

ILLINOIS POLLUTION CONTROL BOARD

June 3, 2004

IN THE MATTER OF:)
)
)
PROPOSED SITE SPECIFIC REGULATION) R04-11
APPLICABLE TO AMEREN ENERGY) (Site-Specific Rulemaking – Noise)
GENERATING COMPANY, ELGIN,)
AMENDING 35 ILL. ADM. CODE PART 901)

Proposed Rule. Second Notice.

OPINION AND ORDER OF THE BOARD (by T.E. Johnson):

On October 28, 2003, Ameren Energy Generating Company (Ameren) filed a rulemaking proposal under Section 28 of the Environmental Protection Act (Act) (415 ILCS 5/28 (2002)), to change regulations governing noise emission limitations found in the Board's rules at 35 Ill. Adm. Code 901. In the petition, Ameren seeks site-specific noise emission limitations with respect to the operation of the Ameren's electric generating facility in Elgin, Cook County. A hearing was held on January 22, 2004, at 100 West Randolph Street, Chicago, Cook County. The hearing was held, in part, on the economic impact of the proposal.

By today's action the Board adopts the proposed rule for second notice pursuant to the Illinois Administrative Procedure Act (5 ILCS 100/1-1). The following opinion will explain the proposal background, summarize the first-notice proposal, and discuss the economic reasonableness and technical feasibility of the rule.

BACKGROUND

Ameren owns a power generating facility in Elgin (EEC) consisting of four simple cycle combustion turbines capable of generating up to 540 MW of electricity. Pet. at 1. The EEC is located at 1559 Gifford Road, Elgin, Cook County. *Id.* The EEC is described as a peaking facility due to its intended design to start up rapidly to generate power when critically needed. The EEC became fully operational in November 2002. *Id.*

Ameren asserts that the Board's noise regulations are not currently applicable because the land uses in the immediate area are primarily Class C – industrial, agricultural, mining and excavation. Pet. at 1. Ameren asserts that the EEC is in compliance with the current applicable noise regulations at 35 Ill. Adm. Code Part 901. *Id.*

The land immediately to the west of the EEC is vacant, and until very recently was located within unincorporated Cook County and zoned Industrial. Pet. at 2. On June 3, 2003, the Village of Bartlett annexed and rezoned this land for residential use at the request of Realen Homes, a residential development corporation (Realen Homes). *Id.* Ameren has concluded that the EEC will not be able to meet the Class A noise limitation at 35 Ill. Adm. Code 901.102, that heretofore were not applicable. *Id.* Accordingly, Ameren is seeking a site-specific rule that

establishes noise emission limitations for the EEC that are applicable to Class A and B receiving lands. *Id.*

PROCEDURAL HISTORY

On October 28, 2003, Ameren filed a petition for a site-specific rulemaking, accompanied by a motion for expedited consideration. On November 6, 2003, the Board opened regulatory docket R04-11 without commenting on the merits of the proposal. The Board also granted the motion for expedited review.

A hearing in this matter was held on January 22, 2004, at 100 West Randolph Street, Chicago, Cook County. Ameren and the Attorney General's Office (AGO) appeared and presented testimony at the hearing. No members of the public attended the hearing. Ameren and the AGO each filed public comments after the hearing. The January 22, 2004 hearing was held, in part, on the requested economic impact study of this rulemaking, in order to fulfill the requirements of Section 27(b) of the Act. 415 ILCS 5/27(b) (2002). Section 27(b) of the Act requires the Board to request the Illinois Department of Commerce and Economic Opportunity (DCEO) to conduct an economic impact study (EcIS) on certain proposed rules prior to adoption of those rules.

On November 19, 2003, Chairman Tom Johnson sent a letter to DCEO requesting a study for this rulemaking. No response to this letter has been received. In a letter dated April 17, 2003, DECO stated that they did not have the funds to perform any EcIS and that no studies will be performed. DCEO offered the April 17, 2003 letter as its formal response to all current and future Board requests for an EcIS. At the hearing, the Board made available copies of its November 19, 2003 letter and DCEO's April 17, 2003 response. The Board received no comments on the letters.

On May 6, 2004, the Board issued an order that granted Ameren's motion for leave to file a response and its motion to supplement the record. The Board also granted the AGO leave until May 14, 2004 to submit any additional information regarding the response and supplementation of the record. On May 19, 2004, the AGO filed a motion for leave to file *instanter* additional comments by its witness and employee Howard Chin.

As previously stated, the Board did not make any findings in its November 6, 2003 first-notice opinion and order. Today's order will summarize the testimony offered by the parties at hearing, and address the merits of Ameren's proposal.

PRELIMINARY MATTERS

On May 19, 2004, the AGO filed additional comments accompanied by a motion for leave to file *instanter*. In the motion, the AGO asserts that it was unable to see the May 6, 2004 Board order until six days after the order was issued, and that in order to file a complete and thoughtful response to the post-hearing comments, additional time was necessary. Mot. at 2.

