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BEFORE THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA

COLUMBIA, SOUTH CAROLINA

HEARING #15-11488 JULY 22, 2015 10:00 A.M.

DOCKET NO. 2015-103-E:

SOUTH CAROLINA ELECTRIC & GAS COMPANY – *Petition of South Carolina Electric & Gas Company for Updates and Revisions to the Capital Cost Schedule and Schedules Related to the Construction of a Nuclear Base Load Generation Facility at Jenkinsville, South Carolina*

TRANSCRIPT OF TESTIMONY AND PROCEEDINGS **VOLUME 3 OF 3**

HEARING BEFORE: Nikiya M. 'Nikki' HALL, *Chairman;* Swain E. WHITFIELD, *Vice Chairman;* and COMMISSIONERS John E. 'Butch' HOWARD, Elliott F. ELAM, JR., Comer H. 'Randy' RANDALL, Elizabeth B. 'Lib' FLEMING, and G. O'Neal HAMILTON

ADVISOR TO COMMISSION: F. David Butler, Esq.
Senior Counsel

STAFF: Joseph Melchers, General Counsel; James Spearman, Ph.D., Executive Assistant to Commissioners; David W. Stark, III, Esq., Legal Staff; Philip Riley, Doug Pratt, Lynn Ballentine, and Tom Ellison, Advisory Staff; Jo Elizabeth M. Wheat, CVR-CM/M-GNSC, Court Reporter; and William O. Richardson and Colanthia Alvarez, Hearing Room Assistants

APPEARANCES:

K. CHAD BURGESS, ESQUIRE, MATTHEW W. GISSENDANNER, ESQUIRE, MITCHELL WILLOUGHBY, ESQUIRE, and BELTON T. ZEIGLER, ESQUIRE, representing SOUTH CAROLINA ELECTRIC & GAS COMPANY, **PETITIONER**

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APPEARANCES (Cont'g):

SCOTT ELLIOTT, ESQUIRE, representing SOUTH CAROLINA ENERGY USERS COMMITTEE, **INTERVENOR**

ROBERT GUILD, ESQUIRE, representing SIERRA CLUB, **INTERVENOR**

JEFFREY M. NELSON, ESQUIRE, and SHANNON BOWYER HUDSON, ESQUIRE, representing the **SOUTH CAROLINA OFFICE OF REGULATORY STAFF**

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BY MR. WILLOUGHBY:

Q Next I would turn to Mr. Jones. Mr. Jones, please state your name for the record.

A [JONES] Ron Jones.

Q And by whom are you employed and in what capacity?

A [JONES] I'm employed by South Carolina Electric & Gas. I'm vice president of New Nuclear Operations.

Q And Mr. Jones, in connection with this proceeding, did you cause to be prepared and prefiled direct testimony consisting of 45 pages?

A [JONES] I did.

Q Do you have any corrections to make to that testimony?

A [JONES] No, I don't.

Q If I asked you the questions that appear in that testimony, would your answers from the stand today be the same?

A [JONES] Yes, they would.

MR. WILLOUGHBY: Madam Chair, we would move the introduction of Mr. Jones's testimony into the record as if given orally from the stand.

CHAIRMAN HALL: All right. Mr. Jones' testimony will be entered as if given orally.

[See pgs 547-591]

BY MR. WILLOUGHBY:

Q And, Mr. Jones, do you have one exhibit attached to your

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1 testimony?
2 **A** [JONES] I do.
3 **Q** Are there any corrections to make to your exhibit?
4 **A** [JONES] No.
5 **MR. WILLOUGHBY**: Madam Chair, we would move as
6 the next hearing exhibit Mr. Jones' Exhibit RAJ-1.
7 **CHAIRMAN HALL**: All right. Mr. Jones' Exhibit
8 RAJ-1 will be entered into the record as Hearing
9 Exhibit No. 9.
10 [WHEREUPON, Hearing Exhibit No. 9 was
11 marked and received in evidence.]
12 **MR. WILLOUGHBY**: Thank you, very much.
13 **BY MR. WILLOUGHBY:**
14 **Q** Mr. Jones, have you prepared a summary?
15 **A** [JONES] I have.
16 **Q** Please deliver that at this time.
17 **A** [JONES] Good afternoon, Chairman Hall and members of the
18 Commission. The purpose of my testimony is to discuss
19 the modifications and updates to the anticipated
20 schedule of costs under the EPC contract that have been
21 identified since the forecast approved in Order No.
22 2012-884 were prepared.
23 In the third quarter of 2014, Westinghouse and CB&I
24 issued a revised fully-integrated construction schedule
25 indicating new substantial completion dates for Units 2

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and 3 of June 19, 2019, and June 16, 2020, respectively. The primary source of the delay in the substantial completion dates is the delay in the production of modules, submodules, and shield building panels for the units. Design delay and design changes related to the nuclear island also have contributed to delay in submodule production.

