

**Illinois Environmental Protection Agency
Division of Air Pollution Control
Permit Section**

October 2004

**Responsiveness Summary for the
Public Comment Period for the Permit Application from
Union Electric Company (dba AmerenUE)
for
Construction of Three Combustion Turbines (CT03, CT04 and CT05)
at its Venice Power Plant
ID 119105AAA, Application/Permit No. 03120068**

Table of Contents

| | Page |
|---------------------------------|------|
| Decision | 2 |
| Questions and Comments | 2 |
| For Additional Information..... | 9 |

Decision

On September 27, 2004, the Illinois Environmental Protection Agency (Illinois EPA) issued a Bureau of Air construction permit to Union Electric to construct three natural gas fired turbines at its facility located at 701 Main Street in Venice.

Copies of the documents can be obtained from the contacts listed at the end of this document. The permits and additional copies of this document may also be obtained from the Illinois Permit Database, www.epa.gov/region5/air/permits/ilonline.htm (please look under all permit records/state construction permits/new).

Comments and Responses

1. What is the current status of the Venice power plant?

The only generating units currently at the plant are combustion turbines, which function as peaking units. These units are covered by a Clean Air Act Permit Program (CAAPP) permit, which was issued in December 2003.

The older unit, Turbine 1, can only fire distillate oil. It was installed in 1967 and is no longer routinely operated. The newer unit, Turbine 2, can be fired with natural gas or oil. It was installed in 2002 and is a "Twin-Pack," with two separate combustion turbines powering a single generator. The individual turbines are permitted to operate about 1,200 hours per year. In 2003 and 2004 (through August), each of these turbines operated about 100 hours. This is consistent with typical operation of peaking units in Illinois.

The eight natural gas and oil-fired boilers that operated at the plant through 2002 are now permanently shut down, having been officially retired on December 31, 2002. They are no longer covered by any permit.

2. What additional generating units are now being proposed?

This project covers three natural gas fired combustion turbines, two with a nominal capacity of 212 MW, each, and one with a nominal capacity of 135 MW.

3. Will the proposed units be able to burn oil?

No. Ameren originally proposed to have the ability to burn oil in the proposed units. However, Ameren eliminated this feature when it submitted a revised proposal in December 2003. If Ameren decides to pursue oil capability in the future, it would have to obtain a revised permit. Whether the Illinois EPA holds a public comment period on that application would depend on the nature of Ameren's request and its implications for emissions.

- 4. I don't understand why this project is needed. There are already about 40 peaker plants in Illinois. Is the electricity from this project going to go to Missouri? According to the Post Dispatch, the power is probably going to go to Missouri. If this so, Illinois residents would get the impacts and Missouri would get the power. The blackout on August 14, 2003, when the power grid went down across the Northeast United States, demonstrated the connectivity of the grid and how power goes into this grid.**

Ameren has indicated that it cannot tell exactly where the electricity would go at any given time, as it serves customers in both Illinois and Missouri. It also has stated that this project is important as it must maintain reserve generating capacity and the Venice plant is located near its main load center. As a result the proposed units will be able to more efficiently and reliably supply peak power than more distant units.

- 5. Is there the possibility that this project is not really for peaking units, but a placeholder for a full-time power plant?**

This is not possible as a practical matter. The units' dependence on high-cost natural gas as their fuel effectively precludes use for full-time power generation. Extensive physical changes to the units would be needed for them to operate economically for full-time generation. Additional permitting would be necessary for those changes, as well as to relax requirements of the current permit that restrict operation of the units. With such changes, additional requirements would likely have to be imposed on the units, as conversion to full-time operation would be accompanied by a significant increase in emissions and be considered a major project.

- 6. Which units were involved in the fire at the plant in 2000? What was the cause of the fire? What enforcement occurred as a result of the fire?**

The fire involved a leak from a lubricating oil line associated with the electrical generator served by two of the boilers previously at the plant. This is a part of the plant that was not routinely addressed by the Bureau of Air as it is not normally an emission unit. Enforcement actions were initiated addressing different aspects of the incident.

- 7. Is existing equipment at the plant also being used with the proposed new units... stacks, anything?**

The new units will have their own stacks and electrical generators and will be located in places at the plant that are now vacant. However, the units will rely on parts of the existing plant infrastructure that supported the boilers, e.g., the incoming water treatment system and the electrical substation.

8. The emission calculations are based on two of the turbines operating for 1,000 hours and one for only 700 hours. Is this significant?

No. These are Ameren's projections for the maximum hours that the different turbines would ever operate. The permit actually restricts the operation of the turbines by limiting the amount of fuel used, as well as emissions.

9. Is one turbine cleaner than the other? Is the smaller one dirtier?

The manufacturer's data for the two models of turbines shows that, except for carbon monoxide (CO), the emissions of pollutants, expressed in ppm or pound per million Btu, are similar. For CO, the emission rates of the larger turbines are about half those of the smaller turbine.

