

From: Peter Hastings <hastings@kairospower.com>
Sent: Thursday, May 28, 2020 1:59 PM
To: AdvancedReactors-GEIS Resource
Cc: Darrell Gardner; Margaret Ellenson
Subject: [External_Sender] Kairos Power Initial Input to Advanced Reactor GEIS Scoping
Attachments: KP-NRC-2001-003 KP Comments on NRC GEIS.pdf

This email captures the comments that were made in the 28 May 2020 scoping webcast meeting. Kairos Power may make additional scoping comments subsequently.

Kairos Power appreciates the efforts of the staff and strongly believes that reformation of the NEPA process is essential to progress in deploying new nuclear plants, which is important to our mission of enabling the world's transition to clean energy, with the ultimate goal of dramatically improving people's quality of life while protecting the environment. Like others, Kairos Power provided previous comments that we will reiterate as necessary (the letter transmitting those earlier comments is attached to this email).

Reacting to the information provided during the webcast, we offer four additional comments that should be considered in scoping the GEIS.

First, using NRC's general assumptions (on slide 11) virtually guarantees many potential adverse impacts will be small. There is no reason, particularly under the rule of reason, for NRC to assume that the various NRC regulations (20, 50/52, and 100, for instance) would not be complied with. This fact puts hard guard rails on reasonably foreseeable radiological consequences. Similarly, compliance with federal and state environmental permits, which should also be assumed as a condition of building and operating the plant, should provide adequate assurance against adverse environmental impacts within the topics covered by those permits. This is true irrespective of plant size.

Second, we suggested in prior discussions with the staff, and reiterate here for the purpose of the scoping record, that the GEIS should be broader than currently envisioned, i.e., the limitation to a 30-MW design is unnecessarily limiting. Iterating a GEIS two or three times to eventually get to a GEIS that's applicable for pending applicants will take longer than is actually useful.

Third, the staff should consider to the maximum practical extent that hundreds of reactor operating years have indicated consistently small adverse impacts and large positive impacts from nuclear power generation. Nuclear power generation is subject to a dramatically larger regulatory burden than competing technologies – all for an environmental benefit that is demonstrably greater, particularly in consideration of carbon emissions and air quality.

Finally, to echo the comments from an earlier participant, advanced reactor fuel cycle impacts should be addressed. Also as a function of the presumption of compliance with NRC regulations, it should be straightforward to conclude that these impacts are similar to those previously evaluated for LWRs, particularly when it comes to transportation impacts.

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Submitted via Federal Rulemaking Website at <https://www.regulations.gov>

Subject: Kairos Power LLC
Generic Environmental Impact Statement for Advanced Nuclear Reactors
Comments to Docket ID NRC-2019-0226

Kairos Power appreciates the opportunity to provide NRC with input regarding a generic environmental impact statement (GEIS) for advanced nuclear reactors. In response to the *Federal Register* notice (FRN) 84 FR 67299, Kairos Power submits the comments enclosed with this letter to docket folder NRC-2019-0226. Kairos Power looks forward to further stakeholder engagement with the NRC on this subject.

If you have any questions or need any additional information, please contact Margaret Ellenson at ellenson@kairospower.com or 510.808.5265 (ext. 1282) or Darrell Gardner at gardner@kairospower.com or (704)-769-1226.

Sincerely,



Peter Hastings, PE
Vice President, Regulatory Affairs and Quality

Enclosures:

- 1) Input Regarding A Generic Environmental Impact Statement for Advanced Reactors

xc (w/enclosure):

Benjamin Beasley, Acting Chief, Advanced Reactor and Licensing Branch
Stewart Magruder, Project Manager, Advanced Reactor and Licensing Branch

Enclosure 1**Generic Environmental Impact Statement for Advanced Reactors**General

Kairos Power supports the NRC's development of a generic environmental impact statement (GEIS) for advanced reactors. Such a GEIS would fully support the letter and intent of the National Environmental Policy Act (NEPA) and, importantly, offer significant regulatory, logistical, and economic advantages compared to the existing regulatory framework. Indeed, the federal courts—including the U.S. Supreme Court—repeatedly have upheld agencies' (including the NRC's) use of generically-applicable environmental analyses as an appropriate method of conducting the hard look required by NEPA. The NRC's judicially-approved use of the GEIS for reactor license renewal is a prime example of the efficiencies gained by this approach. The NRC also has applied the GEIS approach in various other contexts (e.g., decommissioning).

1. Multiple Opportunities for Improvements to the Regulatory Framework

Kairos Power notes that pursuing a GEIS is one of several regulatory process improvements that would reduce unnecessary burden on the NRC and applicants while still ensuring agency compliance with applicable environmental review requirements. Other potential regulatory improvements include broadening the application of categorical exclusions, where appropriate; streamlining the environmental review processes between federal and state partners; and increasing the use of environmental assessments.