Any response to this motion is due within 14 days after service of the motion, but the Board may grant the motion before the expiration of the 14-day response period if undue delay or material prejudice may result. See 35 Ill. Adm. Code 101.500. To date, Ameren has not filed a response to the motion. However, in light of the previously granted motion to expedite proceedings in this case, the Board finds that waiting the entire 14-day response period will result in undue delay and will address the motion now.

As recognized in the May 6, 2004 Board order in this matter, the Board is generally more liberal in adding to the record in a regulatory context than in an adjudicatory context. In order to fully develop the record in this matter, the motion for leave to file *instanter* is granted and the additional comments of the AGO are accepted.

Along with its March 11, 2004 public comment, Ameren filed a motion to correct prefilled testimony and the transcript, and a motion to clarify the answer. The Board has not yet ruled on these motions.

In its motion to correct testimony and hearing transcript, Ameren asserts that no prejudice will result if the motion is granted because the testimony is for clarification of the written public record and has, in part, already been included in the transcribed record. Mot. to Corr. at 1. No response to this motion was filed by the AGO, and the motion is granted.

In its motion to clarify answer, Ameren asserts that Mr. Smith's answers to questions from the Board concerning non-economic dispatch costs associated with the cost of sound measurement activities appear to be in conflict. Mot. to Clar. at 1. Ameren requests that the Board grant the motion so that the record in this proceeding is clear. *Id.*

In its May 19, 2004 comments, the AGO objects to the motion to clarify, asserting that Ameren is seeking to introduce new non-sworn testimony into the record. PC 4 at 1-2.

For the same reasons the Board granted the AGO's motion for leave to file *instanter*, the Board grants Ameren the motion, and accepts the clarifications into the record.

JANUARY 22, 2004 HEARING

On January 22, 2004, a hearing was held in this matter at 100 West Randolph Street, Chicago, Cook County. Ms. Marili McFawn and Mr. Joshua R. More appeared and participated on behalf of Ameren. Mr. Joel J. Sternstein appeared and participated on behalf of the AGO. No members of the public attended the hearing.

At the hearing, Richard C. Smith, David J. Parzych, and Greg Zak submitted written and oral testimony for Ameren. Howard Chin presented written and oral testimony for the AGO. The transcript was received at the Board on February 3, 2004. Ameren and the AGO both filed post-hearing comments. Additional comments were received from the Village of Bartlett, Realen Homes, and the City of Elgin.

TESTIMONY

Richard C. Smith

Smith is the Manager of Generation Services at Ameren. Smith at 1. He is responsible for project management, engineering, outage planning, safety, training laboratory services and the operation and maintenance of Ameren's combustion turbine fleet. *Id.* He is a licensed professional engineer in the states of Illinois and Missouri. He was responsible for leading the development of the Ameren Elgin Energy Center (EEC) and for the operation and maintenance. *Id.* Smith testified that Ameren has no plans to change anything at the plant; as it was designed and approved by all the agencies, as well as the city of Elgin, as a four unit peaker site. Tr. at 126.

Smith testified that the EEC site location was selected because of the fact that the property was in an industrial setting that contained appropriate, compatible land uses and access to ComEd's Spaulding Road substation. Smith at 1. He said the area is heavily industrial, is located in an industrial park with the GE Capital Module Space to the north, ComEd's high-powered transmission line corridor and an active railroad to the east, and the U.S. Can Company manufacturing facility to the south. Smith at 2.

Smith testified that had Ameren known that residential property was going to be developed across from the EEC, Ameren would likely have abandoned efforts at that location. Tr. at 113. Smith testified that at the time of construction and planning, the understanding was that the Solid Waste Agency was planning on using the Realeen property for their purposes; and that when considering the industrial nature of the area, the sound improvements Ameren made at the EEC would be adequate to meet the Illinois noise rules. Tr. at 144.

Smith testified that the EEC consists of four Siemens Westinghouse combustion turbines each capable of a rate maximum output of 135MW of elective power generation. Smith at 3. Smith said that air is taken in through the inlet filter and silencer, is compressed and combined with natural gas before being combusted. *Id.* The hot gasses are expanded through a multi-stage turbine to produce shaft rotation/torque. *Id.* The turbine shaft is directly connected to a generator that is used to generate electric power. *Id.* Exhaust gasses exit the system through the exhaust silencers and stack. *Id.*

Smith stated that the EEC is equipped with several different kinds of state-of-the-art noise abatement systems. Smith at 3-4. The turbine of each unit is enclosed and equipped with enclosure ventilation silencing, and both the opening needed to get air into the turbine's compressor and the opening needed to get the combustion exhaust gasses out of the turbine are equipped with noise abatement controls. Smith at 3. Smith said the air intake for each turbine is enclosed and equipped with inlet silencer baffles, as well as having extensive duct structural stiffening and lagging as secondary noise attenuation. Smith at 3-4.

