



July 20, 2009  
NND-09-0198

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555-0001

ATTN: Document Control Desk

Subject: V. C. Summer Nuclear Station Units 2 and 3  
Docket Numbers 52-027 and 52-028  
Combined License Application – Response to NRC  
Environmental Report (ER) Requests for Additional Information  
(RAI): TLine-2 and 3

Reference: 1. Letter from Ronald B. Clary to Document Control Desk,  
Submittal of Revision 1 to Part 3 (Environmental Report) of the  
Combined License Application for the V. C. Summer Nuclear  
Station Units 2 and 3, dated February 13, 2009.  
2. Letter from Patricia J. Vokoun to Ronald B. Clary, Requests for  
Additional Information Related to the Environmental Review for  
the Combined License Application for the V. C. Summer  
Nuclear Station, Units 2 and 3, dated June 22, 2009.

By letter dated March 27, 2008, South Carolina Electric & Gas Company (SCE&G) submitted a combined license application (COLA) for V.C. Summer Nuclear Station (VCSNS) Units 2 and 3, to be located at the existing VCSNS site in Fairfield County, South Carolina. Subsequently the Environmental Report (ER), Part 3 of the application, was revised and submitted to the NRC (reference 1).

The enclosure to this letter provides the SCE&G response to RAI items TLine-2 and 3 transmitted by the NRC via reference 2.

Please address any questions to Mr. Alfred M. Paglia, Manager, Nuclear Licensing, New Nuclear Deployment, P. O. Box 88, Jenkinsville, S.C. 29065; by telephone at 803-345-4191; or by email at [apaglia@scana.com](mailto:apaglia@scana.com).

D083  
MRO

I declare under penalty of perjury that the foregoing is true and correct.

Executed on this 20<sup>th</sup> day of July 2009



Ronald B. Clary  
General Manager  
New Nuclear Deployment

ARR/RBC/ar

Enclosures

c (with Enclosures):

Patricia Vokoun  
Carl Berkowitz  
Richard Darden  
FileNet

c (without Enclosures):

Luis A. Reyes  
John Zeiler  
Chandu Patel  
Stephen A. Byrne  
Ronald B. Clary  
Bill McCall  
William M. Cherry  
Randolph R. Mahan  
Kathryn M. Sutton  
Rich Louie  
John J. DeBlasio  
April Rice  
Joe Gillespie

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**NRC RAI Letter Dated June 22, 2009**

**NRC RAI Number:** RAI TLine-2 **Revision:** 0

**Reference ER Information Needs Item:** N/A

**Question Summary (RAI):**

Provide land use classification data that are in a consistent format for the Santee Cooper and SCE&G transmission siting studies, with respect to Santee Cooper Table 3.8 and SCE&G Tables 4.3-1, 4.3-2, and 4.3-3, based on the most recent data source(s) for the two studies. Include the data source citation(s) for land use data reported in the SCE&G siting study Tables 4.3-1, 4.3-2, and 4.3-3.

**Full Text (supporting information):**

The staff cannot determine the source of the land use data reported in the SCE&G transmission siting study. If the SCE&G and Santee Cooper studies used different land use GIS data, then the staff needs to know upon which source to rely.

**VCSNS Response:**

Both Santee Cooper and SCE&G used recent Land Use (LU)/ Land Cover (LC) information with coverage over the entire state, i.e. SC-GAP Project, South Carolina 27-Land Cover, South Carolina Cooperative Fish and Wildlife Research Unit, USGS Biological Resources Division, South Carolina Department of Natural Resources, 2001.

To refine data accuracy of the SC GAP Project data, SCE&G adjusted the GAP Project land cover quantities based on 2006 satellite imagery. Test models were prepared using the imagery and Erdas Imagine software to allow adjustments in the GAP data to account for land cover changes that have occurred since the GAP data was developed. (i.e., SCE&G used the GAP project classification protocol but adjusted quantities to account for clear cutting, development modification to land cover, etc.) There are 3 references for this in Appendix A of SCE&G's transmission line siting report as follows:

Geo 23m – Resource Satellite [Satellite Imagery]. Acquisition Date 3 May 2006.  
GeoEye. 27 Oct. 2007 <<http://www.geoeye.com>>.

Geo 23m – Resource Satellite [Satellite Imagery]. Acquisition Date 7 Aug. 2006.  
GeoEye. 7 Nov. 2007 <<http://www.geoeye.com>>.

