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Chief, Rules and Directives Branch
Division of Administrative Services
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U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

12/10/03
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RE: Comments on Draft Supplement 17 to the Generic Environmental Impact Statement for the Dresden Nuclear Power Station Units 2 and 3 License Renewal Application

Dear Sir or Madam:

These comments are submitted by the Environmental Law and Policy Center ("ELPC") on Draft Supplement 17 to the Generic Environmental Impact Statement for the Dresden 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"). First, the Draft Supplement fails to contain an analysis of whether or not there is a need for the power created by Dresden. Second, the NRC has not complied with its legal duty to objectively evaluate energy efficiency, renewable energy resources, and other clean energy resources, both individually and in combination, as viable alternatives to the renewal of the Dresden operating license.

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

The environmental analysis of the Dresden license renewal application is carried out pursuant to NRC regulations that violate NEPA by improperly constraining its scope. 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 Dresden. 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 measured. Without this essential factor,

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there is no way for the NRC to use the EIS process to accurately weigh alternatives against one another or to conclude whether it is appropriate to allow Dresden to continue operating for an additional 20 years. While the NRC suggests that state governments can consider the need for power 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 As Required By NEPA

The Draft Supplement fails to “rigorously explore and objectively evaluate all reasonable alternatives” to renewing the Dresden 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 and it relies on flawed and outdated information. As explained below, energy efficiency, renewable energy sources, and clean distributed generation, alone or in combination with “clean coal” resources, present a better, lower-cost, safer, and environmentally preferable approach to meeting energy needs than renewing the license for the aging Dresden nuclear power plant.

A. Energy Efficiency Alternatives Are Better, Available, Cost-Effective, Safer, 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 Dresden license renewal was denied. (Draft Supplement Section 8.2.5.11, p. 8-58). The Draft Supplement cites an outdated 1992 study suggesting that energy efficiency improvements cost 4 cents for every kilowatt-hour saved. The Draft Supplement then rejects even this old cost estimate by arguing that: (1) if energy efficiency were really that cost-effective, then it would have already occurred, and (2) replacing the energy produced by Dresden 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 today’s cost of using energy efficiency to replace the power produced by Dresden.

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 a 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

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

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. *Repowering the Midwest* relied on the methodology of the U.S. Department of Energy's 1997 "Five National Labs" Study, which is an analysis by a working group with members from five national energy laboratories,² in concluding 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 equivalent to 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 reached similar conclusions on the availability and cost-effectiveness of energy efficiency. For example, an Interlaboratory Working Group following up on the Five National Labs study concluded that adoption of a number of policies directed at promoting energy-efficient technologies could reduce projected energy needs in 2020 by 20%.³ The Interlaboratory Working Group determined that these energy efficiency efforts could save an amount of energy equal to 25% of the nation's current energy use.⁴ The American Council for an Energy Efficient Economy ("ACEEE") found even greater potential for energy efficiency, concluding in a 2001 study that nine specific energy efficiency policies could reduce energy consumption by 11% by 2010 and 26% by 2020.⁵ The net economic savings as a result of these efficiency efforts would be \$170 billion through 2010 and more than \$600 billion through 2020.⁶ The ACEEE also determined that efficiency standards for 13 appliances and equipment alone could save 1.8 quads of energy, or 5% of projected residential and commercial sector energy use.⁷ The benefit-to-cost ratio of such standards would be 5 to 1.⁸ Finally, the Union of Concerned Scientists and the Tellus Institute determined in their Clean Energy Blueprint that

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

³ Interlaboratory Working Group, *Scenarios for a Clean Energy Future* (Nov. 2000), p. ES.6.

⁴ *Id.*

⁵ Steven Nadel and Howard Geller, *Smart Energy Policies: Saving Money and Reducing Pollutant Emissions Through Greater Energy Efficiency* (Sept. 2001), p. vii.

⁶ *Id.* at i.

⁷ Toru Kubo, *Opportunities for New Appliance and Equipment Efficiency Standards: Energy and Economic Savings Beyond Current Standards Programs* (Sept. 2001), p. ii.

⁸ *Id.*

energy efficiency efforts throughout the U.S. could save 915 billion kilowatt-hours of electricity by 2010 and 2,512 billion kilowatt-hours by 2020.⁹

Energy efficiency efforts are feasible, and they also provide significant economic benefits. A follow-up analysis of the economic impact of the recommendations in *Repowering the Midwest* concluded that investments in energy efficiency in Illinois would create 43,400 new jobs and \$4.6 billion in additional economic output by 2020.¹⁰ A 1998 ACEEE study of energy efficiency potential in Illinois reached similar results, concluding that investments in energy efficiency would create 59,400 jobs by 2015 and save consumers and business \$76 billion in energy costs between 1999 and 2015.¹¹ Clearly, energy efficiency is a technologically and economically feasible alternative to the renewal of the Dresden 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. (Draft Supplement, Section 8.2.5.11, p.8-59). Energy efficiency, however, is a better, cheaper, more distributed and less environmentally destructive alternative. Exelon and its subsidiaries Exelon Generation and Commonwealth Edison should consider investments in energy efficiency to meet Illinois' power needs. Or, there can be other market-oriented and/or public investment strategies in energy efficiency.