2. Facilitate Consistent Application Reviews

A technology-neutral GEIS would facilitate more consistent NRC environmental reviews of license applications for advanced reactors of varying designs and power levels. A GEIS would promote a common understanding of the key factors informing advanced reactor environmental reviews, notwithstanding such differences in reactor designs, power levels, and other plant parameters. Similarly, a GEIS would promote a common understanding of those factors which are not important to the environmental review of an application.

3. Reduce Undue Regulatory Burden

A GEIS would enable focused reviews based on a common understanding of the factors important to the environmental review of an advanced reactor design and site analysis, thereby enabling applicants to more efficiently provide supporting material of the necessary scope and level of detail to support the NRC's review. At the same time, applicants would be able to focus on developing that material necessary for the NRC to make a regulatory decision. This would represent an averted cost for applicants by allowing them to focus their environmental analyses on the issues that most directly affect the public health and safety and the environment. Likewise, the GEIS would represent an averted cost for the NRC in terms of reduced review time and more streamlined documentation of evaluations.

4. Facilitate Focused Analysis

As noted, a GEIS would allow NRC and applicants to focus on issues important to public health and safety and the environment without duplicating effort. By generically resolving issues that do not relate to a particular design, power level, or site, the application would promote more focused, thorough analysis of issues specific to a site or application. Ultimately, a GEIS would facilitate NRC compliance with the agency's statutory obligations under NEPA.

5. Enable Early Engagement Supporting Openness and Regulatory Efficiency

The advanced and extensive agency engagement with stakeholders and the public necessary to develop a GEIS would allow for early identification of issues that are of most interest in environmental reviews. Early engagement also would allow sufficient time to align on the analyses and documentation necessary to support an advanced reactor application. Furthermore, early engagement would allow for more opportunities for open, transparent dialogue between the NRC, stakeholders and the public. Ultimately, early engagement builds the knowledge base of the NRC staff, an applicant, and the public so that both applicants' development and the NRC's reviews of applications would be more efficient.

Conclusions from NRC Public Meeting

1. During the public meeting in early January 2020 on this subject, the NRC staff indicated they are approaching the concept of a GEIS by assuming that the amount of nuclear material associated with a given design will influence how many issues can be resolved generically (for instance, issues may be resolved more readily for a "microreactor" as compared with a larger reactor). While this presumption is reasonable, the staff should take care not to adopt a "sliding scale" in pursuit of "smaller" impacts, when a conclusion of a "small" impact is sufficient and appropriately justified. In other words, and by way of example, when a combination of small source term and long accident progression results in a de minimis release, even for a "larger" advanced reactor, there is no need to parse radiological impacts between reactor sizes simply because one type of design is physically smaller than others. When impacts are small, irrespective of the specific reactor design, they should be characterized as broadly as possible to make the GEIS(s) as generically-applicable as possible. In this example (i.e., radiological impacts), the NRC justifiably would conclude, as it has done in its numerous license renewal reviews to date, that those impacts that do not exceed permissible levels in NRC regulations are considered small.
2. In that same meeting, the staff indicated that, should they go forward with a GEIS, they are considering three "bins" of facilities based mostly on the facility power level, which staff also view as being correlated to facility footprint. Again, while this may be a reasonable starting point, the staff should not categorically presume that a facility's size necessarily dictates the magnitude of its impact on a given resource area (e.g., impacts on land use, water resources, ecological resources). Similarly, inadvertently portraying a 10-acre land-use impact as "larger" than a 1-acre impact could mask the fact that both impacts are "small" when the current NRC definition of "SMALL" impacts in 10 CFR Part 51 and NRC guidance documents is properly applied to both facilities (i.e., in both cases, the "environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource").
3. Additionally, the staff sought feedback to assess/confirm whether pursuing a GEIS warrants the staff's investment of agency resources. Kairos Power believes strongly this is the case; the effort to

produce a GEIS, while not insubstantial, would pay significant dividends in terms of future review efficiency. With impacts sufficiently addressed at a generic level, a supplemental assessment at an individual plant/site level could be much smaller and take far less agency time and resources to review. Again, the NRC's well-established environmental review process for initial (and now subsequent) reactor license renewals is testament to this fact.

Proposed Approach

Kairos Power suggests a focused, progressive use of programmatic and/or generic environmental impact statements, combined with judicious use of categorical exclusions and/or environmental assessments, as the best approach to ensuring efficient use of limited applicant and agency resources and focused NRC environmental reviews under NEPA.