Geo 23m – Resource Satellite [Satellite Imagery]. Acquisition Date 29 Sept. 2006.  
GeoEye. 27 Oct. 2007 <<http://www.geoeye.com>>.

Santee Cooper's separation of Land Use and Land Cover was made because nearly 99% of Santee Cooper's transmission lines will be routed within existing maintained Right of Way (Land Use). More recent LU/LC information is available for some counties; however, to evaluate data consistently over the entire length of the transmission corridors, the most complete data set was used in transmission line siting studies prepared by Santee Cooper. The Land Use of property adjacent to the transmission corridors was included in Santee Cooper's Transmission Line Siting Study (August 2008) Section 3.3 to provide context for the location of the proposed routes. A

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discussion of the Land Cover types occurring within the existing maintained right of way is included in Section 3.4 of the Santee Cooper Transmission Line Siting Study.

SCE&G separated Land Use and Land Cover to comply with its transmission line siting study protocol, which addresses/measures the effects of each separately. Land uses of property within the entire siting study areas of the VCSNS-Lake Murray 230 kV Line, VCSNS-Killian 230kV Line and VCNS-St. George 230 kV Lines were mapped by SCE&G and applied in its siting study. The Land Cover types within the potential route right-of-ways are included in Sections 4.2 and 4.3 of SCE&G's transmission line siting study.

SCE&G believes that the minor differences in the land use and land cover data used by Santee Cooper and SCE&G are appropriate given the different results of the expected transmission routing by each company. As Santee Cooper has proposed routing nearly 99% of its proposed transmission lines within existing right of way, their Land Use discussion is understandably different when compared to SCE&G's which may require more new right of way than the Santee Cooper lines.

**Associated COLA Revisions:**

No COLA revision is required as a result of the response to this RAI.

**Associated Attachments:**

None

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**NRC RAI Letter Dated June 22, 2009**

**NRC RAI Number:** RAI TLine-3 **Revision:** 0

**Reference ER Information Needs Item:** N/A

**Question Summary (RAI):**

Provide the following information in reference to the projected transmission line construction and operation:

1. Identification of the permitting authority(ies) for transmission line construction
2. Description of the transmission line siting procedures that were or are to be followed
3. A list of and schedule for environmental reviews that will be conducted as part of the transmission line siting procedure
4. Standards/procedures for the interconnection operation and the right-of-way maintenance
5. Identification of basic electrical design parameters, including transmission design voltage or voltages, minimum conductor clearances to ground, and the maximum induced current to ground from vehicles or obstacles under the transmission lines
6. Predicted noise levels resulting from transmission system construction and operation
7. Description of land use limitations within the transmission line corridors
8. General methods of construction for the proposed new transmission lines and upgrades (e.g., tower foundations, stringing, location of access roads, span length, and clearing of rights-of-way).

**Full Text (supporting information):**

During the site audit, the staff was referred to the two siting studies to obtain this information; however these studies do not provide adequate detail for the items listed.

**VCSNS Response:**

- 1. Identification of the permitting authority(ies) for transmission line construction**

South Carolina Electric and Gas

For 230kV T-line construction, South Carolina Electric and Gas is subject to the South Carolina Public Service Commission (SCPSC) and as such are subject to the rigorous SCPSC approval process. Ultimate approval to construct is dependent on receipt of a certificate issued by the SCPSC as required in the South Carolina Utility Facility Siting and Environmental Protection Act discussed in detail herein.

The South Carolina Utility Facility Siting and Environmental Protection Act, § 58-33-10 et seq., South Carolina Code, Ann. (1976, as amended) (hereinafter "Act") stipulates that construction of a "Major Utility Facility" cannot begin in South Carolina until a Certificate of Environmental Compatibility and Public Convenience and Necessity ("Certificate") has been issued by the South Carolina Public Service Commission ("Commission"). All transmission lines with voltages of 125 kV or higher

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are “major utility facilities”, as defined by the Act<sup>1</sup>; therefore, all 230 kV lines proposed by SCE&G will require certification by the Commission since none qualify to be exempted from the Act.<sup>2</sup> Major utility facilities undertaken by the South Carolina Public Service Authority are explicitly exempted from the Act.<sup>3</sup>

The Act requires an applicant for a Certificate to file an application with the Commission in a form acceptable to the Commission containing the following information<sup>4</sup>:

- a) A description of the location and of the major utility facility to be built;
- b) A summary of any studies which have been made by or for applicant of the environmental impact of the facility;
- c) A statement explaining the need for the facility; and,
- d) Any other information as the applicant may consider relevant or as the commission may by regulation or order require. A copy of the study referred to in item (b) above shall be filed with the commission, if ordered, and shall be available for public information.

