



**COMBINED LICENSE AND EARLY SITE PERMIT  
COL/ESP-ISG-026**

**Environmental Issues Associated with New Reactors**

**Interim Staff Guidance**

**August 2014**

*(Final)*

**Interim Staff Guidance on Environmental Issues  
Associated with New Reactors  
COL/ESP-ISG-026**

**Issuance Status**

Final

**Purpose**

The purpose of this Interim Staff Guidance (ISG) is to clarify the U.S. Nuclear Regulatory Commission (NRC) guidance and application of NUREG-1555, “Standard Review Plans for Environmental Reviews for Nuclear Power Plants,” (NRC 2000) regarding the assessment of construction impacts, greenhouse gas and climate change, socioeconomics, environmental justice, need for power, alternatives, cumulative impacts, and cultural/historical resources as part of the preparation of Environmental Impact Statements (EIS) for early site permit (ESP) and combined license (COL) applications.

**Background**

The existing NRC environmental guidance to the staff, is NUREG-1555, “Standard Review Plans for Environmental Reviews for Nuclear Power Plants: Environmental Standard Review Plan” ([NRC 2000](#)), including the 2007 draft revisions to selected sections of NUREG-1555. While preparing the environmental impact statements (EISs) for the first group of COL applications, the NRC staff identified a number of issues that necessitated changes to staff guidance. As a result, the Director of the Division of Site and Environmental Reviews issued a memorandum dated March 4, 2011, to the staff providing guidance on how to analyze these issues in the EISs (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110380369 ([NRC 2011](#))). The staff is incorporating this guidance into an ISG until NUREG-1555 is updated. Among other things, the guidance addresses implications of changes to the NRC’s definition of “construction” in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.10, “License Required; Limited Work Authorization,”) referred to in this guidance as the limited work authorization (LWA) rule.

**Issue Discussion**

This guidance is intended to assist staff in conducting environmental reviews associated with ESP and COL applications. This ISG complements existing NRC guidance, NUREG-1555 including the 2007 draft revisions. Use of this guidance will assist the staff in addressing certain aspects of the environmental reviews for ESP and COL applications that: (1) have evolved since the last update to NUREG-1555, (2) were identified during ESP and COL reviews as needing updating, or (3) involve the U.S. Army Corps of Engineers (Corps or USACE) as a cooperating agency.

**Rationale**

The purpose of this document is to provide updated guidance to the staff on the assessment of construction impacts, greenhouse gases and climate change, socioeconomics, environmental justice, need for power, alternatives, cumulative impact assessments, and historic and cultural resource issues. Detailed guidance is provided within attachments to this ISG. This guidance

ensures that the analyses and review procedures are appropriately standardized and that these issues are addressed consistently and adequately in the resulting EISs.

### **Staff Guidance**

This guidance will be used on an interim basis until NUREG-1555 is updated. This guidance may be revised and updated as needed to clarify the content or incorporate modifications approved by NRC management. Through this document, the NRC staff provides interim guidance to address:

- construction and preconstruction impacts
- mitigation
- greenhouse gases and climate change
- socioeconomics and environmental justice
- need for power
- historic and cultural resources
- cumulative impacts
- alternatives

Below is the background information for construction and preconstruction impacts resulting from changes to the LWA rule.

In 1974, the NRC created the LWA rule (10 CFR 50.10), which allowed for site preparation, excavation, and certain other onsite activities to proceed before a construction permit was issued, but only after NRC review and approval in the form of an LWA. On October 9, 2007, the NRC issued revisions to its rules related to LWAs in *Federal Register* notice, 72 FR 57416 ([NRC 2007b](#)). The NRC clarified that it does not have authority to require an NRC license for activities unless they have a reasonable nexus to radiological health and safety or common defense and security. The revised rule clarified which activities are defined as “construction” because they have such a nexus and therefore fall within the NRC’s regulatory authority; the rule also defined activities that are not considered construction. In discussing the environmental impacts of the proposed action, activities defined by the LWA rule not to be construction are also referred to in this guidance as “preconstruction” activities, because they may occur in the absence of an NRC license and are not part of the NRC’s licensing action. Therefore, preconstruction activities are not considered direct impacts of the NRC’s Federal action. This change has implications for how impacts are described within the NRC’s EISs, even when the application does not involve a request for an LWA. This ISG provides guidance on how EISs are to address construction and preconstruction issues consistent with the LWA rule. Construction and preconstruction issues will be addressed in EISs, as they have been in recent EISs, in a manner consistent with the revised LWA rule.

