DIRECT TESTIMONY OF

STEPHEN A. BYRNE

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2009-293-E

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Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND POSITION.

A. My name is Stephen A. Byrne and my business address is 1426 Main Street, Columbia, South Carolina. I am Executive Vice President of South Carolina Electric & Gas Company ("SCE&G" or the "Company").

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I have a Chemical Engineering degree from Wayne State University. After graduation, I started my nuclear career working for the Toledo Edison Company at the Davis-Besse Nuclear Plant. I was granted a Senior Reactor Operator License by the Nuclear Regulatory Commission ("NRC") in 1987. From 1984 to 1995, I held the positions of Shift Technical Advisor, Control Room Supervisor, Shift Manager, Electrical Maintenance Superintendent, Instrument and Controls Maintenance Superintendent, and Operations Manager. I began working for SCE&G in 1995 as the Plant Manager at the V. C. Summer plant. Thereafter, I was promoted to Vice President at the

V. C. Summer plant. In 2004, I was promoted to the position of Senior Vice President Generation, Nuclear and Fossil Hydro. I was recently promoted to the position of Executive Vice President for Generation.

Q. WHAT ARE YOUR DUTIES WITH SCE&G?

A. I am in charge of overseeing the generation of electricity for the Company, and as Chief Nuclear Officer, I also oversee all nuclear operations.

Q. HAVE YOU EVER TESTIFIED BEFORE THIS COMMISSION?

A. Yes. I have testified before the Public Service Commission of South Carolina (the "Commission") in several past proceedings, including the proceeding on SCE&G's Combined Application for a Base Load Review Order related to the construction of Virgil C. Summer Nuclear Station ("VCSNS") Units 2 & 3 (the "Units") near Jenkinsville, S.C.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to provide the Commission with an update of the construction progress related to the Units, in compliance with the directives of the Commission in Order No. 2009-104(A) in Docket No. 2008-196-E. I also present the Company's request to update the construction milestone schedule approved by the Commission in Order No. 2009-104(A).

Commission Order No. 2009-104(A) is the base load review order approving the construction of the Units. In that order, the Commission

required the Company to provide the Commission with a yearly status report on its progress of construction. This docket was initiated to provide the Commission with the first status report on the plant and to ask that certain of the approved construction milestone and capital cost schedules for the project be updated.

Q. WHAT EXHIBITS ARE YOU SPONSORING?

A. As part of my testimony, I will sponsor Exhibit No. __ (SAB-1), SCE&G's Update of Construction Progress and Request for Updates and Revisions to Schedules ("Request"), which was filed in this docket, along with Exhibits 1, 2 and 4 in the Request. I will also sponsor Exhibit No. __ (SAB-2), which is SCE&G's Quarterly Report under the Base Load Review Act ("BLRA") for the Quarter ending June 30, 2009. The June 2009 Quarterly BLRA Report was submitted to the South Carolina Office of Regulatory Staff ("ORS") and the Commission in accordance with the terms of the BLRA. The Quarterly BLRA Report for period ending March 31, 2009 was included as Exhibit 1 to the Request, Exhibit No. __ (SAB-1). Exhibit 2 to the Request is an updated construction milestone schedule based upon the Performance Measurement Baseline Schedule ("PMBS") provided to SCE&G by Westinghouse Electric Corporation, LLC and Shaw (collectively "Westinghouse/Shaw"). I am sponsoring the updated construction milestone schedule as Exhibit No. __ (SAB-3). SCE&G is

requesting that the Commission approve Exhibit No. __ (SAB-3) for use as the approved construction milestone schedule for the Units going forward.

Finally, my testimony will also introduce the testimony of the other Company witnesses in this case.

Q. WHO ARE THE OTHER WITNESSES THAT WILL PROVIDE DIRECT TESTIMONY FOR SCE&G?

A. The other SCE&G witnesses providing direct testimony are:

1. **Alan D. Torres**, Manager of Construction for VCSNS Units 2 and 3, SCE&G. Mr. Torres will testify in detail regarding the progress of the construction and associated activities related to VCSNS site and the Units

2. **Carlette L. Walker,** Vice President for Nuclear Finance Administration. Ms. Walker will testify concerning changes to the capital costs components and capital costs schedule resulting from the adoption of the PMBS and other scheduling matters.

Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF THE QUARTERLY REPORTS THAT SCE&G HAS PREPARED RELATED TO THE CONSTRUCTION OF THE UNITS.

A. The BLRA, S.C. Code Ann. §§ 58-33-210 et. seq., requires a utility to file quarterly reports with ORS on the progress of construction of plants being built under the terms of that act. SCE&G filed its first Quarterly Report related to the Units on May 15, 2009. That report covers the period

ending March 31, 2009. A copy of the March 2009 Quarterly Report was attached as Exhibit 1 to the Request in this docket.

