.3 and 11346.5 of the Calif. Government Code require state agencies to assess the potential for adverse economic impacts on California business enterprises and individuals when proposing to adopt or amend any administrative regulation. The assessment shall include a consideration of the impact of the proposed regulation on California jobs, business expansion, elimination, or creation, and the ability of California businesses to compete.

throughout the economy, and not on just the industries (such as construction) that the rule would directly affect. ISOR, at 46. To comply with the proposed rule, many construction contractors would, however, need to downsize, laying off workers and reducing their capacity to construct future projects.[3] If a contractor could not absorb the annual cost of replacing 8 percent of its fleet, and retrofitting another 20 percent, the contractor would have no alternative to downsizing its fleet. For the many reasons already given, most of the small, medium and other thinly capitalized contractors that dominate the construction industry would have to shrink, and the statewide loss of employment (in just the construction industry) would be somewhere between 4,300 and 29,400 jobs. M.Cubed report, p. 3, 23; *see also* ARB Hearing Transcript, p. 184, 192, and 322; *id.* p. 296 (California Alliance for Jobs "estimates the elimination of over 40,000 construction jobs in California"); p. 297 (Safety for Operating Engineers Local Union No. 3 "there will be a loss of over 30,000 jobs"). This would be somewhere between 0.5 percent and 3.5 percent of just the state's employment in the construction industry. M.Cubed report, p. 3.

Finally, the rule would increase the time required to make critical improvements to the state's infrastructure, including the improvements that the people of California approved last November 2006, when they approved $43 billion in infrastructure bonds. The construction industry would need more time to perform such a great volume of work, and congestion and other problems would therefore linger. In addition, as time passed, and the cost of labor, material and other inputs continued to increase, the number and scope of the improvements that such bonds could finance would gradually but steadily decline. In the end, there would be fewer and smaller improvements to roads, schools, levees and the like.

B. Proposal Is Not Technically Feasible

Before ARB can adopt an off-road engine emission standard to regulate criteria pollutant emissions from construction equipment, ARB must meet certain standards and obligations set forth the California Health & Safety Code. By its terms, the law authorizes ARB to "adopt and implement motor vehicle emission standards… [that ARB] has found to be technologically feasible…, unless preempted by federal law." Health & Safety Code §43013(a) (emphasis added); *see also id.* §§43013(b) (ARB's off-road standards must be consistent with §43013(a)); §43013(d) (ARB's off-road regulations must be feasible); §39665(b)(4) (ARB must consider technological feasibility for air toxic control measures); §39666(c) (same). Similarly, under federal law, ARB's standards must be consistent with federal requirements for technological feasibility in order for those ARB standards to qualify for a waiver of federal preemption. *See* Attachment 1, Initial Comments of AGC, Section III.A, May 23, 2007 (discussing CAA §202(a) and §209). Without the waiver of federal preemption, the California standards

[3] In California, seasonally adjusted nonfarm employment in March 2007 totaled 15.2 million, of which 946,000 (6 percent) worked for construction companies. Nationally, construction accounts for about 5.6 percent of nonfarm employment.

exceed ARB's authority under both federal and state law. 42 U.S.C. §7543(e); Health & Safety Code §43013(a)-(b).

In its rulemaking documents, ARB seeks to defend the technical feasibility of its proposal, addressing the availability of retrofit controls, and options for repowering equipment or replacing it. TSD, at 99-127. AGC strongly believes that engine and retrofit manufacturers, the used-equipment market, and suppliers and installers will not be able to meet the demand that the rule would create for equipment essential to the construction industry.

As a threshold matter, equipment manufacturers have indicated that the demand created by ARB's regulation would exceed the availability of the required retrofit devices and replacement engines and machines. In support of this premise, several of the nation's top manufacturers of construction equipment provided statements regarding ARB's proposed rule:

> [I]t will be a challenge for us and all manufacturers to develop, certify and introduce new emission compliant products for major portions of their product lines in the time window provided for by emissions regulations… At this stage, it is unrealistic for Caterpillar – or any manufacturer – to guarantee they will have all the products and service capacity necessary to perform the work. There is risk that the proposed rule, if implemented as currently conceived will not provide sufficient lead-time for manufacturers to fully support California customers. *See* Attachment 6, Caterpillar Statement.
>
> With respect to legacy equipment, Deere is concerned with the availability of engineered solutions necessary to bring thousands of fleets containing hundreds of different models of machines into compliance during the time frame allotted under the proposed in-use rule. It is simply unknown at this point if sufficient engineering resources can be devoted into integrating Tier 4 technology solutions into hundreds of pre-Tier 3 machine models during the timeframe set for in the proposed rule. *See* Attachment 7, John Deere Statement.
>
> [T]he combined effect of the nature of the proposed regulations, uncertainty regarding the final form of the regulation, and the extreme difficulty of forecasting individual customer needs for the many CNH legacy products mean that despite the desire and commitment of CNH to fully support the owners of our brands of equipment, we cannot commit to the future availability of the retrofit products required to meet the proposed regulations. *See* Attachment 8, Case New Holland Statement.

Second, retrofit devices are unsuitable for use on most off-road applications (even though ARB may have granted verification) due to space constraints, diminished visibility, machine vibrations, safety considerations and other maintenance issues. Currently, there

are only three Level 3 retrofit devices verified by ARB for off-road use. Of these three units, two of them (the Combifilter and the Cleaire Horizon) require manual regeneration by a high-voltage electrical source every four to six hours. AGC members have reported that this is not compatible with their operations because there is rarely such an electrical source out in the field. Contractors would need to purchase a number of exchange filters and support trucks, hire support staff, and create regeneration facilities to manage either one of these retrofit units.

Third, the regulations would accelerate the retirement of older equipment in anticipation of its replacement with new machines equipped with Tier 4 engine technology. However, EPA standards allow engine manufacturers until 2015 to complete the development of this technology.

Fourth, the proposal would set an unattainable emission reduction standard by requiring 77 percent of all Tier 0 equipment currently in use today to be re-powered to Tier 3 by 2010 and 90 percent by 2020.[4] It is generally not possible to repower an older piece of off-road equipment with a Tier 3 engine. *See* ARB May 25, 2007, public hearing transcript, p. 211 (According to Hawthorn Machinery, a Caterpillar dealer, "just because… that new Tier 3 engine is coming off the line, it does not mean that you could take that same engine and put it in a ten-year-old machine."). These newer Tier 3 engines require much larger cooling systems, electrical systems for computerized engines, and heavier-duty transmissions, rendering the upgrade of older equipment prohibitively expensive. *Id.*

C. ARB Lacks Retroactive Rulemaking Authority

Although the federal Clean Air Act preempts ARB from adopting or attempting to enforce standards until EPA grants a waiver of preemption, 42 U.S.C. 7543(e), ARB's proposed rules have fixed milestones for compliance and near-term, time bound prohibitions. For example, Section 2449(d)(7)(A) prohibits the addition of "Tier 0" vehicles after March 1, 2009. Given the timelines required for standard EPA waiver-of-preemption proceedings, ARB likely will not have received a waiver of preemption by March 1, 2009. Moreover, in this first-ever EPA waiver proceeding for in-use and retrofit standards, EPA likely will take longer than usual to resolve the novel issues presented here. ARB's proposed rule should include provisions for delaying the effective date of all provisions until a reasonable time after EPA grants a waiver of preemption. See, e.g., *Georgetown University Hospital v. Bowen*, 821 F.2d 750, 758-60, (D.C. Cir. 1987), *aff'd*, 488 U.S. 204, 215-16 (1988) (federal agencies lack authority for retroactive rules); *Rogers v. Edmonds*, 200 Cal.App.3d 1237, 1241 (1988) (retroactive rulemaking denies due process); *California Trout, Inc. v. State Water Resources Control Bd.*, 207 Cal.App.3d 585, 609 (1989) (same).

[4] If a Tier 2 re-power is used instead of a Tier 3, a Level 3 VDEC must also be used in order to meet the year 2020 standard. This would require an additional expenditure of $25,000 to $50,000 per engine.

D. Proposal Fails To Satisfy 'Clarity' Standards

California's "clarity" standard, as required by Government Code section 11349.1, states that rules must be "written or displayed" so that "the meaning of regulations will be easily understood by those persons directly affected by them." A regulation shall be presumed not to comply with the 'clarity' standard if "the regulation presents information in a format that is not readily understandable by persons 'directly affected. *See* Calif. Code of Regulations (CCR) Section 16, Title 1. Persons shall be presumed to be "directly affected" if they "are legally required to comply with the regulation." *Id.*

According to AGC members, the 33-page draft regulation plus another 203 pages of technical support is so complex and overpowering that very few contractors will understand it, much less be able to comply with it.

E. Proposal Does Not Consider Small Business Impacts

Under the California Administrative Procedures Act (APA), to enact a "regulation," ARB must consider any adverse effects on small businesses that would have to comply with the proposed regulation. Gov't Code §11346.2(b)(3)(B). Specifically, the ISOR document must "describe reasonable alternatives to the regulation that would lessen any adverse impact on small business and the reasons for rejecting those alternatives.[5] *Id.* ARB's rulemaking documents note that the regulation has the least stringent provisions for the smallest fleets owned by small businesses or municipalities. TSD, at 185 ("The provisions in the regulation for small fleets and medium fleets would reduce the potential impact on these businesses and would reduce any adverse impact on their bonding amount."). AGC disagrees with ARB's findings and maintains that the proposal would still disproportionately increase costs for small fleets and put a significant percentage of California's contractors out of business.

First, according to a recent study for the U.S. Small Business Administration, smaller firms bear a higher burden of regulatory costs on average than larger ones. *See* M.Cubed report, p. 7-9 (citing W. Mark Crain, "Impact of Regulatory Costs on Small Firms," *Small Business Research Summary*, Prepared for the Small Business Administration Office of Advocacy by Lafayette College, No. 264, Sept. 2005). In particular, environmental compliance costs for firms with less than 20 employees are more than triple the costs for larger firms. *Id.*

The typical construction firm size is very small. In 2005, 91 percent of construction establishments (permanent business locations) nationwide had fewer than 20 employees. Only 1 percent had 100 or more. California had 75,000 construction establishments in

[5] The APA defines a "small business" in the construction field as an independently owned and operated firm not dominant in its field of operation, with no more than $9.5 million in gross receipts for general construction and no more than $5.0 million for special trade construction. Gov't Code §11342.610(a), (c).

2005, of which 66,000 (88 percent) employed fewer than 20 workers. Thus, California is similar to the U.S. as a whole in its distribution of large and small construction firms. *See* AGC's Comments, Attachment 5 – Affidavit of Kenneth Simonson, parag. 6. In addition, the most recent data on firms by receipts size is available for 2002 at the national level from the Office of Advocacy of the U.S. Small Business Administration, online at http://www.sba.gov/advo/research/us_rec_mi.pdf. This table shows that in 2002, there were 701,000 construction firms, of which 543,000 (78 percent) had receipts of less than $10 million and 436,000 (62 percent) had receipts of less than $5 million. These totals are probably representative of the share of California construction firms that would be classified as small businesses under definitions of the California APA. *Id.*; *see also* note 5, *supra.*

Second, the proposed rule would weaken small businesses' capacity to bond, thereby weakening their capacity to bid on and obtain the work needed to pay the costs imposed by ARB's rule. *See* M.Cubed report, p. 7-9; *see also* Attachment 4, Affidavit of Kenneth Coate. Financial experts maintain that smaller contractors are more likely to use their maximum bonding capacity and, as a general rule, have more difficulty passing on some of their costs to customers.

Third, based on AGC's experience working with its members on diesel retrofit issues, it has learned that small businesses tend to own older equipment due to a slower turnover rate in their fleets. ARB's proposal would undermine the market for older equipment in California and out-of-state, leading to a deterioration of hidden equity. *See* Affidavit of Ralph Potter, parag. 7; M.Cubed report, p. 7-9. In addition, small companies may still owe debt on Tier 0 units (some of which are not very old) that could exceed the equipment's deteriorated value, leading to both a loss on the sale and the need to generate outside cash to retire the debt. *Id.* Based on this scenario, small businesses are less likely to have the capacity to raise or borrow the cash needed to finance new purchases that would be required by the ARB proposal.

Fifth, many construction companies, particularly small businesses, rely on the used equipment market rather than purchasing new, more-expensive equipment. *See* M.Cubed report, p. 7-9. As explained above (see page 6), ARB has overestimated the amount of Tier 2 and Tier 3 equipment on the used-equipment market. As a result, smaller firms that typically rely on paying lower prices for second- or third-hand equipment will be forced to pay more for new equipment. Similarly, smaller businesses rely on rental fleets more than larger fleets, and the proposed rule would tend to drive up demand for rental fleets. *Id*. Increased demand for rental equipment would put "upward pressure on rental prices." *Id*. Plus, the proposed regulation would impose increased costs on rental companies to meet the stricter emissions standards. These two factors—increased demand and increased supplier costs—would act to greatly increase rental prices, which would increase the negative impact on small businesses. *Id.*

Finally, the cost of ARB's proposal would be "high relative to the median 2.4 percent profit margin of construction firms." See Attachment 5, Affidavit of Kenneth Simonson ("Net earnings before income taxes in the most recent fiscal year averaged 2.4 percent of

revenues."). Given that the median represents the point below which half of all firms fall (most likely smaller businesses), the cost of the regulation may wipe out profits for a significant percentage of all firms.

F. Proposal Is Not Cost Effective

Before ARB can adopt an off-road engine emission standard to regulate criteria pollutant emissions from construction equipment, ARB must meet certain standards and obligations as set forth the California Health & Safety Code. By its terms, the code authorizes ARB to "adopt and implement motor vehicle emission standards… [that ARB] has found to be cost-effective…, unless preempted by federal law." Health & Safety Code §43013(a); *see also* Health & Safety Code §§43013(b) (ARB's off-road standards must be consistent with §43013(a)). The Code also requires ARB to consider approximate cost, before it can adopt an off-road engine emission standard to regulate air toxic emissions from construction equipment. Health & Safety Code §§39665(b)(5), 39666(c).

As explained above and in AGC's initial comments submitted on May 23 (*see* Attachment 1), ARB has significantly understated the cost of the rule, and in turn, its cost effectiveness (as a cost-per-ton of reducing the pollutants that the rule covers).

In addition, due to the major cost of retrofitting, repowering, or replacing equipment, ARB's proposal is likely to cause a shortage of compliant equipment available for construction projects. *See* Attachment 9, Statement of Carla Walecka Planning. A shortage of compliant construction equipment would increase the time required to make critical improvements to the state's highway and transportation infrastructure. *See* p. 10, *supra*. Such delays would perpetuate the state's traffic congestion problems and prevent emission reductions that could be achieved through bond-funded congestion relief projects. *See* Attachment 9, Statement of Carla Walecka Planning.

Respectfully submitted,
On behalf of—
Associated General Contractors of America

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ATTACHMENT 1

STATE OF CALIFORNIA
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES	)))))	Agenda Item: 07-5-6 May 25, 2007

INITIAL COMMENTS OF ASSOCIATED GENERAL CONTRACTORS OF AMERICA

May 23, 2007

On behalf of—
Associated General Contractors of America

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INTRODUCTION

The Associated General Contractors of America ("AGC") respectfully submits the following comments to the California Air Resources Board ("ARB") on its recently proposed rule on off-road diesel equipment already in use. Because ARB delayed the release of its economic model for this rule, found it necessary to update its fleet calculator, and has just provided AGC with the results of its survey of public and private construction equipment, AGC will later submit further comments on the proposed rule, taking advantage of the recently extended period for public comment.

Until AGC can complete its review of the entire rulemaking package, and submit final comments, AGC urges ARB carefully to consider these initial comments.

STATEMENT OF INTEREST

AGC is the largest and most diverse trade association in the construction industry. The Association has more than 32,000 members and 96 state and local chapters throughout the United States. Among AGC's members are more than 7,000 of the nation's leading general construction contractors and approximately 25,000 specialty contractors and other firms engaged in the construction of highways, bridges, tunnels, airport runways and terminals, buildings, factories, warehouses, shopping centers, and both water and wastewater treatment facilities.

AGC contractors need diesel-powered construction equipment to maintain the quality of life that this nation has come to enjoy. AGC members rely on such off-road equipment to construct and maintain the nation's public and private infrastructure. Given the great importance of such equipment to the construction industry, AGC appreciates the opportunity to express its views on the proposed regulation of off-road diesel equipment already in use.

In recent years, AGC has been deeply involved in several "clean diesel" initiatives intended to improve air quality and simultaneously protect the construction industry from serious disruption. These initiatives have sought to identify appropriate incentives for the retrofit of diesel equipment, to inform fleet owners that they may qualify for government grants to retrofit their equipment, to secure federal funding for diesel retrofit, and to enact a federal tax incentive for diesel retrofit.

Since the inception of U.S. Environmental Protection Agency's ("EPA") National Clean Diesel Campaign in 2000, AGC has worked closely with EPA to identify ways to reduce emissions from construction equipment, and in particular, to identify retrofit "incentives" that would appeal to the construction industry. This joint effort has yielded in a landmark report entitled *Emission Reduction Incentives for Off-road Diesel Equipment Used in the Port and Construction Sectors* (May 2005). Looking at diesel retrofit from the contractor's perspective, and capturing significant industry input, this EPA report has contributed to the work of the Clean Diesel Retrofit Work Group, a federal advisory group organized by and reporting to EPA, and co-chaired by AGC. The Work Group is charged with providing guidance and recommendations to EPA on strategies for reducing emissions from off-road diesel equipment already in use.

AGC has also been an active partner in a number of regional Clean Diesel Collaboratives and continues to inform its members of grants being awarded by and through the collaborative network.

On the legislative front, AGC has urged Congress to provide financial and technical assistance to construction equipment owners and operators, encouraging these firms to install emissions control technologies on their diesel engines. AGC worked closely with Senators Inhofe and Clinton to craft Section 1808 of SAFETEA-LU, which allows states (and other recipients of federal-aid highway funding) to use CMAQ funds to pay for the retrofit of off-road diesel equipment needed to construct projects funded under Title 23 of the United States Code. AGC also played a key role in the development and passage of the Diesel Emissions Reduction Act ("DERA"), which became part of the Energy Policy Act of 2005. As the bill was originally written, it did not ensure that qualified private fleets could apply for the public funds set aside for retrofitting equipment. Today, AGC continues to lobby Congress for full funding of EPA's new Diesel Emissions Reduction Program, which was created under DERA. In addition, AGC seeks to modify the federal tax code to provide other financial incentives for contractors to retrofit their existing diesel equipment.

