

**Response to Public Comments on NRC Draft
Interim Staff Guidance ESP/COL-ISG-026 and ESP/COL-ISG-027
(Docket IDs NRC-2013-0211 & NRC-2013-0212)**

The NRC published in the *Federal Register* draft Interim Staff Guidance (ISG) ESP/COL ISG 026, “Interim Staff Guidance on Environmental Issues Associated with New Reactors” and draft ISG ESP/COL-ISG-027, “Interim Staff Guidance on Specific Environmental Guidance for iPWR Reviews” for use and comment on September 13, 2013 on page 56750 Federal Register / Vol. 78, No. 178 and page 56752 Federal Register / Vol. 78, No. 178, respectively.

The public comment period was originally scheduled to close on October 15, 2013. The Nuclear Energy Institute (NEI) submitted a letter on September 17, 2013 (Agencywide Documents Access and Management System (ADAMS) Accession No.ML13268A343), requesting an extension of the public comment period until November 15, 2013, on these two guidance documents. The NRC re-opened the public comment period on November 13, 2013 on page 68101 Federal Register /Vol. 78, No. 219 extending the comment period to November 15, 2013.

Comments were received from NEI. There were several administrative comments that have been addressed throughout the document and are not reflected on the table. All other comments the NRC staff has dispositioned in the following table. The comments are organized by subject area into the following sub-sections: General Comment (x); Specific Comment (x); Attachment (x-a); Mitigation; Definition of “module”; Construction and operation of later modules.

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Mitigation	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.	<p>The NRC agrees with this comment and changes have been made to ESP/COL-ISG-026.</p> <p>Revised Text:</p> <p>The reviewer will address mitigation of impacts. The guidance on mitigation applies to chapter 4 and 5. In chapters 7 and 9, mitigation of impacts at alternative sites will follow the same approach as Chapter 4 and 5.</p> <p><i>Mitigation:</i> The EIS should be written to be clear when mitigation measures are or are not reasonably foreseeable. A mitigation measure can be considered reasonably foreseeable if, for example, it is 1) required by the NRC as a license condition (e.g., a requirement</p>

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		<p>imposed pursuant to 10 CFR 50.54(aa), 2) required or likely to be required by another regulatory agency (e.g., USACE), or 3) mitigation that the applicant has stated to the NRC (e.g., in the Environmental Report) that it would perform. Where mitigation measures would be required by a license condition, that should be clearly stated in the EIS.</p> <p>Where applicable, the NRC staff should specify what Federal, state, or local laws require the mitigation measures, or if there is (or is expected to be) a Federal, state, or local permit that requires the particular measures. The NRC staff should clearly explain the requirements that are being imposed by the regulatory agency with authority over the resource and state how the staff relied on the mitigation to determine the impact level by discussing how the mitigation will be accomplished and whether it is expected to lower the impact level. For example, for a project where a wetlands mitigation plan is required by a state permit issued to the applicant and/or by state laws and regulations, the NRC staff should consider this information in the EIS.</p> <p>If the applicant committed to mitigation measures in the environmental report or other documents submitted to the NRC under oath or affirmation, that may be sufficient for the NRC staff to rely on that mitigation to determine impact levels, provided the NRC staff documents in the EIS why it concludes that the mitigation is reasonably foreseeable. For example, if the applicant states that it plans to use construction best management practices (BMPs) that are not required by a license condition or another state or federal permit, then the staff should rely on this mitigation if it can document that these BMPs are standard industry construction practices. BMPs can also be relied on if they are integral parts of the project. Documentation may take the form of asking the applicant to provide additional information to help determine if these practices are reasonably foreseeable. NRC staff should ask, for example, whether</p>