Since the initiation of this docket, SCE&G has prepared and filed with ORS its Quarterly Report for the period ending June 30, 2009. The June 2009 Quarterly Report is attached as Exhibit No. ___ (SAB-2).

These two quarterly reports provide information concerning the status of the construction of the Units and update the capital cost and construction schedules for the Units as approved in Order No. 2009-104(A). Each of these reports show that the Units are being constructed in accordance with the construction schedules and cumulative cost forecasts, with contingencies, as approved in Commission Order No. 2009-104(A).

Q. PLEASE PROVIDE A BRIEF DESCRIPTION OF THE STATUS OF THE CONSTRUCTION AND ASSOCIATED ACTIVITIES RELATED TO THE UNITS.

A. Company Witness Torres will testify in greater detail regarding the progress of the construction. As the June 2009 Quarterly Report indicates, as of the end of the second quarter of 2009, the Company and its contractors met all milestones within the milestone contingencies approved in Order No. 2009-104(A). The project remains on track to meet the substantial completion dates of April 1, 2016, and January 1, 2019 for Units 2 and 3, respectively.

<u>UPDATING THE APPROVED CONSTRUCTION SCHEDULE</u>

Q. SCE&G HAS REQUESTED THAT THE COMMISSION MODIFY THE CONSTRUCTION SCHEDULE FOR THE UNITS. WHAT IS THE BASIS FOR THIS REQUEST?

A. The BLRA, Section 58-33-270(E), provides that a utility may petition the Commission for an order modifying any of the schedules that form part of a base load review order. Such modifications are to be granted where the evidence of record justifies a finding that the changes are not the result of imprudence on the part of the utility. SCE&G is requesting that the Commission adopt a modified construction schedule for the Units that reflects the information provided by Westinghouse/Shaw in the PMBS.

Q. WHAT IS THE PERFORMANCE MEASUREMENT BASELINE SCHEDULE?

A. The PMBS is a fully developed and integrated schedule of the project prepared by Westinghouse/Shaw. As I testified at the hearing in Docket No. 2008-196-E, Westinghouse/Shaw had agreed to provide the PMBS to SCE&G by April 1, 2009, which they did. The PMBS incorporates equipment procurement and delivery commitments negotiated with vendors and suppliers since May 2008 as well as a more detailed integration of site-specific and non-site specific construction activities related to the Units. The PMBS represents a major refinement of the initial project schedule which was provided to SCE&G in May of 2008 as an

1 attachment to the original engineering, procurement and construction
2 agreement ("EPC Contract").

3 **Q. WHAT OTHER CHANGES DOES THE REVISED SCHEDULE**
4 **REFLECT?**

5 A. The revised schedule also reflects modifications in the schedule of
6 owner's costs to align them with the PMBS. For system reliability reasons,
7 certain of the transmission work related to the new Units can only be done
8 during scheduled outages for Unit 1, which occur every 18 months.
9 Accordingly, the schedule for transmission construction has been updated
10 based on further planning and integration with the construction
11 requirements for the project and to conform the schedule of work more
12 closely to the outage schedule for Unit 1. The updated construction
13 schedule reflects all these matters. It would replace the milestones as
14 approved by the Commission in Order No. 2009-104(A) and is attached as
15 Exhibit No. __ (SAB-3).

16 **Q. WHAT LED TO THE PREPARATION OF THE PMBS?**

17 A. As part of SCE&G's Combined Application in Docket No. 2008-
18 196-E, SCE&G put before the Commission the current project schedule
19 which was reflected in Exhibit E to the Combined Application in that
20 proceeding, as well as in the material provided to the Commission, in
21 confidential form, as Exhibit E to the EPC Contract which was filed with
22 my testimony in that proceeding. As I testified in the hearing in Docket

No. 2008-196-E, the schedule attached as Exhibit E to the EPC Contract was a generic Westinghouse schedule for AP1000 construction supplemented by an initial schedule of site-specific activities prepared by Shaw. SCE&G and Westinghouse/Shaw understood that the project schedule would be further developed and integrated in the months that followed the signing of the EPC Contract, and that the revised schedule, *i.e.*, the PMBS, would be the operative document for managing the project going forward.

As my testimony in December of 2008 indicated, at the time of the hearing in the BLRA proceeding, a fully integrated construction schedule that brought all aspects of site-specific and general schedules together was being prepared by Westinghouse/Shaw. Westinghouse/Shaw had provided a more developed version of Exhibit E to the EPC Contract to SCE&G on September 1, 2008, but SCE&G was not satisfied with the level of planning and integration it reflected. In response, Westinghouse/Shaw agreed to provide a more thoroughly integrated schedule to SCE&G on April 1, 2009. Westinghouse/Shaw met its obligations and provided the PMBS to SCE&G on that date. The PMBS has been the operative schedule for constructing the Units since it was accepted by SCE&G.