Smith testified that the estimated cost for the noise abatement measures already in place for all four was a total of \$11,650,000. Smith at 4. Smith testified that Parzych's noise study determined that the EEC was in compliance with the Board's noise limitations at the time it was

constructed. *Id.* Smith said that Ameren retained Parzych to study whether the facility would be able to comply with the newly proposed residential area west of the EEC and that Parzych determined that the EEC may not be able to comply with the Board's Class A noise limitations at the Realen property despite the extensive abatement equipment in place. *Id.*

Smith testified that Ameren has examined the feasibility and the cost of seven additional noise abatement measures. Smith at 5. First considered is the installation of additional exhaust stack silencers for low frequency noise reduction (31.5-63Hz). Smith states that the large amount of noise reduction required to comply with the Board's residential standards means that the likelihood of success with this type of treatment is small, and the estimated cost is \$6,000,000. Smith at 6. He further testified that the installation of such equipment would require approval and an ordinance from the City of Elgin. *Id.*

The second additional measure is installing a new, redesigned stack. This would require full aerodynamic modeling, and there are no gas turbine exhaust stacks currently available in the United States that meet the necessary design criteria. Smith at 6. Smith testified that this option would degrade unit performance and the economic value of the EEC. The estimated cost is \$18,000,000. *Id.*

The third alternative for abatement in the 31.5 to 63Hz bands is the installation of an active noise control system that has been developed under a NASA contract, but not yet used in the power industry. Smith at 6-7. Smith estimates the cost at \$6,000,000 and associates a very low probability of success. Smith at 7.

To additionally reduce high frequency noise (1000 to 8000 Hz), the installation of additional inlet silencers was considered at an estimated cost of \$600,000. Smith at 7. Smith testified that this approach would have little positive effect on the overall sound emissions from the sight, and would degrade unit performance by increasing the pressure drop through the inlets; thus negatively impacting the economic value of the EEC. *Id.*

Additional ducting enclosure was also considered, with an estimated cost of \$1,200,000. Smith testified that this approach would have little positive effect on the overall sound emissions from the site. Smith at 7. For sound from 125 to 500 Hz, Ameren considered installing a secondary enclosure around the generator along with additional silencing in the ventilation ducting. *Id.* The estimated cost of this approach is \$1,200,000. For additional reduction at 125 to 8000 Hz, Ameren considered installing a barrier wall on the west side of each unit that would be 35 feet tall and 250 feet long. *Id.* Smith said the estimated cost is \$3,6000,000, and that barrier walls would not be useful in reducing emissions of low frequency sound. Smith at 7-8.

Smith testified that the noise abatement equipment at the facility was designed and supplied specifically to comply with the Illinois noise regulations at the EEC, based on existing land use at the time it was constructed. Tr. at 133. Smith testified that it would be infeasible and technically impossible to reduce the 31.5 Hz band 10 decibels below current existing levels, because reducing very long wave lengths of sound requires silencing materials to be very thick to match the length of the long sound waves. Tr. at 141-42. Smith concludes that the cost

estimates may seem high, but the actual costs might be much greater due to the experimental nature of many of the approaches. Smith at 8.

Smith testified that the facility's operating permit limits operation to 16% of the time, by hour, on an annual basis. Tr. at 122.

David J. Parzych

Parzych is the principal and founder of Power Acoustics, Inc., and has been involved in acoustics and noise control engineering for over 21 years. Parzych at 1. Parzych testified that a sound test summarized in a report dated June 20, 2003, was accomplished using the results of measurements taken while the gas turbine unit closest to Gifford Road was operating, coupled with analytical techniques to simulate the effects of the three other units. *Id.* Parzych said the single unit operation was necessary to minimize the cost of the operational testing and reduce the impact to the power grid since the power generated with all units operating would exceed 450 MW. Parzych at 2.

Parzych testified that the results of the study showed that compliance with noise regulations was achieved at the existing residential areas, but that the facility would likely be in excess of the Illinois Octave Band Noise Regulations if the property were used for residential purposes. *Id.*

Parzych said that the sound power level of an individual gas turbine was estimated from the June 2003 sound pressure level measurements to estimate the sound pressure levels at locations enveloping the Realen property. Parzych at 3. Sound power is the measure of sound energy available to be radiated by the equipment. *Id.* Operational sound pressure levels from four unit operation were estimated at various locations on the Realen property using a theoretical sound propagation method, with the highest sound pressure levels occurring directly west of the EEC at the closest position to the gas turbine equipment. *Id.*

Parzych testified that noise controls such as barrier walls and buildings would be high in monetary cost since the facility was designed to be fully outdoors, and that the acoustical benefits of the treatments, if any, could not be accurately estimated without performing a detailed design study. Parzych at 4. Parzych said the 501D5A gas turbines and supporting equipment found at the EEC contain the largest amount of sound abatement he has ever seen supplied by Siemens-Westinghouse for simple cycle 501D5A gas turbines. *Id.* He stated the exhaust silencer is providing about the maximum attenuation a silencer system of this type can, that adding length to the existing silencing will not likely provide any substantial reduction in sound levels, and that if more low frequency noise reduction is required, the existing stack would have to removed and a new one designed from scratch. Parzych at 5. Parzych opines that even with a new, redesigned stack, achieving more attenuation would be questionable since the current design was already the state of the art. Parzych at 5-6.

