

**In the United States Court of Appeals
For the District of Columbia Circuit**

NO: 14-1210, 14-1212, 14-1216, 14-1217
(Consolidated)

STATE OF NEW YORK, et al.,

Petitioners,

vs.

NUCLEAR REGULATORY COMMISSION and
UNITED STATES OF AMERICA,

Respondents.

ON REVIEW OF FINAL ADMINISTRATIVE ACTION OF THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

AMICUS CURIAE BRIEF OF SIERRA CLUB FOR REVERSAL
IN SUPPORT OF THE PETITIONERS

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CORPORATE DISCLOSURE STATEMENT

Pursuant to Fed. R. App. P. 26.1 and D.C. Cir. Rule 26.1, Amicus Curiae Sierra Club states that it is a nonprofit corporation whose general nature and purpose is environmental advocacy. Sierra Club has no parent company, no publicly-traded company has a 10% or greater ownership interest in Sierra Club, and Sierra Club is not traded for profit.

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IDENTITY OF AMICUS AND ITS INTEREST IN THIS CASE

The Sierra Club is the nation's largest grassroots environmental organization with over 600,000 members. The Sierra Club supports sustainable energy alternatives (renewable energy and energy efficiency) that do not harm the environment. The Sierra Club opposes nuclear power because its fuel cycle from uranium mining to spent radioactive fuel poses grave dangers to the environment. In addition, reliance on nuclear power unjustifiably delays the beneficial transition to clean and renewable energy sources.

The Sierra Club submitted comments during the scoping process related to the Continued Storage Rule and the Generic Environmental Impact Statement (GEIS) at issue in this case, submitted comments on the draft GEIS, and Sierra Club members attended public hearings regarding these issues. So the Sierra Club has a direct interest in the issues in this case.

The attorney signing this Brief authored the Brief in whole. No person or entity, other than the Sierra Club, has contributed money that was intended to fund the preparation or submission of this Brief.

STATEMENT OF THE ISSUE PRESENTED FOR REVIEW

I. THE GENERIC ENVIRONMENTAL IMPACT STATEMENT IN THIS CASE VIOLATED THE NATIONAL ENVIRONMENTAL POLICY ACT BY FAILING TO EVALUATE THE ALTERNATIVE OF DISCONTINUING THE LICENSING OF ANY NEW NUCLEAR REACTOR AND DECOMMISSIONING ALL EXISTING REACTORS.

ARGUMENT

I. THE GENERIC ENVIRONMENTAL IMPACT STATEMENT IN THIS CASE VIOLATED THE NATIONAL ENVIRONMENTAL POLICY ACT BY FAILING TO EVALUATE THE ALTERNATIVE OF DISCONTINUING THE LICENSING OF ANY NEW NUCLEAR REACTOR AND DECOMMISSIONING ALL EXISTING REACTORS.

1. Background

The Continued Storage of Spent Fuel Rule (Continued Storage Rule) and the accompanying Generic Environmental Impact Statement (GEIS) are a replacement for the NRC's previous Waste Confidence Decision and Rule. The Waste Confidence Decision and Rule have their genesis in a federal court decision in 1979, Minnesota v. NRC, 602 F.2d 412 (D.C. Cir. 1979). That case arose from requests by reactor licensees for license amendments to permit expansion of on-site spent fuel storage capacity. In evaluating these license amendment requests, the NRC failed to consider the implications arising from the possibility that a permanent repository for the radioactive waste might never be found and thus, the reactor sites would become permanent storage facilities. The court held, therefore, that the NRC must "consider the safety and environmental implications of indefinite storage on-site

after decommissioning of the reactor." Id. at 415. In order to comply with the Minnesota case, the NRC promulgated its Waste Confidence Decision and Rule in 1984. The subsequent history of the Waste Confidence Decision and Rule is recited in New York v. NRC, 681 F.3d 471 (D.C. Cir. 2012).

The important point to be understood is that the Waste Confidence Decision and Rule were an integral part of the licensing process for nuclear reactors. Likewise, the Continued Storage Rule is also an integral part of the licensing process for nuclear reactors.

The NRC issued an amended Waste Confidence Decision and Rule in 2010. That Decision and Rule were challenged in this Court. The result was this Court's decision in New York v. NRC, 681 F.3d 471 (D.C. Cir. 2012), remanding the Decision and Rule to the NRC. As a result, the NRC decided to prepare a GEIS and a new rule. Those actions are under review in this case.

