

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 its 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.