On February 23, 2009, “Interim Staff Guidance on the Definition of Construction and on Limited Work Authorizations,” was issued in the *Federal Register* (74 FR 8124) and is available at ADAMS Accession No. ML082970729 ([NRC 2009a](#)). The February 23, 2009 ISG provides guidance on the definition of construction, including the delineation of preconstruction activities and the identification of those activities requiring NRC approval. This ISG also provides guidance on the information applicants should provide on impacts from preconstruction activities and cumulative impacts.

The NRC staff expects USACE will be a cooperating agency on the majority of EISs because it is likely to also have a permitting action for the proposed nuclear plant under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899. In addition, if a proposal could modify a federal project, USACE approval may be required under Section 14 of the Rivers and Harbors Act of 1899 (33 USC 408 – commonly referred to as “Section 408”).

The NRC and the USACE will cooperate on the EISs in accordance with the updated Memorandum of Understanding (MOU) between the NRC and the USACE ([NRC 2008](#)) (ADAMS Accession No. ML082540354). The NRC and the Corps established the cooperative agreement because both agencies have concluded it is the most effective and efficient use of Federal resources to develop one EIS that provides the environmental information and analysis needed by both agencies to comply with the National Environmental Policy Act ([NEPA](#)) and related laws to make their regulatory decisions. The Corps indicated that it considers all impacts of preconstruction and construction activities as direct impacts from its Federal action. Therefore, when the Corps is a cooperating agency, impacts from preconstruction are discussed in EIS Chapter 4 to satisfy the needs of the Corps and are also addressed in the cumulative impacts analysis in Chapter 7.

## **Mitigation**

The reviewer will address mitigation of impacts. The guidance on mitigation applies to EIS Chapters 4 and 5. In Chapters 7 and 9, mitigation of impacts at alternative sites will follow the same approach as in Chapters 4 and 5.

*Mitigation:* 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 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.

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.

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 these same practices been used by the applicant on other large construction projects.

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).

### **EIS Chapter-Specific Guidance**

The following guidance is premised on the assumption that the Corps will be acting as a cooperating agency on preparation of future EISs. Under the terms of the MOU, when the Corps is acting as a cooperating agency, “[t]he NRC will be responsible for drafting sections and requesting additional information to the extent that the NRC believes the analysis is needed and would normally be required by the NRC if the Corps were not involved. If the Corps believes that additional analysis is needed, but the NRC does not agree that such analysis would be required under the regulatory procedures of the NRC, such analysis will be the responsibility of the Corps.” General guidance for addressing construction or preconstruction if the USACE is a cooperating agency is summarized below. Detailed guidance on specific topics (greenhouse gases and climate change, socioeconomics and environmental justice, need for power, historic and cultural resources, cumulative impacts, and alternatives) is included in the attachments.

#### Chapter 1: Introduction

Chapter 1 describes the proposed action, the process used to develop the EIS, the purpose and need for the project, and the status of compliance with permits required for the project. Because the USACE is typically a cooperating agency for the EISs, some adjustments are necessary to include information related to the role of the USACE in the review. In addition, the NRC staff introduces in this chapter the issue of preconstruction activities. This chapter should:

- Describe the NRC and the USACE application review.
- Explain the cooperating agency agreement between the NRC and USACE.
- Describe the proposed Federal action for both the NRC and USACE.
- Describe the purpose and need for both the NRC and USACE.

- Explain preconstruction activities.
- Briefly describe the alternatives, including USACE Section 404(b)(1) alternatives, to the proposed action that will be discussed in more detail in Chapter 9 or in a separate appendix.

## Purpose and Need Statement

The purpose and need statement is the foundation of the environmental analysis on which the rest of the EIS is built. The purpose and need statement is developed by the NRC staff, and is informed by the applicant's objectives,<sup>1</sup> as stated in Chapter 1 of the applicant's environmental report. In accordance with the 2008 MOU, NRC should coordinate closely with USACE when determining purpose and need, giving full consideration to USACE's views. USACE must evaluate alternatives not only under NEPA but also in accordance with the Clean Water Act's Section 404(b)(1) guidelines.