Q. IS THERE ANYTHING UNUSUAL ABOUT THIS APPROACH TO CREATING THE OPERATIVE PROJECT SCHEDULE?

1 A. No. It is common in construction projects of this scope that a
2 preliminary schedule will be prepared to support contract negotiation, to
3 guide initial negotiations with vendors and to demonstrate that the project
4 can be completed within the time frame required. Once a contract is
5 signed, the parties typically devote a great deal of time and effort in further
6 elaborating and refining that schedule, both through internal planning and
7 by reaching binding commitments with vendors, suppliers and
8 subcontractors. This further refining of the schedule is what has happened
9 here between May of 2008 and April of 2009, and it is consistent with
10 customary practice in construction projects of this scope.

11 **Q. HOW HAS THE PMBS BEEN REFLECTED IN THE CURRENT**
12 **TRACKING OF MILESTONES UNDER THE COMMISSION'S**
13 **BLRA ORDER?**

14 A. To allow the construction milestones approved in Order 2009-
15 104(A) to be tracked more consistently to the PMBS, SCE&G has
16 conformed the descriptions in its Quarterly BLRA Report to the ORS to the
17 descriptions contained in the PMBS. Where the PMBS divided earlier
18 milestones, they have been similarly divided in the Quarterly BLRA
19 reports. For that reason, the 123 milestones approved in that order are now
20 being tracked as 146 milestones. None of the milestones approved in Order
21 No. 2009-104(A) have been omitted.

1 **Q. PLEASE PROVIDE A DESCRIPTION OF THE SHIFTS IN THE**
2 **MILESTONES AS A RESULT OF THE PMBS.**
3 A. Under the PMBS, 44 of the 146 milestones had been accelerated and
4 41 had been pushed back. The principal reason for extending milestones
5 has been a determination that the procurement, fabrication, or delivery of
6 major pieces of equipment could be scheduled later than originally
7 anticipated. Pushing back the scheduled delivery dates related to these
8 items is beneficial because doing so reduces the need to store equipment on
9 site, which reduces the risk of damage to the equipment or deterioration
10 from exposure to the elements while being stored on site; and provides
11 better management of the physical site since less equipment is being stored
12 on it. None of the milestones are extended beyond 18 months or
13 accelerated more than 24 months.
14 **Q. IS THERE ANYTHING UNUSUAL ABOUT THESE MILESTONE**
15 **SHIFTS?**
16 A. No. There is not. It is common for internal milestones to shift
17 within a project as the integrated project schedule is being completed. The
18 changes in milestones reflected here represent a normal evolution of the
19 construction plan, and are not the result of problems, mistakes or errors in
20 the initial construction plan or in the engineering and procurement of the
21 plant. The updated milestone schedule still supports the substantial

completion dates of the Units of April 1, 2016 and January 1, 2019, which are the most important milestones in the project.

Q. ARE THE MODIFICATIONS BEING REQUESTED HERE THE RESULT OF IMPRUDENCE ON THE PART OF THE COMPANY?

A. No. This PMBS update to the project schedule was specifically requested by SCE&G and was anticipated at the time the EPC Contact was signed. As discussed with the Commission in my testimony in Docket No. 2008-196-E, at the time of the hearing in that docket the new schedule was understood to be forthcoming in April of 2009. Moreover, the PMBS represents procurement and delivery commitments negotiated with vendors and suppliers after the EPC Contract was signed, as well as changes in schedules that are a common and expected part of any construction project of this complexity. For obvious reasons, it is not possible to negotiate binding delivery commitments for vendors and suppliers until there is a binding commitment to the prime contract. The requested change in the approved construction schedule is not the result of any imprudence on the part of SCE&G.

CONSTRUCTION PROGRESS

Q. AS EXECUTIVE VICE PRESIDENT OF GENERATION, WHAT IS YOUR VIEW OF THE PROGRESS OF THE PROJECT?

A. I am satisfied that the project is progressing according to schedule. The supply chain is responding well and the availability of labor and other

commodities for the project remains very good. With one exception, which I discuss more fully below, the permitting process is proceeding well. The Company's relationship with Westinghouse/Shaw is good and continues to grow as the companies work closely together on the project and address issues as they arise.

Q. PLEASE DESCRIBE THE MAKE-UP OF THE WORKFORCE CONDUCTING ACTIVITIES AT THE SITE.

A. As of August 2009, there were 357 contract personnel working at the site for Shaw or other contractors. As of August 2009, Shaw had fifteen (15) primary subcontractors working at the site. Eleven (11) of these primary subcontractors (approximately 70% of the total) were South Carolina-based companies. These primary subcontractors were utilizing a total of forty-seven (47) sub-tier contractors, twenty-five (25) of which (approximately 54%) are also based in South Carolina.