It is required, therefore, that the complete documentation of any siting study associated with any proposed 230 kV line in South Carolina under the jurisdiction of the Act be filed with the Commission along with the application for a Certificate. In the case of SCE&G, the transmission line siting process includes comprehensive documentation of siting studies associated with all 230 kV transmission lines, which are filed with the Certificate applications in all cases. The siting study documentation includes all technical reports, such as biological and cultural resource investigation reports, that were completed in conjunction with the route selection. The documentation provides a description of the systematic, rational steps that led from the identification of all viable alternative routes to the narrowing, analyzing, and ranking of the alternative routes. The decision-making process is based on clear, quantified data that is measured against each alternate route on a qualitative and quantitative basis. The data includes an array of multiple data sets to account for effects to environmental resources, land use characteristics, cultural resources, and aesthetic considerations. The SCE&G siting process is discussed in the V.C. Summer Nuclear Station Units 2 and 3 Transmission Line Siting Study, Chapters 2 and 5.

The Act sets out the procedure whereby the Commission may issue a Certificate. The Certificate may be obtained after notice to all parties identified in the Act and a hearing before the Commission. Proof of service that the parties listed in the Act have received notice, which

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<sup>1</sup> § 58-33-20 (2) (b) SC Code, Ann. (1976, as amended)

<sup>2</sup> § 58-33-110 (4) (a-d) SC Code, Ann. (1976, as amended)

<sup>3</sup> § 58-33-20 (2) (b) SC Code, Ann. (1976, as amended)

<sup>4</sup> § 58-33-120 (1) (a-d) SC Code, Ann. (1976, as amended)

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includes a copy of the application, is required to be presented to the Commission as a part of the application. The Act provides a listing of the parties to receive notice<sup>5</sup>, which include the "...Office of Regulatory Staff, the chief executive officer of each municipality, and the head of each state and local government agency charged with the duty of protecting the environment or of planning land use in the area in the county in which any portion of the facility is to be located."<sup>6</sup> Further, the Act requires that the applicant provide public notice to persons residing in the municipalities entitled to receive notice under § 58-33-120 (2) by the "...publication of a summary of the application and the date on or about which it will be filed with the Commission, in newspapers of general circulation as will serve substantially to inform such persons of the application."<sup>7</sup> The parties to a certification proceeding are set out in the Act and include<sup>8</sup>:

- a) the applicant;
- b) the Office of Regulatory Staff, the Department of Health and Environmental Control, the Department of Natural Resources, and the Department of Parks, Recreation and Tourism;
- c) each municipality and government agency entitled to receive service of a copy of the application under subsection (2) of Section 58-33-120 if it has filed with the commission a notice of intervention as a party within thirty days after the date it was served with a copy of the application; and
- d) any person residing in a municipality entitled to receive service of a copy of the application under subsection (2) of Section 58-33-120, any domestic nonprofit organization, formed in whole or in part to promote conservation or natural beauty, to protect the environment, personal health, or other biological values, to preserve historical sites, to promote consumer interest, to represent commercial and industrial groups, or to promote the orderly development of the area in which the facility is to be located; or any other person, if such a person or organization has petitioned the commission for leave to intervene as a party, within thirty days after the date given in the published notice as the date for filing the application, and if the petition has been granted by the commission for good cause shown.

The clear intent of the notice requirements of the Act and the identification of participants in the certification proceedings for a major utility facility is to give persons and organizations that may have an interest in the proposed project an opportunity to participate in the public hearing before the Commission.