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		<p>these same practices been used by the applicant on other large construction projects.</p> <p>If mitigation would result in a change in impact level for one or more resource areas, it is particularly important that the staff document the basis for concluding that this mitigation is reasonably foreseeable. NEPA instructs agencies to discuss environmental issues in accordance with their significance. So if a mitigation measure is particularly important to an impact determination, it may be appropriate to ask more specific requests for additional information of an applicant to obtain more details on the proposed mitigation plan. If the available information does not clearly demonstrate whether the mitigation measure is reasonably foreseeable and the non-implementation of that mitigation would result in a change in an impact level, then the staff should provide two impact levels; one with and one without mitigation (Example: The impact from traffic would be MODERATE without the traffic mitigation and SMALL with the mitigation). Because NEPA allows agencies to account for uncertainty, it may be appropriate to discuss why there is uncertainty in a particular analysis or state which impact is more likely to occur. If the non-implementation of mitigation would not alter the impact level, then the staff should provide the impact level without the mitigation and state that the mitigation, if enacted, would further reduce/minimize impacts (Example: The impact from traffic would be SMALL without mitigation, but implementation of a traffic management plan would further reduce impacts within the SMALL category).</p>
General Comment 1	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	The NRC generally agrees with the comment on need for power and has revised the guidance. The benefits assessment in the Chapter 10 cost benefit section does consider a range of benefits in addition to the benefit of the generation of electricity.

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	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.	
General Comment 2	NRC Staff should make clear that it does not intend to apply the new and revised guidance to those ongoing reviews.	The NRC disagrees with this comment. There will be no change to the ISG. The NRC does to the extent practical plan to use the ISG guidance as applicable to its reviews.
General Comment 3	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.	The NRC disagrees with this comment. There will be no change to the ISG. The ISG is written for the staff to evaluate all applicants whether they are a Federal agency or not. The relationship between TVA and the USACE is not within the scope of this ISG.
General Comment 4	...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.	NUREG-1555, The environmental Standard review Plan Section 5.2.1 provides adequate guidance to the staff on evaluating dredging during plant operations. No change to the ISG.
General Comment 5	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.	The NRC does not provide guidance on what applicants should do to comply with the USACE's requirements. Applicants are encouraged, as discussed in the ISG, to engage the USACE early in their project development. In response to this comment, the NRC did seek the view of the USACE on those portions of the revised guidance that addresses activities within the USACE's jurisdiction and made the applicable changes to the ISG.

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Attachment 1	<i>Greenhouse Gases and Climate Change Impacts for New Reactor Environmental Impact Statements</i>	
Attachment 1-a	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.	If IPCC does not publish subsequent reports in the future, the staff would consider using other published reports referenced by the Council on Environmental Quality and Federal programs and agencies charged with the responsibility to assess and report on the science of climate change (e.g., U.S. Global Change Research Program).
Attachment 1-b	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	The general response to the comments regarding mitigation measures also addresses this comment. The reviewer will be referred to the general guidance on mitigation.

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	beyond the scope of the NRC's jurisdiction could be addressed by considering the impact both with and without the mitigation actually being implemented.	
Attachment 1-c	On page 9 of Attachment 1, the discussion of greenhouse gas impacts in Chapter 7, <i>Cumulative Impacts</i> , 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.	To avoid lengthy discussion in Attachment 1, the guidance refers the staff to the updated GHG guidance memo (ADAMS Accession No. ML12356A500) at the end of that paragraph. The memo contains the details for the MODERATE finding, particularly in Attachment 1 to the memo. As stated on page 5 to attachment 1 in the memo, "For the purposes of developing EISs for new reactor license reviews, the NRC staff is informed by the EPA finding that the current effects of GHG emissions nationwide on climate change is detectable and endangers public health and welfare." This falls into the NRC's impact level of MODERATE, noticeable but not destabilizing. However, the staff recognizes that this impact level may be different for a particular application based on evolving science regarding GHG impacts or the purpose and need for the project as discussed in Attachment 1-d. Therefore, the staff has modified the text to allow for determinations of impact level other than MODERATE.
Attachment 1-d	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.	As discussed in response to Attachment 1-c, the text has been modified to address this comment.
Attachment 1-e	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/	The staff has three different analyses of preconstruction/construction GHG emissions received from applicants during the course of review of COL applications. These were evaluated by the staff and it was