There is simply no benefit to continually reevaluating (and potentially re-litigating) matters on a site-by-site basis when impacts already are demonstrated to be small through robust generic analyses. NEPA is intended to *inform* agency decision-making on major federal actions (issuance of a reactor license in this case), and to use reasonable, *best-estimate* values in providing that information. Accordingly, the demonstration of minimal environmental impact for a given resource should not be assessed using a "beyond reasonable doubt" standard, but rather NEPA's well-established "rule of reason." Thus, when evidence of small impact abounds, additional assessments do not serve NEPA's goals or promote efficient use of applicant and NR resources. As the courts have noted, an EIS is required to furnish only such information as appears reasonably necessary under the circumstances for evaluation of the project.

Elements of such an approach could include some or all of the following.

1. First and foremost, NRC should establish an approach whereby impacts reasonably can be judged to be small, based on the presumption of compliance with the license and other federal, state, and local environmental permits:
 - a. Based on the conditions required by applicable federal, state, and local licenses and permits, it is reasonable to presume that such licenses and permits will apply conditions to minimize impact where limits are established to applicable resource areas; such limits as are established through applicable statutes, codes, and standards obviously do not warrant second-guessing under NEPA. Moreover, the NRC may properly assume that a licensee will comply with concrete and enforceable conditions and requirements imposed by competent federal, state, or local governmental entities. Notably, the staff, the Commission, and NRC licensing boards have applied these principles in other contexts (e.g., the GEIS for license renewal) and in prior NRC adjudications (including, for example, the recent Turkey Point subsequent license renewal proceeding).
 - b. Based on a *best-estimate* approach, there is no reasonable basis to presume a facility will not be operated in conformance with its applicable licenses or permits; even in the event of compliance lapses, it is reasonable to assume internal and external oversight will result in a return to compliance. Again, there is ample precedent demonstrating the NRC's application of this principle in other licensing contexts and proceedings.

- c. Such an approach should better inform and streamline staff assessments of radiological, water, land, and air impacts, for example, by properly accounting for applicant compliance with federal, state, and local licenses and permits.
2. NRC should consider development of, and possible tiering from, a nationwide programmatic EIS that establishes the many areas where deployment of commercial nuclear power is known to result in a small (or positive) environmental impact:
 - a. Based on hundreds of reactor operating years, we know socioeconomic impacts of power reactor operation are overwhelmingly positive.
 - b. Based on the technology, we know that the carbon emission impact (i.e., avoided greenhouse gas emissions) is overwhelmingly positive.
 - c. Based on the technology's availability and reliability, we know that its impact on grid stability and avoidance of interrupted energy supply is overwhelmingly positive.
 - d. Other resource areas should be evaluated to identify those where prior reactor-related EISs have consistently concluded impacts are small.
3. NRC should consider one or more generic EISs that conclude:
 - a. Using similar logic to that applied in item 1. above, and based on applicable regulations, fuel cycle, transportation, and waste disposal impacts will be small;
 - b. Commercial, technical, and other practical considerations will drive site selection in a way that impacts to resource areas such as land and water use would be small;
 - c. Site-specific resource assessments (see below) will preclude overlooking a clearly superior site.
4. Site-specific resources/resource impacts (e.g., flora, fauna, historic preservation, etc.) can be protected/mitigated adequately such that a combination of categorical exclusions (using criteria developed as part of new guidance), environmental assessments, and/or mitigated FONSI provides adequate information to support NRC NEPA review of the major federal action.
5. NEPA requires that the NRC exercise its "independent judgment" in identifying and assessing the reasonably foreseeable impacts of a proposed licensing action. However, this duty to perform an independent review does not mean that NRC must always perform a wholly independent analysis from scratch, or that it must re-create or replicate competent and professional environmental data and studies that already have been done by other agencies, so long as it confirms they are relevant and scientifically reasonable. That is, when conducting a NEPA review, the Staff may – and indeed should – rely substantially upon a state's analysis where the state has regulatory authority over the subject matter and relevant expertise.
6. Finally, the NRC should strongly consider eliminating the practice of offering the opportunity for contested adjudicatory hearings on NEPA review issues—a practice that is unique to the NRC. Neither the Atomic Energy Act nor NEPA requires the conduct of contested adjudicatory hearings on NEPA issues. As with design certifications, ample opportunity for public participation in the NEPA component of the licensing process is already guaranteed through other procedural

vehicles—the public scoping process (including related meetings and comment opportunities), opportunities for public comments on NRC’s draft environmental review documents (GEIS, EIS, EA) and guidance documents (e.g., standard review plans, regulatory guides), and the NRC’s legal obligation to address all public comments in its final environmental review documents and to prepare a record of decision.