

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF AIR

December 2000

Responsiveness Summary
for Public Questions and Comments on the
federal Prevention of Significant Deterioration Permit Application for
Zion Energy L.L.C.

Site Identification No.: 097200ABB

Application No.: 99110042

Table of Contents

Permit Process	2
Comment Period and Public Hearing	2
Final Decision.....	2
Procedures for Appeal.....	3
Changes between the Draft and Final Permits.....	3
Questions and Comments.....	5
General Questions.....	5
Facility Emissions.....	7
Air Quality Impact	9
Best Available Control Technology (BACT).....	12
Other Applicable Requirements.....	19
Other Impacts.....	27
General Comments	27
Modeling Procedures.....	30
Administrative Procedures.....	32
Illinois Environmental Policy	34
For Additional Information.....	38

PERMIT PROCESS

Zion Energy L.L.C. submitted an application for a federal Prevention of Significant Deterioration (PSD) permit for an electric power facility in Zion. The proposed facility would include five simple cycle combustion turbines to generate up to about 800 MW. The facility would also include five auxiliary boilers, two fuel heaters, and a fuel oil storage tank. The facility is described as a peaking facility. As such it would operate primarily on hot summer days when the demand for electricity is at its highest. It would also operate at other times as needed to meet the demand for electric power. The facility would burn natural gas, which is the cleanest commercially available fuel, as its primary fuel. The facility would also have the capability to fire distillate oil in the turbines as a back-up fuel. The boilers would be used on a limited basis only as needed to produce steam that would be used in the turbines to augment their electric power.

The proposed project is considered a major source under the federal PSD program, 40 CFR 52.21, because the permitted emissions of pollutants from the facility would be greater than major source thresholds. The emissions of the turbines while burning natural gas would be controlled by the design of the combustors. (The combustors are the part of a turbine where the natural gas fuel is burned.) When the turbines burn oil, emissions of nitrogen oxides (NO_x) would be controlled by water injection into the combustors.

The Illinois EPA Bureau of Air processes applications for permits for sources of emissions to the atmosphere. An air permit application must appropriately address compliance with applicable air pollution control laws and regulations before a permit can be issued. Following its initial technical review of Zion Energy's application, the Bureau of Air made a preliminary determination that the application met the standards for issuance of a construction permit and prepared a draft permit for public review and comment.

COMMENT PERIOD AND PUBLIC HEARING

The public comment period began on June 30, 2000, with the publication of a notice in the Waukegan News Sun. Notices were also published in this paper on July 7 and 14, 2000. A public hearing was held on Monday, August 14, 2000, at 7:00 p.m. at the Zion Park District, Shiloh Center to receive oral comments and answer questions regarding the application and draft air permit. The comment period remained open until September 30, 2000 to receive written comments.

FINAL DECISION

Upon review of comments received during the public comment period and final review of the application, the Illinois EPA has determined that the application meets the standards for issuance of a construction permit. Accordingly, on December 8, 2000, the Illinois Environmental Protection Agency (Illinois EPA) issued a permit to construct the proposed electrical generation facility. The facility must be constructed and operated in accordance with applicable regulations and the conditions of the permit.

PROCEDURES FOR APPEAL

The issuance of the PSD approval may be appealed to the Environmental Appeals Board (EAB) of USEPA in accordance with USEPA's Procedures for Decision Making, 40 CFR Part 124. In particular, 40 CFR 124.19(a) provides that within 30 days of a final PSD permit decision any person who filed comments on the draft permit or participated in the public hearing may petition the EAB to review the decision or conditions of the issued permit. A person who did not file comments or did not participate in the public hearing on the draft permit may petition for review only to the extent of changes from the draft permit to the final decision.

The petition for review must include a statement of the reasons supporting the review, including a demonstration that the issues being raised in the petition were also raised during the public comment period, and when appropriate, a showing that the matter in question is based on a finding of fact or conclusion of law that is clearly erroneous, or 2) an exercise of discretion or an important policy consideration which the EAB, in its discretion, should review.

The extent of public comment required to support an appeal of the issuance of a PSD permit or the terms of a condition contained in the PSD permit is set forth by 40 CFR 124.13. These regulations provide, in brief, that the person must raise all reasonably ascertainable issues and submit all reasonably available arguments supporting their position during the public comment period on the draft permit. Any supporting material must be submitted in full and may not be incorporated by reference, excluding certain specified materials clearly available to the USEPA.

Appeal petitions filed by mail must be addressed to the Environmental Appeals Board, MC 1103B, U.S. EPA, Ariel Rios Building, 1200 Pennsylvania Avenue, N.W., Washington, D.C. 20460. Documents that are hand-carried may be delivered to the Board at its offices at 607 14th Street, N.W., Suite 500, Washington, D.C. 20005. Documents may be filed with the Clerk of the Environmental Appeals Board only between the hours of 8:30 a.m. and 4:30 p.m. Eastern Time Monday through Friday (excluding Federal holidays). The Clerk of the EAB may be reached at telephone (202) 501-7060. [Also refer to www.epa.gov/eab/eabfaq.htm]

CHANGES BETWEEN THE DRAFT AND FINAL PERMITS

The permit as issued includes the following significant changes compared to the draft permit, which were made in response to public comments.

- Condition 2(b): The condition was enhanced to more clearly limit use of fuel oil by the facility to use as a backup fuel.
- Condition 3(c): The Best Available Control Technology (BACT) requirement for nitrogen oxide (NO_x) emissions from the turbines while firing natural gas without power augmentation was made more stringent by lowering it to 9 ppm.
- Condition 12: The requirements for emission testing were enhanced for clarity and to include testing for carbon monoxide, particulate matter, and volatile organic material for

intermediate and minimum turbine load, testing of emissions during startup of the turbines, and testing for hazardous air pollutants if Method 18 is used to test for volatile organic material emissions.

Condition 13(b): The requirements for operational monitoring were enhanced to address injection of water into the combustors for control of NO_x as required when firing fuel oil in the turbines.

Condition 16: The requirements for recordkeeping were enhanced to include records for additional data and information and reorganized for clarity.

Condition 18(b): The requirements for notification were enhanced to include notification for use of back up fuel under certain circumstances.

Condition 19(b) & (d): The requirements for reporting were enhanced for clarity and to include routine reporting for the number of startups and reporting of preliminary emission data if testing is not done within 45 days of gainful operation.

Condition 21: A condition was added setting forth the circumstances under which the permit would authorize construction of the proposed facility and individual emission units, consistent with the applicable provisions of PSD, 40 CFR 52.21.

Condition 22(b): A condition was added clarifying that the facility would be subject to any new requirements that would be applicable to construction or operation of the turbines based on the timing of their actual installation.

Table 1A and 1B: The hourly emission limit for NO_x was lowered to reflect the lower BACT limit.

Table 1C, Footnote 2: Footnote 2 was enhanced to include the startup emission multiplier factor for fuel oil firing and to increase the multiplier factor for natural gas firing and to clarify that the Permittee must fully account for all emissions from the proposed facility.

QUESTIONS AND COMMENTS

General

1. How will the proposed gas turbines make electricity?

A gas turbine is a rotary engine in which fuel is continuously burned with the force of the hot combustion gases as they expand pushing on a series of blades to rotate a shaft. When used in a power plant, the power shaft is connected to an electrical generator.

These turbines have the ability to increase their output of electricity with introduction of high-pressure steam that would also push the blades to rotate the generator.

2. Can the proposed gas turbines use fuels other than natural gas?

The proposed facility would fire natural gas as its primary fuel. Zion Energy would also be able to burn distillate fuel oil as a back-up or emergency fuel. The turbines are not physically able to burn coal or other solid fuel.

3. What is the difference between a peaking facility and so-called “base load” facilities?

Peaking facilities are intended to operate only when the demand for power is at its greatest (in Illinois, typically hot summer week days) and other times when less costly sources of power (such as coal-fired and nuclear plants) are not able to meet the demand for power. Base load power plants are developed so that they can be operated essentially year round, if there is a need for power at the price at which they can produce it.

In this regard, the gas turbines in peaking power facilities are installed in a “simple cycle” configuration, as they exhaust directly to the atmosphere, without using boilers to recover the energy in the hot exhaust gases. This means that peaker plants are also less efficient and more costly to run than “combined cycle” turbines. In a combined cycle turbine, the hot exhaust gases discharged from the gas turbines do not go directly to the atmosphere but instead are ducted through a waste heat boiler and used to make steam. This steam is then used to drive a steam turbine generator, to produce more electricity, which increases the overall output of the system compared to the gas turbine by itself. The recovery of steam in this manner increases the energy efficiency of a combined cycle plant by about 50 percent compared to a simple cycle turbine. However, the greater efficiency and lower operating costs of a combined cycle turbine come at a higher capital cost for the additional equipment, including the waste heat boiler, the steam turbine generator and a cooling tower to condense and reuse the steam, which are not present with a simple cycle turbine.

4. What is a “merchant power plant?”

A merchant power plant sells electricity on a wholesale basis to other companies that then sell the power on a retail basis to individual residential, commercial and industrial customers. Under deregulation of electricity generation, the developer of a merchant power plant is not guaranteed a return on its investment and must compete in a free economic market to sell the power it can produce. A merchant power plant can be either a peaking facility or a base load facility.

5. The proposed facility would not operate as a true peaker based upon the hours of operation for which it is effectively being permitted.

The permitted level of annual operation of the proposed facility is not inconsistent with actual operation as a peaking facility. Moreover, the aspect of this facility that restricts its operation to peaking operation is the permitted equipment, i.e., natural gas fired simple cycle turbines. Simple cycle turbines (peaking facilities) do not routinely operate when other types of plants are able to meet the demand for power. This is because the cost of electricity, in dollars per megawatt generated by a simple cycle turbine is significantly higher than the cost of electricity produced by nuclear power plants, coal-fired plants or natural gas fired combined cycle plants. (In this regard, peaker plants by themselves generally should not be expected to lead to the shutdown of these existing plants except as they may allow certain older plants that are inefficient and very expensive to operate to be retired.)

With respect to the proposed facility's permitted level of operation, sources routinely apply for permitted levels of operation that are greater than those at which they expect to operate. This provides capacity or room to accommodate additional operation based on unusually high demand for services. This is certainly an interest of peaking facilities. The operation of peaking facilities can vary greatly from year to year based upon the weather and other factors that affect the demand for power and the ability of other power plants to satisfy that demand. Accordingly, the permitted levels of operation should be understood for exactly what they are, which is the maximum level of operation for which a facility is permitted in any one year.