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	<p>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.</p>	<p>determined that the UniStar data were conservatively high, and therefore should encompass emissions from construction of most nuclear power plants of similar size. Emissions from preconstruction and construction activities are a small percentage of the total lifetime GHG footprint for a nuclear power plant. The main contributor to the GHG footprint is the uranium fuel cycle emissions, as shown in Table A-3. Changing the preconstruction/construction emissions will not make a significant difference in the overall GHG footprint. ISG-026 Attachment 1 also provides applicants with the option of providing their own estimate of GHG emissions for staff evaluation.</p>
Attachment 1-f	<p>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 Y, 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.</p>	<p>The staff has little data regarding GHG emissions from decommissioning. However, the staff used decommissioning emissions that are conservatively high; in any event, adjusting the decommissioning emissions will not make a significant difference in the overall GHG footprint, as the main contributor to the footprint is the uranium fuel cycle emissions. ISG-026 Attachment 1 also provides applicants with the option of providing their own estimate of GHG emissions for staff evaluation.</p>
Attachment 2	<i>Socioeconomics and Environmental Justice Analysis</i>	
Attachment 2-a	<p>On pp. 15-16 of Attachment 2, the guidance discusses treatment of environmental justice at alternative sites. We</p>	<p>The staff disagrees with NEI's comment. The heart of NEPA is the alternatives analysis, which is the process by which the decision</p>

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	<p>acknowledge that there may be a need to conduct more detailed environmental justice reviews at alternative sites <i>if there are greater than minor impacts at the proposed site</i>. However, such an additional assessment is unnecessary where the environmental justice impacts at the proposed site are SMALL. ISG-026 should be clarified accordingly.</p>	<p>maker compares the environmental impact of the proposed project to that of the reasonable alternatives. NEI states the Environmental Justice analysis is only useful for comparing greater-than-minor impact areas at the proposed site with analogous impact areas at the alternative sites. However, the alternative site analysis considers impacts across multiple resource areas at the proposed and alternative sites to determine whether on balance there is an obviously superior site; therefore, without appropriate consideration of potential environmental justice impacts at alternative sites, that NEPA comparison is incomplete. No change was made to the text of the ISG in response to this comment.</p>
<i>Attachment 3</i>	<i>Historic and Cultural Resource Reviews for New Reactor Environmental Impact Statement</i>	
Attachment 3-a	<p>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.</p>	<p>NEPA and NHPA are separate statutes. Under NEPA, the NRC discloses the impact of the proposed Federal action on the environment, including cultural and historic resources; the NEPA analysis includes consideration of preconstruction activities as cumulative impacts. Under NHPA and its implementing regulations (36 CFR 800), the NRC consults on effects of the “Federal undertaking” on historic properties within the area of potential effects (APE) as defined in 36 CFR 800.16(d). As part of a rulemaking modifying the NRC’s definition of “construction” the Commission addressed this distinction in the statement of considerations (76 FR 56951), in response to a public comment:</p> <p><i>Comment:</i> One commenter asks whether site preparation activities are part of the Federal undertaking that is subject to the NHPA.</p> <p><i>Response:</i> The NRC views site preparation activities with no nexus to radiological health and safety or common defense and security as private actions and would not be subject to NHPA through the NRC. Under the NHPA, an undertaking is “a project, activity, or program funded in whole or in part</p>

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		<p>under the direct or indirect jurisdiction of a Federal agency, including: (A) Those carried out by or on behalf of the agency; (B) those carried out with Federal financial assistance; (C) those requiring a Federal permit or license, or approval; and (D) those subject to State or local regulation administered pursuant to a delegation or approval by a Federal agency.’’ The site preparation activities identified in the rule do not fall within this definition and would therefore not be considered a Federal undertaking subject to NHPA. It may be possible that the site preparation activities require other Federal approvals. For instance, if the site preparation activities occur on Bureau of Land Management land, this could trigger NHPA responsibilities or responsibilities under other statutes through approvals by other Federal agencies.</p> <p>It would, however, be prudent of a materials license applicant that is engaging in site preparation activities to be mindful of the NRC’s obligations under the NHPA, including the requirements to identify any historic properties within the area of potential effects, to consult with the State Historic Preservation Officer (SHPO) and any other relevant stakeholders (such as Native American Tribes) and to attempt to resolve any adverse effects upon such historic properties. These procedural requirements must be satisfied by the NRC before it can approve the subject application (assuming all radiological health and safety and common defense and security requirements are met).</p> <p>For example, Section 110(k) of the NHPA requires that before granting a license the NRC ensure that an applicant has not ‘‘intentionally significantly adversely affected a historic property to which the [license] would relate, or having legal power to prevent it, allowed such significant adverse effect to occur * * *’’ with the intent of avoiding</p>