For the construction industry, the costs of retrofitting equipment are prohibitive, and financial assistance is therefore needed to facilitate such work. Construction companies are thinly capitalized businesses often worth little more than the equipment they own. Such companies typically expect their equipment will last up to 30 years, and they purchase it with the understanding that it will be legal to operate "as built" until the end of its useful life. Retroactive emissions limits, imposed on equipment already in use, could render a company's fleet prematurely obsolete, and wipe out much if not most of its net worth. Such dramatic action deprives a company of its ability to bond or bid work, or to borrow money.

AGC opposes government mandates to modify equipment already in use, or to replace such equipment (via either regulation or contractual requirement). AGC also opposes mandates for early fleet turnover. All such requirements place the financial burden of a largely public benefit exclusively on private contractors. All have a very negative impact on the construction industry, and particularly the small and often minority businesses that dominate this key industry.

LEGISLATIVE AND REGULATORY BACKGROUND

"[ARB] is designated the air pollution control agency for all purposes set forth in federal law." Health & Safety Code §39602. ARB is therefore responsible for developing the California State Implementation Plan ("SIP") in accordance with Section 110 of the federal Clean Air Act ("CAA"), and for California's attainment-demonstration SIP revisions for the state's nonattainment areas. ARB also has the exclusive authority to regulate mobile-source emissions in California, and is responsible for developing rules to reduce the release of criteria pollutants and air toxics from such sources. Health & Safety Code §§39002, 39500, 40000. ARB's vehicle

emissions standards enter the California SIP as emissions factors on which California's various air districts rely for the purpose of demonstrating attainment with federal ambient air quality standards.

ARB is developing a rule that would force construction contractors to retrofit their off-road diesel equipment – or to replace that expensive equipment. As currently structured, this rule would mandate diesel emissions control technology for nearly all off-road diesel equipment already in use. The rule would apply to all engines greater than 25 horsepower (hp) and used in construction, mining, airport ground support, logging, and industrial equipment, such as forklifts. The rule would not cover equipment used to perform agricultural operations or to handle cargo at ports or intermodal rail facilities, or equipment already covered by other rules.

For nearly all off-road diesel equipment, the proposed rule would mandate or impose the following:

- **Accelerated fleet turnover:** The proposal would require all fleets to meet declining targets for average emission rates for particulate matter ("PM"). Large and medium fleets would also be required to meet targets for oxides of nitrogen ("NOx").

- **Use of BACT:** To meet the fleet targets for average emission rates, the rule would require the use of the best available control technology ("BACT") and/or the use of engines that meet the U.S. Environmental Protection Agency Tier 3 or 4 off-road engine standards and/or equipment replacement by a certain date.

- **Idling limitations:** The rule would limit the time allowed for equipment to idle.

Although ARB makes certain points that the construction industry can support, including the point that the industry has something to gain from turning over older equipment for new, lower-emitting equipment, its proposal goes far beyond anything that the industry can finance. By arbitrarily imposing retroactive requirements on the end users of diesel equipment, instead of setting new standards for manufacturers, the proposal would have a massive financial impact. It would be highly disruptive of the construction industry and closely related efforts to maintain and expand both public and private infrastructure. ARB should not penalize end-users for purchasing equipment that ARB could have regulated but did not. ARB is wrongly asking these purchasers of entirely lawful equipment to pay an enormous price for not, much earlier, setting standards for manufacturers.

I. ARB'S PROPOSAL WOULD DETRIMENTALLY IMPACT AGC OF AMERICA'S MEMBERS NATIONWIDE

While this proposal is specific to equipment that operates in California, history has shown that other states frequently adopt air quality rules developed in California. Fifteen other states have already opted to implement at least one of California's more protective emission standards. These

states include Connecticut, Delaware, the District of Columbia, Georgia, Maine, Maryland, Massachusetts, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Texas, Vermont, and Washington. In conjunction with California, these states are home to 142 million Americans, or almost half of the population.

Nationwide, diesel systems (both engines and fuel) power the majority of the off-road equipment that constructs and repairs America's roads, bridges, homes, and factories. As reported by the Diesel Technology Forum (DTF), the construction industry depends on almost $17 billion worth of existing diesel-powered equipment.

Its reasons for relying on this equipment include:

- **Higher Energy:** Diesel fuel contains more energy per unit than gasoline.

- **Safety:** Diesel fuel is safer than gasoline. It is less volatile and has a lower flash point, making it far less likely to ignite or explode if spilled or released.

- **Cost and Fuel Efficiency:** Diesel fuel costs less to refine than gasoline, and diesel engines are more fuel efficient.

- **Higher Torque:** Diesel engines have much more torque (or pulling power at low speeds), enabling equipment to carry or tow heavier loads than gasoline-powered engines.

- **Durability and Reliability:** Diesel engines are more durable and reliable, with lifetimes of 250,000 miles or more for highway engines.

Currently, there is no substitute for diesel power, and over time, it is likely to become even more attractive. New diesel engines are friendlier to the environment than their gasoline counterparts, when judged by their emission of carbon dioxide and smog-contributing hydrocarbons. Because of the greater efficiency of diesel engines and the significant fuel economy advantage, diesel engines have 30 to 35 percent lower carbon emissions. They clearly provide advantages, and they must remain available for future use.

II. ARB'S PROPOSAL FAILS TO MEET THE SUBSTANTIVE STANDARDS AND PROCEDURAL REQUIREMENTS UNDER STATE LAW

Because ARB seeks to regulate emissions of criteria air pollutants (i.e., diesel PM and NOx) and emissions of a designated toxic air contaminant (i.e., diesel PM), ARB must comply with both the California Clean Air Act (which governs criteria air pollutants) and the Tanner Act (which governs toxic air contaminants). Both of these statutory programs are codified in the California Health & Safety Code and neither program preempts the other. *Western Oil & Gas Assn. v. Orange County Air Pollution Control Dist.,* 14 Cal.3d 411 (1975).

In addition, several other California statutes establish requirements for ARB's adoption of retrofit standards: (1) the California Administrative Procedure Act (for all rulemakings by state agencies), (2) the California Environmental Quality Act ("CEQA"), and (3) the provisions of the Health & Safety Code specifically relating to ARB's statutory authority. Under the Clean Air Act and the Tanner Act, *see* Health & Safety Code §§43013, 39665(b)(4)-(6), and these procedural standards, *see* 14 Cal. Code Regs., §15000 *et seq.* and the Gov't Code §11340 *et seq.*, AGC challenges the feasibility, cost effectiveness, alternatives analysis, and impacts of ARB's proposed standard.

A. Proposal Is Not Technically Feasible

Before ARB can adopt an off-road engine emission standard to regulate criteria pollutant emissions from construction equipment, ARB must meet certain standards and obligations set forth the California Health & Safety Code. By its terms, the code authorizes ARB to "adopt and implement motor vehicle emission standards… [that ARB] has found to be technologically feasible…, unless preempted by federal law." Health & Safety Code §43013(a) (emphasis added); *see also id.* §§43013(b) (ARB's off-road standards must be consistent with §43013(a)), §43013(d) (ARB's off-road regulations must be feasible); §39665(b)(4) (ARB must consider technological feasibility for air toxic control measures), §39666(c) (same). Similarly, under federal law, ARB's standards must be consistent with federal requirements for technological feasibility in order for those ARB standards to qualify for a waiver of federal preemption. *See* Section III.A, *infra* (discussing CAA §202(a) and §209). Without the waiver of federal preemption, the California standards exceed ARB's authority under both federal and state law. 42 U.S.C. §7543(e); Health & Safety Code §43013(a)-(b).

In its Technical Support Document ("TSD"), ARB seeks to defend the technical feasibility of its proposal, addressing the availability of retrofit controls, and options for repowering equipment or replacing it. TSD, at 99-127. Because ARB released its rulemaking package in phases, AGC and the construction industry have not had the 45 days that California law provides to review this material. Accordingly, AGC will later supplement its comments on technical feasibility. AGC expects to demonstrate that engine and retrofit manufacturers, the used-equipment market, and suppliers and installers could not meet the demand that the rule would create for equipment essential to the construction industry.

B. Proposal Is Not Economically Feasible

As explained in Section II.A, *supra*, both the federal Clean Air Act and the Health and Safety Code require that ARB standards be feasible, which includes an economic component as well as a technical one. Health & Safety Code §43013(a)-(b), (d); *see also id.* §43018(a), (e) (ARB required to reduce mobile-source emissions to attain state air quality standards, "consider[ing] the effect of the standards and regulations on the economy of the state"); §§39665(b)(5), 39666(c) (ARB must consider cost of air toxic control measures); 42 U.S.C. §§7543(e)(2)(A),

7521(a)(2) (standards must "take effect *after* such period as [EPA] finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period") (emphasis added).

In its Initial Statement of Reasons ("ISOR"), ARB speculates that many affected businesses could pass the regulation's costs to their customers and/or absorb its costs internally. ISOR, at 42-44. Because ARB released its rulemaking package in phases, AGC and the construction industry have not had the 45 days that California law provides to review such a proposal. Accordingly, AGC will later supplement its comments on economic feasible under California or federal law. AGC expects to demonstrate that ARB's proposal – which is cumulative with ARB requirements for onroad and portable equipment – would deliver an economically crippling blow to the construction industry. AGC believes that ARB significantly understates the cost of its rule, overstates the industry's ability to pass the increased cost on to its customers, and completely disregards the economic effect of devaluing the construction equipment currently in use while simultaneously requiring massive capital investment. ARB should not adopt a rule that would qualify the entire industry for variance relief as an arbitrary, unreasonable taking of property and the practical closing and elimination of lawful businesses. *See* Health & Safety Code §§42352(a)(2), 42352.5(a)(2), 42368(a)(2).

C. Proposal Is Not Cost Effective

Before ARB can adopt an off-road engine emission standard to regulate criteria pollutant emissions from construction equipment, ARB must meet certain standards and obligations as set forth the California Health & Safety Code. By its terms, the code authorizes ARB to "adopt and implement motor vehicle emission standards… [that ARB] has found to be cost-effective…, unless preempted by federal law." Health & Safety Code §43013(a); *see also* Health & Safety Code §§43013(b) (ARB's off-road standards must be consistent with §43013(a)). The Code also requires ARB to consider approximate cost, before it can adopt an off-road engine emission standard to regulate air toxic emissions from construction equipment. Health & Safety Code §§39665(b)(5), 39666(c).

In its TSD, ARB defends the proposal's cost effectiveness primarily by comparing it to ARB's Public Fleet Rule. TSD, at 186. Because ARB released its rulemaking package in phases, AGC and the construction industry have not had the 45 days that California law provides to review such a proposal. Accordingly, AGC will later supplement its comments on cost effectiveness. AGC expects to demonstrate that ARB significantly understates the cost of the rule, and in turn, its cost effectiveness (as a cost-per-ton of reducing the pollutants that the rule covers). AGC believes that ARB's "representative" fleet of construction equipment is not, in fact, representative of the statewide construction fleet. To the contrary, this fictional fleet is newer than the actual fleet, and would therefore cost less to bring into compliance. By basing its economic analysis on an unrealistically new "representative" fleet, ARB systemically understates the cost of compliance.

ARB bases its analysis on an aggregation of 22 fleets that ARB staff selected from a 200-fleet database that ARB selected from two surveys of California fleets. *See* ARB TSD, App. H, at H-2, H-16. These data have two significant biases that render them inappropriate for use as ARB's model for the California construction fleet. First, ARB's 22-fleet database has an average vehicle age of 10.74 years, whereas ARB's 200-fleet database has an average age of 12.05 years. *Id.* at 16-21. Second, even ARB's 200-fleet database does not appear representative of the overall statewide fleet because the 200-fleet database includes a disproportionate number of public fleets, which typically have newer vehicles. These two biases compound to make ARB's data unrepresentative of the California industry that ARB seeks to regulate.

Indeed, it is already clear that ARB's proposal is wildly cost ineffective as a control strategy for particulate matter. For example, the South Coast Air Quality Management District ("SCAQMD") has set incremental cost effectiveness at $6.70/pound ($13,400/ton) for particulate matter. SCAQMD, Best Available Control Technology Guidelines, at C29 (July 14, 2006).[1] By contrast, even with its understated costs, ARB estimates that the off-road, in-use diesel proposal will reduce particulate matter at between $37 and $43 per pound ($74,000 to $83,000 per ton) for particulate matter. TSD, at 186. ARB justifies this by reference to a rulemaking on public fleets that ARB adopted, which ARB estimated to cost $159.95 per pound ($319,900/ton) of particulate matter. *Id.* Given the governmental relationships binding ARB and the regulated public fleets, ARB should not attempt to bridge the cost-effectiveness data from its public-fleet rule to private fleets. Instead, ARB should recognize that – in addition to the unprecedented unfairness of changing the standards applicable to in-use vehicles – this rule is the most expensive rule that ARB ever has imposed on private industry. In any event, as a purely legal matter, AGC submits that ARB's public-fleet rule was not cost effective, and that public entities' failure to challenge ARB's unlawful action does not preclude private entities from challenging such actions here.

D. ARB Failed to Satisfy CEQA Requirements

The California Environmental Quality Act ("CEQA") requires California agencies to analyze and consider feasible mitigation and alternatives to projects that have significant adverse effects on the environment. Under CEQA, a "project" means an action that "has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." 14 Cal. Code Regs. §15378; *id.* §15064(d) ("lead agency shall consider direct physical changes in the environment which may be caused by the project and reasonably foreseeable indirect physical changes in the environment which may be caused by the project").

For indirect effects, CEQA includes those that "are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable," 14 Cal. Code Regs.

[1] SCAQMD sets PM cost effectiveness at $2.25 per pound ($4,500/ton). *Id.*

§§15358(a)(2), 15064(d)(2) (CEQA includes physical change in the environment "not immediately related to the project, but which is caused indirectly by the project"), provided that the effect relates to a physical change and is not speculative. 14 Cal. Code Regs. §§15358(b), 15064(d)(3). CEQA weighs economic and social changes both to determine the significance of a physical change in the environment and to assess whether a project's economic or social changes in turn will cause a physical change in the environment. 14 Cal. Code Regs. §15064(e). "Where a physical change is caused by economic or social effects of a project, the physical change may be regarded as a significant effect in the same manner as any other physical change resulting from the project." *Id.* (emphasis added); *Citizens for Sensible Development v. County of Inyo*, 172 Cal.App.3d 151, 170-71 (1985).

Although the Secretary of Resources has certified ARB's rulemaking process as "functionally equivalent" to the CEQA planning process, 14 Cal. Code Regs. §15251(d); Pub. Resources Code §21080.5, ARB's exemption applies only to CEQA's Chapters 3 and 4, and ARB remains subject to the balance of CEQA's requirements. *Sierra Club v. State Bd. of Forestry*, 7 Cal.4th 1215, 1231 (1994); 14 Cal. Code Regs. §15250. Further, ARB "must demonstrate strict compliance with its certified regulatory program." *Mountain Lion Foundation v. Fish & Game Comm'n*, 16 Cal.4th 105, 132 (1997).

As part of its CEQA compliance, ARB must consider the following: (a) reasonably foreseeable environmental impacts of the project; (b) reasonably foreseeable feasible mitigation measures; and (c) reasonably foreseeable alternatives to the project. Pub. Resources Code §21159(a); 14 Cal. Code Regs. §§15252, 15187(c). The lead agency's identification and analysis of alternatives are imperative for "courts [and] the public [to] fulfill their proper roles in the CEQA process." *Laurel Heights Improvement Ass'n v. Regents of University of California*, 47 Cal.3d 376, 404 (1988). The lead agency should use "good faith" and a "reasoned analysis" in considering alternatives. *Los Angeles Unified School Dist. v. City of Los Angeles*, 58 Cal.App.4th 1019, 1029 (1997). Under CEQA, an alternative is "feasible" if it is "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." *Sierra Club v. County of Napa*, 121 Cal.App.4th 1490, 1507 (2004) (citations omitted).

ARB's rulemaking triggers CEQA as a project with a significant adverse effect on the environment for at least two reasons:

(1) The fuel penalty and resulting increase in carbon dioxide ("CO2") emissions that ARB identifies in Appendix I of the TSD. Contrary to the TSD, ARB's proposed idling requirements do not offset the global-warming impact that ARB identified from higher CO2 emissions because ARB has the obligation to consider an idling-only rule, which would not have any fuel penalty.

(2) The negative environmental impacts (e.g., air emissions, noise, and congestion) that will indirectly result from the construction sector's higher costs, degraded ability to perform, and reduced competition. These changes to the construction industry in turn will cause delays on ongoing construction projects as well as deferrals and cancellations of future environmentally beneficial construction projects. The indirect physical changes on the environment include greater air and noise emissions from increased congestion that results from longer delays during construction projects and from California's deferring or undertaking fewer congestion-reducing projects with available bond monies.[2]

After it completes its analysis of ARB's recently released modeling and survey date, AGC will submit final comments on the negative environmental impacts caused by ARB's rule.

E. Proposal Does Not Consider Reasonable Alternatives

Like CEQA, the California Administrative Procedures Act (APA) requires ARB to "describe [in the ISOR] reasonable alternatives to the regulation and the agency's reasons for rejecting those alternatives." Gov't Code §11346.2(b)(3)(A)). The California APA defines a regulation as "every rule, regulation, order, or standard of general application or the amendment, supplement, or revision [thereof] adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it." *Id.* §11342.600.

ARB's ISOR Section XI describes the alternatives to the regulation that ARB considered and why they were rejected in favor of the proposed regulation. *See* ARB ISOR, at 59. AGC maintains that ARB has failed to consider a variety of less costly and reasonable alternatives to its proposal that would improve air quality in California.