Whether Exelon and its subsidiaries choose to invest in energy efficiency, or not, that does not remove the NRC's legal obligation under NEPA to "rigorously explore and objectively evaluate all reasonable alternatives," including energy efficiency and renewable energy alternatives, to renewing the Dresden license. 40 C.F.R. 1502.14(a). 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 a better, cheaper, available and environmentally preferable alternative to license renewal must be considered. The fact that energy efficiency efforts are more likely to materialize as a result of state or federal government initiatives, other public investments and market-based policies and rate structures does not provide 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 Energy

The Draft Supplement's analysis of the feasibility of wind power is also flawed. The Draft Supplement notes that the wind resources in Illinois are sufficient to replace the power

⁹ Steve Clemmer, et al., *Clean Energy Blueprint: A Smarter National Energy Policy for Today and the Future* (Oct. 2001), at 11.

¹⁰ Environmental Law and Policy Center, et al., *Job Jolt: The Economic Impacts of Repowering the Midwest* (2002), p. 7.

¹¹ Marshall Goldberg, et al., *Energy Efficiency and Economic Development in Illinois* (Dec. 1998).

currently generated by Dresden. Illinois has a capacity of at least 3000 MW of Class 4 wind sites and 6000 MW of Class 3+ wind sites.¹² (Draft Supplement Section 8.2.5.2, p. 8-53). The Draft Supplement then rejects this alternative for two reasons. First, harnessing this wind power would purportedly 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. (Draft Supplement Section 8.2.5.2, p. 8-54).

The Draft Supplement erroneously rejects wind power, which is a viable alternative alone and in combination with energy efficiency and other clean energy alternatives:

First, over time, this would not be a “doubling” of wind generation in the U.S. Technological advancements, as described below, 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.¹³ 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.

Second, the Draft Supplement treats wind power and energy efficiency as if both would have to replace Dresden’s power on their own. Instead, they should be considered in combination as part of the NEPA-required rigorous exploration and objective evaluation of all reasonable alternatives. 40 C.F.R. 1502.14(a).

Third, technological advancements are increasing the amount of power created by wind turbines. While the Draft Supplement claims that the largest commercially available wind turbines are between 1 MW and 1.5 MW, GE Wind Energy’s own website advertises 2.3 – 2.7 MW land based turbines, and 3.6 MW turbines designed for offshore use.¹⁴ 5 MW wind turbines may be available in the near future.¹⁵ In addition, wind turbines have an availability factor of 98%, higher than most other power sources.¹⁶

Fourth, the cost of wind power has fallen dramatically since the 1980s, with an average generation cost of three to six cents per kilowatt-hour,¹⁷ so that it is now competitive with most other energy sources. In addition, wind power generation has “zero fuel cost” and thus avoids any risk of fluctuating fuel prices.

¹² U.S. Department of Energy –Wind Powering America, *Illinois Wind Resource Maps*, www.eere.energy.gov/windpoweringamerica/where_is_wind_illinois.html.

¹³ American Wind Energy Association, *Wind Power Outlook 2003* (2003); American Wind Energy Association, *Wind Energy Fast Facts* (Jan. 2004).

¹⁴ GE Wind Energy, *Our Products*, http://www.gepower.com/businesses/ge_wind_energy/en/products.htm.

¹⁵ Ari Reeves, *Wind Energy For Electric Power: A REPP Issue Brief* (Nov. 2003), at 22.

¹⁶ American Wind Energy Association, *The Most Frequently Asked Questions About Wind Energy* (2002), p. 5.

¹⁷ American Wind Energy Association, “Wind Energy’s Costs Hit New Low,” press release, March 6, 2001, <http://www.awea.org/news/news010306cew.html>.

Fifth, the Draft Supplement improperly limits its analysis to wind resources in Illinois. Six of the 10 states with the highest wind power potential in the U.S. are in the Midwest.¹⁸ Wind farms in neighboring states such as Iowa could be a viable source of energy for Illinois.

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 Dresden does not expire for a number of years.

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 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.¹⁹

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 Dresden (Draft Supplement Section 8.2.5.3, p. 8-54) 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 use 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.

Again, the Draft Supplement treats solar power, wind power and energy efficiency as if each would have to replace Dresden's power on its own. Instead, they should be considered in combination as part of the NEPA-required rigorous exploration and objective evaluation of all reasonable alternatives. 40 C.F.R. 1502.14(a).

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.

¹⁸ American Wind Energy Association, *Wind Energy: An Untapped Resource* (2003).

¹⁹ National Wind Coordinating Committee, *Avian/Wind Turbine Interaction: A Short Summary of Research Results and Remaining Questions* (Dec. 2002).

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 2020.²⁰

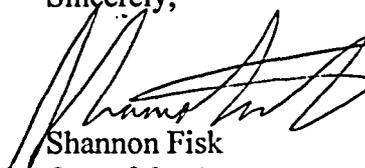
Again, the Draft Supplement treats this distributed generation, solar power, wind power and energy efficiency as if each would have to replace Dresden's power on its own. Instead, they should be considered in combination as part of the NEPA-required rigorous exploration and objective evaluation of all reasonable alternatives. 40 C.F.R. 1502.14(a).

* * *

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 Dresden nuclear power plant. 40 C.F.R. 1502.14(a).

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

Sincerely,



Shannon Fisk
One of the Attorneys on behalf of the
Environmental Law and Policy Center

²⁰ *Repowering the Midwest*, at p. 83.