Developers of new natural gas fired combined cycle plants are also requesting permits that overstate the likely level of operation of their facilities. They apply for permits that would allow year-round operation like a base load power plant. Because the power that combined cycle plants produce will still be more expensive than power produced from base-load nuclear and coal-fired plants, these combined cycle plants would typically be expected to actually operate as intermediate or cyclic load plants. Nevertheless, the companies developing these facilities are pursuing permits that would allow continuous year-round operation.

6. Are the turbines at the proposed facility equipped with "dry" combustors or do would they rely on water injection to control NO_x emissions?

When natural gas is fired, which is the primary fuel, the combustors will be "dry" combustors, in which the mixing of air and fuel is carefully managed to minimize the "hot spots" in the flame where NO_x is actually formed. The combustors would also have the capability to inject water when oil is fired. In wet combustors water, either as a liquid spray or as steam, is injected into the combustor in about a one-to-one ratio with the fuel to reduce peak flame temperatures to "slow down" the combustion process and reduce the formation of NO_x.

7. During the winter, the plant may create ice fog.

Ice fog is not a significant issue for the proposed facility. During very cold weather, as can be experienced in Alaska, ice fog can occur from turbines equipped with water injection to control emissions of NO_x. As a peaking facility, the facility would not normally operate in the winter and Illinois' winter weather is rarely cold

enough for ice fog to be formed.

8. How many stacks would the proposed facility have?

The facility is being permitted for 12 principle emission units, five turbines, five boilers, and two gas heaters each of which would discharge through its own exhaust or flue. Each flue could have its own stack or the flues could be placed next to each other so that that there would be fewer than 12 stacks.

9. Would cooling towers be used to help chill the inlet air going into the turbines?

No. Zion Energy indicates that chiller systems, which include cooling towers, would not be used on turbines to cool the inlet air to the turbines on warm days to increase power output. Instead, only evaporative cooling would be used. With evaporative cooling, water is dripped directly onto the media in the inlet air filter to cool the air as it passes through the filter.

Facility Emissions

10. What pollutants would be emitted from the proposed facility?

The pollutants emitted by the proposed facility are the pollutants associated with burning of natural gas for any purpose. The pollutant of greatest concern for a natural gas fired power plant is NO_x. Other pollutants emitted include carbon monoxide (CO) and, in smaller amounts, particulate matter (PM), volatile organic material (VOM) and sulfur dioxide (SO₂). Some of the compounds that make up the VOM are hazardous air pollutants (HAP).

11. Who provides the information regarding emissions?

Zion Energy provided detailed information in its application on the emission rates that the proposed turbines can meet. It also provided data on emissions of the turbines during startups. Like other applicants, it obtained short-term hourly emission data from General Electric, the supplier of the turbines. Manufacturers of turbines compile the results of tests conducted on their equipment to help determine the emission limits with which their equipment can comply.

12. Neither Zion Energy nor the Illinois EPA provided the engineering calculations used to determine emissions.

This information, i.e., the specific methodology used by General Electric to makes its projection of maximum hourly emissions of the turbines, was not needed to review the application. Compliance with the emission rates set forth in the application would be verified by during actual operation of the proposed facility with emission testing, monitoring and recordkeeping. An engineering review of the methodology used by General Electric to provide emission data would not excuse the source from such verification of emission data, which must occur before an operating permit could be issued for the proposed facility.

13. Was the information provided in the application based on the short-term emission data for operation of the turbines at a particular temperature?

Yes. For example, Zion Energy multiplied the maximum emission rates at 49° F for natural gas firing, without power augmentation, times 1300 hours to determine the contribution of this mode of operation for annual emissions.

14. Because the Illinois EPA does not know for certain under what conditions the proposed facility will be operating, calculations for annual emissions should be done assuming “worst case scenario” just as done for the air quality modeling.

The application does provide emission data for the range of conditions under which the proposed facility will be operating. This includes data for both the conditions during which emissions will be greatest (cool weather operation and reduced load) and the conditions during which the turbines will typically operate when emission will be lower (summer weather and full load). Actual emissions can be tracked to verify compliance with annual limits so as to accommodate variability in operation depending upon the condition under which turbines are operated.

Air quality modeling is conservatively performed in the manner that it is performed for a number of reasons that are not present for determination of annual emissions. In particular, modeling is performed to address air quality impacts as related to health based air quality standards, not applicability thresholds for permitting. These standards include short-term standards that are appropriately addressed in terms of maximum hourly or daily emissions. Finally, because modeling is performed conservatively, permits can accommodate variation in actual emissions without affecting the conclusions of the modeling.

15. Data for startup emissions from turbines, a major component of overall emissions, are largely unknown.

Certainly the emission data that is available for startup of turbines is not as extensive as the data that is available for normal operation of turbines. Still, startup of turbines has been investigated by USEPA and information on emissions of turbines during startup is available. In its application, Zion Energy has provided very detailed data on emissions during startup for NO_x, CO and VOM, the pollutants of particular interest for startup.

In this regard, the startup of a turbine does not create any new pollutants, but changes the relative rates of pollutants. Emissions of NO_x during startup are higher as the measures used to reduce NO_x cannot be immediately implemented. Emissions of CO and VOM, which are incomplete combustion products, are also higher until combustion conditions stabilize. To the extent that the startup data is not as extensive, the result appears to be that manufacturers of turbines are reluctant to provide this data. This also suggests that as this data is provided, which has been done for the proposed facility, that this data is more conservative than the data provided by the manufacturer for normal operation, that is, the data overstates the actual emissions as determined by emission testing by a larger margin of compliance.

16. Emissions during startup should be calculated assuming one startup per day per turbine or 365 starts per turbine per year.

Based on the nature of peaking plants and the historical operation of peaker plants in Illinois, it is unrealistic to expect that the proposed peaking facility would operate on a daily basis, year-round. Base load power plants are able to supply the demand for electric power on most days.

17. Hazardous air pollutants that are carcinogenic, such as formaldehyde and acrolein, would be present in the VOM emissions from the proposed facility and would be a threat to people living near the facility.

The pollutants from this facility are the ones that are emitted anytime natural gas is burned whether it is in a home furnace, gas stove or an industrial boiler. As with these other units, trace levels of carcinogenic compounds, which are the product of incomplete combustion, are present in the VOM emissions. The Illinois EPA's evaluation indicates that the impacts of hazardous air pollutants would not be significant.

Air Quality Impacts

18. What would be the effect of the proposed facility on ambient air quality?

The proposed facility should not have a significant effect on ambient air quality. This means that existing air quality in the area of the facility should not be affected or threatened by the facility.

19. What are "significant air quality impact levels"?

The term "significant air quality impact level" refers to specific numerical levels established by USEPA for criteria pollutants other than ozone, below which a source's individual impact is considered insignificant. For example, the USEPA has set a significant air quality impact level for NO_x at a concentration of 1.0 microgram per cubic meter (ug/m³), which is one percent of the NO_x ambient air quality standards of 100 ug/m³, measured as NO₂. As a modeling analysis of a proposed source evaluates its maximum ambient impacts, a finding that the impacts are below this level means that the source should not measurably affect the existing air quality. In other words, air quality with the proposed source should be essentially unchanged from current levels and further modeling is not warranted. When used in this manner, the phrase really defines a level of impact that is numerically insignificant or trivial. This is the situation of the proposed facility when fired on natural gas. When fired on oil, the maximum 24-hour impacts for PM and SO₂ are higher than the significant air quality impact levels (6.6 and 9.1, respectively, compared to 5.0 ug/m³). However, these impacts would by no means threaten compliance with the applicable 24-hour air quality standards (150 and 365 ug/m³, respectively).

20. Can the Illinois EPA give an absolute guarantee that the proposed facility will not pose a threat to public health or the environment?

The Illinois EPA cannot give an absolute guarantee that the facility is safe. It has relied on experience elsewhere

showing that natural gas fired power plants do not have significant effects. Dispersion modeling of the air quality impacts of the proposed facility shows that the facility will not cause an exceedance of any national ambient air quality standard.

21. What would be the impact of the proposed facility on ozone air quality?

The simple answer is that the facility should not have a measurable affect on local ozone air quality, either negatively or positively. The ozone in the air in Lake County is a result of its location in the Greater Metropolitan Chicago area and is caused by emissions from many varied sources. In order to improve ozone air quality in the greater Chicago area, reductions are needed in precursor emissions in both the Chicago area itself and from sources outside the area whose emissions contribute to high-levels of ozone entering the Chicago area. The additional emissions from the proposed facility would be small compared to the emissions of these existing sources. Improvements in ozone air quality require reductions in emissions from existing sources.

By way of more detailed explanation, ground-level ozone pollution is formed in the atmosphere on hot sunny days by the reactions of precursor compounds, primarily VOM and NO_x. Ozone is not directly emitted out of a stack or tailpipe. Detailed analyses conducted for ozone air quality in the Lake Michigan basin indicate that the exceedances of the ozone air quality standard in the Chicago area are the result of a two-step process. First, high levels of background ozone enter the Chicago area, due to the NO_x emissions from sources in attainment areas in both Illinois and nearby states. Then, VOM emitted in the Chicago area reacts to add additional ozone on top of the high background levels, causing exceedances of the ozone air quality standard. NO_x emissions in the Chicago play a limited role in the exceedances, but do add to the background levels affecting areas downwind of Chicago, just like transport of NO_x emissions from downwind attainment areas affects the Chicago area. In light of these findings, USEPA and Northeastern and Midwestern states are working to dramatically reduce their overall NO_x emissions, as this will generally improve ozone in both urban and rural areas in this region. We are also continuing with programs to reduce VOM emissions, particularly in urban areas.

What this means is that the proposed facility should not have a measurable effect on ozone levels in Lake County. At most, any impact would be on areas further down-wind and the facility's impact would be trivial compared to the broader effect of the Chicago area. To the extent that the facility does have an effect on these down-wind areas, it is addressed along with the existing sources in Illinois' ozone attainment demonstration.

22. How far downwind from the proposed facility will the ozone formation take place and should we be concerned?

Modeling of ozone air quality generally suggests that power plants contribute to ozone formation tens of miles downwind. At this distance, the proposed facility would only be a very small part of the overall loading of NO_x in the atmosphere and will not have a significant impact on ozone formation. Of more importance for ozone air quality are the much larger amounts of NO_x emitted from downstate coal fired power plants. Illinois is engaged in adopting a program to reduce emissions from those facilities to help solve the ozone problem not just in the Chicago area but also in states downwind of Illinois that are affected by long-distance transport of NO_x. The public should be concerned that these programs go forward, so that ozone levels in the ambient air are at safe levels.

