

BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA
DOCKET NO. 2008-196-E

IN RE: Combined Application of South Carolina)
Electric and Gas Company for a Certificate)
of Environmental Compatibility and Public)
Convenience and Necessity and for a Base)
Load Review Order for the Construction)
and Operation of a Nuclear Facility in)
Jenkinsville, South Carolina)
.....)

**SOUTH CAROLINA OFFICE OF
REGULATORY STAFF'S
SECOND CONTINUING "CHG"
AUDIT INFORMATION REQUEST**

**TO: BELTON T. ZEIGLER, K. CHAD BURGESS, AND MITCHELL WILLOUGHBY,
ATTORNEYS FOR SOUTH CAROLINA ELECTRIC & GAS COMPANY;**

The South Carolina Office of Regulatory Staff ("ORS") hereby requests, pursuant to S.C. Code Ann. § 58-4-55 (Supp. 2007) that South Carolina Electric & Gas Company (hereafter referred to as "SCE&G" or "the Company") provide responses in writing and under oath and serve the undersigned within ten (10) days after service of this request to ORS at 1441 Main Street, Suite 300, Columbia, South Carolina, 29201. If you are unable to respond to any of the audit requests, or part or parts thereof, please specify the reason for your inability to respond and state what other knowledge or information you have concerning the unanswered portion.

As used in these audit requests, "identify" means, when asked to identify a person, to provide the full name, business title, address and telephone number. As used in these audit requests, "address" means mailing address and business address. When asked to identify or provide a document, "identify" and "provide" mean to provide a full and detailed description of the document and the name and address of the person who has custody of the document. In lieu of

providing a full and detailed description of a document, you may attach to your responses a copy of the document and identify the person responsible for it. When the word "document" is used herein, it means any written, printed, typed, graphic, photographic, or electronic matter of any kind or nature and includes, but is not limited to, statements, contracts, agreements, reports, opinions, graphs, books, records, letters, correspondence, notes, notebooks, minutes, diaries, memoranda, transcripts, photographs, pictures, photomicrographs, prints, negatives, motion pictures, sketches, drawings, publications, and tape recordings.

IT IS THEREFORE REQUESTED:

- I. That all information requested below, unless otherwise specified, shall be limited to Company's South Carolina Electric Retail Operations in this docket or other period identified in the question.
- II. That all information shall be provided to ORS in the format requested.
- III. That all responses to the audit requests below be labeled using the same numbers as used herein.
- IV. That the requested information be punched for 3-ring binders with numbered tabs between each question.
- V. That if information requested is found in other places or other exhibits, reference shall not be made to those; instead, that the information be reproduced and placed in the audit request in the appropriate numerical sequence.
- VI. That any inquiries or communications relating to questions concerning clarification of the information requested below should be directed to John W. Flitter or Shannon Bowyer Hudson, of ORS.
- VII. That this entire list of questions be reproduced and included in front of each set of responses.
- VIII. That each question be reproduced and placed in front of each response provided.
- IX. That unless otherwise specified the Company provide seven (7) paper copies of responses to ORS. In addition and if technically feasible, it is requested that the Company provide one (1) electronic version of the responses.

- X. That all exhibits be reduced or expanded to 8 ½" x 11" format, where practical.
- XI. If the response to any request is that the information requested is not currently available, please state when the information requested will be available and provided to the ORS.
- XII. That in addition to the signature and verification at the close of the Company's responses, the Company witness(es) or employee(s) or agent(s) responsible for the information contained in each response be indicated.
- XIII. This audit request shall be deemed to be continuing so as to require the Company to supplement or amend its responses as any additional information becomes available.
- XIV. For information requested herein where the information is kept, maintained, or stored using spreadsheets, please provide electronic versions of the spreadsheets, including the formulas used and embedded in the spreadsheet.
- XV. Each answer should incorporate the requested information for South Carolina Generating Company, Inc. ("GENCO"), where applicable.

REQUESTS:

- CHG-2-1 Please provide a copy of the 2005 Site Evaluation Study, including the Summary and Recommendation(s).
- CHG-2-2 Please provide a copy of the "joint implementation plan," as referenced in Exhibit B, page 2 of 4 (para 3) (Most up-to-date version).
- CHG-2-3 Please provide a copy of the EPC Contract between Westinghouse/Stone & Webster (Shaw) and SCE&G.
- CHG-2-4 Please provide a copy of the "integrated EPC Schedule," as referenced in Exhibit B, page 2 of 4 (para 3) (Most up-to-date version) and Exhibit C, page 1 of 5.
- CHG-2-5 Please provide a copy of the "cost estimate," as referenced in Exhibit B, page 2 of 4 (para 3) (Most up-to-date-version).
- CHG-2-6 Please provide an integrated construction schedule ("CPM") beginning with first activities being site work preparation through fuel loading, testing, start-up and commercial operation.
- CHG-2-7 Please provide a detailed cash flow schedule and analysis that is based on the spending requirements to support the construction schedule above.