AGC requests that ARB consider the following alternatives to its proposal—

- **Deferred Implementation:** ARB should consider relying on vehicle turnover and incentive programs to achieve emission reductions until (1) the technology is available to satisfy the demand for cleaner-burning engines that will ensue, and (2) ARB creates a better inventory of the "categories, numbers, and relative contribution of present or anticipated sources of the substance, including mobile… sources," as the Tanner Act requires. Health & Safety Code §39665(b)(3). The proposal before the Board is not

[2] Pending litigation seeks to equate the preemption that EPA applies to construction and farm equipment under 175 horsepower with the preemption that EPA applies to the other vehicles listed in CAA §209(e)(1) (namely, locomotives). *Am. Road & Transp. Builders Ass'n v. EPA*, No. 06-1112 (D.C. Cir.); 72 Fed. Reg. 28,098, 28,209-10 (2007). If that litigation succeeds, ARB's regulation of equipment over 175 horsepower would create environmentally counterproductive incentives for industry to use smaller, preempted equipment to accomplish tasks that industry could achieve more efficiently with larger equipment.

feasible from an economic or technical perspective and, if implemented, it would also cut off access to critical funding for retrofitting older equipment under the Carl Moyer Program. The California legislature has recently committed $140 million a year, for the next five years, to continue the Carl Moyer Program. In that same timeframe, cleaner burning Tier 4 engines – which will be the only engines that meet both NOx and PM requirements under CARB's proposed rules – will be entering the marketplace. In addition, ARB needs additional time to determine whether diesel PM has a carcinogenic threshold. Other aspects of California law – such as CEQA – will continue to protect the environment and public during construction projects.

- **Carl Moyer-Style Retrofit System:** ARB should work with industry, the construction-funding agencies, and the Legislature to explore the availability of using incentive programs to reduce emissions from construction projects and to accelerate the turnover of construction fleets.

- **Project-Specific and Pilot Mitigation Projects:** ARB should consider working with industry, California air districts, and the funding agencies to develop models for using retrofits, new equipment, and site-specific mitigation techniques to reduce the impact of construction projects. *See, e.g.*, 13 Cal. Code Regs. §2610 (pilot program in South Coast air basin).

- **Single-Pollutant Rules:** ARB should consider proposing and supporting single-pollutant alternatives because the legal and policy arguments for the two rules do not overlap completely. For example, if a court or EPA decided that the Clean Air Act preempts ARB's PM requirement, it would not be clear whether the NOx-only component could survive when severed from the PM component. If ARB considers the two halves of its rule as stand-alone rules, that may would provide useful data on the relative merits of each portion of the rule.

- **Geographic Limitations:** ARB should consider a proposal that would have limited geographic applicability to areas like the South Coast (Los Angeles) basin and San Joaquin Valley with especially intractable air-quality problems.

- **Limit Rule to Public Fleets:** Insofar as ARB's cost-effectiveness justification for this rule applied only to public fleets, ARB should consider limiting the rule's applicability to public fleets. By limiting the rule to public fleets, this alternative would follow past precedents for public fleets' serving as incubators for new technologies and would address industry's concern that retrofit-package and new-vehicle manufacturers cannot meet demand if ARB's proposal applies to both public and private fleets.

F. Proposal Does Not Consider Small Business Impacts

Under the California APA, to enact a "regulation," ARB must consider any adverse effects on small businesses that would have to comply with the proposed regulation. Gov't Code §11346.2(b)(3)(B). Specifically, the ISOR document must "describe reasonable alternatives to the regulation that would lessen any adverse impact on small business and the reasons for rejecting those alternatives.[3] *Id.* ARB's rulemaking documents note that the regulation has the least stringent provisions for the smallest fleets owned by small businesses or municipalities. While this may be the case, ARB's proposal would still put a significant percentage of California's contractors out of business.

The typical construction firm is very small. Based on 2005 U.S. Census Bureau data, the construction industry includes more than 831,000 businesses employing 6.8 million workers, plus more than 2.0 million firms (mainly sole proprietorships) without employees. Data from the same year show that 91 percent of the businesses nationwide had fewer than 20 employees.[4] California-specific data show that there were 70,333 construction establishments in the state in 2003, of which 61,839 (88%) had fewer than 20 employees. Based on AGC's experience working with its members on diesel retrofit issues, it has learned that small businesses tend to own older equipment due to a slower turnover rate in their equipment fleets.

ARB's own research has found that the greatest economic impact will be on the oldest, most expensive and longest-lived vehicles. The ISOR document analyses an earth-moving fleet with all Tier 0 vehicles. "For this fleet, staff estimated that the annual cost of the regulation would significantly exceed the company's annual profits. To remain viable, such a heavily impacted fleet would need to pass on most, if not all, of the costs of the regulation to its customers. Staff's analysis showed that the regulation would require an increase in revenues for this fleet of about 2.4 percent to bring the impact of the regulation to less than 10 percent ROE." *See* ISOR, at 44 (emphasis added).

Construction is a low-margin industry. Internal Revenue Service data for 2003 (the latest IRS data available) show that corporations in construction averaged 2.8 percent in net earnings (before income tax.). After labor, materials, insurance, fuel and overhead, a very small portion of the $60 billion spent on construction every year in California is available for fleet upgrades.

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[3] The APA defines a "small business" in the construction field as an independently owned and operated firm not dominant in its field of operation, with no more than $9.5 million in gross receipts for general construction and no more than $5.0 million for special trade construction. Gov't Code §11342.610(a), (c).

[4] Source: U.S. Small Business Administration, Office of Advocacy at http://www.sba.gov/advo/research/data.html.

ARB's own research, as explained above, illustrates that a company with old equipment would need to double its profits to say in business.

Contrary to ARB's assumptions, contractors will not be able to pass-through compliance costs. Construction is a highly competitive business. Most construction contracts are awarded on a "low-bid" basis. A job can be lost over a $1000 difference in bids. Contractors often bid jobs at or below cost in order to keep their employees working and recover basic operating costs. Any contractor who has spent substantial dollars to purchase new equipment will be at a distinct disadvantage in the bidding process. If it tried to recover those costs, its bids would be higher than those of his competitors.

To meet ARB's proposal, businesses might need to downsize, laying off construction workers and reducing the capacity to build projects.[5] In all likelihood, many contractors would be forced to retire equipment before the end of its useful life. If a contractor could not pay the annual replacement of 8 percent of its fleet and retrofit of 20 percent of the fleet – as required under the proposal – it would need to reduce the size of its fleet simply to achieve compliance. Most small, medium and other thinly capitalized contractors would have to shrink their equipment fleets and staffing in order to comply.

ARB has also neglected its proposal's negative impact on a company's financial strength, and in turn, its bonding capacity, and ability to bid for new work. Most construction companies have few capital assets, other than the equipment they own. ARB's rulemaking documents fail to account for the fact that contractors recover the cost of equipment investments over time. It is spread out over a variety of contracts. Purchases or upgrades of existing equipment are made with this in mind. To impose a huge retrofit, repower or replacement cost all at once would cause significant financial problems for contractors, particularly small businesses. For many construction companies, the proposal would wipe out their balance sheet overnight. These companies would no longer be able to borrow money because contractors rely on the value of their current equipment to finance their purchase of new equipment.

AGC urges ARB to work with the California construction industry to tailor the cutoffs for small and medium fleets to minimize the rule's economic burden on the industry as a whole. ARB already has a history of including small-refiner provisions in its fuels regulations. *See, e.g.,* 13 Cal. Code Regs. §§2250(c), 2262.

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[5] In California, seasonally adjusted nonfarm employment in March 2007 totaled 15.2 million, of which 946,000 (6%) worked for construction companies. Nationally, construction accounts for about 5.6% of nonfarm employment.

G. Proposal Does Not Account for Cumulative Impacts

A control measure's economic feasibility, and its impact on small-businesses, both depend on the ability of the regulated industry to bear the burden of compliance. An industry's ability to bear that burden depends, in turn, on the cumulative impact of all economic and regulatory burdens on the industry. Indeed, under all of the factors discussed above, except cost effectiveness, ARB must consider not merely the immediate impact of ARB's proposed rule on the construction industry but also the cumulative burdens of other requirements that the industry must meet. *See* 14 Cal. Code Regs. §15064(h)(1) ("incremental effects of an individual project [can be] significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects"). Accordingly, ARB must consider the costs of compliance with other ARB rules for other equipment (*e.g.*, portable equipment, onroad equipment) in the same timeframe. AGC's expects its final comments to demonstrate that the combined costs of all rules render the incremental costs of this rule even more difficult to bear.

III. ARB'S RULE DOES NOT MEET CRITERIA FOR WAIVER OF PREEMPTION

Before ARB can enforce an off-road engine emission standard, it must seek a waiver of federal preemption from the EPA and meet certain standards and obligations set forth in §209(b) and §209(e)(2)(A) of the federal Clean Air Act. Even if ARB's standard met all of the state-law requirements discussed in the prior section, ARB would not meet the criteria for a waiver of federal preemption.

A. Criteria for a Waiver

If EPA affirmatively found that one or more of three criteria applied, ARB would not be entitled to a waiver of preemption for its in-use off-road proposal:

1. California was arbitrary and capricious in determining that its standards were, in the aggregate, at least as protective of public health as the federal standards;

2. California did not need the standards "to meet compelling and extraordinary conditions;"

3. California's standards and the accompanying enforcement procedures are inconsistent with CAA §202(a).

42 U.S.C. §7543(b)(2). In §209(e)(2)(A), the 1990 amendments to the CAA replicate these three motor-vehicle criteria for off-road vehicles, except that the third criterion requires consistency with "this section" instead of specifying either §202(a) (for motor-vehicle standards) or §213(a) (for off-road vehicle standards). 42 U.S.C. §7543(e)(2)(A)(1)-(3). Here, AGC takes issue with ARB's entitlement to a waiver under the second and third criteria.

Under the second criterion, California must need its in-use off-road standards to address compelling and extraordinary conditions. 42 U.S.C. §§7543(b)(1)(B), (e)(2)(A)(ii). As a matter of federal law, California does not need a retrofit rule to further California's unsupported views under the Tanner Act. Specifically, ARB has failed to determine, based on an assessment of risk, whether any level of emission reduction is adequate or necessary to prevent an endangerment of public health and to identify whether a threshold value for diesel PM exists. Health & Safety Code §§39666(b), §39667.

Instead, ARB's record suggests mixed data on whether diesel PM has a carcinogenic threshold:

> Based upon on information available, the report could not identify a threshold below which no significant adverse health effects are anticipated. It has been suggested that information based on the rat data suggested the presence of a threshold. However, the same data suggests that the rat data may not be relevant to humans.

Air Resources Board & Office of Environmental Health Hazard Assessment, "Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant," at ES-27 (Scientific Review Panel Apr. 22, 1998) (emphasis added). Even assuming that this uncertainty provides an adequate basis for ARB to proceed as a matter of state law, it cannot establish that ARB needs the proposed standards as a matter of federal law. Before ARB seeks a waiver of preemption based on Tanner Act criteria, ARB should answer the question whether the rat data are relevant to humans. If those data are relevant, ARB should set a threshold value for diesel PM. If this data is not relevant to humans, ARB or California should commission the appropriate studies with species that would be relevant to humans.

Under the third criterion, ARB's standards and the accompanying enforcement procedures must be consistent with "this section." 42 U.S.C. §7543(e)(2)(A)(3). EPA's 1994 off-road rulemaking interpreted consistency with "this section" to mean consistency with §209(b), which in turn means consistency with §202(a) and its leadtime requirements. 59 Fed. Reg. 36,969, 36,982-83 (July 20, 1994) ("California's standards are not consistent with section 202(a) if there is inadequate lead time to permit the development of technology necessary to meet those requirements"). ARB's proposal is inconsistent with §202(a) in two respects.

First, CAA §202(a)(2) requires that standards "take effect after such period as [EPA] finds necessary to permit the development and application of the requisite technology, giving appropriate consideration to the cost of compliance within such period" (emphasis added). Although EPA's past waiver proceedings involved cost to the manufacturer, the standards at issue were manufacturer-based standards. Here, by contrast, the standards are for end-users because ARB's proposed off-road standards apply to private fleet owners and operators. As a result, in this unprecedented waiver proceeding, EPA will need to consider the technology and cost of compliance from the perspective of the private end-user's regulated fleets.

Second, §202(a)(1) expressly requires that "standards shall be applicable to such vehicles and engines for their useful life (as determined under [§202(d)])," and §202(d) expressly incorporations §207. In *Am. Motors Corp. v. Blum,* 603 F.2d 978, 981 (D.C. Cir. 1979), the D.C. Circuit reversed EPA's waiver of federal preemption for an ARB standard that deprived small manufacturers of additional lead-time that §202(b) required federal standards to provide. In essence, ARB and EPA reasoned that §209 required consistency with the leadtime requirements in §202(a), not those in §202(b). The court rejected that limited view because it found §202(b)'s "congressional mandate… to assimilate or incorporate" its requirements into §202(a). *Id.* Under *Blum,* California standards must meet CAA's useful-life criteria to qualify for consistency with §202(a).

In addition to considering express preemption, the D.C. Circuit also will need to consider whether the Clean Air Act impliedly preempts ARB's standard. In *Motor & Equipment Mfrs. Ass'n, Inc. v. EPA,* 627 F.2d 1095, 1108 n.20 (D.C. Cir. 1979), the D.C. Circuit held that the elements of CAA's federal motor-vehicle regime that fall outside §209's express preemption could not qualify for implied or conflict preemption. In reaching that conclusion, the court relied on the general presumption against preemption and CAA's specifically including both an express-preemption clause (§209) and a general savings clause (§116). *Id.* Recent Supreme Court decisions have, however, rejected that rationale for excluding conflict preemption. *See Geier v. American Honda Motor Co.,* 529 U.S. 861, 873 (2000) (neither savings clause nor express preemption provision bars working of "conflict preemption"); *Buckman Co. v. Plaintiffs' Legal Comm.,* 531 U.S. 341, 352 (2001) (same); *U.S. v. Locke,* 529 U.S. 89, 107-08 (2000) (presumption against preemption applies only if "the field which Congress is said to have pre-empted has been traditionally occupied by the States" and not if there is a history of significant federal presence); *Buckman,* 531 U.S. at 347 (same).

B. Potential Limitations on California Waivers

ARB should consider limiting or qualifying the waiver of preemption that it seeks along several parameters:

- **Diesel PM as a Toxic Air Contaminant:** As indicated in Section III.A, *supra,* ARB's Tanner Act analysis does not meet §209's compelling-and-extraordinary conditions test for diesel PM as a toxic air contaminant.

- **Vehicles and Engines under 175 Horsepower:** Under CAA §209(e)(1), ARB is completely preempted from setting standards or other requirements for new construction equipment under 175 horsepower because that category of construction equipment is entitled to the same preemption as locomotives under the identical provisions of §209(e)(1). *See* note 2, *supra.*

- **Geographic Limitations:** Although it has not yet adopted a geographically restricted vehicular standard, ARB considered adopting the South Coast Air Quality Management District ("SCAQMD") fleet rules as SCAQMD-specific ARB standards in the aftermath of SCAQMD's loss in the Supreme Court over whether CAA §209 preempts consumer-based standards. *Engine Mfrs. Ass'n v. SCAQMD*, 541 U.S. 246, 252-55 (2004). An ARB standard with appropriate geographic limitations would prevent spreading the rule's economic dislocation to other parts of the California that do not need the rules to address truly compelling and extraordinary conditions.

CONCLUSION

For all the foregoing reasons, ARB should direct its staff to work with industry and other state and local agencies to develop a rule that will provide emission reductions without increasing emissions from other sectors and without reducing the capacity of California's construction industry to provide the infrastructure that California needs.

Respectfully submitted,
On behalf of—
Associated General Contractors of America

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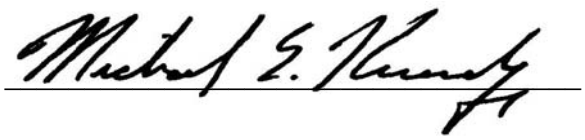


ATTACHMENT 2

STATE OF CALIFORNIA
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES	)))))	Agenda Item: 07-5-6 July 26, 2007

AFFIDAVIT OF MIKE BUCKANTZ

I, Mike Buckantz, hereby declare and state as follows:

1. I am over the age of 18 and otherwise competent to testify to the matters contained in this affidavit.

2. I am President of Justice & Associates, an environmental consulting firm that specializes in issues related to air quality, water quality, land use and air pollution credit trading. Justice & Associates has offices in Long Beach and Fairfield, California and Las Vegas, Nevada.

3. In my normal course of business, I provide environmental compliance assistance to companies that own and operate off-road construction equipment. I work closely with companies engaged in heavy and highway construction, sitework and grading work, as well as hot mix asphalt, ready mix concrete and sand and gravel processing.

4. For at least the last decade Justice & Associates has been the air quality technical representative to the California-based Construction Industry Air Quality Coalition (CIAQC). CIAQC acts as a conduit for information from its construction industry members to regulatory agencies and legislative bodies concerning the effect of proposed regulations and environmental legislation on the construction industry. Justice & Associates has advised CIAQC on the anticipated financial impact of the pending California in-use off-road regulation by preparing emissions inventories, calculating fleet average emission rates, and calculating fleet operator

compliance costs.

5. Over the past several years, Justice & Associates has helped construction companies apply for and obtain funding from the Carl Moyer Program – and other similar grant programs – to repower and retrofit off-road equipment with new engines and diesel particulate filters know as Verified Diesel Emission Control Systems (VDECS).

6. The majority of this work is related to off-road diesel engine repowers. Justice & Associates has helped construction contractors in seven California air districts obtain more than $71 million in funding to repower more than 1,000 diesel engines with lower-emitting engines.

7. As a part of preparing applications for grant funding, Justice & Associates routinely works with engine manufacturers and distributors like Quinn Company, Hawthorne Equipment and Johnson Machinery to determine if the engines in off-road construction equipment (that is currently in use) can be successfully repowered with Tier 1, Tier 2 or Tier 3 engines. This work involves investigating repower opportunities that are both technologically feasible and meet the cost-effectiveness criteria required by the Carl Moyer Program.

8. In my experience, grant applications that include projects to repower construction equipment with the highest Tier engine that is technologically feasible are the most cost effective.

9. In Justice & Associates' professional experience, less than 25 percent of all of the off-road construction equipment that we have analyzed can successfully be repowered by an engine manufacturer. In other words, it is technically infeasible to repower with a Tier 1, 2, or 3 engine more than 75 percent of all off-road construction equipment that we have encountered.

10. I have personal knowledge of the foregoing and am competent to testify to it before the Air Resources Board or at trial.

11. I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed on this 17th day of July 2007, at Long Beach, California.

Michael R. Buckantz

Mike Buckantz

ATTACHMENT 3

STATE OF CALIFORNIA
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES	)	Agenda Item: 07-5-6 May 25, 2007

AFFIDAVIT OF RALPH E. POTTER

I, Ralph E. Potter, hereby declare and state as follows:

1. I am over the age of 18 and otherwise competent to testify to the matters contained in this affidavit.

2. In 1973, I received a Bachelor of Arts degree in Production Management from the University of Oregon School of Business. After that, I began work on a Master's degree in banking at Golden Gate University and completed approximately two thirds of that degree before a promotion and transfer to San Diego interrupted my graduate education.

