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January 27, 2004

Via e-mail (QuadCitiesEIS@nrc.gov)
And United States Mail

11/13/03

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Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mailstop T-69D 59
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Re: Comments on Draft Supplement 16 to the Generic Environmental Impact Statement for the Quad Cities Nuclear Power Station Units 1 and 2 License Renewal Application

Dear Sir or Madam:

These comments are submitted by the Environmental Law and Policy Center ("ELPC") on Draft Supplement 16 to the Generic Environmental Impact Statement for the Quad Cities Nuclear Power Station license renewal application ("Draft Supplement"). The NRC's analysis in the Draft Supplement fails to comply with the requirements of the National Environmental Policy Act ("NEPA") in at least two ways. First, there is no analysis in the Draft Supplement of whether or not there is a need for the power created by Quad Cities. Second, the NRC has not complied with its legal duty to objectively evaluate energy efficiency, renewable energy resources, and other clean energy resources as viable alternatives to the renewal of the Quad Cities operating license.

I. NEPA Requires That the NRC Thoroughly Analyze the Need for Power

The environmental analysis of the Quad Cities license renewal application is being carried out pursuant to regulations that constrain the scope of the analysis in a manner that violates NEPA. In particular, 10 C.F.R. 51.95(c) provides that the NRC need not consider "the need for power" in determining whether or not to grant a license renewal for Quad Cities. The need for power, however, is at the heart of the purpose and need statement which, in turn, serves as the baseline by which the reasonableness of various alternatives are to be measured. Without this essential factor, there is no way for the NRC to use the EIS process to accurately weigh

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alternatives against one another or to conclude whether it is appropriate to allow Quad Cities to continue operating for an additional 20 years. While the NRC suggests that the need for power can be considered by the state government at some later date, it clearly violates NEPA to abdicate the analysis of the "need for power" issue to non-federal decisionmakers long after the EIS process has been concluded.

II. The NRC Has Failed to Rigorously Explore and Objectively Evaluate All Reasonable Alternatives

The Draft Supplement fails to "rigorously explore and objectively evaluate all reasonable alternatives" to renewing the Quad Cities license, as required by NEPA. 40 C.F.R. 1502.14(a). In particular, the Draft Supplement erroneously rejects energy efficiency and renewable energy resources as not feasible from an economic, technological, and/or environmental standpoint. The analysis of these alternatives in the Draft Supplement is unsupported or it relies on flawed and outdated information. As explained below, energy efficiency, renewable energy sources, and clean distributed generation, in combination with "clean coal" resources, present a lower-cost, safer, and environmentally preferable approach to meeting energy needs than renewing the license for the aging Quad Cities nuclear power plant.

A. Energy Efficiency Alternatives are Available, Cost Effective, and Environmentally Preferable

The Draft Supplement concludes, with no factual support, that it would not be economically feasible for energy efficiency efforts to replace the power generation that would be lost if the Quad Cities license renewal was denied. (Draft Supplement Section 8.2.5.11, p. 8-54). The Draft Supplement cites a 1992 study suggesting that energy efficiency improvements cost 4 cents for every kilowatt-hour saved. The Draft Supplement then rejects this cost estimate arguing that: (1) if energy efficiency were really that cost-effective it would have already occurred, and (2) replacing the energy produced by Quad Cities would require such a large-scale energy efficiency effort that the cost of energy efficiency would increase well beyond 4 cents. The Draft Supplement, however, provides no support for these contentions and does not even attempt to estimate the cost of using energy efficiency to replace the power produced by Quad Cities.

In contrast to the unsupported analysis provided in the Draft Supplement, recent studies demonstrate that energy efficiency is an even more viable and cost effective alternative. For example, the 2001 *Repowering the Midwest* study,[1] which is one of the most comprehensive clean energy development analyses conducted on the Midwest's energy sector, demonstrated that energy efficiency efforts can significantly reduce the demand for power at a cost of 2.5 cents per kilowatt hour or less – lower than the cost of generation, transmission, and distribution of electricity from power plants. Implementing modern new cost-effective energy efficiency technologies like commercial and residential lighting, heating, ventilation and cooling, industrial motors, refrigerators, and other appliances, will flatten our electricity demand over the next two decades. Using the methodology of the U.S. Department of Energy's 1997 "Five National Labs"

[1] Environmental Law and Policy Center, et al., *Repowering the Midwest: The Clean Energy Development Plan for the Heartland* (2001).

