ILLINOIS POLLUTION CONTROL BOARD
December 21, 2000

IN THE MATTER OF:	)	
	)	
NATURAL GAS-FIRED, PEAK-LOAD	)	R01-10
ELECTRICAL POWER GENERATING	)	
FACILITIES (PEAKER PLANTS)	)	

INFORMATIONAL ORDER OF THE BOARD (by C.A. Manning, R.C. Flemal, G.T. Girard, E.Z. Kezelis, S.T. Lawton, Jr., M. McFawn, and N.J. Melas):

On July 6, 2000, Governor George H. Ryan asked the Illinois Pollution Control Board to conduct inquiry hearings concerning the potential environmental impact of natural gas-fired, peak-load electrical power generating facilities, known as peaker plants. Governor Ryan requested that the Board, at the conclusion of the inquiry hearings, address in writing whether any further requirements should be imposed on peaker plants to safeguard the environment.

The Board has completed its inquiry hearings and today issues this Informational Order. Based on the record of these proceedings, the Board makes several recommendations to tighten environmental regulations with respect to peaker plants.

This Informational Order has a companion report that the Board will issue in January 2001. It will provide a detailed summary of the information in the record of these proceedings. Both the Informational Order and the companion report will be available on the Board's Web site (www.ipcb.state.il.us) and from the Board's Chicago office (312-814-3620) and Springfield office (217-524-8500).

Below, the Board first provides a summary of its recommendations. Next, the Board sets forth background information on Governor Ryan's request, the Board's completed inquiry hearing process, and the electric power generating facilities discussed in this Informational Order. The Board then answers the five questions posed by the Governor.

SUMMARY OF BOARD RECOMMENDATIONS

Air Emissions

The Board notes that peaker plants burn natural gas, which is a relatively clean fuel environmentally. While peaker plants emit various pollutants into the air, nitrogen oxides (NO_x)[1] are of particular concern because they are ozone precursors. In Illinois,

[1] For ease of reference, a list of abbreviations used in the Informational Order is in Appendix A.

a facility that emits less than 250 tons per year (TPY) is considered a "minor" source under current State and federal environmental regulations. Many of the proposed peaker plants are being permitted to allow for emissions just under this threshold and are intended to emit much less than that. Due to their "peaking" nature, however, the Board finds that these plants are unique. They can emit most, if not all, of their permitted annual amount of emissions during a concentrated period of time. This period is generally the summer months when the ozone risk is greatest.

The Board recommends that the Illinois Environmental Protection Agency (IEPA) and the Board engage in rulemaking pursuant to the Environmental Protection Act (Act), 415 ILCS 5/1 *et seq*. (1998), to consider requiring these plants to use the Best Available Control Technology (BACT) to control their air emissions. BACT is a federally-derived regulatory methodology intended to determine the maximum degree to which air emissions can be reduced in light of energy, environmental, and economic impacts. In Illinois, BACT only applies to "major" sources, which are generally those that emit 250 TPY or more.

In addition, the Board recommends codifying two practices that IEPA Director Tom Skinner, in his administrative discretion, implemented to respond to public concern over the proliferation of peaker plants: dispersion modeling and public hearings for all proposed peaker plant construction permits.

Dispersion modeling is intended to ensure that peaker plant air emissions do not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS). While not required for minor sources, IEPA has recently been requesting this modeling information from peaker plant permit applicants during the permit process. The modeling should use conservative parameters to determine the worst-case impact, including any cumulative impact due to the clustering of peaker plants.

Noise Emissions

The Board first finds that a peaker plant can be a very loud noise source. Without adequate noise controls, peaker plants can greatly exceed the Board's numeric noise standards. The Board also finds that Illinois' current noise regulations are adequate to address most concerns. Nonetheless, the Board recognizes that a gap exists in current Illinois noise regulation. While Illinois has strict noise standards, IEPA does not currently have a program in place to ensure at the time of air permitting that facilities will meet the noise standards. The Board recommends remedying that problem.

Siting

As to whether peaker plants should be subject to siting requirements beyond local zoning, the Board stops short of making any specific recommendation on siting.

Instead, the Board provides the Governor with an informed discussion of the concerns raised and potential solutions.

BACKGROUND

Governor Ryan's Request

Citing the recent proliferation of peaker plants in Illinois, Governor Ryan asked that the Board hold inquiry hearings on the following issues:

1. Do peaker plants need to be regulated more strictly than Illinois' current air quality statutes and regulations provide?

2. Do peaker plants pose a unique threat, or a greater threat than other types of State-regulated facilities, with respect to air pollution, noise pollution, or groundwater or surface water pollution?

3. Should new or expanding peaker plants be subject to siting requirements beyond applicable local zoning requirements?

4. If the Board determines that peaker plants should be more strictly regulated or restricted, should additional regulations or restrictions apply to currently permitted facilities or only to new facilities and expansions?

5. How do other states regulate or restrict peaker plants?

The Completed Proceedings on Peaker Plants

The Board opened this docket, R01-10, by order on July 13, 2000. Board Hearing Officer Amy Jackson conducted seven days of public hearings at five different locations throughout the State: August 23 and 24, 2000, in Chicago; September 7, 2000, in Naperville; September 14, 2000, in Joliet; September 21, 2000, in Grayslake; and October 5 and 6, 2000, in Springfield. All seven Board Members were present for each day of hearing. Over 80 persons testified at these public hearings, including individual citizens, representatives of citizen groups, representatives of State and local government, and representatives of industry. A list of all hearing participants is attached as Appendix B. The Board appreciates the thoughtful participation of each of those persons.

Each hearing was transcribed by a court reporter, which resulted in nearly 1,300 pages of transcripts. Hearing Officer Jackson admitted 69 hearing exhibits into the record, a list of which is attached as Appendix C. The Board also received 195 written public comments, a list of which is attached as Appendix D. The Board accepts all of those public comments into the record of these proceedings and thanks each of those commentors for their insightful remarks.

Simple Cycle and Combined Cycle

Peaker plants are facilities that generate electricity during periods of peak electricity demand. The period of peak demand mainly occurs during summer months due to use of electricity for air conditioning. In Illinois, a large number of power plants using natural gas-fired turbines are being proposed to meet peak electricity demand.

A basic gas turbine is a rotary internal combustion engine with three major parts: an air compressor; one or more burners; and a power turbine. The air compressor compresses the incoming air from the atmosphere. A portion of this air is diverted to the burner where fuel is burned raising the temperature of compressed air. This very hot air from the burner is mixed with the rest of the compressed air and passed through the power turbine. The force of the expanding hot compressed air drives the turbine shaft, which is connected to a generator that produces electricity.

A gas turbine that discharges hot exhaust gases directly into the atmosphere is called a simple cycle turbine. A gas turbine with a waste heat boiler that uses the hot exhaust gases to generate steam is called a combined cycle turbine. The steam produced by a combined cycle plant may be used for generating electricity or for other industrial applications.

Gas turbines are ideally suited for generating electricity to meet peak demand for several reasons: they can be brought on-line relatively quickly, particularly simple cycle turbines (five to ten minutes); they are simple to operate; and they emit pollutants into the air at much lower levels than plants using other types of fuel such as coal and oil.

Simple cycle turbines are suitable for producing electricity to meet hourly and seasonal peak demand. Most of the recent air permit applications filed with IEPA have been for natural gas-fired, simple cycle combustion turbines. The generation capacity of simple cycle plants ranges from 25 to 800 megawatts (MW) per plant. Combined cycle turbines are more efficient than simple cycle turbines and are more suited for generating electricity to meet seasonal peak demand or intermediate demand, or for operating year round to supply base-load electricity. The generation capacity of combined cycle plants ranges from 336 MW to 2,500 MW.

A simple cycle turbine may be converted to a combined cycle turbine by retrofitting the simple cycle turbine with a waste heat boiler, steam turbine, and cooling system. It appears that a number of simple cycle plants ultimately may convert to combined cycle plants.

As of November 2, 2000, IEPA had received 67 applications for constructing natural gas-fired power plants, of which 56 are for plants with simple cycle turbines to meet peak demand, eight are for plants with combined cycle turbines to meet base-load demand, two are for plants where the permit applicants had not decided whether to use

simple cycle or combined cycle turbines, and one is for a plant with an aero-derivative combined cycle turbine to meet peak demand. IEPA has limited the time that simple cycle plants can operate as follows: from 2,000 to 4,000 hours (approximately 83 to 166 days) per year per turbine. IEPA has limited the time that a combined cycle plant can operate to 6,000 hours (250 days).

The Board recognizes that most natural gas-fired peaker plants use simple cycle turbines. However, in this Informational Order, the Board will, for a number of reasons, consider plants that use combined cycle turbines as well as those that use simple cycle turbines. Combined cycle plants are used to meet seasonal peak electricity demand. As discussed below, combined cycle plants pose similar environmental concerns with respect to air quality and noise pollution, and combined cycle plants may significantly impact regional water resources. Simple cycle plants may be converted to combined cycle plants. Finally, combined cycle plants, like simple cycle plants, are being located in developed or developing areas of Northeastern Illinois, often near residential areas.

BOARD ANSWERS TO GOVERNOR RYAN'S QUESTIONS

Question 1: Do peaker plants need to be regulated more strictly than Illinois' current air quality statutes and regulations provide?

Current Air Quality Regulation of Peaker Plants

Many sources of air emissions, such as coal-fired plants, emit greater total amounts of pollutants into the air than do peaker plants. Peaker plants burn natural gas, which is relatively clean. Nevertheless, it would be prudent for Illinois to consider regulating peaker plants more strictly in several discrete areas with respect to air quality.

Peaker plants emit various amounts of air pollutants as they burn natural gas to generate electricity. The pollutants are combustion byproducts that include NO_x, carbon monoxide (CO), volatile organic material (VOM), particulate matter (PM), and sulfur dioxide (SO_2). Peaker plants emit NO_x and CO, small amounts of VOM, and negligible amounts of PM and SO_2. NO_x emissions are of particular interest because they are precursors for ozone formation. Air emissions of NO_x from identical gas turbines used in a simple cycle and a combined cycle plant would be similar as long as a duct burner is not used in the heat recovery applications of the combined cycle plant. With a duct burner, the NO_x emissions level for the combined cycle turbine would be higher than that of the simple cycle turbine.

Many peaker plants are designated as "minor" sources of air emissions under current regulations because they are permitted to have "potential air emissions" of less than 250 TPY of NO_x. Because these peaker plants are not considered "major" sources

of air emissions, they avoid the strict requirements for air quality impact modeling and technology-driven pollution controls, such as BACT and the Lowest Achievable Emission Rate (LAER).

A BACT analysis involves determining the maximum degree to which the emissions of a source can be reduced in light of energy, environmental, and economic impacts. LAER requires the source to meet the most stringent emission limit contained in a State Implementation Plan or achieved in practice, without considering energy, environmental, or economic impacts. Neither BACT nor LAER can be less stringent than an applicable New Source Performance Standard (NSPS), which is an emission standard prescribed for criteria pollutants from certain stationary source categories under Section 111 of the federal Clean Air Act.

Generally, peaker plants using simple cycle gas turbines tend to be minor sources, while combined cycle plants tend to be major sources. Because they generate steam to produce electricity, combined cycle plants fall into a special category under Prevention of Significant Deterioration (PSD) regulations, making their threshold for major source status 100 TPY rather than the 250 TPY threshold applicable to simple cycle plants.

Minor source peaker plants may emit their total annual permitted amount of pollution, often just under 250 tons, into the air in a concentrated time period. As noted, that time period tends to be the three or four months of summer because air conditioning use creates a peak demand for electricity. The summer is the worst time of year for ozone formation. Most peaker plants also are locating in the more densely populated Northeastern part of the State, often near residential areas. In addition, peaker plants may be sited in clusters, in part because each plant wants to be close to existing gas and electric transmission lines.

Board Conclusions on Air Quality Regulation of Peaker Plants

To ensure that minor source peaker plant air emissions do not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS), Illinois' existing regulations should be enhanced. Specifically, when those plants apply for air construction permits, they should be subject to air quality impact analyses using dispersion modeling with respect to NAAQS. NAAQS are set at a level that protects public health with an adequate margin of safety and that protects public welfare from known or anticipated adverse effects. Existing regulations require this evaluation only for major sources.

Conservative modeling parameters for plant operation and meteorological conditions should be used to determine the worst-case impact. Modeling should encompass any cumulative impacts due to clustering of peaker plants by accounting for the emissions from other proposed or existing peaker plants in the area. A peaker

plant's impact on air quality should be considered acceptable if the modeling results show that the point of maximum impact at which the NAAQS are met lies at or within the property line of the plant.

The Board recommends that IEPA propose a Board rulemaking to require that new and expanding peaker plants designated as minor sources under the State's PSD regulations conduct air quality impact analyses. This recommendation would primarily affect simple cycle plants because they tend to be minor sources. Combined cycle plants tend to be major sources, and major sources are already subject to air modeling.

Public hearings also should be held before IEPA issues its final determination on the permit application. The Board recommends that IEPA adopt a rule requiring that the air construction permit application process for all combined cycle and simple cycle peaker plants include a public hearing before IEPA makes its final decision.

As noted, IEPA Director Tom Skinner, in his administrative discretion, already has been requiring these facilities to meet the air modeling and public hearing obligations. Citizens applauded these practices and the Board recommends that the practices be codified, as discussed above.

In addition, further consideration should be given to requiring minor source peaker plants to use BACT to reduce their emissions of NO_x into the air. Several other states, including Michigan, Ohio, and Indiana, require BACT for sources that would not trigger BACT under federal PSD rules. New gas turbines with readily available, reliable emission control technology can routinely achieve very low air emission rates.

These emission rates are much lower than the only applicable technology-based emission limitation, the potentially outdated NSPS. NSPS does not reflect BACT or LAER for new turbines. Because they are subject only to NSPS and not the more stringent control requirements, many peaker plants propose NO_x emission limits to IEPA that do not reflect the current emission control technology.

NO_x emissions from peaker plants can be reduced either by combustion modification techniques or add-on control devices. Combustion modification techniques are capable of reducing NO_x emissions to levels ranging from 3 parts per million (ppm) to 25 ppm. Add-on control devices are capable of reducing NO_x emissions from peaker plants to a range of 3 ppm to 4 ppm. Newer gas turbines are being designed to routinely achieve NO_x emission rates in the range of 10 ppm to 25 ppm. The requested NO_x emission rates for simple cycle plants range from 9 ppm to 175 ppm, while the requested NO_x emission rates for combined cycle plants range from 3.5 ppm to 4.5 ppm.

As of August 16, 2000, IEPA had made only three BACT determinations for NO_x emissions from simple cycle peaker plants because most of the plants are

developed as minor sources. In all three instances, IEPA determined that the combustion modification technique known as the "Dry low-NO_x" burner system is BACT, with NO_x limits ranging from 9 ppm to 15 ppm.

The Board recommends that IEPA propose a Board rulemaking to require new, expanding, and existing peaker plants designated as minor sources under the State's PSD regulations to implement BACT for reducing NO_x emissions. The rulemaking proceeding would provide the opportunity to more fully assess whether BACT should apply in these instances, including whether imposing it would be economically reasonable and technically feasible.

A number of participants, including Mr. Keith Harley of the Chicago Legal Clinic and Mr. Brian Urbaszewski of the American Lung Association, urged the Board to recommend that the United States Environmental Protection Agency (USEPA) rescind the NO_x waiver. The waiver grants relief from New Source Review (NSR) requirements to certain NO_x emission sources in the Chicago nonattainment area (NAA). Those requirements include a major source designation threshold of 25 TPY of NO_x, LAER, and NO_x offsets in the ratio of 1.3 to 1.

The Board notes that repealing the waiver would have ramifications well beyond the scope of these inquiry proceedings. The waiver applies to all types of sources in the Chicago NAA, not just peaker plants. Its repeal therefore would have substantial impacts on industries that are not the subject of this inquiry hearing process. Based on the record of these proceedings, the Board recommends a more tailored approach—namely, considering applying BACT to minor source peaker plants, as described above. The Board agrees with IEPA that any decisions concerning the NO_x waiver should be made by USEPA in the context of its upcoming review of Illinois' attainment demonstration for the Chicago NAA.

The Board also declines to recommend that all peaker plant air permits automatically contain specific limits on emissions resulting from the start-up and shut-down of the plants. Gas turbines emit greater amounts of pollutants during start-up and shut-down, resulting in a higher emission factor (pounds of pollutant per million British thermal units). However, the lower load during those times compensates for the higher emission factor. IEPA requires construction permits to account for all emissions, including emissions during start-up and shut-down, to demonstrate compliance with annual limits. While permits do not routinely have specific limits on the amount of emissions during start-up and shut-down, IEPA may include those limits if elevated emissions during those periods would threaten air quality.

Question 2: Do peaker plants pose a unique threat, or a greater threat than other types of State-regulated facilities, with respect to air pollution, noise pollution, or groundwater or surface water pollution?

Air Pollution

As noted, many sources emit greater total amounts of pollutants into the air than do peaker plants. Peaker plants, however, pose a unique threat of air pollution when compared to many other State-regulated facilities. Unlike many other sources, simple cycle peaker plants may operate only or primarily during one season, the summer. Those plants therefore may emit most, if not all, of their annual permitted amounts of NO_x, which are ozone precursors, into the air during the ozone season. This may cause a greater impact on air quality than a comparable manufacturing plant permitted for the same amount of emissions that operates over an entire year. Under existing regulations, however, as discussed above, most simple cycle peaker plants avoid the most stringent air quality requirements.

Noise Pollution

Peaker plants pose a greater threat of noise pollution than many other types of State-regulated facilities. The engine used, though not necessarily identical to a jet air craft engine, is a very loud noise source. Without adequate noise controls, peaker plants can greatly exceed the Board's numeric noise standards. Simple cycle and combined cycle plants pose a similar threat of noise pollution because they use the same type of engine.

While IEPA has received no noise complaints about existing peaker plants, a large number of peaker plants plan to begin operating soon, often in close proximity to residential areas. In addition, many of the existing peaker plants appear to be located at or adjacent to electric utilities.

Local governments do not automatically request that peaker plant developers perform noise analyses as part of the local zoning process. Local governments may lack the technical expertise or resources to assess or conduct noise studies. Moreover, when peaker plant developers do provide noise studies to local governments, the methodologies and level of detail in proposing noise control measures, if any, can vary considerably.

Director Skinner stated that one of the critical objectives of IEPA is to ensure that no permit is issued to a peaker plant unless the permit applicant proves that the facility will not violate existing environmental laws or regulations. He emphasized the language of Section 39(a) of the Act:

> When the Board has by regulation required a permit for the construction, installation, or operation of any type of facility, equipment, vehicle, vessel, or aircraft, the applicant shall apply to the Agency for such permit and it shall be the duty of the Agency to issue such a permit upon proof by the applicant that the facility, equipment, vehicle, vessel, or

> aircraft will not cause a violation of this Act or of regulations hereunder. The Agency shall adopt such procedures as are necessary to carry out its duties under this Section. 415 ILCS 5/39(a) (1998) (emphasis added).

The Board has adopted a thorough set of noise regulations for Illinois under the Act. See 35 Ill. Adm. Code 900, 901. The problem is that IEPA has no mechanism to ensure that peaker plants (or practically any other noise sources) receiving permits from IEPA will not violate Illinois' existing noise standards. Accordingly, there is a gap in Illinois' current regulatory approach to noise. While Illinois has stringent numeric noise standards and thorough procedures for measuring noise, it has no regulatory scheme for reviewing noise emitters during air permitting to ensure their compliance. IEPA does not currently have the funding or staffing to perform that function for all peaker plants.

The Board recommends that IEPA, in connection with its existing air permitting programs, review demonstrations from combined cycle and simple cycle plants for compliance with the Board's current numeric noise standards. Existing facilities should take sound measurements in accordance with applicable procedures, as part of their permit renewals. Proposed facilities should perform noise modeling as part of their construction permit applications.

IEPA agreed that with additional funding and staff, it could readily review noise information submitted with air permit applications. In fact, for several years, IEPA has been reviewing demonstrations of compliance with numeric noise standards as part of the land permit application process for gas turbines used to generate electricity from landfills. IEPA should seek and be granted adequate funds to provide the important function that the Board recommends.

Some citizens argued that the Board's existing numeric noise standards do not adequately ensure that existing noise levels in quiet residential areas are maintained. The Board's current noise regulations impose statewide numeric limits on the sound levels that can be emitted from one property to another. The regulations take into account different land uses, with residential land having the most protective standards. The regulations require sound measurements to be corrected for background noise, which is generally the noise from sources other than the source at issue. This is done to determine the noise attributable to the noise emitter being studied. Some citizens are concerned that if one or more peaker plants move into a quiet area, they will raise the background noise level in that area, without any one peaker plant violating the numeric noise standards.

It appears that these citizens seek, in essence, to freeze noise levels currently existing in certain neighborhoods. The Board recognizes this concern but believes it could apply to any type of industrial or commercial growth. It does not appear to be unique to peaker plants, the subject of these proceedings. This type of concern about

preserving a lifestyle by preventing the encroachment of industrial or commercial development into quiet residential areas may be better addressed through local zoning and planning.

The Board agrees with IEPA that peaker plant noise emissions do not warrant changing the Board's current numeric noise standards. Of course, residents and local governments can bring nuisance noise enforcement actions before the Board that do not allege a violation of the numeric noise standards.

Water Pollution

The record of these proceedings does not suggest that discharges from peaker plants pose a unique threat, or a greater threat than other State-regulated facilities, regarding water pollution. Nor does the record reveal any gap in existing water pollution regulations with respect to wastewater discharges to surface waters or publicly owned treatment works, or stormwater discharges. The Board therefore makes no recommendation for additional regulations to address potential water pollution from peaker plants. The Board emphasizes, however, that peaker plants do raise concerns about water use, which the Board discusses below.

Question 3: Should new or expanding peaker plants be subject to siting requirements beyond applicable local zoning requirements?

Currently in Illinois, local governments applying local zoning ordinances make decisions on siting simple cycle and combined cycle plants. Environmental permits are addressed separately by IEPA. Three primary concerns with the current siting process were identified during the hearings:

- Energy Planning. Some participants expressed concern that these plants are being sited without the State first determining that there is a need for the electricity that they will generate. They called on the State to develop an energy plan to help guide the siting of electric generating plants.

- Environmental Impacts That May Extend Across Political Boundaries. Some participants asserted that local government cannot effectively address environmental impacts from simple cycle and combined cycle plants that may extend across political boundaries, including cumulative impacts from clusters of plants.

- Public Participation/Cross-Jurisdictional Authority. Some participants pointed out that officials and residents of neighboring communities cannot effectively participate in the siting process of the local host government. For

example, one municipality can approve the siting of a combined cycle or simple cycle plant just within its border, away from its residences but near the residential area of a neighboring municipality. The neighboring municipality has no meaningful voice in the process. Some participants requested that these neighboring communities be able to effectively participate in the siting process and that neighboring officials have a meaningful say in the ultimate siting decision, including, for example, ensuring compliance with county standards.

The Board addresses each of these concerns below.

Energy Planning

Peaker plants are proliferating in Northeastern Illinois because of many factors, including deregulation, rising energy costs, increased demand for power, close proximity to users as well as existing gas and electric transmission lines, low construction costs, the closure of base-load electric plants, and opposition to building new transmission lines. Mr. Patricio Silva, Midwest Activities Coordinator of the Natural Resources Defense Council, described Illinois' current energy market as an "Oklahoma land rush" and called for Illinois to have a "comprehensive energy planning process, encompassing functions once carried out by the Illinois Commerce Commission."

Many persons expressed concern that peaker plants are being sited without the government first determining that they are needed. For example, Mr. Jim LaBelle, Chairman of the Lake County Board, called for the State to take a leadership role in developing an energy plan to help guide the siting of electric generating plants. He asserted that Illinois should have a plan that: identifies the power generation and transmission needed to support continued economic growth in Illinois; assures that power generated in a particular location will provide direct benefits to the surrounding county and region; and considers alternatives such as improved transmission capacity to reduce the need for additional generation in certain areas.

Industry representatives, on the other hand, asserted that the market should determine when additional generating capacity is needed. They warned that imposing stricter siting requirements in Illinois might result in power shortages, higher costs for power, reliability problems, and delays in siting.

The question of whether the State should allow new electric generating plants to be sited only if they are consistent with a statewide energy plan is in many ways a question about whether the proliferation of peaker plants is an unwanted byproduct of restructuring the electric industry.

Before restructuring, electric utilities requested approval from the Illinois Commerce Commission (ICC) to build new generating plants at specific sites. A utility seeking to build a new plant was required to demonstrate need for the new generating capacity. If the utility succeeded, the ICC would grant the authority, including, if required, powers of eminent domain.

A few years ago, Illinois embarked upon deregulation. It chose a market-based approach for restructuring, and the General Assembly passed the Electric Service Customer Choice and Rate Relief Law of 1997 (Illinois Electricity Choice Law) to accomplish it. See 220 ILCS 5/16-101 through 16-130 (1998). Because of the Illinois Electricity Choice Law, the ICC no longer has a formal role in assessing Illinois' electricity needs or mandating additional capacity. Instead, market forces are expected to spur innovation, attract competition, drive the appropriate supply/demand balance, and attract new power suppliers to the State.

In addition to the introduction of market-based restructuring at the State level, the electric utility industry also experienced increasing levels of competition on the federal level. For example, the Federal Energy Regulatory Commission's Order 888 of 1995 required electric utilities to provide open access to their transmission system to any entity interested in moving or "wheeling" electricity from one part of the national grid to another for wholesale purposes. This opened the interstate transmission system to wider access and made interstate electricity sales even more economically attractive.