Parzych testified that enclosing the turbine in a building would require modification to, at a minimum, the gas turbine air intake system; because the inlet filter house cannot exist within the building, and must be moved outside in some manner. Tr. at 104. Parzych testified that the

silencer on the gas turbine inlet is 12 feet, the maximum offered by Siemens Westinghouse, as opposed to the industry standard of eight feet. Tr. at 98.

Parzych testified that the other prominent sources of sound in the facility (air-cooled generators, heat exchangers and transformers) has a common need for air flow to provide cooling and cannot be completely enclosed. Parzych at 6.

To determine site-specific sound pressure level requirements, Parzych combined the sound pressure level data measured by Greg Zak and himself, along with the information supplied by Siemens-Westinghouse in 2000, that defines the sound power levels. Parzych at 7. The proposed site-specific limits represent the maximum of either the Illinois Daytime Standard or the average of the measured/synthesized values, plus one standard deviation and a safety factor as deemed necessary. Parzych at 8. Parzych stated that the safety factor allows for unknowns caused by instrumentation uncertainty, uncertainty associated with the operation parameters of the gas turbine equipment, weather conditions and directivity effects associated with various pieces of power plant equipment. *Id.* He testified that uncertainties of 3-5 dB are not uncommon. *Id.*

Parzych testified that operating four units concurrently could cost Ameren over \$100,000 for a special two-hour run, costing a minimum of \$300,000 plus consultant's time, to obtain three additional groups of sound data. Tr. at 107. This assumes, he testified, that Ameren would be allowed to put more than 400 megawatts of excess power into the power grid. *Id.* Parzych believes that three additional sets of data may or may not provide any more useful information, depending on how lucky they were with testing variables. Tr. at 110.

Greg Zak

Greg Zak has owned and operated Noise Solutions by Greg Zak since 2001. Prior to that, he was employed by the Illinois Environmental Protection Agency, and has over 31 years experience with noise measurement, noise control engineering and the effects of noise on people and communities. Zak at 1-2. On September 2, 2003, Zak conducted a sound measurement test at the EEC while it was not operating and while it was fully operational with all four units at maximum load capacity. Zak at 2.

The test was conducted on the west side of Gifford Road, directly across from Unit 4 at the same approximate location of the measurements taken by Power Acoustics. Zak at 3. The ambient measurements began around 9:00 p.m. and ceased at 9:30 p.m. *Id.* The measurement was taken during a 30-minute period with only the quietest ten minutes of data being used to compile the ten-minute ambient. *Id.*

Zak testified that the area was very noisy due to ground and air traffic, and that the ambient was gathered by working around (pausing the analysis instrumentation) the roar of overhead jet traffic, the rumble of distant railroad trains, and truck and automobile traffic on Gifford Road. Zak at 3. Zak testified that one of the primary sources of ambient noise was the US Can facility south of the EEC. *Id.* Zak stated that ambient refers to all of the sound in the area, except for extraneous sound and any sound emanating from the EEC. Zak at 4. He defines

extraneous sound as that of relatively short duration that comes and goes – vehicle passbys, aircraft flyovers, train whistles, etc. *Id.*

Zak testified that the extraneous sounds are the ones that mask the sound from Ameren's facility – such as jet overflights and passbys on the road. Tr. at 193. He further testified that the presence of extraneous noise in the heavily-industrialized area around the EEC dominates the area in the 31.5 Hz, 1,000 Hz, and 2,000 Hz octave bands, so as to mask sound emissions from Ameren at these frequencies. Tr. at 195. Zak stated the extraneous sound so dominates, that it would be the only number seen whether measuring ambient, Ameren or extraneous sound in a test. Tr. at 202. Zak testified that even at night, there is still so much extraneous noise that the levels Ameren is requesting in the rule are reasonable. Tr. at 207.

Zak characterizes the environmental noise in the area as consisting of overhead jet traffic, the rumble of distant railroad trains and their whistles, and also truck and automobile traffic on Gifford Road. Tr. at 219. Zak testified that these extraneous noise sources are of greater impact than noise emitted by Ameren at the levels proposed. *Id.*

Zak testified that sound measurements commenced at 10:00 p.m. and ceased at 11:17 p.m., and that the facility was fully operational (with all four units running at full load) during that time. Zak at 4. Zak compared the corrected levels of results to those obtained by Power Acoustics, finding that the operational measurements at full capacity were lower than projected with the exception of 2000 Hz. Zak at 5. Zak testified that his measurement of 55.6 dB compared to the 53.2 dB resulted in a 2.4 db difference that falls well within the many sources of potential error in making an extrapolation from the measurement of one running unit to the actual measurement of four units. *Id.*

In comparing Ameren's requested site-specific noise emission limitations with a portion of the Board's current limits, Zak found the limitations are not significant. Zak at 6. He testified that at 2000 Hz, the 58 dB limitation exceeds the C to B land use by 6 dB, but would not significantly penetrate a house of modern construction when the windows are closed, which is the likely situation when the peakers are operating during periods of very hot or cold weather. *Id.* He testified that at the 4000 Hz level, the 50 dB limitation exceeds the C to B land use by 2 dB, would not significantly exceed the levels frequently generated by crickets, locusts, and other insects, and is even less able to penetrate a house with closed windows than is 2000 Hz. *Id.*

Zak stated that the character of the sound from this type of power plant is often described as similar to that of noise generated by airflow from ventilations within an office building, and that this type of noise is often absorbed into the ambient. Zak at 6.

