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Interim Staff Guidance - Specific Environmental Guidance for Integral Pressurized Water Reactors Reviews

Comment On: NRC-2013-0211-0005

Environmental Issues Associated with New Reactors and Specific Environmental Guidance for Integral Pressurized Water Reactors Reviews

Document: NRC-2013-0211-DRAFT-0005

Comment on FR Doc # 2013-27135

Submitter Information

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Organization: NEI

General Comment

2

Nuclear Energy Institute Comments on ESP/COL-ISG-026 and ESP/COL-ISG-027

Attachments

11 14 13 FINAL NEI COMMENTS ISG 026 & 027

SUNSI Review Complete
Template = ADM - 013
E-RIDS= ADM-03
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November 14, 2013

Ms. Cindy Bladey, Chief
Rules, Announcements & Directives Branch
Office of Administration, Mail Stop: 3WFN-06-44M
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Re: **Nuclear Energy Institute Comments on NRC Draft
Interim Staff Guidance ESP/COL-ISG-026 and ESP/COL-ISG-027
(Docket IDs NRC-2013-0211 & NRC-2013-0212)
Project 689**

Dear Ms. Bladey:

The Nuclear Energy Institute, Inc. (NEI)¹ is pleased to provide comments on the following regulatory guidance, in support of ongoing and future early site permit (ESP) and combined license (COL) applications:

- NRC draft Interim Staff Guidance (ISG) ESP/COL-ISG-026, "*Interim Staff Guidance on Environmental Issues Associated with New Reactors*"
- NRC draft Interim Staff Guidance (ISG) ESP/COL-ISG-027, "*Interim Staff Guidance Specific Environmental Guidance for iPWR Reviews*"

The NRC announced the availability of ESP/COL-ISG-026 and ESP/COL-ISG-027 for use and comment on September 13, 2013. See NRC request for comments on ISG-026 at 78 Fed. Reg. 56,750 (Docket ID NRC-2013-0212) and NRC request for comments on ISG-027 at 78 Fed. Reg. 56,752 (Docket ID NRC-2013-0211).

The NRC uses ESP and COL interim staff guidance to facilitate timely implementation of current staff guidance and activities associated with review of applications for ESPs, design certifications, and COLs

¹ The Nuclear Energy Institute (NEI) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI's members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect/engineering firms, fuel cycle facilities, nuclear materials licensees, and other organizations and entities involved in the nuclear energy industry.

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by the NRC's Office of New Reactors. In particular, ESP/COL-ISG-026 and ISG-027 revise and clarify sections of the NRC Environmental Standard Review Plan ("ESRP" or NUREG-1555), which provides guidance to the NRC Staff in implementing 10 CFR Part 51 requirements in connection with nuclear power reactor environmental reviews. We understand that the NRC staff intends to incorporate the final approved versions of ESP/COL-ISG-026 and 027 into the next revision of NUREG-1555, although the comment notice does not give a specific date for that activity.

The industry appreciates the NRC staff efforts to update NUREG-1555 to reflect the latest regulations, policy, guidance, and experience in NRC environmental reviews. Significant insights have been gained through the development and review of early site permit and combined license applications. Many of these insights have been reflected in the revisions to NUREG-1555. We also appreciate the NRC staff's extension of the comment period from October 15 to November 15, 2013; see 78 Fed. Reg. 68,101 (Nov. 13, 2013). The NRC held a public meeting on ESP/COL-ISG-026 and 027 on November 5, 2013.

The Enclosure to this letter provides both general and specific comments for NRC consideration in finalizing these ESRP revisions. Of particular concern, we ask the NRC Staff to consider the following issues raised by ESP/COL-ISG-026:

- The revised ESRP guidance should more explicitly describe how the NRC Staff should account for mitigation. Mitigation measures required by local, State, or other Federal agencies should be taken into account in reducing the overall environmental impact to a particular resources category. Mitigation measures that are entered into voluntarily or that address issues beyond the scope of the NRC's jurisdiction could be addressed by considering the impacts both with and without the mitigation in place.
- The guidance in Chapter 8 of NUREG-1555 regarding "need for power" does not reflect today's electric power market structure. The guidance needs to be substantially revised to reflect the use by states and other entities of Integrated Resource Planning (IRP) to identify the benefit of new baseload generation, as well as the current roles of Regional Transmission Organizations and Independent System Operators. Overall, the need for power discussion is unnecessarily prescriptive and lacks sufficient flexibility to account for the wide range of potential benefits of a proposed reactor.

We ask that the agency also consider our additional comments and suggestions relating to ISG-026 and 027 in the Enclosure.

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Please feel free to contact me (awc@nei.org or 202/739-8139) if you have questions relating to NEI's comments on ESP/COL-ISG-026. Please contact Mr. T.J. Kim of NEI (tjk@nei.org or 202/739-8128) if you have questions relating to NEI's comments on ESP/COL-ISG-027.

Sincerely,

A handwritten signature in cursive script that reads "Anne W. Cottingham". The signature is written in black ink and has a long, sweeping horizontal line extending to the right.

