

**Electronic Filing - Received, Clerk's Office, March 26, 2008**

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF: )  
 )  
SECTION 27 PROPOSED RULES FOR ) R07-19  
NITROGEN OXIDE (NO<sub>x</sub>) EMISSIONS ) (Rulemaking – Air)  
FROM STATIONARY RECIPROCATING )  
INTERNAL COMBUSTION ENGINES AND )  
TURBINES: AMENDMENTS TO 35 ILL. )  
ADM. CODE PARTS 211 AND 217 )

**NOTICE OF FILING**

TO: Mr. John Therriault Mr. Tim Fox  
Assistant Clerk of the Board Hearing Officer  
Illinois Pollution Control Board Illinois Pollution Control Board  
100 West Randolph Street 100 West Randolph Street  
Suite 11-500 Suite 11-500  
Chicago, Illinois 60601 Chicago, Illinois 60601  
**(VIA ELECTRONIC MAIL)** **(VIA ELECTRONIC MAIL)**

**(SEE PERSONS ON ATTACHED SERVICE LIST)**

PLEASE TAKE NOTICE that I have today filed with the Office of the Clerk of the Illinois Pollution Control Board the **PRE-FILED TESTIMONY OF KEVIN L. WAGNER**, copies of which are herewith served upon you.

Respectfully submitted,

ILLINOIS MUNICIPAL ELECTRIC AGENCY,

By: /s/ N. LaDonna Driver  
N. LaDonna Driver

Dated: March 26, 2008

N. LaDonna Driver  
HODGE DWYER ZEMAN  
3150 Roland Avenue  
Post Office Box 5776  
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THIS FILING SUBMITTED ON RECYCLED PAPER

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**CERTIFICATE OF SERVICE**

I, N. LaDonna Driver, the undersigned, hereby certify that I have served the attached

**PRE-FILED TESTIMONY OF KEVIN L. WAGNER** upon:

Mr. John Therriault  
Assistant Clerk of the Board  
Illinois Pollution Control Board  
100 West Randolph Street  
Suite 11-500  
Chicago, Illinois 60601

via electronic filing and by depositing said documents in the United States Mail, postage

prepaid, in Springfield, Illinois, on March 26, 2008; and upon:

Mr. Tim Fox  
Hearing Officer  
Illinois Pollution Control Board  
100 West Randolph Street  
Suite 11-500  
Chicago, Illinois 60601

Rachel L. Doctors, Esq.  
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via electronic mail on March 26, 2008.

/s/ N. LaDonna Driver

N. LaDonna Driver

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**PRE-FILED TESTIMONY OF KEVIN L. WAGNER**

NOW COMES the Illinois Municipal Electric Agency (“IMEA”), by one of its attorneys, N. LaDonna Driver of HODGE DWYER ZEMAN, and submits the following pre-filed testimony of Kevin L. Wagner for presentation at the April 9, 2008, hearing scheduled in the above-referenced matter:

**Testimony of Kevin L. Wagner**

My name is Kevin L. Wagner. I am employed by IMEA as the Director of Engineering. I am here today to provide information on how the Proposed Rule will affect IMEA and its members.

**Educational Background and Professional Experience**

I graduated from Brigham Young University in 1977 with a Bachelor of Science Degree in Electrical Engineering. Immediately following graduation, I started working for Bechtel Power Corporation (“Bechtel”) in Houston, Texas. At Bechtel, I was an Assistant Engineer, involved in coal-fired power plant design. In 1979, I joined the Missouri Utilities Company (“Missouri Utilities”), located in Cape Girardeau, Missouri. While at Missouri Utilities, I was an Assistant Engineer, supporting various electric utility distribution system projects. I worked at Missouri Utilities until 1983, at which time I accepted employment with Central Illinois Public Service Company (“CIPS”) in Springfield, Illinois. I worked at

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CIPS for 9 ½ years in various engineering positions, including transmission and generation planning, protective relaying and system operations. I was then hired as a Staff Engineer with IMEA, in January of 1993. Shortly thereafter, I became IMEA's Manager of Engineering. In that capacity, I was responsible for the planning, property acquisition and construction oversight of transmission line and diesel generating plant projects for IMEA. My title was changed to Director of Engineering in 2004. I have been a Licensed Professional Engineer in the State of Illinois since 1990.