3. I am currently employed by CIT Construction, a business unit of CIT Group, Inc. as a Vice President and District Manager. CIT Construction provides financing and leasing products to construction equipment end users and dealers of construction equipment, with a focus on heavy machinery for road construction and large construction projects.

4. I have extensive experience in credit and financial analysis, collections, and business development. I have been involved in the origination and management of well over five hundred million dollars in contractor-related transactions involving several hundred contractors of various sizes, and I have reviewed and analyzed several thousand financial statements submitted by different contractors. I submit these comments as an individual, based on my experience in the industry, and not as a representative of CIT Construction or CIT Group, Inc.

5. In my experience, lenders base construction-industry lending decisions on factors such as the quality of the contractor's management, its working capital, cash flow, debt leverage, and the quality of its equity account or net worth. The equity for well-established companies typically includes hard assets such as construction equipment that show large amounts of deprecation – in some cases, the assets are totally written down to zero – but nonetheless still have value, which companies easily can sell to raise cash. Because these assets are carried on companies' books at zero or their book value is considerably below market value when taken as a group, their value is sometimes referred to as "hidden equity."

6. Contractors rely heavily on the ability to convert equipment to cash to adjust their fleets, reduce expenses, and reduce debt. The hidden equity in depreciated equipment also provides borrowing capacity to finance a company through a tough project (*e.g.*, heavy retention and change orders) or economic downturns in the cyclical construction industry. Other positive factors that help companies survive economic difficulties include management experience and solid net worth (*e.g.*, the absence of too much leverage or debt, doubtful receivables, and/or large stockholder receivables).

7. The in-use off-road regulation proposed by the California Air Resources Board ("ARB") in April 2007 would undermine contractors' equity in their construction fleets. First, the regulation would undermine the market for older equipment in California, leading to a deterioration of hidden equity. Second, companies may still owe debt on Tier 0 units (some of which are not very old) that could exceed the equipment's deteriorated value, leading to both a loss on the sale and the need to generate outside cash to retire the debt. Moreover, by deteriorating the hidden equity that a contractor would have relied on to finance new purchases, the ARB rule simultaneously imposes new costs and undermines contractors' ability to finance

those costs.

8. In addition to reducing a contractor's financial options to support operations through borrowing, an erosion of the balance sheet also puts stress on the contractor's ability to obtain future work and weakens bonding. From my experience, bonding companies look at the same data as lenders but tend to focus more heavily on the working capital and the ability of the company to create cash. Because it would weaken both working capital and the ability to raise cash, ARB's proposed rule would also weaken contractors' ability to provide the bonds required for projects.

9. As equity decreases, leverage increases, and profits are squeezed, contractors have less capacity to borrow, to bond, and to raise needed cash, and therefore face the decision to downsize, fail, retire or relocate. The end result could be the need to shrink the company as a whole until it reaches a level of equilibrium.

10. After I spoke up on these topics to dispute ARB's examples at ARB's February 2007 workshop in San Diego, ARB's Tony Brasil asked me to discuss construction economics with ARB staff. On February 28, 2007, I had a lengthy teleconference with ARB staff. During that teleconference, it became apparent that ARB staff, including ARB's economist, did not understand (a) that ARB's regulation would affect different contractors differently (*i.e.*, that the regulation would not affect each contractor the same) because they operate in a competitive-bid environment where the company with the better cost structure has an advantage; (b) that contractors in competitive-bid environments cannot simply pass their increased costs through to their customers; and (c) that contractors must bond for the full amount of their contracts so that deteriorating their equipment equity and imposing new-equipment cost and debt will reduce their capacity to bond and thus to undertake new projects. To integrate this basic economic theory into

ARB's economic model would require a major reworking of that model, which ARB appears not to have done prior to releasing its proposed rule in April 2007.

11. I have personal knowledge of the foregoing and am competent to testify to it before the Air Resources Board or at trial.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed on this 21st day of May 2007, at Coronado, California.

Ralph E. Potter

ATTACHMENT 4

STATE OF CALIFORNIA
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES	)))))	Agenda Item: 07-5-6 July 26, 2007

AFFIDAVIT OF KENNETH A. COATE

I, Kenneth A. Coate, hereby declare and state as follows:

1. I am over the age of 18 and otherwise competent to testify to the matters contained in this affidavit.

2. I have worked in the surety industry on construction industry bonding for twenty-five years, starting with Fireman's Fund Insurance Company in 1982. I started Inland Surety Bonds & Insurance Services in 1994, and have been with it since then. Since 1989 I have served on the Board of Directors of the Associated General Contractors of California.

3. Through my years in the surety industry for the construction industry, I have had extensive experience in analyzing construction companies' equity, cash flow, and working capital and establishing their bonding capacity.

4. Sureties decide whether to issue bonds and what amounts to issue primarily based on a construction company's equity, cash flow, and working capital. When a company purchases or finances equipment, that lowers its cash flow and working capital, thereby reducing its ability and capacity to bond.

5. Construction companies' equity typically includes construction equipment that has value on the open market that significantly exceeds their value as depreciated on the company's books. This value is part of the long-term buildup of capital, which is how companies succeed in

the construction industry.

6. A surety normally extends aggregate surety credit using a working capital to uncompleted work ratio of 1:10 to 15. For example, if working capital is $1 million, then aggregate surety credit available would be $10 million to $15 million of uncompleted work. A surety also evaluates net worth in determining surety. Normally, a surety likes to see a net worth ratio of at least 10. For example, if net worth is $1 million, then a surety is comfortable with a $10-million to $15-million work program. For example, in 2007, a contractor has: $1 Million in working capital, $2.5 Million in net worth and $5 Million in depreciated equipment market value. His probable surety credit is $15-20 Million. In 2008, the contractor makes $500,000 profit and spends $1 million on new engines. This contractor now has $500,000 in working capital (not $1 million), $2 million in net worth, and $1 million dollars in depreciated equipment value. Now his probable surety credit is $7-10 million, not $15-20 million. This example will repeat itself throughout the balance sheets of all contractors impacted by the rule, and the ability of California contractors to effectively bond the infrastructure going forward will be severely impacted.

7. In the CARB staff analysis of the economic impact on contractors, there is inadequate consideration of the market effect of the vast numbers of non-qualifying equipment entering the out-of-state used equipment market; they use minor adjustments that completely ignore supply-side economic modeling. I believe this equipment would be worth a fraction of staff's anticipated impact.

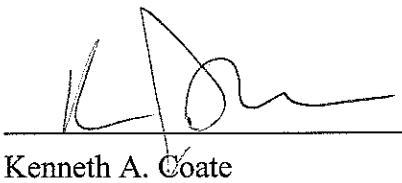
8. Staff's comment that a significant portion of costs could be passed along to customers does not give adequate consideration to the "low bidder" competitive market, and the disproportionate effect on different contractors competing in the same market. Customers are not

going to use a higher bidder because they have greater compliance costs.

9. A Contractor that does not use all his bonding capacity often does so as a matter of choice- they prefer a stronger financial position. Staff's position that this "excess capacity" will be used to meet these requirements infringes on business owner's rights to establish their own financial business model, and clearly directs them to operate at a greater financial risk.

10. I have personal knowledge of the foregoing and am competent to testify to it before the Air Resources Board or at trial.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed on this 20th day of July 2007, at Riverside, California.



Kenneth A. Coate

ATTACHMENT 5

STATE OF CALIFORNIA
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES	)))))	Agenda Item: 07-5-6 July 26, 2007

AFFIDAVIT OF KENNETH D. SIMONSON

I, Kenneth D. Simonson, hereby declare and state as follows:

1. I am over the age of 18 and otherwise competent to testify to the matters contained in this affidavit.

2. I have a bachelors degree in economics from the University of Chicago and a masters degree in economics from Northwestern University. I have also taken advanced graduate economics courses at the Université de Paris, Johns Hopkins and Georgetown Universities.

3. I have 30 years of experience analyzing, advocating and communicating about economic and tax issues. I am Chief Economist for The Associated General Contractors of America (AGC). AGC is the largest and most diverse trade association in the construction industry. The Association has more than 32,000 members and 96 state and local chapters throughout the United States. In my nearly six years with AGC, I have provided insight into what is happening to the economy and what it implies for construction and related industries.

4. Before joining AGC, I was senior economic advisor in the U.S. Small Business Administration's Office of Advocacy. Earlier, I was vice president and chief economist for the American Trucking Associations. I also have worked with the President's Commission on Industrial Competitiveness, the U.S. Chamber of Commerce, the Federal Home Loan Bank Board, and an economic consulting firm.

5. I was recently appointed to the expert panel advising the National Surface Transportation Policy and Revenue Study Commission. I am a board member of the National Association for Business Economics (NABE) and author of "Digging into Construction Data," published in NABE's journal, *Business Economics.* Since 1982, I have co-chaired the Tax Economists Forum, a professional meeting group I co-founded for leading researchers and policy makers among tax economists.

6. The typical construction firm size is very small. In 2005, 91% of construction establishments (permanent business locations) nationwide had fewer than 20 employees. Only 1% had 100 or more. California had 75,000 construction establishments in 2005, of which 66,000 (88%) employed fewer than 20 workers. Thus, California is similar to the U.S. as a whole in its distribution of large and small construction firms.

7. The most recent data on firms by receipts size is available for 2002 at the national level from the Office of Advocacy of the U.S. Small Business Administration, at http://www.sba.gov/advo/research/us_rec_mi.pdf. This table shows that in 2002, there were 701,000 construction firms, of which 543,000 (78%) had receipts of less than $10 million and 436,000 (62%) had receipts of less than $5 million. These totals are probably representative of the share of California construction firms that would be classified as small businesses under definitions of the California Administrative Procedures Act (APA). The APA defines a "small business" in the construction field as an independently owned and operated firm not dominant in its field of operation, with no more than $9.5 million in gross receipts for general construction and no more than $5.0 million for special trade construction. Gov't Code §11342.610(a), (c).

8. Construction is a low-margin industry. Internal Revenue Service (IRS) data for 2003 shows that the 676,000 corporations in construction had net income (less deficit) of $32

billion, or 2.8% of total receipts of $1.1 trillion. That was barely half of the all-industry average margin of 5.5%. The 2003 data are the latest IRS data available.

9. The 2006 Construction Industry Annual Financial Survey, conducted by the Construction Financial Management Association, included responses from 495 companies. Net earnings before income taxes in the most recent fiscal year averaged 2.4% of revenues.

10. For California in 2005, the average annual pay for construction workers was $45,660, nearly the same as the average for all employees of $45,680. The national average for construction workers was $42,100.

11. I understand that ARB has estimated the total cumulative cost of the regulation between 2009 and 2030 would be between $3.0 and $3.4 billion (2006 dollars), with the majority of these costs occurring between 2010 and 2021. I understand that industry estimates are significantly higher. ARB notes that the cost of the regulation will be less than 0.3% of the total annual construction revenue generated in California in 2006.

12. However, the cost of the regulation is high relative to the median 2.4% profit margin of construction firms. Given that the median represents the point below which half of all firms fall, the cost of the regulation may wipe out profits for a significant percentage of all firms.

13. Imposing higher costs on a construction company generally will result in a combination of lower profits (in an already low-margin industry); decreased employee wages; and/or higher contract prices.

14. Companies can not pass the full cost of equipment retrofit or replacement on to the construction-funding agencies and private customers in a competitive bid environment. This will be especially true under a competitive bid contract that is usually prepared on a fixed price basis – as is typical with public works projects.

15. I have personal knowledge of the foregoing and am competent to testify to it before the Air Resources Board or at trial.

16. I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed on this 18th day of July 2007, at Arlington, Virginia.

Kenneth D. Simonson

Kenneth D. Simonson

ATTACHMENT 6

Caterpillar Inc.

Large Power Systems Division
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April 2007

Issue

The California Air Resources Board (ARB) is developing a rule which would apply to any person who sells, offers for sale, leases, purchases, owns, or operates any mobile diesel-fueled off-road compression ignition-powered equipment over 25 horsepower. The rule provides two paths for compliance. The first is a fleet average approach, which will accelerate the conversion to Tier 4 machines by requiring end users to meet decreasing fleet averages for both NOx and PM through a strategy which includes a combination of retrofit, repower or replacement of older machines. The second path is a Best Available Control Technology (BACT) standard requiring retrofit or repower of every machine in the fleet, a provision aimed at smaller fleets.

ARB has conducted several workgroup meetings with stakeholders throughout the state and has made adjustments to their original proposal. One critical component added to the proposal was the inclusion of NOx reductions (these rules typically only target particulate matter (PM)). End users have complained that this regulation is moving too quickly, that it will be too costly and -- most importantly to Caterpillar -- they question the manufacturers' ability to provide aftertreatment solutions, new engines for repowers and the lowest emitting new equipment for them to comply with the rule.

Caterpillar Statement:

In forecasting future product needs, the Caterpillar practice is to study global, national and local market trends and work with suppliers to meet customer demand. In addition, we work closely with our dealer network, examine any legislative or regulatory impacts and rely on modeling tools that take into account economic forecasts and business cycle fluctuations. This process was implemented very successfully for the off-road Tier 2 and Tier 3 compliant machines and engines and, in our opinion, allowed us to introduce those products sooner than most of our competitors. While we agree there were some supply and availability issues that occurred in 2005 and 2006 those concerns had very little to do with emissions, but rather were largely associated with world wide demand for many products being at record levels. Unfortunately, sweeping regulatory initiatives like the California in-use off-road diesel vehicle rule by its very size and scope curtails any manufacturer from applying any standard model to calculate diverse product needs of any given customer or business sector.

As we look forward to the Tier 4 off-road emissions regulations for machines and engines that phase in beginning in January 1, 2011, it is our intent to build on our historically successful track record. In fact, we already have a line of sight to the technologies necessary to meet Tier 4 emissions regulations. With that being said, it will be a challenge for us and all manufacturers to

develop, certify and introduce new emission compliant products for major portions of their product lines in the time window provided for by emissions regulations. In previous transition years, the ARB/EPA's "flex" program was available to address the business challenges of introducing broad changes into the majority of a company's product line in a very short time frame by allowing the staggering of some product introductions. Unfortunately for California equipment owners, this program won't be a viable option since they will be addressing aggressive fleet average targets.

The Challenge:

The ARB calculates this rule will impact nearly 200,000 pieces of off-road equipment and uses its best judgment – through its inventory efforts – to define the age and models of the machines in question. The ARB, itself, is aware of the inherent imprecision of the inventory data and the depth of accurate detail supporting that data. It is a difficult if not mammoth task to accurately create the detailed product population data needed when you are working with a business model where customer fleets evolve and move in a highly transient environment within and outside of the state.

For a manufacturer to accurately forecast individual customer needs they would need to know:

- Every model (their own and competitive) in a given fleet
- Every engine tier level in the fleet (their own and competitive)
- Every horsepower rating (their own and competitive)
- Every aftertreatment option for those machines (currently available and projected to be available)
- Every repower option for those machines (currently available and projected to be available)
- Customer purchasing cycles for new equipment
- Customer desired solutions mix for achieving compliance (aftertreatment over repowers, repowers over new purchases, etc.)
- Ability to pay for work performed.

At this stage, it is unrealistic for Caterpillar – or any manufacturer – to guarantee they will have all the products and service capacity necessary to perform the work without clear definition of the regulatory requirements and the information necessary to reliably forecast specific customer needs. In fact, until the proposed rule is finalized it will remain a moving target – as demonstrated by the significant changes made recently where the rule has gone from being a strictly PM rule to one that now addresses both NOx and PM.

Currently, Caterpillar is undertaking a data-driven process through its 6 Sigma methodology to:

- Create fleet analysis software to better define machine population
- Prioritize the aftertreatment needs of customers
- Examine the service capacity of it's dealer network and parts flow velocity
- Facilitate movement of the legacy fleet and;
- Analyze the introduction of new equipment into the California market.

Caterpillar remains committed to finding the durable and economically feasible solutions our customers have come to expect. To date, we have provided re-power solutions for thousands of earthmoving machines delivering a technology upgrade and improving the emissions of our legacy fleet. Caterpillar will continue to offer these technologies and pursue new and better retrofit technologies. But the reality remains, that even with all this technology and timely introduction of new products, there are potentially hundreds of thousands of earthmoving machines in California that need to be sold, re-powered, retrofitted or otherwise addressed within the very short time window of this pending California regulation.

There are still many unknowns associated with this rule including its ultimate extent and impact on our customers. One primary issue will be how short of a window will diesel engine and earthmoving machine owners have to address their fleet averages. There is risk that the proposed rule, if implemented as currently conceived will not provide sufficient lead-time for manufacturers to fully support California customers. Should that happen, it won't be an issue of the technology being unavailable - for while meeting the emission standards will be very challenging – it is Caterpillar's intent to meet ARB/EPA time lines.

Potential supply issues could result from a number of factors, including worldwide demand, the impact of other regulations on manufacturer development and lead time, the lack of accurate data regarding the existing California legacy fleet, and the preferred owner/operator methodology for attaining a compliant fleet average. Regardless, Caterpillar remains committed to work diligently with our customers to support their needs under this rulemaking, but it is not possible to make a definite commitment regarding the availability of all requested product and service requirements necessary due to the uncertainties described above and the timeframe involved.

ATTACHMENT 7

JOHN DEERE

Worldwide Construction & Forestry Division
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STATEMENT REGARDING CALIFORNIA AIR RESOURCES BOARD PROPOSED IN-USE OFF-ROAD DIESEL RULE

May 2007

This statement responds to inquiries John Deere has received about whether it will be able to supply product to California's contractors necessary to meet the requirements of the California Air Resource Board's (ARB) proposed In-Use Off-Road Diesel rule.

John Deere is the world's leading provider of advanced products and services for agriculture and forestry and a major provider of advanced products and services for construction, lawn and turf care, landscaping and irrigation. John Deere also provides financial services worldwide and manufactures and markets engines used in heavy equipment. Since it was founded in 1837, the company has extended its heritage of integrity, quality, commitment and innovation around the globe.