Anne W. Cottingham

Enclosure

**NUCLEAR ENERGY INSTITUTE COMMENTS ON
COL/ESP INTERIM STAFF GUIDANCE-026 (Docket ID NRC-2013-0212)
and COL/ESP ISG-027 (Docket ID NRC-2013-0211)**

Overview

The Nuclear Energy Institute¹ (NEI) appreciates the opportunity to comment on NRC draft Interim Staff Guidance (ISG) ESP/COL-ISG-026, “*Interim Staff Guidance on Environmental Issues Associated with New Reactors*” (Docket ID-NRC-2013-0212) and draft ESP/COL-ISG-027, “*Interim Staff Guidance Specific Environmental Guidance for iPWR Reviews*” (Docket ID-NRC-2013-0211). Once finalized, these updated guidance documents are intended to amend selected sections of the NRC Environmental Standard Review Plan (“ESRP” or NUREG-1555). The NRC issued the draft guidance in ESP/COL-ISG-026 and ESP/COL-ISG-027 for use and comment in September 2013. See 78 Fed. Reg. 56,750 (Sept. 13, 2013) and 78 Fed. Reg. 56,752 (Sept. 13, 2013).²

The agency’s Environmental Standard Review Plan provides guidance to the NRC Staff in implementing 10 CFR Part 51 requirements relating to nuclear power reactor environmental reviews. We support the NRC efforts to update the ESRP with insights gained through the development and review of new plant applications. Draft ESP/COL-ISG-026 reflects current Staff review methods and practices based on lessons learned from recent environmental licensing reviews of combined license (COL) and early site permit (ESP) applications. In particular, the ISG guidance is intended to assist the NRC Staff in addressing certain aspects of COL and ESP environmental reviews that have evolved since the last update of NUREG-1555, have been identified as “needing updating,” or involve the U.S. Army Corps of Engineers (Corps) as a cooperating agency. As modified, this regulatory guidance should ensure that the NRC’s environmental analyses and review procedures “are appropriately standardized” and that these issues “are addressed consistently and adequately in the resulting EISs.” (COL/ESP-ISG-026, p. 1.) Our goal is to provide informed and useful comments on the draft ISG, which will be incorporated (in its final approved form) into the next revision of the ESRP and related guidance documents.

All citations to ESRP sections below refer to the September 2013 version of the draft ISGs and the Attachments to ISG-026, unless stated otherwise. In addition, where appropriate, we

¹ The Nuclear Energy Institute (“NEI”) is the organization responsible for establishing unified industry policy on matters affecting the nuclear energy industry, including the regulatory aspects of generic operational and technical issues. NEI’s members include all entities licensed to operate commercial nuclear power plants in the United States, nuclear plant designers, major architect and engineering firms, fuel fabrication facilities, nuclear materials licensees, and other organizations and individuals involved in the nuclear energy industry.

² The comment period originally closed on October 15, 2013 (see 78 Fed. Reg. 56,751), but the NRC subsequently granted NEI’s request for an extension of the comment period until November 15, 2013. See 78 Fed. Reg. 68,101 (Nov. 13, 2013). NRC held a public meeting on the ISGs on Tuesday, November 5.

reiterate comments on ESRP sections that were made previously by NEI (and possibly other commenters) in connections with the 2007 draft ESRP revisions. On behalf of the industry, we have included both general and specific comments for the NRC's consideration in finalizing these ESRP revisions.

**NEI Comments on COL/ESP Interim Staff Guidance-026:
*"Environmental Issues Associated with New Reactors"***

To the extent that the revised ISG would suggest to reviewers of pending COL or ESP applications that new or different information from that already provided or under development should be submitted, *NRC Staff should make clear that it does not intend to apply the new and revised guidance to those ongoing reviews.*

The ISG's discussion of the respective roles of the NRC and the U.S. Army Corps of Engineers (USACE or Corps), and the interactions between these agencies, should be revised to address specifically the situation presented by the Tennessee Valley Authority (TVA), which, as a Federal agency, has a unique relationship with the Corps.

Construction & Preconstruction Impacts: On page 2, we suggest moving the sentence "Therefore, preconstruction activities are not considered direct impacts of the NRC's Federal action" up two sentences, so that it precedes the sentence that begins "This change has implications..."). As written, the "therefore" does not follow from the prior sentence and could create confusion for reviewers.

Purpose and Need Statement:

On page 4, footnote 1, the ISG references Council on Environmental Quality (CEQ) regulations at 40 CFR 1502.13 which define "purpose and need." For greater clarity, we suggest including an additional sentence at the end of the footnote (similar to that found in ISG Attachment 1), as follows: "It is NRC policy to voluntarily take into account, subject to certain conditions, the regulations of the Council on Environmental Quality implementing NEPA."

On page 4, in the discussion of the purpose and need statement, we suggest revising the sentence in the second paragraph as follows: "The need for power analysis demonstrates that there is a need for the quantity and type of power in the service area and in the time frame specified." This more accurately reflects most purpose and need statements, which reference a need for baseload power.

On page 4, we suggest moving the final sentence on the page—stating "The purpose and need statement cannot be so narrowly drawn as to foreclose all reasonable alternatives"—to the end of the prior paragraph.

On page 4, we suggest revising the first sentence in the final paragraph as follows: “The NRC’s purpose and need in the EIS should be informed by the applicant’s objectives, ~~but it~~ which can be different from the above example.” This change makes clear to the reviewer that the purpose and need statement may (and should) be tailored to a particular application.

On page 7, the discussion of Chapter 5 (Operational Impacts at the proposed Site), does not mention the potential impacts of activities during operation (e.g., dredging) that require an Army Corps of Engineers permit. Similar to Chapter 4, there should be a recognition in Chapter 5 of the need to provide discussions in the appropriate areas about activities for which the applicant expects to need a USACE permit.

A number of the proposed changes to ISG-026 incorporate guidance designed to facilitate concurrent NRC and USACE reviews of an application. However, there is no indication in the ISG that USACE has provided any comments on the revised guidance. To ensure that the benefits of the revised ESRP sections are realized, and to the extent that it has not done so already, we encourage the NRC to explicitly seek the views of USACE on those portions of the revised guidance that address activities within the jurisdiction of USACE.