- CHG-2-8 Please provide a schedule of delivery of the modular packages that will be constructed "off-site," as referenced in Exhibit B, page 2 of 4 (Most up-to-date-version).
- CHG-2-9 Please provide a detailed list of the off-site manufacturing facilities for the modular packages referenced above, as referenced in Exhibit B, page 2 of 4 (Most up-to-date-version).
- CHG-2-10 Please provide a copy of the analysis of integrated transmission stability considering an emergency shutdown of one or both units.
- CHG-2-11 Please provide a copy of the Joint Test Working Group ("JTWG") Procedures or Draft Procedures if the final procedures are incomplete (Exhibit C, page 4 of 5).
- CHG-2-12 Should a system or component fail to pass the JTWG procedures for any reason, how will the cost implications of resolving the deficiency be mitigated?
- CHG-2-13 Under the scenario that a system or component is made up of "Fixed Cost components", "Time and Material ("T/M") components" and/or "Target Pricing components", how will the costs of resolving the deficiency be resolved?
- CHG-2-14 Will there be a Nuclear Regulatory Commission ("NRC") approval step between the "Mechanical Completion" and the "turn over care, custody and control of that system to SCE&G?" (Exhibit C, page 5 of 5).
- CHG-2-15 Does Article 14 of the EPC Contract address the formal point at which "the Equipment and each Unit" is declared "covered" by explicit or implied warranties, "free from defects in design, workmanship and material, etc.", as declared in Exhibit C, page 5 of 5?"
- CHG-2-16 Provide a copy of the Qualified Vendor list (Exhibit D, page 1 of 10).
- CHG-2-17 Is it a part of the EPC contract that Westinghouse/Shaw provide SCE&G a copy of the qualified vendor list as new vendors are added and substandard vendors are removed?
- CHG-2-18 Is the Transmission Interconnection Study ("TIS") in the Application a Public Version?
- CHG-2-19 Is there a Confidential Version of the TIS? If yes, please provide a copy.
- CHG-2-20 Please explain how SCE&G will be assured that all external manufacturing will be monitored and adhere to necessary codes and specifications when it appears that a number of the potential equipment suppliers have multiple sites and facilities around the world? Did SCE&G consider the possibility that shipment of inferior equipment

to the site will result in delays in construction that very well may impact schedules and costs? If yes, please identify any planned contingencies for such an occurrence.

- CHG-2-21 Please provide a list of Purchase Orders for long lead time forgings and components that have been issued to fabricators as of 6/1/2008.
- CHG-2-22 Please explain the SCE&G Reserve Margin calculation.
- CHG-2-23 Exhibit G indicates that SCE&G has a Reserve Margin of 12-18%. What is the "required margin" established by SERC?
- CHG-2-24 Section 2 of Exhibit G indicates that SCE&G will only meet the "range" of Reserve Margin in 2019 and 2020 with the "addition of 614 MW's of nuclear capacity in 2016" and an additional 614 MW's in 2019 plus 93 MW's in 2022. Is the 12.0-13.0% reserve satisfactory for SCE&G?
- CHG-2-25 Please provide the latest retirement study performed by SCE&G for its generating fleet resources.
- CHG-2-26 Will engineering support for Units 2 and 3 be separate from the Engineering support for Unit 1 or will the same engineers work on both types of plants?
- CHG-2-27 Please supply a copy of the Emergency Plan that incorporates Units 2 and 3.
- CHG-2-28 Please supply a copy of the post exercise critique findings/results for the last three Emergency exercises.
- CHG-2-29 Please provide the SCE&G make-up water study for Units 2 and 3.
- CHG-2-30 Please provide the SCE&G cooling water study for Units 2 and 3.
- CHG-2-31 What is the safe yield of the Broad River, Monticello Reservoir, and Parr Reservoir system?
- CHG-2-32 Please provide a water balance analysis for the operation of Units 2 & 3 during the critical drought.
- CHG-2-33 Are there competing uses for the storage in Parr or Monticello Reservoirs?
- CHG-2-34 Define the priority of use of the competing uses.
- CHG-2-35 How will the water lines from the Intake to the Units 2 and 3 cooling towers be protected as they pass across open areas en-route to Units 2 and 3 sites?
- CHG-2-36 Will the water lines from the Intake to Units 2 and 3 cooling towers be fenced?