For example, in recent EISs for large light-water reactors, the NRC's purpose and need has been described in terms of a specific quantity of baseload electricity within an identified service area within a defined time period. This purpose and need statement is the basis for the need for power analysis and for establishing a reasonable set of alternatives to the proposed action. 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. The alternatives analysis considers both alternative energy sources consistent with the type of power identified, and alternative sites that meet the purpose and need. Energy alternatives that do not meet the purpose and need statement are not considered reasonable alternatives and are not analyzed in detail. For the alternative sites analysis, it must be practicable for the plant to supply its power to the service area identified in the purpose and need. The benefit-cost analysis evaluates the benefit of generating the quantity of baseload power for which there is a demonstrated need against the environmental cost of building and operating the plant. The purpose and need statement cannot be so narrowly drawn as to foreclose all reasonable alternatives.

The NRC's purpose and need in the EIS should be informed by the applicant's objectives, which can be different from the above example. For example, an applicant could include other project purposes in addition to supplying baseload power, such as meeting greenhouse gas emission goals, enhancing energy diversity, or a meeting State energy policy.

## Chapter 2: Affected Environment

Chapter 2 describes the site and environs. This description informs the analysis in Chapters 4 and 5 and serves as the "baseline" of the cumulative impacts evaluation in Chapter 7. The following clarifications address the focus of the information for Chapter 2, and the role of the USACE.

---

<sup>1</sup> [40 CFR 1502.13, "Purpose and Need,"](#) defines purpose and need as follows: "The statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action." It is NRC policy to voluntarily take into account, subject to certain conditions, of the regulations of Council on Environmental Quality (CEQ) implementing NEPA.

- Focus the scope of Chapter 2 on the resource areas that are expected to be most affected by the proposed action or alternatives. Similarly, focus the level of detail for elements in Chapter 2 commensurate with the impact levels presented in Chapters 4 and 5. For example, for a LARGE<sup>2</sup> impact to a resource area related to construction or operation in Chapters 4 or 5, the appropriate baseline information in Chapter 2 needs to be well defined.
- The NRC reviewer should coordinate with the Corps to ensure that information is included in Chapter 2 that the Corps needs regarding their regulated activities including wetlands, streams and rivers that may be affected by the project or the associated transmission lines.

### Chapter 3: Site Layout and Plant Description

Chapter 3 will provide a general characterization of the activities for the principal systems, structures, and components (SSCs) to provide the requisite background for the assessment of environmental impacts.

- The characterization of the activities for the SSCs will include descriptive information, a discussion of construction and preconstruction activities, and a discussion of the operational performance of the SSCs. The purpose of the discussion of the SSCs in Chapter 3 along with a description of the affected environment in Chapter 2 is to provide information for the assessment of impacts in Chapters 4 and 5.

### Chapter 4: Construction Impacts at the Proposed Site

Chapter 4 describes and evaluates the environmental impacts related to the construction of the proposed project, using the information from Chapters 2 and 3. Changes to Chapter 4 result from updated guidance on greenhouse gases and climate change, historic and cultural resources, environmental justice, and the change in the definition of NRC authorized construction. In addition, changes were made to address the difference in treatment of construction and preconstruction impacts between the NRC and USACE, as discussed in the bullets below.

- Chapter 4 will include a discussion of the MOU with the Corps, if applicable, including its purpose and why the two agencies agreed to update the MOU to include the cooperating agency approach.
- Include a discussion of how and why the EIS addresses the impacts of preconstruction activities in Chapter 4. The discussion should explain how each agency establishes the scope and structure of its [NEPA](#) review from its enabling legislation.
- Provide discussions in the appropriate areas about activities for which the applicant expects to need a Corps permit (e.g., dredging, filling, installing culverts, modifying a Federal project etc.).

---

<sup>2</sup> SMALL, MODERATE, and LARGE impact levels are defined in 10 CFR 51, "Environmental Protection Regulations for Domestic Licensing and Regulated Regulatory Functions," Subpart A, "National Environmental Policy Act—Regulations Implementing Section 102(2), Appendix B, "Environmental Effect of Renewing the Operating License of a Nuclear Power Plant," Table B-1.

- In the discussion for each resource area (land use, hydrology, etc.), text should be added to Chapter 4 that describes the basis and conclusion regarding the combined impact level of construction and preconstruction activities (the conclusions are drawn by the review team, which includes NRC and Corps personnel. It also specified that:
  - For any resource area where the combined impact level is SMALL, no further breakdown of impacts between construction and preconstruction is needed, and the NRC staff will conclude the impact from NRC-authorized construction activities is SMALL.
  - For any resource area where the conclusion of the combined impact is greater than SMALL, a statement indicating the impact level for the NRC-authorized construction activities and the basis for the NRC staff's conclusion must be presented.

