

KENDALL NEW CENTURY DEVELOPMENT, LLC.
PLANO, ILLINOIS
PROJECT SUMMARY

I. INTRODUCTION

The Kendall New Century Development, L.L.C. (KNCD), a subsidiary of Enron has requested a permit for the construction of natural gas fired power plant capable of generating approximately 664 MW of electricity.

The project site location is located at approximately two miles northwest of Yorkville and 6 miles east of Plano on Corneils road, in Kendall County. The project site is currently undeveloped.

II. PROJECT DESCRIPTION

The proposed electric generation facility will include eight combustion turbines to directly generate electricity. The units will utilize low NO_x burners that minimize formation of nitrogen oxides (NO_x). These turbines are intended for use during peak loading periods. Currently peak loading typically occurs during daylight and evening hours on hot summer weekdays. As such, KNCD anticipates that these “peaking units”, will each operate at most 3,300 hours per year. In a given year, actual utilization will be far less depending on the demand for electric power.

The turbines would be installed as simple cycle units, with all power produced by generators on the shaft of the turbines. Additional power will not be generated by steam, produced by heat recovery boilers on the exhaust of the turbines. KNCD does not believe that heat recovery would be cost effective, in part on these units because the turbines must startup rapidly to meet electrical demand from consumers.

Two natural gas-fired heaters will also be used to warm the natural gas prior to use by the combustion turbines. The gas must be heated because it is received at pipeline pressure and cools when the pressure is lowered to operating levels. The amount of heating required will depend on natural gas delivery pressure. The facility will also be equipped with a single 500 HP diesel fired emergency fire water pump.

III. PROJECT EMISSIONS

Emissions of combustion products (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 in the turbines and the fuel heaters.

The potential emissions from the proposed project are summarized below. Potential emissions were based on operating at the maximum hours requested for each unit, e.g., operation of 3,300 hours per unit per year.

Potential Project Emissions (ton/yr)		
Pollutant	Project Potential	PSD significance Threshold
CO	714.2	100
NO _x	432.1	40
PM/PM ₁₀	164.2	25/15
SO ₂	72.3	40

VOM	26.1	40
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IV. APPLICABLE REGULATIONS

A. GENERAL

The proposed project will 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) and applicable federal emission standards.

B. ADDITIONAL REQUIREMENTS FOR MAJOR MODIFICATIONS

The project is in an area classified as attainment for all criteria pollutants. This source has potential emissions greater than 250 tons per year for NO_x and CO and thus this facility is considered now a major source subject to Prevention of Significant Deterioration regulations (PSD), 40 CFR 52.21. The SO₂ and PM/PM₁₀ emissions noted above exceed the PSD significant emissions threshold and are also subject to the additional requirements imposed by the federal rules for PSD.

With regard to ozone, VOM emissions are regulated as precursors to ozone formation in the atmosphere. Potential VOM emissions are not above PSD significant threshold and thus not subject to the federal rules for PSD.

V. PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The PSD rules were established to ensure that new major sources will not adversely impact “clean air” areas and will comply with applicable air quality standards.

A PSD review requires: 1) a case-by-case Best Available Control Technology (BACT) determination, taking into account energy, environmental and economic impacts, as well as technical feasibility; 2) an ambient air quality impact analysis, including a baseline determination and dispersion modeling, to determine whether the allowable emissions from the source, in conjunction with the proposed net emissions increase, would cause or contribute to a violation of the applicable PSD increment or National Ambient Air Quality Standard (NAAQS); 3) an assessment of the impact on soils, vegetation and visibility; and, 4) public notice and comment, including an opportunity for public hearing. The Illinois EPA has been delegated authority by the USEPA to administer the federal PSD program.

A. BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

BACT is defined as an emission limitation based on the maximum degree of pollution reduction determined on a case-by-case basis considering technical, economic, energy and environmental considerations.

A BACT analysis was conducted for NO_x, CO, SO₂ and PM/PM₁₀ in order to determine the most appropriate level of control required at the facility for these pollutants. In considering the technical, economic, energy and environmental considerations, the Illinois EPA determined that the project will utilize BACT.

As determined by Illinois EPA, BACT will include use of Dry low-NOx combusters will be used on the turbines. The proposed BACT limits would require compliance with a maximum NOx emission rate of 9 ppmv on an annual average, 12 ppmv on a monthly average and 15 ppmv on an hourly average. BACT also will include utilization of low-NOx burners with the fuel heaters to minimize emissions of NOx. These practices represent the stringent level of control for NOx required on similar simple cycle turbines in other similar projects across the country.

Good combustion practices including use of gaseous fuels will be used on the turbines and fuel heaters to minimize emissions of CO and PM/PM₁₀.

Use of natural gas fuel effectively minimizes SO₂ emissions.

B. AIR QUALITY ANALYSIS

An ambient air quality analysis was conducted by the consulting firm, ENSR, on behalf of KNCD to assess the impacts of the increased emissions due to the proposed project. Under the PSD rules, this analysis must determine whether the proposed project will cause or contribute to a violation of any applicable air quality standard.

Modeling was done for NOx, CO, SO₂ and PM/PM₁₀ incorporating the proposed emissions increase at the power generation facility and major stationary sources in surrounding areas. The analysis performed conforms to the guidance and requirements of the USEPA and the Illinois EPA.

KNCD has provided adequate information to determine that proposed emission increases will not cause a violation of the National Ambient Air Quality Standards (NAAQS), and are in fact below the significant levels established under the PSD regulations.

Pollutant	Averaging Period	Maximum Predicted Impact (Fine Grid) (ug/m ³)	Significant Impact Level (SIL) (ug/m ³)	NAAQS (ug/m ³)
NO _x	Annual	0.213	1	100
PM ₁₀	24-Hour	1.11	5	150
	Annual	0.033	1	50
SO ₂	3-Hour	1.59	25	1,300
	24-Hour	0.551	5	365
	Annual	0.016	1	80
CO	1-Hour	36.7	2,000	40,000
	8-Hour	14.5	500	10,000

C. ASSESSMENT OF ENVIRONMENTAL IMPACTS

The ambient air quality assessment performed also assessed the potential impact of the power generation facility on soils, vegetation and visibility. The Illinois EPA concluded that the project would not cause any adverse effect to these environmental media.

VI. PROPOSED PERMIT

The conditions of the proposed permit contain the applicable limitations and requirements on the facility, including the measures that must be used to control NO_x emissions. The permit also establishes appropriate compliance procedures, including inspection practices, recordkeeping requirements and reporting requirements.

VII. REQUEST FOR COMMENTS

It is the Illinois EPA's preliminary determination that the proposed permit meets all applicable state and federal air pollution control requirements. The Illinois EPA is therefore proposing to issue a permit for construction of the proposed facility.

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