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		<p>NRC review of the effect of the proposed licensing action on “any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register.” Section 106 of the NHPA. Accordingly, a materials license applicant should proceed carefully when engaging site preparation activities undertaken lest the outcome impacts the NRC’s ability to issue a license.</p> <p>In order to facilitate and expedite the NRC’s NHPA process, materials license applicants are encouraged to contact any potential stakeholders who may have an interest in any historic properties on or near the site and to take steps to prevent or minimize any disturbance to such historic properties. In this regard, materials license applicants are also encouraged, upon the discovery of previously unknown historic properties, archeological resources or other cultural artifacts, to cease any such activities that may disturb or damage such resources and, inventory and evaluate the discovery in accordance with accepted historic preservation and archeological practices (see the U.S. Secretary of the Interior’s Standards and Guidelines for Identification at http://www.nps.gov/history/local-law/arch_stnds_2.htm.</p> <p>The staff has revised the guidance in the ISG to acknowledge the potential relevance of Section 110k of the NHPA for the staff review.</p> <p>Revised wording:</p> <p>When fulfilling its NHPA obligations, the NRC views site preparation activities with no nexus to radiological health and safety or common defense and security as private actions that are not part of the NRC’s Federal undertaking. However, those site preparation activities may be subject to NHPA review to the extent they are encompassed by the Federal undertaking of another Federal Agency, such as the USACE.</p>

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		<p>Certain site preparation activities may have other specific NHPA consequences. The staff during pre-application interactions should inform the applicant that if they decide to commence pre-construction or site preparation activities, the applicant should be cognizant of the anticipatory demolition statutory provision in Section 110(k) of the NHPA (16 U.S.C. § 470h-2(k)) which states:</p> <p>“Each Federal agency shall ensure that the agency will not grant a loan, loan guarantee, permit, license, or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of this Act, has intentionally significantly adversely affected a historic property to which the grant would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the agency, after consultation with the Council, determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.”</p> <p>The staff during the acceptance review and throughout the review should inform management if it appears anticipatory demolition may have occurred and if necessary consult with the Advisory Council on Historic Preservation (ACHP) to determine what action may be appropriate.</p>
Attachment 4	<i>Cumulative Analysis for New Reactor Environmental Impact Statements</i>	
Attachment 4-a	Similar to the general comment on mitigation this comment on cumulative impacts recommends consideration of mitigation by other agencies.	The general response to the comments regarding mitigation measures also addresses this comment. The reviewer will be referred to the general guidance on mitigation.
Attachment 5	<i>Need for Power Reviews in New Reactor Environmental Impact Statements</i>	

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Attachment 5-a	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.	The staff agrees with the benefit characterization provided by the commenter, but the Need for Power chapter is not the correct place for a benefits discussion. Introductory language was added to the document to clarify this point.
Attachment 5-b	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.	The staff agrees that there should be a greater recognition of the role of state regulators, but the four reliability criteria is not the place for that discussion. The staff has added the state/utility certification process as an acceptable way to determine the need for power in section 8.1 of the ISG.
Attachment 5-c	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.	The intent of the alternative methods discussion in Section 8.1 was to expand the list beyond what was contained in the existing ESRP. However, as pointed out by commenters, the expanded language was not entirely clear. Consequently, the staff expanded the list of acceptable methods for demonstrating need.
Attachment 5-d	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.	The staff agrees with the comment and has adjusted the list of acceptable methods to demonstrate need to include the replacement of power from sources other than those owned by the applicant.