- CHG-2-37 Will the water lines from the Intake to Units 2 and 3 cooling towers be monitored by remote cameras, etc?
- CHG-2-38 What is the staffing plan to support the ramp up for Units 2 and 3?
- CHG-2-39 What is the staffing plan to support the ramp up for Units 2 and 3 operators and maintenance staff?
- CHG-2-40 Who is developing the Operating and Emergency Procedures for Units 2 and 3?
- CHG-2-41 What is the plan for training operators for AP1000 Plants?
- CHG-2-42 Will some of the current Unit 1 operators be re-trained for Units 2 and 3?
- CHG-2-43 Where will the operators for Units 2 and 3 be trained?
- CHG-2-44 Who will teach the training staff how to operate the Simulators?
- CHG-2-45 What is the current (2007) average production cost for the SCE&G Fleet, assuming 56% ratio of base load to total capacity (Exhibit H, page 2 of 11)?
- CHG-2-46 What is the forecast (2020) average production cost for the SCE&G Fleet, assuming the addition of the VCSNS Units 2&3 (Exhibit H, page 2 of 11)?
- CHG-2-47 What is the forecast (2020) average production cost for the SCE&G Fleet, assuming the VCSNS Units 2&3 are not added to the system (Exhibit H, page 2 of 11)?
- CHG-2-48 Exhibit H, page 2 of 11, indicates that 23% of the existing base load capacity is over 40 years in age. What are the expected "environmental compliance costs" associated with maintaining these units in service for the next 10-15 years?
- CHG-2-49 Please provide SCE&G planning studies that have addressed the reasonableness of Wind, Solar, and Bio Mass generation in the SCE&G long range planning process.
- CHG-2-50 Please provide the basis for the SCE&G projection for Coal pricing (Exhibit H, page 8 of 11).
- CHG-2-51 Based on the comparisons in the two tables in Exhibit H, page 9 of 11, the nuclear strategy has a \$94.9 Million advantage over Coal with a \$15 CO₂ cost. However, with a \$0 CO₂ cost Coal has an \$82.7 Million advantage. What is the "breakeven" point at which there is little to no advantage of Coal versus Nuclear?
- CHG-2-52 What set of parameters are required to produce the "break even" scenario?
- CHG-2-53 Please produce a table similar to the table on page 11 of 11 in Exhibit H but for Coal in lieu of Gas.

- CHG-2-54 Please explain the accuracy of the Handy-Whitman All Steam Generation Plant Index for nuclear costs
- CHG-2-55 How does Handy-Whitman project nuclear costs without any firm history of nuclear construction costs in the US during the past 20+ years and certainly not the AP1000?
- CHG-2-56 Exhibit I, page 1 of 3, indicates nine (9) cost elements subject to escalation. Of the nine elements, four (4) are some variation of Firm price or Firm price with some adjustment. The remaining five (5) elements are all referenced to Handy-Whitman All Steam & Nuclear Generation Plant Index with the exception of Item 8 which is indexed to the GDP Chained Price Index. The first four elements have a relatively low risk associated with them due to the nature of the Firm price criteria. The remaining five elements have a "higher than average" or "moderately high" risk associated with them. Please provide an overall assessment as to the level of risk SCE&G anticipates based on this "matrix" of risk levels.
- CHG-2-57 Please provide the basis for the percentage risk assigned to each Contingency in Chart A of Exhibit I following page 3 of 3.
- CHG-2-58 Is there an upper and lower limit of the risk percentages defined in Chart A of Exhibit I?
- CHG-2-59 Please provide an assessment of the "lower and upper envelope" of risk associated with Exhibit J, Item 3, Licensing, Regulatory etc., page 5 of 12, **Political, Legislative, Regulatory or Public Opinion Risks.**
- CHG-2-60 Provide the basis for the expected capacity factor to be in excess of 90%. {Para 5 - Application}
- CHG-2-61 Explain what is meant by "when adjusted for the effects of refueling and maintenance outages." {Para 5 - Application}
- CHG-2-62 Explain the process used to select the AP1000 technology. {Para 6 - Application}
- CHG-2-63 Provide a copy of all documents including requests for bids or information from reactor vendors, responses to request for bids or information from vendors, and SCE&G's analysis of the reactor technologies. {Para 6 - Application}
- CHG-2-64 Provide all reports from consultants relevant to selection of the AP1000 technology and all other reports supporting SCE&G's selection of the AP1000 technology. {Para 6 - Application}
- CHG-2-65 Explain the process used to select Stone and Webster ("S&W") as the EPC contractor.