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<sup>5</sup> § 58-33-120 (2-4) SC Code, Ann. (1976, as amended)

<sup>6</sup> § 58-33-120 (2) SC Code, Ann. (1976, as amended)

<sup>7</sup> § 58-33-120 (3) SC Code, Ann. (1976, as amended)

<sup>8</sup> § 58-33-140 (1) (a-d) SC Code, Ann. (1976, as amended)

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The Commission shall render a decision after the hearing and must include certain specific findings set out in the Act. Among those findings, the Commission must determine that "...there is reasonable assurance that the proposed facility will conform to applicable State and local laws and regulations issued there-under, including any allowable variance provisions therein ..."<sup>9</sup> Obviously, the Legislature intended for the Commission to issue a Certificate that requires compliance with local laws and regulations to avoid as much disruption of counties and municipalities' authority as possible. However, the Legislature also understood that (i) the Commission needed the authority to provide for the public good (ii) that utility service is a necessity and (iii) that the utilities under its jurisdiction must be allowed to provide safe and adequate service to the using and consuming public at reasonable rates. The Legislature, therefore, gave the Commission the authority to "...refuse to apply any local law or local regulation if it finds that, as applied to the proposed facility, such law or regulation is unreasonably restrictive in view of the existing technology, or of factors of cost or economics or of the needs of consumers, whether located inside or outside of the directly affected government subdivisions."<sup>10</sup> Additionally, in its opinion, "...if the Commission finds that any regional or local law or regulation, which would be otherwise applicable, is unreasonably restrictive ... it shall state in its opinion the reasons thereof."<sup>11</sup>

The Act partially addresses the schedule upon which a certification proceeding will be conducted. Once the applicant files the application for a certificate, "The Commission shall promptly fix a date for the commencement of a public hearing, not less than sixty or more than ninety days after the receipt, and shall conclude the proceedings as expeditiously as practicable."<sup>12</sup> There is no time period set out in the Act for the Commission to render its decision.

SCE&G also follows the regulations of other appropriate bodies whether state, federal or other local municipality. These permits are similar to Santee Cooper and are discussed in detail in the Santee Cooper discussion that follows.

Santee Cooper

Santee Cooper, as a state owned public utility, does not fall under the South Carolina Public Service Commission guidelines. However, during the transmission line construction process, Santee Cooper must obtain certain federal, state, and local permits as conditions dictate, as does SCE&G. These are as follows:

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<sup>9</sup> § 58-33-160 (1) (e) SC Code, Ann. (1976, as amended)

<sup>10</sup> § 58-33-160 (1) (e) SC Code, Ann. (1976, as amended)

<sup>11</sup> § 58-33-170 SC Code, Ann. (1976, as amended)

<sup>12</sup> § 58-33-130 (1) SC Code, Ann. (1976, as amended)

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Many of these permits are discussed individually in several sub-sections of Section 4 of the Siting Study. The following is a list of permits that may be required prior to installation activities. This list is not exhaustive and may change as specific design and installation plans are developed for this project and as rules/regulations may change in the coming years.

Federal Permits

Certain construction activities in jurisdictional wetlands, streams or other waters of the U.S. may require a Section 404 Clean Water Act permit, which is regulated by the U.S. Army Corps of Engineers, Charleston District.

The U.S. Army Corps of Engineers may also require federal permits for crossings of navigable waters of the U.S. under Section 10 of the Rivers and Harbors Act.

State Permits

Stormwater Pollution Prevention Plans (SWPPPs) may be required in accordance with SCDHEC's *Standards for Stormwater Management and Sediment Reduction*.

SCDHEC may also require State Navigable Waters Permits associated with crossings of State Navigable waters and Section 401 Water Quality Certification for certain Federal Actions, including the USACE Section 404 and Section 10 Permits.

SCDHEC's Office of Ocean and Coastal Resource Management (OCRM) may require Coastal Zone Consistency (CZC) certification under the stormwater management program for the portion the transmission corridors located in the coastal counties.

The State Historic Preservation Office, SHPO, may also require programmatic agreements. Therefore, SHPO will be contacted/involved as impacts to cultural resources are identified and determined

Local Permits

It may be necessary to obtain additional county and/or municipal permits related to sediment control and/or stormwater management in jurisdictions with a SCDHEC authorized program. There are no known local or county land use or permit requirements that would affect the siting of the transmission lines.