**NEI Comments on Draft COL/ESP-ISG-026, Attachment 1:
*Staff Guidance for Greenhouse Gas and Climate Change Impacts for New Reactor
Environmental Impact Statements***

In Attachment 1 to COL/ESP-ISG-026, the NRC Staff discusses changes to its guidance for evaluating greenhouse gas (GHG) emissions and climate change impacts in environmental reviews for new reactors, “in a manner that implements the Commission’s direction.” This portion of the ISG addresses treatment of GHG emissions and impacts associated with the current environment, building activities, operation, fuel cycle, cumulative impacts, alternative energy, and alternative sites.

On page 8 of Attachment 1, in the discussion of Energy Alternatives, the text directs reviewers to the 2012 Intergovernmental Panel on Climate Change (IPCC) Special Report on Renewable Energy Sources and Climate Change Mitigation, which compares lifecycle greenhouse gas emissions, and notes that the NRC reviewer should maintain awareness of subsequent IPCC reports. Based on recent press reports, however, it is not certain that there will be additional IPCC reports in the future. If the NRC staff can identify alternate definitive resources, we recommend that those resources be referenced in the guidance.

On pp. 8-9 of Attachment 1, the discussion of evaluation findings in Chapters 4 and 5 for other than a SMALL impact directs the reviewers to separately consider the impact of the NRC-authorized activity. In contrast to the discussion of SMALL impacts, the evaluation findings discussion does not reference or discuss how potential mitigation measures to reduce greenhouse

gas emissions are taken into account. NEI believes that some additional discussion regarding the treatment of mitigation measures would be useful in this section, particularly for proposed mitigation related to construction and preconstruction activities (e.g., emissions from equipment used for building activities, mitigation required by USACE or State agencies with jurisdiction over wetlands). The evaluation findings should account for the reduced impacts associated with mitigation, as appropriate. For example, mitigation required by local, State, or other Federal agencies could be used to reduce the impact in a particular resource category, while mitigation measures beyond the scope of the NRC's jurisdiction could be addressed by considering the impact both with and without the mitigation actually being implemented.

On page 9 of Attachment 1, the discussion of greenhouse gas impacts in Chapter 7, *Cumulative Impacts*, states that the cumulative impacts to air quality, including GHG emissions, would be MODERATE. Notably, the basis for NRC's conclusion that cumulative impacts would be MODERATE is not apparent in the ISG. (On this point, the text states: "Based on the global issue of climate change as discussed in the Technical Rationale section of this Attachment, the USGCRP report, and the EPA's endangerment finding (74 FR 66496) (EPA 2009), the cumulative impact would be MODERATE.") Given the importance of this assertion, additional detailed support should be provided for the NRC's position.

Further, the assessment of cumulative impacts should be based on application-specific evaluations and depends, to some degree, on the purpose and need for the project. If, for example, the purpose and need is to reduce overall greenhouse emissions or replace fossil fuel generating facilities with cleaner nuclear facilities, the cumulative impact on greenhouse emissions could be SMALL or beneficial. NEI recommends that the ISG discussion be revised to acknowledge explicitly the potential for cumulative impacts other than MODERATE.

In Appendix A to Attachment 1 (*Greenhouse Gas Footprint Estimates for a Reference 1000-MW(e) Reactor*), Table A-1 lists greenhouse gas emissions for preconstruction/construction and decommissioning. We note that preconstruction/construction equipment estimates listed in the Table are based on 2007 UniStar data. Is this the best estimates available? If not, we request that the Staff provide updated data.

Additionally, the equipment emissions estimates for decommissioning are conservatively assumed to be one half those for preconstruction/construction. (Appendix 1, p. 1.) However, estimated emissions for some decommissioning activities appear to be excessive in that they overestimate the greenhouse gas impacts associated with decommissioning. For example, concrete and batch plant operations during decommissioning are expected to be a small fraction of those associated with preconstruction/construction. While the estimates in Appendix A may be useful for conservatively estimating emissions in an FEIS supporting issuance of a COL, we encourage the NRC to acknowledge in the ISG text that actual emissions during decommissioning may be much less (i.e., that the ½ factor applied to preconstruction and construction is conservative). This revision would make clear, for the purpose of reviews associated with other NRC regulatory activities, that the ESRP discussion is not based on a realistic evaluation of greenhouse gas emissions for decommissioning.

On page 15, at the bottom of the third full paragraph, the word “larger” should be replaced with “different sized.”

NEI Comments on Draft COL/ESP-ISG-026, Attachment 2:
Staff Guidance for the Socioeconomic and Environmental Justice Analysis for New Reactor Environmental Impact Statements

Attachment 2 to COL/ESP-ISG-026 provides guidance for evaluating socioeconomic and environmental justice impacts. This section includes both changes and clarifications to previous guidance, based largely on the NRC staff’s identification of issues that warranted different treatment in the ESRP. And because license applicants may use the ESRP to help assure that their environmental reports (ER) meet the NRC’s needs, the text states (p. 1): “[I]t is important to point out that none of the clarifications in this guidance impose new analytical requirements. In fact, several of the clarifications included in this guidance reduce or eliminate analytical steps recommended by the 2000 ESRP and its 2007 update.”

On page 2 of Attachment 2, under “Data and Information Needs,” on line four of the first paragraph, we suggest that “all alternative” be clarified to say “all credible alternative. . . .”

On page 3 of Attachment 2, the guidance states that, when deviating from the American Community Survey Five-Year Summary (ACS) as the data source, the reviewer should provide a discussion in the EIS as to why the alternative data source is “preferable.” This approach is unnecessarily restrictive, particularly in light of the specific criteria for acceptable data sources that are listed after this statement on page 3. We recommend that the guidance be revised to direct the reviewer to explain why the alternate data source is “acceptable” rather than “preferable.”