- CHG-2-66 Provide a copy of all documents including requests for bids or information from EPC contractors, responses to request for bids or information from EPC contractors, and SCE&G's analysis of EPC bids.
- CHG-2-67 Provide all reports from consultants relevant to selection of S&W and all other reports supporting SCE&G's selection of S&W as the EPC contractor.
- CHG-2-68 Why was the EPC method of contracting selected for this project?
- CHG-2-69 Were other types of contracting such as EP with a separate construction contract considered?
- CHG-2-70 Provide the basis for the request for a 30 month construction schedule contingency. {Para 9 – Application}
- CHG-2-71 Provide an estimate of the impact on the capital cost of the project, if the construction schedule is extended by the requested 30 month construction schedule contingency? {Para 9 – Application}
- CHG-2-72 Provide a copy of all documents provided by Westinghouse that describe the design features and specifications of the AP1000.
- CHG-2-73 Describe the operation of the passive safety features incorporated in the AP1000 design.
- CHG-2-74 Provide a copy of all correspondence with Dr. Kyle Turner related to the 2005 site selection study.
- CHG-2-75 Provide a copy of all work papers and supporting documentation related to the 2005 site selection study.
- CHG-2-76 Provide a full size site layout drawing.
- CHG-2-77 Provide a list of the proposed construction start dates known to SCE&G for all AP1000 projects.
- CHG-2-78 With the proposed startup schedule, where in the list of proposed AP1000 projects will the Summer 2 and 3 project fall based on construction start date? That is, first, second, etc.
- CHG-2-79 How did SCE&G assess the potential impact of multiple AP1000 projects being underway at the same time as the Summer 2 and 3 project including demands on procurement, craft labor, engineering labor and project management personnel?
- CHG-2-80 Provide all supporting documents and analyses referenced in 2-79.

- CHG-2-81 Identify all contractors that SCE&G considered as potential providers of the EPC services.
- CHG-2-82 Provide a detailed description of the modular construction approach planned for the project including the number and description of modular units.
- CHG-2-83 Where will they be manufactured?
- CHG-2-84 Provide the qualifications of the manufacturer.
- CHG-2-85 How will quality assurance be ensured?
- CHG-2-86 Provide the technical and financial evaluations of new nuclear technologies conducted in 2005 and 2007.
- CHG-2-87 How were the technical weighting factors determined?
- CHG-2-88 Given that the start date for construction of the AP1000 reference plant, Bellefonte, is after the proposed start date for Summer 2 and 3, how will SCE&G ensure that the resolution of technical issues for Bellefonte will support the Summer construction schedule?
- CHG-2-89 The first generation of PWRs experienced significant problems with Steam Generators leading to the replacement of Steam Generators in essentially all PWRs in the U.S. What is the design life of the AP1000 steam generators?
- CHG-2-90 Please provide the basis for having confidence that the Steam Generators will be capable of reaching their design life.
- CHG-2-91 Provide the Projected Operations and Maintenance Cost in \$/MWh.
- CHG-2-92 Provide the Projected Overnight Construction Cost in \$/KWe for VCSNS Units 2 and 3 and for the other reactor technologies analyzed.
- CHG-2-93 What is the EPC contract amount and percentage that is included in the Firm/Fixed Price portion of the contract?
- CHG-2-94 What is the EPC contract amount and percentage that is included in the Target Price portion of the contract?
- CHG-2-95 What is the EPC contract amount and percentage that is included in the Time and Material portion of the contract?
- CHG-2-96 How has SCE&G confirmed that the contract amounts in the EPC contract are reasonable.

- CHG-2-97 Provide all supporting documentation that supports the reasonableness of the contract amounts?
- CHG-2-98 Describe the liquidated damages included in the EPC contract, including the amount and types of liquidated damages.
- CHG-2-99 What is the maximum amount of liquidated damages to which Westinghouse/S&W are exposed in the EPC contract?
- CHG-2-100 Provide a copy of the Westinghouse Quality Management System.
- CHG-2-101 Provide the basis for the sole source providers shown in the table on pages 3 and 4. For example, why is Caterpillar the only supplier of diesel generators?
- CHG-2-102 How has SCE&G assessed the capability of the vendors shown in the table on pages 3 and 4 to meet the demands of multiple simultaneous AP1000 projects? Provide all supporting documentation.
- CHG-2-103 Given that no AP1000 projects have been built, what is the basis for the Anticipated Construction Schedule shown in Exhibit E?
- CHG-2-104 Provide all supporting documentation used in the development of this milestone schedule.
- CHG-2-105 What is the planned duration of site specific activities such as clearing, grubbing and grading the site?
- CHG-2-106 What is the status of procurement activities shown for the second quarter of 2008?
- CHG-2-107 Who developed the specifications for the procurement of the items shown for procurement in the second quarter of 2008?
- CHG-2-108 Were these second quarter procurement items competitively bid?
- CHG-2-109 Explain the difference between the "Issue Purchase Order" action in 08-2Q and the "Issue Final Purchase Order" actions in 08-2Q and 08-3Q and beyond.
- CHG-2-110 Identify any "off ramps" in the schedule shown in Exhibit E. That is, has SCE&G identified any points at which the project may be delayed or cancelled, if conditions warrant?
- CHG-2-111 Provide the proposed staffing for each quarter shown on the milestone schedule, including craft labor, supervision and non-manual personnel.
- CHG-2-112 Has SCE&G evaluated the possible impact of multiple AP1000 projects underway in the southeast on the availability of craft labor?