10. The project is not subject to PSD for emissions of nitrogen oxides (NOx) because of "netting." However, even though Ameren is reducing the number of units at the plant, it gets the same emissions. Netting seems really problematic to me. It seems that Ameren is being rewarded for having a fire, (which I assume happened because some equipment was not in good shape), which doesn't seem fair. It seems like there should now be less emissions allowed.

The relevant provisions for netting do not provide for general consideration of fairness or the reasons why an emission reduction occurs, as addressed by this comment. They simply allow a source to consider the emissions that were historically emitted at a source, to the extent they were in compliance and there was or will be an emission reduction. This reduction can then be used to show that a proposed project should not be considered to result in a significant increase in emissions, when one also accounts for such decreases and any other contemporaneous emission increases at the source.

As required by the applicable rules, netting for this project was based on the actual NOx emissions of the boilers, i.e., representative emissions in 1998 and 1999 in the period before the fire occurred. NOx emissions were determined using protocols under the federal Acid Rain program. The resulting data, which includes hours of operation as well as NOx emissions, is regularly posted by the USEPA on its Clean Air Markets website.

Even though not relevant under the rules, the boilers previously at the plant had the capability to generate about 340 MW of electricity, total, as compared to about 560 MW total from the three new units. The boilers actually operated intermittently, that is, as peaking units and not as base load units. Thus the proposed project does not significantly change the nature or emissions of the Venice plant, comparing past actual emissions of NOx to future permitted emissions. As Ameren is eliminating use of fuel oil, compared to the small amount of oil historically burned in the boilers, there will be a decrease in the plant's SO₂ emissions. Finally, if equipment was in poor condition, as suggested by this comment, Ameren is now proposing to install new equipment.

11. What would be required for this project if the New Source Review (NSR) rules had not been changed last year?

There would be no difference in the requirements of NSR for the project. This is because the project involves construction of new emission units, not modifications of existing units. Incidentally, only the federal Prevention of Significant Deterioration (PSD) component of the NSR rules changed. The state NSR rules, which apply to nonattainment pollutant(s), did not change.

12. This area is a nonattainment area for ozone. There is a high degree of asthma here, with thousands of children who have asthma. Within a few miles, in the African American communities of Venice and Brooklyn, there are about 17,000 people under the poverty level. If all Ameren is doing is putting new units in an existing plant, then it should go somewhere where it is not going to hurt people and where the emissions are not going to be impacted.

The Illinois EPA shares your concerns about air quality and public health. However, this does not provide a legal basis to refuse to issue a permit for a proposed project that complies with the applicable regulations, which project also relates to the health and well-being of the public as it involves the reliability of the electric power supply.

13. Air pollution is a cumulative effect. There are many plants and sources with emissions in the area, which is also downwind of Missouri and its emissions. Sources must be asked to do as good as possible. However, the proposed turbines have 15 ppm NO_x, which I understand is not very good, that 9 ppm is much better and that if the turbines were subject to Best Available Control Technology (BACT), NO_x could even be lower. In the spirit of public health, I would like the Illinois EPA to ask Ameren to do the best it can.

Ameren is subject to a direct incentive to minimize NO_x emissions from the new units as they are subject to the NO_x Trading Program (35 IAC Part 217, Subpart W), which requires Ameren to have allowances for the actual NO_x emissions of the units. The project is not subject to BACT, which would likely set the rate for NO_x emissions at 9 ppm, because the permitted annual emissions of the project do not qualify as significant. The project would only be subject to a case-by-case determination of BACT if the permitted NO_x emissions were higher, so as to qualify as significant. In this regard, projects whose emissions are not significant need only comply with limits set by applicable emission standards; only projects whose permitted emissions are significant must further limit the rate of emissions to comply with BACT.

14. Have the turbines been purchased? Has construction on the project begun yet?

Ameren indicates that the units have been purchased. However, construction has not started pending issuance of a construction permit for the project.

15. Did the Illinois EPA do dispersion modeling for the proposed project? Was Illinois' or Missouri's emission inventory was used for existing sources?

The dispersion modeling was performed by a consultant on behalf of Ameren and then reviewed by the Illinois EPA. The modeling did not require a regional emission inventory because modeling of the project by itself showed that it would not have significant impacts on air quality. Regional modeling, using a regional inventory for existing sources, is only required if a project by itself is predicted to have significant impacts on air quality.

16. When sources have dispersion modeling performed for proposed projects, it always seems to show that there are no negative impacts. However, this area is still nonattainment for ozone, so something is wrong. There is some disconnect between dispersion modeling and reality.

Ameren's modeling did not address ozone nor did the Illinois EPA request such modeling. When proposed projects are modeled, modeling is generally performed to confirm that the new source or modification will not cause an area to become nonattainment. This is because air quality that is currently nonattainment is the overall result of the emissions of many existing sources, as noted in an earlier comment.