**2. Description of the transmission line siting procedures that were or are to be followed**

SCE&G utilizes a comprehensive, three-phase transmission line siting process (Discussed in Section 2.0 of SCE&G's Transmission Line Siting Study). Phase I focuses on collecting all land use, environmental, cultural, and engineering data that should influence the development of

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alternate routes, and involves collecting an array of data from local, state, and federal sources in addition to field studies to develop various data sets. This phase also includes the delineation of a siting study area, collection of data within the area, community workshops for the purpose of receiving information from the people within the siting study area, weighting of the data to reflect the individual data factor's sensitivity to line construction, and combining the weighted data to determine its cumulative influence on line siting. Phase I concludes with the development of alternate routes through areas of lowest constraint to the maximum practical extent. Throughout the data collection effort are points of interaction with various agencies, including county and municipal agencies in the siting study area. This interaction during the early stages of the siting process together with notice requirements of the Facility Siting and Environmental Protection Act (1976, as amended) and the designation of specific entities as participants in the South Carolina Public Service Commission's certification proceedings for major utility facilities, including 230 kV lines, ensures that the interest of all stakeholders are fairly represented and considered when siting and certifying projects in South Carolina.

Santee Cooper considers the following five factors when selecting a route for new transmission lines: economics, environmental impact, safety, system reliability and long range implications to the transmission system. Economic factors may include the cost of acquiring easements for new Right of Way (ROW), clearing the land, transmission line construction and construction of new substations. Environmental impacts may include wetlands, protected species, cultural resources, wildlife, aesthetics, noise, geology, prime farmland, hydrology, land use, land cover, electromagnetic field, floodplains and air quality.

As specific potential routes for a new transmission corridor are determined, safety, system reliability and long range implications of the transmission system are addressed. The safety of a transmission route is improved by making the route as direct as possible, thus minimizing the number of points of intersection and the number of crossings (roads, rail, water, etc). System reliability is improved by limiting the length of the corridor between substations and routing the corridor to be as accessible as possible (easily accessible terrain, near public access points, etc.), thereby providing more reliable service to end users. Long range implications to the transmission system refer to the design of a "looped" system, rather than a "radial" system, so that power flows to substations from more than one source, which minimizes outages to end users. A "looped" system is where the transmission lines are connected through multiple substations to form a circle (or "loop"). A "radial" system is where transmission lines terminate at a single substation which is not linked to another substation or power source.

As mentioned earlier, Santee Cooper's Line Siting Process is not subject to review by the South Carolina Public Service Commission and as such does not fall under all of the same requirements as SCE&G.

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**3. A list of and schedule for environmental reviews that will be conducted as part of the transmission line siting procedure**

**South Carolina Electric & Gas**

SCE&G's three phase transmission line siting process is discussed in Section 2.0 of SCE&G's Siting Study. The process is carefully designed to ensure comprehensive consideration of environmental factors and issues throughout its execution. Execution of the siting process involves numerous steps to ensure all environmental impacts that could influence final siting decisions are appropriately accounted for in siting studies.

Phase I of the transmission line siting process focuses on collecting all land use, environmental, cultural, and engineering data that should influence the development of alternate routes. It includes the delineation of a siting study area, collection of data within it, community workshops for the purpose of receiving information from the people within the siting study area, weighting of the data to reflect the individual data factor's sensitivity to line construction, and combining the weighted data to determine its cumulative influence on line siting.

During Phase I of the siting process execution, the following environmental data are collected and mapped throughout the siting study areas in addition to land use factors, cultural resources, and aesthetic considerations:

- Land Cover;
- Prime Farmland Soils and Soils of Statewide Importance;
- Protected Species locations;
- Heritage Trust Lands;
- State and Federal Lands;
- Hydrography;
- Wetlands;

Phase I concludes with the development of alternate routes through areas of lowest constraint to the maximum practical extent.

Phase II of SCE&G's transmission line siting process is designed to evaluate and compare the alternate routes on a quantitative and qualitative basis. This phase of the siting process includes a second data weighting procedure and the application of data quantities relative to each alternate route, such as the number of homes within 100' of potential routes, homes from 100-200' of each potential route, the acres of wetlands within right-of-way that would be associated with each alternate route, etc., and a second and final public workshop for public comments/input. Phase II includes scoring each alternate route to relate each route's affects to land use, environmental resources, cultural resources, and aesthetic resources. Phase II concludes with the selection of a final route that minimizes impacts to these discussed effects.