On page 9 of Attachment 2 (discussing environmental justice), the ESRP block quotes text that, according to the ISG, should be included in the EIS. The quoted text states that, if a census block group meets either of two criteria (identified later in the text) for identified minority or low-income populations, that census block group “is considered a minority or low-income population block group warranting further investigation.” This statement implies a distinction between a minority or low-income “population” and a minority or low-income “population block” or “population of interest.” The former term – minority or low-income population – is used for analytical purposes to determine the existence of a minority or low-income population block or population of interest. Only the existence of a minority or low-income population block or population of interest triggers a need for further environmental justice analysis. The remainder of the text in the revised ESRP often refers only to “minority and low-income population” when it appears that the reference should be to minority or low-income “population blocks” or “populations of interest” (i.e., minority or low-income populations that meet either criteria).

While we recognize the efforts that the NRC has made previously to clarify the terminology involved, we believe that some additional clarifications are warranted. We recommend that the NRC adopt a standard convention in the ESRP. Locations that should be considered for change (e.g., by changing the reference to “population block” or “population of interest”) include:

- Page 11 at III.3.a-III.3.c
- Page 13 at III.3.a-III.3.c

On page 10 of Attachment 2, the guidance states that migrant populations, especially migrant farmworkers, “often have unique food and environmental pathways by which they may be affected by the proposed action.” No basis is provided for this statement. For construction of a nuclear power plant, it is not clear what unique food or environmental pathways exist that would result in there “often” being impacts to migrant farmworkers. We recommend that, in the final ISG, NRC should provide a basis for this assertion, and/or replace the word “often” with “may.”

On pp. 15-16 of Attachment 2, the guidance discusses treatment of environmental justice at alternative sites. We acknowledge that there may be a need to conduct more detailed environmental justice reviews at alternative sites *if there are greater than minor impacts at the proposed site*. However, such an additional assessment is unnecessary where the environmental justice impacts at the proposed site are SMALL. ISG-026 should be clarified accordingly.

Draft COL/ESP-ISG-026, Attachment 3:
Staff Guidance for Historic and Cultural Resource Reviews for New Reactor Environmental Impact Statements

Attachment 3 to ISG-026 is intended to supplement current NRC Staff guidance in NUREG-1555 for conducting environmental reviews relating to historic properties and cultural resources, as well as alternative sites, in connection with National Historic Preservation Act (NHPA) provisions. It addresses using the National Environmental Policy Act (NEPA) process to comply with NHPA requirements, so-called “Section 106” consultations under the NHPA, reconnaissance-level information and activities in NRC environmental reviews, cumulative impacts, and protecting cultural resource information.

On page 2 of Attachment 3, the guidance briefly discusses several key terms, including the “federal undertaking” and the Area of Potential Effects (APE) as defined in the National Historic Preservation Act. As drafted, the text is not clear as to how the scope of construction and preconstruction activities (as recently re-defined in NRC regulations and guidance) factors into defining the undertaking or the APE. For example, the guidance draws a distinction between NEPA and NHPA compliance and states that undertaking “includes” activities requiring a Federal permit, license, or approval. Notably, the discussion does not make clear whether

preconstruction activities are also (or not) part of the undertaking or APE that must be considered in NHPA. Additional discussion of this subject would be useful.

NEI agrees with the NRC determination that reconnaissance activities are not required for alternative sites. We note for emphasis that performing reconnaissance activities at alternative sites may not be feasible if the applicant does not own or have access to the alternate site.

Draft COL/ESP-ISG-026, Attachment 4:
Staff Guidance for Cumulative Analysis for New Reactor Environmental Impact Statements

Attachment 4 to ISG-026 provides additional guidance to clarify the ESRP discussion of cumulative impacts analyses for new reactor Environmental Impact Statements.

On pp. 9-10 of Attachment 4, the ISG discusses evaluation findings for the cumulative impacts analysis. However, the discussion does not provide guidance as to how mitigation measures, such as mitigation required by local, state, and federal authorities (see Item 5 on page 8) or voluntary mitigation proposed by the applicant, are to be taken into account. If it is the NRC's intent for the reviewer to discuss the impact categories both with and without mitigation (e.g., impact with mitigation is SMALL, but could be MODERATE if mitigation does not occur), then the guidance should describe these expectations. Alternatively, if the reviewer may take into account mitigation in reaching a significance determination, then the guidance should describe how this should take place. NEI believes that mitigation required by local, state, and federal agencies should be taken into account when determining significance (*i.e.*, required mitigation can reduce impact significance). NEI recommends that voluntary mitigation or mitigation involving activities beyond the NRC's jurisdiction be discussed in the alternative (*i.e.*, assess impact both with and without mitigation).

Draft COL/ESP-ISG-026, Attachment 5:
Staff Guidance for Need for Power Reviews in New Reactor Environmental Impact Statements

Attachment 5 to ISG-026 is intended to clarify NUREG-1555, Sections 8.0-8.4, relating to the NRC staff's assessment of need for power in connection with COL and ESP applications.

Overall, the proposed revisions to ESRP Chapter 8 do not adequately account for the changing regulatory environment, although the guidance does generally reference changes in this area. In the 1970s, the typical applicant for a nuclear power plant was an electric utility regulated by a state public utility commission. As a regulated electric utility, the applicant had the legal authority to exercise the power of eminent domain to build generating facilities and any

necessary supporting infrastructure. Today, new nuclear power plants may be constructed and operated by an unregulated merchant generator that will operate in a competitive marketplace. A merchant generator will not build and operate a plant unless it believes that there is a benefit to its making that investment, such as a need for power or because that facility will generate electricity at a lower cost than its competitors. While the revision addresses these developments in a number of locations, the ESRP is still primarily focused on need for power determinations in a regulated environment. This guidance document does not, as a whole, address the range of methods that could be used to demonstrate a need for power in unregulated, partially-regulated, or merchant environments. While the comments below address this concern in the context of the specific revisions proposed, we believe that Chapter 8 of the ESRP would benefit from further consideration of the diversity of approaches to construction of new nuclear reactors.