### **Duties and Responsibilities in Present Position**

As Director of Engineering, I oversee the work of the IMEA's engineering staff, which provides technical support for the planning, implementing and maintaining of IMEA's power supply resources, transmission agreements and member delivery point facilities. These responsibilities include the capacity testing and permitting of IMEA and IMEA member-owned peaking generators (that consist primarily of small diesel units) dedicated to the IMEA's use.

### **IMEA Background**

The Illinois Municipal Electric Agency was created in 1984 and its primary purpose is to provide for the wholesale electric power supply needs of its members, all of which are municipally-operated electric distribution systems within the State of Illinois. These systems are units of local government that own, operate and maintain the electric distribution system that serves their citizens. IMEA is governed by a board of directors, with one director representing each member community. It operates on a not-for-profit basis and employs a full-time professional staff.

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Prior to the creation of the Agency, the municipally-operated electric systems provided for their wholesale power needs primarily in one of two ways. They either purchased wholesale power for resale to their citizens from the investor-owned electric utility in the area in which they were located, or they generated their own electricity from power plants located within the community. The generation in the local power plants was, most generally, driven by large diesel, or dual-fueled natural gas and diesel, reciprocating internal combustion engines.

Economics related to fuel costs in the late 1970s and early 1980s prompted most of the communities operating these local plants to migrate to purchasing power from wholesale providers. The municipal power plants were then reserved generally for backup use in case of an interruption of wholesale power deliveries over the electric transmission system.

As noted earlier, IMEA was created to pool the wholesale power needs of municipal electric systems and to acquire, through ownership or contract, the power these systems need to serve their citizens. IMEA currently has long-term power supply contracts with 30 of the state's municipally-operated electric systems. These systems vary greatly in size. IMEA's members include St. Charles (population 31,000) in suburban DuPage and Kane Counties and Winnetka (population 12,000) in Cook County. However, the majority of the members are of 10,000 population or fewer and are located throughout the state.

To serve its communities, IMEA has assembled a power supply that includes ownership of base load and peaking generation, long-term power supply contracts for capacity and energy and other such arrangements as are needed to fulfill the Agency's responsibilities. The members currently require over 700 MW of generating capacity to serve their combined population of approximately 180,000 citizens.

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Specifically, IMEA owns a portion (12.12%) of Trimble County Unit 1, a base loaded 500 MW coal-fired steam power plant facility located northeast of Louisville, Kentucky. It is operated by the majority owner of the facility, Louisville Gas and Electric Company. IMEA also holds long-term contracts for wholesale electricity with Ameren Energy Marketing, the power marketing arm of Ameren Corporation. IMEA also enters into shorter-term arrangements to meet seasonal requirements and makes purchases on a time to time basis from the power markets that operate in Illinois. In addition to these resources, IMEA owns and operates 10 high speed, remotely-controlled diesel engine generators. Each of these peaking units has a nameplate rating of 1825 kilowatts. These units are located in the IMEA member communities of Highland, Waterloo and Flora and are currently permitted with the respective member's local generation.

To assure the economic and reliable delivery of power supply to its members, IMEA operates a 24-hour a day, seven-day a week operations center within its Springfield headquarters. The operations center monitors each member's power requirements on a real-time basis, forecasts member load and schedules the delivery of the needed power.

Power is normally delivered to the members through the high voltage electric transmission grid and, in most cases, through the lower voltage sub-transmission system of power lines and substations owned and operated by a variety of corporate entities, such as Exelon and Ameren Corporation. The high voltage grid is administered by two Regional Transmission Organizations ("RTOs") known as the Midwest Independent System Operator ("MISO") and the PJM regional transmission organization ("PJM"). Their job is to oversee use of the transmission grid and assure its availability to all who wish to use it on a non-discriminatory basis. Along with their responsibilities for transmission services, MISO and

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PJM both operate power markets in which wholesale power is bought and sold. In Illinois, MISO has a footprint that takes in most of the state south of Interstate 80. PJM's footprint is primarily north of Interstate 80.