2. The Requirements of NEPA

The National Environmental Policy Act (NEPA) is the basis for the GEIS in this case. NEPA "declares a broad national commitment to protecting and promoting environmental quality." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 348, 109 S.Ct. 1835 (1989). NEPA has in fact become

the "basic national charter for protection of the environment." 40 C.F.R. § 1500.1.

In order to comply with NEPA an agency must take a "hard look" at the environmental impacts of a project before acting. Sierra Club v. Kimbell, 623 F.3d 549 (8th Cir. 2010). An agency takes a hard look when it "obtains opinions from experts outside the agency, gives careful scientific scrutiny, and responds to all legitimate concerns that are raised." Marsh v. Oregon Natural Resources Council, 490 U.S. 360, 377, 109 S.Ct. 1851 (1989). But the agency cannot take a hard look and then "ignore what it saw." Audubon Soc. of Cent. Arkansas v. Dailey, 977 F.2d 428, 436 (8th Cir. 1992).

An EIS must discuss reasonable alternatives "to the proposed action." 42 U.S.C. § 4332(2)(C)(iii). The alternatives analysis is the "heart of the environmental impact statement." 40 C.F.R. § 1502.14. NEPA demands that the agency "rigorously explore and objectively evaluate all reasonable alternatives" so the agency can "sharply define the issues and provide a clear basis for choice among options by the decision maker and the public." 40 C.F.R. § 1502.14. The "existence of a viable but unexamined alternative renders an environmental impact statement inadequate." Resources Ltd. v. Robertson, 35 F.3d 1300, 1307 (9th Cir. 1994). And the main point of examining alternatives is to avoid environmental

harm. So even if an alternative might be superior in non-environmental terms, an alternative can be reasonable if it avoids the environmental harm better than another alternative. Surfrider Foundation v. Dalton, 989 F.Supp. 1309 (S.D. Cal. 1998), aff'd per curiam, 196 F.3d 1057 (9th Cir. 1999).

3. The Alternatives Analysis in the GEIS

The GEIS, in § 1.6, identifies only one alternative, other than the no-action alternative. That one alternative, of course, is the only one chosen. In identifying that one alternative, however, the NRC engaged in an interesting discussion:

The Commission considered other options and approaches (called tracks) when it responded to COMSECY-12-0016 (NRC 2012c), in which the NRC was determining how to respond to the remand of New York v. NRC. If the NRC had determined during the course of the rulemaking process that the proposed revision to 10 CFR 51.23 was untenable and undesirable, then the Commission would have reconsidered whether to pursue the options and tracks in COMSECY-12-0016 (NRC 2012b), elements of which are incorporated in Section 1.6.1. Because none of the potential options the NRC could pursue if it did not continue with the rulemaking meets the purpose for the Federal action (i.e., they do not preserve the efficiency of the NRC's licensing processes), they will be addressed as options under the no-action alternative.

What this statement leaves out is the reference in the actual purpose and need statement in § 1.5 of the GEIS. That statement makes clear that the purpose and need is to address the environmental impacts of continued storage of radioactive

waste. As will be proven below, one way to address the environmental impacts of the continued storage of radioactive waste is to stop making radioactive waste.

4. The Alternative of Making No More Waste

Radioactive waste in the form of spent fuel is a dangerous long-term problem. As the court described it in New York v. NRC, supra, at 474:

After four to six years of use in a reactor, nuclear fuel rods can no longer efficiently produce energy and are considered "spent nuclear fuel" ("SNF"). Blue Ribbon Commission on America's Nuclear Future, Report to the Secretary of Energy 10-11 (2012). Fuel rods are thermally hot when removed from reactors and emit great amounts of radiation - enough to be fatal in minutes to someone in the immediate vicinity. Id. Therefore, the rods are transferred to racks within deep, water-filled pools for cooling and to protect workers from radiation. After the fuel has cooled, it may be transferred to dry storage, which consists of large concrete and steel "casks." Most SNF, however, will remain in spent-fuel pools until a permanent disposal solution is available. Id. at 11.

Even though it is no longer useful for nuclear power, SNF poses a dangerous, long-term health and environmental risk. It will remain dangerous "for time spans seemingly beyond human comprehension." Nuclear Energy Inst., Inc. v. EPA, 373 F.3d 1251, 1258 (D.C. Cir. 2004)(per curiam). Determining how to dispose of the growing volume of SNF, which may reach 150,000 metric tons by the year 2050, is a serious problem. See, Blue Ribbon Commission, supra, at 14.