Background

Over the past year the ARB has proposed its In-Use Off-Road Diesel rule requiring the mandatory reduction of construction fleet diesel emissions to help address the state's air quality challenges. The rule specifies a constantly-decreasing emissions cap that the fleet must meet year-by-year. The cap can be met by the use of verified retrofit devices on existing engines, the 'repowering' of the original machine with a new, lower emitting, engine, or the purchase of a new machine with a new engine. The ARB estimates that about 180,000 machines currently being used would be subject to the proposed regulation. Examples of machine and equipment types impacted by the rule include backhoes, dozers, loaders, trenchers, and scrapers. It is also estimated that the average age of affected machines and equipment is about 10 years old, with many of them powered by pre-Tier 1 certified diesel engines.

The ARB has conducted several workshops to gather input from stakeholders concerning its proposed rule. Deere has attended these workshops and offered input to help reduce its impact on end-users while addressing the state's air quality challenges. During this process questions have arisen whether manufacturers will be able to supply all of the products and engineered solutions required as part of this new off-road regulation.

Challenges and Uncertainties

In responding to product availability inquiries in California it is important to distinguish between new products offered as part of the implementation of the Interim Tier 4 and Final Tier 4 nonroad regulations versus 'retrofit' or 'repower' solutions developed to reduce emissions from existing machines. It is also necessary to understand the potential impact of the Tier 4 'flexibility' provisions on the availability of a full line of latest-Tier product.

John Deere expects to have new product available in sufficient quantity to meet both normal demand associated with customer needs during implementation of the Interim and Final Tier 4 nonroad regulations and increased demand arising from 'extra' fleet

turnover stimulated by California's In-Use Off-Road Diesel Vehicle rule. The challenges associated with meeting the Tier 4 regulations can not, however, be minimized. Unprecedented effort and resources are being devoted to developing entirely new engine and equipment platforms to meet Tier 4, with many technical and infrastructure issues currently unresolved.

During the formulation of the Tier 2, 3 and Tier 4 nonroad rules the ARB and US EPA determined that both engine and equipment flexibility provisions were necessary. These flexibility provisions allow manufacturers to manage the frequent changes from one Tier to the next. Flexibility provides relief for difficult and costly applications, while achieving the very low standards for the majority of nonroad engines. Ultimately, these and other similar provisions within the nonroad rules were employed to help reduce the overall cost of clean diesel technology to the end-user, thereby encouraging its more rapid deployment in the marketplace, resulting in cleaner air. The flexibility provisions set forth in the Tier 4 regulations could result in Deere and other manufacturers not having a full Tier 4 compliant product line available at the initial Interim and Final Tier 4 implementation dates.

With respect to legacy equipment, Deere is concerned with the availability of engineered solutions necessary to bring thousands of fleets containing hundreds of different models of machines into compliance during the time frame allotted under the proposed in-use rule. It is simply unknown at this point if sufficient engineering resources can be devoted into integrating Tier 4 technology solutions into the hundreds of pre-Tier 3 machine models during the timeframe set forth in the proposed rule.

Conclusion

During the implementation of the Interim and Final Tier 4 nonroad regulations Deere expects to have new product available to meet both normal demand associated with its customers' needs and increased demand arising from the extra fleet turnover stimulated by the proposed rule. However, the flexibility provisions of these regulations could result in Deere and other manufacturers not having a full Tier 4-compliant product line available at the initial Interim and Final Tier 4 implementation dates. Deere is also concerned with the availability of engineered solutions necessary to bring thousands of fleets containing hundreds of different models of machines into compliance during the time frame allotted under the proposed in-use rule.

Regulations properly balancing emission reductions, cost, and technical feasibility will help California contractors meet the state's vital infrastructure needs while promoting improved air quality. John Deere understands the significant challenges faced by contractors throughout the state and is committed to offering them advanced, environmentally responsible equipment and solutions designed to increase their productivity and competitiveness.

ATTACHMENT 8

Case New Holland (CNH) statement regarding California Air Resources Board Proposed Regulation for In-use Off-road Diesel Vehicles Title 13, CCR, New Section 2449 –

May 2007

Case New Holland (CNH), a major manufacturer of agricultural and construction equipment, markets its products in the State of California through a network of independent dealers contracted to represent one or more brands of CNH products. These include the construction equipment brands of Case, New Holland Construction and Kobelco, and the agricultural equipment brands of CaseIH and New Holland. Products sold in the State of California under the Case, New Holland Construction and Kobelco brands will be affected by the proposed regulations.

CNH supports the efforts of the California Air Resources Board and other regulatory agencies to reduce emissions. We believe our dealers and customers also support technically feasible, economically reasonable methods of advancing improvements in the environment, including air quality. However, we do recognize significant issues exist regarding the proposed regulations and the practicality of the proposed timetable for their implementation.

Fleet Owner Issues

This document was generated primarily in response to input and concerns of our dealers and customers regarding the proposed ARB In-use Off-road Diesel Vehicle regulations. Fleet owners of CNH manufactured equipment have expressed concerns about their ability to meet the fleet average requirements imposed by the regulations. Specific to the role of manufacturers or other solution providers, fleet owners have voiced concerns about availability of sufficient quantities of new equipment, repower engines and certified after-treatment, as well as dealer installation resources for retrofit solutions, to meet the emissions targets and timetables of the proposed regulations.

CNH Response

In order to address the issue of availability of solutions fleet owners will require to meet the proposed regulations, it is necessary to consider this issue within its proper context.

First, forecasting the demand for the various types of solutions that will enable fleet owners to meet the requirements of the proposed regulations requires economic modeling that considers at least the following: global, national, and state economic forecasts and business cyclicality projections, a like set of data for specific businesses in which fleet owners are engaged, the impact of other regulatory actions either within California or elsewhere, and customer intentions regarding the proportion and quantities of each solution type that will be used to meet the regulations (replace, repower, install

CNH Case New Holland

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after-treatment, etc.). This assumes adequate technical solutions will have been developed well in advance of forecasted demand, to allow reasonable lead times for production and installation of the solutions, and absence of issues related to suppliers upon whom CNH will depend for development and/or production of emission solutions.

Second, the resources required to develop, obtain certification of, and launch the required emissions solutions (e.g. technical knowledge, development and innovative skills, experience, testing facilities, etc.), are finite and in high demand throughout the off-road equipment industry. Ongoing dedication of research and development resources toward meeting the federally mandated Tier 3 and Tier 4 non-road engine emissions standards by necessity have consumed our limited resources and will continue to do so through the implementation of Tier 4B. Unfortunately, the specialized physical resources and personnel required to develop solutions that will enable fleet owners to meet the proposed regulations cannot be instantaneously multiplied simply by increasing the monetary investment applied to the issue.

Third, the fact that the currently proposed regulations are based on macro requirements at the fleet average level means manufacturers will be expected to simultaneously supply solutions across a broad range of product types, models and horsepower classes. Emissions reduction requirements tied to introduction of new products enable CNH and other manufacturers to effectively apply the limited resources required to develop and produce lower emission engines over a timeline of a series of new product introductions. This is not the situation proposed by the CARB regulations, since fleet owners will individually determine not only which products, models and specific units they will address in order to attain required fleet averages, but also the type of solution they will apply to each unit or groups of units, and the sequence in which they will do so. Federally mandated standards have generally provided four years product development lead time and implementation spread over three or more years. If the ARB approves this proposal in May 2007, lead time will be thirty-three months and the implementation effective 01 March 2010. This incremental set of variables further complicates the situation and increases the difficulty of responding adequately to the needs our customers will face if the proposed regulations are implemented.

CNH is dedicated to meeting customer needs, including those created through regulation or legislation. As a manufacturer, we fully intend to make every effort to develop the solutions fleet owners of our brand of equipment may need to meet requirements imposed on them by the State of California. However, the combined effect of the nature of the proposed regulations, uncertainty regarding the final form of the regulation, and the extreme difficulty of forecasting individual customer needs for the many CNH legacy products mean that despite the desire and commitment of CNH to fully support the owners of our brands of equipment, we cannot commit to the future availability of the retrofit products required to meet the proposed regulations.

CNH Case New Holland

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ATTACHMENT 9

Transportation Ramifications of Construction Equipment Shortage due to Proposed CARB Regulation

Prepared by Carla Walecka Planning

July 23, 2007

Due to the major cost of replacing, retrofitting or repowering equipment, it is reasonable to expect that CARB's proposed construction equipment regulation is likely to cause a shortage of compliant equipment available for residential, commercial, industrial and institutional projects. Shortages could be particularly acute during initial implementation of the regulation in the 2007 through 2015 time period.

2007 to 2015 is also a critical time period for implementing regionally significant transportation projects, bond-funded congestion relief projects, as well as Transportation Control Measures assumed to provide emission reductions to reach attainment of the particulate and ozone standards.

A shortage of compliant construction equipment will result in fewer emission reductions and benefits than assumed in the AQMP as outlined in qualitative terms below:

1. Regional Transportation Plan (RTP) project emission reductions will be eroded if regionally significant transportation and transit projects cannot be constructed and delivered in the timeframe assumed in the AQMP/SIP. The RTP provides 1.79 tons per day of ROG, .01 tons per day of NOx and .24 tons per day of PM2.5 emission reductions in 2014. *(Source: Proposed Modifications to the Draft 2007 AQMP Appendix IV-C, p. IV-C-9)* Contrary to voter expectations, RTP project delays due to lack of available compliant construction equipment could include state bond program transportation improvements in the RTP, such as the I-405 HOV lane.

2. A shortage of compliant construction equipment will put at risk a portion of the total $213 billion (2002 dollars) in 2004 RTP public and private transportation investments *(Source: 2004 Regional Transportation Plan, Appendix B, p. B-55)* for an uncertain period of time if Transportation Control Measure (TCM) projects cannot be constructed as scheduled to provide emission reductions claimed in the AQMP. The AQMP assumes that TCMs will reduce ROG by 1.07 tons per day, NOx by 3.54 tons per day and PM2.5 by .18 tons per day in 2014. *(Source: Proposed Modifications to the Draft 2007 AQMP Appendix IV-C, p. IV-C-9).* Under the federal transportation conformity rule, TCM construction must be given maximum priority to insure timely implementation (Source: *58 FR 62197*) Lack of compliant construction equipment could delay TCMs, forcing the region to replace them with substitute TCMs with equivalent emission reduction benefits, or expose the region to loss of transportation conformity status, leading to a moratorium on federal transportation funding and project approvals until conformity status can be reestablished. Substitute TCMs would be subject to the same delays due to equipment shortages.

3. 2004 RTP and TCM project budget estimates incorporated into the Final Draft 2007 AQMP do not reflect cost increases due to more expensive compliant construction equipment. The added cost for new, retrofitted, or repowered equipment would compound cost increases due to rising steel, cement and other resource prices. This added cost could potentially delay RTP projects, including congestion relief bond and TCM projects. This would, in turn, delay NOx and PM2.5 emission reductions required for attainment of the PM 2.5 standard in 2015.

4. A delay in providing local transportation projects because they cannot secure required compliant construction equipment could result in an unquantified amount of local congestion and associated emissions, and possible safety issues.

5. Any delay in constructing RTP or TCM projects will reduce or postpone a portion of the NOx and PM2.5 emission reductions that would otherwise provide an average annual $966 million benefit in traffic congestion relief, including transportation operations and maintenance and reduced travel time benefits) , and $9.77 billion in public health annual average benefits. *(Source: Final 2007 AQMP Socioeconomic Report, pp 3-10 and 3-13 through 3-16).*

6. CARB's proposed construction equipment regulation is likely to result in a shortage of compliant equipment in the near term, resulting in an inadequate supply of equipment to accomplish regionally significant transportation, TCM, local road, or voter-approved transportation bond projects, not to mention other housing, commercial, industrial, and institutional development expected to reduce construction equipment emissions under SCAQMD's control measure EGM-01, Emissions Growth Management.

Carla Walecka Planning consults on demographic, transportation and air quality planning and public policy issues that impact development. Air quality planning and policy formulation in the South Coast Air Basin is a major focus of current work, along with continued emphasis on regional growth, transportation, and environmental resource plans and policies. Carla Walecka has consulted for both public and private sector clients on interrelated land use/transportation/air quality issues for more than 20 years.

ATTACHMENT 10

STATE OF CALIFORNIA
AIR RESOURCES BOARD

PUBLIC HEARING TO CONSIDER PROPOSED REGULATION FOR IN-USE OFF-ROAD DIESEL VEHICLES	)))))	Agenda Item: 07-5-6 Continued from May 25, 2007

AFFIDAVIT OF MICHAEL W. LEWIS

I, Michael W. Lewis, hereby declare and state as follows:

1. I am over the age 18 and otherwise competent to testify to the matters contained in this affidavit.

2. I am currently owner and President of Lewis & Company, Inc. Lewis & Company was formed in February 1989 to offer clients highly specialized government relations consulting services on a wide range of issues including air quality.

3. I served on past Los Angeles County Supervisor Pete Schabarum's staff from 1973-1989 as a deputy specializing in transportation, air pollution, planning and zoning, economic development and privatization of government services. In July 1980, I was appointed Chief Deputy responsible for all policy and organizational matters. I served as a member of the Southern California Rapid Transit District Board of Directors, completing an eight-and-one-half year term in February 1985; served as President of the Board of Directors in 1982 and 1983; and, authored a layman's guide to improving public transportation called MOVING PEOPLE. I served as a member of the Los Angeles County Transportation Commission until March of 1991. Los Angeles Magazine named me one of the ten transportation "power players" in Los Angeles and the most knowledgeable person in Los Angeles on the subject of transportation. I served on the South Coast Air Quality Management District Board from 1976 to 1978.

3. Lewis & Company has served as the lead consultant to the Construction Industry Air Quality Coalition (CIAQC) since its inception in 1989. CIAQC currently represents the collective air quality interest of four General member trade associations (the Building Industry Association of Southern California, Associated General Contractors of California, Engineering Contractors Association and the Southern California Contractors Association), two Associate member associations (the California Rental Association and Southern California Rock Products Association, now a part of the California Construction & Industrial Materials Association), and several individual Affiliate member companies.

4. I serve as CIAQC's lead consultant and its Senior Vice-President.

5. In 2006, CIAQC retained M.Cubed and its principal, Dr. Richard McCann, to assist CIAQC in estimating the potential economic impact on the construction industry from regulations proposed by the California Air Resources Board to control emissions from off-road diesel vehicles used for construction activities.

6. To assist Dr. McCann with this effort, I gathered new vehicle (equipment) replacement pricing data for the individual fleets of three CIAQC member contractor companies. The information was gathered at my direction on a confidential basis to protect from public view the ownership composition of the vehicles in each of the individual fleets. CIAQC provided this data to Dr. McCann in 2007 to use in the cost impact analysis.

7. Based upon my experience representing CIAQC contractor member companies for nearly 19 year, I believe the new vehicle replacement pricing data provided to me and forwarded to Dr. McCann to be accurate, collected in good faith and reflect equipment market conditions at the time they were received.

8. I have personal knowledge of the foregoing and am competent to testify to it

before the California Air Resources Board or at trial.

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct. Executed on this 24th day of July 2007, at Sacramento, California.

Michael W. Lewis

ATTACHMENT 11

Estimating the Construction Industry Compliance Costs for CARB's Off-Road Diesel Vehicle Rule

Prepared by

M.Cubed

On behalf of

the Construction Industry Air Quality Coalition

July 2007

Executive Summary

M.Cubed was retained by the Construction Industry Air Quality Coalition (CIAQC) to assist in estimating the potential economic impacts on the construction industry from regulations proposed by the Air Resources Board to control emissions from off-road diesel vehicles used for construction activities. The underlying analytical tool of this study is an Excel spreadsheet model of fleet evolution from 2008 thru 2020 and associated incremental costs accrued to the construction industry as it complies with the proposed ARB rule.

In 2005 the construction industry accounted for approximately 5 percent of gross state product. The construction industry employed approximately 835,000 Californians in 2004, representing $36 billion in payroll. Fifty-five percent of California construction firms have fewer than five employees, with 74 percent employing less than ten individuals. Less than one percent of the state's construction firms have more than 250 employees. Similarly, 97 percent of all California construction firms generate less than $10 million in annual sales. Finally, several forecasts call for a decline in construction spending in the near term, and Department of Finance data shows a significant downturn.

The construction industry also provides a larger "bang for the buck" than most other economic sectors. For every dollar spent on construction, total output, including "multiplier impacts," increases by $2.40. According to the U.S. Bureau of Economic Affairs, construction produces 21.5 jobs throughout the economy for each million dollars added output the industry; or conversely, 21.5 jobs are lost along with each million dollars of reduced output.

On several key parameters, ARB Staff's modeling relies on unrepresentative data or unsupported assumptions. Where the ARB Staff has chosen assumptions upon which the information is quite uncertain, those choices have biased the estimated costs downward:

(1) While the emission inventory shows that 39% of the vehicles are Tier 0 in 2008, the survey used to compute compliance costs shows 49% are Tier 0, or one-quarter higher. **Compliance costs are lower for fleets with older equipment because that equipment is more likely to be retired sooner.** As a result, the Staff cost estimate is biased downward.

(2) The ARB models presume an annual normal retirement rate of 6.7%, but this requires that new vehicle sales be 50% higher than historic data indicates. However, using new equipment sales data for 1998 to 2005 from the Engine Manufacturers Association and the growth in construction industry revenues for that period of 1.6% per annum, **the fleet turnover rate is 3.7% or only just over half the rate assumed in the Staff analysis.**

(3) The Staff analysis assumes that most of the equipment required to meet the accelerated fleet turnover rate will come from the used equipment market. However, the analysis shows that the statewide fleet will have to add 3.4% more vehicles for 2010 to 2012, 3.0% for 2013 to 2020 and 2.0% from 2021 to 2030. **For the initial period, this represents a 50% increase in the turnover rate in the Staff's emission inventory model, and a near doubling of the historic empirical turnover rate.**

(4) The Staff has not demonstrated where the used Tier 3 and 4 equipment required to comply with the accelerated rule will come from—its analysis relies on the total used market that is dominated for Tier 0 and 1 equipment. Given that this rule will require significant new equipment purchases, based on EMA data, **the new equipment market will have to expand by two-thirds by 2010 to meet the increased demand.**

(5) The ARB Staff relies on a survey of *used* equipment to estimate *new* vehicle prices. However, several fleet operators have collected extensive price quotes for replacing their existing fleets. Based on a comparison between these quotes and the Staff analysis, **the Staff's new equipment prices are 41% to 44% lower than quotes provided to industry firms.**[1] Current industry experience shows the costs of retrofits to control PM to be 50% higher than the estimates used by the ARB Staff in its analysis.

