Engine Manufacturers Association
www.enginemanufacturers.org

Two North LaSalle Street
Suite 2200
Chicago, Illinois 60602
Tel: 312/827-8700
Fax: 312/827-8737

VIA EMAIL

December 14, 2004

Mr. Mark Prettyman
Environmental Scientist
Delaware DNREC-AQM
Dover, Delaware

RE: DRAFT 3, REGULATION NO. 44: CONTROL OF STATIONARY GENERATOR EMISISONS

Dear Mr. Prettyman:

The Engine Manufacturers Association (EMA) has reviewed Draft 3 of Proposed Regulation 44 and believes that it is much improved. The proposed emissions standards and other requirements will provide stringent and appropriate control of emissions from stationary generators that will help assure continued improvements in Delaware's air quality. At the same time, the Distributed Generator emissions standards proposed in Draft 3 are technically and economically feasible and provide for increasingly stringent standards in line with manufacturers expected improvements in technology.

Moreover, Draft 3's approach to emissions standards and certification requirements will allow the continued development and expansion of small-scale electrical generation and highly efficient Combined Heat and Power (CHP) in the state. The streamlined approval process for Distributed Generators that meet the proposed emissions standards provides a cost-effective regulatory process that will encourage additional investment in such facilities as well as improvements in electrical reliability and capacity. It also provides business and industry a viable economic choice in electrical generation options while protecting Delaware's environment.

EMA generally supports these latest changes to Proposed Regulation 44 and has the following specific comments for your consideration.

1. The intent of the statement regarding microturbines in the definition of *New Emergency Generator* is not clear.

EMA supports the proposed requirement that all new emergency generators meet the U.S. EPA nonroad emissions standards. However, the proposed regulation includes the statement that: *Any microturbine may be installed as a new emergency generator.* The meaning of this statement is not clear.

First, the regulation-specific definition of generator only includes internal combustion engines, and therefore, the standards do not appear to apply to turbines or microturbines. It appears that the reference to microturbines may be included here to indicate that microturbines can be used as emergency generators. If this is the Department's intent, it would be preferable to include microturbines within the definition of generators. By doing so, the emissions limits and other requirements of Regulation 44 would also appropriately apply to microturbines.

However, as currently written, it appears that the Department is indicating that microturbines can be used for emergency generators, and that they are exempt from having to meet any emissions standards. This is implied by the use of the term "*any*." If that is the intent, EMA must object. No technology used to generate emergency power should be exempt from emissions standards or requirements. Microturbines used in emergency generation, or in fact distributed generation, should be required to meet technologically appropriate emissions standards and program requirements similar to standards applied to engines or other generating technologies.

2. EMA supports the revised emissions standards applicable to new Distributed Generators as proposed in Table 3.2.2.1.

EMA believes that the emissions standards applicable to new Distributed Generators proposed in Table 3.2.2.1 are technically and economically feasible and are sufficiently stringent to protect air quality in the state. As we commented previously, the emissions standards proposed in Draft 2 would have required aftertreatment on even clean-burning natural gas engines. The previously proposed standards also would have prohibited the use of new diesel-fueled engines in the state since it is unlikely that diesel engines, even if equipped with aftertreatment, could have complied with those standards.

The NOx, PM, CO, and CO_2 emissions standards contained in Draft 3 and effective in 2005 can be met by advanced, lean-burn natural gas engines without aftertreatment and also by rich-burn natural gas engines and diesel-fueled engines with the addition of NOx aftertreatment. The nonmethane hydrocarbon standard may require the addition of an oxidizing catalyst. In addition, the standards proposed for 2008 and 2012 require emissions reductions in line with industry research and technology development goals that will reduce emissions and improve efficiency in an economically feasible manner.

The revised emissions standards also are in alignment or lower than recently proposed emissions standards for Distributed Generators in the neighboring states of Pennsylvania and New Jersey. For example, Pennsylvania recently adopted NOx emissions standards for large stationary engines in non-attainment areas. Pennsylvania Chapters 129 and 145 establish allowable NOx emissions levels for large gaseous-fueled, spark-ignited engines of 3.0 g/bhp-hr (9 lbs/MW-hr) and 2.3 g/bhp-hr (7 lbs/MW-hr) for diesel-fueled engines. In addition, under a recently proposed general permit standard for diesel-fueled engines that do not need a permit, NOx emissions from such engines would have to achieve an 80% reduction if the engines exceeded a certain amount of operating hours per year. If those hours are not exceeded, engines could emit 6.9 g/bhp-hr (21 lbs/MW-hr) throughout the state. Also under a currenttly proposed

regulation in the adjacent State of New Jersey, NOx standards for reciprocating engines would be established at 0.7 g/bhp-hr (2.2 lbs/MW-hr, Proposed Regulation NJAC 7:27-19.8).