23. What is the current air quality in the vicinity of the proposed facility?

For criteria pollutants other than ozone, Lake County is considered an attainment area. Based on data from the Illinois EPA ambient monitoring stations in Lake County and at sites similar to Lake County, air quality is within the national ambient air quality standards. For example, the maximum particulate matter concentration measured at the station in Hoffman Estates in 1999 was 72 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), measured as PM_{10} , compared to a daily standard of $150 \mu\text{g}/\text{m}^3$.

With respect to ozone, Lake County is part of the Chicago Major Metropolitan Area and is part of the designated ozone nonattainment area. An ozone monitor is located in Zion at Camp Logan in Illinois Beach State Park. In the last three years, this ambient monitoring station has measured two exceedances of the of the 1-hour ozone air quality standard.

24. Clean air quality will be compromised by the emissions of the proposed facility.

Modeling of air emissions from the facility shows that the emissions from the facility will not compromise healthful air quality as measured compared to the National Ambient Air Quality Standard. After construction, the facility will undergo testing to show that it can meet the emission limits in the permit, which reflect the emission rates used in the air modeling.

25. Air quality is already significantly deteriorated.

Air quality in Illinois has been steadily improving year by year. Further improvements to air quality are being sought, especially for areas that still do not meet the ambient air quality standards.

There are several state and federal programs being implemented in the State of Illinois to address the need to bring the Chicago and East St. Louis areas into attainment with the federal ozone standard. Specifically for Lake County, as addressed above, further reductions in NO_x emissions from downstate coal fired power plants that are upwind of the Chicago area and reductions in VOM emissions from Chicago area sources are needed to assure that Lake County does not experience ozone exceedances. Programs outside of the permitting process are being implemented to meet these goals.

26. Does Illinois EPA have less stringent air quality standards for industrial areas?

No. Air emissions control requirements in Illinois are based on the air quality in the area, regardless of land use. As a practical matter, the air pollution control program and permitting assume that an area is populated, even if an area is currently agricultural or industrial in character. As a result, the Illinois EPA's review of a permit application is independent of local land use.

27. How does the Illinois EPA determine what a safe level of emissions is?

Air quality standards are set by USEPA on a national basis. USEPA uses both laboratory research and clinical health data to set the health-based National Ambient Air Quality Standards for different pollutants at conservative levels to be protective of sensitive populations. USEPA also sets standards based on other

effects of pollutants to protect public welfare and the environment.

28. Are air quality standards developed to protect children and the elderly?

Air quality standards are set by USEPA to be protective of sensitive portions of the general population including both the young and old. In particular, the NO₂ air quality standard was set to protect asthmatic individuals, who are especially sensitive to respiratory irritants. It also protects young children from increased incidence of respiratory infections. This has resulted in a standard that is set well below the level at which NO₂ has been found to have effects on healthy adults.

29. What would be the impact of the proposed facility on Illinois Beach State Park?

The proposed facility should not affect the state park, which would be over three miles away from the nearest boundary of the park. The air quality experienced by the park is a consequence of its location in the Chicago metropolitan area, with its millions of cars and trucks, and thousands of existing stationary sources, including a number of existing coal-fired power plants. While the park's location is one reason that it is such a valuable recreational and educational resource, it also poses concerns to the natural areas in the park, not just for environmental impacts, but also due to the intensity of public use.

30. In addition to modeling for major pollutants emitted from the proposed facility, dispersion modeling should also be performed for hazardous air pollutants.

Analysis of the air quality impacts of natural gas fired power plants generally do not show impacts that are of concern, as compared to health impact thresholds developed by USEPA*. This is the case for this facility, as confirmed by specific evaluation performed by the Illinois EPA.

* Although USEPA has not adopted air quality standards for hazardous air pollutants, it has published guidance to assist in evaluating the air quality impacts of hazardous air pollutants.

Best Available Control Technology (BACT)

31. The turbines are being permitted for far more hours than they should reasonably need, given that the facility is characterized as a peaking facility. The permitted hours of operation of the turbines, i.e., 2300 hours per year should be reduced.

As explained in the response to Comment 5, the primary feature of the facility that restricts its use to peaking is the use of simple cycle turbines. The limitations on hours of operation in the permit are secondary, and are sufficient to distinguish the facility from base load power plants that are permitted for year-round operation, i.e., 8760 hours per year.

32. The Illinois EPA should have considered the need for the proposed facility in its BACT evaluation.

Need is not a factor that should be considered in the BACT evaluation for the proposed facility. In this regard, it is significant that the State of Illinois is in the process of economic deregulation of the electric utility industry. The Zion Energy project is not subject to review and approval by the Illinois Commerce Commission as would have previously occurred for new power plants in Illinois proposed by utilities like Commonwealth Edison and Illinois Power. Accordingly, the Zion Energy project is similar to projects being pursued by manufacturing companies. For such projects, the Illinois EPA does not consider the need for the output of a proposed facility as part of a BACT evaluation. Instead the need for the output of the facility, and the actual utilization of the facility, is set by the market place. Once such a facility is built, it may flourish or languish, depending upon its ability to compete with other suppliers of similar products.

Moreover, the comments on the issue of need did not suggest an appropriate technical basis by which to consider the need for the proposed facility. In particular, the comments also indicate that growth in the demand for power could be met by other new facilities, which are also being proposed. The comments also suggested that there was not a need for the proposed facility when comparing the current demand for power and generating capacity in the Chicago area. Certainly, the Illinois EPA cannot assume that other new power plants will be built that have not even submitted applications or been permitted. One should also not necessarily assume that existing coal-fired and nuclear power plants will remain in operation and be available to meet peak power demand. One could also assume that some existing power plants will be shutdown, due to their age, the imposition of new environmental requirements, and the availability of alternative power supplies. Even if existing power plants continue in operation, the Illinois EPA does not have the expertise to evaluate the state of the electric power transmission system (the grid) to determine that these existing plants will be physically able to supply peak power to the locations where it is needed.

Equally important, this comment assumes that authoritative data can be obtained for summer weather in future years as it affects power demand and for other relevant factors affecting peak power demand so as to allow the future demand for peaking power to be determined. In this regard, the evaluation of need for peaking power plants is particularly difficult because peaking power plants serve as reserve if not emergency equipment. As such, peaking power plants are still productive or beneficial if they are only needed a few hours per year, as they serve to maintain an uninterrupted supply of power. These are aspects of the electric industry in Illinois that are outside of the expertise of the Illinois EPA. To the extent that expertise on such matters does exist in Illinois' government, it would be within the purview of the Illinois Commerce Commission as it addressed and regulated the generation of electricity prior to deregulation.

Beyond this, comments also indicate that power from the proposed facility could go to places other than the Chicago area. Thus, while the Chicago area would most likely be the primary market for this facility, given its location, the proposed facility may also serve secondary markets that are farther away. The comments did not suggest and support an appropriate geographic basis upon which to gauge need for the proposed facility or provide information on generating capacity and the need for power over the entirety of this area. Furthermore, the comments do not demonstrate that it would be appropriate or constitutional with economic deregulation of electric in Illinois to restrict an evaluation of the need for power to Illinois or the Chicago area.

In summary, the evaluation of need for the proposed peaking facility is beyond the scope of both BACT requirements and the expertise of the Illinois EPA. Moreover, the comments requesting such an evaluation certainly did not provide an adequate explanation of how such an evaluation can and should be performed.

33. The BACT evaluation should include an analysis of alternatives to the proposed facility, such as demand-side management of power or alternative sources of power like fuel cells or solar energy.

The BACT evaluation should not consider these alternatives as they are not reasonably implemented by Zion Energy nor are they within the scope of the proposed facility. In particular, as an independent power producer, Zion Energy does not sell power on a retail basis to individual users of power so as to be able to facilitate or directly encourage measures to reduce demand for power. In addition, while alternative sources of power like fuel cell and solar energy technology are being researched and developed, this comment did not show that these technologies are a means by which Zion Energy could develop a new plant to supply electric power in an amount and by the date proposed.

Moreover, economic deregulation of the electric utility industry, which has facilitated the development of the proposed facility, should encourage energy conservation measures. This is because consumers of electricity will eventually pay the real cost of generating the power they consume, without the regulatory price constraints that previously insulated many customers from these costs. Energy conservation and energy efficiency measures will become more attractive as the price of electricity increases. This is particularly true as applied to peak power consumption, as peaking power plants, which are commonly considered the most expensive source of commercial electric power, must routinely be used to meet the demand for power. In this respect, it is also significant that the “cost “ of power from a peaking plant is primarily due to its operating costs, from the price of fuel. Peaking plants do not have the same incentive to operate once built as base load power plants, which from a financial perspective need to operate to recover their much higher up-front capital investment. Peaker plants are generally under an incentive to actually operate only as less expensive power is not available or able to meet the demand for power. Accordingly, it is not clear how the development of the proposed facility and other similar peaking facilities that are being proposed in Illinois would act to undercut implementation of energy conservation measures or development of alternative energy technologies.

34. The NO_x emission limitation in the draft permit does not constitute BACT. Other facilities using similar turbines are subject to BACT limits that require compliance with 9 ppm NO_x on an hourly average.

This is correct. Since the application for the proposed facility was submitted over a year ago, General Electric has demonstrated the ability to meet 9 ppm NO_x in its new large Model 7FA turbines during normal operation while firing natural gas, as would occur at the proposed facility. Accordingly, the BACT limit in the issued permit requires compliance with a 9 ppm limit in such circumstances after the initial shakedown period allowed by the permit. (The turbines are not required to comply with this limit during the shakedown period because adjustment or “tuning” of the combustors may be required during shakedown to optimize combustion. This is a particular concern for these turbines that also are planned to have the capability to burn oil and be able to augment power output with steam.)

35. The BACT evaluation does not demonstrate adequately that selective catalytic reduction (SCR) should not be used to control NO_x emissions from the turbines.

Control of NO_x as proposed, i.e., use of dry low-NO_x combustors when burning natural gas and wet injection combustors when burning oil, is readily demonstrated to constitute BACT. As indicated above, recent BACT determination for similar General Electric turbines have set BACT at 9 ppm NO_x. SCR systems have not been applied to large simple cycle turbines. Their use has only been demonstrated on smaller units with significantly higher levels of uncontrolled NO_x emissions.

36. The BACT evaluation should require an analysis of a combined-cycle “base load” facility as an alternative to the proposed facility.

As with other alternatives to the proposed facility, as discussed above, the Illinois EPA believes this is beyond the appropriate scope of the BACT evaluation for the proposed facility.

Moreover, while this alternative might allow add-on technology to be used that would lower the rate of NO_x emission, it would not necessarily lower the annual emissions of NO_x from the facility, . In particular, as a combined-cycle facility, the facility would most likely be permitted for continuous operation and would certainly operate for more hours each year than if it were only a peaking facility.