(6) The ARB Staff does not have an accurate count of firms falling into different fleet class sizes, i.e., small, medium and large despite this data being available from other state agencies. In addition, the ARB Staff analysis relies on an unrepresentative model fleet and appears to assume that public and private fleets have similar compositions and purchasing patterns.

The Construction Industry Cost Model (CICM) uses a statewide basis for estimating costs rather than building up from individual fleets as the ARB Staff model does. However, the general economic principles used are similar. We relied on the statewide fleet estimates in increased fleet turnover and retrofit rates from the Staff database model to drive the CICM results.

The CICM was first run using the proposed regulations and the ARB Staff's data assumptions. The total net present value cost of the current regulatory proposal is $3.9 billion over the 2009 to 2030 period, compared to $3.0 to $3.4 billion for 2009 to 2030 reported in the Staff's report. The annual cost over the 2010 to 2020 period is $396 million and $411 million per year for 2010 to 2030.

A series of scenarios were run representing changes in the ARB Staff assumptions. These scenarios indicated how sensitive the cost results are to underlying assumptions about parameters for which we have little or no information. Using 67% higher new equipment prices, a 75% lower proportion of the fleet that can be repowered and a 45% lower normal retirement rate based on manufacturer sales data, the total net present value cost rises to $12.9 billion, equivalent to $571 per horsepower. The annual cost is $1.296 billion for 2010 to 2020 and $1.366 billion for 2010 to 2030. This is This is an increase of 300% over the Staff estimate.

We can assess whether the construction industry can pass through additional regulatory costs based on currently available economic studies. One set of estimates was developed as part of the basis for the Dynamic Revenue Analysis Model (DRAM) used by the

[1] The Staff conducted a sensitivity analysis to changing its new equipment prices and found an increase of only $100 million. This insensitivity illustrates how the unrealistic and unsubstantiated assumption by the Staff that almost all of the accelerated turnover can be met by the used equipment market.

Department of Finance to estimate how fiscal changes affect projected state revenues. Based on these estimates, construction firms would bear 54 percent of the added costs. The US EPA provided estimates in its Regulatory Impact Analysis for its off-road regulations in 2003 and construction firms bear 49 percent of the regulatory costs.

Construction firms are likely to have absorb a substantial portion of those costs through reduced profits and/or reduced employment—likely at least half. The projected statewide employment loss is 4,300 to 29,400 jobs using a set of reasonable and conservative assumptions about compliance cost estimates. This represents 0.5% to 3.5% of the state's construction employment.

In addition, these regulatory costs are likely to increase costs for the projects constructed through the bond measures authorized November 2006 by about $$400 million. This represents 1% of the authorized bond amounts.

Introduction

M.Cubed was retained by the Construction Industry Air Quality Coalition (CIAQC) to assist in estimating the potential economic impacts on the construction industry from regulations proposed by the California Air Resources Board to control emissions from off-road diesel vehicles used for construction activities.

As a first step of this analysis, this report summarizes the industry's financial status and economic importance, including the distribution of key economic characteristics across the industry. In addition, we have developed an estimate of the distribution of fleet size and total horsepower linked to a measure of firm size, in this case the number of employees. This estimate is derived from a survey of firms that showed a high correlation between fleet size, number of employees and annual gross revenues.

This report then provides initial findings from our estimate of the range of potential compliance costs to comply with the proposed In-Use Off-Road Diesel Vehicle regulation. The underlying analytical tool of this study is the Construction Industry Cost Model (CICM), an Excel spreadsheet model of fleet evolution from 2008 thru 2030 and associated incremental costs accrued to the construction industry as it complies with the proposed ARB rule. y

On several key parameters, ARB's modeling relies on unrepresentative data or unsupported assumptions:

(1) The number and composition of mobile equipment in the off-road inventory;

(2) The split of the equipment inventory among different fleet class sizes, i.e., small, medium and large;

(3) The difference in the composition of public versus private fleets;

(4) The current retirement and turnover rate of existing and future equipment, thus affecting the assumed expected remaining life of each equipment type;

(5) How many new vehicles must be introduced into the fleet to achieve the proposed standards, versus the assumed reliance on used vehicle purchases by the ARB Staff;

(6) The new and resale value of off-road equipment;

(7) The proportion of the equipment fleet that can be repowered to meet Tier 2 and 3 emission standards, much less achieving Tier 4 levels;

(8) The change in the expected remaining life of equipment after repowering; and

(9) The cost of retrofits for PM emissions.

The model was run across several cases and scenarios to determine the sensitivity of the analytic results to changes in assumptions. The model's premise is that most if not all firms will need to turnover their fleets at the turnover cap rate to comply with the rule. This is based on preliminary analysis of several private fleets, including newer ones, carried out by CIAQC members. A base case was run using much of the ARB Staff's

modeling assumptions.[2] Then scenarios were run changing key assumptions about new equipment costs, proportion that can be repowered and the underlying turnover rate.

Finally, we derived the share of costs to that are likely to be borne by construction firms from the new regulations. Based on two different studies, these firms will absorb about half of these costs, unable to pass them through to customers. A portion will be realized in reduced profits, while the remainder likely will result in lost jobs in the sector.

The Construction Industry's Importance to California and Its Sensitivity to Changing Costs

California's construction industry is responsible for a significant share of the state's economic activity. In 2005 the sector accounted for approximately 5 percent of gross state product.[3] The construction industry employed approximately 835,000 Californians in 2004, representing $36 billion in payroll.

The construction industry also provides a larger "bang for the buck" than most other economic sectors. For example, according to the U.S. Bureau of Economic Affairs for every dollar spent on construction, total output, including "multiplier impacts," increases by $2.40. Only the insurance and hotel sectors have higher output multipliers. Likewise, at 76 cents construction's earnings multiplier is higher than all sectors except services; and the sector's job multiplier, 21.5, is greater than any other industry except agriculture and services.[4] In other words, construction produces 21.5 jobs throughout the economy for each million dollars added output the industry; or conversely, 21.5 jobs are lost along with each million dollars of reduced output.

Despite the economic significance of the state's construction sector, it is extremely sensitive to economic cycles, as well as changes in input prices. For example, during the 2000-2001 recession the number of construction firms declined by 2 percent, and total employment dropped by more than 1 percent nationwide.[5] As shown in Figure 1, spending on construction is expected to decline in 2007, followed by modest growth between 2008 and 2011. Of particular interest is that the growth trend is expected to shift downward compared with historic patterns, as shown in the chart.

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[2] CARB Staff, *Staff Report: Initial Statement of Reasons for Proposed Rulemaking*, Mobile Source Control Division, Heavy Duty In-Use Strategies Branch, April 4, 2007.

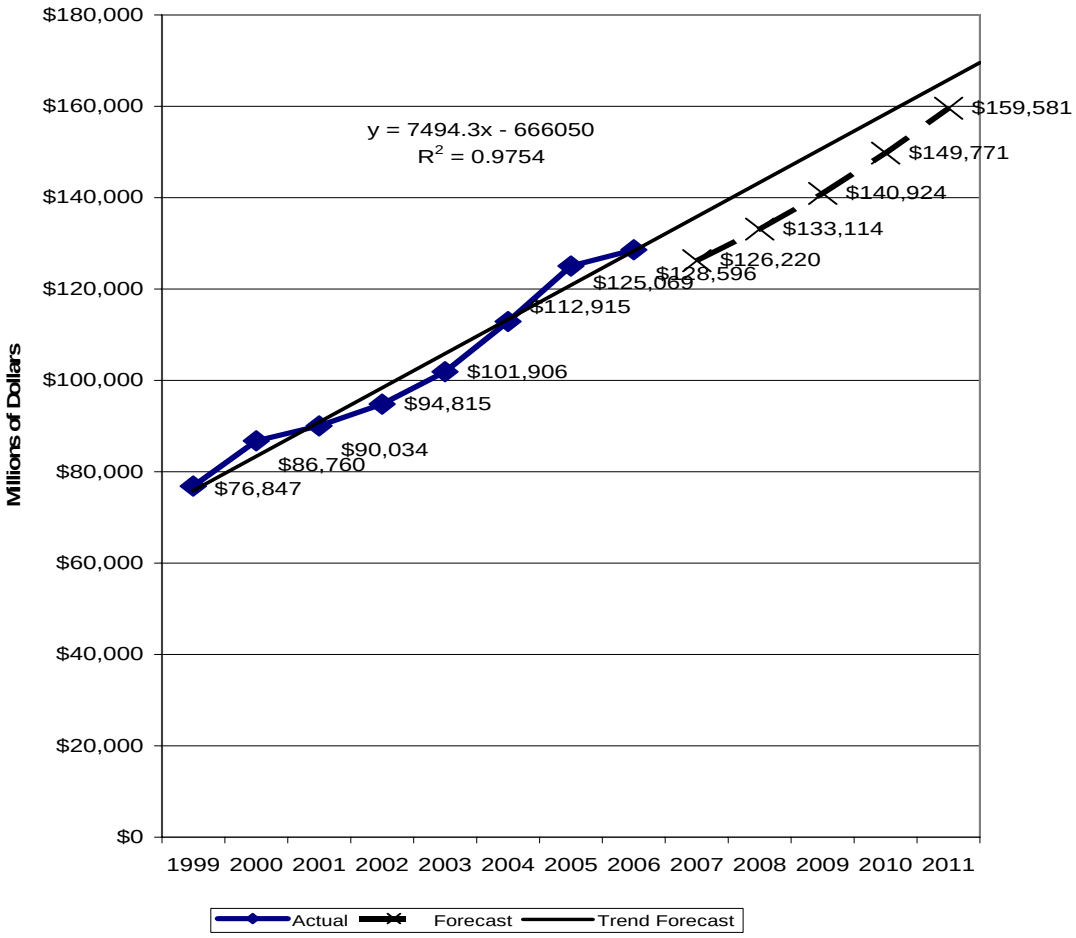
[3] U.S. Department of Commerce, Bureau of Economic Analysis, www.bea/doc.gov.

[4] California Economic Strategy Panel, *Using Multipliers to Measure Economic Impacts*, 2002.

[5] U.S. Census Bureau, *County Business Patterns*, April 10, 2003.

Figure 1

Slower Growth Seen for California's Construction Industry



Construction input prices, including equipment costs, jumped by 30 percent between 1996 and 2003, contributing to rapidly increasing housing prices in the state.[6] For example, the share of first-time buyers in California declined to their second lowest level last year, dropping from 31 percent in 2005 to 27 percent in 2006. Likewise, the share of California buyers who relied on a second mortgage rose from 38 percent in 2005 to 43 percent in 2006, more than tripling since 2001, and the highest percentage since 1982.[7]

The sector's vulnerability is in part due to the fact that it is dominated by small firms. Fifty-five percent of California construction firms have fewer than five

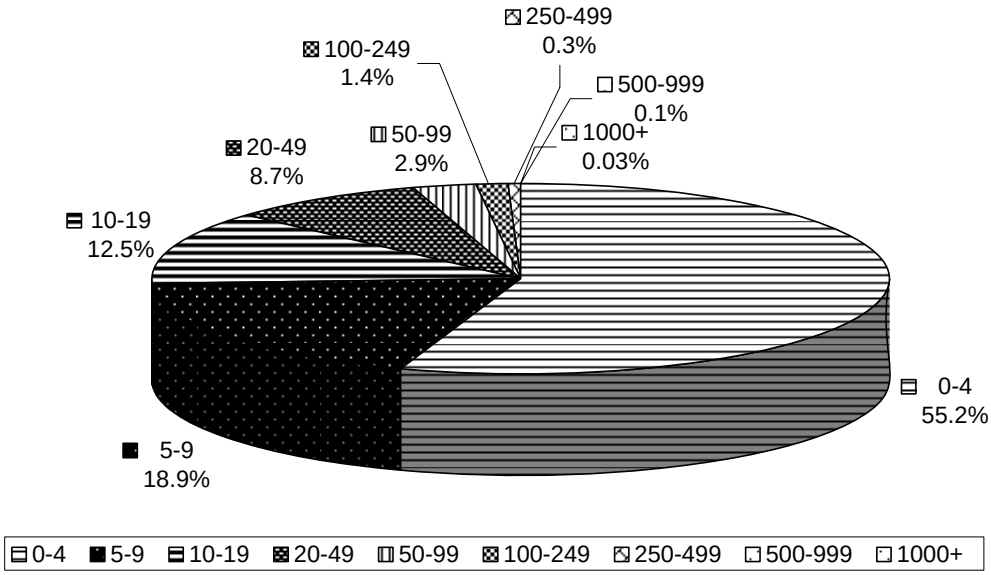
[6] U.S. Census Bureau, op. cit.

[7] California Association of Realtors (2006).

employees; with 74 percent employing less than ten individuals.[8] Less than one percent of the state's construction firms have more than 250 employees. Figure 2 illustrates this firm distribution. Similarly, 97 percent of all California construction firms generate less than $10 million in annual sales.[9]

Figure 2

Number of California Construction Firms by Employee Size (2005)



Similar to the agricultural sector – particularly commodities such as lettuce and other produce -- the construction sector tends to be subjected to extreme fluctuations in profitability. Net profits for an individual firm can bounce from more than 20 percent of revenues in one year to a negative return in the next, depending on economic conditions, the weather, and fuel and other input costs. On average net profits after tax tend to range from between 3 to 5 percent.[10] Fluctuations in profit, combined with generally modest margins, results in most construction firms being extremely dependent on access to short-term capital to operate their business (see below).

Regulations Could Reduce Construction Firms'—Particularly Smaller Businesses'—Access to Necessary Credit

As with agriculture, construction firms are highly dependent on short-term credit (e.g., credit lines) to finance their operations (i.e., working capital). Access to credit is

[8] Employment Development Department, Labor Market Information Division, 2007, http://www.labormarketinfo.edd.ca.gov/cgi/databrowsing/?PageID=67&SubID=138

[9] Ibid.

[10] Risk Management Associates, *Annual Statement Studies – Financial Ratio Benchmarks*, 2005-2006.

determined by the health of an individual firm's balance sheet; cash flow; existing debt load; and year-to-year profitability. The proposed regulations could adversely impact construction firms' access to credit as a result of several factors, particularly for small businesses, which tend to have a lower margin for error. According to a recent study for the U.S. Small Business Administration, smaller firms bear a higher burden of regulatory costs on average than larger ones.[11] In particular, environmental compliance cost for firms with less than 20 employees are more than triple those larger firms.

First, and most obviously, the regulation will increase the cost of the equipment. Alternatively, to the extent the regulations induce firms to simply retire older equipment without replacing it, these firms' capacity to undertake construction assignments will be reduced. As the ARB Staff acknowledges, the proposed regulation increases the cost of purchasing new or used equipment to increase capacity for new contracts. By increasing the industry demand for occasional capacity, the proposed regulation would increase demand for rental equipment. Increased demand for rental equipment will put upward pressures on rental prices. In addition, the proposed regulation imposes higher costs on rental fleets themselves, particularly larger rental fleets that must comply with stricter accelerated emission standards. The proposed regulation's increased costs on rental fleets also will put upward pressure on rental prices. These two factors (increased industry demand and increased supplier costs) combined would act to greatly increase rental prices. Since smaller construction firms tend to rely more on rental fleets, this will effectively increase small fleet costs even though the regulation is supposedly designed to mitigate small fleet impacts.

Under this circumstance unless a firm's contract includes adjustments for price escalations they will either have to "eat" the cost of these prices increases through profit reductions, or attempt to terminate the contract. In either case the firm's underlying economic health would be impaired, weakening their ability to gain access to good credit terms and remain viable in the marketplace.

Second, firms' existing equipment stock is reflected in their financial statements as a notable asset, similar to having equity in a home. This equity can be tapped to borrow against to finance business needs. It is important to note that equipment value for a construction contractor may be a substantial proportion of a firm's total assets. For less equipment-intensive contractors, such as plumbers or electricians, the value of their powered equipment is likely to be a small fraction of their total assets. But for a grading contractor equipment value may represents upwards of three-quarters of their total assets, representing tens of millions of dollars for larger firms. Reductions in the value of this equipment could have substantially negative impacts on a construction firm's ability to remain in business.

To the extent that the regulation reduces equipment value – by forcing it to be scrapped, or by flooding out-of-state markets with used equipment, thereby depressing prices – it will act to decrease the market value of the asset—the value of even fully

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[11] W. Mark Crain, "Impact of Regulatory Costs on Small Firms," *Small Business Research Summary*, Prepared for the Small Business Administration Office of Advocacy by Lafayette College, No. 264, September 2005.

depreciated equipment that still can be resold at significant prices. Given that some equipment that is used in California has minimal value elsewhere in the country, this hidden value is substantially at risk if state regulations effectively ban its use. For example, large scrappers are typically used in Southern California to move dirt, but are not used in rocky soils that are prevalent in other regions. As a result, while this equipment has significant value in California under the status quo, it may be virtually worthless elsewhere in the U.S. Reductions in a firm's equipment value would serve to lessen the firm's net worth, with a concomitant decline in their ability to obtain good borrowing terms, and more importantly, reduce borrowing and bonding capacity for investing in such things as new, cleaner equipment.[12]

Third, firms that elect to replace older equipment with government-sanctioned models will either need to dip into their cash reserves or obtain loans to pay for the new capital. If relying on cash results in a significant decline in available reserves it could lead to increased borrowing costs. In addition, the capacity of construction equipment suppliers to ramp-up production of new model equipment, particularly if the replacement engine technology is not fully conceived and developed, is constrained. If the regulations cause a noticeably longer back-log in equipment delivery this in turn could reduce firms' ability to effectively complete projects, with associated impacts on cash flows as well as risks of profit reductions in cases where contracts include schedule delay-related penalties. For example, since last fall construction firms have had to wait up to four months for equipment delivery.[13]

It is also important to note that many firms, particularly smaller businesses, rely on the used equipment market rather than purchasing new. Yet under the regulation the market for used equipment within would shrink substantially; only newer models will meet the air quality requirements and current owners would retain Tier 2 and 3 models to meet the various standards . As a result, firms accustomed to paying lower prices for second- or third-hand equipment – with associated access to available credit -- reflecting the partially depreciated nature of used equipment, will be forced to noticeably increase their expenditures on a given piece of equipment. This, in turn, will lead to firms going out of business, and result in an overall reduction in the number of businesses operating in the sector, with concomitant increases in firm concentration in the industry. Such adjustments are well-known to reduce competition and to lead to higher market prices. One of the hallmarks of the 2000-2001 statewide electricity crisis was the concentration of generators which lead to well-documented market abuses.[14]

Overall the value of a contractor's equipment is a substantial factor in their ability to conduct business. If this value is adversely impacted, construction firms' ability to remain economically viable could be compromised.