In addition to the strong South Carolina presence in the contractor make-up, a substantial portion of the direct craft labor (i.e., standard construction labor) being utilized by Shaw is composed of residents from the immediate vicinity of the plant. Included in the 357 contract employees on site, Shaw currently has 112 direct craft labor personnel. Of that number, 81 (72%) are from South Carolina and 37 (46%) are residents of Fairfield and Newberry Counties.

1 **Q. PLEASE DESCRIBE YOUR RELATIONSHIP WITH THE**
2 **CHINESE AP1000 CONSTRUCTION PROJECTS.**
3 A. The Company has established a beneficial relationship with the
4 governmental agency in China which is responsible for developing AP1000
5 units in China. In exchange for SCE&G agreeing to assist the Chinese
6 nuclear utilities in creating a strong nuclear operating culture for their units,
7 the Chinese are assisting the Company by allowing our personnel to
8 observe the ongoing construction of their AP1000 units and to benefit
9 directly from their lessons-learned. Construction on these Chinese units is
10 proceeding on schedule and the first of their units should be completed 2-3
11 years before our first new unit. By the time of the hearing in this
12 proceeding, Company representatives will have conducted two visits to
13 China to cement our long-time relationship and to view the ongoing
14 construction by the Chinese construction teams. The relationship with
15 China has been open and cooperative and the Company expects that
16 relationship to last for many years.
17 **Q. PLEASE DISCUSS THE PERMITTING ISSUE THAT IS OF**
18 **PRINCIPAL CONCERN TO YOU AT PRESENT.**
19 A. The NRC continues its review for the Westinghouse Design Control
20 Document ("DCD") Revision 17 and continues dialogue with
21 Westinghouse in an effort to resolve operative questions. The original

DCD incorporated revisions 1-15. This is the second revision since the DCD was approved.

The current NRC schedule shows the NRC concluding their review in December 2010 with an August 2011 final rule making. This final rule making is a prerequisite for the Combined Operating License Application ("COLA") approval for Units 2 and 3 and does not support SCE&G's COLA approval date of July 2011 by several months. Westinghouse is working diligently to accelerate the NRC review and has agreed to a series of measures that should accelerate the review schedule or assist in minimizing the impact of any delay on the project schedule. SCE&G continues to express to Westinghouse its absolute expectation that these matters be dealt with in a timely way that does not result in delays in the issuance of a Combined Operating License for the Units. As Company Witness Torres will testify, the Construction Planning Group is currently working on alternatives to keep the project on schedule in the event that the NRC review is not able to be accelerated.

Q. HOW IS CONSTRUCTION PROCEEDING FROM A FINANCIAL STANDPOINT?

A. The project is currently on budget. As of June 30, 2009, SCE&G had spent a total of $ 264,786,000 of capital. None of the Commission-approved contingency has been spent.

<u>CONSTRUCTION COST SCHEDULE UPDATES</u>

Q. WHAT OTHER REQUEST IS THE COMPANY MAKING IN THIS DOCKET?

A. The Company is requesting a modification of the capital costs schedule related to the Units, also under S.C. Code Ann. § 58-33-270(E).

Q. WHAT IS THE BASIS FOR THE REQUEST TO MODIFY THE APPROVED CAPITAL COST SCHEDULE?

A. As Company Witness Walker will testify, Commission Order No. 2009-104(A) approved a capital cost schedule for the project. As a result of the modifications to the construction schedule set forth in Exhibit No. ___ (SAB-3) and to reflect the updated schedule of progress payments to vendors, the Company has updated the capital costs schedule to account for changes in timing and sequence of the anticipated costs and payments for the Units, and to reformat the presentation of data to more closely track the terms of Order No. 2009-104(A) related to the administration of the contingency pool. The net effect of these changes is to shift the forecasted cash flow schedule for the project further into the future which affects escalation, but does not affect project costs in 2007 dollars before Allowance for Funds Used During Construction.

CONCLUSION

Q. IN SUMMARY, WHAT ARE YOU ASKING THIS COMMISSION TO DO?

1 A. On behalf of SCE&G, I would ask the Commission to approve,
2 pursuant to S.C. Code Ann. § 58-33-270(E), the proposed updated
3 construction schedule and updated capital costs schedule as the approved
4 schedules going forward related to the construction of the Units.

5 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

6 A. Yes, it does.

LIST OF EXHIBITS
TO
DIRECT TESTIMONY OF STEPHEN A. BYRNE

- **Exhibit No. __ (SAB-1)** - SCE&G's Update of Construction Progress and Request for Updates and Revisions to Schedules
- **Exhibit No. __ (SAB-2)** - SCE&G's Quarterly BLRA Report for the Quarter ending June 30, 2009
- **Exhibit No. __ (SAB-3)** - proposed construction milestone schedule