Considering that two of Delaware's neighboring states which have similar air quality attainment issues are establishing NOx emissions levels above Delaware's original proposal of 0.6 lbs/MW-hr and more in line with the proposed emissions levels identified in Draft 3, the proposed Draft 3 standards provide appropriate controls of such engines in the state and are clearly preferable to the previously proposed standards.

3.0 The NOx emission standard for waste-gas fueled engines is too stringent and needs to be established at a level appropriate for the available technology.

Section 3.2.2.4 establishes a NOx emission limit of 1.5 lbs/MW-hr for distributed generators that use waste gases. The use of waste gases to generate electricity should be promoted as a means to reduce emissions from sources that would ordinarily be vented to the ambient air or flared. It also provides a needed alternative source of energy. The generation of electricity from waste gases has an overall positive effect on the environment.

Waste gas streams, however, do not provide the high quality fuel and consistent composition that are characteristic of pipeline natural gas. Waste gas fuels are highly variable and can include numerous contaminants. As a consequence, many emissions from engines burning waste gas are generally higher than those burning natural gas fuels. Furthermore, aftertreatment devices cannot be used to reduce emissions because of the contaminants present in the exhaust stream.

Specifically with regard to NOx, engine-out NOx emissions from a new engine burning waste gases can be lower than emissions from the same engine burning natural gas. However, the variability of the fuel and combustion conditions make emissions from waste gas-fueled engines less stable and unpredictable. As a result, engine manufacturers generally require greater flexibility in terms of NOx emissions targets. In addition, the engine-out NOx emissions are very dependent on the waste gas fuel and can not be reduced by using aftertreatment equipment because contaminants in the exhaust interfere with the treatment.

Even though some source testing may indicate fairly low NOx levels from engines burning waste gases, it will be problematic for such engines to meet the proposed NOx emission limit of 1.5 lbs/MW-hr in Section 3.2.2.4. The variable quality of the waste gas fuel as well as the fact that fuel qualities prevent the effective use of aftertreatment on such engines creates a situation that requires a less stringent NOx emissions standard. Engine manufacturers need to adjust guaranteed NOx emissions levels to account for the higher emissions variability. Currently, the best guaranteed engine-out emissions levels are around 2 lbs/MW-hr.

EMA recommends that the NOx emissions limit, at a minimum, be set at the same level as other generators in the regulation (2.2 lbs/MW-hr). The NOx emissions credit for using waste gases established in Section 8.1 could then be applied to allow slightly higher emissions levels where needed. Imposing a less stringent emission standard will allow the environmentally preferable practice of using waste gas streams as fuel to continue and the final regulation should

not discourage nor penalize owners of waste gas streams by imposing an overly stringent emission standard.

4.0 The certification requirements of Section 7.1 are more reasonable but changes are still needed to allow manufacturers and suppliers to certify Distributed Generators.

Previous versions of the regulation required that suppliers certify their equipment to meet the emissions standards for a period of 15,000 hours or 3 years of operation. EMA commented previously that no manufacturer would be able to certify or guarantee that their product would remain in compliance for that length of time and that such requirements were well beyond what the US EPA requires for mobile source engines.

Draft 3 proposes that suppliers certify their products for 3,000 hours or five years of operation, whichever is less. The 3,000 hour certification time period is much more reasonable and within the bounds of normal industry practice. However, the standard industry practice for stationary engines and generators is to warrant or guarantee products and emissions for one year. Consequently, while manufacturers would certainly be able to certify emissions for 3,000 hours of operation, the proposed five year time period still goes beyond current industry standards. EMA recommends that the time period for compliance to the standards be set be at one year instead of 5 years.

Conclusion

EMA believes that Draft 3 of the proposed regulation is much improved and provides an appropriate balance between air quality and economic feasibility. The proposed emissions standards for Distributed and Emergency Generators are technically feasible and can be met by today's new low-emissions engine technology. The proposed 2005 standards will also serve to encourage clean-distributed generation in the State. Draft 3 also establishes more stringent future emissions standards that are in line with expected technology improvements. However, EMA recommends additional changes to the proposed rule regarding emissions from waste gas-fueled engines and the certification time period.

Please fell free to contact me if you have any questions, or if EMA can be of additional assistance. We look forward to working with you during the formal rulemaking process.

Sincerely,

Joe Suchecki
Director, Public Affairs