And it is clear that no one really knows what to do with that waste. Again, quoting from New York v. NRC, supra, at 474:

The delay [in finding a permanent repository] has required plants to expand storage pools and to pack SNF more densely within them. The lack of progress on a

permanent repository has caused considerable uncertainty regarding the environmental effects of temporary SNF storage and the reasonableness of continuing to license and relicense nuclear reactors. (emphasis added).

In addition, the Blue Ribbon Commission on America's Nuclear Future has said that we may already be at a point where more than one permanent repository is necessary. As noted in New York v. NRC, at this point there is no possibility of finding even one permanent repository in sight. Thus, as we continue to make more spent fuel, the problem becomes worse. The only sensible course of action is to stop making more spent fuel. Therefore, the GEIS was required to include an analysis of the alternative of discontinuing production of spent nuclear fuel by not licensing any new reactors and decommissioning all existing reactors.

The Sierra Club and others commented during the scoping process and on the draft GEIS that the GEIS must consider the alternative of stopping the production of any more radioactive waste. But the GEIS has eliminated this proposed alternative from consideration. See, GEIS § 1.6.2.1. In eliminating this alternative the GEIS posits three arguments in support of the decision to eliminate this alternative: the alternative would not satisfy the purpose and need of the

action; the NRC cannot revoke or deny a license; denying and revoking licenses would not reduce environmental impacts.

A. Purpose and Need

In response to the scoping comments stating that the making of radioactive waste should be halted, the draft GEIS (DGEIS) stated, in § 1.6.3.1, that:

Cessation of licensing activities and cessation of reactor operations do not satisfy the stated purpose and need for this draft GEIS, which is to improve the efficiency of NRC's licensing process, to prepare a single source that reflects the NRC's current understanding of the environmental impacts of continued storage, and to comply with the remand in the New York v. NRC decision. (emphasis added).

The DEIS then describes the purpose and need as follows in § 1.5:

The purpose and need to the proposed action are threefold: (1) to improve the efficiency of the NRC's licensing process by generically addressing the environmental impacts of continued storage; (2) to prepare a single document that reflects the NRC's current understanding of these environmental impacts; and (3) to respond to the issues identified in the remand by the Court in the New York v. NRC decision.

The NRC intends to codify the results of its analyses in this draft GEIS at 10 CFR 51.23. NRC licensing proceedings for nuclear reactors and ISFSIs will continue to rely on the generic determination in 10 CFR 51.23 to satisfy obligations under NEPA with respect to the environmental impacts of continued storage.

The claim that the cessation of licensing and operation of nuclear reactors would not satisfy the stated purpose and need for the GEIS is without merit. The purpose and need as contemplated by NEPA is the purpose and need for the proposed

federal action, not the purpose and need for the EIS. The EIS evaluates the environmental impact of the proposed federal action. The EIS is not the federal action.

The first above-quoted language from the DGEIS has been changed somewhat in the GEIS. It is now in § 1.6.2.1 of the GEIS:

Cessation of licensing activities and cessation of reactor operations do not satisfy the stated purpose and need for this proposed action. Abandonment of reactor licensing and the closure of existing plants is not a reasonable alternative to the proposed action because these actions would not meet the NRC's stated objectives in proposing to adopt the revision to 10 CFR 51.23.

And the purpose and need is now stated in the GEIS as follows in § 1.5:

The need for the proposed action is to provide processes for use in NRC licensing to address the environmental impacts of continued storage. Historically, the NRC and license applicants have relied on 10 CFR 51.23 to conclusively address the environmental impacts of continued storage in environmental reports, EISs, Eas, and hearings.

The purpose of the proposed action is to preserve the efficiency of the NRC's licensing processes with respect to the environmental impacts of continued storage.

Although the new language does not now say that the proposed action is the GEIS, it is not clear what the proposed action is. It seems to infer that the proposed action is a revision to 10 C.F.R. § 51.23. That inference is correct, but even though the language has changed, the thrust of the NRC's rationalization has not.

The federal action involved here is the promulgation of the Continued Storage Rule. See, GEIS § 1.4. The proposed rule, amending 10 C.F.R. § 51.23, states that the GEIS for the Continued Storage Rule precludes the need for discussion of environmental impacts of spent nuclear fuel storage following the term of the reactor license or amendment thereof in any environmental report, EIS or EA in connection with the issuance or amendment of a reactor license. The new rule still incorporates the GEIS, and therefore, treats the GEIS as the federal action.