In light of the evolving nature of deregulation nationwide, a brief review of other states' siting approaches is warranted. (A lengthier discussion of siting options is set forth later in this Informational Order.) As Mr. Charles Fisher, Executive Director of the ICC explained, some states have taken approaches to siting similar to that of Illinois, while others have established state siting committees either as part of or separate from state public utility commissions.

States With Restructuring Laws. Like Illinois, California, New York, and Ohio have enacted electric restructuring laws. Unlike Illinois, these states use state siting committees to determine where peaker plants should be sited. Texas also has enacted an electric restructuring law. It has a system similar to the current system in Illinois: local zoning boards control siting, and the state environmental agency controls permitting.

States Without Restructuring Laws. Wisconsin, which has not enacted an electric restructuring law, requires traditional certificates of convenience and necessity for peaker plants. Kentucky, which also has not enacted an electric restructuring law, does not require any approvals, other than state environmental permitting and local zoning, as long as the peaker plant sells the electricity it generates wholesale on the market.

In Illinois, merchant generators do not have to request the ICC's siting approval or demonstrate to the ICC that they are needed to meet energy demand. Nor is the ICC involved in any formal energy planning for the State. When assessing any impacts of restructuring, the Governor may wish to consider whether the State should have an energy plan that could, among other things, guide the introduction of new generating capacity into Illinois.

Environmental Impacts That May Extend Across Political Boundaries

Environmental impacts from peaker plants, such as from air emissions, noise emissions, and water use, may extend across political boundaries. Multiple peaker plants may be sited close to each other for close proximity to natural gas and electric lines and because certain local jurisdictions may offer less stringent zoning requirements than other jurisdictions. Concentrations of peaker plants may lead to cumulative environmental impacts.

Earlier in this Informational Order, the Board recommended approaches to address these concerns with respect to air and noise. The air modeling recommended will address cross-boundary impacts and air emissions from other sources. The noise compliance demonstration recommended will help to ensure that peaker plant noise emissions meet Illinois noise standards in every jurisdiction. As proposed, potential impacts from air or noise emissions, including emissions from multiple sources, would be assessed by IEPA at the time of air permitting.

The Board also notes that Governor Ryan created the Water Resources Advisory Committee (WRAC) to assess the use of groundwater and surface water. The WRAC's work includes assessing the impacts that users, including peaker plants, have on these supplies of water and recommending action. The WRAC should address the virtual absence of State controls or plans regarding water use. To assist the WRAC in its work, Chairman Manning, who sits on the WRAC on behalf of the Board, forwarded a letter to the WRAC, attaching summaries of information on water use from these inquiry hearing proceedings and on the regulatory frameworks that other Midwestern states have with respect to water use. In her letter, Chairman Manning calls on the WRAC to focus its attention on "the development of a workable regulatory framework for the conservation and fair allocation of water resources in this great State: one that meets the needs of all concerned citizens and entities." Various industry representatives referred to this letter in their public comments to the Board in these proceedings. Chairman Manning's submittal is attached as Appendix E.

Accordingly, concerns over environmental impacts from air emissions, noise emissions, and water use can be addressed through State or regional regulatory mechanisms outside of a siting process. For example, the record shows that the Board's recommendations with respect to air and noise, if implemented, should be protective without any need to have them addressed in a siting process. If such regulatory mechanisms are not implemented, however, these types of concerns could be

addressed in a siting process, as they are in the New York and California processes discussed below.

Water use is a particular concern. As noted, Illinois has no regulatory program to manage and preserve the quantity of its many surface water and groundwater resources. Because of its high water use for cooling purposes, a plant using a combined cycle turbine will have a greater impact on regional water resources than a plant with a simple cycle turbine. Simple cycle plants use about 0.07 to 2 million gallons of water per day, while combined cycle plants use approximately 5 to 20 million gallons of water per day. As mentioned, many simple cycle plants may convert to combined cycle plants.

Dr. Derek Winstanley is the Chief of the Illinois State Water Survey, a division of the Office of Scientific Research and Analysis of the Illinois Department of Natural Resources. He stated that proper use of groundwater resources is not best determined on a "town-by-town" basis because groundwater aquifers cut across political jurisdictions. He advocated regional planning and management of water resources, including groundwater aquifers, river basins, and water sheds.

Dr. Winstanley's concerns were echoed by numerous local and State government officials and representatives, including State Senator Terry Link, Mr. Daniel J. Kucera, an attorney with Chapman & Cutler appearing on behalf of the Lake County Public Water District, Mr. Mike Shay, Senior Planner with Will County, and Ms. Bonnie Thomson Carter, Lake County Board Member for the Fifth District and Chair of the Public Works and Transportation Committee. Each of them testified that potential environmental impacts from individual or multiple peaker plants cannot be addressed effectively by local government. Many local zoning authorities may lack the financial resources or technical expertise to competently assess these aspects of peaker plant proposals.

The Board agrees that current local zoning processes alone generally do not adequately consider environmental impacts from simple cycle and combined cycle plants that may extend across political boundaries, including any cumulative effects from the clustering of these plants. As noted, however, these concerns can be fully addressed through regulatory mechanisms outside of a siting process.

Public Participation/Cross-Jurisdictional Authority

As noted, currently in Illinois, the siting of peaker plants is addressed only by local government through local zoning or land use ordinances. Generally in Illinois, municipalities control zoning matters within their borders. Accordingly, neither the officials of a neighboring municipality or surrounding county, nor the citizens residing in those jurisdictions, can effectively participate in a given municipality's zoning approval process to site a peaker plant.

Representatives of DuPage County, Will County, and Lake County explained that their zoning authority is limited in this way. A number of local and State officials, including State Representative Mary Lou Cowlishaw and Ms. Vivian Lund, Mayor of Warrenville, expressed concern that residents and officials in neighboring municipalities and surrounding counties have no meaningful say in a given municipality's zoning approval process for a peaker plant, despite the potential for environmental impacts of peaker plants to cross political boundaries.

Participants requested that neighboring communities be able to effectively participate in a municipality's siting process and that neighboring officials have a say in the ultimate siting decision, including, for example, ensuring compliance with county standards.

Potential Solutions

As noted above, states across the country use different types of processes for approving electric power generating plants. Some states, like Illinois, have a decentralized or segmented process of approving peaker plants. Under that approach, the siting decisions are made by local governments applying their zoning ordinances, while environmental permits are obtained from the different state bureaus. Other states have a centralized or coordinated process. Those states empower one state board or commission to grant or deny all siting proposals. In California and New York, environmental permitting is a component of the power plant siting process and the state environmental regulators participate in that process.

Below, the Board discusses the New York and California processes for siting electric generating plants, as well as Illinois' process under the Act for siting pollution control facilities.

New York and California Siting Processes. The siting processes in New York and California were most frequently referred to in this record. New York's siting process applies to an electric generating facility with a capacity of 80 MW or more. Siting decisions are made by a state board. The application for siting must include: (1) studies of impacts on air, water, visual resources, land use, noise levels, and health, (2) proof that the proposed facility will meet state and federal health, safety, and environmental regulations, and (3) applications for air and water permits.

To facilitate the ability of local government and the public to evaluate the proposed project, New York requires that the applicant provide funds for intervenors to use in the siting process. The applicant must pay a fee of $1,000 per MW of capacity, not to exceed $300,000, to be used as an intervenor fund. The funds are awarded to municipal and other local parties to help pay for the expenses of expert witnesses and

consultants. Any municipality or resident within five miles of the proposed facility can become a party to the proceeding.

The state environmental agency reviews the air and water permit applications as part of the siting process and must provide the permits to the siting board before the board decides whether to approve siting. The siting board reviews the siting request based on a number of criteria, including cumulative air quality impacts and public health and safety. Interestingly, one of the criteria requires the siting board, before it can grant siting, to determine either: (1) construction of the facility is reasonably consistent with the state energy plan, or (2) the electricity generated by the facility will be sold in a competitive market. The state siting board may supercede local requirements if it finds them unreasonably restrictive. Please refer to Appendix F for a more detailed description of New York's siting process.

California has given exclusive authority to a state commission to conduct a consolidated approval process for siting all power plants that will have electric generating capacities of 50 MW or larger. The commission's siting responsibilities include statewide planning analysis. The siting process allows the project applicant to submit a single application for all necessary state and local approvals and provides analysis of all aspects of a proposed project, including need, environmental impact, safety, efficiency, and reliability.

While the state commission's authority supercedes the authority of other state and local agencies, the commission solicits their participation in the siting process to ensure compliance with all applicable requirements, including local requirements. Under this approach, the applicant seeks a single regulatory permit from the state commission. The California siting process has public hearings and allows the public to participate. It includes a state-appointed public adviser responsible for ensuring that the public and other interested parties have full opportunities to participate in the siting process. Please refer to Appendix G for a more detailed description of California's siting process.

Pollution Control Facility Siting in Illinois (SB 172). In Illinois, the Act sets forth a process for siting pollution control facilities, including landfills. The process, commonly known as "Senate Bill 172" or "SB 172," was discussed many times in this record as a potential model for siting peaker plants. SB 172 changed the Act in 1981 so that local governments would decide whether to grant siting approval for pollution control facilities. See 415 ILCS 5/39.2 (1998). Previously, the only way local governments could participate in the approval of pollution control facilities within their borders was to provide comments in IEPA's environmental permitting process. Those comments were not binding on IEPA.

With SB 172, the applicable local unit of government to decide siting is the county board if the facility's proposed location is in an unincorporated area, or the

governing body of the municipality if the proposed location is in an incorporated area. See 415 ILCS 5/39(c) (1998). The local government must conduct public hearings to determine whether to grant siting. The process also provides for various public notices. Participation of neighboring officials and residents in the process is allowed. For example, Section 39.2(d) of the Act, after prescribing how to notify these officials, provides:

> Members or representatives of the governing authority of a municipality contiguous to the proposed site or contiguous to the municipality in which the proposed site is located and, if the proposed site is located in a municipality, members or representatives of the county board of a county in which the proposed site is to be located may appear at and participate in public hearings held pursuant to this Section.

The local siting authority must determine whether the proposed facility meets each of nine statutory criteria. See 415 ILCS 5/39.2 (1998). Those criteria are set forth in Appendix H. The criteria, which include both land use and environmental considerations, apply to the siting decision in lieu of local zoning or local land use requirements. See 415 ILCS 5/39.2(g) (1998). IEPA is not directly involved in the local government's hearing process. However, IEPA cannot issue a development or construction permit for a pollution control facility unless the permit applicant submits proof that it obtained local siting approval under SB 172. See 415 ILCS 5/39(c) (1998). Local siting decisions are appealable to the Board. See 415 ILCS 5/40.1 (1998).

Many of the SB 172 siting criteria are specific to waste facilities. Criteria, however, could be tailored for siting peaker plants. Because the SB 172 approach requires the statutory criteria to apply instead of local zoning, concern was expressed in the record that local governments would lose some control over peaker plant siting by using the SB 172 approach. Modified SB 172 approaches were suggested. One approach would have State-identified siting criteria serve as minimum criteria that must be met, but which would not operate in lieu of local zoning. Another approach would have State-identified siting criteria serve to inform local governments of siting issues, but be voluntary. Under that approach, local governments would not have to apply the criteria, but could look to the criteria for guidance if they chose to do so. Another approach would involve creating regional siting authorities to make these determinations. Several participants suggested that siting decisions should be appealable to the Board, as they are under SB 172.

Board's Concluding Remarks on Siting. State-run approaches to siting can provide for broader public participation in siting and ensure that a larger perspective is brought to bear on environmental issues and energy planning when selecting sites for power plants. They also offer a more uniform application of siting criteria over a state than a patchwork of individual local zoning decisions. A centralized or coordinated

type of process, however, is not without potential drawbacks. For example, this type of siting process has caused delays in siting electric plants, including delays in California leading to changes in an effort to speed up its process. Also, in most states with these comprehensive siting processes, the state board can overrule local jurisdictional authority. Accordingly, state boards typically can approve siting over the objection of the local host government.

Any number of permutations to existing siting schemes could be fashioned for combined cycle and simple cycle plants. For example, environmental permitting programs might be made a component of the siting process, as in New York and California, or they might remain separate from the siting process, as they are now in Illinois. To enhance public participation and the ability of local governments to assess peaker plant proposals, the State might require peaker plant developers to provide something akin to the "intervenor" funds required in New York. Local siting decisions might be based on State siting criteria and made appealable to a State board, as in SB 172. State siting criteria might operate in lieu of local zoning requirements, or serve as minimum standards to which local authorities may add local requirements. Of course, concerns raised about siting schemes, including delays, power shortages, increased costs, reliability problems, and loss of local control, should be considered.

Determining whether local zoning is adequate or whether additional siting requirements are necessary in Illinois depends on what concerns the siting scheme seeks to address. As discussed, the three primary concerns raised with the current siting process in Illinois were: (1) the lack of a State energy plan, (2) the inability of local government to address environmental impacts that may reach across political boundaries, and (3) the inability of neighboring residents to effectively participate in a local government's siting process, and the inability of neighboring jurisdictions to ensure that their standards are being met.

If the State decides that it should step into the energy planning void left by the restructuring of the electric industry, then a centralized State siting board might make sense. The State might decide, on the other hand, that the void is a proper result of restructuring and that State regulatory solutions should be implemented to address concerns over air emissions, noise emissions, and water use. In that case, the State might limit any change in the current siting process to require that neighboring communities be allowed to effectively participate in a local government's zoning decision on a peaker plant.

As for the first concern, this Informational Order provides helpful information to assist the Governor in his consideration of whether the State should renew its role in energy planning after restructuring. The second concern, on potential environmental impacts from air emissions, noise emissions, and water use, can be addressed through State or regional regulation independent of any siting process. As noted, the Board has recommended statewide regulatory solutions to address air and noise. The record

demonstrates that those approaches should be protective. Regarding water use, the Board would expect the WRAC to recommend an effective regulatory framework sorely lacking now on that important issue. If adequate regulatory schemes are not implemented, however, those types of environmental concerns might need to be addressed through a siting process.

Finally, regarding the third concern, legislation might be pursued that would allow the input of neighboring communities in siting decisions. Local government officials and citizens almost uniformly called for State action to address this concern.

Question 4: If the Board determines that peaker plants should be more strictly regulated or restricted, should additional regulations or restrictions apply to currently permitted facilities or only to new facilities and expansions?

The Board's recommended regulation concerning air quality impact analyses and public hearings should be required for new and expanding peaker plants seeking air construction permits. Whether BACT should apply to control emissions from minor source peaker plants should be evaluated in a rulemaking before the Board. At that time, the technical feasibility and economic reasonableness of applying BACT to new, expanding, and existing minor source peaker plants can be examined.

The demonstration of compliance with existing numeric noise standards should be made by existing peaker plants and by new peaker plants and expansions. Existing peaker plants have been subject to the Board's numeric noise standards and therefore should be able to demonstrate that they comply with those standards by taking the appropriate sound measurements. Existing facilities should make those demonstrations upon air permit renewals. The demonstrations of new and expanding facilities could include noise modeling and should be submitted at the time of air construction permit applications.

Finally, while the Board makes no recommendation on siting, any legislative amendment for siting procedures should apply only to new facilities and expansions.

Question 5: How do other states regulate or restrict peaker plants?

Please refer to Appendix I for a comprehensive table on other states' laws and regulations that may affect peaker plants. For example, Michigan requires BACT for all new sources of VOM emissions, which is a more stringent threshold for triggering BACT than the federal standards. Many other states have no noise regulations, or have very minimal noise regulations compared to the noise standards in Illinois. Unlike Illinois, most other Midwestern states have regulatory programs for water withdrawals. As for siting, a number of states have state boards review requests to site electric generating plants, while others, like Illinois, leave siting decisions to local governments applying their zoning ordinances.

CONCLUSION

Peaker plants have proliferated in Illinois in the wake of restructuring the electric power industry. The largest influx of peaker plants is occurring in developed and developing parts of the greater Chicago metropolitan area, often close to residential areas. This has raised public concerns over potential environmental impacts posed by these plants.

In response to those public concerns, Governor Ryan requested the Board to conduct inquiry hearings on peaker plants, which the Board has done. The Governor asked the Board to determine, based on the inquiry hearing process, whether additional safeguards are necessary to address concerns over air pollution, noise pollution, water pollution, and siting with respect to peaker plants.

The Board has carefully reviewed the voluminous record of this inquiry hearing process, which includes the comments of individual citizens and citizen groups, local and State government, and industry. Based on that record, the Board recommends that the State take action to protect the environment by tightening current environmental regulations concerning peaker plants.

Industry representatives asserted that environmental impacts from peaker plants are far less than many other industries and therefore peaker plants should not be subject to any additional requirements unless all such industries would similarly be subject to new requirements. The Board recognizes that other industries may cause greater environmental impacts than peaker plants. This, however, is not a reason to fail to act on the problems presented in this record. Governor Ryan asked the Board to determine whether additional requirements should be imposed on peaker plants, not other industries. Moreover, the "legislature need not choose between legislating against all evils of the same kind or not legislating at all." Chicago National League Ball Club v. Thompson, 108 Ill. 2d 357, 367, 483 N.E.2d 1245, 1250 (1985).

The Board recommends that IEPA initiate a rulemaking with the Board to require permit applicants to conduct air modeling when IEPA reviews air construction permit applications for peaker plants designated as minor sources under the State's PSD regulations. The Board also recommends that IEPA adopt a rule to require public hearings on air construction permit applications for all peaker plants.

The Board recommends that IEPA initiate a rulemaking with the Board to require new, expanding, and existing peaker plants designated as minor sources under the State's PSD regulations to use BACT for reducing NO_x in their air emissions. The rulemaking would provide a forum to more fully address the appropriateness of imposing BACT, including its economic reasonableness and technical feasibility in these instances.

The Board recommends that IEPA require peaker plants to demonstrate that

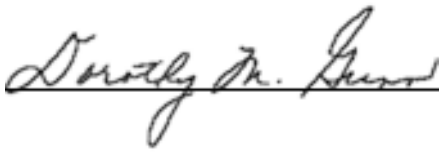
their noise emissions do not exceed the Board's numeric noise standards. This demonstration should be required of existing and proposed plants at the time of air permitting.

Finally, on the question of whether peaker plants should be subject to siting requirements beyond local zoning, the Board does not make any specific recommendation on siting. Instead, the Board provides the Governor with a thorough discussion of the concerns raised and potential solutions.

The Board is honored to have served Governor Ryan and the citizens of Illinois through this inquiry hearing process.

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, hereby certify that the above order was adopted on the 21st day of December 2000 by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board

APPENDIX A

RO1-10 ABBREVIATION LIST

ACT	ENVIRONMENTAL PROTECTION ACT
BACT	BEST AVAILABLE CONTROL TECHNOLOGY
CO	CARBON MONOXIDE
ICC	ILLINOIS COMMERCE COMMISSION
IEPA	ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
LAER	LOWEST ACHIEVABLE EMISSION RATE
MW	MEGAWATT
NAA	NONATTAINMENT AREA
NAAQS	NATIONAL AMBIENT AIR QUALITY STANDARDS
NO_2	NITROGEN DIOXIDES
NO_x	NITROGEN OXIDES
NSPS	NEW SOURCE PERFORMANCE STANDARDS
NSR	NEW SOURCE REVIEW
PM	PARTICULATE MATTER
PPM	PART PER MILLION
PSD	PREVENTION OF SIGNIFICANT DETERIORATION
SO_2	SULFUR DIOXIDE
TPY	TONS PER YEAR
USEPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
VOM	VOLATILE ORGANIC MATERIAL
WRAC	WATER RESOURCES ADVISORY COMMITTEE

APPENDIX B

PERSONS TESTIFYING IN R01-10

Chicago Hearings

August 23, 2000

1. Charles Fisher, Executive Director, Illinois Commerce Commission

2. Thomas Skinner, Director, IEPA

3. Christopher Romaine, Manager, Utility Unit, Permit Section, Division of Air Pollution Control, Bureau of Air, IEPA

4. Robert Kaleel, Manager of Air Quality Modeling Unit, Division of Air Pollution Control, Bureau of Air, IEPA

5. Greg Zak, Noise Advisor, IEPA

6. Steve Nightingale, Manager, Industrial Unit, Bureau of Water Permits Section, IEPA

7. Rick Cobb, Manager, Groundwater Section, Bureau of Water, IEPA

8. Todd Marvel, Assistant Manager of Field Operations Section and RCRA Coordinator/USEPA Liaison/IEPA

9. Dr. Brian Anderson, Director, Office of Scientific Research and Analysis, IDNR

10. Dr. Derek Winstanley, Chief, Illinois State Water Survey, IDNR

August 24, 2000

1. Gerald Erjavec, Business Development, Indeck Energy Services, Inc.

2. Greg Wassilkowsky, Manager, Business Development, Indeck Energy Services, Inc.

3. Arlene Juracek, Vice President, Regulatory and Legislative Services, ComEd

4. Steve Nauman, Vice President, Transmission Services, ComEd

5. Deirdre Hirner, Executive Director, IERG

6. Richard Bulley, Executive Director of Mid-America Interconnected Network

7. Freddi Greenberg, Executive Director and General Counsel, Midwest Independent Power Suppliers

8. Michael Kearney, Manager, Economic Development, Ameren Corp.

9. Richard Trzupek, Manager, Air Quality, Huff & Huff

Suburban Hearings

Naperville
September 7, 2000

1. Mayor George Pradel, Naperville

2. State Senator Chris Lauzen

3. State Representative Mary Lou Cowlishaw

4. Mayor Vivian Lund, Warrenville

5. Paul Hass, Zoning Manager, DuPage County Department of Development Environmental Concerns

6. Richard Ryan, President and Chairman, Standard Power and Light, Oak Brook

7. Diana Turnball, Consultant to variety of citzen groups, private foundations and businesses who have been in opposition to some of the peaker plants

8. Carol Dorge, Attorney representing Lake County Conservation Alliance

9. Connie Schmidt, Representative of River Prairie Group

10. Mark Goff, Resident, Warrenville

11. Cathy Capezio, Resident, Aurora

12. Terry Voitik, Resident, DuPage County, and Founder of Citizens Against Power Plants in Residential Areas (CAPPRA)

13. Maurice Gravenhorst, Member, CAPPRA

14. Lucy Debarbaro, Member, CAPPRA

15. Terry Voitik on behalf of Steve Arrigo, CAPPRA

16. Susan Zingle, Executive Director, Lake County Conservation Alliance

17. Beverly Dejovine, Representative, Citizens Advocating Responsible Environments (CARE), Bartlett

18. Cathy Johnson, Vice Chair, Rural and City Preservation Association (R&CPA)

19. Chris Gobel, Member, CAPPRA

20. Elliot "Bud" Nesvig

21. Sandy Cole, Commissioner, Lake County Board

22. Chris Gobel, Member, CAPPRA

Joliet
September 14, 2000

1. Dr. Thomas Overbye, Associate Professor, Department of Electrical and Computer Engineering, University of Illinois, Champaign-Urbana

2. Alan Jirik, Director, Environmental Affairs, Corn Products International, Inc.

3. Carol Stark, Director, Citizens Against Ruining the Environment, Lockport

4. Susan Zingle, Executive Director, Lake County Conservation Alliance

5. Keith Harley, Chicago Legal Clinic

6. Elliot "Bud" Nesvig

7. Michael Shay, Senior Planner Responsible for Long-Range Planning, Will County

Grayslake
September 21, 2000

1. State Senator Terry Link

2. State Representative Susan Garrett

3. Tom Lynch, Trustee, Libertyville Township

4. Betty Rae Kaiser, Trustee, Village of Wadsworth

5. Daniel J. Kucera, Chapman & Cutler, appearing on behalf of the Lake County Public Water District

6. Jim LaBelle, Chairman, Lake County Board

7. Sandy Cole, Commissioner, Lake County Board

8. Bonnie Carter, Commissioner, Lake County Board

9. Greg Elam, CEO, American Energy

10. Larry Eaton, Attorney, on behalf of the Liberty Prairie Conservancy, Prairie Holdings Corporation, and Prairie Crossing Homeowners Association

11. Toni Larsen, Resident, Zion

12. Chris Geiselhart, Chairperson, Concerned Citizens of Lake County

13. Diane Turnball, Representing Liberty Prairie Conservancy, Concerned Citizens of Lake County, CARE from McHenry County, Bartlett CARE, and Southwest Michigan Perservation Association