In addition, development of the proposed facility as a combined –cycle facility would greatly increase the amount of water that would be used by the proposed facility. The availability of suitable water and use of such water by this proposed facility rather than being held in reserve for other development in the area are not matters that the Illinois EPA is prepared to presume or dictate in the BACT determination.

37. The Wisconsin Department of Natural Resources imposed stringent requirements on the new power plant proposed by Badger Generating Company for Pleasant Prairie, Wisconsin. The Illinois EPA should be doing the same for the proposed facility.

The emission limits for the Badger Generating Station and other plants equipped with combined cycle turbines cited in comments do not demonstrate that such limits are appropriate and should be imposed upon the simple cycle turbines at the proposed facility. This is because unlike the cited plants, the proposed facility will be equipped with simple cycle turbines.

By way of background, the Badger Generating station would have a nominal capacity of 1050 MW from four combined cycle turbines permitted for continuous operation year round. If the Badger Generating station were allowed to operate without add-on control, with only NO_x control by combustor technology, permitted NO_x emissions would approach 1500 tons per year. In contrast, the proposed Zion Energy facility is a peaking facility and its emissions are effectively minimized by use of combustor technology. As already explained, add-on NO_x control is difficult to apply to simple cycle turbines, which the proposed facility would use, as compared to combined cycle turbines, which Badger Generating would use and which include waste heat boilers on the turbine exhausts, which can also house add-on NO_x control systems.

38. There are simple cycle turbines outside Illinois that are being operated with SCR to control NO_x. In addition, other companies developing new peaker plants in Illinois have stated that they plan to use add-on control systems. The Illinois EPA should be requiring add-on NO_x control for the proposed facility.

While these plants involve simple cycle turbines, the particular turbines can be readily distinguished from the turbines proposed to be installed by Zion Energy. In particular, these facilities involve smaller turbines, about ¼ the size of the General Electric Model 7FA turbine, and require wet combustion controls to be able to comply with an NO_x emission limit of 25 ppm. Thus, add-on control is needed to match the performance of the proposed turbines, which are capable of complying with a NO_x emission limit of 9 ppm during normal operation. In fact, with add-on control, which is 80 percent efficient, these smaller turbines should be able to comply with an NO_x emission limit of 5 ppm. Thus the add-on control systems reduces NO_x emissions by 20 ppm for the projects for which it is actually being used, whereas installation of the systems on the turbines at the proposed facility would only reduce NO_x by 4 ppm. The bottom line is that the emission reduction achieved by add-on control for these smaller turbines approaches the level where it can be considered acceptable for control of NO_x emissions. However, this is not the case for the use of add-on NO_x control on General Electric Model 7FA turbine would be well above the level typically expended for control of NO_x emissions. This is confirmed by other recent permits specifically issued to projects using General Electric 7FA turbines that set BACT at 9 ppm NO_x.

39. The BACT evaluation does not adequately address the use of fuel oil by the proposed facility. The permit also does not adequately restrict the use of oil as a backup fuel.

The BACT evaluation appropriately addresses use of fuel oil by the proposed facility given the purpose for which fuel oil would be used as described in the application, i.e., backup fuel. Enhancements have been made to the issued permit to make this role clearer. In particular, the provision of the draft permit that would have restricted use of backup fuel to periods of time during warmer weather when natural gas was not available for the proposed facility has been expanded to apply year-round. In addition, a provision has been added to allow fuel oil to be used as necessary for the initial shakedown of the turbines, equipment evaluation and emission testing. This feature has been provided because, under the language of the draft permit, such activities could have occurred during cooler weather. In addition, the Illinois EPA realized that some of these activities will have to be performed during warmer weather.

The Illinois EPA asked Zion Energy to supply further information addressing use of oil as a backup fuel. The supplemental material provided by Zion Energy further supports the presence of a backup fuel supply at the proposed facility. It shows that in the absence of backup fuel, the operation of the facility could be interrupted. In particular, a firm gas supply contract is not available for the gas pipeline serving the facility. Second, even if such a contract could be obtained, the natural gas supply could still be inadvertently interrupted. Thus an onsite reserve of backup fuel is needed to assure the facility can operate as required to supply power. As the proposed facility would supply peak electricity to the general public, the presence of a reserve of backup fuel is generally reasonable and appropriate. Certainly, electricity is an essential commodity in today's technological society. Reasonable measures should be taken to maintain an uninterrupted and reliable supply of electricity, as interruptions in the power supply are very costly. Finally, as confirmed by Zion Energy, very-low sulfur distillate oil is the obvious choice of fuel for the proposed backup fuel. Distillate oil is routinely used as a backup fuel because it can be readily stored and handled. Very-low sulfur oil is a commercial fuel which turbines are designed to use that minimizes the emissions of PM and SO₂ from burning oil.

The material submitted by Zion Energy did not demonstrate a need for routine use of fuel oil, separate from use

as a backup fuel. Accordingly, the permit was revised as discussed above. The provision limiting annual usage of oil to 500 hours was retained. It places an upper ceiling on the amount of fuel that could be used by the facility, consistent with the modeling provided in the application. However on a day by day basis, actual usage of fuel oil will be constrained to levels that will be far below this because oil can only be used as a back-up fuel.

40. The BACT evaluation does not adequately address the use of steam by the proposed facility for augmentation of power output. The permit also does not establish that operating the auxiliary boilers “only as reasonably needed for the purpose of power augmentation in the CTs” is BACT and does not describe the circumstances when operating the boilers would be reasonably needed.

Given the limited use of power augmentation (500 hour/year) and small increase in emissions (9 ppm to 12 ppm), the Illinois EPA does not believe that the presence of power augmentation would shift the conclusion of the BACT determination for firing of natural gas without power augmentation, as discussed above.

Nevertheless the Illinois EPA asked Zion Energy to supply further information addressing augmentation of power output using steam. The supplemental material provided by Zion Energy shows that steam augmentation is a comparatively inexpensive way to increase the power output of the proposed facility, effectively enlarging the facility by roughly 10 percent to the equivalent of 5 ¼ turbines. It also increases the functionality of the proposed facility, so that it can provide greater spinning reserve to support the grid and can better track changes in power demand without having to operate at reduced load. This is accomplished at a cost that is equivalent to less than ¼ turbine. This material supports a conclusion that power augmentation, as generally allowed by the draft permit, is appropriate as compared to the obvious alternatives, i.e., installation of an additional turbine or dropping power augmentation from the proposed facility.

In addition to limiting power augmentation to 500 hours per year, the provisions in the draft permit also restrict power augmentation to periods of time when the turbines are firing natural gas. As the emission consequences of power augmentation are relatively minor, unlike use of fuel oil in the turbines, the Illinois EPA does not believe it is appropriate to further constrain or restrict such operation. It is in Zion Energy’s own self-interest to minimize power augmentation and consumption of natural gas and to operate the boilers only as needed to carryout power augmentation. Nevertheless, with respect to the boilers themselves, the draft permit does constrain operation of the boilers to “as reasonably needed for the purpose of power augmentation.” This provision will enable the Illinois EPA’s continuing review of Zion Energy’s procedures for operation of the boilers, as appropriate based upon actual operation of the facility. This is not a matter that need be addressed in depth during the construction permit process.

41. The application does not demonstrate that good combustion practices constitute BACT for emissions of carbon monoxide (CO) from the turbines.

The application adequately demonstrates that good combustion practices constitute BACT for emissions of CO. The application shows that to the extent that oxidation catalyst systems are used to control CO emissions from turbines, they are used on combined cycle turbine systems. As a technical matter, such units are more amenable to use of these add-on control systems because a waste heat boiler is present on the exhaust from the turbine, which may house the oxidation catalyst beds. As an economic matter, combined cycle units are also more

amenable to such control systems as the turbines normally are expected to operate, if not continuously, many more hours than the simple cycle turbines used in peaking plants. As a result, the cost-effectiveness of such systems may be in the range where they can be considered BACT. However, the economic evaluation of the cost-effectiveness of placing oxidation catalyst systems on the proposed simple cycle turbines confirms that the cost would be well the level typically expended for control of CO emissions.

42. The application does not adequately establish that good combustion practices represent BACT for particulate matter emissions of the turbines.

The application adequately demonstrates that BACT is proposed for particulate matter. Add-on control devices are not routinely used on boilers and turbines that fire only natural gas and very low-sulfur oil. Control of emissions is adequately provided by the use of these clean fuels.

43. The BACT evaluation was deficient in its evaluation of emissions during startup.

The permit addresses emissions during startup of the turbines and appropriately restricts these emissions by requiring work practices to be followed that minimize the number of startup and the levels of emissions during startup. The comment does not identify other approaches that should be used to minimize emissions during startup. In this regard, even if the turbines were amenable to add-on control for NO_x or CO, these systems would not be effective during startup because the conditions (changing temperature, flow rate and pollutant concentrations) in the turbine exhaust during startup are not suitable for stable operation of catalytic systems that are dependent upon temperature.

44. The application does not adequately demonstrate that BACT is proposed for the boilers and fuel heaters.

The application adequately demonstrates that BACT will be provided on these units. These units are restricted to use of natural gas. The annual operation of the boilers is tightly restricted as they are associated with power augmentation in the turbines, which is limited to 500 hours for each turbine in a year. While the annual operation of the fuel heaters is not so tightly constrained, as they may be used as the turbines are operated, the operation of the heaters is restricted by the low heat input of the heaters.

45. The BACT evaluation should consider alternative locations for the proposed facility.

Alternative locations are not a factor that should be considered in the BACT evaluation for the proposed facility. The comment does not demonstrate that the specific location that has been selected poses particular threats to air quality or sensitive environments that would not be present at other possible locations that the proposed facility could be located. The application shows that the project would not pose a threat to air quality in its immediate vicinity. In addition, modeling of both local air quality and regional air quality has been conducted by the Illinois EPA and others as part of the Ozone Transport Assessment Group (OTAG) and as part of the preparation of Illinois' Ozone Attainment Demonstration. The results of this modeling do not suggest that the specific location of a proposed facility of this type has a critical effect on its impact on ozone air quality. In this regard, the Midwest and Northeast are overwhelmed by transport of NO_x from existing sources throughout the region and improvements in ozone air quality are most effectively achieved with region wide reductions in NO_x

emissions.

46. The BACT evaluation was deficient in its evaluation of VOM emissions, including constituents of VOM that are hazardous air pollutants.