In general, more detail regarding the analysis, bases, and conclusions should be provided for those activities where the overall impact is greater than SMALL. However, all impacts need to have sufficient basis to support the determination. For resource areas where the impact category level is greater than SMALL, the impact (including supporting analysis, bases, and conclusions) resulting from NRC-authorized construction activities will be discussed separately. For example, if the overall effects of preconstruction and construction on a particular resource area are MODERATE, then the NRC also will assess and draw a conclusion regarding the effects solely from NRC-defined construction activities on the particular resource area. When the overall impact category level is SMALL, then the discussion regarding the NRC-related construction impacts may be relatively brief and no further detailed discussion is necessary. A summary table at the end of Chapter 4 will be used to characterize construction and preconstruction impacts.

#### Chapter 5: Operational Impacts at the Proposed Site

Chapter 5 describes and evaluates the environmental impacts related to the operation of the proposed project, using the information from Chapters 2 and 3. Changes to Chapter 5 are the result of more detailed guidance on greenhouse gases and climate change, historic and cultural resources, and environmental justice. Reference the attachments for more details on the specific issues.

#### Chapter 6: Fuel Cycle, Transportation, and Decommissioning

Chapter 6 describes and evaluates the environmental impacts related to the fuel cycle, transportation of radioactive materials, and the decommissioning of the proposed project. While this ISG provides guidance as to the analysis of impacts associated with greenhouse gases, it does not otherwise provide guidance with respect to the EIS analysis of impacts from the fuel cycle or decommissioning. Reference Attachment 1 for more details on greenhouse gas analysis.

#### Chapter 7: Cumulative Impacts

Chapter 7 describes and evaluates the impacts of the project when combined with the impacts of other past, present, and reasonably foreseeable projects that impact the same resources. The staff has developed guidance for cumulative impact review for Chapter 7 of the EIS in Attachment 4 of this ISG. Reference Attachment 4 for more details on cumulative impacts.

## Chapter 8: Need for Power

Chapter 8 describes and evaluates the need for the power that would be provided by the proposed project. The staff has developed guidance for need for power reviews for Chapter 8 of the EIS in Attachment 5 of this ISG. Reference Attachment 5 for more details on need for power analysis.

## Chapter 9: Environmental Impact of Alternatives

Chapter 9 describes and evaluates alternatives to the proposed project. The staff has developed guidance for alternative reviews for Chapter 9 of the EIS in Attachment 6. Reference Attachment 6 for more details on alternatives analysis.

## Chapter 10: Conclusion and Recommendation

Chapter 10 summarizes the conclusions set forth in the EIS and states the staff's recommendations concerning the proposed action. Discussions of unavoidable adverse impacts, costs, and benefits will be developed in terms of preconstruction and construction activities.

### **Guidance for Specific Issues**

#### Greenhouse Gases and Climate Change

The staff has updated guidance for addressing greenhouse gas (GHG) and climate change impacts for new reactor EISs in Attachment 1 of this ISG. The Commission, in CLI-09-21 ([NRC 2009b](#)) (ADAMS Accession No. ML093070690), provided guidance to the staff regarding consideration of carbon dioxide and other greenhouse gases in its environmental reviews for major licensing actions under NEPA.

The staff's guidance proposes that climate change will be addressed in the affected environment portion of the EIS (Chapter 2) within the discussion of climate. It will also be considered in other resource areas (air and water resources, ecological resources, and human health areas) as part of the cumulative impacts analysis in Chapter 7 for the proposed site and in Chapter 9 for the alternative sites. Carbon dioxide and other GHGs will be considered as direct, indirect, or cumulative impacts on air quality (along with criteria pollutants) in Chapters 4, 5, 6, 7 and 9.

Appendix A of Attachment 1 contains an analysis performed by the NRC staff to determine the GHG emissions in carbon dioxide (CO<sub>2</sub>) equivalent from the uranium fuel cycle and decommissioning, as well as from construction and operation of the facility. Refinements were made to the construction and operation emission estimates presented in the 2011 guidance memo (NRC 2011) (ADAMS Accession No. ML110380369).

