



American Council for an Energy-Efficient Economy
WASHINGTON, DC

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Jim Linville
Texas Natural Resources Conservation Commission
Office of Permitting, Remediation and Registration
Air Permits Division, MC 162
P.O. Box 13087
Austin, Texas 78711-3087

Dear Mr. Linville:

The American Council for an Energy Efficient Economy (ACEEE) encourages the adoption of energy-efficient technologies and practices in all sectors of the U.S. economy. We offer a unique perspective that blends engineering, business, and environmental expertise. ACEEE holds the position that distributed generation can be beneficial to both the electricity customer and electricity supplier, while reducing overall air emissions.

The efforts made by the TNRCC to improve the air quality in the state of Texas are admirable, however we feel that certain modifications to the permit as written are needed to improve the air quality in the state and increase the market opportunities for distributed generation. We look forward to working with the TNRCC to take leadership in this area. There are four issues that need additional consideration for the development of this standard:

1. Emission limits
2. Transmission benefits
3. Emergency backup
4. Attainment vs. non-attainment areas

The issues laid forth in the following paragraphs should not be considered only as individual suggestions, but as a whole.

Emission Limits

The permit, as currently drafted allows qualifying units to emit no more than 0.23 lb /MWh of NO_x prior to January 1, 2003, 0.13 lb/Mwh from January 1, 2003 until Dec 31, 2004, and 0.08 lb/MWh after January 1, 2005. The TNRCC has established these limits to encourage distributed generation technologies to meet the same emissions levels as large combined cycle gas turbines (CCGTs). While the urge to drastically reduce air emissions in Texas, especially in some of the non-attainment areas in Dallas and Houston is understandable, we feel that comparing distributed generation technologies to baseload generating technologies such as CCGTs is inappropriate. Currently, the only existing distributed generation technologies that meet the requirements of the draft permit are fuel cells. Very few fuel cell technologies are fully commercialized, and due to their high cost (approximately \$1,500 - \$3,000 per KW), fuel cells are most appropriate in applications and industries that require constant, steady loads.

We propose that the TNRCC consider using state-of-the-art peaking units as the comparison technology

for distributed generation systems. Peak shaving is the current primary application of distributed generation technologies, and should be the basis for comparison rather than baseload CCGT systems. On-site generators run their units periodically during periods of high electric system demand to reduce their peak costs, avoid reliability and power quality problems, and to generate peak electricity to sell back to the grid. In attainment areas, the operation of load shaving units can help improve the overall reliability of the grid during peak times. Advanced simple cycle gas turbines can achieve NO_x emission rates of 0.32 lb/MWh, and are considered the most advanced technology for electricity peak shaving. Even lower rates can be achieved if these units are operated in combined heat and power mode.

We support the TNRCC's efforts to encourage the adoption of combined heat and power systems. In many industrial applications, especially in the chemical industry, process heat is just as valuable as useable electricity. We applaud the TNRCC's decision to credit recovered heat equally with useable electricity.

Transmission Benefits

By comparing distributed generation systems to central baseload combined cycle gas turbine systems, the draft permit does not consider the transmission benefits inherent to distributed generation technologies. On-site generation has negligible transmission losses compared to grid-supplied electricity. These transmission losses can be significant, and effectively reduce the overall efficiency of a centrally located power plant. This in effect, puts on-site generators at a disadvantage compared to utility CCGT plants. We propose that the TNRCC develop a system for providing small generators with credit for avoiding transmission losses. According to the U.S. Energy Information Administration, transmission and distribution losses are estimated as 9% of gross generation of electricity. We therefore recommend that emission rates for on-site generation be at least 9% higher than the emission rates of state-of-the-art central combined cycle gas generators.

Emergency Backup

Small generators that are used solely for emergency backup generation are excluded from this rule. Most industrial facilities as well as many commercial and institutional buildings rely on backup generators to maintain their operations during grid power outages. The least expensive option, and consequently most common, for supplying backup power is the uncontrolled diesel engine. This type of engine emits more than 200 times more NO_x per MWh of power output than a large combined cycle gas turbine, the comparison technology used for the establishment of standards in this draft permit. A diesel engine with a selective catalytic system emits still almost 100 times more NO_x per MWh.

The Texas Administrative Code (TAC) Rule 106.511, as written, allows for operation of emergency backup generators up to 10% of the time. This generally sets an operating limit for backup generation at 876 hours per year (full operation is generally 8760 hours per year). If a peak shaving unit, commonly a small gas turbine with a power output of 10 MW, operates for 876 hours per year, it would emit approximately 9,000 lbs of NO_x. An uncontrolled diesel generator operated for 876 hours per year could have a power output of only 800 kW to stay within the same emission limits. To put this example in other terms, a 10 MW uncontrolled diesel generator would emit approximately 110,000 lbs of NO_x over an 876 hour period.

We are not implying that emergency backup generators are used primarily for peak shaving purposes, but we are concerned that the term "emergency backup" may be taken liberally. For many industries, an emergency situation may arise even with small electricity interruptions or voltage quality fluctuations. TAC Rule 106.511 does not quantify what exactly constitutes an "emergency". For industries that have high power quality and reliability requirements, an "emergency" may occur several times a day,

frequently during periods of peak demand, if they must operate their backup generators to maintain their operations.

We are concerned that this rule may have the perverse effect of discouraging new distributed generation which could contribute to the solution of local power and overall air quality problems while encouraging addition “emergency” generation. If current emergency generation regulations continue, new capacity that is installed for “emergency” purposes can experience “mission creep” to begin address load management which will compromise local air quality and provide no efficiency benefits. We feel that what is needed is more stringent regulation of emergency generation, and more favorable on-site generation permitting, which could encourage many user with high reliability requirements to choose this more efficient and environmentally friendly option. We propose that TAC Rule106.511 be modified to tighten the regulations on emergency backup generators, while the regulations on on-site generation set forth in this rule be loosened.

Attainment vs. Non-Attainment Areas

We propose that the permit set different standards for attainment and non-attainment areas. As currently drafted, the rule does not differentiate between these two areas. We feel that maintaining strict limits on emissions in non-attainment areas such as downtown Dallas and Houston should remain a priority for the TNRCC, however we believe that a more relaxed standard should be put in place in areas of attainment. A more relaxed standard in attainment areas would encourage utilization of distributed generation in the already taxed Texas power grid.

We hope that these comments will help the TNRCC develop an improved standard permitting process for on-site generators while improving the overall air quality in Texas. We look forward to working with the TNRCC in the future.

Sincerely,

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