Since revision of 10 C.F.R. § 51.23 is the federal action involved here, the purpose and need for the federal action is to promulgate a rule that ensures that reactors are licensed so as not to be "inimical" to public health, 42 U.S.C. § 2133(d), and that "[t]here is reasonable assurance . . . that the activities authorized by the operating license can be conducted without endangering the health and safety of the public . . . ," 10 C.F.R. § 50.57(a)(3). Because radioactive spent fuel is extremely dangerous and no one knows what to do with it, licensing and relicensing of reactors, with spent fuel stored indefinitely on site, is inimical to public health and endangers the health and safety of the public. So the purpose and need for the Continued Storage Rule should be to ensure that licensing and relicensing decisions protect the

public health and safety. Therefore, the GEIS must include the alternative of making no more radioactive waste in order to protect the public health and safety.

Furthermore, the ultimate purpose of the Continued Storage Rule is to inform the NRC's licensing and relicensing decisions. Analyzing the alternative of producing no more waste, in the context of licensing decisions, will require the NRC to consider whether to cease issuing licenses for new reactors, to deny relicensing applications, and to revoke existing licenses.

The purpose and need statement is an important part of an EIS. The purpose and need statement "necessarily dictates the range of 'reasonable' alternatives." Carmel-By-The-Sea v. U.S. Dep't. of Transp., 123 F.3d 1142 (9th Cir. 1997). The courts will defer to the agency's statement of purpose and need if that statement is reasonable. A reviewing court must determine whether the agency's definition of the purpose and need is reasonable, whether the agency has discussed in detail the alternatives, and whether the discussion of the alternatives is reasonable in light of the particular goals and objectives. Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190 (D.C. Cir. 1991). Furthermore:

[A]n agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative from among the environmentally benign ones

in the agency's power would accomplish the goals of the agency's action, and the EIS would become a foreordained formality. . . . Nor may an agency frame its goals in terms so unreasonably broad that an infinite number of alternatives would accomplish those goals and the project would collapse under the weight of the possibilities.

Id. at 196.

B. The NRC Cannot Revoke or Deny a License

The NRC's next argument in its attempt to avoid considering the alternative of terminating licensing and reactor operation is that the Atomic Energy Act requires the NRC to license nuclear reactors unless there is a threat to public health and safety. GEIS §§ 1.6.2.1, D.2.14.5. But as presented by the NRC, this becomes a circular argument.

The NRC states that it already has regulations in place to provide reasonable assurance of public health and safety and consideration of the environmental impacts of storing spent fuel. But the regulation allegedly providing such assurance is the Continued Storage Rule, which is the rule that is being amended and evaluated with the GEIS. Therefore, the NRC's argument is circular and self-serving.

It is also important to note that the NRC has the authority to revoke a nuclear reactor license. 10 C.F.R. § 50.100 authorizes the NRC to revoke a license for "conditions . . . which would warrant the Commission to refuse to grant a license on an original application." Based on the August 7,

2012, Order of the NRC refusing to grant pending licenses and license renewals because of the court decision vacating the Waste Confidence Decision, the Waste Confidence Decision (and now the Continued Storage Rule) would be a "condition[] . . . which would warrant the Commission to refuse to grant a license on an original application," pursuant to 10 C.F.R. § 50.100, requiring the NRC to revoke the relicensing decisions described above.

The Atomic Energy Act, 42 U.S.C. § 2133(d), states that the NRC cannot issue a reactor license if it would be "inimical" to public health. The NRC, by its own regulations, cannot issue a license unless "[t]here is reasonable assurance . . . that the activities authorized by the operating license can be conducted without endangering the health and safety of the public" 10 C.F.R. § 50.57(a)(3). The essence of the decision in New York v. NRC was that spent nuclear fuel is a danger to public health and safety and that there is no reasonable assurance that a permanent repository will ever be established. And as the court in New York v. NRC found, spent nuclear fuel "poses a dangerous, long-term health and environmental risk. It will remain dangerous 'for time spans seemingly beyond human comprehension.'" Id. at 474.

Furthermore, the GEIS acknowledges that the NRC has the authority to revoke licenses. In GEIS § 1.6.2.1, the NRC states, "Further, if the NRC determines that a nuclear power plant or the use of nuclear materials poses a threat to public health and safety or the common defense and security, the NRC will amend, suspend, or revoke nuclear power plant or materials licenses." (emphasis added).