14. Lisa Snider, Resident, Wadsworth

15. Verena Owen, Co-Chair, Zion Against Peaker Plants

16. Elliot “Bud” Nesvig

17. Carolyn Muse, Resident, Zion

18. John Matijevich

19. Dennis Wilson, Resident, Island Lake

20. Terry Jacobs, Resident, Libertyville

21. Jim Booth, Resident, Newport Township in Lake County

22. William McCarthy, Resident, Libertyville

23. Susan Zingle, Executive Director, Lake County Conservation Alliance

24. Barbara Amendola, Resident, Zion

25. Mark Sargis, Attorney, working with citizens who have been concerned about peaker issues

26. Cindy Skrukrud, Resident, Olin Mills, McHenry County

27. Paul Geiselhart, Resident, Libertyville

28. Dr. William Holaman, President, Illinois Citizen Action

29. Evan Craig, Volunteer Chair, Woods and Wet Lands Group of the Sierra Club

30. Phillip Lane Tanton

Springfield Hearings

October 5, 2000

1. Roger Finnell, Engineer, Division of Aeronautics, Bureau of Airport Engineering, IDOT

2. John Smith, Representative of Illinois Section of American Waterworks Association

3. Brent Gregory, Representative of National Association of Water Companies, Illinois Chapter

4. James R. Monk, President, Illinois Energy Association

5. Patricio Silva, Midwest Activities Coordinator, Natural Resources Defense Council

6. Brian Urbaszewski, Director, Environmental Health Programs, American Lung Association

7. Elliot “Bud” Nesvig

8. Carol Dorge, Attorney representing Lake County Conservation Alliance

October 6, 2000

1. Susan Zingle, Executive Director, Lake County Conservation Alliance

2. Scott Phillips, Attorney, IEPA

3. Kathleen Bassi, Attorney, IEPA

4. Chris Romaine, Manager, Utility Unit, Permit Section, Division of Air Pollution Control, Bureau of Air, IEPA

5. Greg Zak, Noise Advisor, IEPA

6. Todd Marvel, Assistant Manager of Field Operations Section and RCRA Coordinator/USEPA Liaison/IEPA

7. Steve Nightingale, Manager, Industrial Unit, Bureau of Water Permits Section, IEPA

APPENDIX C

R01-10 EXHIBIT LIST

Exhibit Number	Description of Document
Illinois Commerce Commission Fisher Exhibit 1 (8/23/00)	Prefiled testimony of Charles
Illinois Environmental Protection Agency (Agency) Group Exhibit 1 (8/23/00)	Prefiled testimony of Agency witnesses (Thomas Skinner, Christopher Romaine, Robert Kaleel, Greg Zak, Stephen Nightingale, Richard Cobb, and Todd Marvel)
Agency Group Exhibit 2 (8/23/00) beginning with	Set of 20 documents, "Simple Cycle Gas Turbine Application Diagram," and including two oversized maps
Illinois Department of Natural Resources (DNR) Exhibit 1 (8/23/00)	Prefiled testimony of Brian Anderson
DNR Exhibit 2 (8/23/00) Derek	Prefiled testimony of Dr. Winstanley
Indeck Energy Services, Inc. Erjavec (Indeck) Exhibit 1 (8/24/00)	Prefiled testimony of Gerald
Indeck Exhibit 2 (8/24/00)	Copy of PowerPoint presentation and Supporting Documentation

Commonwealth Edison Exhibit 1 (8/24/00)	Prefiled testimony of Arlene Juracek and Steven Naumann
Illinois Environmental Regulatory Group (IERG) Exhibit 1 (8/24/00)	Prefiled testimony of Dierdre Hirner
Mid-America Interconnected Network, Inc. (MAIN) Exhibit 1 (8/24/00)	Prefiled testimony of Richard Bulley
Midwest Independent Power Suppliers Coordination Group Exhibit 1 (8/24/00)	Prefiled testimony of Freddi Greenberg
Ameren Corporation Exhibit 1 (8/24/00)	Prefiled testimony of Michael Kearney
Huff & Huff Environmental Consultants Exhibit 1 (8/24/00)	Prefiled testimony of Richard Trzupek, with attachments
Citizens Against Power Plants in Residential Areas (CAPPRA) Exhibit 1 (9/7/00)	CAPPRA Mission Statement and photographs
CAPPRA Exhibit 2 (9/7/00)	Steven Berning, et al. v. The City of Aurora, et al., 00-CH-0361, Second Amended Complaint for Declaratory Judgment pending in DuPage County Circuit Court

CAPPRA Exhibit 3 (9/7/00)	Testimony of Michael Warfel
CAPPRA Exhibit 4 (9/7/00)	Testimony of Steve Arrigo
DuPage County Board Exhibit 1 (9/7/00)	Versar Report
DuPage County Board Exhibit 2 (9/7/00)	Map - DuPage County Municipalities and Unincorporated Areas
DuPage County Board Exhibit 3 (9/7/00)	Testimony of Paul J. Hoss, Zoning Manager for DuPage County Department of Development and Environmental Concerns
Standard Light and Power Exhibit 1 (9/7/00)	Addendum No. 2 to Application for Prevention of Significant Deterioration Construction Permit for Standard Energy Ventures, LLC Electrical Generation Facility
BartlettCARE (Citizens Advocating DeJovine Responsible Environments) Exhibit 1 (9/7/00)	Testimony of Beverly
Susan Zingle (Zingle) Exhibit 1 (9/7/00)	"Peaker" Electrical Generating Plants Press Coverage – 2000
Zingle Exhibit 2 (9/7/00)	Testimony of Lake County Conservation Alliance

Zingle Exhibit 3 (9/14/00)	Testimony of Lake County Conservation Alliance with attachments
Zingle Exhibit 4 (9/21/00)	Video Tape
Zingle Exhibit 5 (10/6/00) of	"Typical Daily Load Curve" Reliant Energy
Zingle Exhibit 6 (10/6/00) Electricity	"The Status of U.S. Deregulation"
Zingle Exhibit 7 (10/6/00) Analysis Libertyville,	Arthur Andersen's "Impact Mallory Parcel – Illinois"
Zingle Exhibit 8 (10/6/00) Indeck	"Effects of the Proposed Facility on Property Values, Land Use and Tax Revenue"
Zingle Exhibit 9 (10/6/00) Lake Michael J. Larson	August 15, 2000 letter from County State's Attorney, Waller, to Kenneth L.
Zingle Exhibit 10 (10/6/00) with Provisos	News Articles, beginning "Ordinance Would Place on Peaker Plants"
Zingle Exhibit 11 (10/6/00) Electrical	"Business Overview – Generating Companies"

Sierra Club Exhibit 1 (9/7/00)	Testimony of Connie Sue Schmidt
Dr. Thomas Overbye Exhibit 1 (9/14/00)	"Need for New Peaker Generation in Illinois" power point presentation
Corn Products Exhibit 1 (9/14/00)	Testimony of Alan L. Jirik
Carol Stark (Stark) Exhibit 1 (9/14/00)	Testimony of Carol Stark
Stark Exhibit 2 (9/14/00)	Newspaper Article
Chicago Legal Clinic Exhibit 1 (9/14/00)	Petition to USEPA requesting revocation of the Nitrogen Oxides (NO_x) waiver
Chicago Legal Clinic Exhibit 2 (9/14/00)	Testimony of Keith Harley
Link Exhibit 1 (9/21/00)	Statement of State Senator Terry Link
Lynch Exhibit 1 (9/21/00)	Comments of Tom Lynch, Libertyville Township Trustee
Kaiser Exhibit 1 (9/21/00)	Village of Wadsworth Resolution R130 and letter of December 21,

	1999
Kucera Exhibit 1 (9/21/00)	Comments on behalf of the Lake County Public Water District
Lake County Exhibit 1 (9/21/00)	Testimony of Jim LaBelle, Chairman Lake County Board
Lake County Exhibit 2 (9/21/00)	Testimony of Sandy Cole, Lake County Board Member
Lake County Exhibit 3 (9/21/00)	Testimony of Bonnie Thomson Carter, Lake County Board Member
Lake County Exhibit 4 (9/21/00)	Testimony of Gregory E. Elam, CEO of American Energy Solutions, including power point presentation and Federal Energy Regulatory Commission article
Lake County Exhibit 5 (9/21/00)	Lake County 2000 – Legislative Program
Eaton Exhibit 1 (9/21/00)	Testimony of Larry Eaton on behalf of Liberty Prairie Conservancy, Prairie Holdings Corporation, and Prairie Crossing Homeowners

	Association
Concerned Citizens of Lake County (CCLC) Exhibit 1 (9/21/00)	Testimony of Chris Geiselhart, Chairperson
CCLC Exhibit 2 (9/21/00)	Comments of Richard Domanik during an April 25, 2000 hearing in Libertyville, with attached articles
Nesvig Exhibit 1 (9/21/00)	Testimony of E.M. Nesvig
Nesvig Exhibit 2 (9/21/00)	"Electric Power Monthly" (July 2000 edition)
Nesvig Exhibit 3 (10/5/00)	Written testimony of E.M. Nesvig
Nesvig Exhibit 4 (10/5/00)	Hard copy of Air Permit Public Hearing Presentation (September 28, 2000) by Elwood Energy II and Elwood Energy III
Nesvig Exhibit 5 (10/5/00) and	"U.S. Electricity Imports Exports 1995–1999"
McCarthy Exhibit 1 (9/21/00)	Correspondence of William McCarthy, PhD, regarding proposed Libertyville plant
McCarthy Exhibit 2 (9/21/00)	Guidance for Power Plant Siting and Best Available Control Technology

McCarthy Exhibit 3 (9/21/00) regarding	"Catalytica" publication "Xonon Technology"
Sargis Exhibit 1 (9/21/00) R.	Written comments of Mark Sargis (dated September 7, 2000)
Illinois Department of Transportation James Exhibit 1 (10/5/00) Claire A.	October 5, 2000 letter from V. Bildilli to Chairman Manning
Gregory Exhibit 1 (10/5/00) Gregory	Written testimony of Brent
Monk Exhibit 1 (10/5/00) Monk Monk Exhibit 2 (10/5/00) Capacity – Projected	Written testimony of James "System Peak Load and Historical 1990-2000 & 2001-2003
American Lung Association Exhibit 1 (10/5/00) American	Joint Comments of the Lung Association of Metropolitan Chicago and the Illinois Environmental Council
Dorge Exhibit 1 (10/5/00) County	Written comments of Lake Conservation Alliance, with attachments

Dorge Exhibit 2 (10/5/00)	"Peaker" Natural Gas Fired Turbines – Permits Issued
Dorge Exhibit 3 (10/5/00)	"Peaker" Natural Gas Fired Turbines Permits Issued –
PSD	
Dorge Exhibit 4 (10/5/00) beginning	Group of four exhibits, with "Lake County Conservation Alliance written comments in Carlton air permitting proceeding"

APPENDIX D

R01-10 PUBLIC COMMENTS

1	Reliant Energy Power Generation, Inc. submitted by Cindy Conte, Manager, State Affairs
2	Debbie Halvorson, Sentator, 40th District
3	Ron Molinaro
4	m Peter J. Cioni, Director of Community Development
5	Lake County Zoning Board of Appeals submitted by Bob Mosteller, Deputy Director
6	Larry R. Eaton
7	Susan Zingle
8	Response to Questions of Charles E. Fisher
9	Agency Response to Questions
10	John A. Smith, Illinois State Water Survey
11	"The Status of U.S. Electricity Deregulation" submitted by Susan Zingle, LCCA Executive Director
12	Gary Hougen
13	Robert Brooks
14	Amy Snyder
15	Gary A. Bellak
16	Sally J. Carr
17	Rollin and Sara Shaw
18	Paul and Cyndy Niles
19	Mike Miller
20	Bill O'Donnell
21	Wesley Landmeier
22	Lucille Landmeier
23	Julie and Curt Moon
24	Lester Landmeier
25	Joyce Landmeier
26	Jim Schindel
27	Diane Schindel
28	Joyce Sanders
29	Lawrence H. Robertson
30	Harold and Barbara Snyder
31	Curt W. Peters
32	Walter Quanstrom
33	Byron and Kristin Henn
34	Kris O'Donnell
35	John Geltz,
36	Brian J. Gelf
37	Veda E. Miller
38	Sheri and Keith Fitzgerald

39	Tim Geltz
40	Gail Geltz
41	Sue Andersen
42	Kenneth Andersen
43	Mrs. Arnold Nier
44	Gary Brigel
45	Jeanette Bower
46	James and Kelly Reuland
47	Linda J. Ott
48	Darrin J. Ott
49	Duane Rhoades
50	Steven R. Weissinger
51	William A. Thompson and Karen R. Thompson
52	Mary Backes
53	Ruth A. Brigel
54	Lisa Weissinger
55	Richard Pave
56	Marcia Lee
57	Leon Backes
58	Scott Ritter
59	Mr. and Mrs. Robert J. Krajecki
60	Dorothy Gum
61	Norman L. Curry, Fox
62	Mr. and Mrs. Jeffrey Berg
63	Doug Tuell
64	Jon and Lori Simon
65	David Young
66	Lynne B. Pave
67	Elaine Tuell,
68	Phyllis Pierson, Sugar
69	Margaret Kathleen McCrimmon
70	A. Gum, Big Rock, Illinois
71	Robert E. Pierson
72	Nancy Fayfar
73	Ronnie Simpkins
74	Kelly Salazar
75	“Sheila M. Simpkins
76	Patricia L. McKenzie
77	Wray V. McKenzie, Jr.
78	Marilyn Lasecki and Edmund Lasecki, Jr.
79	Patricia McBroom and Roger McBroom
80	Cheryl Romano and Thomas Romano
81	Dorothy Holland

82	Annie Buckmiller
83	Alice Hulka
84	Mary Copp
85	Patrick and Linda Barnes
86	Carla S. Miller
87	John and Carrie Loehmann
88	Helen LeBeau
89	James E. McCrimmon
90	Lynette and Dave Weidin
91	Jane Erdman
92	Frederick C. Runge
93	Julie A. Anderson, Elburn Illinois
94	(unable to read name) Elburn, Illinois
95	Ben Halls
96	Kathryn M. Hellwig,
97	Anita Sennett,
98	Gregory G. Goss and Jo A. Goss
99	William and Cheryl Oeser
100	Debra E. Raymond, Big Rock
101	Lawrence Von Ohlen
102	Ricky Gum
103	John Hellwig,
104	Diane M. Howard
105	Orville Howard
106	Rose Marie Diedesch and Bill C. Diedesch
107	Udo A. Heinze on Behalf of Ameren Corporation
108	Jeannine Kannegiesser, Center for Neighborhood Technology
109	Patricia Silva, Midwest Activities Coordinator, Natural Resources Defense Council, Washington, D.C.
110	Illinois Municipal Electric Agency submitted by Ronald D. Earl, General Manager & CEO
111	Association of Illinois Electric Cooperatives submitted by Earl W. Struck, President/CEO
112	Verena Owen
113	Simon Klambauer
114	Peter and Dawn Roberts
115	Cathy Jo Magee
116	C. Beau and Sue Carlson
117	Richard A. and Mary C. LaFleur
118	Jennifer E. Johnson
119	William P. Fischer
120	Karen Yoeler
121	Bill Yoeler

122	Judy M. Hoffman
123	David R. Mag
124	Daniel Salazar
125	JoAnn I. Kline
126	Laurie Kazmiercek
127	Pam S. Wedeen
128	Ramona A. Kline
129	William F. Fline, Sr.
130	Jeff Hoffman
131	Ronald L. Burgess
132	Ed Whatley
133	Elaine and Harold Morris
134	James Scott
135	Lois Long
136	Dale N. Johnson
137	Elaine Fischer
138	Larry Hawhes
139	Cynthia S. Polfer
140	Mr. and Mrs. Mau
141	Ruth Pessina
142	Fritz Landmeier
143	Patricia and Joseph Heimonen
144	Elizabeth Simmons
145	Tom Pattermann
146	Sheela A. Faulkner
147	A. Denise Farrugia
148	Barry and Leah A. Morsch
149	Mary1 Hankes
150	Andy and Barb Kearns
151	Jackie Beane
152	Michelle Drauz
153	Marilyn Hannemann
154	Sandy Madden
155	James R. Kidd
156	W.R. Harmemamr, III
157	Mark and Lisa Spangler
158	Allen and Jeanette Krodel
159	Robert and Sharon Phillips
160	James Gasdiel
161	Mary Thurow
162	Margaret Bock
163	Midwest Generatin of EME, LLC submitted by Cynthia A. Faur
164	Commonwealth Edison company submitted by Christopher W.

	Zibart
165	Joint Testimony of the American Lung Association of Metropolitan Chicago (ALAMC) and the Illinois Environmental Council (IEC) submitted by Brian Urbaszewaki, Director of Environmental Health Programs, American Lung Association of Metropolitan Chicago
166	Final Comments of Carol L. Dorge, Attorney on Behalf of the Lake County Conservation Alliance (LCCA)
167	Illinois Energy Association submitted by James R. Monk, President
168	Illinois EPA Additional Comments submitted by Scott 0. Phillips, Deputy Counsel
169	Sierra Club Woods & Wetlands Group submitted by Evan L. Craig
170	PG & E National Energy Group submitted by Stephen Brick, Director, External Relations and Evnironmental Affairs
171	Midwest Independent Power Suppliers Coordination Group submitted by Freddi L. Greenberg, Executive Director and General Counsel
172	Sierra Club, Illinois Chapter
173	Indeck Energy Services, Inc. submitted by Gerald M. Erjavec, Manager, Business Development
174	Marvin and Eunice Gapinske
175	Ronald and Mary Jane Davis
176	Clifford and Gloria Sisko
177	Donald and Linda Czachor
178	Clara Arm Babel
179	Julie and Karl Kettelkamp
180	Audrey and David Boston
181	Suzanne Pyle
182	Terry and Sherilyn Sorensen
183	Donna Morris
184	Debra K. Galvan
185	Mr. and Mrs. Bradley Scott
186	Ersel C. Schuster, McHenry County Board, District 6
187	Illinois Environmental Regulatory Group submitted by Katherine D. Hodge
188	Dr. Donna M. Lawlor and Lynn Hoeth
189	Concerned Citizens of Lake County & Liberty Prairie Conservancy submitted by Dianne Turnball
190	Jim LaBelle, Chairman, Sandy Cole and Bonnie Thomson Carter, Members of the County Board, Lake County, Illinois submitted by Jim LaBelle
191	Marsha B. Winter
192	Ken Bentsen

193	Lois Scott and Burton Scott
194	Ralph N. Schleifer
195	Marci Rose

Appendix E

ILLINOIS POLLUTION CONTROL BOARD

600 South Second St. ♦ Suite 402 ♦ Springfield, IL 62704 ♦ 217-524-8500 ♦ Fax 217-524-8508

October 25, 2000

Thomas V. Skinner, Director
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Brent Manning, Director
Illinois Department of Natural Resources
524 S. Second Street
Springfield, Illinois 62701-1787

Dear Director Skinner and Director Manning:

On behalf of the Pollution Control Board, I am happy to present the following information for the review of the Water Resources Advisory Committee. While the Vonnahme-Park letter of October 5, 2000 to the Committee seeks commentary in three assignment areas, these remarks focus on "Assignment Number One": the need for substantive changes in law or regulation governing the usage of water in the State of Illinois.

In the June 6, 2000 press release announcing the establishment of this committee, Governor Ryan explained: "I want this new committee to take a close look at our water resources and specifically examine the impact of industry, agriculture and population on Illinois' groundwater and surface water supplies. It's important for us to look into the effects of our usage of our limited natural resources." More specifically, the Governor set forth the committee's task as follows: to focus on our water resources and its usage, including the effects of peaker plants on groundwater and surface water supplies.

As all of you know, at the same time Governor Ryan created this committee, he asked the Pollution Control Board to hold a series of Inquiry Hearings concerning the potential environmental impact of proposed new natural gas-fired peaker plants. Given the proliferation of these new facilities and the expressed public concerns, he asked the Board to specifically address the issue of whether further regulations or legislation is necessary to adequately protect the

environment. Pursuant to that request, the Board held seven days of public hearing (August 23-24, Chicago; September 7, Naperville; September 14, Joliet; September 21, Grayslake; and October 5-6, Springfield.) During those hearings, the Board heard testimony from over 80 individuals -- representing a broad variety of interests: state and local government officials; legislators; industry representatives, and concerned citizens. I have enclosed a list of those persons who testified. The complete transcript of testimony for each hearing is available on the Board's Web site at www.ipcb.state.il.us.

While water usage was NOT the focus of these Board hearings, the issue of water usage was nonetheless an expressed concern of many who testified. Since it is the function of this committee to address those concerns, the Board has prepared a summary of all testimony relevant to the issue of water usage. For review by this committee, I have attached that summary. Especially important, I believe, is the testimony of local government officials who seek greater regional or state regulation of the State's precious supply of water.

For review of this committee, I have also asked Board staff to research the regulatory framework of several other Midwestern states (Iowa, Indiana, Missouri, Minnesota, Ohio, Wisconsin) as it concerns the use of water in each state. Interestingly, Illinois is alone in the virtual absence of state controls or plans regarding the use of water.

Based upon the enclosed information, I believe it is time to focus the committee's attention on the development of a workable regulatory framework for the conservation and fair allocation of water resources in this great State: one that meets the needs of all concerned entities and citizens. I hope the enclosed information aids us in that important task. I look forward to seeing you both at the next meeting of the Governor's Water Resources Advisory Committee.

Sincerely,

Claire A. Manning

Claire A. Manning
Chairman

cc: Renee Cipriano
Members of the Water Resources Advisory Committee

PERSONS TESTIFYING AT BOARD PEAKER HEARINGS

Chicago Hearings

August 23, 2000

1. Charles Fisher, Executive Director, Illinois Commerce Commission
2. Thomas Skinner, Director, IEPA
3. Christopher Romaine, Manager, Utility Unit, Permit Section, Division of Air Pollution Control, Bureau of Air, IEPA
4. Robert Kaleel, Manager of Air Quality Modeling Unit, Division of Air Pollution Control, Bureau of Air, IEPA
5. Greg Zak, Noise Advisor, IEPA
6. Steve Nightingale, Manager, Industrial Unit, Bureau of Water Permits Section, IEPA
7. Rick Cobb, Manager, Groundwater Section, Bureau of Water, IEPA
8. Todd Marvel, Assistant Manager of Field Operations Section and RCRA Coordinator/USEPA Liaison/IEPA
9. Brian Anderson, Director, Office of Scientific Research and Analysis, IDNR
10. Derek Winstanley, Chief, Illinois State Water Survey, IDNR

August 24, 2000

1. Gerald Erjavec, Business Development, Indeck Energy Services, Inc.
2. Greg Wassilkowsky, Manager, Business Development, Indeck Energy Services, Inc.
3. Arlene Juracek, Vice President, Regulatory and Legislative Services, ComEd
4. Steve Nauman, Vice President, Transmission Services, ComEd
5. Deirdre Hirner, Executive Director, IERG
6. Richard Bulley, Executive Director of Mid-America Interconnected Network

7. Freddi Greenberg, Executive Director and General Counsel, Midwest Independent Power Suppliers

8. Michael Kearney, Manager, Economic Development, Ameren Corp.

9. Richard Trzupek, Manager, Air Quality, Huff & Huff

Suburban Hearings

Naperville
September 7, 2000

1. Mayor George Pradel, Naperville

2. State Senator Chris Lauzen

3. State Representative Mary Lou Cowlishaw

4. Mayor Vivian Lund, Warrenville

5. Paul Hass, Zoning Manager, DuPage County Department of Development Environmental Concerns

6. Richard Ryan, President and Chairman, Standard Power and Light, Oak Brook

7. Diana Turnball, Consultant to variety of citzen groups, private foundations and businesses who have been in opposition to some of the peaker plants

8. Carol Dorge, Attorney representing Lake County Conservation Alliance

9. Connie Schmidt, Representative of River Prairie Group

10. Mark Goff, Resident, Warrenville

11. Cathy Capezio, Resident, Aurora

12. Terry Voitik, Resident, DuPage County, and Founder of Citizens Against Power Plants in Residential Areas (CAPPRA)

13. Maurice Gravenhorst, Member, CAPPRA

14. Lucy Debarbaro, Member, CAPPRA

15. Terry Voitik on behalf of Steve Arrigo, CAPPRA

16. Susan Zingle, Executive Director, Lake County Conservation Alliance

17. Beverly Dejovine, Representative, Citizens Advocating Responsible Environments (CARE), Bartlett

18. Cathy Johnson, Vice Chair, Rural and City Preservation Association (R&CPA)

19. Chris Gobel, Member, CAPPRA

20. Elliot "Bud" Nesvig

21. Sandy Cole, Commissioner, Lake County Board

22. Chris Gobel, Member, CAPPRA

Joliet
September 14, 2000

1. Dr. Thomas Overbye, Associate Professor, Department of Electrical and Computer Engineering, University of Illinois, Champaign-Urbana

2. Alan Jirik, Director, Environmental Affairs, Corn Products International, Inc.

3. Carol Stark, Director, Citizens Against Ruining the Environment, Lockport

4. Susan Zingle, Executive Director, Lake County Conservation Alliance

5. Keith Harley, Chicago Legal Clinic

6. Elliot "Bud" Nesvig

7. Michael Shay, Senior Planner Responsible for Long-Range Planning, Will County

Grayslake
September 21, 2000

1. State Senator Terry Link

2. State Representative Susan Garrett

3. Tom Lynch, Trustee, Libertyville Township

4. Betty Rae Kaiser, Trustee, Village of Wadsworth

5. Daniel J. Kucera, Chapman & Cutler, appearing on behalf of the Lake County Public Water District

6. Jim LaBelle, Chairman, Lake County Board

7. Sandy Cole, Commissioner, Lake County Board

8. Bonnie Carter, Commissioner, Lake County Board

9. Greg Elam, CEO, American Energy

10. Larry Eaton, Attorney, on behalf of the Liberty Prairie Conservancy, Prairie Holdings Corporation, and Prairie Crossing Homeowners Association

11. Toni Larsen, Resident, Zion

12. Chris Geiselhart, Chairperson, Concerned Citizens of Lake County

13. Diane Turnball, Representing Liberty Prairie Conservancy, Concerned Citizens of Lake County, CARE from McHenry County, Bartlett CARE, and Southwest Michigan Perservation Association

14. Lisa Snider, Resident, Wadsworth

15. Verena Owen, Co-Chair, Zion Against Peaker Plants

16. Elliot "Bud" Nesvig

17. Carolyn Muse, Resident, Zion

18. John Matijevich

19. Dennis Wilson, Resident, Island Lake

20. Terry Jacobs, Resident, Libertyville

21. Jim Booth, Resident, Newport Township in Lake County

22. William McCarthy, Resident, Libertyville

23. Susan Zingle, Executive Director, Lake County Conservation Alliance

24. Barbara Amendola, Resident, Zion

25. Mark Sargis, Attorney, working with citizens who have been concerned about peaker issues

26. Cindy Skrukrud, Resident, Olin Mills, McHenry County

27. Paul Geiselhart, Resident, Libertyville

28. Dr. William Holaman, President, Illinois Citizen Action

29. Evan Craig, Volunteer Chair, Woods and Wet Lands Group of the Sierra Club

30. Phillip Lane Tanton

Springfield Hearings

October 5, 2000

1. Roger Finnell, Engineer, Division of Aeronautics, Bureau of Airport Engineering, IDOT

2. John Smith, Representative of Illinois Section of American Waterworks Association

3. Brent Gregory, Representative of National Association of Water Companies, Illinois Chapter

4. James R. Monk, President, Illinois Energy Association

5. Patricio Silva, Midwest Activities Coordinator, Natural Resources Defense Council

6. Brian Urbaszewski, Director, Environmental Health Programs, American Lung Association

7. Elliot "Bud" Nesvig

8. Carol Dorge, Attorney representing Lake County Conservation Alliance

October 6, 2000

1. Susan Zingle, Executive Director, Lake County Conservation Alliance

2. Scott Phillips, Attorney, IEPA

3. Kathleen Bassi, Attorney, IEPA

4. Chris Romaine, Manager, Utility Unit, Permit Section, Division of Air Pollution Control, Bureau of Air, IEPA

5. Greg Zak, Noise Advisor, IEPA

6. Todd Marvel, Assistant Manager of Field Operations Section and RCRA Coordinator/USEPA Liaison/IEPA

7. Steve Nightingale, Manager, Industrial Unit, Bureau of Water Permits Section, IEPA

Testimony and Comments Regarding Use of Water by Peaker Plants — given to IPCB in context of Peaker Plant Hearings

CHICAGO HEARINGS

Commonwealth Edison – Prefiled Testimony of Arlene A. Juracek and Steven T. Naumann

> Water impacts, including with regard to any potential contamination and water supply, are also carefully assessed during the planning and development of any peaker plant. Stringent state requirements regulate the discharge of contaminants while local authorities often directly oversee issues of water supply. In addition, the impact of peaker plants and other facilities on water resources and usage will be closely examined by Governor Ryan's newly appointed Water Resources Advisory Committee, which will present its recommendations to the Governor by December 2000.