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Attachment 5-e	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.	The discussion of Areas of Review on page 6 of the ISG is supplemental to the discussion in the current ESRP and is not intended to replace the current ESRP Sections 8.2, 8.2.1 and 8.2.2. The methodology discussed in the ESRP constitutes guidance to the staff on how to perform the assessment if a reliable analysis is not available. The text has been revised to address this comment.
Attachment 5-f	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.	The staff agrees with the comment in that 15 historic years of data may be more data than is necessary and provided a clarifying statement about the temporal scope of the analyses to sections 8.2 and 8.3. The commenter's recommended approach to load growth describes a system that is consistent with the guidance of the ESRP and the ISG. The assertion that the projections should be reasonable and sufficiently substantive speaks to the ESRP and ISG discussions of the four reliability criteria that govern the quality of input analyses for the staff's use. No changes were made to the ISG based on this part of the comment.
Attachment 5-g	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.	The discussion of benefits is not germane to the discussion of need for power. Benefits are a consideration of section 10.6 of the staff's EIS. Therefore, no change was made to the ISG based on this comment.

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Attachment 6	<i>Alternatives Reviews in New Reactor Environmental Impact Statements</i>	
Attachment 6-a	<p>On page 2, Environmental Standard Review Plan (ESRP) Section 9.2.1, the comment reads:</p> <p>... the guidance states that the reviewer should evaluate whether additional conservation above those plans is reasonably achievable. However, the guidance should also direct the reviewer to consider whether <u>less</u> 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.</p>	<p>The approach used by the NRC staff in Chapter 8 to establish how much of an impact conservation will have on the need for power is typically based on information provided by the applicant regarding its plans for conservation programs in its service territory. If there is no such estimate available from the applicant, the NRC staff pursues other means to establish a reasonable estimate of the impact of conservation on the need for power. The NRC staff makes every effort in chapter 8 to avoid using estimates that are unrealistic (under or over predicted) because the use of unrealistic estimates would be counter to National Environmental Policy Act (NEPA) practice.</p> <p>For Chapter 9, the NRC staff evaluates whether additional conservation (beyond that already considered in Chapter 8) of sufficient capacity to be a reasonable alternative to the proposed project might be achievable within the region of interest and the time frame specified in the purpose and need statement. Therefore, the change proposed by the comment was not incorporated.</p>
Attachment 6-b	<p>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 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</p>	<p>The NRC disagrees with this comment. The complete text of the statement that is being referenced in the ISG reads, “The reviewer must be able to conclude, based on expert judgment, that each alternative site could be used to build and operate the proposed project.” It is clear from the phrase “based on expert judgment” that the ISG is not requiring an incontrovertible finding. The NRC staff believes the ISG statement is fully aligned with the ESRP statement of “no significant issues that preclude the use of the site.” However, this clarification was added to the ISG to make clear the need for the staff to conclude that each alternative site is a reasonable alternative. In other words, the quality of each alternative site must be such that the staff concludes that the site could be used for the project if the</p>

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	<p>“each alternative site could <u>likely</u> be used to build and operate the proposed project.</p>	<p>proposed site were not used. The use of expert judgment is necessary because the attributes of the alternative sites will be determined using reconnaissance-level information, which means there is greater uncertainty regarding environmental impacts as compared to the analysis of the proposed site.</p> <p>Because the guidance already discusses the need for expert judgment, the addition of the word “likely,” as suggested in the comment, is unnecessary. Therefore, the change proposed by the comment was not incorporated.</p>
Attachment 6-c	<p>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.</p>	<p>The NRC staff disagrees with this comment. The NRC staff has researched the origins of the use of the term “reconnaissance-level information” in the late 1970’s and into the early 1980’s and it is clear from that research that the term has a broader meaning than that which the comment suggests. For example, in Enclosure D to SECY-77-433, <i>Policy Statement on Alternative Site Evaluations under NEPA for Nuclear Generating Stations</i>, August 16, 1977, the NRC staff states:</p> <p>“Recently NRR had begun to develop the idea of reconnaissance level information which may be defined as exploratory information obtained from published reports, public records, public and private agencies, individuals knowledgeable about the area or site, and from a short field investigation of the site. ... Reconnaissance level information can be clearly distinguished from the detailed site specific data, generated by baseline studies, that is required to assure that the design and operating characteristics of a nuclear generating station at a specific site will not result in serious environmental damage or degradation.</p> <p>The quality and quantity of information needed to assess various siting considerations should not only be conditioned by its availability, but also by an assessment of its relative importance.</p>