- CHG-2-113 If the answer is yes to the above question, provide the results of these evaluations and supporting documentation.
- CHG-2-114 Provide a schedule of required permits to support the milestone schedule.
- CHG-2-115 Provide the confidential version of Exhibit E, Chart A.
- CHG-2-116 Provide the estimates of overnight cost and capacity of all new nuclear projects, that SCE&G has in its possession.
- CHG-2-117 Has SCE&G attempted to quantify the potential cost impact of the risks identified in Exhibit J?
- a) If yes, please provide all documents relevant to this quantification.
 - b) If not, please explain why not.
- CHG-2-118 Has SCE&G conducted a probabilistic risk assessment for the project that results in the probability of the project's being constructed within certain cost and schedule limits? For example, what cost and schedule estimates result in a 95% probability of success?
- CHG-2-119 Provide all probabilistic assessments of project risk and all supporting documentation.
- CHG-2-120 Explain how the risk factors in Exhibit J were considered in SCE&G's decision to build the new AP1000 units.
- CHG-2-121 Provide all relevant documentation supporting the consideration of these risks in Exhibit J.
- CHG-2-122 Describe in detail any actions that SCE&G can take or plans to take to mitigate each risk area identified in Exhibit J.
- CHG-2-123 What amount of cost and schedule contingency are included in the project?
- CHG-2-124 Identify all procedures that control the process of contracting for large projects.
- CHG-2-125 How does SCE&G identify qualified vendors?
- CHG-2-126 Describe the qualification process for vendors.
- CHG-2-127 Describe the RFP process for large projects.
- CHG-2-128 How is the RFP distributed and advertised?

- CHG-2-129 Describe the bid evaluation process.
- CHG-2-130 How are cost, quality, experience and other factors considered in the bid evaluation process?
- CHG-2-131 Explain SCE&G's policies concerning the use of fixed price or time and material type contracts.
- CHG-2-132 How does SCE&G minimize risk in its contracting for large projects?
- CHG-2-133 Describe any risk sharing features of the contracts that SCE&G anticipates for the new Summer units.
- CHG-2-134 How will the risk of the new Summer units be shared with the major vendors?
- CHG-2-135 Describe the process for letting a sole source or single source contract.
- CHG-2-136 What are the criteria for using the sole source process?
- CHG-2-137 How is the fairness of the cost determined?
- CHG-2-138 Describe the project management organization used by SCE&G for the Summer 2 and 3 project.
- CHG-2-139 Describe how SCE&G provides oversight for the Summer 2 and 3 project including outside organizations and the involvement of senior and executive management in project oversight.
- CHG-2-140 Describe how project budgets are determined and monitored.
- CHG-2-141 Provide examples of project budget variance reports.
- CHG-2-142 Describe the procedure for corrective action if significant budget variances are identified.
- CHG-2-143 How is the impact of budget variances shared between SCE&G and the contractor?
- CHG-2-144 Describe how project schedules are developed and monitored.
- CHG-2-145 How is the critical path determined?
- CHG-2-146 Describe the procedure for corrective action if significant schedule variance is identified.
- CHG-2-147 How is the impact of significant schedule variances shared between SCE&G and the contractor?

- CHG-2-148 How is engineering progress monitored in the Summer 2 and 3 project?
- CHG-2-149 Describe the corrective actions if a significant variance in engineering progress is identified.
- CHG-2-150 How is procurement progress monitored in the Summer 2 and 3 project?
- CHG-2-151 Describe the corrective actions if a significant variance in procurement is identified.
- CHG-2-152 How is permitting progress monitored in the Summer 2 and 3 project?
- CHG-2-153 Describe the corrective actions if a significant variance in permitting is identified.
- CHG-2-154 Describe any additional significant project management activities undertaken by SCE&G to ensure the success of the Summer 2 and 3 project.



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