

MIDWEST ELECTRIC POWER, INC.
PEAKING POWER PLANT, JOPPA, ILLINOIS

PROJECT SUMMARY

I. INTRODUCTION

Midwest Electric Power, Inc. an affiliate of Electric Energy, Inc. has requested a permit for the construction of natural gas fired power plant capable of generating approximately 318 MW of electricity. The project site is located north of Electric Energy, Inc. Joppa Power Station, in Massac County.

II. PROJECT DESCRIPTION

The proposed project will include five combustion turbines fired with natural gas. The turbines would be used in a simple cycle configuration, with all power produced by a generator connected to the shaft of the turbine. This facility is designed to function as a peaking station, to generate electricity in the peak demand periods, and at other times when other power plants are not available due to scheduled or unexpected outages. Operations of the facility may occur throughout the year, although the facility is expected to run primarily in the summer months.

Emissions of carbon monoxide (CO), nitrogen oxide (NO_x), particulate matter/particulate matter <10 microns (PM/PM₁₀), sulfur dioxide (SO₂) and volatile organic material (VOM) result from the combustion of fuel.

The principal air contaminants emitted from the proposed turbine are NO_x and CO. NO_x can be formed thermally by combination of oxygen and nitrogen in the air at the temperatures at which fuel is burned. Thermal NO_x is formed during the operation of all common high temperature combustion processes. NO_x can also be formed from the combination of any nitrogen in the fuel with ambient air oxygen component. This is not significant for burning of natural gas, which contains trace amounts of nitrogen. Factors affecting NO_x formation from a turbine include design, ambient conditions, turbine load and fuel types. The NO_x emissions from the proposed turbine will be controlled with water injection into the combustors. Water injection lowers NO_x formation by lowering the combustion flame temperature.

CO is formed by the incomplete combustion of fuel. CO is associated with most combustion processes and is found in measurable amounts in turbine exhaust. VOM and PM/PM₁₀ are also emitted as a result of incomplete combustion of fuel. SO₂ is found only in trace amounts from combustion of natural gas.

CO and VOM are controlled by providing adequate fuel residence time and high temperature in combustion zone to ensure complete combustion. PM/PM₁₀ are controlled by proper combustion control and firing natural gas fuel, which has negligible ash content.

III. PROJECT EMISSIONS

The project will be accompanied by a contemporaneous decrease in NO_x emissions for existing boilers at the site. The existing boilers operated by Electric Energy Inc. (EEI), and the proposed new facility, Midwest Electric Power Inc. (Midwest), are considered a single source because EEI

exercises authority over both facilities, so that they are considered under common control. EEI's current NO_x emissions are already at levels that comply with the federal Acid Rain program. EEI will enhance the operation of the NO_x control measures installed on the boilers to comply with the Acid Rain program, to further lower NO_x emissions. The table below gives the EEI historical plant NO_x emissions:

<u>1996</u>	<u>1997</u>	<u>Two year Average</u>
11,487	11,936	11,712

The annual NO_x emissions from EEI and Midwest are limited to 11,751. The total annual emissions from the combustion turbines are limited to 99.8 tons of CO, 14.9 tons of PM, 10 tons of SO₂ and 10 tons of VOM. These limits are based on the manufacturer's experience with similar equipment, the potential utilization of the generation system and emission factors provided by USEPA. Actual emissions may be less than the maximum emissions, depending on actual utilization and performance.

IV. APPLICABLE REGULATIONS

All emission sources in Illinois must comply with the Illinois Pollution Control Board emission standards. The Board's emission standards represent the basic requirements for sources in Illinois. The proposed project will readily comply with applicable state and federal emission standards, including the Illinois Air Pollution Control Board emission standards and regulations (35 Ill. Adm. Code: Subtitle B).

This project is also subject to the federal New Source Performance Standards (NSPS), 40 CFR 60 Subpart GG, for Stationary Gas Turbines. The Illinois EPA is administering NSPS in Illinois on behalf of the United States EPA under a delegation agreement. This standard addresses NO_x emissions from gas turbines, limiting NO_x emissions to 75 ppmdv, adjusted for actual turbine efficiency. The project should also readily comply with the applicable requirements of these standards.

V. APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION OF AIR QUALITY (PSD) RULES AND MAJOR STATIONARY SOURCE CONSTRUCTION AND MODIFICATION (MSSCAM)

This project is not considered a major project pursuant to PSD. This is because the NO_x emissions are accompanied by a contemporaneous decrease and the emissions of sulfur dioxide, carbon monoxide, volatile organic material and particulate matter from the operation of this facility, as limited by the permit would be less than significant emission rates for PSD.

VI. PROPOSED PERMIT

The conditions of the proposed permit for the facility contain limitations and requirements for the existing boilers and new turbines to assure that the facility's emission will be less than significant emission rates. The permit also establishes appropriate compliance procedures, including inspection practices, recordkeeping requirements, monitoring requirements and reporting requirements.

The proposed permit includes enforceable limits on emissions; operation and fuel consumption to assure that the project remains below the level of major source applicability. A continuous emissions

monitoring system and fuel monitoring is required for the turbines to confirm actual levels of operation and compliance with applicable limits.

VII. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that the proposed permit meet all applicable state and federal air pollution control requirements. The Illinois EPA is therefore proposing to issue this permit.

Comments are requested on this proposed action by the Illinois EPA and the proposed conditions of the draft permit.