Midwest Independent Power Suppliers Coordination Group -- Prefiled Testimony of Freddi Greenberg

> While water usage will vary depending upon the specifics of the plant involved, the simple cycle technology currently used for peaker facilities typically places a small demand on water resources. For example, the owner of one peaker plant located in Kane County advises that the plant consumes no more than *2.5* million gallons of water in a year. In comparison, the average golf course in the Great Lakes region consume[sj almost 31,000,000 gallons of water in a year. (Weathermetrics, Inc. 1999 website) MWIPS recommends that the Pollution Control Board defer its consideration of the impact of peaker plants on water resources so as to consider the report the impact of peaker plants on water supply which will be issued by Governor Ryan's Water Resources Advisory Committee.

Indeck Energy Services, Inc. -- Gerald M. Eriavec

> Prefiled Testimony
>
> To counter this effect, various methods are employed to cool the inlet air and increase its density. One such method is the use of chillers; however, these require power to operate and are sometimes counter productive. Another method is called evaporative cooling, in which the air stream is passed over water and the air is cooled through evaporation, much like perspiration cools the

skin. This cooling effect can be limited on humid days. While water consumption varies based on temperature and humidity, an evaporative cooleron a 300 MW plant will average about 40 gallons per minute (gpm) of water consumption.

Even though these hearings are directed at peaking plants, the subject of combined cycle plants is sure to come up, so a brief discussion of them is in order. Simply put, a combined cycle plant adds a steam cycle to the process but directing the hot exhaust gas from the combustion turbine through a boiler, which generates steam to turn a steam turbine. Because more energy from the fuel is recovered and used to produce electricity, combined cycle plants can be as much as 50% more energy efficient tha[n] "simple cycle" peakers; however, they are not suited to peaking use because they cannot be brought on line quickly enough to function as peakers. Combined cycle plants also have increased water needs compared to peakers. The first use of water, in the steam system, is minimal, about 25 gallons per minute in a system that has been coupled to 300 MW of combustion turbines to create a 200 MW steam cycle. Water can also be used to cool the steam after it passes through the steam turbine. If water is the sole medium, up to 2,500 gpm can be consumed, which may be significant in some areas. Fortunately, advances have been made in cooling technologies so that this use can be greatly reduced or eliminated if the situation calls for it.

* * *

Water consumption impacts were also compared against other enterprises and found, in most cases, to be at the low end of the impacts.

Testimony at Hearing

Water consumption can vary by humidity and temperature. For example, on a very humid day, you'll [evaporate] very little water. So very little water will be used. On a hot, dry day would probably be your maximum consumption. Typical for, say, a 300 megawatt unit would be about an average of 40 gallons per minute. It can range from about zero to 80, depending upon the temperature and the humidity.

One of the things that's a concern about this type of plant here is the water use, and I would like to bring that up. The water use, there's two places. Number one, there's water in the steam system going around this way. You have to -- you get some trace contamination going in there. So you have to occasionally blow it down. The steam cycle on this plant, this is based on putting a heat recovery unit on the back of a 300 megawatt plant, would probably be about 25 gallons per minute, which is not a lot.

* * *

You can use about 2500 GPM, which can trend toward, depending upon where you are, significant numbers.

Now, the good news is that there are other ways to attack this problem. They've made significant advances in dry-cooling systems, which would not require this water at all. There are some hybrid systems that cut down on the amount of water use.

Water use, as I noted before, when operating a typical 300 megawatt peaker plant with an evaporative cooler uses a maximum of 80 gallons per [minute], an average of about 50. Technology, the evaporative cooler generally is only used above 60 degrees.

* * *

What is 80 gallons per minute? Well, basically it's the equivalent of 11 homes watering their lawns at the same time. If you walk down the street and you saw 11 homes watering their lawns, you probably wouldn't think anything of it. On an annual basis, approximately the consumption of about 30 homes, 30 average homes. Other water impacts that need to be considered are wastewater and stormwater. Stormwater is captured on site.

* * *

Water consumption, a million gallons per year. Compare your 300 megawatt peaking plant to a 50-home subdivision, a typical high school, or a retirement home, a 200-bed medical center, or a 400-room hotel, way down at the low end, I think my laser pointer is dying here, of water consumption.

IDNR -- Testimony of Brian Anderson, Director, Office of Scientific Research and Analysis

In Illinois, except for withdrawals of water from Lake Michigan, there is extremely limited regulatory authorities associated with water withdrawals from our other surface waters and from groundwater. It's, therefore, more appropriate to deal with water quantity issues in front of -- in the context of Water Resources Advisory Committee, however, we do acknowledge the relationship between these issues and I have asked Dr. Derek Winstanley, Chief of the Illinois Water Survey, to provide a concise summary of some of the water quantity issues relating to peaker power plants.

Illinois State Water Survey, IDNR -- Testimony of Dr. Derek Winstanley, Chief of the Illinois State Water Survey

One focal point that I do wish to make is that the discussion of peaker power plants and the impacts on groundwater resources should be placed within the context of all other water demands including those for combined cycle plants as well as Illinois' growing water needs for domestic, municipal, agricultural and other industrial uses. We do need to look at total demands from groundwater resources as a basis for sound water resource management. The water demands

from the peaker power plants vary widely depending upon plant design, their intended use and the number of days of operation.

I would like to give you some examples of the quantities of water that may be associated with operations of peaker power plants by putting that in context of some other water uses. First of all, peaker power plants, and I am going to focus on just a simple cycle power plant when I refer to the peaker power plants, these are typically small producing a few tenths to a few hundred, perhaps a thousand megawatts of electricity. They do not operate everyday of the year. The typical period of operation is from perhaps 20 to 90 days per year. The range of water use there is from less than 100,000 gallons per day to about 2 million gallons per day. Translating that into an annual use that gives us a range of from about 1.4 to 180 million gallons of water per year.

Turning to baseload power plants, which is combined cycle, these are obviously much larger, typically generate maybe 500 to several thousand megawatts of electricity and are intended to operate more or less continuously throughout the year. They consume water within the range of about 5 to 20 million gallons per day. Translating that to an annual water use, that gives us a range from about 1,500 million gallons per year to 6,000 million gallons per year.

So in context, the peaker power plants consume about a fraction of 1 percent to about 3 percent of the water used by typical baseload combined cycle plants.

Another example of water use, municipal water use, and I give you data from Champaign, Urbana, for context. Champaign, Urbana, has a population of about 120,000 people, and they need that water supply regularly 365 days per year. Champaign, Urbana, currently consumes about 20 million gallons per day of groundwater, which translates into an annual use of about 7,300 million gallons per year.

So to put the water use by peaker plant in context of a municipal use, a typical peaker plant would use the same amount of water as between about 25 and 3,000 people, depending upon the nature of the peaker.

One concept that is important in examining not only peaker power plants but all groundwater use is the concept of sustainable yields. And in my written testimony, I refer to that as potential yield. Sustainable yield is a fairly diffuse concept but generally, it tends to mean the yield of water that can be sustained over the long term so that it can be used not only by the current population but also by future generations and a yield that will have no significant impacts.

The determining sustainable yield is a complex scientific exercise that involves consideration of variables such as rainfall, recharge rates, geology and impacts. Impacts not only on existing wells, but on peaker systems and on stream flows.

The point here is that for most aquifers in Illinois, we do not have a very highly accurate estimate of sustainable yield. We need much better scientific data and modeling capabilities to be able to estimate sustainable yields.

Another important point is that aquifers themselves are not very sensitive to the end uses of water. That is an aquifer doesn't really differentiate whether a million gallons of water is going to be used for drinking water or for peaking power plants or for golf courses but the public often does differentiate among those end uses and, I think, trying to incorporate the public values and preferences into the equation on water resource management is an important consideration as well as the actual amount of water used.

Water quality has been mentioned by people from Environmental Protection Agency giving previous testimony. There are natural occurrences of various chemicals in the groundwaters throughout Illinois. These lead to mineral concentrations that can effect not only the operation of the peaker plants, but also the discharges from the peaker plants. So the water quality also needs to be considered.

In conclusion, I would like to make two points, one focusing exclusively on groundwater, the other combining groundwater with surface water.

Focusing on groundwater, it's important to recognize that in the use of groundwater resources, all uses of groundwater, not just peakers, that we need to consider the scale of the natural resource, that is the aquifer.

Groundwater typically is found in discrete squifers that transcends political jurisdictions. They cut across municipalities, counties and even states. Plumbing management by individual communities will not solve problems in the long term, we need to take an aquifer-wide perspective. Beyond just groundwater, I think that we need much more consideration of the conjunctive use of surface and groundwater. There can be many efficiencies gained in water supplying usages by considering conjunctive uses of surface and groundwater.

So my bottom line is that I think Illinois would benefit from moving towards much more comprehensive regional water resource planning and management. This will bring together communities and cut across jurisdictions and we'd — much more appropriate to the scale of the natural resources, that is the aquifers in the case of the groundwater supplies and river basins and water sheds for surface waters.

* * *

Let me give you one example I think is an excellent model of what is going on in one part of Illinois and that is in central Illinois. We have a major aquifer, the [Mahomet] aquifer, that extends from the Illinois River across to Indiana,

which embraces 15 counties. Now, in the past couple of years, the local communities in that 15 county area have bonded together to form what is called the [Mahomet] aquifer consortium and they're collectively concerned about the future of their own water resources, want to better characterize those resources and opportunities as a basis for self-management to the water resources. So, I think, on the one hand we may need new laws, regulations, but I think we also need to encourage local communities to attempt to solve their own problems.

IEPA -- Prefiled Testimony of Richard P. Cobb, Manager of the Groundwater Section of Bureau of Water

However, the few Illinois court decisions since the enactment of the Water Use Act have interpreted that "reasonable use" for groundwater does not restrict the use of groundwater except from malicious or wasteful purposes of the user.

Concurrent with the requirement for these hearings, Governor Ryan, by Executive Order, established a Water Resources Advisory Committee. The committee's task will be to focus on our water resources and its usage, including the effects of peaker plants on groundwater and surface water supplies. The committee will also examine the various economic and social issues related to energy producing facilities and water use in Illinois and present recommendations for action to the Governor by December 2000. I plan on attending this committee's first meeting on August 31, 2000.

IEPA -- Prefiled Testimony of Christopher Romaine, Manager of the Utility Unit in the Permit Section of Division of Air

A key factor in the design of a peaker plant is the capability to maximize the power output of the plant to be able to meet peak electric power demand. This leads to a number of variations on the basic simple cycle turbine, all due to the scientific fact that the power output of a gas turbine varies based on the density of the air being used in the turbine. The denser the air, the more air that can be pushed through the turbine and the higher the power output. This means that in the absence of any adjustments, the output of a given gas turbine will be significantly less on a 90°F day in July, when peak power is most likely to be needed, than on a 20°F day in January. To correct for this phenomenon, the modem simple cycle turbines used in peaking plants are routinely equipped with devices to cool the air going into the turbine. While it may appear counterproductive to cool the air in a turbine before heating it, cooling the air allows more air to be handled by the air compressor, thereby allowing more fuel to be burned and increasing the power output of the turbine.

Gas turbines can be equipped with several different types of air cooling systems that vary in the effectiveness with which they can cool the inlet air to boost a gas turbine's power output. In the simplest system, water is injected directly

into the incoming air to cool the air by evaporative cooling. Clean demineralized water must be used to prevent excess build up of scale or erosion of the blades in the air compressor of power turbine. In more advanced systems, water may also be injected at a point in the air compressor itself. The inlet air may also be cooled by indirect systems in which the air passes through cooling coils. In this case, water may still be used in an open cooling tower where evaporation of water is used to dissipate the heat generated by a mechanical refrigeration unit. Alternatively, a dry cooling system may be used in which the heat generated by a refrigeration unit is dissipated to the atmosphere by dry cooling towers or radiators. The more complex the cooling system, the greater the amount of energy that is consumed in its pumps and compressors, which accounts for some of the increase in power output.

Another approach to boost power output of a gas turbine is to inject clean water of steam into the burners or to inject steam after the burners. All these measures increase the gas flow through the power turbine and thus increase its power output. Because fuel must be burned to evaporate the water (either in the turbine itself or in a separate boiler to make steam), these measures to increase power output are accompanied by a loss of fuel efficiency by a gas turbine.

NAPERVILLE HEARING

Connie Schmidt, Representative of River Prairie Group

DuPage County is so close to Chicago, one would think it is very urban. I myself have a well and septic on my property and I am incorporated. I live within the city limits of Warrenville. So it is not totally unusual -- and all my neighbors do because we don't have city water in our neighborhood. So the groundwater use as well as what happens to it after it's been used, I think, is a realistic concern in our area.

Mark Goff, Resident, Warrenville

So obviously well water is a concern.

Lake County Conservation Alliance -- Testimony of Susan Zingle, Executive Director

A lot of people have talked about water supply. Some of the peakers do use vast amounts of water. Some of them as much as a combined cycle plant. We're looking at Zion is going to use over 200 gallons (sic) a day. That's as much as the entire city of Zion in itself. McHenry and parts of Wisconsin draw on that same aquifer. How can Woodstock and Zion even be aware of each other's plants let alone determine which of the two plants is built if either. Water supply is not a local issue

Rural and City Preservation Association (R&CPA), Cathy Johnson, Vice Chair

The water issue, which is a major one in McHenry County, is barely even considered in the new standards. A new peaker plant has to only respond to how the water it uses affects the area one-quarter of a mile around the plant. This is ridiculous. This standard isn't there to protect us.

JOLIET HEARING

Corn Products Internal, Inc., Alan Jirik, Director, Environmental Affairs

With regards to cooling water consumption, our plant currently takes water from the Sanitary and Ship Canal. The water is used for non-contact cooling purposed for the corn wet milling operating and then returned to the canal. In a clever and environmentally friendly approach, we plan to use the existing cooling water flow to supply cooling water to the new cogeneration operation. We accomplish this by routing an additional loop from our existing cooling water line to serve the cooling needs of the cogen. After servicing the cogen, the water will return to our existing line and be discharged the same as it is today. Thus, the project will not increase our current water withdrawal and will not result in any new water discharges, any new intake or outfall structures, or cause any other disruptions to water bodies, water tables, groundwater, aquifers or burden the community drinking water supply.

Citizens Against Ruining the Environment, Lockport, Carol Stark, Director and Exchange with Board Member Kezelis

We also have information that states the aquifers located **on this site** are joined together. This is the first of our concerns. The fact that the aquifers, our water supply, could be affected by this peaker using thousands of gallons a day is not a comforting thought.

* * *

Board Member Kezelis: Ms. Stark, do you know what the source of your public water supply is in Lockport?

Ms. Stark: We do -

Board Member Kezelis: Is it the aquifer?

Ms. Stark: Yeah. We do have -- and then there are some people that are on wells, but yes, it's the aquifer. We have never tied into Lake Michigan water.

Will County, Michael Shay, Senior Planner Responsible for Long-Range Planning and Exchange with Chairman Manning, Board Members Flemal, Girard, Kezelis and McFawn

The largest thing that we found that concerned us was that Will County's aquifer reserve water is about 66 million gallons a day. That's how much we have — it's currently recharging -- that we could use for water supply. We contacted several facilities and went on several industry websites and they said five to 12 million gallons a day per facility for a combined cycle facility and roughly a million gallons a day for a simple cycle facility.

So we contacted some of them that actually started operation in Will County, including the one that you visited today. We arrange tours. On our tour, we found out they're actually planning -- or they were planning for an expansion and this comes to a key point that I'd like to discuss today. There was discussion earlier about separating simple and combined cycle plants. We do not think you can separate those two facilities.

Simple cycle facilities are designed and physically organized to be converted to combined cycle facilities down the road and that plans that we received as we reviewed these petitions explicitly and clearly state that; that they are designed to be converted or added Onto at a later date. So we do not want to see those two issues separated at all.

So they -- we get into more discussions with them and they say 16 million gallons a day for one of the facilities which we visited, which means that four such facilities of which there are already that many could eat up the entire reserve water capacity for Will County. We are not likely to get more lake water. River water is another issue altogether regarding quality of our water. So when you add that to the fact that we are the fastest growing -- numerically growing county in Illinois and also the fastest in the sunbelt, we see a problem for a collision between growth and these facilities for that resource.

We are also concerned -- when we continue to do our research, we said, that's a lot of water to draw from one facility. How do you get that? Well, they drop wells in the aquifer obviously and they pull it up at such a rate that it creates a drawdown. It creates a reverse cone or a cone of water supply and the radius on that for a facility of the magnitude that we were discussing is six miles drawdown, 300 feel drawdown at the point of the well and still 35 to 50 feet of the six-mile radius.

Will County has thousands and thousands of wells; residential, industrial or group wells. We're concerned about well failure because we continue to place

these facilities over time and if they're to be converted to combined use facilities.

* * *

Board Member Kezelis: I have a question. I, too, hope to be brief, Mr. Shay.

That status of the suggestions that you and the planners for Will County propose to your board, what is the current status?

Mr. Shay: Well, we have a first set of regulations in place. We're currently discussing the second set of -- we're researching and discussing the second set. If I had to provide a guess, which bureaucrats despise doing, but I will do nonetheless, I would suspect that they will prohibit the use of aquifer water for electric generation.

* * *

Board Member McFawn: Is the only industry that you're concerned about the drawdown well or is that general a concern?

Mr. Shay: It's the only industry we know of that draws that amount that quickly. We can't find another that draws from the aquifer at that rate, but we're unaware of one that draws at that rate.

Let me illustrate this real quickly. When you're talking about 16 million gallons a day, that means that three of those facilities could put a pipe on the end of the Fox River in St. Charles and the river would end while it was in operation.

Chairman Manning: Where did you get those figures in terms of the drawdown effect and how much water is actually being used by these facilities?

Mr. Shay: We got from the-- well, we got the information on flow and amount of the aquifers and reserve capacity from the Illinois Water Survey. They regularly publish those statistics and we acquired them from them and then we acquired numbers on the use actually directly from the industry itself.

The engineers who built the Elwood plant, we -- our land use and zoning committee and planning and zoning committee visited those facilities. In those discussions, we asked them about water use and they gave us very frank answers on that. The number that they gave us came out to 16 million gallons a day and we confirmed with them that that was an accurate assessment. So we're fairly confident of those numbers.

* * *

Board Member Kezelis: Mr. Shay, what's your understanding about the Elwood facility; single or combined?

Mr. Shay: My understanding is that it is currently a single cycle plant that the two additional -- the Elwood two and Elwood three will also be simple cycle.

All three of those phases, though, are designed to be converted to combined cycle should they wish to do so.

Board Member Kezelis: So the 16 million gallons per day --

Mr. Shay: Would be if they became a combined cycle. They are not currently. They do have a well, but it's comparably small.

* * *

Board Member Girard: Mr. Shay, if Will County passes an ordinance that prohibits the use of aquifer water or electrical generating facilities, would that also apply to a facility that tried to site itself inside a municipality in Will County?

Mr. Shay: No. That's why we're concerned about jurisdiction hopping, but it would also cover a number of the intersections of pipelines and transmission facilities.

Board Member Flemal: One of the things that this board may see it necessary to do ultimately in our decision here is to address the issue of how much local and how much regional or state level oversight there ought to be in the siting of these facilities.

We've heard quite a range of perspectives from it should be entirely in the hands of the locals with the facility to what I think I heard you say that there should be a strong top-down oversight on the plants.

First off, have I characterized where you're coming from correctly?

Mr. Shay: Okay. I would like a strong state or national presence on the issue of drawing from wells.

Board Member Flemal: Soley on that issue?

Mr. Shay: And issues that affect cross-jurisdictional -- an aquifer doesn't make a jurisdictional boundary. It could go across several counties and several municipalities, et cetera. Well, local authorities, because we are competing for economical development efforts and because of the nature of the politics between them, are often played against each other by the private industry

Board Member Kezelis: Mr. Shay, the water use, as you know, is not something that we are to address. The Governor has appointed the water commission to address water use for the state. Nonetheless, your reference to the water use a few moments ago, I needed clarification of.

You indicated that approximately 16 million gallons per day would be used by a combined peaker facility and that the drawdown for such a facility would impact roughly a six-mile radius, is that correct?

Mr. Shay: That's correct, according to the information we have from the Illinois Water Survey.

Board Member Kezelis: So you received that information from the Water Survey itself?

Mr. Shay: Yes. We got it off their website. They have a very graphical explanation.

GRAYSLAKE HEARING

Testimony of State Senator Terry Link

Since the effect of peaker power plants, air quality, water supply, natural gas supply, noise, taxes, are felt regionally, not just locally, I believe we must take a regional approach in regulating the pearkers.

Testimony of State Representative Susan Garrett

Our aquifer is on the verge of being mined. We are concerned for our long-term water supply. We need to resolve this.

Testimony of Sally Ball on behalf of State Representative Lauren Beth Gash

Our friends and neighbors are understandably worried about the impact of so-called peaker plants on air quality and water supplies.

Appearing on behalf of the Lake County Public Water District, Daniel J. Kucera, Chapman & Cutler and Exchange with Board Member Kezelis

Now, the term peaker plants is a misnomer because it implies an oversimplification. The types of electric generating facilities being proposed throughout the state, and which are raising environmental concerns for many people, are both base-load plants and peak-demand plants. The environmental impact issues raised by such plants, including water use, differ only in magnitude.

In addition, these plants can be both simple cycle and combined cycle. Accordingly, demand for water and resulting environmental impact of that demand can vary according to the type of plant. Clearly, a combined cycle plant, which uses steam to generate a portion of its electricity, can be expected

to use more water than a small simple-cycle plant, which uses water only for cooling.

A witness for the Illinois State Water Survey in these proceedings, Mr. Winstanley, has testified that simple-cycle peaker plants can use up to 2 million gallons of water per day. And combined-cycle plants can use 5 million to 20 million gallons per day.

* * *

Presently with very limited exception, there is no permitting process or regulatory oversight over the uses of water by peaker plants. Witnesses for IEPA in these proceedings have acknowledged that IEPA currently has no jurisdictional responsibility over peaker plant water use.

A public water supply providing Lake Michigan water to a peaker plant would have to have a sufficient allocation from the Department of Natural Resources to enable it to supply peaker plant demand.

The Illinois Water Use Act of 1983, 525 ILCS *45/ et seq.*, was cited by one of the IEPA witnesses in this proceeding. Section 5 of the Act does provide that a land owner who proposes a new well expected to withdraw over 100,000 gallons per day must notify the local soil and water conservation district. The district is then to notify other units of local government whose water systems may be impacted. And the district is to review the impact and make findings. However, the statute provides no enforcement mechanism.

Moreover, this provision does not even apply to the region governed by diversion and allocation of Lake Michigan water under 615 ILCS 50/1 *et seq.*

The Water Use Act states that the rule of reasonable use does apply to ground water withdrawals, but it does not provide supporting, permitting or regulation.

As to the need for permitting and regulator oversight, I would first address Lake Michigan water. Lake Michigan is a valuable and limited domestic water supply resource. It is valuable because in northern Illinois lake water is perceived to be superior to ground water.

Aquifers in the region commonly contain high levels of iron, manganese and other constituents which raise esthetic issues and which can require costly treatment facilities. Deep wells often contain high radium or alpha-particle contents.