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[12] A more extensive discussion of these impacts was presented by Ralph Potter, CIT Construction, Specialty Finance Affiliate of the CIT Group, New York, at "California Emissions: Where do you stand with the proposed Regulations?" March 27, 2007.

[13] Jim Haughey, "U.S. Equipment Buying Slows, While Exports Increase," *Construction Equipment Market Update*, 2006.

[14] Richard J. McCann, "'The Perfect Mess': How California's Energy Markets Sank" (paper presented at the Western Economics Association International Meeting, Seattle, Washington, June 2002).

Characterizing the State's Construction Fleets Based on CIAQC Survey Responses

Although the broad direction of adverse economic impacts can be described (see above), it is difficult to accurately estimate the regulation's precise potential impact on the construction sector. This is because little data exists on individual firm characteristics, or the linkage between these characteristics, financial health, and equipment fleet size and type. To address this data gap CIAQC collected survey data from its members related to 2005 annual gross revenues, number of employees, and the characteristics of their fleets that would be regulated under the proposal.

Twenty-one firms responded at least in part to the survey. These responses were used to identify statistical relationships between number of employees, firm revenues and equipment fleet characteristics.[15] Regression models for each relationship were estimated; parameter estimates for the mean were used in the subsequent analysis estimating typical firm revenues and fleet characteristics across the industry, along with high and low estimates based on the 95% confidence interval derived from the sample data.

Employment data for the construction industry was collected from the California Employment Development Department (EDD) Labor Market Information website. EDD's data shows the number of construction firms and associated number of employees in the third quarter for 2005 by firm size categories.[16] The estimates of the relationship between number of employees, firm revenues, and equipment fleet characteristics from the survey analysis were then applied to the EDD data to estimate the statewide range of annual revenues, fleet sizes and total horsepower within each firm size category.

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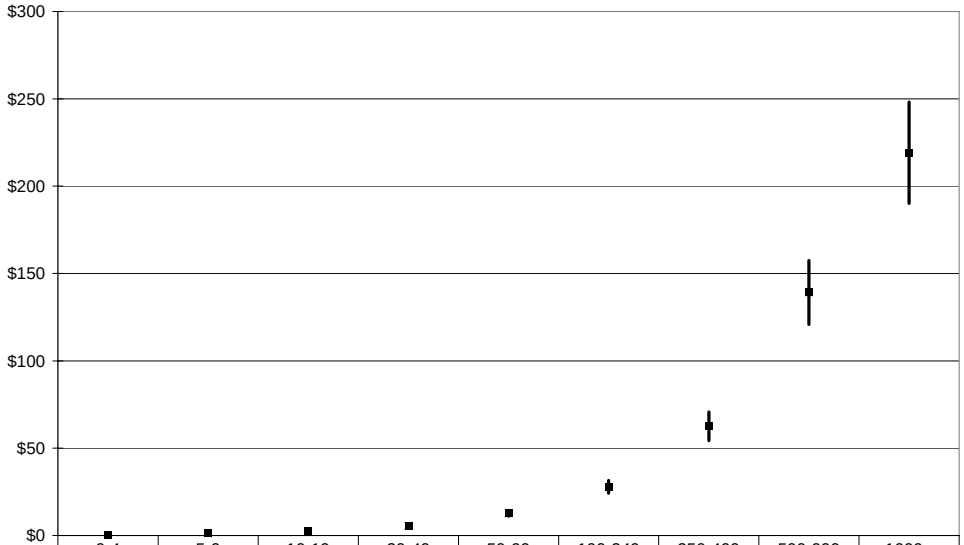
[15] Of particular note were the high correlations between these measures, with the R^2 exceeding 0.96 out of 1.0 in all cases. The correlation coefficient measures how close of a relationship exists between two variables, with a positive correlation showing a positive relationship. An R^2 of 1.0 indicates a perfect relationship between two variables, i.e., they vary in tandem together. The high correlation for the CIAQC survey provided substantial confidence that number of employees was a strong indicator of firm revenues, number of vehicles and total horsepower in the fleet.

[16] We assumed that most firms in the NAICS 236 and 237 categories would possess regulated construction equipment, but that only a portion—21%— of NAICS 238 (special trades) would use such equipment. (U.S. Census, "Sector 23: Construction: Industry Series: Employment Statistics for Establishments by State: 2002", 2007.) US Census data counts 23% of sector 238 employees in these firms. Thus, the estimates presented here represent a smaller segment of the construction industry than the full NAICS 23 sector.

Figure 3 shows the distribution of annual gross revenues across firm size. Firms with less than 100 employees – 98 percent of the industry -- average less than $13 million of gross revenues a year.

Figure 3

California Construction Industry Estimated Firm Average 2005 Gross Revenues by Employee Size (Millions $)

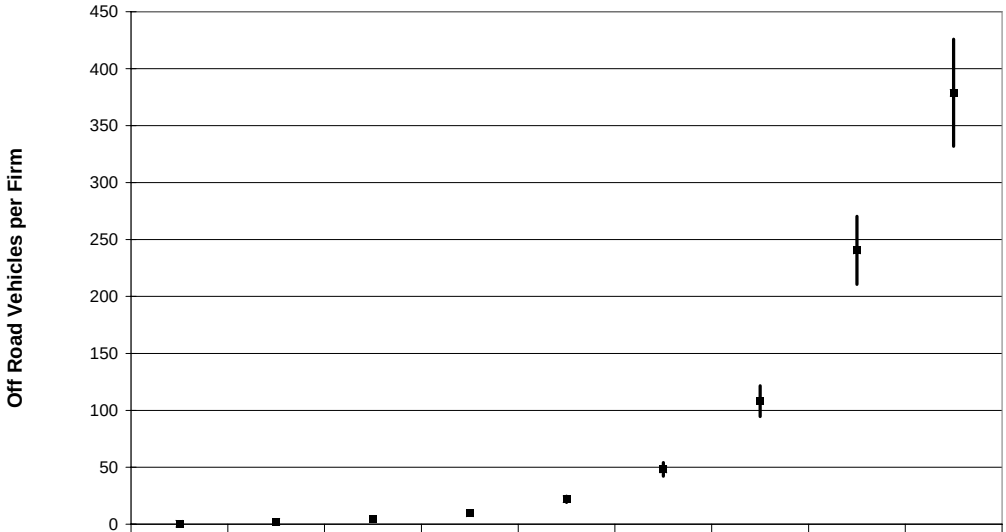


	0-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+
High Parameter Estimate	$0.32	$1.4	$2.8	$6.3	$14.4	$32	$71	$158	$248
Low Parameter Estimate	$0.25	$1.1	$2.2	$4.8	$11.0	$24	$54	$121	$190
■ Mean Parameter Estimate	$0.29	$1.2	$2.5	$5.6	$12.7	$28	$63	$139	$219

Figure 4 shows the relationship of average fleet size to firm size. Smaller firms tend to have 10 vehicles or less.

Figure 4

California Construction Industry Estimated Firm Average Fleet Size by Firm Employee Size

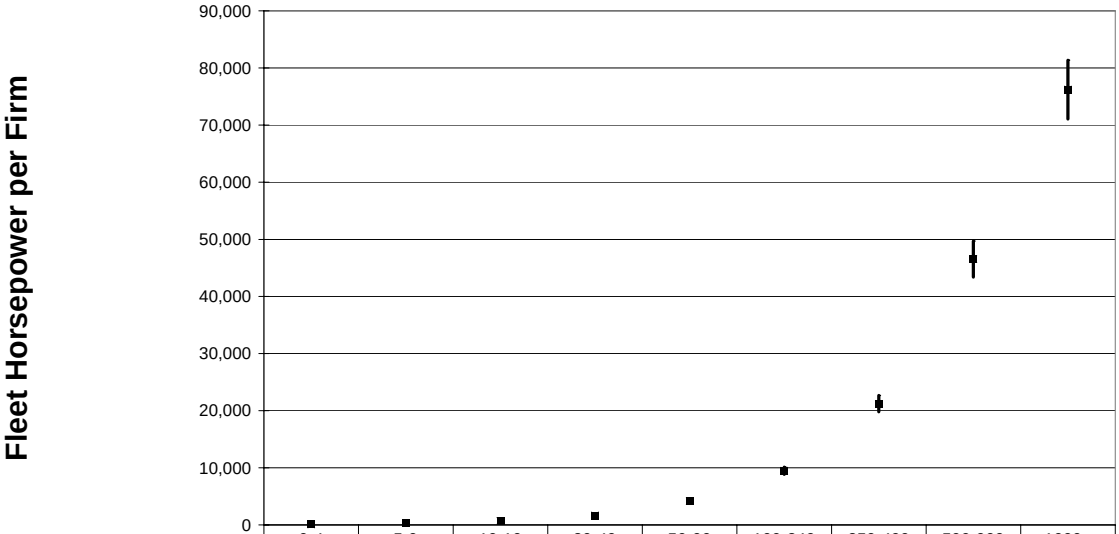


	0-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+
High Parameter Estimate	0.56	2.4	4.9	10.8	24.7	54	121	270	426
Low Parameter Estimate	0.43	1.9	3.8	8.4	19.2	42	95	211	332
■ Mean Parameter Estimate	0.50	2.1	4.3	9.6	22.0	48	108	241	379

Figure 5 shows the average horsepower in each firm's fleet by size category. Firms with 20 to 49 employees average between 1,057 and 1,772 total HP, indicating that firms this size and larger, up to 100 employees, are likely to be captured in the medium-sized fleet portion of the regulation, which covers fleets between 1,500 HP and 5,000 HP. Companies with more than 100 employees are the likely candidates for the large-fleet regulations.

Figure 5

California Construction Industry Estimated Firm Average Fleet Horsepower by Firm Employee Size

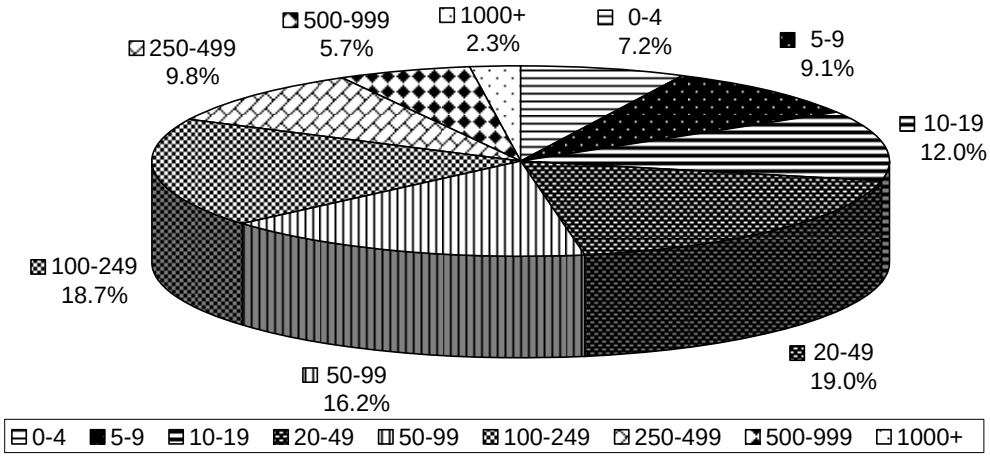


	0-4	5-9	10-19	20-49	50-99	100-249	250-499	500-999	1000+
High Parameter Estimate	89	365	758	1,772	4,455	10,132	22,650	49,673	81,348
Low Parameter Estimate	78	319	663	1,548	3,893	8,853	19,790	43,400	71,076
Mean Parameter Estimate	83	342	710	1,660	4,174	9,492	21,220	46,536	76,212

Figure 6 shows how the total fleet horsepower is distributed among the firm sizes based on the approximation derived from this analysis. Firms with less than 20 employees, which are the most likely to own "small" fleets less than 1,500 HP, control about 28 percent of the horsepower. Firms larger than 100 employees, which are most likely to own "large" fleets of more than 5,000 HP, control about 36 percent of the total statewide horsepower. The firms with 20 to 100 employees control the remaining 36 percent that are likely to fall into the "medium" category.[17]

Figure 6

California Construction Industry Total Fleet Horsepower by Firm Employee Size



This analysis was done with publicly-available EDD data on firm characteristics. A more refined analysis that could better characterize the distribution of fleet characteristics could be done with firm-specific EDD data. As a state agency the ARB could gain access to these data, with firm names obscured, and then be able to more precisely estimate the range of fleet characteristics and resulting regulatory impacts on the industry. The ARB could determine more accurately how many firms will qualify as "small" businesses, the distribution of financial characteristics in the industry, the relationship of employment force to financial characteristics and other important parameters for measuring the distribution of regulatory costs and impacts. In addition, this data can be used in concert with other analyses on other proposed regulations to

[17] The breakdown is 11% is in small firms', 36% in medium firms', and 53% in large firms' fleets. These values differ from the EDD breakdowns above because the small fleet definition includes not only a limit on total horsepower, but also on total annual revenues based on the definition of "small construction businesses" in the state code. In comparison the ARB Staff estimate appears to be 2.6% for small, 4.6% for medium and 92.7% for large based on the tables in its Technical Supplement.

determine the cumulative impacts of recently enacted and proposed regulations on the industry.

The Analytic Steps for Estimating Compliance Costs

The objective research question is: What is the net present value of the fiscal costs to the construction industry from complying with ARB's proposed in-use off-road diesel vehicle rule? We estimated compliance costs by constructing an Excel spreadsheet model and then simulating several scenarios determined by values chosen for input parameters.

Construction Industry Cost Model Composition

The CICM relies on the same underlying data used by the ARB Staff in its analysis. However, the CICM analyzes the statewide fleet as a whole, rather than looking at individual fleets and then aggregating up as the Staff did. In this way, the CICM is able to determine accurately the incremental statewide changes in the fleet. Rather than trying to trace through every transaction by individual firms, the CICM assesses the difference between the "first" and "last" transactions in the compliance sequence triggered by the regulation. This difference represents the incremental equipment additions that must occur to decrease the number of Tier 0 and 1 vehicles and replace them with Tier 2, 3 and 4 ones. We do *not* assume that all turnover actions require purchase of a new piece of equipment—we simply ignore used market transactions because the net effect has little or no impact on statewide costs.

The CICM begins with the statewide emission inventory database and culls it down to construction equipment (which represents over 90% of the affected fleet). We added the new vehicle prices and retrofit costs developed by the Staff. In addition, we acquired the Staff's Access database model for its sample of fleets. This latter model was used by the Staff to simulate potential compliance strategies for specific fleets and then extrapolated to the statewide fleet.

We were able to extract the net statewide accelerated turnover rates and retrofit rates from this model. These are shown in Table 1 below. For 2010 to 2012, the net turnover rate is accelerated by 3.4% for a 50% increase over the underlying turnover rate of 6.7%. The rate decreases slightly to 3.0% for 2013 to 2020, and further to 2.0% for 2021 to 2030. **This net turnover rate represents new equipment additions to the statewide fleet.** The retrofit rate is highest in the first year, and within 3 years, almost half of the statewide fleet is presumed to be retrofitted.

The average replacement cost per horsepower was calculated as a weighted average of the portion of the fleet that was retired under normal conditions in a particular year. This was used as the basis as being conservatively representative of the vintage of equipment that would be retired under the proposed regulation.

Table 1
Fleet Changes from ARB Staff Analysis

Year	Net Turnover	Retrofit
2010	1.7%	16.5%
2011	2.2%	12.7%
2012	2.5%	12.0%
2013	2.8%	1.5%
2014	3.0%	3.0%
2015	2.8%	1.3%
2016	3.0%	1.1%
2017	2.9%	0.6%
2018	2.9%	0.5%
2019	2.9%	0.4%
2020	2.8%	0.4%
2021	2.8%	2.6%
2022	2.8%	5.1%
2023	2.8%	5.9%
2024	2.8%	0.8%
2025	2.7%	0.0%
2026	2.7%	0.0%
2027	2.7%	0.0%
2028	2.6%	0.0%
2029	2.5%	0.0%
2030	2.4%	0.0%

Problems with the ARB Staff Report Methodology

An important issue not discussed adequately in the ARB Staff Report or its Technical Supplement is how the model extrapolates from the individual 22 fleets up to the statewide fleet. At least two salient issues are unanswered:

- The Staff assumes that fleets will continue to buy equipment in the same proportion of new and used as they have in the past. However, to meet the higher emission targets, more *new* equipment of Tier 3 and Tier 4 levels will have to be introduced into the statewide fleet. To achieve this means that individual fleets will have to buy a higher proportion of new equipment than in the past. The Staff Report fails to discuss how this rebalancing of purchasing practices has been accomplished.
- The sample fleets composition appears to be weighted toward being older, with a higher proportion of Tier 0 equipment, than the emission inventory shows. The fleet sample has 49% of the vehicles in Tier 0 for 2008, while the emission inventory shows 39%--a difference of one-quarter more older vehicles in the sample fleet.[18] Because the samples were not weighted for their relative shares of the statewide fleet, this introduces a significant bias toward overestimating the age of the fleets, and thus underestimating potential costs statewide since premature

[18] Note that this higher proportion of Tier 0 vehicles is more consistent with the slower turnover rate derived using equipment sales data discussed below.

retirement is less costly for a Tier 0 vehicle than a Tier 2. As it is, the Staff is using an older fleet to compute the cost per horsepower, and then applying that value to a newer fleet estimate with a higher turnover rate. We have not corrected for this bias because it would require major reworking of the Staff's database model.

Estimating Compliance Costs

Several cost categories are relevant. Not all of these components are directly represented in the model, but are captured implicitly:

- Additional purchase cost of new equipment with emissions controls
    - Capital cost incurred earlier
    - Capital is more expensive with emissions controls
    - Depreciation period starts sooner, thereby accelerating purchase of the second set of new vehicles
- Accelerated repowering with retrofitting
- Additional retrofitting on equipment not repowered or replaced
- Additional O&M costs of the equipment
    - Maintenance of VDECS or other emissions controls
    - Reduced fuel efficiency associated with VDECS
    - VDECS failures and replacements
    - ARB rule compliance reporting

It was not analytically tractable to address all of these cost categories explicitly due to complexity, data and time limitations, and/or uncertainties that render quantitative findings unreliable.

The CICM reflects the costs of complying by replacement, repowering and/or retrofitting. The replacement costs are computed as the difference between (1) replacing a machine over three replacement cycles without the regulation and (2) shifting the three replacement cycles forward by the expected remaining life that the machine would have had if it was not retired prematurely due to the regulation. Thus, replacing older machines is less expensive than replacing newer ones.