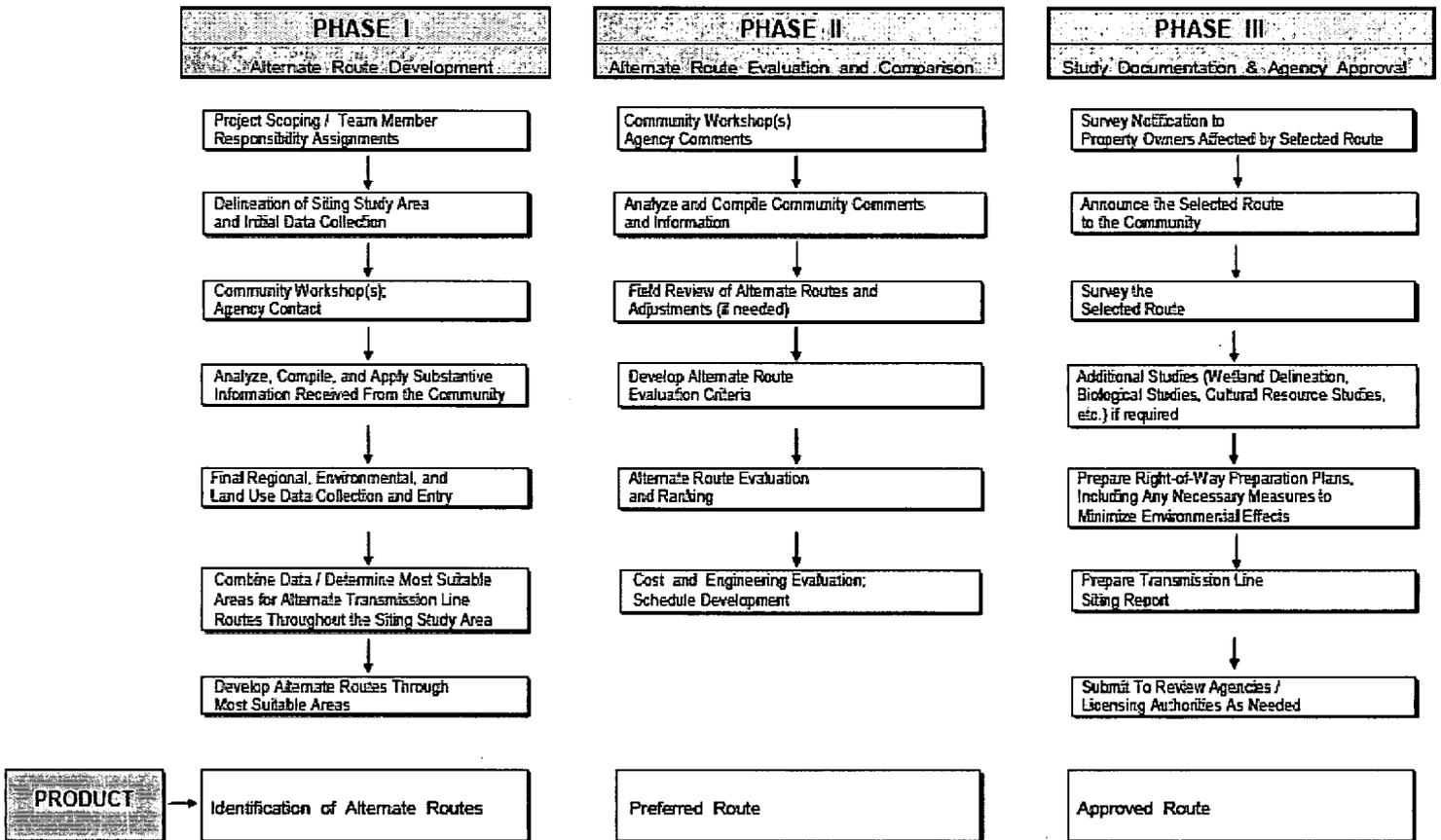
Phase III of SCE&G's transmission line siting process incorporates and/or includes property owner notification, surveying of the selected route,

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intensive field investigations along the selected route to determine the location and identification of any sensitive resources in the right-of-way that will need to be addressed, construction planning, agency contact (as appropriate), state and federal project permitting and/or licensing, formal documentation of the siting study, and right-of-way easement negotiation and procurement.

The following is a chart displaying SCE&G's transmission line siting process.