Further, in portions of northern Illinois, water levels in the aquifers have diminished and some deep wells have been mined into salt water. Obviously, there is a great demand for lake water to provide the domestic water supply for as many communities as possible. However, Lake Michigan

water is a limited resource because of legal limits on how much water Illinois may withdraw. Accordingly, the use of Lake Michigan water by peaker plants for cooling, steam production or even as backup to ground water for these uses should be limited or even prohibited.

As to ground water, because peaker plants can be heavy users of ground water, upwards of several million gallons per day, there should be regulatory oversight over such uses. In particular, the potential effects upon aquifers and ground water domestic water supplies should be evaluated as part of the permitting and regulatory process. Mr. Winstanely has well stated the issues in his testimony in this proceeding.

It is also important to point out that the ground water is a limited resource in certain portions of the state. For example, in parts of central Illinois ground water is extremely limited, even for domestic water supplies and, of course, aquifers in northern Illinois have been subject to diminishment.

Finally, other surface water, needless to say where a peaker plan may withdraw water from a stream or inland lake, the impact of such withdrawal also could be evaluated. For example, it could reduce the resource value of the water body for domestic water supply, aquatic life or recreation.

There are now some additional water issues that I would like to bring to your attention, one of them is decommissioning.

For example, if a plant is terminated, who will be responsible for resulting excess capacity in the local public water supply? Who will be responsible for capping the plant's wells? Who will be responsible if leakage from the plant has contaminated the source of supply for the local water utility or for individual residential wells? Where is the accountability when these plants are closed down?

It would seem appropriate to enact a decommissioning procedure to protect water sources and the public when these plants are removed from service. At the very least, there should be a procedure for a state administered trust account, which peaker plants would be required to fund, to assure remediation and restoration funds will be available if plant owners abandon plants without protecting water resources.

Another possibility is a requirement that a surety bond or letter of credit be posted to secure the obligation to protect water sources.

Another issue is competition. Public water supplies can be expected to remain a highly regulated industry so as to continue to assure safe drinking water for the public. Unlike other utility functions, public water supply is not likely to

be deregulated or to be subject to the competitive marketplace. The investment in water infrastructure per customer far exceeds the comparable investment for other utilities. This investment in water infrastructure will only continue to increase under the Sale Drinking Water Act amendments as new requirements are proposed. Redundant water systems do not make sense.

It is important, therefore, that electric generating plants not be permitted to engage in helping to finance new public water supplies which may compete with existing public water supplies. Such predatory competition could deny customer the benefits of economies of scale.

Another issue we believe is siting. Presently siting of electric generating plants is considered to be a local issue. However, there may be siting concerns of a broader interest, as related to water use. Recent proposals indicate multiple peaker plants in close proximity to each other. What is the impact of multiple draw-downs on an aquifer at a particular location?

Another concern relates to soil conditions at a proposed site. How vulnerable are site conditions to a contamination spill? Could a shallow aquifer be adversely impacted? Presently, there is no regulatory oversight of these siting issues.

* * *

Finally, cross-connection. When an electric generation facility is partially served by a public water supply and partially served by the facility's own wells, there must be assurance that no cross-connections will exist. For example, the public water supply may provide water for domestic use and fire protection, while the facility uses its own wells for process water. However, the public water supply might also provide backup in the event the wells are out of service.

Local governments may not necessarily have the staff with skills to constantly monitor for cross-connections in generating plants. Indeed, it is not clear that they ever would have access to the plants. Who then will be responsible for policing for cross-connections and protecting the public water supply?

The District understands that the Governor's water advisory committee may be considering water issues related to peaker plants. We are not aware whether that committee is soliciting public comment. Therefore, we believe it is important that the Pollution Control Board in its report to the Governor include water issues related to peaker plants discussed in the testimony and comments submitted in this proceeding.

In conclusion, we suggest that the Illinois legislature should adopt a permitting of regulatory oversight requirement for process water used by all electric generating facilities, including both base-load and peaker plants.

* * *

Board Member Kezelis: I just have a question. Can you for the record tell us what your rate of capacity is and roughly how many gallons per day your customers do take?

Mr. Kucera: Our peak day capacity is 6 million gallons per day. I think in actuality the customers average between 3 and 4 million gallons a day.

Lake County Board, Jim LaBelle, Chairman

The process should not only consider air quality but also other environmental factors such as water consumption impacts on aquifers or Lake Michigan water allocations.

* * *

In addition to the IEPA considering the polluting impact of multiple plants, the Department of Natural Resources and the ICC need to consider the impact on ground water resources, natural gas availability and pricing impact if numerous peakers operate at the same time.

* * *

The high volume of ground water usage can lessen the supply for any other entity tapping the same aquifer.

Lake County Board, Sandy Cole, Commissioner

In addition to air quality, peaker power plants may affect the region's water supply as they need to draw significant amounts of water from Lake Michigan or local aquifers.

Lake County Board, Bonnie Carter, Commissioner

The village of Island Lake was being asked to annex the land. The plant proposed for the small community on the far western edge of Lake County was not a peaker plant. The plant was proposed to provide base-load power year round with ground water usage of 4 to 8 million gallons daily.

Local officials, myself included, and concerned citizens began investigating the issues surrounding the type of power plant involved. Many issues such as air quality, noise and lighting were raised. Water usage was by far the most overwhelming environmental concern. While gathering information, I became well acquainted with the work of the Illinois State Water Survey, a division of the Department of Natural Resources and an affiliate of the University of Illinois at Urbana-Champaign. According to data assembled by the ISWS, the volume of water required to supply the proposed plant for a year would have been far greater than what was required for the village's entire population.

I further learned that neither the Illinois Environmental Protection Agency, nor the ISWS or any other state agency had any authority limiting ground water withdrawal. The proposal for the Island Lake plant was eventually withdrawn and most of the subsequent plant proposals in Lake County are for peakers, not base-load. This, I feel, is a direct result of the hightened awareness of the water withdrawal issue and how precious a resource water is. Though the issue of water usage is not as critical with peakers, it is still significant enough to warrant scrutiny.

In February 1999 I drove to Springfield with my two constituents who had originally brought this issue to my attention. We met with IEPA Director Tom Skinner, officials from Storm Water Management, Illinois Department of Natural Resources, Fish and Wildlife, the IEPA Bureau of Water, the IEPA Bureau of Air and two state legislators. We expressed our deep concerns with the permitting process of a 90-day review on construction applications, the lack of regulatory authority over ground water withdrawal and the lack of public hearings. We also discussed air quality impacts along with the noise and lighting.

We all felt that the IEPA directors and supervisors that sat among us were frustrated with having to review permit applications without being able to take the regional impacts of these plants into consideration. They agreed that a regional element should be included in the review. We were surprised and shocked to learn that each division did not review the applications together. One division follows the application approval process after the other division has completed its work. They may never have been aware of the combined impact on adjoining property owners or cumulative environmental impacts. In other words, they didn't talk to each other.

After we left Springfield that day, some minor changes did take place. The 90-day review process was reversed back to 180 days. Public hearings started to take place on applications and the IEPA Director Skinner never forgot us in Lake County.

As you may see, we are still dealing with this issue today and we are still very frustrated. I hope and pray we will all be heard today and that, as a result, you recommend improvements, not only to the process, but to help reduce the negative impact power plants could have depending on where they are sited.

As with many of the issues surrounding peaker plants, it is important to recognize that ground water is a regional issue. It is also important to recognize while one peaker plant may not threaten a region's water supply, multiple peakers may. Aquifers do not end at municipal or political boundaries. The water consumed in one village not only limits the supply of its immediate

neighbors, but impacts the supply of further villages, commercial wells and deep community wells which draw from the same aquifer.

In the case of the Island Lake proposal, adjacent villages would have realized significant financial impacts. Nowhere in the permit application process submitted by the applicant were those impacts acknowledged or addressed. One neighboring village, the village of Wauconda, would have incurred expenses close to $1 million to reset the pumping well head in two municipal wells. The taxpayers of this neighboring village, not the power company, would have borne this expense, $1 million. This village had no opportunity to voice its concern during the application review. Surely, this demonstrates why a regional application approach must be in place, must be put into practice.

Determining the amount of water available for peaker use as well as all other users is a significant undertaking for any local community. Dr. Derek Winstanley of the ISWS in his written testimony to this Board wrote of the expense of collecting ground water data. Conducting a study to determine the sustainable level of water usage for Lake County is estimated to be a multi-million dollar project. To expect local communities to shoulder this burden is unreasonable. Yet without regional data, a single community cannot make an informed decision on water supply.

At the August 18th, 1999 meeting of the Lake County Public Works and Transportation Committee, Illinois State Water survey Director Dr. Derek Winstanley reported that around the year 2030, Lake County will maximize its water use. Today, we are at the maximum sustainable level of the northeastern Illinois deep bedrock. We cannot continue to increase withdrawals from the deep aquifer. Water demand is up 20 percent, and we are at the point where supply and demand are beginning to conflict.

Another large source of water for the Lake County area is Lake Michigan. Here again, the County's usage impacts the supply of other counties and states. The supreme court fixes allocations. Local governments do not have an endless supply.

Peaker plants will either draw ground water, which will have an impact on neighboring wells, or draw on Lake Michigan water that has already been fully allocated. Clearly this issue needs to be understood and addressed.

The quality of water will also be impacted by extensive withdrawal. Research has shown that when too much water is pumped, surface waters can be impacted. Water availability to stream beds, wetlands and lakes can decrease, and the quality of the existing water may be threatened. Eventually, animal and plant life will be threatened. Since the technology exists to convert peaker plants to combines plants at any time, peakers should not be considered as a

minor use, but rather as a major use with regional impact. I would suggest that all applications should be specific as to whether they are peaker or base-load. Applications for peakers should question the intention toward possible future conversion to a base-load.

Allowing one industry that provides a very few number of jobs to have unlimited use of our water supply impacts the economic growth in communities where other industries also require water.

Officials in Lake realize that it is not only peaker plants that threaten our water supply. Development of any kind, whether residential, commercial or industrial will place an additional burden on limited resources. County officials further realize that electricity may be one of the resources in short supply. However, our analysis of the realities of peaker power plants and the marketing of power do not convince us that peaker plants located in Lake County will alleviate a power shortage in Lake county. We feel we are being asked to give up one precious natural resource with no guarantee that the sacrifice will realize a benefit for the county's citizens.

The Water Use Act of 1983 and the Water Authorities Act do not give counties the authority to regulate ground water withdrawal. A plan that regulates major aquifer draw-downs is needed. The Lake County Board recommended legislation to do just that. It is believed that there is support from state agencies to clarify regulatory authority for ground water withdrawal. These initiatives are included for your review.

The state needs to determine what the reasonable use is. I finally realize that the IPCB does not have the authority to regulate ground water withdrawal. I have the pleasure of being a member of the Water Resources Advisory committee that was recently initiated by Governor Ryan. This issue will be covered in this committee and our recommendations will be made to the Governor in December. I feel it is imperative to point out that we need to share our expertise with all governing state agencies in order to be better equipped to make decisions involving the power industry. It is too complex an issue for one agency to comprehensively see all facets. I believe that the Pollution Control Board, the ICC, the IEPA, the ISWS also all need to support each other and work together. We need a regional cooperative group with regulatory authority when reviewing applications.

The Lake County Board has made a decision last year to be proactive and not reactive. Our actions support that position. I ask you to support this board and the people of Lake County by doing the same. Place a moratorium on all pending and new applications for power or peaker plants until such time as all agencies have collaboratively worked together reducing and/or eliminating the

negative impact to our quality of life. Thank you, Chairman Manning and the IPC Board.

Toni Larsen, Resident, Zion

In the Zion area, there are at least five pending permits which will be licensed separately for future plants. I believe all facilities within Lake County need to be evaluated regionally to assess the cumulative effect. One of the sites is in Zion and it is zoned industrial, although most of the neighboring properties are not in Zion.

These neighboring communities have no say what goes in their backyard. These communities get their water from wells. One of the proposed peaker plants plans on drilling an industrial well. This plant can use up to 2 million gallons of water a day. I believe that needs to be more study on ground water supply issues.

Concerned Citizens of Lake County, Chris Geiselhart, Chairperson

There is a potential drawdown of hundreds of thousands of gallons of water from Lake Michigan, which already exceeded water usage for the mining of deep well aquifers as sources of water for these facilities.

Zion Against Peaker Plants, Verena Owen, Co-Chair

Environmental impact studies for peaker plants are required by other states, for instance, Wisconsin, Indiana and Ohio. The environmental impact studies should contain at a minimum hydrology and water quality, water usage, waste water, water run-off and potentially polluted run-off containment, air quality, biology, loss of habitat, loss of agricultural land, land use and community character, archaeology, socioeconomic impact, visual impact, impact on local services, traffic, noise and public health and safety.

Jim Booth, Resident, Newport Township in Lake County

Upon investigation, I learned that the city of Zion, who purchases their water from the Lake County Public Water District had exceeded its 822.345 million gallons of Lake Michigan water by 22 million gallons. They purchased 844 million gallons from the Lake County Water District in the period May 1999 through April of 2000.

* * *

Zion, of course, is [considering] the peaker power plant, which would use a maximum peak of 2.124 million gallons of water per day when they are operating their five turbines. And they divide this by 365 days a year, of course. And that would run 230,000 gallons per day. Unless Zion files and is

awarded an increased allocation of Lake Michigan water, they cannot serve my business nor can they serve the proposed peaker plant.

The state of Illinois is in debt to Canada for exceeding their Lake Michigan water allocation. This debt is to be repaid by 2019. I assume you are familiar with that. For 20 years, Illinois took more than their allotted amount of water out of Lake Michigan, and now they have to pay it back. The bottom line is that there is less water to be divided among the municipalities, 177 or so, that use Lake Michigan water.

But the peaker power plant has an alternative which I do not have. They can drill wells and tap into the Ironton Galesville Sandstone Aquifer.

Circular 182 from the Illinois Department of Natural Resources Water Survey by Adrian A. Zuchowski addressed the water level trends and pumpings into the deep bedrock aquifers in the Chicago region in the period 1991 through 195. On page 15 he wrote that Schlect in 1976 estimated that the practical sustained yield of the deep bedrock aquifers regardless of the scheme of well development cannot exceed *65* million gallons a day.

The practical sustained yield of the deep aquifers is defined as the maximum amount of water that can be withdrawn without eventually dewatering the most productive water yielding formation, that is the Ironton Galesville Sandstone Aquifer.

In a fax dated August 15th of this year, Mr. Scott Meyer of the Illinois State Water Survey faxed me and said I recently estimated deep bedrock withdrawals in that area, referring to Zion, at about 71 million gallons a day. That is 6 million gallons above the practical sustained yield.

The point is this. One peaker power plant drawing 230,000 gallons per day from the Ironton Galesville Sandstone may not seem overly significant. But it is reported that there is some 55 peaker power plants proposed in the state of Illinois. How many will be drawing water from the Ironton Galesville Sandstone aquifer in the eight-county area?

Now, the survey that I referred to, the circular 182 involved water being taken from the following eight counties: Cook, DuPage, Grundy, Kane, Kendall, Lake, McHenry and Will. Now, five plants the size of the proposed Zion plant would draw 1,150,000 gallons of water per day from that aquifer. For 20 months plants would draw 4,600,000 gallons per day average, but at peak would draw 42 million gallons in one day. Now, this is out of an aquifer that can only sustain 65 million gallons and is currently being drawn at 71 million gallons.

The former state senator and minority leader Everitt McKinley Dickson once said after attending his first budget meeting, a billion dollars here and a billion dollars there, and pretty soon it added up to some real money. The same thing is true of the peaker power plants and their great appetite for water.

I ask you to consider the following questions. Should quality Lake Michigan water by used for peaker power plants or should that be reserved for human consumption? Should there be a limit on the quantity of water mined from the Ironton Galesville Sandstone Aquifer considering eight counties depend upon this water source, Cook, DuPage, Grundy, Kane, Kendall, Lake, mclienry and Will Counties? This is not a local issue. This is a regional issue.

And remember, this Ironton Galesville Sandstone Aquifer begins in Minnesota, runs through Wisconsin, northern Illinois, central Illinois, into Missouri and finally into the state of Iowa. It can be mined dry.

William McCarthy, Resident, Libertyville

As far as water use is concerned, these plants do use a lot of water.

* * *

Peaker Plants are inefficient. They only covert 28 percent of the power that they burn into electrical energy. Combined-cycle plants convert 56 percent. Obviously, you are going to get a lot more bang for your buck with a combined-cycle plant.

The problem is combined-cycle plants use more than 2 million gallons of water a day. Peaker plants use maybe 120,000 gallons a day. That is a big difference.

And as has been mentioned before, Illinois is under water use restrictions because they don't want Lake Michigan being drained for all different kinds of uses. And probably some of you read National Geographic and you are aware of the Arrow Sea disaster in the Soviet Union. The Arrow Sea was completely drained within a period of 20 years by overirrigation. And it is a water body one fourth the size of Lake Michigan. So they drained -- I think it was 100 billion trillion gallons of water. It is practically gone. If you could just look it up on the Internet, you will see.

Cindy Skrukrud, Resident, Olin Mills, McHenry County

First, relating to the State's commitment to water conservation, ground water withdrawals, McHenry County is one of the many counties in Illinois totally dependent on ground water for our drinking water. Combined-cycle plants with their massive need for water pose a real competitive threat to these water supplies. This is an issue we need to address.

SPRINGFIELD HEARINGS

Illinois Section of American Waterworks Association - Testimony of John Smith and Exchange with Chairman Manning and Board Members Girard and McFawm

Number three: Should new or expanding peaker plants be subject to siting requirements beyond applicable local zoning requirements? ISAWWA believes that peaker plant siting requirements should encourage the siting of these plants near a sanitary water treatment plant, if practical, so as to utilize the discharge from the sanitary water treatment plant known as gray water or cooling water." We only wish to comment on the use of water resources by these facilities. Number one, the State of Illinois must manage, protect and enhance the development of the water resources of the state as a natural and public resource. Number two, water resources have an essential and pervasive role in the social and economic well-being of the people of Illinois and is of vital importance to the general health, safety and economic welfare. Number three, water resources of the state must be used for beneficial and legitimate purposes. And number four, waste and degradation of water resources must be prevented.

ISAWWA is not opposed to the use of water resources by peaker plants. We are only asking for the responsible use of water resources by these facilities and all major new water consumers. We believe the regulation or permitting of large water resource withdrawals should be the responsibility of regional agencies, such as municipalities, counties or water boards, and that a state agency should have oversight of these regional agencies.

We believe that the basis for the decision on how much water can be safely used from a designated water resource be based on the existing knowledge and scientific studies of that resource, and, if knowledge of that resource is lacking, then additional research into the adequacy of this source should be done before allowing major withdrawals. The decision to allow the development of existing or new water resources must be based on sound science, not politics. We believe that funding must be adequate for the state agency to perform these studies.

In conclusion, Illinois Section AWWA is not opposed to peaker facilities. We are calling for the rules and regulations of water resources be based on scientific studies of our valuable water resources and that an unbiased state agency be charged with oversight of regional water use. Adequate funding for the state agency must allow for the scientific study of our state water resources, and the State must have a plan for the efficient management of water resources.

Chairman Manning: Thank you for being here today. I do have just one question. Are you aware of any projects right now that are ongoing between a

peaker plant developer and a sanitary treatment facility in the state we could *speak to*?

Mr. Smith: I'm not aware of any

Board Member Girard: So what you're advocating is that we have a state water resources board that allocates these large withdrawals? Is that what you're saying:

Mr. Smith: What we are saying is that we believe a state agency such as the Illinois State Water Survey should have some oversight over the regional agencies that normally would have some control over water. We believe that in most cases, the regional agency has at least some knowledge of the water resource and how much of that resource can be used safely without impacting other consumers or their industries. However, if the local agency has — unreasonably tries to restrict the use of these water resources, then a state agency could have oversight of the local agency.

* * *

Board Member McFawn: Is your association involved at all with any studies of water resources, be they groundwater or surface water, and their adequacy or even just their quantity?

Mr. Smith: Yes, we are. Illinois Section of AWWA is involved with the Mahomet Aquifer Consortium, which has — is trying to secure federal funding to do further studies of the Mahomet aquifer located in the central part of Illinois. This consortium and the action that we are doing to try to study this reservoir has already generated interest from other states in that they have inquired how we have put together the consortium and how we are going about to try and initiate these studies.

Our friends and neighbors are understandably worried about the impact of so-called peaker plants on air quality and water supplies.

National Association of Water Companies, Testimony of Brent Gregory, Representative of Illinois Chapter and Exchange with Board Members Melas and McFawn

The ability to provide water of sufficient quality and quantity to sustain commercial, industrial and residential growth goes hand-in-hand with the availability of electrical power. Water suppliers rely on adequate available electricity, and generating plants rely on an adequate supply of water. NAWC supports the development of new electrical generating capacity as needed for the economic advancement of Illinois.

We do not believe that peaker plants pose a unique threat to the environment compared to other types of state-regulated facilities. We believe that existing environmental regulations are adequate to address air and water quality concerns from peaker plants.

We emphasize the need for water use decisions to be based on sound scientific assessment of local and regional water resources. Where existing knowledge is insufficient, the state technical agencies should provide the scientific studies needed to permit or deny water withdrawals. State funding must be adequate to support these efforts. The right of existing public water supplies to condition withdrawing at their current installed capacities should be grandfathered into any program that is developed. The state should consider competent third-party assessments presented by those seeking to utilize the water resource.

We believe that permitting of new peaker plants and siting requirements should encourage conservation measures such as recycling of cooling water and use of other discharges for cooling when possible, such as those from sanitary treatment plants.

In summary, NAWC believes that the ability to expand power and water resources is important to the economic growth of Illinois.

* * *

Board Member Melas: Do you have any comments about the quantity of the — or the adequacy of particularly groundwater supplies?

Mr. Gregory: Well, we recognize that in certain areas of the state in particular, there may be some quantity concerns. We're traditionally known as a water-rich state, and yet due to concentrations of industry and populations and other circumstances, there are areas where, particularly in long-term outlook, water quantity is a concern. That's why we concur that there is a need for sound comprehensive management of the state's water resources with regard to quantity.

Board Member McFawn: You mentioned you thought that the quantity -- I believe it was the assessment of it should be done by an independent third party? Could you explain that a little bit more?

Mr. Gregory: Yes, I can. If there is some legislative or regulatory control set up over the use of Illinois water resources, it needs to be based on sound scientific assessment of the resource, which we believe that the state has — is the appropriate — has the appropriate technical resources to conduct those. However, if there would arise a dispute over the use or the application for the use of water or withdrawal of water and there is better science to be presented by a petitioner for the use of that water, that should be allowed.

Board Member McFawn: We are talking about just quantification, not quality?

Mr. Gregory: That is really in the context of quantity.

Mr. Gregory: If somebody wants to withdraw water from an aquifer or from a watershed and is able to hire a qualified consultant to demonstrate the reasonableness of that petition, then that should be considered.

Natural Resources Defense Council - Testimony of Patricio Silva and Exchange with Board Member McFawn

Mr. Silva: The water withdrawals were in part because there was some concern about adverse impact from the water withdrawals on the Hudson River for several fish species in that section of the Hudson River. I cannot remember off the top of my head if there was any impacts for nesting birds, but I don't believe so.

* * *

Board Member McFawn: [Y]ou said that NRDC was concerned about water used in single-cycle units. I've always thought that the single-cycles didn't cause that concern and it was the combined-cycles.

Mr. Silva: A great many single-cycle combustion turbine projects that we've seen -- not just the few that we've looked at in Illinois, but -- in elsewhere across the country -- rely on once-through cooling. Water is used once for evaporative cooling at the inlet duct and then essentially discarded. That, depending on the size of the unit -- and remember, the single-cycle turbines, we've seen anywhere from 80, some projects have 1,000 megawatts, so the water demand is going to be quite dramatic. Some of the combined-cycle units we've seen actually rely on dry cooling where there is essentially a process that involves a closed loop and onetime withdrawal of water.

So the demands — even though the unit — the technology's more efficient, in some applications the combined-cycle units can be hogs as well. They can be quite water intensive. So — But there is — there are technology options.

Exhibit from Reliant Energy

How much water will the plant use?

The plant does not require a large amount of water. Unlike many older plants, Reliant Energy Aurora does not use steam to generate electricity and its demand for water is similar to other light industrial uses. The primary use of water will be to cool the air flowing into the units and to control emissions.

The only other uses of water will be for the purposes of employee sanitation and for fire

The plant will use an average of only 300 gallons per minute (gpm) during the summer months and that the peak water usage rate will be gpm. The water will be provided from a deep aquifer well (Cambrian Ordovician650) which is at least one mile away from any known deep aquifer wells in the area. Compared with the water used in the City of Aurora on an annual basis, the maximum consumption from this well is less than 1% of the city's water use.

Public Comment #3 -- Ron Molinaro

Thirdly, there is the amount of water used. These plants can consume up [tol 2 million gallons of water a day. At a recent Zion City Council meeting a gentleman who owns a local confectionery company spoke of the possibility of the expansion of his business. When checking into the accessibility of additional water he discovered that the city of Zion exceeded its allocated amount for 1999 by 22 million gallons. If we were to allow these plants to be constructed in Zion, will there be enough water allocated for the expansion of existing business or the construction of new homes? This is a question that needs to be answered before we allow any power plants to be constructed in this region.

Public Comment #7 — Susan Zingle

Attachments to Public Comment #7 submitted by Susan Zingle - three letters from the Illinois State Water Survey.