Zak testified that any environmental impact based upon the proposed site-specific limitations applicable to Class B lands requested by Ameren is of insignificant consequence. Zak at 7. Zak testified that Illinois is more active than the other states in regulating noise and that peaker noise is not regulated by the other Region 5 states, California, Texas, New York, or federally. *Id.* Zak testified that the Agency has received no complaints regarding peaker plan noise during his nearly 30-year career there. *Id.*

Zak concludes that the likelihood of noise complaints regarding the Ameren facility from the Realeen property, should it ever be developed residentially, is remote. Zak at 7. He testified that any environmental impact to the Realeen property, if converted to residential use, would be minimal. Zak at 7. He testified that any environmental impact to receiving Class B lands, if those proposed numerical values are adopted to make the limitations for both types of receiving lands consistent, would be insignificant. Zak at 8.

Howard Chinn

Howard Chin is a professional engineer who has been employed by the Attorney General's Office for approximately 30 years. Chinn at 1. Chinn testified that he has developed an extensive expertise with noise pollution, including the Board's noise regulations, during that time. *Id.* Chinn testified that Ameren's proposed site-specific regulation is premature; and is a preemptive act to disenfranchise the future residents of the Village of Bartlett who will live near the facility, and may deprive those future residents of their rights in any future hearings on noise emission from the EEC. Chinn at 1-2.

Chinn asserted that Ameren's proposal is contrary to the legislative intent of Section 23 of the Act. Chinn at 2. He testified that the combustion turbines at the EEC are identified in the federal Noise Control Act as a major source of noise, and that federal noise emission standards are feasible for such equipment and may be developed in the future. Chinn at 3-4. Chinn testified that Ameren should not have any expectation that any vacant undeveloped land in the area around the EEC would remain non-residential forever, unless Ameren acquired the land or parts thereof for a buffer zone. Chinn at 4.

Chinn testified that Ameren did not provide any credible engineering design data or cost estimates to substantiate its claim, that it will continue to operate the facility as designed to provide the maximum noise control that is economically reasonable and technically feasible. Chinn at 4. Chinn testified that the assertion that the EEC is state of the art and affords maximum noise control is unsupported. Chinn at 4-5.

Chinn testified that Ameren provided no engineering design data or technical specifications of any kind for any of the technical alternatives discussed, opinions expressed, or conclusions reached in its proposal regarding technical infeasibility and economic unreasonableness of further reducing low-frequency noise at the turbines' exhaust. Chinn at 5-6. Chinn stated that Ameren should immediately proceed with the detailed noise study they mention in their proposal. Chinn at 6. Chinn testified that there is a discernable difference between the noise from Ameren's facility, which is continuous in character, as opposed to the transient noise emitted by planes, trains and automobiles. Chinn at 6.

Chinn testified that the variables involved in conducting more actual noise measurements are not too numerous to run a sufficient number of tests to create an adequate database for decision-making purposes. Tr. at 93.

Chinn testified that Ameren provided no cost breakdown or engineering basis for the costs associated with an enclosure for the facility to control mid-frequency noise. Chinn at 7.

Chinn believes that Ameren should undertake an engineering feasibility study, including a cost estimate, to fully evaluate the concept of a building around the facility that would mitigate noise emissions. Chinn at 8. Chinn testified that Ameren's contention that peaker power plants are not regulated on a federal level is inaccurate, as the federal Noise Control Act of 1972, as amended, references the type of equipment employed in a peaker power plant. Chinn at 9.

Further, Chinn testified that Ameren's contention that Illinois is the most active state in the country in regards to noise regulation is inaccurate, and that the Agency no longer has a noise control program. Chinn at 9-10. Chinn testified that there is no reasonable or rational basis to justify a site specific rulemaking for octave bands other than the two that measurements indicated exceeded the Board's noise emission standards – 1 kHz and 2 kHz. Chinn at 11. He recommends that Ameren take at least three additional sets of noise measurements following the upcoming adoption of the amendments to the Board noise regulations, and that those measurements should be taken when all four units are fully operational and in start-up mode. Chinn at 11-12.

Finally, Chinn testified that Ameren should be able to contain its noise emissions at all levels with a building that blocks the line of sight between the facility and the proposed residences that will be built nearby. Chinn at 13.

PUBLIC COMMENTS

Both the petitioner and the AGO filed post-hearing comments that addressed issues raised by the Board at hearing and provided additional argument on the proposed rule. Ameren also filed a response to the AGO's public comment, and the AGO filed additional comments in response to the response. In addition, comments supporting Ameren's petition were received from the Village of Bartlett, Realen Homes, and the City of Elgin.