### **How the IMEA and IMEA Member-Owned Peaking Generation Units Fit into IMEA's Power Supply**

As I noted earlier, a number of IMEA's members continue to maintain and operate locally-sited stationary reciprocating internal combustion generating units. Two of the members have added small combustion turbine generating units to this mix. As a part of its power supply arrangements, IMEA has entered into contractual agreements with these members for the use of their units as a part of the overall Agency power portfolio. These units can be called on to operate by IMEA's operations staff and they are considered an integral part of the Agency's power supply. The vast majority of these units are permitted under Title V permits.

The member-owned units, along with the IMEA-owned diesels, are used in two ways. First, they are operated for economic reasons. That is, when power purchases through either MISO or PJM are more expensive than the cost to operate the member units, IMEA's operations center will ask for the operation of enough member units to fill the need. This typically occurs during periods of peak summer demand. Such operation provides an important cap during periods of peak demand on power costs for IMEA's members by allowing the group to avoid market power purchases during high cost periods. Since peak usage typically occurs less than 10% of the year, NOx emissions are minimal from operation of these units during periods of peak demand. Even when the member-owned units are not running, having them simply available to operate helps reduce the power supply cost for the

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members who would otherwise be at the mercy of a capacity market that is expected to experience a 6-fold price increase over the next five years.

Secondly, the member units can be used for system reliability and support in the event of a critical transmission or sub-transmission system outage. An example of system support is when one of the transmission system owners or RTOs asks for our member units to operate to help reduce the loading of transmission grid facilities or to keep system voltage at acceptable levels. Unacceptably low voltage can damage customer equipment and lead to a collapse of the power delivery system.

These units are also particularly vital to members who are served radially by a single transmission line or transformer. Such members are subject to a total power outage in their communities as a result of weather-related or other types of damage to the radial facilities. In some circumstances, a weather-related transmission outage can stretch for days or weeks. If a transmission equipment failure involves a single substation transformer that supplies the member, the outage can sometimes extend several months. These lines and transformers must also be taken out of service periodically for routine maintenance. Under such circumstances, the local generation is the only means of providing power to the municipal system's customers. Similarly, members with limited capacity backup transmission lines may be required to run local generation for extended periods to prevent equipment overloads or low voltage during outages that affect their primary transmission feed.

As an example of the vital nature of these units in emergency circumstances, you need look no farther than the experiences of one of our member communities in the last year. This municipality is located on a radial transmission line fed from the Ameren bulk

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transmission system and is one of the IMEA communities that maintains a power generation facility comprised of stationary reciprocating internal combustion generating units.

In calendar year 2007 alone, this member suffered six transmission related outages that required the operation of their power generating units. The most serious occurred on December 11, when an ice event took down a portion of the transmission system serving the city. The municipal system brought on their generation and was forced to operate the units for 48 hours, until ice damage to the transmission lines could be repaired and the lines put back into service.

As recently as March 5, 2008, the same community experienced an outage caused by an industrial accident on the Ameren system. In this case the city was forced to generate from 10:30 AM until 7:00 PM when transmission service was restored.

### **IMEA's Involvement in the Rulemaking Process**

Both economics and reliability are of critical importance to our members. With those issues in mind, IMEA has held a number of meetings with representatives of the Illinois Environmental Protection Agency to discuss the Proposed Rule. As originally proposed, the Rule impacted peaking generation owned by IMEA and IMEA members located throughout the entire state. The scope of the Rule, as currently proposed, has subsequently been modified to affect only those plants located in the nonattainment areas. However, IMEA's general concerns continue to relate to the Proposed Rule's impact on available operation of the affected members' generating units, both because of their peaking use and most particularly because of the members' concerns over their ability to operate for system support or during transmission outages.