Attachments to Public Comment #7 Submitted by Susan Zingle

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois State Water Survey

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SWS

December 4, 1998

Mr. Robert Wargaski
Lake-McHenry Environmental Cooperative
P.O. Box 134
Wauconda, IL 60084

Dear Mr. Wargaski:

This letter is in response to your request of December 1, 1998, concerning the development of two 5-million gallons per day (mgd) ground-water supplies from the Cambrian-Ordovician-Age aquifer system for the purpose of steam generation in electrical power generating facilities. One site (designated herein as the Island Lake Project) will be located in the SW¼ of Section 9, T.44N., R.9E., Lake County. The other site (designated herein as the Libertyville Project) will be located in the NE¼ of Section 12, T.44N., R.10E., Lake County. The distance between these sites is approximately 9 miles. You have asked the Water Survey to comment on the potential impacts these ground-water withdrawals may have on surrounding water wells finished within the same aquifer system. You also inquired about ground-water law and regulation. The following are responses to the specific questions you posed to the Water Survey concerning this matter:

"The proposed Island Lake and Libertyville sites are within 10 miles of each other. Each would draw up to 5 million gallons of water per day. Please comment on the impact they would have operating together and simultaneously on the aquifer and the surrounding community wells. Which community wells would be affected by the interface drawdown."

Withdrawal of ground water from a well may cause water levels in nearby wells tapping the source aquifer to decline. This water-level decline is referred to as interference drawdown or, more simply, as interference. Interference drawdown decreases with increasing distance in all directions from a pumping well, defining an inverted conical water-level surface around the well. This is known as the cone of depression. The size and shape of the cone of depression created by a pumping well will depend on the areal extent and hydraulic properties of the aquifer, the pumping rate, and the duration of pumping at the well. When interference drawdown causes the water level in a well to decline below the pump intake (in which case the pump breaks suction) or below a level at which the pump can lift the desired volume of water to the surface, remedial measures such as lowering the pump setting or sizing a higher capacity pump may be necessary to restore a normal supply. The risk posed by a pumping well on the ability of a nearby well to deliver its normal supply is, therefore, a function both of the amount of interference and of various construction features of the affected well -- chiefly the pump setting, dynamic head rating of the pump, and well efficiency.

For the Island Lake and Libertyville Projects, nearby existing wells finished within the Cambrian-Ordovician-Age aquifer system, pre-dating the Lake Michigan water allocations to the area of question, may not be severely impacted by the proposed well field because those wells were engineered and

constructed when regional water levels were considerably lower than at present. Prior to Lake Michigan water allocations, pump intakes in water wells were set at lower depths and had greater water lifting capacities because of lower ground-water levels caused by regional pumpage. However, wells finished in the deep sandstones within the last few years could see more severe impacts because they were constructed after the regional "recovery" of water levels within the Cambrian-Ordovician-Age aquifer system.

The impact of the withdrawal of 5 mgd from two sites on ground-water levels with the Cambrian-Ordovician-Age aquifer system was determined through the use of an analytical mathematical model using regional values for the hydraulic properties of this aquifer system. The use of this model required that significant assumptions be made to simplify the natural variability often encountered in aquifer systems. Assumptions include homogeneous and isotropic aquifer hydraulic properties (as opposed to properties that may vary vertically and horizontally in three dimensions), no ground-water recharge, infinite aquifer extent (as opposed to geologic and hydraulic features which may limit the size of the aquifer), and a continuous pumping schedule (as opposed to a time-variant pumping rate).

The hydraulic properties and pumping scenarios were assumed to be identical at the Island Lake and Libertyville Projects sites. As you requested, each proposed well field pumped simultaneously in our model simulation. For purposes of construction of the model, we assumed each well field would consist of eight wells (finished in the St. Peter and Ironton-Galesville Sandstone aquifers) supplying 5 mgd (about 434 gallons per minute each) on a continuous basis for 20 years. Given these parameters, the model provided the graphic output shown in accompanying Figure 1.

Under the pumping and hydraulic conditions described in the above scenario, mutual interference effects between the well fields may cause water level declines of as much as 280 feet. Interference effects decline to approximately 150 feet at 12 miles.

This analytical model also suggests that as much as 520 feet of drawdown would be observed in the centers of each well field. This would lower the potentiometric head of the Cambrian-Ordovician-Age aquifer in the study area into the St. Peter sandstone. Dewatering of any artesian aquifer can lead to the reduction in pumping capacity. For a properly designed well field, the Cambrian-Ordovician-Age aquifer should be able to yield the desired quantity of water on a sustainable basis.

Given the possibility that the aquifer properties, number of pumping wells, well spacing, pumping rates, pumping periods, and total pumpage of the proposed wells may be different than what was assumed for this report, we recommend a more detailed analysis be made of the number of existing wells and their distance from the proposed high-capacity well fields. In addition, static water levels, pumping water levels, and pump intake settings of nearby water wells could be analyzed to determine if, and which, domestic, industrial, or municipal water wells would be potentially impacted.

Pumping water from this aquifer in the Island Lake and Libertyville areas has wider ranging effects than simply being a local phenomenon. Consideration should be given to the effects on the practical sustained yield of the entire aquifer system including the effects of pumping on ground water within the State of Wisconsin. The aquifer system is currently being pumped at, or slightly above, its estimated practical sustainable yield of 65 mgd per day. Further development is likely to contribute to the mining of ground-water in northeastern Illinois. A more sophisticated ground-water model of northeastern Illinois, one that

can incorporate regional variations in aquifer properties (unlike the simplistic analytical model we used to calculate drawdowns for this letter), would be a very important planning tool for state and local governmental leaders to have available to them in their efforts to manage this natural resource.

We recommend that a three-dimensional numerical ground-water model be used to better predict what long-term impacts the proposed ground-water development would have on the Cambrian-Ordovician-Age aquifer in northeastern Illinois. The Illinois State Water Survey has previously modeled this aquifer system (Prickett 1971, Visocky 1982, Burch 1991); however, the Water Survey's most recent model (Burch 1991) will need extensive updating. A three-dimensional numerical ground-water model could incorporate natural variations in aquifer properties, thickness, and withdrawals from existing high-capacity wells. Such a model would also allow studying the aquifer in a more regional context.

To reiterate, estimates of water-level decline contained in this letter were determined from a strictly theoretical consideration of aquifer hydraulics, making use of regional aquifer property data. More accurate estimates would be possible given better aquifer property data and recharge rates collected through properly conducted "on-site" aquifer tests. It is possible that the predictions in this letter will not prove to be accurate. We, therefore, recommend that further study be made of this particular issue. The Illinois State Water Survey has the expertise to provide these services to the residents of Lake and McHenry Counties; however, such involved research would require a contractual agreement (administered through the University of Illinois) between interested parties and the Water Survey.

As to your question relating to which municipal water wells would be affected by the theoretical well fields, the total number of wells impacted and corresponding economic repercussions are impossible to quantify at this time without further in-depth study.

"Does Illinois have any regulations on the limits of water that can be drawn from the aquifer? Do other states have limits and which ones."

The State of Illinois does not have any specific laws that limit ground-water withdrawals. The Rule of Reasonable Use allows "property owners to unlimited and non-permitted use of the water beneath their land as long as the use is 'reasonable' and injury to a neighboring well does not arise but of malice" as stated by Bowman (1991). We suggest that you contact Mr. Gary Clark of the Office of Water Resources, Illinois Department of Natural Resources, at (217) 785-3334 for further information on this matter. Mr. Clark is one of the State's leading experts on ground-water law, and we are confident he will be able to address any ground-water law related questions that you pose to him. For your information, we have enclosed a copy of an Illinois Department of Transportation 1985 report to the Illinois Groundwater Association ***Illinois Groundwater Law: The Rule of Reasonable Use***. Mr. Clark is the author of this document. We are also enclosing a copy of Illinois State Water Survey Report of Investigation 114 ***Ground-Water Quantity Laws and Management***, for additional discussions of Illinois ground-water laws and the law practiced in several other midwestern states.

"What is the change in the level of the deep sandstone aquifer since communities switched from aquifer wells to Lake Michigan water."

For your information on this particular subject, we have enclosed Illinois State Water Survey Circular 182 *Water-Level and Pumpage in the Deep Bedrock Aquifers in the Chicago Region, 1991-1995*. This

publication is an excellent resource for the analysis of water level trends in the Cambrian-Ordovician-Age aquifer system. Figure 9 on page 30 of this document shows changes in the potentiometric surface of the deep bedrock aquifers between 1991 and 1995. In Lake County, there were areas that observed an increase in water levels (potentiometric head) of over 250 feet. Wauconda Municipal Well 4, located in Section 24, T.44N., R.9E., Lake County, experienced a rise in ground-water levels of 45 feet between 1991 and 1995.

"With the growing population trend in Lake and McHenry County, what limitations would you suggest be incorporated to protect the aquifer and keep it healthy for future generations."

The Illinois State Water Survey is a strictly an objective scientific organization. We do not make, nor do we enforce, rules and regulations. However, our research and guidance is often utilized in the development of water-related laws and statutes. In the case of the issues addressed in this letter, we have the knowledge and expertise to offer the citizens and their governmental representatives to make informed decisions about how to develop their natural resources. However, additional research will be needed before we can more accurately address your many concerns.

For your information, I have enclosed all prior letter correspondence that deal with power generation in Lake and McHenry County areas. If we can be of any further assistance, please feel free to call or write.

Sincerely,

Andrew G. Buck

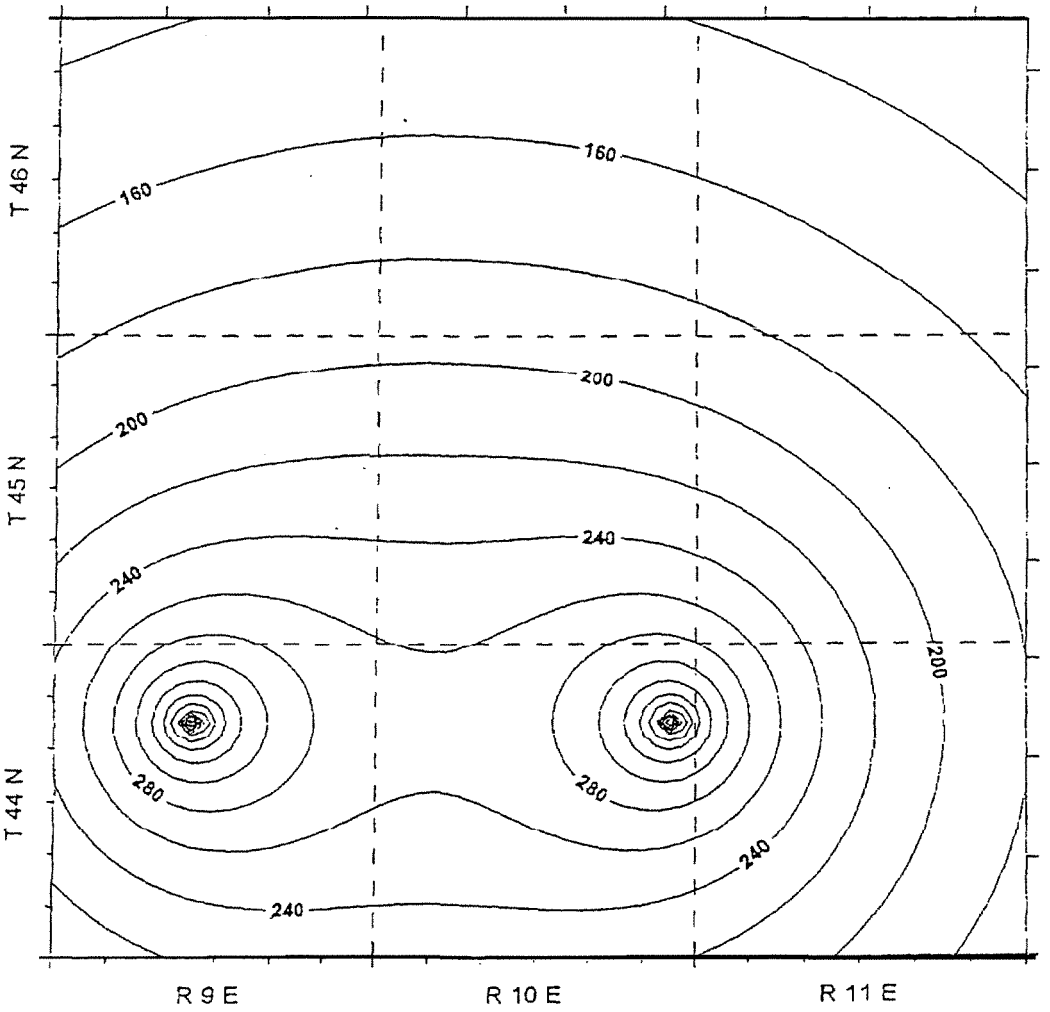
Andrew G. Buck, P.G.
Assistant Hydrogeologist
Ground-Water Section
Phone: (217) 333-6800

agb

Enclosures as stated

cc: Winstanley, ISWS
Bhowmik, ISWS
Roadcap, ISWS
Clark, IDNR-OWR

Drawdown created by two wellfields
each pumping 5 MGD from 8 Wells.
(T = 15,000 gpd/ft, S = 0.0004)



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SWS

December 2, 1998

Mr. Kenneth C. Hopps
Natural Gas Pipeline Company of America
747 East 22nd Street
Lombard, Illinois 60148-5072

Dear Mr. Hopps:

This letter is in response to your request concerning the development of a 2.5 million gallon per day (mgd) ground-water supply from the Cambrian-Ordovician-Age aquifer system for the purpose of steam generation in an electrical power generating facility. We understand that the proposed power plant will be located in the SW¼ of Section 9, T.44N., R.9E., Lake County. You have asked the Illinois State Water Survey to comment on the potential impact this ground-water withdrawal may have on surrounding water wells finished within the overlying unconsolidated sand and gravel deposits and Silurian-Age dolomite bedrock aquifer. It should be noted that the Water Survey has previously provided estimates of theoretical water level drawdowns in the Cambrian-Ordovician-Age aquifer system given several different water withdrawal scenarios. These previous letter reports to your company were dated September 3 and October 13, 1998, and addressed the interference effects caused by a theoretical well field on wells finished within the Cambrian-Ordovician-Age aquifer.

Withdrawal of ground water from a well will cause water levels in nearby wells tapping the source aquifer to decline. This water-level decline is referred to as interference drawdown or, more simply, as interference. Interference drawdown decreases with increasing distance in all directions from a pumping well, defining an inverted conical water-level surface around the well known as the cone of depression. The size and shape of the cone of depression created by a pumping well will depend on the areal extent and hydraulic properties of the aquifer, the pumping rate, and the duration of pumping at the well. When interference drawdown causes the water level in a well to decline below the pump intake (in which case the pump breaks suction) or below a level at which the pump can lift the desired volume of water to the surface, remedial measures such as lowering of the pump setting or sizing a higher capacity pump may be necessary to restore a normal supply. The risk posed by a pumping well on the ability of a nearby well to deliver its normal supply is, therefore, a function both of the amount of interference and of various construction features of the affected well -- chiefly the pump setting, dynamic head rating of the pump, and well efficiency.

With respect to your question, the key variable when determining whether a well(s) withdrawing ground water will adversely impact a nearby well(s) is dependent on the hydraulic connection

between the source aquifers. In this case, you have asked us to address the potential impacts on wells finished in the unconsolidated sand and gravel deposits above bedrock and wells completed in the Silurian-Age dolomite when the deeper lying Cambrian-Ordovician-Age sandstone aquifers are pumped. For your reference, we have enclosed an excerpt from Illinois State Water Survey Circular 182, titled *Water-Level Trends and Pumpage in the Deep Bedrock Aquifers in the Chicago Region, 1991-1995* (Visocky et al., 1985, page 6 and 7, figure 2), which shows the stratigraphy, water-yielding properties of the rocks, and the character of the ground water in northeastern Illinois. In this part of Illinois, the Ordovician-Age Maquoketa shale separates the unconsolidated materials and Silurian-Age dolomite from the deeper lying Cambrian-Ordovician-Age (St. Peter and Ironton-Galesville sandstones) aquifers.

The Maquoketa shale is approximately 105 feet thick in the area of interest. Under natural conditions, the Maquoketa acts as an effective hydraulic barrier between the upper (sand and gravel and dolomite) and lower (Cambrian-Ordovician-Age sandstones) aquifer systems. Consequently, changes in ground-water levels in the Cambrian-Ordovician-Age are relatively independent of those in the shallower aquifer systems. Given this, pumping the Cambrian-Ordovician-Age aquifer system should not affect water levels in the shallower sand and gravel and dolomite aquifers. It should be noted that this assumes that a well finished in the Cambrian-Ordovician-Age sandstones must be constructed such that the geologic materials from the Ordovician-Age St. Peter sandstone and above are "cased off". An "open" bore hole hydraulically connecting the Silurian-Age dolomite and deeper-lying sandstone formations would render the above conclusions false. Water levels in the shallower aquifers probably will be impacted by water withdrawals from the Cambrian-Ordovician-Age sandstone aquifers if the geologic materials above the St. Peter sandstone were not sealed off by well casing.

If we can be of any further assistance, please feel free to call or write.

Sincerely,

Andrew G. Buck

Andrew G. Buck, P.G.
Assistant Hydrogeologist
Ground-Water Section
Phone: (217) 333-6800

agb/psl

Enclosure as stated

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

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SWS

October 1, 1998

Mr. Stan A. Smogorzewski
LS Power, LLC
13522 Calais Drive
Del Mar, California 92014

Dear Mr. Smogorzewski:

This letter is in response to your request concerning the development of a 10.8 million gallon per day (mgd) ground-water supply from the Cambrian-Ordovician-Age aquifer system for the purpose of steam generation in an electrical power generating facility. We understand that you are considering two sites for this facility. One site (designated herein as McHenry Project) will be partially located in the E½ of the NE¼, of Section 8, T.44N., R.9E., McHenry County and partially in the NW¼ of Section 9, T.44N., R.9E., Lake County. The other site (designated herein as Lee Project) will be located in the N½ of the SE¼ of Section 32, T.21N., R.8E., Lee County. You have asked the Water Survey to comment on the potential impacts these ground-water withdrawals may have on surrounding water wells finished within the same aquifer system given this pumping rate over a 1-year period. In this letter report, we will address the theoretical impact that a 7,500 gallon per minute (gpm) well may have on ground-water levels within the Cambrian-Ordovician-Age aquifer system.

Withdrawal of ground water from a well will cause water levels in nearby wells tapping the source aquifer to decline. This water-level decline is referred to as interference drawdown or, more simply, as interference. Interference drawdown decreases with increasing distance in all directions from a pumping well, defining an inverted conical water-level surface around the well known as the cone of depression. The size and shape of the cone of depression created by a pumping well will depend on the areal extent and hydraulic properties of the aquifer, the pumping rate, and the duration of pumping at the well. When interference drawdown causes the water level in a well to decline below the pump intake (in which case the pump breaks suction) or below a level at which the pump can lift the desired volume of water to the surface, remedial measures such as lowering of the pump setting or sizing a higher capacity pump may be necessary to restore a normal supply. The risk posed by a pumping well on the ability of a nearby well to deliver its normal supply is, therefore, a function both of the amount of interference and of various construction features of the affected well -- chiefly the pump setting, dynamic head rating of the pump, and well efficiency.

For the McHenry Project, nearby existing wells finished within the Cambrian-Ordovician-Age aquifer system, pre-dating the Lake Michigan water allocations to the area of question, may not be severely impacted by the proposed well field because those wells were engineered and constructed when regional water levels were considerably lower than at present. Prior to Lake Michigan water

allocations, pump intakes in water wells were set at lower depths and had greater water lifting capacities because of lower ground-water levels caused by regional pumpage. However, wells finished in the deep sandstones within the last few years could see more severe impacts because they were constructed after the regional "recovery" of water levels within the Cambrian-Ordovician-Age aquifer system. This situation does not apply to the Lee Project because water levels in that area have not been regionally lowered.

The impact of the withdrawal of 7,500 gpm on ground-water levels with the Cambrian-Ordovician-Age aquifer system were determined through the use of an analytical mathematical model using regional values for the hydraulic properties of this aquifer system. The use of this model required significant assumptions be made to simplify the natural variability often encountered in aquifer systems. Assumptions include homogeneous and isotropic aquifer hydraulic properties (as opposed to properties that may vary vertically, horizontally, and with direction), infinite aquifer extent (as opposed to geologic and hydraulic features which may limit the size of the aquifer), and a continuous pumping schedule (as opposed to a time-variant pumping rate).

Because the hydraulic properties and pumping scenarios were assumed to be identical at the McHenry and Lee Projects, the distance-drawdown estimates shown below apply to both sites. As you requested, the proposed well field was assumed to consist of only one well (finished in the St. Peter and Ironton-Galesville Sandstone aquifers) supplying 10.8 mgd (7,500 gpm) on a continuous basis for one year. Given these parameters, the model provided the following distance-drawdown relationships (also see the enclosed distance-drawdown plot and map):

Distance from pumped well	*Drawdown after pumping 1-year*
¼ mile	350 feet or less
½ mile	285 feet or less
1 mile	225 feet or less
2 miles	170 feet or less
3 miles	135 feet or less
4 miles	110 feet or less
5 miles	90 feet or less

Although these impacts are considerable, the available drawdown in deep sandstone wells is probably adequate for the desired amount of ground-water yield, assuming a properly designed well field. The number of wells impacted and corresponding economic repercussions are impossible to quantify at this time without further in-depth study.

Given the possibility that the aquifer properties, number of pumping wells, well spacing, pumping rates, pumping periods, and total pumpage of the proposed wells may be different than what was assumed for this report, we recommend a more detailed analysis be made of the number of wells and their distance from the proposed high-capacity well field. In addition, static water levels, pumping water levels, and pump intake settings of nearby water wells could be analyzed to determine if, and

which, domestic, industrial, or municipal water wells would be potentially impacted. Also, it would be prudent to run a sophisticated numerical ground-water model to better predict what long-term impacts the proposed ground-water development would have on the Cambrian-Ordovician-Age aquifer in northeastern Illinois. Such a model could incorporate natural variations in aquifer properties, thickness, and withdrawals from existing high-capacity wells. This would be a very important planning tool for local governmental leaders to have available to them in their efforts to manage this natural resource.

Another issue in any use of water from the Cambrian-Ordovician-Age aquifer system is water quality. There are reports of radioactive isotopes associated with these waters which can be a factor in its use.

To reiterate, estimates of water-level decline contained in this letter were determined from a strictly theoretical consideration of aquifer hydraulics, making use of regional aquifer property data. More accurate estimates would be possible given better aquifer property data collected through properly conducted "on-site" well tests. It is possible that the predictions in this letter will not prove to be accurate. We, therefore, recommend that further study be made of this particular issue. The Illinois State Water Survey has the expertise to provide these services to LS Power and the citizens of Lake, McHenry and Lee Counties; however, such involved research would require a contractual agreement (administered through the University of Illinois) between your firm and the Water Survey.

To further your knowledge of the water resources of the deep sandstones aquifers of Illinois, we have enclosed Cooperative Report 10, titled *Geology, Hydrology, and Water Quality of the Cambrian and Ordovician Systems in Northern Illinois* and Illinois State Water Survey Circular 182, titled *Water-Level Trends and Pumpage in the Deep Bedrock Aquifers in the Chicago Region, 1991-1995*. If we can be of any further assistance, please feel free to call or write.