Ameren Comments

Of specific note, the petitioner re-asserts the predominantly industrial character of the area noting that the industrial operations across Gifford Road, the quarry operation to the north, the heavy truck traffic, and railroad noise all contribute to the area's ambient and extraneous noise. PC 5 at 2-3. Ameren asserts that scheduling three additional sets of noise measurements that satisfy each of the AGO's criteria (having all four units fully operational, when ambient noise is at its lowest level, under similar atmospheric conditions, and at different receptor locations) would be expensive and difficult if not impossible. PC 5 at 9. Ameren contends that at hearing it was explained that the variables and costs for scheduling and conducting the noise measurements is complicated, and having all the testing conditions aligned, highly improbable. PC 5 at 10. Further, analytical procedures are scientifically accepted for predicting and substituting actual data, and the information provided by the filed measurements in 2000 and 2003, coupled with the analytical analyses performed by Power Acoustics, are sufficient to demonstrate that the Board should grant the relief requested. *Id.*

Ameren asserts that because the EEC is already equipped with state of the art noise abatement equipment, the technical feasibility of significantly reducing sound through additional

measures is questionable at best, and the associated cost estimates are estimates only. PC 5 at 11. Ameren contends the feasibility of enclosing the entire facility was addressed at hearing and that no cost estimates were provided; because this measure is probably not technically possible, and that even if it is, it would not be economically reasonable. PC 5 at 12. Ameren asserts that the four turbines are designed for outdoor use and cannot necessarily be adapted to indoor use. PC 5 at 12-13. Further, Ameren argues that the Board's regulations do not require that all noise be eliminated and that the EEC has already achieved maximum reductions by being equipped with noise abatement equipment well beyond the industry's standards. PC 5 at 13.

Ameren notes that the Hillside facility referenced by the AGO is not comparable to EEC and is not a representative example of soundproofing with a barrier wall. PC 5 at 14. Ameren asserts that it contacted the Hillside facility and learned that the three gas turbines at the Hillside facility have a combined capability to generate 16.5 megawatts of electricity versus 540 megawatts combined capability of EEC's three turbines. *Id.*

Ameren asserts that the limitations proposed in this site-specific rulemaking are not significant. PC 5 at 16. Ameren contends that Zak explained that the extraneous noise in the heavily industrialized area around EEC dominates the area at the 31.5 Hz, 1000 Hz and 2000 Hz octave bands to the extent that it masks sound emissions from the EEC at those band levels and renders the proposed limits not significant. PC 5 at 18. Ameren notes that Zak testified that the insect noise experienced at 4000 Hz overrode sound emissions from EEC, and that jet aircraft noise at nighttime and vehicle passbys were the predominant source of noise when compared to noise from the EEC. PC 5 at 19.

Ameren asserts that because the EEC is already equipped with state-of-the-art noise abatement equipment for controlling noise, adding more noise abatement equipment was either not feasible because there was no room to do so, and because it would result in little or no additional noise control, and that any additional control or replacement of existing equipment would be experimental in nature, and thus not economically reasonable or technically feasible. PC 5 at 21.

Ameren Response to AGO Public Comments

Ameren summarizes the AGO's arguments, and specifically that of Chinn's, as questioning the priority of the ECC's location and the adequacy of its noise abatement measures. Ameren Resp. at 1. Ameren asserts that Smith testified at hearing that Ameren would not have built the EEC at the location it did, if the property across Gifford Road was Class A land. Ameren Resp. at 2. Ameren reiterates that constructing a berm would have to be at least 50 feet tall to possibly reduce noise, and would not reduce noise adequately at all octave levels, especially the lower octave bands. Ameren Resp. at 3-4.

AGO Comments

The AGO reiterates that Ameren's claim that the facility's exhaust outlet is equipped with state-of-the-art noise abatement is unverifiable, because they have not provided any information. PC 4 at 2. The AGO contends that Ameren has not supplied the Board with a copy

of a valid technical feasibility report documenting the technical data upon which they relied for their conclusions, and that cost estimates provided by Ameren in the petition are inaccurate. PC 4 at 3.

The AGO asserts that Zak's testimony that the Agency has not received any complaints regarding peaker noise over the past 30 years is misleading, because the proliferation of peaker plants was virtually non-existent until a few years ago. PC 4 at 6. The AGO asserts that Ameren never provided manufacturer's noise level specifications for the turbines, and that this information is necessary to assess the adequacy of the noise attenuation equipment furnished with the turbines. PC 4 at 9.

The AGO asserts that Zak admitted that, absent extraneous sound and assuming a low ambient noise level, a six decibel increase would be significant and a 22 decibel increase would be extremely significant. PC 4 at 12. The AGO contends that Ameren did not disclose that it and US Can sued Realen, two municipalities and others regarding the zoning change for the property that Realen owns. *Id.* The AGO acknowledges that the parties in that suit have reached an out-of-court settlement involving a sound and light easement on the property, but argue the easement does not excuse Ameren's deficient petition. PC 4 at 13.