With respect to the effect of the Continued Storage Rule on revoking renewed licenses, there are two classes of reactor relicensing decisions, based on the 2010 Waste Confidence Decision that was set aside and remanded by the court in New York v. NRC: those that were issued before the December 23, 2010 Waste Confidence Decision and those issued after that decision. The former, first issued in 2000, were issued when the 1990 Waste Confidence Decision was in effect. The latter were issued when the 2010 Waste Confidence Decision was in effect.

Any reactor licensed after 2010 should be subject to the findings of the Court of Appeals that the Waste Confidence Decision is invalid and cannot form the basis for relicensing. If pending licensing and relicensing proceedings cannot result in licenses being issued, the renewed licenses after 2010 should not have been issued because those relicensings are based on a "condition[] . . . which would warrant the

Commission to refuse to grant a license on an original application."

The licenses renewed before December 23, 2010 are invalid because the 1990 Waste Confidence Decision suffered from the same infirmity that invalidated the 2010 decision. In fact, the 1990 Waste Confidence Decision predicted a permanent repository by 2025, a date that no one now believes is even remotely realistic. This is clearly shown by the NRC's now aborted attempt to justify on-site storage for 200 plus years. See, pbadupws.nrc.gov/docs/ML1200/ML120030513. Thus, the relicensing decisions prior to the issuance of the 2010 Waste Confidence Decision were based on a false premise and those renewed licenses were issued in violation of 42 U.S.C. § 2133(d) and 10 C.F.R. § 50.57(a)(3).

Implicit in the NRC's argument that it can revoke a reactor license only if there is a threat to public health and safety is the NRC's belief that storing spent fuel on the reactor site indefinitely is not a threat to public health or safety. This argument misses the mark for several reasons. First, it is well-documented that spent nuclear fuel is dangerous. As this Court found in New York v. NRC, 681 F.3d 471, 474 (D.C. Cir. 2012):

Even though it is no longer useful for nuclear power, SNF poses a dangerous, long-term health and

environmental risk. It will remain dangerous "for time spans seemingly beyond human comprehension."

Due to the government's failure to establish a final resting place for spent fuel, SNF is currently stored on site at nuclear plants. This type of storage, optimistically labeled "temporary storage," has been used for decades longer than originally anticipated. The delay has required plants to expand storage pools and to pack SNF more densely within them. The lack of progress on a permanent repository has caused considerable uncertainty regarding the environmental effects of temporary SNF storage and the reasonableness of continuing to license and relicense nuclear reactors.

In addition, the Blue Ribbon Commission on America's Nuclear Future said in its report:

Since some materials generated by the back end of the nuclear fuel cycle will be radioactive over many millennia, they must be properly isolated from the biosphere to avoid posing a long-term hazard to other living organisms and ecosystems, as well as to human populations. The Commission's view and that of many experts is that these risks can be managed, but the nature and longevity of the environmental hazard clearly demand an extra measure of care, rigorous planning, and continued vigilance.

Regardless of whether spent fuel is reprocessed or directly disposed of, every foreseeable approach to the nuclear fuel cycle still requires a means of disposal that assures the very long-term isolation of radioactive wastes from the environment. . . . Every nation that is developing disposal capacity plans to use a deep, mined geologic repository for this purpose.

[D]uring the initial period after fuel is removed from a reactor core, the rapid decay of short-lived fission products generates sufficient heat that overheating has

the potential to damage the fuel cladding and release radioactive material if sufficient cooling is not provided. Over the very long time periods associated with geologic disposal, by contrast, the concern is that gradual corrosion processes or disruptive events (such as seismic or volcanic activity) may allow for radioactive material to be mobilized in ground water and migrate out of an engineered disposal facility.

In the face of those kinds of facts, it is disingenuous at best for the NRC to argue that spent fuel stored on site is not a threat to human health and safety.

Second, even if we assume that it is not established that spent fuel would be a threat to human health and safety, there is enough risk from the waste that it should be considered in the GEIS. NEPA requires that an EIS must evaluate the risks involved in its proposed action. Sierra Club v. Bosworth, 199 F.Supp.2d 971 (N.D. Cal. 2002); Seattle Audubon Soc. v. Moseley, 798 F.Supp. 1473 (W.D. Wash. 1992); Seattle Audubon Soc. v. Lyons, 871 F.Supp. 1291 (W.D. Wash. 1994). In addition, as this Court said in New York v. NRC, supra, at 478-479, only risks with a probability so low as to dismiss the potential consequences may be rejected for analysis in an EIS.