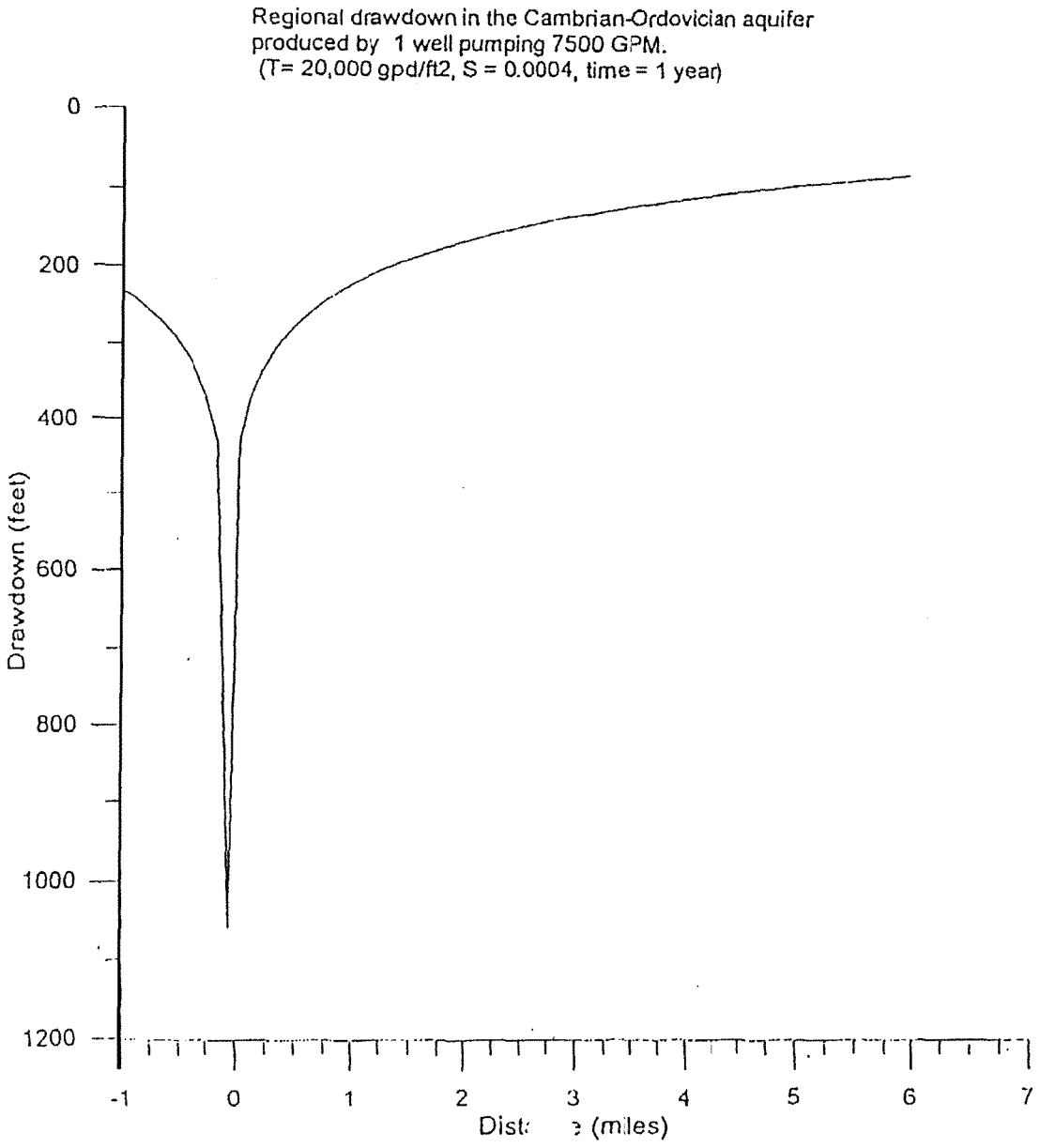
Sincerely,

Andrew G. Buck

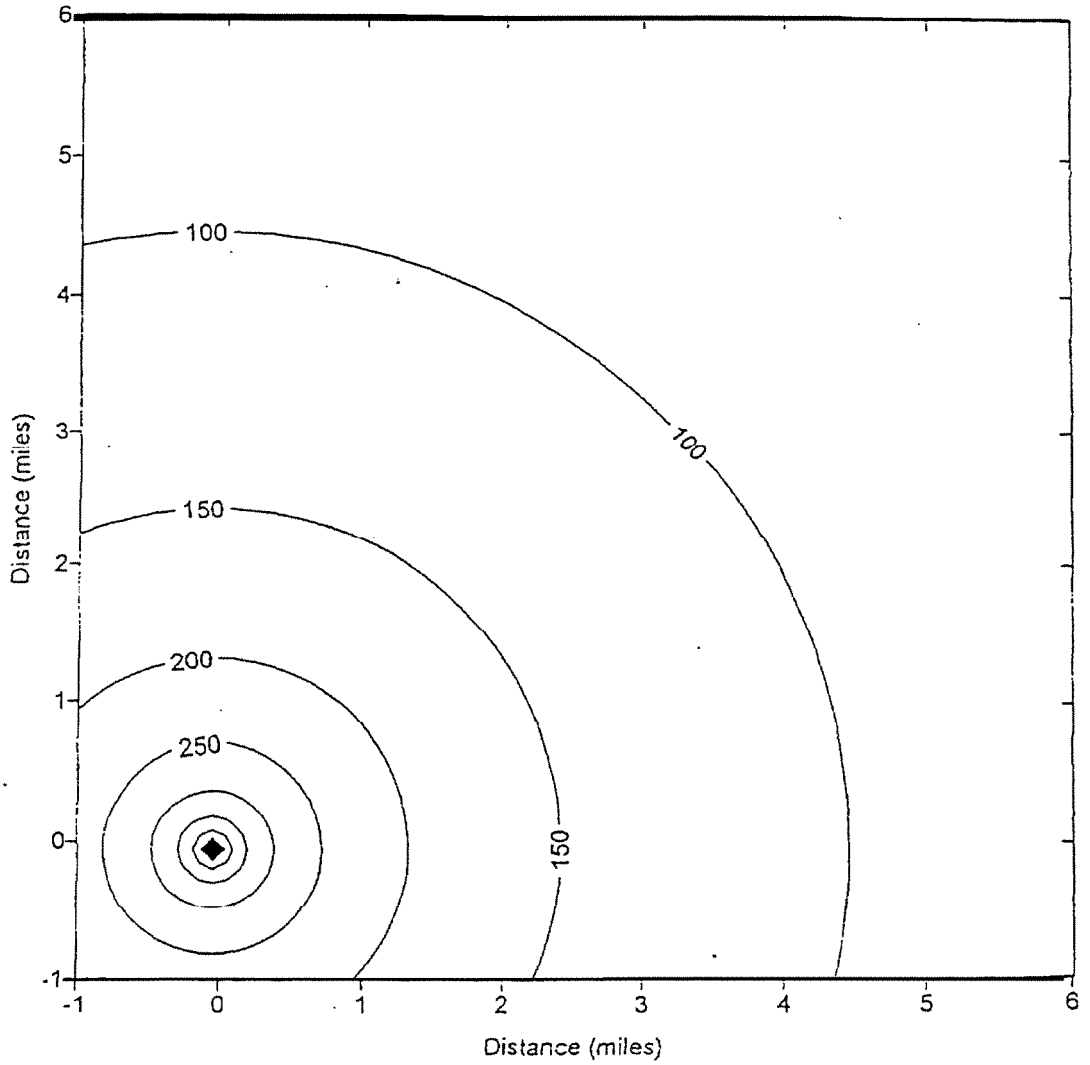
Andrew G. Buck
Assistant Hydrogeologist
Ground-Water Section
Phone: (217) 333-6800

agb/psl

Enclosures as stated


Regional drawdown in the Cambrian-Ordovician aquifer
produced by 1 well pumping 7500 GPM.
(T= 20,000 gpd/ft2, S = 0.0004, time = 1 year)
Drawdown (feet)
0
200
400
600
800
1000
1200
-1
0
1
2
3
4
5
6
7
Dist: ɜ (miles)

Regional drawdown in the Cambrian-Ordovician aquifer
produced by 1 well pumping 7500 GPM.
(T= 20,000 gpd/ft2, S = 0.0004, time = 1 year)



SUMMARY OF WATER QUANTITY LAWS FROM MIDWESTERN STATES

IOWA

Statute: Code of Iowa, 455B (1999)

Regulatory Entity: Department of Natural Resources; Environmental Protection Division

Summary: Permit is required for any person who diverts, stores or withdraws more than 25,000 gallons of water per day (surface or groundwater); Permits are generally issued for 10 years but, depending on geological conditions, can be for lesser period of time; Permit program insures consistency in decisions on allocations; Allocations based upon concept of "beneficial use" the key points of which are (1) water resources are to be put to beneficial use to the fullest extent; (2) waste and unreasonable uses are prevented; (3) water conservation is expected; (4) established average minimum instream flows are protected; Administrative process resolves water use conflicts; Provisions in place for public involvement in issuing water allocation permits and in generally establishing water use policies.

MINNESOTA

Statute: Minnesota Statute 103G.265

Regulatory Entity: Department of Natural Resources; Waters Office

Summary: Permit is required for all users withdrawing (surface and groundwater) more than 10,000 gallons per day or 1 million gallons per year (Exceptions include: domestic uses serving less than 25 persons, certain agricultural drainage systems, test pumping of a groundwater source, and reuse of water already authorized by permit, e.g., water purchased from a municipal water system); Permits granted for no longer than 5 years; Policy: to manage water resources to ensure an adequate supply to meet long-range seasonal requirements for domestic, agricultural, fish and wildlife, recreational, power navigation, and quality control purposes; Water Appropriation Permit Program exists to balance competing management objectives that include both development and protection of Minnesota's water resources; Permitted users required to submit annual reports of water use; Reported information used to evaluate impacts and to aid in resolving conflicts.

OHIO

Statute: Ohio Revised Code Sections 1521.16; 1521.17; Sections 1501.30 and 1501.33

Regulatory Entity: Department of Natural Resources; Division of Water

Summary: Permits are required for those making a new or increased consumptive use of water greater than an average of 2 million gallons per day over a 30-day period; Registration is required for any facility or combination of facilities with the capacity to withdraw more than 100,000 gallons of water (surface or ground) daily; Chief of DNR Division of Water has authority to designate "ground water stress areas" and to require water withdrawal registration in these areas for users of water less than the normal 100,000 gallon threshold; Annual reporting is required of those who must register; Purpose of registration and reporting requirements: to gather data to assist in resolving future water use conflicts; Chief also has responsibility to maintain Water Resources Inventory which must include information to assist in determining the reasonableness of water use; While "reasonable use" is used by courts to determine water conflicts, legislature has set forth nine specific factors (applicable to both surface and groundwater) which define reasonableness; Consumptive use is defined as a use of water resources, other than a diversion, that results in a loss of that water to the basin from which it is withdrawn and includes, but is not limited to, evaporation, evapotranspiration, and incorporation of water into a product or agricultural crop.

INDIANA

Statute: Indiana Code, 14-25

Regulatory Entity: Department of Natural Resources (DNR); Natural Resources Commission (NRC)

Summary: Registration and annual reporting requirement for owners of significant water withdraw facilities (withdrawal of 1,000,000 gallons per day of surface water, groundwater, or combination); NRC has statutory authority to require, by rule, a permit for most water withdrawals from navigable waters, but authority has not yet been exercised; NRC is required to develop and maintain inventories, gather and assess all information needed to properly define water resource availability; NRC can establish, by rule, minimum stream flows; Where groundwater threat, DNR may designate a "restricted use area." Permit then required for withdrawal of more than 100,000 gallons per day beyond use at time of restricted use designation; In granting or refusing a permit, the DNR considers the concept of beneficial use.

MISSOURI

Statute: Missouri Revised Statutes, Chapter 256

Regulatory Entity: Department of Natural Resources (DNR)

Summary: Major water users must register with DNR; A major water user is defined as an entity that is capable of withdrawing or diverting 100,000 gallons or more per day from any water source; Failure to register may result in DNR request that Attorney General file action to stop all withdrawal or diversion; Purpose of registration program is to insure the development of information required for the analysis of certain future water resource management needs.

WISCONSIN

Statute: Wisconsin Statutes, Chapter 281; DNR Rules, Chapter NR 142

Regulatory Entity: Department of Natural Resources (DNR)

Summary: Wisconsin law provides for (1) development of statewide water quantity resources plan; (2) registration and annual reporting (with fees) of major withdrawals (over 100,000 gallons per day in 30-day period); (3) permit approval process (with administrative hearing process) for construction, development and operation of wells where capacity and rate of withdrawal of groundwater from *all wells on one property* is in excess of 100,000 gallons a day; *Specifics of Permit Approval Process*: 90-day approval process. Approval withheld or restricted if withdrawal will adversely effect or reduce availability of public utility water supply or doesn't meet grounds for approval which are: (a) No adverse effect on public water rights in navigable waters; (b) No conflict with any applicable plan for future uses of waters of state or water quantity resources plan; (c) Reasonable conservation practices have been incorporated; (d) No significant adverse impact on environment and ecosystem of the Great Lakes basin or the upper Mississippi River basin; (e) Plan for withdrawal consistent with the protection of public health, safety and welfare and not detrimental to public interest; (f) No significant detrimental effect on the quantity and quality of the waters of the state; (Even more factors apply if the proposed withdrawal will result in an "interbasin diversion). Regulations define water loss and consumptive use; Also, permit is required for any diversion of water from any lake or stream for diversions of 2,000,000 gallons per day in any 30-day period; If DNR receives application for a withdrawal from the Great Lakes basin that will result in a new water loss averaging 5,000,000, gallons per day in any 30-day period, DNR notifies governor of other Great Lakes States, requesting their input. The rules incorporate methods for citizens to initiate DNR investigations of alleged violations.

APPENDIX F

NEW YORK SITING PROCESS

In the State of New York, applications to construct and operate an electric generating facility with a capacity of 80 MW or more are ruled upon by the New York State Board on Electric Generation Siting and the Environment (NYS Siting Board) after various filings and hearings. The NYS Siting Board is comprised of chairmen and commissioners of various state agencies. The NYS Siting Board also includes two members of the public, appointed by the Governor of New York for each project, who reside near the proposed site.

The New York siting process requires the applicant to file a preliminary scoping statement for the proposed project, describing the following: the proposed facility and its environmental setting; potential environmental impacts from construction and operation; proposed mitigation of potential environmental impacts; and reasonable alternatives to the proposed facility. During this pre-application phase, a hearing examiner may mediate disagreements on the scope and method of any environmental impact studies needed in the application.

The application itself must contain the following: a description of the facility and the site including all applicable environmental characteristics; studies of impacts on air, water, visual resources, land use, noise levels, health, and other matters; proof that the proposed facility will meet state and federal health, safety, and environmental regulations; applications for air and water permits; and a complete report of the applicant's public involvement program activities and how it encouraged citizens to participate.

The applicant must publish notice that it filed the preliminary scoping statement and the application, and serve copies of those documents on interested state agencies, members of the legislature, municipalities, local libraries, and other interested persons and organizations. During the siting process, the applicant must carry out a meaningful public involvement program. The applicant is expected to hold public meetings, offer presentations to individual groups and organizations, and establish a presence in the community (*e.g.*, establishing a local office, toll-free telephone number, Internet Web site, or a community advisory group).

To facilitate the ability of local government and the public to evaluate the proposed project, New York requires that the applicant provide funds for intervenors to use in the siting process. When the applicant submits the application, it must include a fee of $1,000 per MW of capacity, not to exceed $300,000, to be used as an intervenor fund. The funds are awarded to municipal and other local parties to help pay for the expenses of expert witnesses and consultants. At least 50% of the fund is designated for the use of municipalities. The applicant receives any intervenor funds remaining at the end of the case.

The New York State Department of Environmental Conservation (DEC) reviews applications for air and water permits submitted as part of the siting process application. The DEC must provide the permits to the NYS Siting Board before that board decides whether to

approve siting by granting the applicant a Certificate of Environmental Compatability and Public Need. To grant a Certificate, the NYS Siting Board must determine:

- Either:

  Construction of the facility is reasonably consistent with the most recent state energy plan (the final 1994 plan assesses the state's current energy supplies, infrastructure, and policies, and forecasts energy needs and supplies through 2012), or

  The electricity generated by the facility will be sold into the competitive market;

- The nature of the probable environmental impacts, including an evaluation of cumulative air quality impacts;

- The facility minimizes adverse environmental impacts, given environmental and other pertinent considerations;

- The facility is compatible with public health and safety;

- The facility will not discharge or emit any pollutants in violation of existing requirements and standards;

- The facility will control the disposal of solid and hazardous wastes;

- The facility is designed to operate in compliance with state and local legal provisions, other than those local legal provisions that the NYS Siting Board finds unreasonably restrictive; and

- The construction and operation of the facility is in the public interest.

Various state agencies involved in the environment, public health, or energy are normally active parties in the New York siting process. Any municipality or resident within a five-mile radius of a proposed facility can become a party to the proceeding. Any organization or resident outside of the five-mile radius may request party status. Party status enables the person or entity to submit testimony, cross-examine witnesses, and file legal briefs. The NYS Siting Board's goal is to decide whether to grant siting within 14 months after it receives the application.

APPENDIX G

CALIFORNIA SITING PROCESS

California has empowered the California Energy Commission (CEC) to conduct a consolidated approval process for siting all power plants that will have electric generating capacities of 50 MW or larger. The CEC's siting responsibilities include statewide planning analysis. The siting process allows the project applicant to submit a single application for all necessary state and local approvals and provides analysis of all aspects of a proposed project, including need, environmental impact, safety, efficiency, and reliability.

The CEC has exclusive authority to approve the construction and operation of these plants. While the CEC's authority supercedes the authority of other state and local agencies, the CEC solicits their participation in the siting process to ensure compliance with all applicable requirements, including local requirements. Under this approach, the applicant seeks a single regulatory permit from the CEC.

The California siting process, which has public hearings and allows the public to participate, has two main phases. The first phase is expected to take nine months to one year to complete. It typically involves a conceptual review of the project, determining the need for a proposed plant, site suitability and acceptability, and alternatives to the proposed project. The second phase is expected to take 12 to 18 months to complete. It involves consideration of the specific site, technology, and equipment. In the second phase, the design, construction, operation, and closure of the power plant is reviewed against applicable laws, rules, and ordinances. The second phase is used to identify negative environmental effects and ways to mitigate them. The CEC also determines, or reconfirms, the need for the facility.

The California siting process includes a public adviser, nominated by the CEC and appointed by the Governor of California to a three-year term. The public adviser is responsible for ensuring that the public and other interested parties have full opportunities to participate in the siting process. The public adviser does not act as the public's legal counsel before the CEC but instead advises the public on how to effectively participate in the proceedings.

California has experienced delays with its siting process, resulting in changes to the program. The CEC amended its procedures to allow any proponent of a natural-gas fired merchant power plant to proceed to the second phase without applying for an exemption from the first phase. Apparently the California legislature created a "fast track" siting process of six months for new electric generating facilities presenting no significant adverse environmental impacts. It also appears that, under that legislation, a simple cycle peaker plant can receive a three-year operating permit in less than four months if it presents no significant adverse environmental impacts and is equipped with certain stringent emission control technology. A permit condition, however, requires the facility, within three years, to either convert to a combined cycle operation or cease operating.

APPENDIX H

ILLINOIS SB 172 SITING CRITERIA

The Environmental Protection Act's pollution control facility siting criteria are as follows:

i. the facility is necessary to accommodate the waste needs of the area it is intended to serve;

ii. the facility is so designed, located and proposed to be operated that the public health, safety and welfare will be protected;

iii. the facility is located so as to minimize incompatibility with the character of the surrounding area and to minimize the effect on the value of the surrounding property;

iv. (A) for a facility other than a sanitary landfill or waste disposal site, the facility is located outside the boundary of the 100 year floodplain or the site is flood-proofed; (B) for a facility that is a sanitary landfill or waste disposal site, the facility is located outside the 100-year floodplain, or if the facility is a facility described in subsection (b)(3) of Section 22.19a, the site is flood-proofed;

v. the plan of operations for the facility is designed to minimize the danger to the surrounding area from fire, spills, or other operational accidents;

vi. the traffic patterns to or from the facility are so designed as to minimize the impact on existing traffic flows;

vii. if the facility will be treating, storing or disposing of hazardous waste, an emergency response plan exists for the facility which includes notification, containment and evacuation procedures to be used in case of an accidental release;

viii. if the facility is to be located in a county where the county board has adopted a solid waste management plan consistent with the planning requirements of the Local Solid Waste Disposal Act or the Solid Waste Planning and Recycling Act, the facility is consistent with that plan; and

ix. if the facility will be located within a regulated recharge area, any applicable requirements specified by the Board for such areas have been met. 415 ILCS 5/39.2(a) (1998).

APPENDIX I

State Laws & Regulations
Peaker Plants

Area	LAWS and REGULATIONS	DESCRIPTION
	ARIZONA	
Energy Portfolio	**Electric Utility Restructuring Efforts** (5/00) http://www.eia.doe.gov/cneaf/electricity/chg_str/pbp.html	The ACC issued an order that requires electricity providers to derive 1.1 % of their total product from renewable energy sources by 2007. Implementation will begin with 0.4 % from renewables by January 1, 2001. 50 % of their renewable power must be derived from solar-generating facilities.
	CALIFORNIA	
Siting	"**Guidance for Power Plant Siting and Best Available Control Technology**," July 22, 1999 http://www.arb.ca.gov/powerpl/powerpl.htm	In July 1999, the CA Air Resources Board approved guidelines for major power plant permits. The guidelines are intended to ensure that air districts require power plants to use the cleanest emissions control technology currently available. Districts will also be expected to require newer, cleaner control technology as it becomes available. This document doesn't establish any new laws or rules but provides guidance on applying existing state & federal rules and authority to peaker/merchant power plants. • **SITING:** California Energy Commission (CEC) and local Air Districts have control over siting power plants >50 MW. Electric generating facilities >50 MW are required to receive certification from the Energy Facilities Siting and Environmental Protection Division. Certifications are open to the public. In the siting phase, the design, construction, operation, and closure of the power plant is closely examined in relation to applicable laws, ordinances, rules, and standards. Adverse environmental effects are identified and mitigation measures established. The need for the facility is determined, or reconfirmed, if preceded by a Notice of Intent. The siting process ensures that the proposed power plants are safe, reliable, environmentally sound, and comply with all applicable requirements. The Siting Division also oversees construction and operation.
Air		• **AIR DISTRICTS:** Local Air Districts provide analysis and recommendations to the CEC on proposed projects to determine compliance with air pollution control regulations. The Local Air Districts utilize a permitting process to control emissions from non-vehicular sources (stationary sources) that is incorporated into the CEC's power plant siting process. The CEC's power plant siting regulations specifically provide for the district's participation in the process. Each district's regulations may vary depending on the air quality conditions in the district and the district's policies and strategies for attaining or maintaining compliance with the federal and State ambient air quality standards. The district's analysis and recommendations are provided to the CEC in a document known as a Determination of Compliance (DOC).

Air		• **BEST AVAILABLE CONTROL TECHNOLOGIES:** Major sources are required by permit to use "California BACT", which is equivalent to the more stringent federal lowest achievable emission rate (LAER) in most California air districts. • **EMISSIONS OFFSETS:** Air pollution control and air quality management district (district) new source review (NSR) rules and regulations employ both best available control technology (BACT) and emission offset requirements to reduce the impact on air quality from new or modified stationary sources. If emission increases are above certain specified levels, district NSR rules require the application of BACT. If the emission increases after the installation of BACT are still above specified levels, then emission offsets may be required. • **AIR IMPACT ANALYSIS:** California Health & Safety Code requires Air Districts to evaluate air quality impacts in addition to the Federal CAA requirements on Prevention of Significant Deterioration. This ensures new permits will not be issued for emission units (sources) that will prevent or interfere with the attainment or maintenance of any applicable air quality standard. • **HEALTH RISK ASSESSMENT:** Power plant applicants are asked to submit a Health Risk Assessment under the California Environmental Quality Act and the Health & Safety Code. A health risk assessment addresses three categories of health impacts from all pathways of exposure, if appropriate: acute health effects from inhalation only, chronic non-cancer health effects, and cancer risks from multiple exposure paths. • **ADDITIONAL PERMITTING CONSIDERATIONS:** Permits address startup/shutdown emissions, continuous air monitoring, sulfur content of fuel, and ammonia slip from air pollution controls.
Water	**Water Recycling Act of 1991** http://leginfo.ca.gov	• Established grants and loans for water reclamation projects and encouraged water reuse among suppliers. • Applies only to public entities that produce or supply water and to entities responsible for groundwater replenishment.
	CONNECTICUT	
Energy Portfolio	**An Act Concerning Electric Restructuring** *(RB 5005)* (4/98) http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html#CT	• The bill requires renewable energy funding, a 5.5 % renewable portfolio standard, and environmental protections.
Noise	**State Policy Regarding Noise** *(CT General Statutes Ch. 442, Sec. 22a-67 to 22a-76)* http://www.cslib.org////statutes/title22a/t22a-p5.htm	• Noise regulations address impulse noises and a model ordinance.