The AGO argues that the petition should be denied because Ameren has not conducted bona fide technical feasibility and economic reasonableness studies of available noise control technologies, has not demonstrated the facility is fundamentally and significantly different than other similar facilities, did not provide a responsive answer to the Board's question regarding the possibility of designing the facility to meet the Board's Class C to Class A land use limitations, and did not conduct noise measurements at times when ambient and extraneous noise would likely be at their lowest. PC 4 at 13-14. The AGO also argues that a site specific rule for Ameren might set a precedent, in that other peaker plants may petition the Board to be exempt from the Board's generally applicable noise regulations. PC 4 at 14.

Additional AGO Comments by Howard Chinn

The AGO asserts that given the maximum amount of time allowed by its permit, Ameren could run its facility 48% of the time, if it only operated during June, July and August – almost 12 hours per day. Add. AGO PC at 2. The AGO contends that given Ameren spent \$233 million on this facility, its claim that each \$100,000 noise test at the facility is unduly burdensome is difficult to believe. *Id.*

The AGO disputes Ameren's claim that the 2000 and 2003 field measurements are sufficient to demonstrate that the Board should grant the petition for site specific rule. The AGO notes that Ameren did not survey the future residents of the Realen Home property to gauge their opinion about having a peaker plant facility directly adjacent to their homes which does not meet the State's Class C to Class A noise limitations. Add. AGO PC at 3.

The AGO asserts that classifying its various noise control alternatives as experimental does not excuse the fact that Ameren has failed to conduct a valid engineering feasibility study of available noise control alternatives. Add. AGO PC at 4. The AGO asserts that other than

providing a rough cost estimate and the dimensions of a barrier wall, Ameren provided no further information in support of its estimate of \$3,600,000 for construction of a barrier wall. Add. AGO PC at 5.

The AGO contends that Ameren has demonstrated that they are unwilling to consider any viable options that will bring them into compliance with the rules and regulations of the Board. Add. AGO PC at 7.

DISCUSSION

At first notice, the Board adopted the proposed rule for first notice, but did not make any decisions regarding the proposal itself. Today the Board will address the merits of Ameren's petition for a site-specific rule.

The Board may adopt regulations specific to individual persons or sites. In promulgating regulations under the Act, the Board shall take into consideration the physical conditions and character of the surrounding areas, including the character of surrounding land uses, zoning classifications, as well as the technical feasibility and economic reasonableness of reducing the particular type of pollution. *See* 415 ILCS 5/27 (2002).

The AGO has argued that the petition should be denied because Ameren has not sufficiently shown that compliance with the existing noise regulations is technically infeasible and economically unreasonable. The Board disagrees. Ameren has provided testimony and documentation on the ability of the EEC to meet the Board's emission limitations for receiving Class A and Class B lands. The results of the noise tests submitted by Ameren conclusively show that the EEC cannot meet those limitations. The AGO has not disagreed with this conclusion.

Ameren presented the Board with seven noise abatement measures it had considered in order to meet the Board's emission limitations. First discussed were the installation of additional exhaust stack silencers (estimated cost of \$6,000,000) or the installation of a new redesigned stack (estimated cost of \$18,000,000). The record is persuasive that the likelihood of success with the first measure is low. Further, the installation of such equipment would require approval from the City of Elgin. Next Ameren considered the installation of a noise control system recently developed under NASA with an estimated cost of \$6,000,000. The record indicates that the probability of success with this measure is slight.

Ameren also considered adding additional inlet silencers at an estimated cost of \$600,000, but testified that this approach would have little positive effect and would degrade unit performance by increasing the pressure drop through the inlets. Additional ducting enclosure was also considered (estimated cost of \$1,200,000), as was the installation of a secondary enclosure around the generator (estimated cost of \$1,200,000). Finally, Ameren considered installing a barrier wall on the west side of each unit. The estimated cost of the wall is \$3,600,000. The record indicates that a barrier wall, despite the high cost involved, would not be useful in reducing emissions of low frequency sound.

The AGO suggested that the facility be enclosed within a large building to reduce noise. However, the Board is convinced that such a measure would not be technically feasible or economically reasonable. Ameren designed the EEC to be operated outdoors. The record is consistent that enclosing the turbines in a building would be unreasonable and would require significant modifications, if not the replacement of the existing system.

The Board is cognizant of the significant amount of noise abatement equipment already in place at the EEC. Ameren expended \$11,650,000 on noise abatement equipment already in place that Ameren has shown to be state-of-the-art technology. The record indicates that further reduction of the noise emissions from the EEC would require use of experimental technology that may not even result in a significant reduction in noise emissions.

Further, in considering the character of the surrounding areas and land uses, the EEC is appropriately located. The record shows the area in question to be heavily industrial in nature. The area surrounding the EEC is replete with ambient and extraneous noise to the extent that the noise experts retained by Ameren testified that the extraneous noise masks the noise emitted from the EEC in many octave band levels.

The Board is not convinced by the AGO's argument that future residents of the Realen Homes property will be disenfranchised if the site-specific rule is granted. The record is clear that as of December 30, 2003, construction had not begun at the property. Any future residents should be aware that they are moving into a heavily industrialized area that contains, among other noise emitters, a peaker plant. Further, in light of the noise easement and restrictive covenant agreement entered into between Realen Homes and Ameren, future residents will have actual notice of the specific noise emission limitations which are referenced in the agreement and attached as Exhibit E therein. It should also be noted that Realen Homes, the only current owner of the property, has filed a public comment supporting the petition for site-specific rule. Realen Homes was joined by the Village of Bartlett and the City of Elgin in this position of support.