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IMEA found the meetings to be productive in that IEPA staff agreed to modifications and clarifications that went a long way toward addressing IMEA's concerns. I will outline our understanding of the Proposed Rule's key provisions for IMEA and its members. The first such provision is Section 217.388(c). This section allows units that would otherwise be subject to the Proposed Rule's emission requirements to be in compliance with the Proposed Rule if they are operated as low usage units.

Low usage units are defined in one of two ways. First, low usage units may take a collective federally enforceable emission limit of 100 tons per year of NOx. Units that qualify for an exemption from the Proposed Rule's requirements and units that are complying with the Proposed Rule's emission requirements are not counted under this emission limit. Second, reciprocating engines may take a federally enforceable limit of 8 million brake horsepower-hours annually in the aggregate and turbines may take a federally enforceable limit of 20,000 Megawatt-hours annually in the aggregate. IMEA understands that this second low usage option allows a site with both reciprocating engines and turbines to operate the reciprocating engines up to the 8 million brake horsepower-hours limit and the turbines up to the 20,000 Megawatt-hours annual limit and still be considered low usage units. This approach provides important flexibility for IMEA's members, which IMEA strongly supports.

IMEA must note that while the low usage provision is an important compliance option, it will, in some cases, impose severe restrictions upon the members' units as currently permitted. Many of the IMEA members' units, particularly the older units, will be forced to operate as low usage units because it is economically not feasible to modify these units to

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comply with the emission requirements of the Proposed Rule, particularly given that these units operate sporadically.

Some of the newer member-owned diesel units are of a high speed design and, according to our understanding of the manufacturer's literature, *may* be capable of operating within the 660 ppmv NO<sub>x</sub> (corrected to 15% dry O<sub>2</sub>) standard of the Proposed Rule. IMEA assumes the compliance strategy under the Proposed Rule will differ for each member with generation. Those members with newer high speed units that may be capable of complying with the proposed emission limits may operate those units under the provisions in Section 217.388(a), along with the accompanying testing and monitoring requirements. The balance of the affected member units that are unlikely to be emission compliant or are not feasible to modify to bring into compliance with the emission limits of Section 217.388(a), will most likely operate under the Proposed Rule's low usage provisions at Section 217.388(c). Members with municipal plants that consist of a combination of emission-compliant and low usage-compliant units may operate the units respectively under Section 217.388(a) and Section 217.388(c).

To understand the full impact of the Proposed Rule, it is important to understand that the average annual plant capacity factor of the nonattainment area IMEA member power plants, as currently permitted, is slightly less than 13%. That is, the units, on average, are permitted to operate at full capacity for about 13% of the total hours in a year or approximately 1130 hours. Permitting at this level was chosen as the best compromise between permitting costs and maintaining available hours of operation. This number of operational hours provides the ability to meet both the peak dispatch requirements and the unanticipated system support or power emergency situations.

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Operating under the most favorable mix of provisions in the Proposed Rule as noted above, the average annual plant capacity factor of the nonattainment area IMEA member power plants would decrease to approximately 11.5%, which equates to the units, on average, being able to run about 1000 hours in a year. If the newer high speed units in our members' fleets prove unable to feasibly meet the emission requirements under the Proposed Rule as noted above, meaning *all* of the affected units would have to operate as low usage units under Section 217.388(c), then the average annual plant capacity factor for this group would decrease to slightly less than 9%, meaning the units, on average, would be able to run about 780 hours in a year. However, for one particular member in this group, the available annual operating hours for its units could drop to as little as 273 if its newer high speed units could not meet the emission requirements under the Proposed Rule. This would equate to an annual capacity factor of only 3%. Without the option of the low usage exemption, another member in the group, which has only older slow speed diesels and likely faces prohibitive costs to replace them or apply control technologies, would bear a particular hardship. It should be noted that both of these members also have very limited backup transmission capacity and must rely heavily on their local generation to maintain service if they lose their primary feed.