For a nonattainment pollutant, the concern is whether a project's permitted emissions are at or above the significance criterion for the pollutant, so as to trigger certain additional NSR requirements that apply to a major project in a nonattainment area. The permitted emissions of nonattainment pollutants from this project (i.e., VOM and NO_x, as they are ozone precursors) are not significant. Accordingly, like the existing sources already in the area, the project is only subject to the adopted emission standards for the area, which should assure that the project does not interfere from timely attainment of the air quality standard. In this regard, it is noteworthy that this summer Illinois did not experience any exceedances of the ozone air quality standards.

17. Nothing is done in the draft permit with emissions of fine particulate matter (PM 2.5). However, the Metro-East area has been proposed to be designated nonattainment for PM 2.5. If the area is going to be nonattainment in December, or whenever, PM 2.5 should be addressed in the permit.

The permit does address particulate matter, as PM₁₀, as addressed by current rules. However, the permit cannot directly address emissions of PM 2.5 because the area has not yet officially been designated nonattainment for PM_{2.5} and rules have not yet been adopted that explicitly address emissions of PM 2.5. USEPA has not yet developed its national guidance on what those rules should require. In particular, USEPA has not decided whether a separate significant emission criterion should be developed for particulate matter in terms of PM 2.5 or at what level such a criterion should be set.

- 18. In the past, I have seen hazardous air pollutant (HAP) emissions calculated using factors from USEPA's *Compilation of Air Pollutant Emission Factors*, AP 42, instead of the factors from USEPA's Industrial Combustion Coordinated Rulemaking (ICCR), as used by Ameren for this project. If Ameren had used AP 42 factors would the estimate of HAP emissions be the same?**

The determination of HAP emissions would be similar. In particular, the AP-42 and ICCR factors for the key HAP, formaldehyde, are essentially identical, i.e., 0.00071 and 0.000713 lb/million Btu, respectively.

- 19. Is formaldehyde a by-product of burning natural gas?**

Formaldehyde is an incomplete combustion product present in trace levels in the emissions of most combustion processes. When burning natural gas in a turbine, formaldehyde is the HAP that is generally expected to be present in the emissions in the greatest concentration. Accordingly, it has been a focus in the permitting and testing of HAP emissions from turbines.

- 20. Will more water be used at the plant with the new units than before? Are there cooling towers associated with the new units?**

This project will use less water than before. Unlike boilers, which make steam to generate electricity, simple-cycle peaking turbines do not produce steam. Accordingly, they do not require water to be made into steam or cooling towers (or other supply of cool water) to condense the steam for reuse.

- 21. Is any hazardous waste at all being stored at the plant?**

Yes. Ameren indicates that hazardous wastes will be present at the plant in incidental amounts as related to the routine operation of the plant, pending off-site disposal. However, significant quantities of hazardous wastes will not be stored at the plant.

- 22. Will the new units be designed to control noise impact on the community?**

Ameren has confirmed that it considered noise in the layout of the units and the units will include features to control noise.

- 23. I am concerned about the security at the plant and terrorism, which we are all supposed to look out for.**

Ameren has confirmed that the plant has and will continue to have alarms systems, personnel, and service to protect the security of the plant. Due to this concern, security personnel may be at the plant and available to address emergencies even when operating staff are not present.

24. I am concerned about fires at the plant. Is there an alarm with the local fire department and are they equipped to handle emergencies at the plant?

Ameren has indicated that the plant's fire alarm system is connected to the local fire department. As part of its ongoing fire safety program, in addition to working to minimize the risk of fire, Ameren works with the local fire departments and neighboring departments to assure that they are prepared to handle fires and other possible emergencies at its power plants.

25. Peaking turbines can be turned on automatically from another site. Is Ameren going to staff these turbines with people there all the time? Will there be staff whenever a unit is operated?

Ameren has indicated that the turbines will be equipped for remote operation. It has not yet determined what level of staffing will be required to support operation of the units. As peaking units operate intermittently, the units will not be staffed around the clock. The level of staffing will likely depend on how much and when Ameren actually needs to operate the units.

26. Does the Missouri Public Service Commission have any role for this project?

Yes. Ameren reports that this project is being carried out by Ameren U.E., Ameren's regulated utility company, which serves both Missouri and Illinois. Accordingly, the Missouri Public Service Commission has a role for the project as it involves the "basis" for Ameren U.E.'s electric rates, i.e., the approved expenses that Ameren U.E. is entitled to recover in its rates.

For Additional Information

Questions about the public comment period and permit decision should be directed to:

Bradley Frost, Community Relations Coordinator
Illinois Environmental Protection Agency
Office of Community Relations
1021 North Grand Avenue, East
P.O. Box 19276
Springfield, Illinois 62794-9276
217/782-7027