**TRANSMISSION LINE SITING PROCESS**



In summary, environmental planning is not merely a "review procedure" in SCE&G's transmission line siting process; rather, it is integral to every step in the process from initial data gathering to final route selection and continues through actual line construction. The design of the siting process ensures that selected routes are ones that minimize affects to environmental, cultural, land use, and aesthetic resources. Moreover, the process is traceable to ensure that the decision making rationale can be reviewed in any permitting or licensing proceeding. This traceability is

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very detailed and includes numbers (units, acres, miles, etc.) of specific resources that will likely be affected by line construction. Finally, the specificity of the siting study findings with respect to type, locations, and numbers of resources that could be potentially affected by line construction allows for precise construction planning to minimize or totally avoid impacts.

For Santee Cooper, once a Route is selected as discussed in Section 2.2 of Santee Cooper's Siting Study, Santee Cooper conducts a land survey and completes an environmental study including wetland delineation (to be verified by USACE), Threatened and Endangered species study, and a Historic and Archeological study.

Santee Cooper then applies for any Federal, State, and Local permits, providing them with the environmental study, or portions of it, depending on their requirements. When the design is far enough along, Santee Cooper can then apply to the USACE for navigable water crossing permit(s). Santee Cooper applies for each required permit. Santee Cooper also prepares Stormwater Pollution Prevention Plans when necessary.

**4. Standards/procedures for interconnection operation and right-of-way maintenance.**

SCE&G and Santee Cooper have FERC approved Open Access Transmission Tariffs that include a Large Generator Interconnection Procedure (LGIP). The LGIP applies to all generators 20 MW or greater requesting Transmission Interconnection Service to either of our Transmission Systems.

SCE&G and Santee Cooper provide Interconnection Service to a generating facility after an Interconnection Request is made in accordance with the Transmission Tariffs. The request is used to interconnect a new Generating Facility or either increase the capacity or make a Material Modification to the operating characteristics of an existing Generating Facility that is interconnected with either transmission system.

An Interconnection System Impact Study is completed to evaluate the impact of the proposed interconnection on the safety and reliability of the integrated transmission system. The study identifies system impacts that would result if the Generating Facility were interconnected and identifies required transmission improvements

Right of Way Maintenance is discussed in the ER in sections 3.7.2, 5.1.2, and 5.6.1. These sections explain how SCE&G and Santee Cooper have vegetation management programs in place to prevent overgrowth in the ROWs. Aerial inspections to support routine maintenance activities are typically conducted once each year by SCE&G and twice each year by

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Santee Cooper. Corridors are managed to prevent woody growth along the corridor. Trees along the corridor are side trimmed either by ground crews or helicopters with hydraulically operated saws. The maintenance cycle varies from 3 to 12 years for SCE&G and from 1 to 7 years for Santee Cooper. Ground floors are also reclassified on a three to five year basis or as needed. Transmission lines and corridors are also inspected and monitored as part of the maintenance cycle.

Outside of the ER, these procedures are outlined by Santee Cooper in the "Santee Cooper Transmission Vegetation Management Program (2009)" and by SCE&G in the "230 kV Electric Transmission Right-of-Way Vegetation Management Program (2008)."

**5. Identification of basic electrical design parameters, including transmission design voltage or voltages, minimum conductor clearances to ground, and the maximum induced current to ground from vehicles or obstacles under the transmission lines**

Both SCE&G and Santee Cooper meet, as a minimum, the requirements of the applicable edition of the National Electric Safety Code (NESC) which contain specific sections dictating design parameters; i.e. NESC Section 23, Clearances; NESC Section 25, Loadings for Grades B & C as well as other sections as appropriate.

More specifically, both SCE&G and Santee's ground to conductor clearances exceed NESC requirements. SCE&G & Santee typically provide roadway, street clearances throughout the line spans beyond NESC requirements by approximately 2.1 feet and 2.5 feet respectively at each Company's maximum design operating temperature.

Typical Santee Cooper 230kV structure configurations are diagrammed in Section 1.2. Fig 1.1 in the Santee Cooper Siting Study and typical SCE&G structure configurations are discussed and shown in Section 3.1 of the SCE&G Siting Study.

Transmission line voltages will be 230kV. Section 2.2.2.1, and 2.2.2.2 of the ER states each new unit will require three new 230 kV lines which will be routed to existing or "to be constructed" SCE&G or Santee system substations around the state.

Both SCE&G & Santee Cooper, for induced currents, design to be in compliance with NESC 232C1c and 232D3c.