An applicant may choose to either submit a detailed analysis of the GHG emissions from its planned facility or reference the staff's analysis in Appendix A of Attachment 1. If the applicant submits a detailed analysis instead of referencing the staff's analysis, then the staff will review the applicant's analysis and compare it to the generic analysis in Appendix A of Attachment 1 and other applicable reports when making a determination of impacts in the EIS.

## Socioeconomics and Environmental Justice

The staff has updated guidance for socioeconomic and environmental justice reviews in Attachment 2 of this ISG. LIC-203, Revision 3, “Procedural Guidance for Preparing Categorical Exclusions, Environmental Assessments, and Considering Environmental Issues” ([NRC 2013](#)), provides guidance for the staff to use decennial census data for demographic information because it disaggregated data down to the census block group level. With the latest decennial census, the U.S. Census Bureau stopped including survey estimates of poverty data. However, another data series, the American Community Survey (ACS), tracks census block group level data on a 5-year moving average, based on survey data. For poverty data, this is the only source for census block group data. Because of this change, the reviewers should use the ACS 5-year summary file estimates for all race, ethnicity and poverty data. However, the reviewer may deviate from the ACS data when there is a reasonable basis for the alternative data source. For example, if decennial census data is reasonably new, the reviewer may deem decennial census data for race and ethnicity to be a reasonable data source.

The staff has guidance in place (NUREG-1555 draft, Revision 1, July 2007, Sections 2.5.4, 4.4.3, and 5.8.3) regarding the assessment of potential disproportionately high and adverse impacts on minority and low-income populations within the 80-kilometer (50-mile) region. Attachment 2 of this ISG contains detailed guidance on performing the environmental justice review that updates the 2007 guidance. These guidance documents are supplemented by the staff’s guidance in LIC-203, Revision 3, and the Commission’s Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions (68 FR 62642) ([NRC 2004](#)). Based on statements in the Commission’s Memorandum and Order approving the ESP for the North Anna ESP site in Louisa County, VA, (CLI-07-27) ([NRC 2007a](#)), the staff determined that the following clarification to the guidance in NUREG-1555 was needed. Chapter 2 (Affected Environment) will describe how the staff will identify and describe the current state of the communities and people within the 80-kilometer (50-mile) region. In Chapters 4, 5, and 7, the staff will describe how the staff should consider the minority and low-income communities identified in Chapter 2, along with the analytical processes for determining socioeconomic impacts to identify potential impact categories (public services, education, demographics), pathways (soil, air, water), or unique practices (e.g., subsistence fishing, religious ceremonies, etc.) that could lead to environmental justice impacts.

## Historic and Cultural Resources

The staff has updated guidance for addressing historic and cultural resources for new reactor EISs in Attachment 3 of this ISG. When the NRC conducts the required National Historic Preservation Act ([NHPA](#)), Section 106 consultation through its process for complying with the NEPA, the EIS contains conclusions to address both statutes with respect to the impacts to historic and cultural resources at the proposed site. The guidance supplements NUREG-1555 with respect to (1) coordinating NHPA with the NEPA conclusion, (2) completing Section 106 consultation, (3) using reconnaissance-level information for alternative sites, (4) analyzing cumulative impacts for historic and cultural resources, and (5) protecting historic and cultural resource information.

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. Certain site preparation activities may have other specific NHPA consequences.

The staff during pre-application interactions should inform the applicant that if it decides to commence 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:

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.

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.

#### Cumulative Impacts

The staff has updated guidance for addressing cumulative impacts in Attachment 4 of this ISG. Chapter 7 will include a discussion explaining the assessment of cumulative impacts relying, in part, on input from earlier sections of the EIS. In the introduction to Chapter 7, a table will display past, present, and reasonably foreseeable projects that occur within the defined geographic area of interest within the established time period that would affect the same resources as the proposed plant. The final section of Chapter 7 should include a summary table of the cumulative impacts. This will be used in the comparison of the proposed site to the alternative sites in Chapter 9.

#### Need For Power

The staff has updated guidance for addressing need for power for new reactor EISs in Attachment 5 of this ISG. The Office of New Reactors has guidance in place (NUREG-1555, Sections 8.0-8.4) for the assessment of the need for power consistent with the objectives of an applicant's COL. The staff's need for power review was clarified further by a series of Commission statements and opinions, the most important of which is the Commission's Denial of Nuclear Energy Institute's Petition for Rulemaking regarding the need for power review, Docket No. PRM 52-2 (68 FR 55905) ([NRC 2003](#)). Because of these clarifications, the staff determined that clarification of the guidance was warranted. NUREG-1555 has significant guidance on how the staff will perform its own analysis if an independent, third party analysis is not available or if one does not meet the four criteria as defined in Attachment 5 of this ISG. The reviewer will perform an independent assessment of the need for power. A comparison of the staff's independent assessment with the applicant's conclusions in its ER will form the basis for the staff's Need for Power determination in the EIS.