Study (which is an analysis by a working group with members from five national energy laboratories),[2] *Repowering the Midwest* concluded that:

- Energy efficiency efforts can reduce electricity demand by 16% in 2010 and 28% in 2020 vs. a projected base case scenario.

- Energy efficiency efforts can save 50,761 GWh of electricity annually by 2020 in Illinois alone.

- Energy efficiency efforts would be highly cost-effective, requiring an average investment of only 2.5 cents per kilowatt-hour.

- Energy efficiency efforts would reduce net electricity costs in Illinois by $1 billion by 2020.

- These energy efficiency initiatives use "off the shelf" technologies and equipment that is widely available today.

Other analyses have come to similar conclusions regarding the viability of energy efficiency. For example, the Clean Energy Blueprint concluded that energy efficiency efforts throughout the U.S. could save 915 billion kilowatt-hours by 2010 and 2,512 billion kilowatt-hours of electricity by 2020.[3] Additionally, the economic benefits of greater efficiency should not be ignored. A follow-up analysis of the economic impact of the recommendations in *Repowering the Midwest* concluded that with investments in energy efficiency, 43,000 new jobs would be created and $4.7 billion in additional economic output would be created by 2020[4]. Clearly, energy efficiency is a technologically and economically feasible alternative to the renewal of the Quad Cities operating license.

Perhaps realizing that energy efficiency alternatives cannot be rejected on their merits, the Draft Supplement also asserts that energy efficiency is not viable because utility deregulation has removed the incentive for Exelon to invest in energy efficiency. Energy efficiency, however, is a cheaper (and less environmentally destructive) alternative to new power generation. Exelon and its subsidiary Commonwealth Edison should consider investments in energy efficiency to meet Illinois' power needs. But even if they prefer not to do so, that does not obviate the NRC's legal obligation under NEPA to do so. The point made in the Draft Supplement is legally flawed – an otherwise reasonable alternative cannot be rejected under NEPA simply because an applicant may not want to or cannot carry it out. *Cf.* 42 C.F.R. 1502.14(c) (agency cannot reject an alternative simply because it is outside the agency's jurisdiction); *Muckleshoot Indian Tribe v. U.S. Forest Serv.*, 177 F.3d 800, 814 (9th Cir. 1999) (same). Instead, the NRC has the legal authority to tell Exelon that there is a better, cheaper, and environmentally preferable alternative to license renewal. The fact that energy efficiency efforts are more likely to materialize as a result of state or federal government initiatives (such as an energy efficiency investment fund or

[2] U.S. Department of Energy, *U.S. Carbon Reductions: Potential Impacts of Energy Technologies by 2010 and Beyond* (1997).

[3] Steve Clemmer, et al., *Clean Energy Blueprint: A Smarter National Energy Policy for Today and the Future* (Oct. 2001), at 11.

[4] Environmental Law and Policy Center, et al., *Job Jolt: The Economic Impacts of Repowering the Midwest* (2002).

an energy-efficient building code) in no way provides a basis for rejecting the economically, technologically, and environmentally feasible alternative of energy efficiency.

B. Wind Power is a Viable and Growing Source of Clean Renewable Power

The Draft Supplement's analysis of the feasibility of wind power is also flawed. The Draft Supplement notes that the wind resource in Illinois is sufficient to replace the power currently generated by Quad Cities, but then rejects this alternative for two reasons. First, harnessing this wind power would be a massive undertaking involving nearly a doubling of current wind generation in the U.S. Second, such extensive development of wind power would result in significant land impacts for the construction of turbines and transmission lines.

The Draft Supplement erroneously rejects wind power, which is a viable alternative. First, the Draft Supplement improperly limits its analysis to wind resources in Illinois. As documented in *Repowering the Midwest*, six of the 10 states with the highest wind power potential in the U.S. are in the Midwest. With some improvements to the transmission grid, wind farms in neighboring states such as Iowa could be a viable source of energy for Illinois. Just as the Quad Cities nuclear power plant supplies 25% of its energy to Iowa, wind farms in Iowa can supply energy to Illinois. Second, technological advancements are increasing the amount of power created by wind turbines. The largest commercially available wind turbine is 1.65MW (not 1.5MW as stated in the Draft Supplement), and will likely increase to 2.1MW in 2005, and may increase to 3MW to 5MW in the near future.[5] In addition, wind turbines have an availability factor of 98%, higher than most other power sources.[6]