The emissions of VOM and HAPs are not subject to BACT because they are not subject to the PSD program. Emissions of VOM are appropriately addressed by the use of combustion control to minimize emissions of VOM, which is a product of incomplete combustion like CO. Moreover, the permit does set limits for CO emissions, which are subject to PSD, that also serve to address emissions of VOM from the facility, as CO is also a product of incomplete combustion.

Other Applicable Requirements

47. The Illinois EPA should examine the relationships between the proposed facility and the proposed Carlton facility immediately to the north to determine whether these two facilities should be considered to be a single source for purposes of permitting. The two proposed facilities are adjacent and are both power plants. If they were to be developed by the same person (or persons under common control), they would have to be considered to one source.

The proposed Zion Energy facility is being permitted under the PSD program as a major source and in this respect its status would not change if were to be constructed by the same person that develops the proposed Carlton facility. The status of the Carlton facility, which is being permitted as a non-major source under the PSD program, would change if the two facilities were developed by the same person so as to become one source for purposes of permitting. However, the construction permit issued to the Carlton facility explicitly states that the permit is based on construction of the proposed facility being undertaken independently of the proposed Zion Energy facility. It further provides that it does not authorize construction of the Carlton facility if the same person that is developing the Zion Energy facility undertakes construction of the Carlton facility. These provisions are sufficient to allow any other regulatory repercussions for the proposed Zion Energy facility to be addressed if a relationship develops between Zion Energy and Carlton in the future.

48. Various new peaking facilities in the Chicago area using General Electric turbines should be considered one source because the instrumentation for these plants will be connected to a General Electric facility in Georgia. That facility will track how the turbines are operating.

General Electric is not in a position of “common control” over these facilities. General Electric only tracks the new turbines that it manufactures to ensure that they are properly operated and maintained, so that the turbines are not damaged and warranty terms are not violated. However, General Electric does not have day-to-day operational control over the turbines and does not enter into contracts to sell power and does not decide whether turbines are turned on to provide power.

- 49. The proposed Zion Energy facility and the proposed Carlton facility should both be considered one source because their power will be distributed by transmission lines that are owned by Commonwealth Edison and power from both plants will most likely be purchased by Commonwealth Edison, and**

These circumstances are also not sufficient to establish common control over these facilities. Commonwealth Edison must provide open access to its power transmission lines, as discussed further below, and does not have the ability to refuse to handle power from independent power plants. Besides the power that is generated from its nuclear power plants, Commonwealth Edison must now purchase all the electricity that it sells at a retail level to individual customers. The fact that two potential suppliers of this power would be located adjacent to each other is not sufficient to establish “common control” for the purpose of permitting.

- 50. The permit makes the unwarranted assumption that a turbine shall emit at the applicable limit ... or the value measured by a continuous monitoring system. These limits are based largely on undocumented and unsupported emission factors supplied by the applicant.**

Emission testing to date has shown that turbine manufacturers are able to reliably predict maximum emission levels of new turbines as needed for purposes of permitting. Actual emission testing shows compliance with projected emission rates, often with a substantial margin of compliance for pollutants other than NO_x, where manufacturers are more conservative in their predictions.

In any case, permits rely on the information in the application, including the emission data provided by the manufacturer of the gas turbine. While information that is unreasonable or anomalous can certainly be identified, independent engineering evaluations of sophisticated emission units like gas turbines are not performed. Such a review is also not appropriate as the function of the review of a construction permit application for a proposed project is to determine whether the plans and specifications submitted in the application show compliance. When a permit is issued for a project, significant representations made in the application are made permit conditions so as to govern and restrict the operation of the project. When the source is built, appropriate testing, monitoring and recordkeeping must be performed to verify compliance with these representations, as memorialized in the conditions of the permit.

- 51. Emission testing should be required for VOM and CO during startup of the turbines to verify emission information provided by Zion Energy in its application.**

The permit requires such testing.

- 52. In verbal communications with the turbine manufacturer, they stated that startup emissions of CO and VOM range from 500 percent to 1000 percent higher than at full load.**

The permit as issued has been enhanced to include a requirement that emission testing be conducted for CO and VOM emissions during startup of a turbine. In the event that the factors in the permit do not adequately account for startup emissions, this will be identified by this testing and more accurate factors can be developed for the specific turbines at the proposed facility.

Moreover, based on additional emission data obtained from the General Electric by Zion Energy and submitted to the Illinois EPA, the multiplier factors in the issued permit for emissions of CO and VOM during an hour with a startup has been raised to values that are consistent with this comment*. For example, the natural gas startup factor for an hour with a startup has been increased to 7 or 600 percent higher than at full load. Although the Illinois EPA expects that this information will prove to be conservative (overstate emissions), the issued permit requires this factor to be used until and unless another factor is approved by the Illinois EPA in a future permit for the facility.

*If the rate of emissions during the startup itself, which takes roughly 24 minutes, is 5 to 10 times the rate during normal operation, as indicated in this comment, emissions for an hour that includes a startup would actually be only 3 to 6 times the rate during normal operation.

53. Emission testing should be required for particulate (filterable and condensable).

The draft permit required that such testing be performed. The issued permit requires that additional measurements for particulate matter be made across the normal operating range of the turbines.

54. Emission testing should be required for emissions of organic hazardous air pollutants.

Source-specific emission testing for organic hazardous air pollutants is not essential because emission testing is required for emission of VOM and USEPA has developed factors for turbines for emissions of hazardous air pollutants, which are a subset of the VOM emissions. These factors show that that about half the VOM emissions from a natural gas fired turbine are hazardous air pollutants, with formaldehyde making up about two-thirds of the hazardous air pollutants. This information can be relied upon to address emissions of hazardous air pollutants from the proposed facility and it indicates that the proposed facility would not be a major source of hazardous air pollutants.

At the same time, the permit does require emission data for organic hazardous air pollutants to be collected if this can be readily done during the testing of VOM that is required. This would be the case if VOM measurements were conducted with the USEPA Test Method that allows constituents in the VOM to be identified.

55. Why does the permit require emission testing at several points in the normal operating range of the turbines?

Emission testing is conducted at several points over the normal operating range of turbine as needed to address potential variation in emissions with turbine load. Testing must be conducted at ends of the range, i.e., full load and minimum load, and one or two intermediate points. In this regard, the NSPS requires that NO_x emission testing to be conducted at two intermediate points, unless USEPA approves alternative provisions for testing NO_x on a source-specific basis. These provisions were adopted as a time when it was anticipated that NO_x emissions from gas turbines would be controlled with water injected combustors, so that it would be necessary to perform testing to confirm the rate of water injection needed for compliance across the range of turbine operating load. Although this is not the case for modern dry combustors, the provisions for the NSPS have not been revised by USEPA. For other pollutants, one intermediate point is adequate to evaluate variation between

full load and minimum load.

- 56. The 180 days allowed for shakedown of the turbines, before emission testing must be performed, is too long considering the nature of a peaking facility. The time period should be 45 days.**

The 180 shakedown period is needed to address the unforeseen events that frequently occur during shakedown of a complex system like a turbine generator, which are the reason that a shakedown period is reasonable and needed in the first place. For example, if a serious problem is identified with the electrical generator when a unit is first operated, further operation of the unit would be delayed until the problem with the generator could be corrected.

It should be noted that the provisions in the permit dealing with the shakedown period, as well as commencement of construction, use terms that are defined by both rule and policy under the federal New Source Performance Standards. In particular, the 180 day allowance for shakedown is a period of time, running for 180 consecutive calendar days from the day that a turbine first starts to operate, i.e., fires natural gas in the combustors. In addition, irrespective of the shakedown period, emission testing must be performed within 60 days after a turbine demonstrates that it can reliably operate at full load.

However, to address this subject, a provision has been added to the issued permit requiring Zion Energy to provide a preliminary report on emissions from the turbines, from data collected with diagnostic equipment during the shakedown period, if emission testing is not performed within 45 days after the turbines start gainful operation and serve to meet peak power demand.

- 57. The Illinois EPA should specify acceptable methods for any calculated values used to determine compliance with emission standards.**

As it is a construction permit, the permit is appropriately developed in that it generally specifies that emission testing will be the basis of calculated emission values. Any refinements or revisions to these methods would be subject to review and approval by the Illinois EPA during the processing of the operating permit application for the facility, if it is built. Because the facility would have to obtain a Clean Air Act Permit Program (CAAPP) permit, a public comment period would be held prior to issuance of the operating permit.

- 58. How were the annual emissions limits in the permit developed by the Illinois EPA?**

The annual limits in the draft permit and in the issued permit were not developed by the Illinois EPA. The limits in the permit are the potential emissions of the proposed facility as set forth in Zion Energy's permit application. These limits reflect operation at the maximum hourly emission rates allowed by the permit, considering application of BACT and as addressed by modeling in the application, at the maximum levels of annual operation requested by the permit, also considering any restrictions on such operation set by the permit, such as operation of each turbine for no more than 500 hour per year with steam to augment power output.

- 59. What are good air pollution control practices? These practices and any associated written**

procedures or instructions should be included in the permit and subject to public review.

Good air pollution control practices is a term used to generally describe proper operation, maintenance and repair of emission units and control systems to minimize their emissions. The Illinois EPA has not reviewed these specific practices as part of the construction permitting process as these practices need not be developed for a proposed facility, for which construction has not yet begun.

60. The Illinois EPA should adopt a definition of peaking unit consistent with that in the USEPA Acid Rain program. The proposed facility would not be considered a peaking facility under the federal Acid Rain program based on its permitted level of operation.

This is not correct. The particular provisions of the Acid Rain program, which is implemented through an operating program, are not relevant to the issuance of the construction permit for the proposed facility. In particular, the provisions of the Acid Rain program that are being addressed in this comment relate to whether a unit must be equipped with a continuous emission monitoring for NO_x under the Acid Rain program. The permit for the proposed facility requires continuous emission monitoring for NO_x independent of the Acid rain program.

By way of further explanation, the federal Acid Rain program in 40 CFR 72.2 defines a unit as a peaking unit if it has an average capacity factor of no more than 10 percent over three years and no more than 20 percent in any one year. (A 10 percent annual capacity factor is equivalent to operating a unit at full load for 10 percent of the year, i.e., 876 hours.) If a unit that has been operating as a peaking unit increases operation so that it no longer qualifies as a peaking unit, 40 CFR 75.12 provides that an NO_x monitoring system must be installed on the unit by December 31 of the following calendar year.

The operating limitations in the permit for the proposed facility, which are based on operation for 2300 hours per year, would allow maximum annual operation of the turbines at more than 20 percent annual capacity factor. This accommodates variability in the operation of the facility in the future, based on the need for its power. It is fully appropriate to issue a construction permit for a proposed facility that accommodates the maximum or potential operation of a proposed facility. However, as long as the actual three-year average capacity factor for the turbines is no greater than 10 percent and the actual capacity factor does not exceed 20 percent in any year, they would not be treated as peaking units under the Acid Rain program. Only if the turbines actually operated above these criteria, would they no longer qualify as peaking units under the Acid Rain program.