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		<p>The more important a site characteristic is in determining the relative merit of a site with respect to alternatives the more important it is to assemble detailed information to assess these impacts. Guidance on a minimum level of reconnaissance information may be desirable for those considerations which are recognized as most frequently having the greatest importance.”</p> <p>And in Enclosure F to SECY-78-163B, <i>Issues of Significance Relating to Review of Alternative Sites for Nuclear Power Facilities</i>, November 30, 1978, the NRC staff states:</p> <p>“There is general agreement that the staff’s analysis will not be satisfied by cursory gathering of miscellaneous data but will involve a review of available relevant literature, unpublished data available from qualified experts, inspection of the site by qualified experts, and utilization of relevant records from state and local agencies.”</p> <p>And</p> <p>“The amount of information required will vary according to the degree of difficulty in predicting impacts, and the degree of importance of an impact to the overall decision regarding alternative sites. In cases where it is not clear that enough information was utilized to assure an acceptable level of confidence in the decision, it would probably be better to err on the side of too much data rather than too little. This is because of the stress NEPA places on the need for full environmental disclosure.”</p> <p>And</p> <p>“... but NEPA has been construed to mandate a kind of balancing test with regard to data gaps—significant data gaps should be remedied if the benefits of obtaining the information in terms of reducing uncertainty exceed the costs, including delay costs, required to obtain the additional data. This suggests that no inflexible standard can be adopted to the effect that no more than</p>

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		<p>reconnaissance level information can <u>ever</u> be required.”</p> <p>Finally, in Section 2.2.1 of NUREG-0625, <i>Report of the Siting Policy Task Force</i>, August 1979, the NRC staff states:</p> <p>“The analysis of alternative sites is normally based upon “reconnaissance” level information such as scientific literature, reports of government or private resource agencies, consultation with experts, or brief field investigations. [footnote omitted] The amount of data required and the extent of analyses is matched to the importance of possible impacts and the degree of certainty regarding their magnitude. <i>In some cases, detailed investigations related to specific issues may be important to the site decision.</i>” [Emphasis added]</p> <p>From these documents, written at the time the NRC staff was developing the concept of reconnaissance-level information, it is clear that the interpretation proposed in the comment is too narrow. The key point is made in the last sentence of the paragraph in ISG-026 that defines reconnaissance-level information, in which the NRC staff states that the “amount and quality of information must be sufficient based on the expert judgment of the reviewer to make the required determination for which the information is needed.” Therefore, the change proposed by the comment was not incorporated.</p>
Attachment 6-d	<p>On page 6, Attachment 6, the guidance states that applicants should work to minimize conflicts between the NRC NEPA evaluation of the USACE [U.S. Army Corps of Engineers] 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</p>	<p>The NRC staff agrees that a site may be a reasonable alternative under the NEPA process and be impracticable under the LEDPA process. An example of this situation involved the Crystal River site in the application for combined licenses at the Levy site. In that situation the NRC staff concluded that the Crystal River site was a reasonable alternative in that a nuclear plant could be built at the site, doing so would meet the purpose and need for the project, and the environmental impacts at the site made it among the best sites that could be found in the region of interest. However, the</p>