Third, the cost of wind power has fallen dramatically since the 1980s, with an average generation cost of three to six cents per kilowatt-hour,[7] so that it is now competitive with most other energy sources. In addition, because wind is free fuel, wind power generation bears no risk of fluctuating fuel prices. These technological advancements and economic advantages have led to a substantial increase in the amount of wind power installed – from 2001 through 2003 a total of 3,795 megawatts of wind energy was installed nationwide, raising the total wind energy in the U.S. to 6,374 megawatts.[8] Within Illinois, the first utility-scale wind project has recently begun operations and approximately 1,700 MW of additional wind projects are in various stages of development. Across the border in Iowa, there are 420 MW of wind generation installed with an additional 345 MW in development. In light of these facts, the NRC's concerns regarding the need for substantial growth in the wind industry in order for wind to be a viable alternative are misplaced, especially given that the current operating license for Quad Cities does not expire until 2012.

The Draft Supplement also overestimates the impact that an expansion of wind power would have. Nearly 95% of the land devoted to a wind power site remains available for other uses such as agriculture. Most new wind facilities would also be located near existing

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[5] Ari Reeves, *Wind Energy For Electric Power: A REPP Issue Brief* (Nov. 2003), at 22.
[6] American Wind Energy Association, *The Most Frequently Asked Questions About Wind Energy* (2002), p. 5.
[7] *Repowering the Midwest*, at p. 26.
[8] American Wind Energy Association, Wind Power Outlook 2003 (2003); American Wind Energy Association, Wind Energy Fast Facts (Jan. 2004).

transmission lines. Therefore, the land impacts of new wind power would not be significant. In addition, wind generation uses no coolant water, has no emissions and does not degrade land. There are very few avian collisions with modern wind turbines.[9]

C. The Draft Supplement Misstates the Impacts of Solar Power

The conclusion in the Draft Supplement that Illinois would need a 46-square-mile area of photovoltaic ("PV") cells to replace the power produced by Quad Cities provides a distorted view of the impacts that solar power would have. In particular, the Draft Supplement's suggestion that solar power would have a substantial impact to natural resources and land sue ignores the fact that solar power is distributed power. Most solar power units are located on rooftops of buildings, meaning that solar power would not cause land disturbance. In addition, it is important to note that solar PV technology has advanced to the point where PVs are a good source of power, especially in remote areas and to help meet peak power demand. The average solar PV cell has a conversion rate of 12% to 17%, not the 10% assumed in the Draft Supplement.

D. Distributed Generation Is a Clean Alternative for Providing Baseload Power

The Draft Supplement does not adequately address the opportunities for meeting baseload power needs through efficient on-site natural gas-fired generation, such as Combined Heat and Power ("CHP"), district energy systems, and fuel cells. Such natural gas distributed generation emits substantially less air pollution than coal-fired power plants, and does not pose the high-level waste and safety hazards inherent to nuclear power, and therefore could serve as a cleaner and safer baseload supplement to energy efficiency and renewable energy alternatives. *Repowering the Midwest* estimates that Illinois alone has the potential for 2,162 MW of efficient distributed gas-fired generation by 2010, and 5,000 MW by 2020.[10]

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For the above reasons, the NRC should complete a rigorous and objective analysis of the need for power and reasonable alternatives such as energy efficiency, renewable energy resources, clean distributed generation, and "clean coal" resources before deciding whether or not to relicense the aging Quad Cities nuclear power plant.

Thank you for the opportunity to comment on the Draft Supplement EIS for the Quad Cities license renewal application.

Sincerely,

Shannon Fisk
Staff Attorney
Environmental Law and Policy Center

[9] National Wind Coordinating Committee, Avian/Wind Turbine Interaction: A Short Summary of Research Results and Remaining Questions (Dec. 2002).
[10] *Repowering the Midwest*, at p. 83.

From: "Shannon Fisk" <SFisk@ELPC.org>
To: <QuadCitiesEIS@nrc.gov>
Date: 1/26/04 7:29PM
Subject: Comments on the Quad Cities License Renewal Draft Supplemental EIS - Docket Nos. 50-254, 50-265

To Whom It May Concern:

Attached are the comments fo the Environmental Law and Policy Center regarding Draft Supplement 16 to the Generic Environmental Impact Statement for the License Renewal of the Quad Cities Nuclear Power Station. A hard copy of these comments will be sent via Express mail. Please contact me if you have any questions.

Thanks,

Shannon
<<Relicensing-QuadCities-DEISComments-FinalVersion-Letterhead.doc>>

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