The most notable changes for the need for power analysis are as follows:

- The ISG clarifies the ways by which an applicant can demonstrate the need for the full electricity capacity of the proposed project. It also clarifies the types of analyses and

documentation that are sufficient for the staff to rely upon the applicant's need for power determination.

### Alternatives

The staff has updated guidance for the alternatives review in Chapter 9 of the EIS in Attachment 6. The most notable changes for alternatives are as follows:

- The comparison of energy alternatives and the impacts for the alternative sites will include the consideration of GHG emissions.
- Guidance is provided to develop additional detail regarding energy alternatives to support the comparison of alternatives.
- For alternative sites, the assessment will address cumulative impacts (including construction, pre-construction, operation at the site, and other projects as necessary for the cumulative impacts) in each resource area and a single impact level will be determined.
- Alternative transmission line routing is no longer evaluated because transmission lines are not NRC authorized construction. Transmission line routing for the primary site is analyzed in Chapter 7, Cumulative Impacts.

If the USACE is a cooperating agency on the EIS, it generally includes alternatives that will minimize the impacts to aquatic resources including wetlands, streams, lakes, and rivers. USACE also may include an appendix analyzing its public interest review factors. The USACE alternatives analysis under Section 404 of the Clean Water Act provides a basis for the least environmentally damaging practicable alternative determination that USACE makes in its record of decision. The USACE may require additional information to complete its analysis. USACE is responsible for these sections.

### **Attachments**

[Attachment 1—Staff Guidance for Greenhouse Gas and Climate Change Impacts \(NRC 2014a\)](#)

[Attachment 2—Staff Guidance for Socioeconomics and Environmental Justice \(NRC 2014b\)](#)

[Attachment 3—Staff Guidance for Historic and Cultural Resources \(NRC 2014c\)](#)

[Attachment 4—Staff Guidance for Cumulative Impacts \(NRC 2014d\)](#)

[Attachment 5—Staff Guidance for Need for Power \(NRC 2014e\)](#)

[Attachment 6—Staff Guidance for Alternatives \(NRC 2014f\)](#)

### **Final Resolution Method**

The interim staff guidance in this ISG will be resolved by updating the next revision to NUREG-1555, the Environmental Standard Review Plan, and related guidance documents.

### **Applicability**

This ISG is applicable to the review of all ESP and COL applications, including those applicants requesting an LWA. The need for power and the alternative energy guidance is only applicable to those ESP applications that include need for power and alternative energy.

## References

1. [10 CFR 50.10](#): *Code of Federal Regulations*, Title 10, *Energy*, “License Required; Limited Work Authorization.”
2. [10 CFR 51.51](#): *Code of Federal Regulations*, Title 10, *Energy*, “Table S–3, Table of Uranium Fuel Cycle Environmental Data.”
3. [Intergovernmental Panel on Climate Change \(IPCC\). 2012](#): “*Renewable Energy Sources and Climate Change Mitigation: Special Report of the Intergovernmental Panel on Climate Change*.” Intergovernmental Panel on Climate Change. Cambridge University Press, 2012.
4. [National Environmental Policy Act of 1969](#), as amended (NEPA). 42 U.S.C. 4321, *et seq.*
5. [National Historic Preservation Act of 1966](#), as amended (NHPA). 16 U.S.C. 470, *et seq.*
6. [Nuclear Regulatory Commission \(NRC\). 2000](#): “*Environmental Standard Review Plan – Standard Review Plans for Environmental Reviews for Nuclear Power Plants*.” NUREG-1555. Includes 2007 drafts to selected sections.
7. [Nuclear Regulatory Commission \(NRC\). 2003](#): 68 FR 55905. September 29, 2003. “*Nuclear Energy Institute; Denial of Petition for Rulemaking*.” *Federal Register*. U.S. Nuclear Regulatory Commission.
8. [Nuclear Regulatory Commission \(NRC\). 2004](#): 69 FR 52040. August 24, 2004. “*Policy Statement on the Treatment of Environmental Justice Matters in NRC Regulatory and Licensing Actions*.” *Federal Register*. U.S. Nuclear Regulatory Commission.
9. [Nuclear Regulatory Commission \(NRC\). 2007a](#): U.S. Nuclear Regulatory Commission, Memorandum and Order (CLI-07-27) in the Matter of Dominion Nuclear North Anna, LLC. (Early Site Permit for North Anna ESP Site), November 20, 2007. Docket No. 52-008-ESP, Agencywide Documents Access and Management System (ADAMS) Accession No. ML082521051.
10. [Nuclear Regulatory Commission \(NRC\). 2007b](#): 72 FR 57416. October 9, 2007. “*Limited Work Authorizations for Nuclear Power Plants*.” *Federal Register*. U.S. Nuclear Regulatory Commission.
11. [Nuclear Regulatory Commission \(NRC\). 2008](#): *Memorandum of Understanding: Environmental Reviews Related to the Issuance of Authorizations to Construct and Operate Nuclear Power Plants*. September 12, 2008, U.S. Department of the Army and U.S. Nuclear Regulatory Commission, Washington, DC. ADAMS Accession No. ML082540354.
12. [Nuclear Regulatory Commission \(NRC\). 2009a](#): 74 FR 8124. February 23, 2009. “*Interim Staff Guidance on the Definition of Construction and on Limited Work Authorizations*.” *Federal Register*. U.S. Nuclear Regulatory Commission.