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	<p>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 been historically implemented by the NRC using its SRP [sic]. 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 [sic], are independent conclusions that are based on the particular regulatory standards and guidance applicable to each evaluation.</p>	<p>applicant, in its LEDPA submittal to the USACE, stated that it viewed the site as impracticable according to the definition of that term for LEDPA, based primarily on a concern for grid stability if the new units were built at Crystal River and a single event (e.g., a major storm) incapacitated all of the generating units at that site. The USACE determined that this situation met the definition of impracticable.</p> <p>However, the NRC staff wants to make clear that it believes that situations in which a site is a reasonable alternative under the NEPA process but is impracticable under the LEDPA process will be rare. While the processes are different, they both look at many of the same attributes of the site. An applicant might make various arguments as to why a site is impracticable under LEDPA. But if the reasons given also call into question whether the project could actually be built at the site, or whether the project at that site would meet the purpose and need for the project, then those reasons also call into question whether the site is a reasonable alternative under NEPA. This concern is one of the drivers for this portion of the guidance. The NRC staff's intent in the guidance is for the reviewer to ensure that there are not any significant inconsistencies in the data and information provided to the NRC and to the USACE that would affect the NRC staff's evaluation of the alternative site(s). But the NRC staff agrees that it should be clear that it is possible for a site to be a reasonable alternative under the NEPA process and be impracticable under the LEDPA process. The guidance will be modified accordingly.</p>

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Attachment 6-e	<p>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.</p>	<p>The NRC staff does not agree that this portion of the guidance requires modification to address the special situation regarding TVA. The key sentences in the guidance, as modified in the preceding response, are still applicable. While it is possible that a close working relationship between TVA and the USACE may reduce the likelihood of the types of conflicting information that the guidance addresses, it does not completely eliminate that possibility. At any rate, if TVA and the USACE are working with identical information, and this same information is submitted by TVA to the NRC, then the result of the staff checking the information will simply be to confirm that consistency. Therefore, the change proposed by the comment was not incorporated.</p>
Attachment 6-f	<p>On page 7 of Attachment 6, a previously deleted interpretation of the NRC Regulatory Guide 4.7 population 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</p>	<p>The NRC staff disagrees with the position taken in the comment that this guidance would only apply in a situation in which the alternative site in question was already determined to be environmentally preferable. On the contrary, as the staff reads this guidance, it is a special case of differentiating sites that from an environmental perspective are otherwise (i.e., other than from the standpoint of accident risk to populations) roughly equivalent. However, the NRC staff has determined that the issue of population density is fully addressed by the regulations at 10 CFR 100.21(h), and that the inclusion of this guidance in the ESRP is unnecessary. Therefore, the guidance in attachment 6 was modified to remove the associated text</p>

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	<p>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.</p>	
Attachment 6-g	<p>On pp. 7-8 of Attachment 6, the guidance notes that ESRP Section 9.4.3, <i>Transmission Systems</i>, 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.</p>	<p>The NRC staff understands the concern raised by the comment. However, Section 9.4.3 discusses only the consideration of <u>alternatives</u> to the proposed transmission lines, an issue that the NRC staff will not consider in its environmental evaluations. But the NRC staff had already made a conscious decision to retain in the ESRP the previous guidance regarding the information that the NRC reviewer should consider for the <u>proposed</u> transmission lines associated with building and operating the project at the proposed site (i.e., for Chapters 2 through 5). The primary reason behind the decision to retain this information in the ESRP is that even though the transmission lines are not authorized by the NRC, reasonably foreseeable environmental impacts of these lines must be addressed as part of the cumulative impacts of the project in accordance with 10 CFR 51.45(c). In summary, the ESRP will continue to contain guidance regarding the evaluation of the environmental impacts of the transmission lines that are <u>proposed</u> for the project. But the ESRP will no longer provide guidance regarding alternatives to the proposed transmission lines. Therefore, the change proposed by the comment was not incorporated.</p>
Attachment 6-h	<p>In Appendix 2 to this Attachment, <i>Regarding the Consideration of Cumulative Impacts for the Alternative</i></p>	<p>The NRC staff disagrees with this comment and no changes have been made. The comment seems to indicate a misunderstanding of</p>