An important difference with the ARB Staff model reflects that use of a statewide perspective instead of individual fleets. The ARB Staff assumes that an individual fleet owner can recoup some of the replacement costs by selling the older piece of equipment. However, this logic does not hold when applying to the statewide fleet. The accelerated purchase of a new machine leads to a chain of transactions that net to the purchase of a new piece equipment. For example, the sequence would occur as follows for one such regulation-induced purchase:

- Firm A buys a new Tier 3 scraper for $1 million to comply and sells it older Tier 2 scraper for $500,000.

- Firm B buys Firm A's Tier 2 scraper to comply and sells its Tier 1 for $250,000.
- Firm C buys Firm B's Tier 1 scraper to comply and sells its Tier 0 for $50,000.
- Finally, Firm D buys Firm C's Tier 0 scraper and retires its older Tier 0 for a nominal salvage value.

Tracing through this sequence we see the total net cost across all of the fleets is $1,000,000 minus a nominal salvage value. Thus, the replacement cost from a statewide perspective is essentially the full cost of a new machine. This highlights the need to do this analysis not from the perspective of a single firm, as the Staff has done, but rather by tracing the transactions involving a single vehicle. Only this way can it be determined when a vehicle actually leaves the fleet.

Repowering costs vary by whether the new engine will meet the Tier 2 or 3 standard versus Tier 4. The ARB Staff and Justice and Associates have arrived at roughly similar estimates and differences. However, the estimate of what might be repowered differs substantially. The ARB Staff apparently presumes that all equipment larger than 250 HP can be repowered based on the single template model it provided to CIAQC and its Technical Supplement; however Justice and Associates and CIAQC members have documented a much restricted list of equipment that can be repowered—we used 25% as being able to be repowered as representative.[19] For the ARB Staff base case presented here, the analysis used 100% repowering as the representative option, although a much smaller proportion was actually repowered. If the net replacement cost is less than that for repowering due to the advanced vintage of the equipment cohort, then the replacement cost is used.

How the life of the equipment is affected by repowering has not been addressed, and that aspect is ignored in both the Staff analysis and the CICM. Nevertheless, any adjustment would lead to increased costs since repowering is presumed to extend life the same amount as replacement in both analyses.

The repowering and replacement options are merged to estimate the turnover costs. A weighted average of the least cost option is computed for each piece of equipment and each year of vintage. Repowering is less costly than replacement for most of a machine's life until the point that the replacement cycle costs fall below repowering. The turnover cost equals a weighted average of the minimum cost between repowering and replacement for percentage that can be repowered and the cost of replacement for the remainder. y

Substantial uncertainty exists over retrofit costs and how those may change over time. This analysis uses $84 per horsepower for the ARB Staff base case using the Level 3 controls for 175 to 400 HP engines. However, recent installations have cost closer to $100 per HP. Even so, the total cost estimates are relatively insensitive to changes in the

[19] Declaration of Michael Buckantz, Justice and Associates, July 25, 2007. (See Associated General Contractors of America Comments to CARB dated July 25, 2007.)

retrofit costs because so many vehicles must turnover to comply with the regulations, thus obviating the need for retrofits.

The analysis uses an increase in operating and maintenance costs of $21 per HP net present value based on the amount report in the ARB Staff's April 4, 2007 report (p. 41).

The total net present value cost of the current regulatory proposal using the ARB Staff assumptions is $3.89 billion over the 2009 to 2030 period, compared to the $3.0 to $3.4 billion for 2009 to 2030 reported in the Staff's report. This amounts to $171 per hp for existing equipment. The annual cost over the 2009 to 2020 period is $396 million for 2010 to 2020 and $411 million for 2010 to 2030.

Modeling Parameter and Data Uncertainties

Several key modeling assumptions and input data require further vetting to increase confidence in modeling results. Using local[20] sensitivity analysis, we may identify several variables with significant influence on results, including:

- Fleet growth rate due to industry growth. We use ARB Staff's suggested growth rate of 1.95% per year, but a deviations from that growth rate could have unknown effects.
- Fleet natural retirement rate. The underlying retirement rate in the Staff analysis is 6.2%.[21] We acquired new equipment sales data in California for 1998 to 2006 from the Equipment Manufacturers Association.[22] The average sales for this period was 8,215 pieces of equipment. However, to achieve both a 6.2% turnover rate and a 1.5% growth rate for that period would have required an increase in sales of 47% or about 3,860 new vehicles. It is obvious that the Staff assumptions are not consistent with actual sales data for the recent historic period.

  Using the state construction industry gross state product and the emission inventory we were able to estimate the actual annual sales growth and equipment retirement rates that match the total equipment inventory used by the Staff. With a sales growth rate of 2.6%, which matches a 1.95% growth rate in the fleet size, the equipment turnover rate is 3.7% with total sales of 10,114 vehicles in 2010. This turnover rate is 40% lower than that used by the Staff.
- New equipment prices. The ARB Staff estimated resale prices from two auction house websites. However, a comparison of the ARB's new machine prices was made with three new equipment price lists compiled by CIAQC members.[23] The

[20] Changing one parameter value while holding all others constant.

[21] Not 5% as reported in its April *Technical Support Document*, p. 177.

[22] Declaration of Michael Lewis, Construction Industry Air Quality Coalition, July 25, 2007. (See Associated General Contractors of America Comments to CARB dated July 25, 2007.)

[23] Declaration of Michael Lewis, Construction Industry Air Quality Coalition, July 25, 2007. (See Associated General Contractors of America Comments to CARB dated July 25, 2007.)

firms' reported prices averaged 67% to 78% higher than the ARB Staff estimates. Scenarios were run with new machine prices 67% higher than the Staff estimates.

- The proportion of the existing fleet that can be repowered. As discussed above, only a portion of the fleet can be converted. Based on an optimistic assessment, scenarios included an assumption that 25% of the fleet could be repowered. Existing data indicate that the actual rate may be substantially lower.
- The discount rate is always an influential parameter, especially when costs or benefits occur far in the future. We used a discount rate of 7% consistent with the Staff analysis. However, the Staff has not documented whether that rate is nominal or real. If it is nominal, then the real rate should be 4.5% and the projected costs would rise commensurately.[24]

Figure 7 compares the cost impacts for changing key assumptions in CICM. The first scenario shows the results using the ARB Staff's assumptions. The second corrects the new equipment price to reflect actual dealer quotes rather than relying on the used vehicle market as a surrogate measure and reduces the proportion of equipment larger than 250 hp that might be repowered to 25%. This increases costs by $3.5 billion or 91%. The third corrects the underlying turnover rate, reducing it from 6.2% to 3.7%. This increases costs by $2.6 billion or 66%. The final scenario combines these factors to present a corrected overall cost estimate of $12.9 billion. This is 232% higher than the analysis using the ARB Staff assumptions.

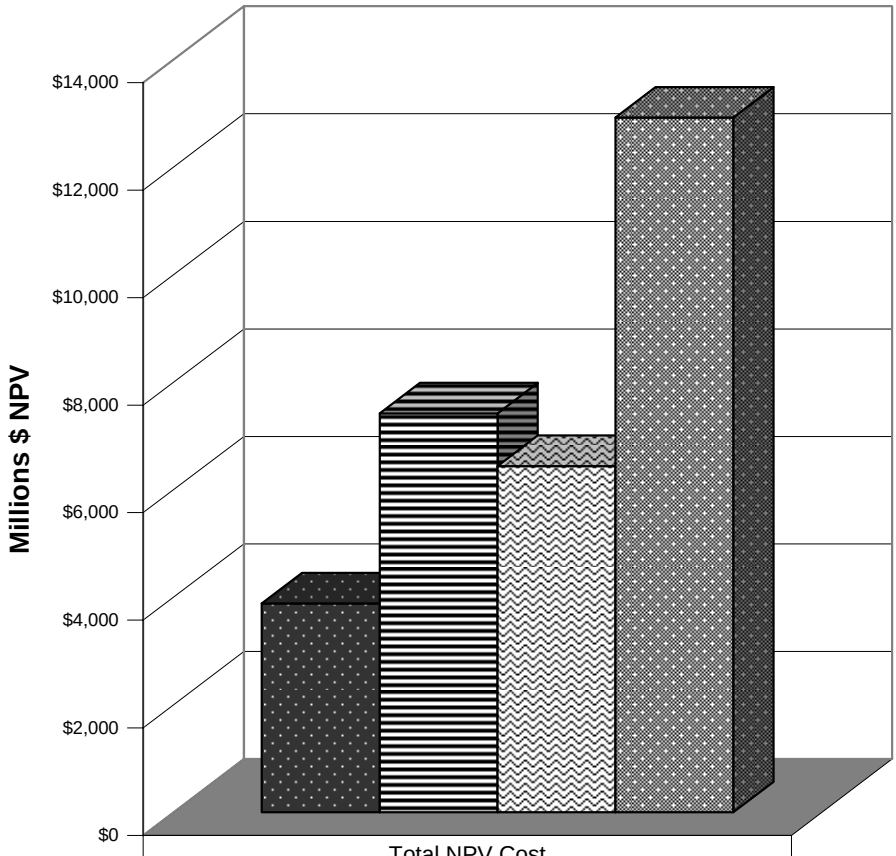
As demonstrated here, the differences in the cost estimates can be boiled down to two sets of parameters. The first is source and cost of replacement vehicles. The Staff's analysis shows a substantial increase in Tier 3 and 4 equipment in the future, but does not account for how this many vehicles can come from the used market when they have not even been yet introduced. The only logical assumption can be that these will be new equipment. Given that, the Staff's price estimates are inconsistent with dealer quotes supplied to CIAQC. The second is the rate at which equipment normally is retired. The Staff's estimate requires that the new equipment market be 50% larger than what historic sales data indicates. Correcting these two unsubstantiated assumptions more than triples the estimated costs to the construction industry from the proposed regulation.

[24] Equals 7% nominal rate used by the ARB Staff minus a 2.5% inflation rate derived from the embedded forecast in 20 year U.S. Treasury bond yield rates. We cannot determine from the ARB Staff Report as to whether the underlying cost assumptions were properly escalated for inflation over the study period.

Figure 7

Comparison of Cost Scenarios NPV 2010-2030

Millions $



	Total NPV Cost
Base Case w/ARB Staff Assumptions	$3,887
Higher New Equip. Price - 67%	$7,424
Lower Turnover Rate - 3.7%	$6,443
CIAQC Case	$12,926

Construction Firms Will Be Unlikely to Pass through Substantial Added Costs to Customers Based on State and US EPA Models

Of particular note is how the industry must handle the costs of the increased regulation. If all firms were identical and demand was perfectly inelastic (i.e., customers would not reduce their construction expenditures and could not turn to other competitors), then all regulatory costs could be passed through to customers, and a firm owner and their employees would not have to bear any of the direct regulatory costs. On the other hand, if the demand is highly elastic (i.e., customers are very sensitive to increased costs and will either reduce expenditures or will turn to other competitors), then a firm cannot pass through most of the additional costs, and must instead bear those directly through reduced profits and jobs. This is particularly the case if the industry is heterogeneous (i.e., the firms have widely varying characteristics). The data presented here demonstrates the wide dispersion of firm characteristics in the construction industry. Firm size is widely distributed and the proportion of vehicles in different sized fleets likely are distributed even more so.

We can assess whether the construction industry can pass through additional regulatory costs based on currently available elasticity estimates. The elasticity of demand for housing describes how demand for housing will fall given an increase in the price of housing. The elasticity of supply describes how firms will increase output capacity in response to price increases. These elasticity estimates can provide an indirect measure of how increased construction costs will decrease demand. We can then apply "tax" incidence analysis to determine the shares of the increased regulatory costs that are borne by consumers and suppliers.[25]

Different estimates of the these elasticities are available in the literature. One set of estimates was developed as part of the basis for the Dynamic Revenue Analysis Model (DRAM) used by the Department of Finance to estimate how fiscal changes affect projected state revenues.[26] The estimated housing demand elasticity was -1.8 (i.e., a one percent increase in price will lead to a 1.8% decrease in demand). This is considered by economists to be highly elastic or responsive demand. It strongly implies that construction firms can not pass on a significant proportion of increase costs in the housing marketing. The import supply elasticity, which mirrors that for the domestic industry, was 1.5. Based on these estimates, construction firms would bear 54 percent of the added costs. The US EPA provided estimates in its Regulatory Impact Analysis for its off-road regulations in 2003.[27] The housing demand and supply were less elastic at

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[25] Economists consider increased regulatory-induced costs as a form of an indirect tax. This method distributes the cost burden between consumers and suppliers. (Walter Nicholson, Microeconomic Theory: Basic Principles and Extensions, Fourth ed. (Chicago, Illinois: The Dryden Press, 1989), p. 418-419).

[26] Peter Berck, Peter Hess, and Bruce Smith, "Estimation of Household Demand for Goods and Services in California's Dynamic Revenue Analysis Model," (Department of Agricultural and Resource Economics, University of California at Berkeley, and California Department of Finance, 1997).

[27] The US EPA has considered cost incidence in its regulatory development, e.g., the RIA prepared in 2003 on off-road engines regulations (see http://nsdi.epa.gov/otaq/cleaner-nonroad/, Chapter 10).

-0.96 for demand and 1.0 for supply. In this case, construction firms bear 49 percent of the regulatory costs. In either case, construction firms are likely to have absorb a substantial portion of those costs through reduced profits and/or reduced employment.

Relying on ARB Compliance Costs, Job Impacts Will Be Substantial

The ARB Staff has reported that it projects compliance costs to range from $3.0 to $3.4 billion annually.[28] This can be translated into expected job losses based on the industry's job multiplier of 21.5 jobs per million in revenue. In this case, we have run two scenarios to look at the range of outcomes based on the ability of the industry to pass through some portion of costs to consumer. Even so, being able to pass through higher costs may mean fewer job losses within the construction industry, but to higher statewide losses in other industries.

Based on the ARB Staff's estimates, the projected statewide employment loss is 2,500 to 5,500 jobs. The Staff also reported a preliminary economic impact of $700 million. Based on the BEA job multipliers, which are standard parameters used through the nation, this would translate to 15,050 jobs lost.

Using a range from the higher cost estimates shown in Figure 7 based on reasonable and conservative adjustments to the ARB Staff's assumptions, the losses range from 4,300 to 29,400 jobs. This is equivalent to 0.5% to 3.5% of the state's construction employment. Of particular note is that these costs will be borne largely by the narrower sector that relies on heavy equipment, which is perhaps 30% of statewide construction activity.

Regulation Would Increase Costs for the State's Recently Enacted Highway, Traffic Reduction, Air Quality and other Public Sector Infrastructure Programs

Last November Californians passed several ballot initiatives that will heavily rely on the state's construction industry to implement, including the following:

- Proposition 1B authorized $19.9 billion be spent on a variety of transportation projects intended to reduce congestion, lower polluting air emissions, and improve transit safety. These funds will be invested in ongoing maintenance and rehabilitation of existing facilities as well as in new infrastructure.
- Proposition 1C authorized $2.85 billion to build affordable housing, with two-thirds of the funds dedicated to new construction.
- Proposition 1D authorized $7.3 billion to construct and modernize primary and higher education facilities.
- Proposition 1E authorized $4.1 billion to rehabilitate the state's existing levee system.

[28] ARB Staff, April 4, 2007, p. 39.

- Proposition 84 authorized $5.4 billion for a variety of water quality, safety, supply, and flood control projects, though only a portion of these funds will be dedicated to infrastructure investments.

Taken together these bonds represent up to $40 billion of construction industry purchases.

Construction equipment price hikes caused by the regulation, as well as the resulting consolidation of the construction industry, would serve to raise the overall costs of public infrastructure projects, thereby lowering the amount of these goods that can be purchased. That is, the regulation would directly result in fewer highways and schools being built, less affordable housing being constructed, and fewer repairs to the state's levee system.

If the bond spending is spread over the 2009-2020 period, construction spending will increase about 4%. The estimated added regulatory costs over that period is $9.7 billion. Assuming the bonds incur an equal proportion of these costs, $400 million of the bonds will be spent on compliance costs, reducing the effective spending for the bonds by 1%.

POLICY ANALYSIS FOR THE PUBLIC AND PRIVATE SECTORS
M.CUBED

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Partner

Dr. Richard McCann specializes in environmental and energy resource economics and policy. He has completed numerous project benefit assessments and impact analyses. He also has testified before the Federal Energy Regulatory Commission, California Public Utilities Commission, California Energy Commission, Air Resources Board, State Water Resources Control Board, and other regulatory agencies.

PROFESSIONAL EXPERIENCE

Dr. McCann has analyzed many different aspects of energy and transportation industry issues for the CEC, petroleum and automotive manufacturing companies and agricultural energy users. He has evaluated California's plan to reduce its petroleum dependence, the costs of replacing the state's diesel truck fleet with alternative fuels, the cost-effectiveness of proposed SCAQMD regulations for diesel-truck fleets and SJVUAPCD regulations for agricultural engines. He also developed the proposal to convert agricultural engines to electricity adopted by the CPUC. He conducted a large-scale study on the costs of meeting greenhouse gas reduction targets for California, and proposed alternative policy approaches for addressing global climate change issues. He has worked with the CEC to estimate the costs for new alternative generating technologies. He coauthored a guide for the CalEPA in evaluating environmental impacts, and provided input on CalEPA's cost-effectiveness guidelines. For the CARB, he assessed the economic costs and impacts of its Statewide Implementation Plan. He assessed the impact of natural gas demand created by SCAQMD Clean Fuels Rule in Southern California on transport and storage capability to determine need for new pipeline, as well as the stationary fuel use in the region.

REPRESENTATIVE CLIENTS

California Public Utilities Commission, California Energy Commission, California Air Resources Board, California Environmental Protection Agency, Metropolitan Water District, San Diego County Water Agency, Agricultural Energy Consumers Association, Southern California Gas Company, Cadiz Land Company, Inc., Western States Petroleum Association, Diesel Technology Forum, USA Waste, Inc., Reason Public Policy Institute, Environmental Defense Fund, California Trucking Association, Western Manufactured Housing Communities Association, Golden State Power Cooperative.

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- Doctor of Philosophy, Agricultural and Resource Economics, University of California, Berkeley, 1998.
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- Masters of Public Policy, Institute of Public Policy Studies, the University of Michigan, Ann Arbor, 1986.
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- Partner, M.Cubed, 1993 – Present.
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