Siting	**FLORIDA**	
	Electrical Power Plant Siting Act, 1973 *(Florida Statute Section 403.501-.518)* http://www.dep.state.fl.us/siting/Programs/progER-pps.htm	• FL has an **Siting Coordination Office** that is responsible for siting of: ➢ Electrical Power Plants ➢ Electrical Transmission Lines ➢ Natural Gas Transmission Pipelines ➢ High Speed Rails ➢ Hazardous Waste Facilities • Electrical Power Plant Siting Act applies only to steam or solar electric generation > 75MW. This would include combined-cycle plants but not simple-cycle combustion turbines. • Final approval body for the permits is not the Siting Board, but the Department of Environmental Protection. • Fees are charged to the applicant. • BACT for NOx is 9 ppm based on dry low NOx combustion technology.
	Ten Year Site Plan Requirements (TYSP) *(Part of the electrical power plant siting process)*	• The Public Service Commission (PSC) oversees the submission of plans by the utilities that describe current generation capacity and anticipated need for more capacity. The TYSPs also provide generic information on future sites for power plants to accommodate the anticipated need. This information includes land use data, environmental factors, and similar topics which allows other state and local agencies to comment on the Plans to the PSC. Based on this information and its own conclusions, the PSC will determine the suitability of the plan.
	Need Determination *(Part of the electrical power plant siting process, s. 403.519, F.S.)*	• Need Determination is a formal process and is conducted by the Public Service Commission (PSC). The PSC reviews the need for the generation capacity that would be produced by the proposed facility in relation to the needs of the region, and to the state as a whole. The PSC also looks at whether the facility would be the most cost-effective means of obtaining the capacity.
	Environmental Impact Statement *(Statute section 62-1.211(1), F.A.C.)* http://www.dep.state.fl.us/siting/Law_Rule/apform-pps-a.htm	• Site certification application forms for power plants resemble an Environmental Impact Statement. Site Certifications are issued by the Governor and Cabinet. Prior to issuance of a Site Certification, the Department of Environmental Regulation (DER), Department of Community Affairs (DCA), Public Service Commission (PSC), Water Management Districts (WMD), and other affected agencies are required to assess the potential effects upon the environment, ecology and society by the proposed plant in order to insure that the construction and operation of the plant will be consistent with applicable environmental standards.
	GEORGIA	
Water	**Water Withdrawal Permits** http://www.ganet.org/dnr/environ/aboutepd_files/branches_files/wrb.htm	• GA has a Water Withdrawal Permit Program. • Develops short-term and long-term water management policies and strategies to address environmental problems induced by unsustainable use of Georgia's water resources.
Air	**Air Permit Modeling** http://167.193.59.200/metdata/	• GA maintains a Web site with geographical meteorological data for air permit modeling based on 5 years of data.
	HAWAII	

Noise	**Noise Pollution** *(Hawaii Revised Statutes Chapter 342F)* http://www.capitol.hawaii.gov/hrscurrent/Vol06/hrs342f/HRS_342F.htm	• Hawaii's noise regulations incorporate both a permit program and enforcement provisions.
	ILLINOIS	
Air	**Air Pollution** *(35 IL Admin Code, Subtitle B)* http://www.ipcb.state.il.us/title35/35conten.htm	• State rules follow federal requirements.
Energy Portfolio	**Renewable Energy Initiatives** http://www.eia.doe.gov/cneaf/electricity/chg_str/pbp.html	• 09/00 - Chicago Mayor Richard M. Daley announced that the City of Chicago and 47 other local government bodies plan to buy electric power as a group, requiring that 20% of the purchase (80 MW) come from renewable energy. The City has issued a request for proposals to the 13 licensed power providers in Illinois. This is the first opportunity that government agencies have had to purchase power competitively since Illinois passed its restructuring law. • 10/99: Commonwealth Edison plans to allocate $250 million to a special fund to support environmental initiatives and energy-efficiency programs throughout the State.
Noise	**Noise** *(35 Illinois Admin. Code 900 – 952)* http://www.ipcb.state.il.us/title35/35conten.htm	• According to Greg Zak of the IEPA, Illinois is more active than any other state in regulating noise. However, some states may have cities that regulate noise through local ordinances.
	INDIANA	
Air		• Requires BACT for all new projects emitting >25 tons per year VOM.
Siting		• Requires public utilities to obtain a *certificate of necessity* prior to constructing electric generating facilities. (The Indiana Utility Regulatory Commission considers Independent Power Producers to be public utilities.)
Water	**Water Rights & Resources** *(Indiana Code, 14-25)* http://www.ai.org/dnr/index.html http://www.ai.org/legislative/ic/code/title14/ar25/ch4.html	• Registration and annual reporting requirement for owners of significant water withdrawal facilities (> 1,000,000 gallons/day of surface water, groundwater, or combination). • Natural Resources Commission (NRC) has statutory authority to require, by rule, a permit for most water withdrawals from navigable waters, but authority has not yet been exercised. • NRC is required to develop and maintain inventories, gather and assess all information needed to properly define water resource availability. • NRC can establish, by rule, minimum stream flows. • Where groundwater is threatened, Department of Natural Resources (DNR) may designate a "restricted use area." Permit is then required for withdrawal of >100,000 gal/day beyond use at time of restricted use designation. In granting or refusing a permit, the DNR considers the concept of beneficial use.
	IOWA	

Energy Portfolio	**Electric Utility Restructuring Legislation** *(3/00)* http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html#CT	• The DNR has proposed including a Renewable Portfolio Standard in restructuring legislation. The proposal would require renewable energy sources, such as wind, to be 4% in 2005 and increase to 10% by 2015. • Each peaker application is reviewed for acid rain potential and, in some cases, new sources must purchase credits from USEPA.
Water	**Water Allocation and Use; Flood Plain Control** *(Code of Iowa, 455B.261-290)* (1999) http://www.state.ia.us/dnr/organiza/epd/wtrsuply/alloca.htm http://www.legis.state.ia.us/cgi-bin/IACODE/Code1999SUPPLEMENT.pl	• Permit is required for any person who diverts, stores or withdraws >25,000 gal of water/day (surface or groundwater). Permits are generally issued for 10 years but, depending on geological conditions, can be for lesser period of time. • Permit program insures consistency in decisions on allocations. Allocations are based upon concept of "beneficial use," the key points of which are: 1. water resources are to be put to beneficial use to the fullest extent; 2. water and unreasonable uses are prevented; 3. water conservation is expected; 4. established average minimum instream flows are protected. • Administrative process resolves water use conflicts. • Provisions are in place for public involvement in issuing water allocation permits and in generally establishing water use policies.
	KENTUCKY	
Air		• State rules follow federal air requirements.
Noise	**Kentucky State Noise Control Act** *(Kentucky Revised Statutes: KRS 220.30-100 to 220.30-190)* http://162.114.4.13/KRS/224-30/CHAPTER.HTM	• Regulations address a model ordinance.
	MAINE	
Energy Portfolio	**Electric Utility Restructuring Legislation** (5/97) http://www.eia.doe.gov/cneaf/electricity/chg_str/pbp.html	• Maine's restructuring legislation contains the nation's most aggressive renewables portfolio, requiring 30% of generation to be from renewable energy sources (including hydroelectric).
	MASSACHUSETTS	•
Energy Portfolio	**Electric Utility Restructuring Legislation** http://www.eia.doe.gov/cneaf/electricity/chg_str/pbp.html	• Massachusetts restructuring legislation includes a renewable portfolio requirement and established a renewable energy fund, funded via a system benefits charge. Funds will also be used to create initiatives to increase the supply of and demand for renewable energy.
	MICHIGAN	
Air	**Emissions Limitations and Prohibitions – New Sources of VOC Emissions** *(R336.1702)* http://www.deq.state.mi.us/pub/aqd/rules/part7.pdf	• Requires BACT for all new sources of VOCs.

	MINNESOTA	
Siting	**Power Plant Siting Act** *(MN Admin Code 116C.51-69.)* http://www.revisor.leg.state.mn.us/stats/116C/	• Power Plant Siting Act applies to facilities greater than 50 MW. • The siting authority is the State Environmental Quality Board whose purpose is to locate facilities compatible with environmental preservation and efficient use of resources. The Board is to choose locations that minimize adverse human and environmental impact while insuring continuing electric power system reliability and that electric energy needs are met. • The Board develops an inventory of study areas to guide the site selection process. The inventory is developed in a public planning process where all interested persons can participate in developing the criteria and standards to be used by the Board. • A utility (public or private) must apply to the Board for designation of a specific site for a specific size and type of facility. The application shall contain at least two proposed sites. The Board has 12-18 months to issue a decision. When the board designates a site, it issues a *certificate of site compatibility* to the utility with any appropriate conditions. No large electric power generating plant can be constructed except on a site designated by the Board. • In designating a site, the Board considers: ➢ effects on land, water and air resources; ➢ effects of water and air discharges and electric fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including base line studies, predictive modeling, and monitoring of the water and air mass at proposed and operating sites and routes; ➢ new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment; ➢ sites proposed for future development and expansion and their relationship to the land, water, air and human resources of the state; ➢ effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects; ➢ potential for beneficial uses of waste energy from proposed large electric power generating plants; ➢ direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired; ➢ adverse direct and indirect environmental effects which cannot be avoided; ➢ alternatives to the applicant's proposed site ➢ irreversible and irretrievable commitments of resources should the proposed site or route be approved; and ➢ where appropriate, consideration of problems raised by other state and federal agencies and local entities. • The Board must hold a public hearing in the county where the proposed facility is to be located.

Water	**Water Supply Management** *(MN Statutes: Ch. 103G)* http://www.revisor.leg.state.mn.us/stats/103G http://www.dnr.state.mn.us/waters/programs/water_mgt_section/appropriations/permits.html http://www.dnr.state.mn.us/waters/programs/water_mgt_section/appropriations/progdesc.html	• Permit is required for all users withdrawing (surface and groundwater) more than 10,000 gallons per day or 1 million gallons per year. (Exceptions include: domestic uses serving less than 25 person, certain agricultural drainage systems, test pumping of a groundwater source, and reuse of water already authorized by permit, e.g., water purchased from a municipal water system.) • Permits are granted for no longer than 5 years. • Policy is to manage water resources to ensure an adequate supply to meet long-range seasonal requirements for domestic, agricultural, fish and wildlife, recreational, power navigation, and quality control purposes. • Water Appropriation Permit Program exists to balance competing management objectives that include both development and protection of MN's water resources. • Permitted users are required to submit annual reports of water use. Reported information is used to evaluate impacts and to aid in resolving conflicts.
Noise	**Noise Pollution Control** *(MN Rules Chapter 7030)* http://www.revisor.leg.state.mn.us/arule/7030/ http://www.pca.state.mn.us/programs/pubs/noise.pdf	• The Minnesota Pollution Control Agency (MPCA) is empowered to enforce the state of Minnesota noise rules.
	MISSOURI	
Air		• State air rules follow federal requirements. • Major source threshold is 100 tons per year.
Water	**Geology, Water Resources and Geodetic Survey** *(Missouri Revised Statutes, Chapter 256)* http://www.dnr.state.mo.us/dgls/wrp/waterusestatutes.htm http://www.moga.state.mo.us/statutes/c200-299/2560400.htm	• Major water users must register with Department of Natural Resources (DNR). A major water user is defined as an entity that is capable of withdrawing or diverting 100,000 gal or more per day from any water source. • Failure to register may result in DNR request that Attorney General file action to stop all withdrawal or diversion. Purpose of registration program is to insure the development of information required for the analysis of certain future water resource management needs.
	NEVADA	
Energy Portfolio	**Electric Utility Restructuring, AB 366** *(6/99)* http://www.eia.doe.gov/cneaf/electricity/chg_str/tab5rev.html#CT	• AB 366 provides that the PUC establish portfolio standards for renewable energy. The standard will phase-in a requirement (beginning with 0.2 % by January 2001 and adding 0.2 % of a percent biannually) that 1% of energy consumed be from renewable energy resources.
	NEW JERSEY	
Water	**Water Supply Management Act** *(NJAC 7:19-1)*	• Water resources management is required for >100,000 gallons per day.

Noise	**Noise Control Rules** *(NJAC 7:29)* http://www.state.nj.us/dep/enforcement/pcp/olem-noise.htm	• The NJ Department of Environmental Protection (NJDEP) has developed a Model Noise Ordinance that can be adopted by local municipalities. • NJDEP does not have a noise control program and does not investigate noise complaints. Noise control is handled locally.
Energy Portfolio	**Electric Utility Restructuring** http://www.eia.doe.gov/cneaf/electricity/chg_str/pbp.html	• The restructuring legislation in NJ requires spending $230 million for home weatherization, renewable energy and other programs, and increases spending on new energy conservation programs. Also, electric generation companies must disclose a set of environmental characteristics, including power plant fuels and emissions.
	NEW YORK	
Siting	**Siting and Approval** *(Article X of Public Service Law)* http://www.dps.state.ny.us/articlex.htm	• The NY Public Service Commission (NY State Board on Electric Generation Siting and the Environment) is in charge of siting and approval of all new power plants. • Article X of the Public Service Law sets forth a unified and expedited review process for applications for power plants > 80 MW. • Proceedings are open to the public • Siting Board may preempt local zoning. • Siting may take up to 18 months. • Siting Board must determine: **1.** either: (a) construction of the facility is reasonably consistent with the most recent **State Energy Plan**, or (b) the electricity generated by the facility will be sold into the competitive market; **2.** the nature of the probable environmental impacts (including an evaluation of cumulative air quality impacts); **3.** the facility minimizes adverse environmental impacts, given environmental and other pertinent considerations; **4.** the facility is compatible with public health and safety; **5.** the facility will not discharge or emit any pollutants in violation of existing requirements and standards; **6.** the facility will control the disposal of solid and hazardous wastes; **7.** the facility is designed to operate in compliance with state and local legal provisions, other than those local legal provisions that the Siting Board finds unreasonably restrictive; and **8.** the construction and operation of the facility is in the public interest.
	Intervenor Fund for Siting Review *(Article X, Section 164)*	▪ Power plant applicants are required to pay $1,000 per MW of capacity up to $300,000 to establish an Intervenor Fund. ▪ Funds are used to defray expenses associated with the siting review.
	Proposed Amendment to Article X *(New York State Bill A09039)*	▪ The bill would authorize the Commissioner of Environmental Conservation to issue environmental permits necessary to the siting of an electric generation facility if the Siting Board is unable to do so and would make some technical changes to the siting law. ▪ The bill would also require the Energy Planning Board to do a reliability study of the state's transmission and distribution systems.

Water	**New York State Energy Plan 1994** *(New York State Energy Office)*	• The Final 1994 State Energy Plan calls for significant reductions in State energy taxes and endorses greater competition in utility purchases of electricity in order to lower electric rates in the state. The plan reaffirms the state's long-term energy, economic and environmental goals and its commitment to energy efficiency, but places increased emphasis on the use of energy policy as a means to promote sustained economic development. The plan assesses New York's current energy supplies, infrastructure and policies, and forecasts energy needs and supplies through the year 2012. Based on those findings, the plan sets policy goals and objectives and recommends 180 specific actions. The plan was prepared by the staffs of the State Energy Office and the State Departments of Environmental Conservation and Public Service in response to 1992 legislation that formalized Governor Mario Cuomo's model for integrated energy planning. The State Energy Planning Board, which approved the plan on October 31,1994 is made up of the commissioners of those three agencies. State energy law requires that any state action related to energy be reasonably consistent with the plan's findings and recommendations.
	Water Supply Permits *(Chapter 6, New York Codes, Rules and Regulations. Part 601: 6 NYCRR 601)*	• Required for suppliers of potable water with 5 or more service connections. • Applicants must demonstrate: 1. Plans are justified by public necessity. 2. Plans take proper consideration of other sources of supply which are or may become available. 3. Plans provide for proper and safe construction of all work connected therewith. 4. Plans provide for proper sanitary control of the watershed and proper protection of the supply. 5. Plans provide for an adequate water supply. 6. Plans are just and equitable to the other municipal corporations and civil divisions of the state affected thereby and to the inhabitants thereof, particular consideration being given to the present and future necessities for sources of water supply. 7. Plans make fair and equitable provisions for the determination and payment of any and all damages to persons and property, both direct and indirect, which result from the acquisition of said lands or the execution of said plans. 8. Plans, in accordance with local water resources needs and conditions, include a description of an adequate near term and long range water conservation program. • Entities holding Water Supply Permits must report average and peak usage to the NY Department of Environmental Conservation annually. If customer demand grows (i.e., new peaker plant begins withdrawing from the water supply), supplier must re-demonstrate the above to the state if the demand exceeds amount authorized in the Water Supply Permit.
	Water Well Program *(Environmental Conservation Law 15-1525)*	• Pre-notification must be filled with the state prior to drilling specifying desired yield. • No restrictions are specified on the amount of water withdrawal. However, under NY Civil Law, property owners have water rights. If a well causes drawdowns that impact an off-site property owner's water use, then they can sue.

	Water Withdrawal Registration *(6 NYCRR, Chapter X, Subchapter A, Article 1)*	• Applies to withdrawals from Great Lakes: • Great Lakes (6 NYCRR 675): ▪ withdrawals >100,000 gpd averaged over 30-day period *- OR -* ▪ lake water loss > 2,000,000 gpd averaged over 30-day period • No restrictions are specified on the amount of water withdrawal, just that withdrawals must be registered. Registration fee is $100 / year.
	Long Island Water Withdrawal Restrictions	• Water withdrawals from wells are restricted by quantity on Long Island since over pumpage of groundwater on Long Island can cause infiltration of saltwater into the aquifer.
	Electric Utility Restructuring	• Funds to support energy conservation and renewable energy are made available to energy suppliers from the New York State Energy Research and Development Authority. Funds were created through the New York Public Service Commission order establishing a system benefits charge on electricity sales.
Siting	**OHIO**	
	OH Admin. Code 4906: **Ohio Power Siting Board** http://onlinedocs.andersonpublishing.com/oac/	• The Ohio Power Siting Board within the Public Utilities Commission is the approval authority for all major utilities > 50 MWe. • Meetings of the Board where action is taken or deliberations conducted are open to the public. • Applicants for new facilities must consider at least 1 alternate site. • Applications are required to address: ➢ Justification of Need: ▪ Description of generation and associated facility alternatives ▪ Type, number of units, and estimated net demonstrated capability, heat rate, annual capacity factor, and hours of annual generation ▪ Land area requirement ▪ Fuel quantity and quality ▪ Types of pollutant emissions ▪ Water requirement, source of water, treatment, quantity of any discharge and names of receiving streams ➢ Siting issues: ▪ Location ▪ major features ▪ the topographic, geologic, and hydrologic suitability for each alternate site ➢ Water: ▪ natural and man-affected water budgets ▪ existing maps of aquifers which may be directly affected ➢ Emissions control & safety equipment ➢ Local ambient air quality of proposed sites ➢ Locations of major and anticipated sources of air pollution ➢ Plans for future additions and the maximum generating capacity anticipated for the site. ➢ Financial data ➢ Environmental data

		➢ Social and ecological data: ▪ Noise ▪ Health & Safety ▪ Impact of water use ▪ Economics, land use, and community development ▪ Cultural impact ▪ Agricultural district impact • After the Board certifies applications for new facilities, public hearings are held in the local vicinity of the proposed facility. • The Board collects application fees.
Air	**NOx – Reasonably Available Control Technology** *(OAC 3745-14)* http://onlinedocs.andersonpublishing.com/oac/	• According to IEPA, certain minor sources must use BAT (Best Available Technology), OAC 3745-14-3. • Major sources are required to use BACT per federal regulations: 15 ppm NOx for natural gas turbines, 42 ppm NOx for oil burning. • For NOx sources >100 tpy, Reasonably Available Control Technology (RACT) is required in certain counties. RACT for combustion turbines is 75 PPMVD for those firing gaseous fuels and 110 PPMVD for those firing distillate oil or diesel fuel.
Water	**Application for Permit for major increase in withdrawal of waters of the State** *(Ohio Revised Code 1501.30 & 33)* **Registration of facilities capable of withdrawing >100,00 gal/day; Groundwater Stress Areas** *(Ohio Revised Code 1521.16)* **Determination of reasonable use of water** *(Ohio Revised Code 1521.17)* http://onlinedocs.andersonpublishing.com/revisedcode/ http://www.dnr.state.oh.us/odnr/water/waterinv/waterinv.html	• Permits are required for those making a new or increased consumptive use of water than an average of 2 millions gallons per day over a 30-day period. • Registration is required for any facility or combination of facilities with the capacity to withdraw more than 100,000 gallons of water (surface or ground) daily. Annual reporting is required of those who must register. The purpose of registration and reporting is to gather data to assist in resolving future water use conflicts. • Chief of DNR Division of water has authority to designate “ground water stress areas” and to require water withdrawal registration in these areas for users of water less than the normal 100,000 gallon threshold. • Chief also has responsibility to maintain water Resources Inventory that must include information to assist in determining the reasonableness of water use. • While “reasonable use” is used by courts to determine water conflicts, legislature has set forth nine specific factors (applicable to both surface and groundwater) which define reasonableness. • “Consumptive use” is defined as a use of water resources other than a diversion that results in a loss of that water to the basin from which it is withdrawn and includes, but is not limited to, evaporation, evapotranspiration, and incorporation of water into a product or agricultural crop.
Energy Portfoli	**Electric Utility Restructuring** http://www.eia.doe.gov/cneaf/electricity/chg_str/pbp.html	• Restructuring legislation includes a provision for a $110 million revolving load fund for residential and small commercial energy efficiency and renewable energy projects. Also, electricity marketers must disclose environmental information to consumers.
	OREGON	
Noise	**Noise Control Classification of Violations** *(Oregon Admin. Rules 340-012-0052)* http://arcweb.sos.state.or.us/rules/OARS_300/OAR_340/340_012.html	• Regulations address a model ordinance.

	PENNSYLVANIA	
Air	**Stationary Sources of NOx & VOCs** *(Pennsylvania Code Ch. 129.91)* http://pacode.com/secure/data/025/chapter129/chap129toc.html	• PA charges emissions fees: $42/ton (1999). • PA requires RACT (Reasonably Available Control Technology) for all major sources of VOC, NOx.
Energy Portfolio	**Electric Utility Restructuring** *(9/00)* http://www.eia.doe.gov/cneaf/electricity/chg_str/pbp.html	• A $21 million Green Energy Fund was created by the Public Utilities Commission (PUC) to be used for investment in green energy projects such as wind, solar, and biomass. The fund, which currently has $5 million, is expected to grow to more than $20 million over the next six years. The fund was created as part of a negotiated settlement between the PUC and PPL in the utility's restructuring case two years ago. Businesses and nonprofit organizations that wish to invest in green energy within PPL's territory may apply for the funds.
	TEXAS	
Water	**Use of Reclaimed Water**, *(Texas Admin Code Title 30 Part 1 Chapter 210)* (1997) http://www.tnrcc.state.tx.us/oprd/rules/index.html	• Establishes general requirements, quality criteria, design, and operational requirements for the beneficial use of reclaimed water that may be substituted for potable water and/or raw water. • Due to limited supply and high demand, reclaimed water can be much less expensive than using municipal drinking water or treating groundwater. The rule is intended to conserve surface and ground water and to help ensure an adequate supply of water resources for present and future needs. • Use of reclaimed water is voluntary. • Locating reuse facilities near the municipal wastewater treatment plant helps to minimize infrastructure costs in constructing a distribution line. • Reclaimed water is provided to the user on a demand-only basis. • Approved uses include cooling tower make up water under §210.32 (2)(F).
	Water Use Permits *(Texas Water Code, §11.121)* http://www.capitol.state.tx.us/statutes/wa/wa001100toc.html	• Texas industries must obtain water rights to use surface water or protected groundwater. Such authorization may be with or without a term, on an annual or seasonal basis, or on a temporary or emergency basis.
Siting	**Siting**	• Does not have a siting commission for power plant projects. • Texas requires *certificates of convenience and necessity* for power plant projects initiated by utilities, but not for projects initiated by independent power producers.
Energy Portfolio	**Electric Utility Restructuring** *(9/00)* http://www.eia.doe.gov/cneaf/electricity/chg_str/pbp.html	• Texas' renewables portfolio standard requires that the State's utilities install or contract to buy power from 2,000 MW of renewable generating capacity by January 1, 2009.

Siting	**WISCONSIN**	
	State Energy Policy *(Wisconsin Statute: 1.12)* http://folio.legis.state.wi.us/cgi-bin/om_isapi.dll?clientID=111571&infobase=stats.nfo&jump=ch.%20196 **Power Plant Siting** *(WI Admin Code Ch. PSC 111, 112)* **Environmental Analysis** *(WI Admin Code Ch. PSC 4)* http://folio.legis.state.wi.us/cgi-bin/om_isapi.dll?clientID=95483&infobase=codex.nfo&jump=top	• Wisconsin's State Energy Policy includes policy on: ➢ considering the maximum conservation of energy resources as an important factor when making any major decision that would significantly affect energy usage ➢ reducing the ratio of energy consumption to economic activity in the state ➢ renewable energy resources ➢ protection of natural areas, including wetlands, wildlife habitats, lakes, woodlands, open spaces and groundwater resources. • Ch. PSC 111, 112 require the Public Service Commission (PSC) to develop a Strategic Energy Assessment (SEA) for power plants. The SEA involves an assessment of electric demand and supply, and information from electricity suppliers on economic, pollutant, and energy conservation data. • Ch. PSC 111,112 require *Certificates of Public Convenience and Necessity* for electric generating facilities. According to the Illinois Commerce Commission, this requirement applies to facilities > 100 MW. Applications for certificates include: ➢ at least 2 sites: preferred & alternate ➢ number of units, type, size, fuel ➢ hours of operation ➢ generating capacity ➢ pollutant emissions ➢ need for facility in terms of demand ➢ alternative sources of electric supply including energy conservation & efficiency ➢ Natural resources affected ➢ Ecological resources affected ➢ Community information • According to IEPA, siting is required for facilities >12,000 kW. • Ch. PSC 4 establishes procedures to provide the PSC with adequate information on the short- and long-term environmental effects of its actions as required by the WI Environmental Protection Act, ch. 274, section 1, laws of 1971 and s. 1.11 of the Wisconsin Statutes. PSC 4 requires the PSC to prepare an Environmental Assessment (EA) to assist the PSC in determining environmental impact of proposed facilities. Combustion turbines are included as types of projects requiring an EA. The PSC can approve or deny siting based on the EA or Environmental Impact Statement (EIS). The EA is made available to the public, and hearings are held.

Water	**Water Resources** *(Wisconsin Statues, Chapter 28, Subchapter II)* **Water Quality and Quantity; General Regulations** *(Wisconsin Statues, Chapter 28, Subchapter III)* http://www.legis.state.wi.us/rsb/Statutes.html DNR Rules, Chapter NR 142	• Wisconsin law provides for: 1. development of statewide water quantity resources plan 2. registration and annual reporting (with fees) of major withdrawals (>100,000 gal/day in 30-day period) 3. permit approval process (with administrative hearing process) for construction, development and operation of wells where capacity and rate of withdrawal of groundwater from all wells on one property is in excess of 100,000 gal/day. Approval is withheld or restricted if withdrawal will adversely effect or reduce availability of public water supply or doesn't meet grounds for approval which are: ➢ No adverse effect on public water rights in navigable waters ➢ no conflict with any applicable plan for future uses of waters of state or water quantity resources plan ➢ Reasonable conservation practices have been incorporated ➢ no significant adverse impact on environment and ecosystem of the Great Lakes basin or the upper Mississippi River basin ➢ plan for withdrawal consistent with the protection of public health, safety and welfare and not detrimental to public interest ➢ no significant detrimental effect on the quantity and quality of the waters of the state (even more factors apply if the proposed withdrawal will result in an "interbasin diversion") 4. permit approval process for diversion of water from any lake or stream >2,000,000 gal/day in any 30-day period. If DNR receives application for a withdrawal from the Great lakes basin that will result in a new water loss averaging 5,000,000 gal/day in any 30-day period, DNR notifies governors of other Great Lakes States, requesting their input. • Regulations define "water loss" and "consumptive use." • Rules incorporate methods for citizens to initiate DNR investigations of alleged violations.

Note: *This list is not meant to be all-inclusive.*