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	<p><i>Sites</i>, the NRC provides guidance for assessing cumulative impacts at alternative sites. This discussion is somewhat confusing, particularly in the assessment of cumulative impacts for alternatives 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.</p>	<p>the purpose of evaluating cumulative impacts. Even if the impact of the project to a particular resource is small, cumulative impacts must still be considered. The point of considering cumulative impacts is to determine whether multiple small impacts might cumulatively cause a significant impact. The staff determines the cumulative effect of the proposed project on the environment by adding the incremental effect of the proposed project to other past, present and reasonably foreseeable future projects regardless of what agency or person undertakes such other project or action. In order to develop the cumulative impacts analysis the staff needs a list of other projects near the alternative site that could affect the same resources as the proposed project if it were located at the alternative site.</p> <p>The comment may have intended to indicate that a list of projects around an alternative site is not needed if <u>all</u> of the impacts to the environment at the proposed site are SMALL. However, the NRC staff considers it extremely unlikely that such a situation (all impacts SMALL at the proposed site) will ever occur. Therefore, developing guidance specific to such an unlikely situation isn't warranted. If an applicant believes that it has identified a site for which all impacts are SMALL, it can discuss with the NRC staff how the staff may choose to make adjustments to its review to address that circumstance. Because the ESRP is a guidance document, the staff may deviate from the guidance under appropriate circumstances.</p>

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Specific Comment 1	The comment states that “It should be clearly stated that this guidance applies to iPWR designs only.”	Upon further review, the NRC determined that the guidance in this ISG applies to all Light Water SMRs not just iPWRs. Light Water SMRs are defined as light water reactor units with a nominal output of 300 megawatts electric (MWe) or less that are able to be factory fabricated and transported to the site for assembly of components and operation (http://www.energy.gov/ne/nuclear-reactor-technologies/small-modular-nuclear-reactors). The staff has removed the definition of iPWR and has changed the title to Specific Environmental Guidance for Light Water Small Modular Reactor Reviews. The definition for iPWR has been removed from the guidance and references to iPWR have been replaced with light water SMR.
Specific Comment 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.	Discussions with NEI clarified that this comment was intended to refer to “large light water reactor (LLWR)”, not “low-level radioactive waste.” On page 4 of 10, first paragraph after the last bullet, the following statement will be included: “All of the scenarios described above are valid approaches for sites intended for Light Water SMRs only and for sites with one or more existing large light water reactors (LLWR)”.
Construction and operation of later modules	This comment discusses the uncertainty associated with the timing for construction and operation of later modules after construction of the initial module(s) has begun or is completed.	The staff considered this issue in-depth when developing ISG-027 and was one of the primary reasons why there are four licensing scenarios described. The staff feels that the uncertainty issue is adequately addresses within the four scenarios. Therefore, no change will be made to the ISG.
Definition of “module”	This comment expresses concern that the term “module” may have different meanings depending on the iPWR technology being considered. The commenter goes on to provide examples which are intended to support this concern.	Because the guidance now applies to all Light Water SMRs the definition of iPWR has been removed. See Specific Comment 1.

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Specific Comment 5	<p>In the last full paragraph on page 8, starting “For the site selection process,” 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.”</p>	<p>The staff agrees with the commenter’s suggestion. On page 8 of 10, last sentence, last full paragraph, the following statement will be included:</p> <p>“The Light Water SMRs require a smaller site footprint that LLWRs, which may allow for a larger set of potential sites to be included in the site selection process”.</p>
Specific Comment 6	<p>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."</p> <p>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".</p> <p>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."</p>	<p>The NRC staff understands the concern raised in the comment, but believes the issue is already addressed in the text that follows the portion quoted in the comment. Specifically, in the last sentence of that paragraph, the staff gives an example for the reviewer and concludes by saying, "...as well as any additional purposes identified in the purpose and need statement in Chapter 1.” Therefore, the change proposed by the comment was not incorporated.</p>

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Specific Comment 7	<p>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.</p>	<p>The NRC disagrees that a statement should be added to chapter 4 and 5 to indicate that schedules can change for SMRs. Schedule changes for SMRs are no different than schedule changes for large light water reactors. The review process including RAIs is flexible enough for the staff to consider schedule changes and analyze it in the EIS. Therefore, no additional SMR specific guidance is needed.</p>