On page 1 of Attachment 5, in the discussion of Section 8.0, *Need for Power*, the Areas of Review discussion states that the purpose and need generally includes the location of the “service area.” The term “service area” does not appear to be defined elsewhere in the ESRP. Traditionally, the service area for a regulated utility was the area in which it sold the power generated by the plant. Now, in a deregulated environment, some applicants may have very large, multi-state service areas. And, in light of the wide range of power markets in the U.S., the “service area” – to the extent that it is a surrogate for the area in which the power may be sold – may not even be the basis of the need for power. For example and as the guidance notes later in Section 8, the need for a proposed facility may be demonstrated based on a need to diversify sources of energy, reduce average cost to consumer, or reduce reliance on fossil fuels generally. This is fully consistent with NEPA, which does not require the NRC to identify a “need for power.” Instead, “need for power” at the NRC is synonymous with the benefits of the proposed action. While the guidance recognizes that there are alternative ways to demonstrate “need” without a traditional need-for-power analysis, the reference to “service area” at the beginning of the ESRP chapter results in an unnecessary limited approach to the need for power analysis. We recommend that the Areas of Review discussion recognize, at the outset of Section 8, that the need for power is shorthand for the benefits of the project. To signal to reviewers that there is considerable flexibility in the framing of the analysis, the discussion should also make clear that there are many ways to demonstrate the benefits of the project.

On page 3 of Attachment 5, in the discussion of Section 8.1, *Description of Power System*, we recommend revising the first sentence of the Areas of Review as follows, to explicitly acknowledge potential sources of independent analyses in deregulated markets:

ESRP Chapter 8.1 introduces the four criteria that form the basis upon which the staff determines whether the need for power analysis provided by the applicant or an independent third party (e.g., a state public service commission, Independent System Operator, or Regional Transmission Organization) maybe relied on by the NRC, or whether the staff must conduct an independent analysis.

On page 3 of Attachment 5, in the second paragraph of Section 8.1, *Description of Power System*, the guidance notes that, if the applicant’s need for power analysis does not meet the four

criteria, the staff must either find a suitable third party analysis that satisfies the four criteria or perform its own assessment of the need for power in the applicant's defined service area. This is an example of an ESRP section that could benefit for an explicit recognition of the alternate means of demonstrating the benefits of a project other than a need for power in a specific service area. The guidance should note that a proposed reactor might have the benefit of satisfying a national policy objective, such as the expansion of nuclear power or energy independence. There may also be state or local policy objectives that factor into the need for power, including reducing load congestion, tax revenues, improved air quality, and jobs. These policies may be evident in federal, state or local resolutions or other indicia of a desire to promote additional nuclear capacity. A merchant COL applicant could rely on power contracts to purchase the electrical output of the proposed plant. We recommend revising the sentence as follows:

If the applicant's need for power analysis does not meet the four criteria, the staff must either find a suitable third party analysis that satisfies the four criteria or perform its own assessment of the need for power in the applicant's defined service area. Alternatively, the applicant may propose alternative benefits to the proposed project in lieu of a traditional need for power analysis that the staff would review for acceptability.

On pp. 3-4 of Attachment 5, NEI generally agrees with the NRC's definitions of the four criteria for accepting a need for power analysis provided by the applicant or an independent third party. But we believe that the discussion would benefit from a more explicit recognition of the role of state regulatory bodies. For example, the guidance should note that the NRC may typically rely on state programs that are approved by the state public utility commission or applicant reports that comply with state reporting regulations. The guidance should also expressly note that considerable weight should be accorded the electrical demand forecast of a state commission that is responsible by law for providing current analyses of probable electrical demand growth, or has conducted public hearings on the subject. Similarly, in a deregulated market, the guidance should indicate that an applicant may typically rely on reports submitted to regional reliability organizations since, under the Energy Policy Act of 2005 and certain state legislation, these regional operators or RTOs have quasi-governmental authority to require demand forecasts along with reserve and capacity margin calculations. In short, the guidance should indicate to the NRC reviewer that certain types of analysis are presumptively acceptable unless there are reasons for suspecting that they would not satisfy one of the four criteria.

On page 4 of Attachment 5, the guidance states that the need for power can be demonstrated by one of three methods. In our view, these methods are too limited and do not encompass the range of possible benefits of a project. For example, these approaches do not recognize that a proposed reactor might provide cheaper power, promote diversity of supply, or reduce transmission congestion. There may also be state or local policy objectives that factor into the need for power, including tax revenues, improved air quality, and jobs. The guidance should explicitly recognize alternative methods of demonstrating a need (*i.e.*, a benefit). At a minimum, the guidance should note that the three methods are not the only means of demonstrating a need for power.

On page 4 of Attachment 5, the description of acceptable need for power methods relies too heavily on the term “service area,” which, as explained above, does not appear to be defined in the ESRP and may be ambiguous in certain circumstances (e.g., where need for power is to reduce transmission congestion and reduce power prices). The guidance should be revised to explicitly recognize the variety of boundaries (political, geographic, transmission) that may provide a basis for a need for power demonstration.

Also on page 4 of Attachment 5, the third of the acceptable methods for demonstrating need discusses replacement power only in the context of an applicant’s intent to close down “other facilities it owns.” This is too limited a formulation of replacement power. A need for power demonstration can be based on need to replace retiring facilities regardless of ownership. RTOs and ISOs may maintain lists of facilities that are scheduled for retirement or that are nearing the end of their useful life or owners of generation facilities may have announced a schedule for closing a facility for other reasons (e.g., costly fuel, inefficient). There is no reason that replacing the power from those facilities — regardless of ownership — could not be a basis for a need for power demonstration.