61. The facility could operate year round because there are five turbines that could each operate 2300 hours in a year.

While this is theoretically possible, this is so improbable that the Illinois EPA does not consider it worthy of explicit restriction in the permit. In particular, if the facility were being developed to operate one turbine year round, which only to produce about 160 MW of power, Zion Energy would not invest in additional turbines that would be idle most of the year. The facility is being developed with five turbines because Zion Energy wants to be able to operate five turbines at once, to supply about 800 MW, when there is a demand for peaking power, which in Illinois occurs primarily during daylight hours on hot summer days during the workweek.

62. Emission monitors should be operated according to Acid Rain protocols. In addition to NOx monitors, flow monitors should also be required.

Monitoring must be performed in accordance with the stringent procedures under the federal Acid Rain program even if the facility does not qualify as a peaking facility under the Acid Rain program. This includes use of flow monitors.

63. The draft permit inappropriately addresses emissions during startup because it fails to set limits for emissions during startup.

The permit appropriately addresses startup emissions. The permit includes specific provisions requiring Zion Energy to account for emissions during startup for purposes of demonstrating that it complies with annual limits on emission set by the permit. An additional provision has been placed in the issued permit reiterating Zion Energy responsibility to fully and appropriately account for all its emissions.

64. The “multiplier” factors being used to account for higher emissions during startup emissions of the proposed turbines are lower than used in the permits for other new peaking facilities.

The factors for startup for the proposed facility were developed based on the emission data for startup of the proposed turbines provided by Zion Energy in its application. It is appropriate to use this project-specific data to set startup factors for this facility as the emission data for these turbines during normal operation is also different from the data for the models of turbines being used by other new peaking facilities. The result is a lower startup multiplier for this facility.

65. The permit should limit the number of startups of the turbines per year.

It is not necessary or justified to constrain the operation of the proposed facility by limiting the number of startups, given the nature of startups, which are only 24 minutes in length, and the provisions that are being imposed to address startups. The permit includes ample provisions to address emissions accompanying startup, including limits on annual emissions of the facility and procedures to account for emissions during startup when determining compliance with these limits. As a general manner, Zion Energy is required to follow good air pollution control practice to minimize emissions from the turbines. The permit also has specific provisions requiring Zion Energy to take reasonable measures to minimize the number of startups and the emissions accompanying startups.

66. The annual emission limits in the permit are not federally enforceable. Continuous emission monitoring for CO and VOM is needed to make these limits enforceable.

The permit contains appropriate limitations on hours of operation, short-term emission limits and ample provisions for emission testing, continuous monitoring and record keeping to make the annual emission limits enforceable. The permit does not need to limit the number of startups or restrict operation under particular

ambient conditions in order to make the annual emission limit enforceable. It also does not have to require monitoring for all pollutants.

67. The proposed facility should be considered a major source of emissions for VOM and should be subject to the Lowest Achievable Emission Rate for VOM.

The permit limits VOM emissions from the proposed facility to less than 25 tons per year, the threshold for considering the facility to be a major for purposes of 35 IAC Part 203, Major Stationary Sources Construction and Modification. Accordingly, the proposed facility is not considered a major source of VOM and is not subject to a requirement for LAER.

68. The proposed facility should be considered a participating source under the Emission Reduction Market System (ERMS).

The Illinois EPA expects that the actual VOM emissions of the facility will be below 10 tons during the seasonal allotment period each year. This is below the applicability threshold of the ERMS, which is based on actual emissions. If the facility's actual VOM emissions turn out to be greater than the applicability threshold of the ERMS, based on the VOM emission rate measured during required emission testing, the facility would be subject to the ERMS notwithstanding the approach to ERMS taken in the permit.

69. The permit does not state how the VOM emissions of the proposed facility are to be determined for purposes of the Emission Reduction Market System (ERMS).

The procedures to be followed to determine actual VOM emissions for purposes of ERMS are no different than the procedures for determining actual VOM emissions for other limits, as addressed by the permit. Like other compliance procedures set by the permit, these procedures could be refined and developed based on actual operating experience when operating permits are issued for the facility.

70. The proposed facility should be considered a major source of emissions for hazardous air pollutants (HAP) and subject to a case-by-case review for Maximum Achievable Control Technology (MACT).

The permit limits HAP emissions from the proposed facility to less than the threshold for considering the facility to be a major for purposes of case-by-case application of MACT. The facility would still be subject to categorical rules for MACT if and as USEPA adopts MACT rules for peaking turbines.

71. An analysis of formaldehyde emissions of the proposed facility using a standard USEPA emission factor shows formaldehyde emissions at 24.75 tons per year. Accordingly, the proposed facility should be considered major for formaldehyde, with the potential to emit over 10 tons per year.

The information for formaldehyde emissions in the application indicates that maximum emissions would be 7.7 tons per year. This is consistent with USEPA emission factors as they indicate that formaldehyde emissions

constitute about one-third of the VOM emissions from a turbine. In this regard, the annual limitation on VOM emissions from the facility in the permit, i.e., 24.65 tons per year, also assures that formaldehyde emissions will be less than 10 tons per year.

In addition, direct analysis of the formaldehyde emissions of the proposed facility using the appropriate USEPA factors, also shows formaldehyde emission less than 10 tons per year. In particular, USEPA has two formaldehyde emissions factors for gas turbines. One factor is for operation at more than 80 percent load, which is the where turbines normally operate. The other factor, which is only included in supplementary USEPA material, addresses operation of a gas turbine at any load, which would address operation at less than 80 percent load. The analysis underlying this comment assumed that this second factor, which is significantly higher, should apply at all times. However, it is not realistic to expect that the turbines in the proposed facility would operated at reduced load all the time, especially if operating at the maximum annual level of operation due to very high demand for peaking power.

72. If emissions testing shows higher levels than allowed, then operation at the facility should be suspended until further modeling can be done to show that protection of public health can be assured.

The emission limits in the permit reflect the application of Best Available Control Technology (BACT). The limits are set at levels far below the levels at which the emissions from the facility would threaten exceedances of the ambient air quality standards and potentially endanger public health. Accordingly, it is inappropriate to mandate that the facility suspend operation in the unlikely event that the initial testing of the proposed facility shows emissions higher than allowed by the permit.

73. What are the consequences if Zion Energy does not meet the emission limits set by the permit?

If there is a numerical violation of a permit, the Illinois EPA takes steps to assure that the problem is corrected. If compliance is not forthcoming, and in significant cases even after compliance is achieved, the Illinois EPA works the Attorney General to establish compliance schedules, levy appropriate penalties for non-compliance, and take other legal steps to bring a source into compliance and prevent future noncompliance. As explained above, to shut a source down, there must be a threat to public health from continuing operation of the source

74. What would happen if the proposed facility were found to be a major source for VOM or HAP?

Zion Energy would need to demonstrate that the proposed turbines comply with emission limits for VOM and HAP that have been determined to represent the Lowest Achievable Emission Rate (LAER) or Maximum Achievable Control Technology (MACT, respectively). Zion Energy would also have to provide offsets from existing sources for the VOM emissions of the facility.

75. The permit should require compliance at all times with all Pollution Control Board regulations, including the Board's regulations governing noise from stationary sources.

Nothing in the permit excuses the proposed facility from compliance with the Board's regulations, including its noise regulations. The conditions of the permit, as it is an air pollution control permit, highlight applicable emission standards than would apply to the proposed facility and impose further requirements related to the facility's emissions. As an air pollution control permit, the permit addresses issues related to emissions, as required by Title 35, Subtitle B: Air Pollution of the Illinois Administrative Code.

76. The permit should contain a reopener to address future rulemaking.

The permit does not need to have a reopener provision to allow the permit to be reopened when new rules are adopted. Under 35 IAC 201.167, when new state laws and rules are adopted, the Illinois EPA can reopen construction permits to include provisions to address the new requirements. Moreover, if a newly adopted requirement applies to an existing source, the source must meet the requirement regardless of whether its permit is revised to address the new requirement.

Other Impacts

77. How much water would be used by the proposed facility? What will be the source of water?

Zion Energy has indicated that water usage of the proposed facility would vary depending on how the facility were operated, with a maximum usage of about 300,000 gallons on a day when evaporative cooling is conducted and a maximum usage of about 2,000, 000 gallons on a day when power augmentation occurs or the facility must operate entirely on backup oil fuel. Zion Energy has also indicated that this water would be obtained from a private well that it would drill at the proposed site.

78. Could there be groundwater contamination at the plant from any of the emissions?

No. The air emissions from the proposed facility will not contaminate groundwater.

79. If there is a spill or contamination at the plant what will occur at that point?

If there were an immediate threat to plant personnel or the public, local emergency personnel would respond and take or coordinate measures to protect against such threats. Following this initial response, actions would be taken to clean up the spill and prevent similar incidents in the future. The Illinois EPA's Office of Chemical Safety would be notified of the spill if it involved a hazardous material.

80. How much noise would the facility produce when it is operating?

Zion Energy has stated that it would design and build the proposed facility to comply with Illinois' Noise Standards, which include standards to protect against nuisance noise from stationary sources. The Illinois EPA can provide general assistance to local governments and to the public to help them in verifying that the facility has been properly constructed to comply with noise standards.

General Comments

81. Power plants are allowed to operate without state, county, or municipal regulations for noise control, soil depletion, or water contamination.

The Illinois EPA administers permit programs that address the air emissions and wastewater discharges from power plants. Illinois also has regulations that address the noise from power plants. The Illinois EPA does not have the authority to consider other issues related to the siting of a proposed facility, (e.g. need for a proposed power plant, aesthetics, etc.).

Although, with deregulation of the electric generating industry, many different companies can build generating facilities, this does not mean that these companies would operate outside of the state's laws and regulations. All sources, power plants included, must meet state emission, wastewater discharge and noise regulations and must comply with other applicable state, federal and local requirements, including building and fire codes.

82. The application does not demonstrate that there is need for the electric power from the proposed facility.

Comment acknowledged. The Illinois EPA does not address the need for a proposed power plant as part of its review of the construction permit application for a proposed plant. In this respect, under deregulation, proposed power plants are treated no differently than other proposed sources.

83. We do not need two peaker plants in Zion. We do not have a shortage of electricity in Zion. Where will the power from the proposed facility go? The proposed facility could sell electricity outside of Illinois.

