

**Comments from North East Environmental Products, Inc.**

December 2001

Mr. Weston,

I received a note from Tim Maker at BERC that the Model Rule for air emissions from small scale electric generators was out for review.

I have read through the document and have the following comments:

1. Page 6, Definition of Combined heat and power - What is the meaning and purpose of using the word "sequentially" in the definition. I find it confusing.
2. Page 6, Definition of Emergency generators - I have always used 500 hours per year as a common definition of typical emergency generator annual maximum run time.
3. Page 7, Definition of power to heat ratio - What do you mean by mechanical energy? When you say total thermal energy do you mean energy input in the fuel or thermal energy output? Is thermal energy output defined in terms of useful energy or total thermal energy output? A sample calculation would be very helpful here in defining this term. Why come up with a new term like power to heat ratio? CHP efficiency is better known and simple to use. It is defined as:  $CHP\ eff\% = (BTU_e + useful\ BTU_t) / BTU\ input$ . (BTU<sub>e</sub> = BTU electrical, BTU<sub>t</sub> = BTU thermal)
4. Page 7, IV.A - Does the 26 hours of maintenance operation include the weekly generator exercise schedule? If so, why? The exercise schedule is essential (and mandated in many cases) to be sure that the generator will work when it is needed.
5. Page 9, Baseload generator standards - If I am reading this table and Appendix B, Emissions Calculations correctly, it is not possible to meet these standards with a lean burn gas generator, a rich burn + 3-way catalyst generator, a diesel with catalytic converter, a diesel with SCR, a Micro turbine, a small gas turbine, a medium gas turbine or a large gas turbine. That leaves only fuel cells (which aren't commercially viable due to extremely high costs), large gas combined cycle, and ATS simple cycle gas turbines. This effectively eliminated all small scale distributed generation and CHP. The standards seem to be incredibly low compared to the 1998 average power generation actual numbers. The NO<sub>x</sub> is 6.8 times lower than 1998 numbers. The PM-10 is 2.3 times lower. The CO<sub>2</sub> is the same. And the CO is not quantified.

Please see the enclosed table.

If my interpretation of the standards and Appendix B is correct, either the regulations are a non-starter or the distributed generation/CHP industry is dead.

6. Page 10, V.A.2 - Does a manufacturer have to run a generator for 15,000 hours before it can be certified? That is approximately 2 years. Is there an accelerated testing procedure? If not, that will slow to a crawl the availability of small generators.
7. Page 11, VI.B.1 - The basis for the percentages is not clear. Does the 20% thermal energy requirement mean that 20% of the thermal energy put into the system comes out as useful thermal energy? A sample calculation would be very helpful here.
8. Page 11, VI.B.2 - This whole section is very unclear. A sample calculation would be very helpful. Please define average system efficiency.
9. Page 11, VI.B.3 - What is a non-emitting resource?
10. Page 11, VII.A - Please include the on-road diesel specifications in an appendix.
11. Page 12, VII.B - The monitoring and record keeping is too detailed for a small system operator. They are typically businesses whose primary business is not power generation. They are hospitals, laundries, hotels, etc. The monitoring and record keeping should be similar to the monitoring they do on their boilers now, not similar to a major source emitter. A threshold of 1000 kW might be reasonable. Above that level a facility would have a full time staff to handle the record keeping.
12. Page 14, B - The fuel neutral approach doesn't seem to work. Nothing but large power plants and fuel cells would be allowed under this approach. No consideration is given to the fact that biomass combustion is CO<sub>2</sub> neutral. The emissions controls needed to meet these standards for biomass combustion would make all but the largest plants uneconomical. No mention is made of wood gasification but I doubt that this technology could meet the CO standard (wood gasification produces mostly hydrogen and CO that is then burned in an engine).
13. Page 15, last full paragraph - Breaking the standards up into the three levels, emergency, peaking and baseload is not adequate. The standards should be fuel specific and technology specific. Best Available Technology standards would be much better.
14. Page 17, 4th full paragraph - Dual fuel systems should be specifically addressed. Virtually all landfill gas, digester gas and farm methane will have a BTU content that is too low to burn without some supplemental fuel in some engines. The methodology for addressing dual fuels should be included.
15. Page 17, last full paragraph - The rule does pick winners and losers. Big natural gas plants win. Everything else loses. (This is assuming that I am reading your Appendix B correctly.) It is very dangerous to force the power industry into total reliance on large natural gas power plants. The country needs a more diverse, sustainable, and local power supply. The oil embargoes of the 1970's and the instability of the Middle East make that abundantly clear. Forcing all new energy production into natural gas or nuclear is very dangerous.

Please reconsider and revise your draft before issuing it.

Thank you for the opportunity to submit my comments.

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