On page 6 of Attachment 5, the ESRP states that the changes in the Areas of Review and Review Interfaces sections should replace the information currently in ESRP Section 8.2. The ESRP then goes on to state that ESRP Sections 8.2.1 and 8.2.2 can be combined effectively under ESRP Section 8.2 without any loss of meaning. The draft then combines Subsections 8.2.1 and 8.2.2 under a new Section 8.2, which will be incorporated in the next revision of the ESRP. It is not clear whether the new ESRP guidance on page 6 of the ISG is intended to replace the Areas of Review discussion in current ESRP Sections 8.2, 8.2.1, and 8.2.2 in their entirety. Doing so would result in the elimination of several pages of guidance currently in Sections 8.2.1 and 8.2.2. If this is the NRC’s intent, then NEI believes that the NRC should provide some discussion of the reasons for eliminating that guidance. If the NRC intends to simply combine the guidance in Sections 8.2.1 and 8.2.2 (but not current Section 8.2), then the NRC should consider making further revisions to those sections to reflect lessons-learned during recent ESP and COL reviews.

In addition, NEI reiterates its comments on those sections submitted by NEI on October 12, 2007. Comments made in 2007 by NEI on Sections 8.2.1 and 8.2.2 include the following:

Section 8.2.1 (Power and Energy Requirements):

It should be recognized that information pertaining to RTO/ISO operating margins, projected demand, transmission constraints, or demand in relevant service and markets areas may not be available to Independent Power Producers (IPPs). IPPs are precluded from obtaining this information by FERC regulations since information of this sort could be used by IPPs to gain a competitive advantage in the marketplace. As such, publicly available information may be all that can be used by IPPs for referencing in their environmental reports.

Sections 8.2.1 (Power and Energy Requirements), 8.2.2 (Factors Affecting Growth of Demand), and 8.4 (Assessment of Need for Power), pp. 8.2.2-3, 8.4-5, 8.4-11-12:

The ESRP states: "Forecasts should include demand scenarios for midrange, high, low, 75th percentile, and 25th percentile conditions that incorporate consumer response to power cost changes as new power plants are integrated into the power system." This criterion is too prescriptive. State or regional forecasts may be reliable and should be used by the NRC, even if they do not include all such scenarios. This statement should be deleted. In its place, the ESRP should simply state that the forecast should consider the effects of changes in various assumptions.

Sections 8.2.2 and 8.4:

The ESRP states that the preceding 15 years of data should be considered. This direction is excessive. Moreover, the information may not be available. A better approach would have the applicant provide projected or estimated load growth, which would form the basis for the need for the proposed project. Part of the basis for the projected growth could be historical growth projections coupled with the accuracy of those projections, which could form a basis for the projections into the future. The projections should be reasonable and sufficiently substantive to justify the need for the output of the proposed project along with the associated impacts.

Section 8.2.2 (Factors Affecting Growth of Demand), pp. 8.2.2-4 - 10:

The ESRP requires detailed data (including saturation rates of major appliances, changes in efficiency codes and standards, rate structures, fuel switching assumptions, personal income in the area, generally known availability of gas and oil, use of renewable energy) that appears to be of little or no value in future forecasts. Furthermore, a merchant generator may not have access to this information, or the information may not be applicable to a merchant generator (e.g., rate structures). These requirements should be deleted from the ESRP.

On page 6 of Attachment 5, the discussion of Section 8.2, *Power Demand*, does not acknowledge the flexibility in assessing demand. As noted above, use of the term "service area" is unnecessarily restrictive. In addition, the ESRP guidance does not expressly recognize the geographic location of the demand, which may be critical in some cases. For example, if a need for power analysis was based in part on reducing transmission congestion (or to address pricing effects of load sinks), promoting supply diversity, or replacing retiring units, a simple demand analysis would not necessarily reflect those benefits. The guidance should state that, for applications that rely on benefits other than a traditional need for power analysis, the reviewer may need to evaluate the proximity of the proposed project to major load areas, the types of power being replaced, and the location of retiring units. While this may not be necessary in all cases, the guidance should explicitly recognize the need for the reviewer to be flexible in assessing the power demand.

Draft COL/ESP-ISG-026, Attachment 6:
Staff Guidance for Alternatives Reviews in New Reactor Environmental Impact Statements

Attachment 6 of ISG-026 provides clarifications and changes to the ESRP sections on alternatives reviews, which were last updated in 2007.

On page 2 of Attachment 6, the guidance addresses ESRP Section 9.2, *Energy Alternatives*. The revised guidance appropriately recognizes the distinction between the theoretical potential of an alternative resource (e.g., offshore wind) and what is reasonably foreseeable. The guidance properly takes into account the likely or reasonably foreseeable development of that resource in the region of interest.

Also on page 2, the guidance addresses ESRP Section 9.2.1, *Alternatives Not Requiring New Generation Capacity*. The guidance states that the reviewer should evaluate whether additional conservation above planned efforts in the relevant area are reasonably achievable. However, the guidance should also direct the reviewer to consider whether less conservation than planned is reasonably likely. Some areas of the country have in place very aggressive conservation targets or plans that may not be achievable. These “goals” or targets, while intended to be action-forcing, may not be reasonably achievable without relying on speculation regarding future technological or economic developments. The NRC Staff reviewers should therefore evaluate whether conservation estimates are either under- or over-predicted.

NEI agrees with the discussion on the top of page 3, Attachment 6, that explains that conservation need not be considered for merchant plants.

On page 5 of Attachment 6, the ISG discusses new guidance for Section 9.3, *Site Selection Process*. NEI is concerned that the NRC is unnecessarily increasing the level of scrutiny applied to alternative sites, particularly where the proposed site is to be co-located with one or more existing reactors. As presented in the ISG, the level of effort necessary to demonstrate that “each alternative site could be used to build and operate the proposed project” is far beyond that needed to adequately compare sites under NEPA. Notably, the ISG’s proposed approach goes beyond the NRC’s current “minimum criteria” for candidate sites in ESRP Section 9.3, which includes a standard that there should be “no significant issues that preclude the use of the site.” At a minimum, the guidance should be revised to require only that “each alternative site could likely be used to build and operate the proposed project.”