Comment acknowledged. The proposed facility would have the ability to sell electric power outside of Illinois, dependent upon adequate capacity being available on power transmission lines. However, this aspect of the proposed facility is outside the scope of Illinois EPA's construction permit process.

84. The federal New Source Performance Standards (NSPS) for gas turbines are outdated.

This facility is required to comply with emission limits that are much more stringent than required by the NSPS, that reflect improvements in NO_x control technology for turbines that have occurred since the NSPS was adopted. While the emission limits of the NSPS are outdated, due to these improvements, the NSPS is a useful benchmark to measure the improvements in emission control that have occurred.

85. The proposed facility should not be located at the site selected by Zion Energy because it is near homes. There are too many homes and people living near the site. Facilities of this type should be located in less populated rural areas.

Comment acknowledged. The Illinois EPA does not have a role in the siting process for new power plants. Currently there is no State mandated siting approval process for these types of facilities, as there is for new pollution control facilities such as landfills and wastewater treatment plants. Even the siting process for pollution

control facilities leaves the decision on approval of siting to the local municipality where a proposed facility is to be built.

86. Why is this facility being located so close to homes?

There are many sources in Illinois and around the country, both power plants and other types of sources, that are close to homes. Local authorities are the governing bodies that determine zoning of industrial and residential areas. Environmental agencies regulate sources given their location to assure that they do not pose a threat to public health.

87. The proposed facility is located in the Waukegan Regional Airport's air space. What affect on air turbulence will the plumes from the proposed facility, and the adjacent Carlton facility, create?

These facilities will increase turbulence near the ground. However, the regulations governing aircraft require a minimum of 1000 feet clearance over obstacles in congested (populated) areas. The Federal Aviation Administration (FAA) and Illinois Department of Transportation (IDOT) regulate activity at or near airports to maintain the safety of aircraft and the public, including the Waukegan Airport, which is about three miles away from the proposed facilities. The authority of the FAA and IDOT is independent of the environmental programs administered by the Illinois EPA.

88. Defer issuance of any air permit until all other sources contributing to our air quality in this area have been eliminated.

The Illinois EPA does not have the legal authority to deny or delay permits on this basis. In fact, under State law, the Illinois EPA is required to process construction permit applications within specific timeframes.

89. Zion Energy is a business; they are not coming into the community to help us with our power needs.

Comment acknowledged.

90. Zion Energy has not demonstrated that it can operate in compliance. How do we know that the proposed facility will be in compliance?

Zion Energy's application indicates that the proposed facility would be designed and equipped to comply with applicable air pollution control requirements, including maintaining its annual emissions below the levels at which the facility would be considered a major source. One of the reasons for issuing construction permits is to have a tool that outlines what regulations and standards a facility must meet to be in compliance. Actual compliance can only be verified with emission testing and monitoring if the proposed facility is built and operates, at which time emissions must be measured to verify compliance. If the facility does not stay in compliance, the Illinois EPA will take appropriate action to assure that Zion Energy brings the facility into compliance.

91. I am concerned about safety of the facility. Will the facility have features for fire protection?

The facility must be designed, built and operated in accordance with a variety of building and safety codes developed to protect the facility and its neighbors.

Modeling Procedures

92. Where would the points of maximum air quality impact of the proposed facility be?

The dispersion modeling generally shows that the maximum impacts of the proposed facility are at or very close to its north and northeast fence line, which is consistent with the prevailing wind direction and the proposed alignment of the facility.

93. Do the stack heights used in the air quality modeling supersede the stack heights provided on application forms?

Yes. If the dispersion modeling was performed using stacks that were higher than the stacks described on the application forms, the stack heights used for modeling govern.

94. Dispersion modeling should be based on local conditions, not based on another area.

The dispersion modeling used detailed weather data collected at O'Hare Airport to represent the weather conditions experienced in the greater Chicago area. Although weather conditions in Zion may differ slightly from those at O'Hare on an hour-by-hour basis, the data is generally representative of the range of weather experienced in the Chicago area over the course of a number of years. It is also acceptable to use historical weather data, as it is again representative of the mix of weather in the greater Chicago area. In this regard, the air modeling is performed for five years of weather data (over 1800 individual days) to capture all possible weather conditions that and to identify maximum air quality impacts on the days with the worst weather conditions from the standpoint of air quality.

95. Were lake breeze effects considered in the modeling?

Yes. In general, lake breeze air masses do extend well inland from Lake Michigan and are accounted for in weather data collected at O'Hare.

96. What emission rates were used in modeling?

The emission rates from the proposed facility used in the modeling were worst-case maximum emission rates from the proposed turbines requested in the application. In particular, for short-term modeling, the turbines were modeled with emissions as would occur when firing oil. Likewise, for annual operation, the modeling assumed that the facility would operate with oil for 500 hours each year even though oil is restricted to use as a

backup fuel.

97. Emissions during startup could exceed the short-term emission rates used in modeling.

Because the modeled impacts were so small, the Illinois EPA did not require dispersion modeling to be performed for startup. For natural gas fired turbines, the concern for high short-term emissions focuses on emissions of carbon monoxide (CO), for which there is an air quality standard that applies on an hourly basis. Even if CO emissions and impacts were ten times higher during startup than during normal operation, the maximum air quality impacts would be less than USEPA's significant impact air quality level.

98. Does the dispersion modeling account for existing levels of pollution at the proposed site and surrounding area?

Air quality impact analyses account for the "background" level of pollution in an area in two ways. First, ambient air quality data from a monitoring station located in an area that is representative of the area that is being studied is used to generally account for the levels of pollution already in the area. Second, dispersion modeling can be performed for the significant sources that are already located in the area under study, to specifically address their impacts. In this case, dispersion modeling was also performed to address emissions from the existing coal-fired power plants in Lake and Racine Counties and the proposed Carlton facility, along with the emissions of the proposed facility. The results of this expanded modeling showed that air quality would continue to comply with ambient air quality standard.

99. Modeling for the proposed facility should have included the proposed Badger Generating power plant in Pleasant Prairie, Wisconsin.

Zion Energy supplemented its dispersion modeling to include this proposed plant, which would also use turbines and only be fired with natural gas. The supplemental modeling shows that the proposed Badger Generating plant would not affect the conclusions of Zion Energy's initial modeling analysis.

100. Why weren't all nearby sources included in the dispersion modeling?

All nearby sources need not be included in the modeling to conclude that a proposed facility would not threaten air quality. Sources in the vicinity of a proposed facility are generally accounted for by the "background" air quality values used in the air quality analysis, which are taken from a representative monitoring station operated by the Illinois EPA. This is certainly the case for existing sources that are some distance from the proposed facility, like Abbott Laboratories or the Great Lakes Naval Training Station. However, selected major sources already in an area and other major new facilities for which applications are pending or which are permitted but not yet operating, may be included in modeling for a proposed facility. This is routinely done when modeling for a proposed facility indicates significant air quality impacts. Even though this is not the case for the proposed, which shows insignificant impacts, selected sources in the immediate proximity of the proposed facility were included in the modeling to provide further corroboration that the proposed facility would not threaten air quality.

101. Why didn't Zion Energy perform its own modeling for ozone impacts?

Zion Energy was not required to perform ozone modeling, because it is located in an area that is designated nonattainment for ozone. The Illinois EPA has performed extensive modeling of the Chicago area and Midwest using the very complex models that must be used to model because ozone is a secondary pollutant, formed by the reaction of ozone precursors in the atmosphere. As previously explained, this modeling indicates that the proposed facility will not affect ozone locally.

102. Are lake breeze effects considered by the Illinois EPA in its ozone modeling?

Yes. Ozone modeling is performed by the Illinois EPA for specific days or episodes in which high levels of ozone were experienced, using actual meteorology during the episodes. As lake effect breezes occurred during an episode, they would specifically be addressed by the analysis.

Administrative Procedures

103. The permitting of the proposed facility should be delayed because the Pollution Control Board may adopt changes to the requirements for peaking facilities as a result of its recent inquiry hearings on peaker plants.

The Illinois EPA does not have the authority to deny a permit because there may be new requirements adopted that would apply to the source.

104. What is the reason for the public comment period and hearing? I'm under the impression that whatever I say, a permit will be issued for the facility.

The Illinois EPA holds public comments periods to explain our role in permitting sources and to receive comments and answer questions about applications that are of interest to the public. A permit may be denied as a result of relevant public comments that lead the Illinois EPA to conclude that a facility would not meet applicable environmental regulations. More often, public comments lead to the enhancement of the conditions of the permit. This has been the case for the proposed facility.

The authority of the Illinois EPA, as established by the Environmental Protection Act, is generally limited to environmental matters. When acting on a particular permit application, the authority of the Illinois EPA is further limited to the scope of the particular application under review. Accordingly, the Illinois EPA is without legal authority to base its decisions on permit applications on comments or concerns that address matters that are outside of its jurisdiction.

105. Back-to-back hearings, with the hearing for proposed Zion Energy facility on Monday night and Carlton on Tuesday night made it difficult for the public to prepare completely for the hearings.

While there were disadvantages to back-to-back hearings, they were outweighed by the advantages, in the opinion of the Illinois EPA. In particular, the timings of the two hearings made the differences between the Zion Energy and Carlton proposals clearer, so as to allow the public to compare and contrast the proposals. At the same time, as the comments at one hearing were also incorporated into the record of the other hearing, it allowed individuals with common concerns about both plants to attend only one hearing, without fear that

circumstances had changed due to an extended period of time between the hearing for the two facilities.

106. Zion Energy's application was not available for inspection when I visited the Waukegan Public Library, which is where the notice said such material would be.

We regret that the application was not available when you visited the Waukegan library. The Illinois EPA, to the best of its ability, strives to make application material available to the public during comment periods so as to facilitate informed questions and comments from the public. When information cannot be readily obtained at the local repository, we would appreciate it if you would contact us immediately. We can then take action to correct the problem at the repository and to make the information available to you and other members of the public.

107. Why did the Illinois EPA extend the comment period?

The comment period was extended to allow certain individuals who had requested further information from the Illinois EPA to provide comments on the proposed facility that considered the information in the response provided by the Illinois EPA.

108. The procedure by which the Illinois EPA provided notice of the extension of the comment period was flawed.

The Illinois EPA provides notice of comment periods by both display advertisement in newspapers and by written notice to local officials and individuals who request to be notified of public comment periods. We also appreciate the efforts of interested individuals and groups, such as Zion Against Peaker Plants (ZAPP), to inform potentially interested parties of public comment periods. In this case, we believe that individuals who were incorrectly omitted from the list for written notice were nevertheless informed of the public hearing and extension of the public comment period by other means, including telephone conversations directly with Illinois EPA personnel.