Section 5.6.3.1, paragraph 3, of the ER further discusses SCE&G's and Santee Cooper's compliance with induced current requirements

**6. Predicted noise levels resulting from transmission system construction and operation**

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Noise levels from transmission line operation are addressed in the siting studies completed by both SCE&G and Santee Cooper in sections 6.12 and 4.9.2 of the respective studies. The SCE&G study states that the noise level will remain below 40 dB while the Santee Cooper study states that noise will stay below 42 dBA. However, in both cases, these noise levels will approach the stated levels only while the listener is very close to the transmission lines and then only in wet days. Noise levels are generally inaudible over other sources of background noise. For a reference, 40 dB is considered to be close to the noise level of a quiet library.

As mentioned in the Santee Cooper Siting Study on Page 4-18, construction activities will temporarily increase noise levels in the area. However, methods are implemented to mitigate the problem such as prohibiting work during sensitive nighttime hours and proper maintenance of construction equipment.

Section 5.6.3.3 of the ER states that "...noise along the existing transmission lines is very low or inaudible" and that "SCE&G and Santee Cooper seldom receive complaints on noise from transmission lines."

Currently, the number of complaints is minimal and complaints regarding transmission line noise are handled on a case by case basis.

**7. Description of land use limitations within the transmission line corridors**

After construction of the transmission lines, SCE&G and Santee Cooper both maintain programs seeking to maintain the right of way which include vegetation management as mentioned in Section 5.6.1 of the ER. Furthermore, as described in section 6.5 of the SCE&G Siting Study, the most significant land use limitation of the proposed transmission lines will be the permanent restriction on structure erection and timber production in the right of way as outlined in the respective company's encroachment guidelines and/or the right of way easement document wording.

**8. General methods of construction for the proposed new transmission lines and upgrades (e.g., tower foundations, stringing, location of access roads, span length, and clearing of rights-of-way).**

South Carolina Electric & Gas

Construction and upgrade methods to build new lines, i.e. install foundations, set poles, string conductor, and clear ROWs will follow standard SCE&G practices which are in line with industry accepted practices. Clearing and establishing new rights of way typically involves the use of specialized equipment such as the "Shinn Cutter". The shinn cutter mulches vegetation, trees and stumps (to ground level or above) in an environmentally efficient manner. SCE&G deliberately leaves stumps low cut with root systems intact, i.e. no grubbing with minimal soil

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disturbance. These methods allow access while preserving water quality as new, desirable vegetation is established in the corridor.

SCE&G follows the SCE&G Wetlands Standard Operating Procedure when right of way conditions dictate, i.e. utilizing chain saws for hand cutting; mats, high flotation equipment and/or other as restricted in wetland areas.

For new construction or upgrades, within existing ROWs, SCE&G's herbicide program has created ROWs that are covered with natural grasses that protect the soil and surrounding water quality. Unlike woody species, grasses have a better root system that will naturally protect the environment during construction activities.

Lines will typically be constructed with single shaft single-circuit or double circuit steel or concrete poles. Typical SCE&G structure configurations are discussed and shown in Section 3.1 of the SCE&G Siting Study. These poles are erected with appropriate construction equipment.

Depending upon soil and design conditions, individual poles may be direct-embedded in an augured hole and backfilled with "select" or native material or the pole may require a designed foundation, either a vibratory steel caisson or augured, reinforced concrete foundation with the pole attached by appropriate anchor bolts.

Span lengths are affected by topography, clearance restrictions, and other design considerations. Spans are typically 500 to 800 feet as discussed in Section 3.1 of SCE&G's Siting Study.

Access to the line and structure locations are typically through existing field or woods roads, drives, local county or state roads. Once the right of way area is accessed; construction manpower and equipment typically traverses down the cleared right of way. SCE&G does not typically construct new access roads along or down the right of way. However, if required appropriate permitting and Best Management Practices will be pursued/followed.

Santee Cooper

During clearing and construction, Santee Cooper complies with Federal, State, and Local authorities and their requirements. Regarding clearing, Santee Cooper removes the trees and underbrush. No grubbing or disturbing the root system or changing existing contours is allowed. During construction, poles may be direct embedded in an augured hole, vibrated into place, or placed on top of installed concrete foundation. Stringing is completed using a controlled tension method. Span lengths and structure locations are determined in the design phase of project. Construction specifications are prepared for each specific project.

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**Associated COLA Revisions:**

No COLA revision is required as a result of the response to this RAI.

**Associated Attachments:**

None