Page 5 of Attachment 6 also discusses the need for contact with the water management agency regarding water availability. Due to the confidentiality required during the site selection process, the NRC should clarify that these discussions need not identify specific sites but could be more general discussions regarding the availability of water from certain sources.

In the discussion of reconnaissance-level information on page 5, we believe that it would be helpful for the guidance to revise the definition of reconnaissance-level information as follows:

“information that is readily or freely available from the applicant, government, tribal, commercial, and/or public sources.” This change reinforces the ESRP discussion of the level of effort necessary to develop reconnaissance-level information.

On page 6, Attachment 6, the guidance states that applicants should work to minimize conflicts between the NRC NEPA evaluation and the USACE least environmentally damaging practicable alternative (LEDPA) evaluation. NEI agrees that the underlying facts and data supporting each review should be consistent, but we believe that this consistency need not extend to the ultimate regulatory conclusions reached under the two processes. As the guidance suggests (p. 6), there are differences in these evaluations, including their areas of focus. The USACE LEDPA process is based on a statutory standard that is different from the NEPA process, especially as it has historically been implemented by the NRC using its SRP. Therefore, the ISG should be revised to make clear that the ultimate conclusions regarding, for instance, whether a site is practicable under the LEDPA process or is a reasonable candidate site under the SRP, are independent conclusions that are based on the particular regulatory standards and guidance applicable to each evaluation.

On a different subject, the first bullet on page 6 of Attachment 6 should also be modified to address the unique situation of the Tennessee Valley Authority (TVA). As a federal agency that manages the Tennessee Valley River System, TVA has a unique relationship with the USACE with regard to permitting and NEPA coverage for projects on waters under TVA stewardship. For example, TVA’s Memorandum of Understanding with the USACE Nashville District addresses which agency has the lead for NEPA reviews for projects in which both agencies have permitting jurisdiction. For third party projects on a reservoir shoreline for which TVA will issue a 26a permit or for a TVA action, TVA is the lead agency for preparation of a NEPA document, which the USACE adopts. For off reservoir projects, USACE takes the lead and TVA adopts. The Corps still performs the LEDPA analysis. Similarly, the discussion of NRC’s rationale for changes to the ISG on page 7 should also address TVA’s unique situation. For a TVA power project, the Corps may or may not choose to be a cooperating agency. The Corps may opt to adopt TVA’s EIS.

On page 7 of Attachment 6, a previously deleted interpretation of the NRC Regulatory Guide 4.7 population density criteria is reintroduced. This interpretation applies in situations where there is an alternative site of “approximately equal merit regarding issues other than population density.” Under this guidance, the alternative site would be obviously superior to the proposed site if the proposed site has a substantially greater population density than the alternative and has a population density greater than the Reg. Guide 4.7 values. This section of the guidance should be clarified to make clear that the factors that are of “approximately equal merit” are those factors in the second stage of the “obviously superior” test. Only if there is an environmentally preferred site does the NRC move on to the second stage of the test, which considers economics, technology, and institutional factors to determine whether that site is obviously superior. This guidance should be clarified to explain this population density standard is not applied when there are sites of approximately equal environmental impact based on reconnaissance-level data. Instead, this standard would come into play only if the sites are approximately equal during the

obviously superior stage. Otherwise, the other factors in the “obviously superior” stage would be ignored.

On pp. 7-8 of Attachment 6, the guidance notes that ESRP Section 9.4.3, *Transmission Systems*, will no longer be used. NEI agrees with the NRC Staff that alternative transmission line routing is not evaluated because transmission lines are not NRC-authorized construction. In lieu of Section 9.4.3, NEI believes that it would be helpful for future applicants if the NRC developed guidance to address the data needs and reviews associated with offsite transmission lines, particularly for plants where the transmission lines are sited, designed, constructed, and operated by an entity other than the applicant.

In Appendix 2 to this Attachment, *Regarding the Consideration of Cumulative Impacts for the Alternative Sites*, the NRC provides guidance for assessing cumulative impacts at alternative sites. This discussion is somewhat confusing, particularly in the assessment of cumulative impacts for alternative sites. In the third paragraph of page 12, the guidance references the “table of projects around the site,” presumably in reference to other projects in the area that could affect the same resource. If the guidance is suggesting that a complete table of all projects near the alternative sites (in addition to the proposed site) be developed, the ESRP is requesting too much detail. The ESRP should only direct development of the list of projects for all alternative sites if the cumulative effects of the proposed project are greater than SMALL. Otherwise, the guidance would result in unnecessary collection of data.

**NEI Comments on Draft COL/ESP Interim Staff Guidance-027:
“Specific Environmental Guidance for iPWR Reviews”**

General Comments on ISG-027

Draft ISG-027 is intended to clarify the NRC guidance and application of NUREG-1555 to environmental reviews for applications for licenses to construct and operate integral pressurized water reactors (“iPWRs”). Further, ISG-027 states at p. 1 that: “An integrated pressurized water reactor (iPWR) is a small modular reactor (SMR) design in which the reactor and steam generator are integrated into a single module. Fuel would be loaded after modules are installed in the facility. Each module would require a separate license from the Commission.” The guidance applies to NRC staff environmental reviews associated with iPWR applications for limited work authorizations, construction permits, operating licenses, early site permits, and combined licenses.