109. If there are significant revisions to the draft permit for the proposed facility, the Illinois EPA must hold a second hearing.

Applicable administrative procedures do not suggest that a second hearing should be held in the event that the Illinois EPA decides to issue a permit with conditions that are different than the conditions of the draft permit released for public review and comment. The Illinois EPA is required as part of its permit decision to consider and respond to relevant comments and information provided to it during the public comment period. Therefore, persons who believe that the conditions of the draft permit are inappropriate are under an obligation to submit all reasonably available arguments and factual grounds supporting their position by the close of the comment period.

110. The Illinois EPA is rushing applications for peaking facilities through the permitting process. The application for the Zion Energy facility should not have been considered complete until March 15, 2000, when Zion Energy submitted its air quality modeling.

The Illinois has not rushed the processing of this application. The permit for the proposed facility was issued

over a year after the application was initially received on November 12, 1999. The permit was issued approximately 270 days after Zion Energy submitted its air quality modeling in March.

111. Zion Energy should not be allowed to supplement its application to address issues raised by public comments. The application should be denied outright.

Under state law, a permit applicant is entitled to respond to material that is outside the scope of its application before the Illinois EPA may use such material as a basis to deny the application. This is protective of a permit applicant's right to due process and extends to issues raised by the public in comments that are accompanied by supporting factual information or reflect opinions of the commenter.

112. I request that the Illinois EPA include a copy of all its filings in the Illinois Pollution Control Board's proceeding for Illinois' NO_x Trading Program (R01-9) in the record for the Zion Energy application.

If there are specific portions of this rulemaking that a commenter believes are relevant to the Zion Energy application, he or she needs to provide a copy of such material with their comments. It is not appropriate for the Illinois EPA to copy and transfer voluminous rulemaking filings in their entirety as requested for a number of reasons. Not the least of these is that to do so would not identify the specific elements of these filings that the commenter believes are relevant.

Moreover, the Illinois EPA is certainly cognizant of its filings in this Board proceeding. As has already been explained and as will be explained more fully later, Illinois' development of a NO_x trading program for electrical generating units, which program would apply to the proposed facility, is not a basis to deny the application for the proposed facility, it also does not show that the proposed facility would interfere with attainment of the ozone air quality standard in the greater Chicago area.

Illinois Environmental Policy

113. As the Greater Chicago Area is a severe ozone nonattainment area, why are we allowing more emissions to contribute to air pollution?

The ozone nonattainment area is caused by many existing sources, all of which share to some degree the responsibility for the elevated levels of ozone. Accordingly, the measures that must be taken to control emissions must be determined through rulemaking, not through decisions on individual permits. The State of Illinois is working to develop state rules that, together with applicable federal rules, will be adequate to bring the Chicago area into attainment. Like other existing and proposed sources in the Greater Chicago area, Zion Energy is entitled to a permit if its application demonstrates that its proposed facility would comply with applicable regulations governing emissions. These regulations establish the legal requirements for sources, and include any additional requirements for control of emissions established to address a new source's contribution to air quality in the nonattainment area.

114. On ozone action days, the Illinois EPA asks the public not to even mow the grass. What does the plant have to do on ozone action days? Does it shut down or cutback?

The ozone action day program was established to encourage extra reductions in emissions of ozone precursors on days when the weather conditions are such that there is a potential for ground level ozone to reach levels that are unhealthy. In fact, the measures that are recommended on ozone action alert days are specifically targeted at reducing emissions of volatile organic material (VOM). This is why individuals are asked to put off filling automobile gas tanks or mowing the lawn.

The VOM emissions from the proposed facility would not be able to be readily reduced without cutting back on electrical output from the plant. In this respect, the hot days when the potential for ozone is greatest often coincide with the days when the demand for electricity is greatest, due to increased use of electricity for air conditioning.

115. This type of facility would not be built in an area such as Wilmette or Kenilworth. Does the Illinois EPA only permit facilities in poorer communities, so that richer areas can stay pristine?

The Illinois EPA does not select the sites of the proposed power plants for which it administers environmental permitting programs. The sites of proposed power plants, like the sites for other types of proposed facilities, are selected by the person proposing the facility based on many factors and criteria. The role of the Illinois EPA is to review the plans for the proposed facility at the site that has been selected, as set forth in a permit application, to determine whether compliance with environmental requirements is shown.

116. How would issuance of this permit prevent the deterioration of air quality?

Permitting is an inherent element of the air pollution control program. In general, permits are a means to verify that sources comply with applicable rules. They are also a means to place conditions on sources, which can define the permitted levels of operation and impose testing, monitoring and record keeping requirements to address continuing compliance with applicable rules. The permit for the Zion Energy facility fulfills these roles, and confirms that the application for the proposed facility shows compliance with applicable rules established to protect and improve air quality.

117. Why hasn't the Illinois EPA adopted criteria for the design, operation and maintenance of turbines as authorized by 35 IAC 201.164? When will this be done?

The Illinois EPA, Bureau of Air, has not adopted design criteria for any category of emission units. While 35 IAC 201.164 allows the Illinois EPA to adopt such criteria, development of criteria that would effectively address the wide range of emission units and circumstances present in Illinois to meaningfully reduce emissions would be extremely difficult. This is certainly the case for sophisticated units like gas turbines. In practice, it is most effective for the Illinois EPA to require the operators of turbines, working with the manufacturers of their units, to develop operation and maintenance procedures for their specific facilities.

118. How can the new power plants that are being considered for Illinois not violate standards and Illinois' plans to reduce emissions of NO_x? Over 50 new power plants are in some stage of development!

While attainment planning in Illinois for ozone has included some growth in electrical generation when projecting future emissions of NO_x, it is possible that this growth may be insufficient to accommodate all the new power plants now being developed, even with the low levels of NO_x that these new power plants will achieve. However, because one component of the attainment demonstration is the establishment of an overall budget or cap on seasonal emissions of NO_x from power plants, the operators of power plants will have to implement necessary measures that reduce NO_x from power plants, in total, to comply with the budget. This would most likely result in additional reductions in emissions of NO_x from existing coal-fired power plants as needed to make more room for the new power plants.

119. Is there a limit to the number of and emissions from new power plants that can be permitted?

The Illinois EPA does not have a set amount of stationary source emissions, which is predetermined, above which further permits will not be issued for any more sources. The concern in protecting air quality is that the concentration of contaminants in the ambient air, the outdoor air that we breathe, be maintained at a level that is healthy. In that regard, there is not an amount of emissions, expressed in pounds or tons, above which permits cannot be issued. Rather, even if other requirements were met, a permit for a particular project would be denied if its direct effect on ambient air quality as evaluated by modeling would be unhealthy. This is not the case for the proposed facility nor does it generally appear to be the case for natural gas fired power plants.

At the same time, when Illinois' new budget program for emissions of NO_x from power plants becomes effective, power plants will have to hold allowance for their actual seasonal emissions of NO_x, which will keep overall emissions from power plants within the budget. However, this will act to limit the actual emissions of NO_x from power plants, not the permitted emissions.

120. What is the Illinois EPA doing to promote reduction of demand for electricity? Does the Illinois EPA support energy efficiency standards for new air conditioners? Has it recommended that the legislature or the Governor encourage the federal Department of Energy to enact such requirements? Where is the leadership on environmental issues from the Illinois EPA?

The Illinois EPA addresses energy efficiency and conservation as part of its pollution prevention efforts. In addition, the State of Illinois has a number of specific energy efficiency programs that are managed by the Department of Commerce and Community Affairs.

In Illinois, the responsibility for energy policy and management is shared by a number of bodies. These include the legislature and various executive agencies under the governor's office, including the Department of Natural Resources, the Commerce Commission, the Department of Commerce and Community Affairs and the Illinois EPA. While the Illinois EPA is generally supportive of energy conservation programs, it has a secondary role in

guiding Illinois' energy policy,

121. The Illinois EPA should ask USEPA to terminate Illinois' so-called "NO_x waiver" for the greater Chicago area because it allows new peaking plants to be developed without using the best control measures available for emissions for NO_x.

Illinois' NO_x waiver does not interfere with promulgation of the measures that are needed for the greater Chicago area to comply with the ozone air quality standard, such as adoption of the NO_x emission budget program for new and existing electric power plants in accordance with USEPA's "NO_x SIP Call." Illinois' NO_x waiver also has implications for categories of source other than new peaking plants, including existing sources. Accordingly any action on the waiver should occur in a context that fully considers all the consequences of such action along with the implications for attainment of the ozone air quality standard in the greater Chicago area.

122. The NO_x waiver should be terminated because it is out-dated, as shown by USEPA's subsequent adoption of the NO_x SIP Call, which requires most of the states in the eastern United States, including Illinois, to adopt rules to reduce NO_x emissions and operate within a seasonal budget for NO_x emissions.

The purpose of USEPA's NO_x SIP call is to reduce emissions of NO_x as related to transport of ozone and ozone precursors across the eastern United States. In this regard, Chicago will benefit from reductions in NO_x emissions in up-wind areas, including downstate Illinois, Indiana and Ohio. However, the development for the NO_x SIP call did not address the local effects of reductions in NO_x emissions in a particular nonattainment area on ozone air quality in that same nonattainment area, as was addressed during the development and approval of the NO_x waiver.

123. Does it take legislation for the Illinois EPA to reevaluate how it functions or how it looks at proposed facilities such as this one?

The Illinois EPA continuously enhances its permitting activities. If an issue is brought up on the application for a particular source, other personnel at the Illinois EPA are informed so that they can address that issue in subsequent applications for which that issue would also apply. However, it would take an act of the legislature to change certain basic functions of the Illinois EPA. For example, the Illinois EPA does not have the authority under state law to impose a moratorium on the issuance of construction permits to a particular class of sources.

124. What is the legal reason for the Illinois EPA to not impose a moratorium on peaker power plants?

The Illinois EPA does not have the authority under state law to impose a moratorium blocking issuance of permits to a particular class of applicants, just as the Illinois EPA does not have the authority to impose an emission limit on a source for which there is not an underlying legal basis under state or federal law or regulation.

125. When will the Illinois EPA look into rulemaking or legislation to address new peaking power plants?

At the request of the Governor's Office, the Illinois Pollution Control Board recently held inquiry hearings on peaker power plants to determine if additional laws or regulations are needed. The Board is the body charged with adopting environmental regulation and standards for the state of Illinois. The Board held three hearings to receive public input. For more information on the Board's investigation, please refer to the Board's Website. [www.ipcb.state.il.us].

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

Signed: Signature
William Seltzer, Hearing Officer

Date: December 8, 2000