An emissions averaging plan offers little compliance relief due to the uniformity in design and operation among most municipal units. Thus, the low usage designation is critical for our members to be able to comply with this Proposed Rule. A low usage designation avoids costly and possibly unfeasible retrofit controls, while assuring proper unit function due to the inspection and maintenance requirements at Section 217.388(d). Further, low usage units must document compliance pursuant to the recordkeeping requirements at

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Section 217.396(d) and submit reports, as necessary, pursuant to Section 217.396(d)(3) and 217.392(c)(3).

Low usage units do not have to follow the Proposed Rule's testing and monitoring requirements. The benefit of this provision to our members is significantly balanced with the substantial reduction in permitted capacity that some members will likely face. IMEA has expressed concern that this cut in capacity may have dire consequences in the rare circumstance that a low usage limit would need to be exceeded in response to an emergency situation. Such an emergency would include interruptions of wholesale power deliveries from the transmission grid due to natural disasters, system maintenance or other events beyond the control of the member, such as noted earlier in the example.

Our concern has been addressed by Section 217.392(c), which provides that any affected unit may, under certain circumstances specified in the Proposed Rule, use NO<sub>x</sub> allowances to meet the compliance requirements in Section 217.388. IMEA understands that this option is available to IMEA's members in the event such member is required to operate in exceedance of its emission limits or its annual low usage limits due to a system emergency, and the NO<sub>x</sub> allowance provision has not been utilized for more than two events in any rolling five-year period. The NO<sub>x</sub> allowance provision may be utilized for low usage units that are under the 100 ton/year NO<sub>x</sub> emission limit, as well as those units utilizing the low usage operating hours limits. For those units using the operating hours low usage limits, the hours exceedance would be converted to a corresponding amount of NO<sub>x</sub> emissions that may then be compensated for in NO<sub>x</sub> allowances.

The NO<sub>x</sub> allowance component is crucial for our members to maintain system reliability. The low usage compliance option would simply not be workable without the

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NOx allowance provision. Our members would not be able to limit their units under the low usage designation without the flexibility to operate as needed in an emergency situation. Further, the NOx allowance option inherently assures that any impact caused by the limit exceedance is addressed by retiring the corresponding amount of emissions from the NOx allowance market.

Note that NOx emissions from member municipalities covered by the Proposed Rule are already minor, due to the fact that generation operates on an as-needed basis. A summary of the average NOx emissions over the last five years, from member municipality units that would be subject to the Proposed Rule, is as follows:

<u>Municipality</u>	<u>Average Annual NOx Emissions (ton/yr)</u> <u>2003-2007</u>
Freeburg	6.32
Highland	17.27
Mascoutah	4.18
Winnetka	5.94
Waterloo	13.42

This is based on actual unit run times and “not to exceed” NOx lb/hr permitted emission rates. Clearly, the IMEA and IMEA member peaking units affected by the Proposed Rule make a negligible contribution to the NOx emissions in the State of Illinois.

The historically low average emissions experienced by our members translate into an unacceptably high cost per ton of NOx removed *if* currently available control technologies are applied in an attempt to bring the older units into compliance with the Proposed Rule’s emission limits. Though IMEA’s actual peaking generator usage may be very low, the critical reliability concerns that directly affect the health and safety of our member

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communities make it essential that we nonetheless maintain the ability to operate, and subsequently emit NOx, for much greater periods of time than we typically demonstrate. Consequently, provisions for low usage and other operating considerations, such as those identified in Section 217.392(c) of the Proposed Rule, which allow the purchase of NOx allowances if unforeseen circumstances occasionally require emission exceedances, are considered by IMEA to be absolutely essential to any Rule under which we could operate.

I appreciate the opportunity to share IMEA's comments on this Proposed Rule. I would be happy to answer questions regarding my testimony.

\* \* \*

IMEA reserves the right to supplement this pre-filed testimony.

Respectfully submitted,

By:  /s/ N. LaDonna Driver  
N. LaDonna Driver

Dated: March 26, 2008

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