13. [Nuclear Regulatory Commission \(NRC\). 2009b](#): U.S. Nuclear Regulatory Commission (NRC), Memorandum and Order (CLI-09-21) In the Matter of Duke Energy Carolinas, LLC, and Tennessee Valley Authority. (Combined License Application for Williams States Lee III Nuclear Station, Units 1 and 2 and Bellefonte Nuclear Power Plant, Units 3 and 4), November 3, 2009. Docket Nos. 52-014-COL, 52-015-COL, 52-018-COL, 52-019-COL. ADAMS Accession No. ML093070690.
14. [Nuclear Regulatory Commission \(NRC\). 2010](#): Memorandum from Michael Johnson to R. W. Borchardt. Subject: "Consideration of Certain Environmental Impacts Relevant to Greenhouse Gas Emissions." January 15, 2010. ADAMS Accession No. ML093520734.
15. [Nuclear Regulatory Commission \(NRC\). 2011](#): Memorandum from Brent Clayton to Scott Flanders. Subject: "Revision 1—Addressing the Construction and Preconstruction Activities, Greenhouse Gas Issues, General Conformity Determinations, Environmental Justice, the Need for Power, Cumulative Impact Analysis and Cultural/Historical Resources Analysis Issues in Environmental Impact Statements." March 4, 2011. ADAMS Accession No. ML110380369
16. [Nuclear Regulatory Commission \(NRC\). 2013](#): Office of Nuclear Reactor Regulation (NRR), Office Instruction Number LIC-203 revision 3, "Procedural Guidance for Preparing Categorical Exclusions, Environmental Assessments, and Considering Environmental Issues." ADAMS Accession No. ML12234A708.
17. [Nuclear Regulatory Commission \(NRC\). 2014a](#): Interim Staff Guidance, Attachment 1: Staff Guidance for Greenhouse Gas and Climate Change Impacts. ADAMS Accession No. ML13350A134.
18. [Nuclear Regulatory Commission \(NRC\). 2014b](#): Interim Staff Guidance, Attachment 2: Staff Guidance for Socioeconomic and Environmental Justice. ADAMS Accession No. ML113350A399.
19. [Nuclear Regulatory Commission \(NRC\). 2014c](#): Interim Staff Guidance, Attachment 3: Staff Guidance for Cultural and Historical Resources. ADAMS Accession No. ML13347B223.
20. [Nuclear Regulatory Commission \(NRC\). 2014d](#): Interim Staff Guidance, Attachment 4: Staff Guidance for Cumulative Impacts. ADAMS Accession No. ML113347B214.
21. [Nuclear Regulatory Commission \(NRC\). 2014e](#): Interim Staff Guidance, Attachment 5: Staff Guidance for Need for Power. ADAMS Accession No. ML13350A444.
22. [Nuclear Regulatory Commission \(NRC\). 2014f](#): Interim Staff Guidance, Attachment 6: Staff Guidance for Alternatives. ADAMS Accession No. ML13347B173.