ISG-027 provides guidance for environmental reviews of iPWR applications in the following areas:

- Licensing scenarios
- Purpose and need
- Cumulative impacts
- Alternatives
- Need for Power
- Benefit-cost analysis

In developing ISG-027, the staff envisioned four possible licensing scenarios:

- All modules in one application
- Two or more license applications (subsequent application expansion of existing site)
- Two or more license applications (subsequent application not considered an expansion of the existing site).
- ESP and a COL Application

“Purpose and need” includes production of electricity as the need or part of the need. Additional purposes or needs for the project will provide greater insight as to the benefits, and assist staff in defining reasonable alternatives to the proposed project, such as:

- Installing additional modules to follow load growth
- Meeting greenhouse gas emission goals
- Replacing existing plants
- Meeting State or Federal energy policy goals
- Enhancing energy diversity
- Consideration of Federal policy not related to environmental quality (10 CFR 51.71(d)).

Cumulative impacts reviews generally follow guidance in draft ESP/COL-ISG-026. The NRC staff considers in cumulative impacts all modules requested plus the ones the staff has determined are reasonably foreseeable.

Alternatives are driven by the purpose and need of the project. Regarding site selection, NRC considers sites that could support all the modules the applicant is requesting plus any that are reasonably foreseeable. The region of interest is determined by the purpose and need statement.

Need for Power and Benefit-Cost: for all scenarios, the need for power and benefit-cost analysis would only be for the modules being licensed.

Specific Comments on ISG-027:

1. It should be clearly stated that this guidance applies to iPWR designs only.
2. ISG-027 details four scenarios in the staff guidance, but none of these scenarios discusses siting an iPWR at an existing low-level radioactive waste (LLWR) site. If there are any unique considerations for iPWRs that are co-located with an existing LLWR, then that scenario should be addressed.
3. Several environmental guidance areas within COL/ESP-ISG-027 are directly related to a delineated schedule for the installation and operation of each specific module of a multi-module iPWR at the proposed site. While all four cited iPWR application scenarios allow for multiple modules, the timing for the installation, licensing, and operation of each module may have significant uncertainty. In some cases, the initial module(s) may have a definitive installation and operation date while the schedule for later modules may be dependent on load forecasts that have inherent uncertainties. The nature of the iPWR modular design allows for incremental addition over a smaller time frame than current large LWRs.

Therefore, the licensee will have the ability to apply for and receive an ESP for a larger number of modules than will be initially installed, while staging future module installation, licensing, and operation with greater flexibility. This is especially the case for the NuScale Power iPWR design, in which a single reactor building is designed to house 12 reactor modules, but can operate with as few as one module initially. The infrastructure for all 12 modules would be in place and allows incremental addition of each module as the licensee determines need.

4. The term "module" may have different meanings depending on the iPWR technology being considered. For example, Westinghouse uses a single reactor pressure vessel (RPV) in its plant design, whereas other vendor designs use multiple RPVs in their plant designs. Is "module" meant to refer to the number of plants to be built at a site or the number of RPV's in a plant? This should be clarified.

On Page 1, ISG-027 states “An integrated pressurized water reactor (iPWR) is a small modular reactor (SMR) design in which the reactor and steam generator are integrated into a single module. Fuel would be loaded after modules are installed in the facility. Each module would require a separate license from the Commission.”

The term “module” appears to have different meanings within the above paragraph. In the first use, “a single module” appears to refer to the integrated structure containing the reactor and the steam generator. The second sentence appears to refer to the individual modules that together make up the entire facility. The last sentence refers to the facility that would be licensed by the NRC.

In one paragraph, “module” describes the reactor and steam generator combination, the individual units that are used to construct the facility, or to the entire facility. To prevent confusion, it is recommended that when the entire facility is being described that the term “unit” be used instead of “module.”

We propose the following text revision to the Background section:

An integrated pressurized water reactor (iPWR) is a small modular reactor (SMR) design in which the major primary loop components are housed in one or more reactor pressure vessels. Fuel would be loaded into these reactor pressure vessel modules after they are installed in the facility. Each reactor pressure vessel module would require a separate license from the Commission (NRC 2011).

5. In the last full paragraph on page 8, starting "For the site selection process," the last sentence asserts that the smaller site footprint allows for a larger pool of potential sites. Is that categorically correct? There are other criteria for siting than size. This is acknowledged in the last sentence of this section. We suggest the word "may" be inserted in front of "allow."
6. Page 8 of the ISG states: “Because iPWRs are much smaller in generating capacity, installations of individual renewable energy technologies (or combinations of renewable and non-renewable energy technologies), conservation, and/or energy efficiency could potentially meet the project’s purpose and need. An alternative is not reasonable if it does not meet the purpose and need statement. NRC staff should identify alternative energy sources that would meet the purpose and need of the proposed action as defined in Chapter 1.”

The first sentence above correctly states that renewable energy technologies could potentially meet the project’s Purpose and Need. The implication is that it could meet the Purpose and Need because the installed capacity could be met by renewable energy technology. However, it is stated in Chapter 1 that the Purpose and Need could include other factors such as “enhancing energy diversity”.

For clarity, we recommend that text be added to the last sentence in this section explaining how all factors described in the Purpose and Need should be considered by reviewers.

Revised wording might be as follows: "NRC staff should identify alternative energy sources that would meet the Purpose and Need and would consider all factors described in Chapter 1."

7. Under Chapter 3, a statement should be added that indicates that the staff understands that proposed operational dates for each module may change, but the applicant should identify that such changes would not affect plant layout or description. Similarly, in Chapter 4, the staff should review pre-construction and construction impacts within the context of the proposed module installation as well as changes in the schedule for individual module installation. Chapter 5 operational impacts should be reviewed over the time frame specified in the application, but changes in this time frame should also be qualitatively considered in this evaluation. In summary, areas within the environmental review guidance for iPWRs that are dependent on the applicant's specified schedule and timing for installation and operation of each of a group of modules should include flexibility to consider changes in the schedule for later module installation/operation.