Finally, the GEIS's rejection of the alternative of making no more waste is, again, a circular argument. The NRC takes the position that its conclusion that waste can be stored indefinitely on site establishes the fact that there

is no threat to human health and safety so reactor licenses cannot be revoked. But this argument fails, of course, because the purpose of the GEIS is to undertake a fair analysis of the question whether waste can be safely stored on site indefinitely.

So the point is that if there are grounds for the NRC to deny reactor licenses or relicensing, there are grounds to revoke a license on grounds that would support denial of a license in the first instance. Therefore, the NRC has the authority to refuse to issue new reactor licenses and renewals and to revoke existing licenses when public health and safety and the environment are impacted.

C. Cessation of Licenses and Operations Would Not Reduce Environmental Impacts

The NRC claims that although cessation of reactor licensing and operations would prevent the production of radioactive waste, other environmental impacts could result from the required development of alternative power sources or demand reductions. GEIS § 1.6.2.1. Significantly, however, the NRC does not even hint at what those other environmental impacts might be.

In this same vein, the NRC makes the snide comment that even if no more radioactive waste is produced, the environmental impact of continued storage of the existing

waste would still be present. GEIS § 1.6.2.1. That may be true, but the NRC must still consider how to mitigate the environmental impact of there being no solution to the storage of even more waste. That is especially true when there is no foreseeable solution to the presently existing waste.

Furthermore, in response to the NRC's argument that there will still be existing waste on site even if production of waste is halted, a discussion of the alternative of discontinuing production of radioactive waste should include the feasibility of hardened on site storage (HOSS). HOSS is the construction of reinforced concrete and steel structures around each waste canister. Although HOSS is not the perfect solution to the radioactive waste problem, it is the best solution to a bad situation. There actually is no permanent solution to the existence of approximately 70,000 tons of radioactive waste currently stored at reactor sites. But HOSS is a much better alternative than the groundless hope expressed in the DGEIS that this waste can be stored in pools and dry casks essentially forever. Therefore, a discussion of HOSS in the DGEIS is required.

In discussing the alternative of discontinuing production of spent fuel, the EIS should consider how renewable energy can replace whatever current or future energy needs would have been supplied by nuclear power if

nuclear power is discontinued as an energy source. This is because NEPA requires that the NRC must analyze reasonable alternatives for the avoidance or mitigation of the significant impacts of the continued production of spent fuel. The Supreme Court, in Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351, 109 S.Ct. 1835, 1846-47 (1989), made it clear that both NEPA and the CEQ's implementing regulations require a detailed discussion of possible mitigation measures. In addition, the NRC's own regulations require that an EIS must include an analysis of "alternatives available for reducing or avoiding adverse environmental effects." 10 C.F.R. § 51.71(d).

Numerous studies have shown that we can generate all the energy we need from renewable sources with a comprehensive transmission and distribution grid if we will adopt policies supporting that vision. See, e.g., Archer and Jacobson, Supplying Baseload Power and Reducing Transmission Requirements by Interconnecting Wind Farms, Journal of Applied Meteorology and Climatology (v. 46, Nov. 2007); Jacobson and Delucchi, Providing All Global Energy with Wind, Water, and Solar Power, Part I: Technologies, Energy Resources, Quantities and Areas of Infrastructure, and Materials, Energy Policy (v. 39, p. 1154-1169); Jacobson and Delucchi, Providing All Global Energy with Wind, Water, and

Solar Power, Part II: Reliability, System and Transmission Costs, and Policies, Energy Policy (v. 39, p. 1170-1190; Jacobson and Archer, Saturation Wind Power Potential and Its Implications for Wind Energy, found at www.pnas.org/cgi/doi/10.1073/pnas.1208993109. See also, The Energy Report: 100% Renewable Energy by 2050, prepared for the World Wildlife Fund by Ecofys and found at www.worldwildlife.org/climate/energy-report.html; Big Risks, Better Alternatives, prepared for Union of Concerned Scientists by Synapse Energy Economics, Inc. and found at www.ucsusa.org/assets/documents/nuclear_power/Big-Risks-Better-Alternatives.pdf. Another important source is Arjun Makhijani, Carbon-Free and Nuclear-Free: A Roadmap For U.S. Energy Policy (2007), available for download at www.ieer/carbon-free/.