The Board finds the emission limits proposed by Ameren reasonable. The limits are fully supported by the noise studies and evidence contained in the record. Ameren has presented information that indicates compliance with 35 Ill. Adm. Code Part 901 is not economically reasonable or technically feasible. In addition, Ameren has presented evidence regarding the character of the surrounding land area and land use. Therefore, the Board will proceed with the language for a site-specific rule proposed by Ameren.

CONCLUSION

Based on the record developed to date in this matter, the Board finds that adoption of the proposed site-specific rule is warranted. The Board proposes this rulemaking for second-notice review by the Joint Committee on Administrative Rules (JCAR).

ORDER

The Board directs the Clerk to cause the filing of the following with JCAR for its second-notice review.

**TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE H: NOISE
CHAPTER I: POLLUTION CONTROL BOARD**

**PART 901
SOUND EMISSION STANDARDS AND LIMITATIONS FOR PROPERTY LINE-NOISE-SOURCES**

Section

901.101	Classification of Land According to Use
901.102	Sound Emitted to Class A Land
901.103	Sound Emitted to Class B Land
901.104	Impulsive Sound
901.105	Impact Forging Operations
901.106	Prominent Discrete Tones
901.107	Exceptions
901.108	Compliance Dates for Part 901
901.109	Impulsive Sound from Explosive Blasting
901.110	Amforge Operational Level
901.111	Modern Drop Forge Operational Level
901.112	Wyman-Gordon Operational Level
901.113	Wagner Casting Site-Specific Operational Level
901.114	Moline Forge Operational Level
901.115	Cornell Forge Hampshire Division Site-Specific Operational Level
901.116	Forgings and Stampings, Inc. Operational Level
901.117	Rockford Drop Forge Company Operational Level
901.118	Atlas Forgings Division of Scot Forge Operational Level
901.119	Clifford-Jacobs Operational Level
901.120	C.S. Norcross Operational Level
901.121	Vaughan & Bushnell Operational Level
<u>901.122</u>	<u>Ameren Elgin Facility Site-Specific Noise Emission Limitations</u>
APPENDIX A	Old Rule Numbers Referenced
APPENDIX B	Standard Land Use Coding System

AUTHORITY: Implementing Section 25 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1985, ch. 111 1/2 pars. 1025 and 1027).

SOURCE: Originally filed as Part 2 of Chapter 8: Noise Pollution, effective August 10, 1973; amended at 2 Ill. Reg. 27, p. 223, effective June 26, 1978; amended at 5 Ill. Reg. 6371, effective June 1, 1981; amended at 5 Ill. Reg. 8533, effective August 10, 1981; amended at 6 Ill. Reg. 10960, effective September 1, 1982; codified at 7 Ill. Reg. 13646; amended at 7 Ill. Reg. 14519, effective October 17, 1983; amended in R83-35 at 8 Ill. Reg. 18893, effective September 25, 1984; amended in R83-33, 26, 29, 30 and R83-34 at 9 Ill. Reg. 1405, effective January 17, 1985; Section 901.105(f)(1), (2) and (3) recodified to Sections 901.110, 901.111 and

901.112 at 9 Ill. Reg. 7147; amended in R83-25, 31 and 32 at 9 Ill. Reg. 7149, effective May 7, 1985; amended in R83-7 at 11 Ill. Reg. 3136, effective January 28, 1987; amended in R04-11, at _____ Ill. Reg_____, effective_____.

Section 901.122 Ameren Elgin Facility Site-Specific Noise Emission Limitations

The Combustion Turbine Power Generation Facility located at 1559 Gifford Road in Elgin, Illinois shall not cause or allow the emission of sound from any property-line-noise source located on that property which exceeds any allowable octave band sound pressure level specified in the following table, when measured at any point within the receiving Class A or Class B land.

<u>Octave Band Center Frequency (Hertz)</u>	<u>Allowable Octave Band Sound Pressure Levels (dB) of Sound Emitted to any Receiving Class A or Class B Land from Ameren Elgin Facility</u>	<u>Class A Land</u>	<u>Class B Land</u>
<u>31.5</u>	<u>80</u>	<u>80</u>	
<u>63</u>	<u>74</u>		<u>79</u>
<u>125</u>	<u>69</u>		<u>74</u>
<u>250</u>	<u>64</u>		<u>69</u>
<u>500</u>	<u>58</u>		<u>63</u>
<u>1000</u>	<u>58</u>		<u>58</u>
<u>2000</u>	<u>58</u>		<u>58</u>
<u>4000</u>	<u>50</u>		<u>50</u>
<u>8000</u>	<u>40</u>		<u>45</u>

(Source: Amended at _____, effective_____)

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, certify that the Board adopted the above opinion and order on June 3, 2004, by a vote of 5-0.

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board