The electric utilities and energy companies assert that in order to provide baseload power they have to use coal, natural gas or nuclear energy. But baseload as viewed by the utilities and power companies is an outdated concept. They are stuck with the narrow view of electric power coming from power plants. But rather than referring to the term baseload we are really talking about energy and capacity. Energy is the total amount of electricity that is being supplied to

consumers. Capacity is the highest level of electricity that can be supplied at any one time to meet peak demand.

Renewable energy can meet the energy and capacity demands of the country, combined with a program of energy efficiency and conservation and expansion of the transmission grid. Most states have energy efficiency programs subject to public utility regulation. Likewise, many states have renewable electricity standards requiring that a certain amount of the energy consumed in the state be from renewable sources. There are other policies, including feed-in tariffs, tax credits, loan programs, etc., that should be adopted to encourage the expansion of renewable energy. The DGEIS should analyze all of these issues in examining the alternative of stopping the production of spent fuel by not permitting new nuclear reactors and closing existing reactors. This would lead us to a renewable energy future and away from the production of more radioactive nuclear waste.

The other important policy needed to support renewable energy is expansion of the transmission grid. We have heard the comment that since adequate transmission is not available right now we need to continue to expand the use of nuclear energy. That comment is incorrect for two reasons. First, expanded transmission is occurring right now. The Federal Energy Regulatory Commission (FERC) has over the past few

years adopted policies to promote expansion of transmission lines. The most recent FERC action is Order 1000 adopted on July 21, 2011. And every area of the country has a regional transmission organization (RTO) that promotes and coordinates expanded transmission in each respective region. In the Midwest, for example, the Midwest RTO (MISO) has approved a number of transmission expansion projects designed to accommodate increased renewable energy production and they are ready for regulatory approval, and some are already being built. Second, it takes at least 10 years for a new nuclear plant to be licensed and put on line. New transmission could begin to be constructed within a year or two, long before we would gain any alleged benefit from additional nuclear power. Furthermore, a new nuclear plant, which would not be needed when renewable energy becomes dominant, would be licensed for probably 40 years and undoubtedly relicensed for another 20 years. We would be stuck with 60 more years of radioactive waste that could be avoided with the right policies supporting renewable energy.

5. Decommissioning Old Reactors

Revoking the licenses of existing reactors would require decommissioning those reactors. This is not a circumstance that diminishes the viability of license revocation as an alternative to storing spent fuel on site for the indefinite

future. Any nuclear reactor will cease to operate at some time and will have to be decommissioned. So, doing that sooner rather than later makes no difference. In fact, decommissioning now would involve the disposal of less waste than decommissioning at the end of the reactor's useful life some years in the future.

There are currently 27 nuclear reactors that have shut down voluntarily. They have completed decommissioning or are in the process of decommissioning. So it is obvious that decommissioning in those cases was not an impediment to a voluntary license termination. Therefore, it should not be an impediment to the revocation of reactor licenses.

CONCLUSION

The storage and disposal of radioactive nuclear waste from spent fuel is a long-term problem posing grave risks to public health and the environment for which there is no solution. One alternative to this conundrum - the Sierra Club believes it is the most important alternative - is to stop producing any more radioactive waste. For the reasons stated above, NEPA and common sense require that the GEIS analyze this alternative.

Because this alternative has not been evaluated, the decision of the NRC in adopting the Continued Storage Rule should be reversed and remanded.

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CERTIFICATE OF SERVICE

I, Wallace L. Taylor, attorney for the Appellant, certify that I mailed, by United States Mail with first class postage affixed, 8 copies of this Appellant's Reply Brief, to the Clerk of Court, 333 Constitution Ave NW, Room 5205, Washington, D. C., 20001-2866, on the 3rd day of July, 2015.

The undersigned certifies that a copy of the foregoing was served electronically on the counsel of record who are registered with the Court's ECF system on the 3rd day of July, 2015.

/s/ *Wallace L. Taylor*

WALLACE L. TAYLOR

CERTIFICATE OF COMPLIANCE

I, Wallace L. Taylor, attorney for the Appellant, certify that this Appellant's Brief complies with the page limitation of Federal Rule of Appellate Procedure 32(a)(7)(B).

/s/ *Wallace L. Taylor*

WALLACE L. TAYLOR