Westinghouse and CB&I reevaluated the estimated-at-completion or EAC cost estimate for the project and provided a revised cost schedule and revised cost forecast for the remaining scopes of work.

Westinghouse and CB&I project the delay will require additional labor costs for indirect craft labor and field nonmanual labor personnel. The forecast further reflects increased temporary facilities costs, other distributable costs, and containment vessel assembly subcontract costs due to the project delay.

Westinghouse and CB&I also revised the EAC cost forecast to reflect less favorable direct craft productivity and to increase the forecasted ratios of indirect craft labor to direct craft labor and field nonmanual labor to direct craft labor. Further, the forecast increases time-and-materials costs relating to first-of-a-kind tests on the units and includes additional costs to process license amendment requests.

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The company takes the position that the costs resulting from the delay are the responsibility of Westinghouse and CB&I, and disputes that it is responsible for the costs related to the revised productivity, increased labor ratios, and additional time-and-materials scope of work. Under the EPC contract, SCE&G will only pay 90 percent of the properly invoiced but disputed amounts, and reserves its rights to dispute these amounts. However, it should be noted that Westinghouse and CB&I disagree with the company's position on these issues and, therefore, these issues are the subject of ongoing negotiations under the terms of the EPC contract.

The company also forecasts that it will receive the full benefit of the $86 million in liquidated damages provided by the EPC contract for delayed performance by Westinghouse and CB&I.

In addition, Westinghouse and CB&I continue to finalize the project design and the updated EAC costs to reflect SCE&G's responsibility for the actual craft wages and nonlabor costs to install additional units of commodities.

SCE&G also asked for approval of 10 change orders and related matters, which increase the capital costs of the project by approximately $56.5 million, or

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1 approximately 8 percent of the total change in the
2 capital cost schedule. These change orders address new
3 and updated scopes of work that are necessary to update
4 security requirements, mitigate schedule delays, address
5 health insurance and regulatory changes, enhance and
6 acquire hardware and software for the project, provide
7 additional fire protection, and to install perch guards
8 on transmission structures. SCE&G also forecasts that
9 extending the schedule of the project will increase
10 information technology support costs and facilities
11 costs, which must be paid for longer periods of time as
12 a result of the delay. The modified and updated capital
13 cost schedule further includes the costs of adding 64
14 full-time equivalents to the NND staff.
15 In conclusion, the adjustments requested in this
16 proceeding are adjustments that I know to represent
17 reasonable and prudent changes in the cost and
18 construction schedules for the units, based upon the
19 information currently available to SCE&G. In my
20 professional opinion, the adjustments also are the
21 result of the normal and expected evolution of project
22 cost forecasts, in conjunction with the current
23 substantial completion dates. The company, therefore,
24 requests that the Commission approve the updated
25 milestones as set forth in Mr. Byrne's testimony and in

his Exhibit SAB-2, and the modified and updated capital cost schedule included in Ms. Walker's testimony as her Exhibit CLW-1, as the approved schedule of capital costs for completion of the units, subject to adjustment for escalation and net of AFUDC as provided for in Order No. 2009-104(A).

This concludes my summary.

MR. WILLOUGHBY: Thank you, very much, Mr. Jones.

[PURSUANT TO PREVIOUS INSTRUCTION, THE PREFILED DIRECT TESTIMONY OF RONALD A. JONES FOLLOWS AT PGS 547-591]

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DIRECT TESTIMONY OF

RONALD A. JONES

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2015-103-E

Q. PLEASE STATE YOUR FULL NAME AND BUSINESS ADDRESS.

A. My name is Ronald A. Jones. My business address is Highway 215 & Bradham Boulevard, Jenkinsville, South Carolina.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by South Carolina Electric & Gas Company ("SCE&G" or the "Company") as Vice President for New Nuclear Operations.

Q. DESCRIBE YOUR EDUCATIONAL BACKGROUND AND BUSINESS EXPERIENCE.

A. I graduated from Virginia Polytechnic Institute and State University in Blacksburg, Virginia with a Bachelor of Science degree in electrical engineering. I am a member of the American Nuclear Society and the Institute of Electrical and Electronic Engineers; Chairman of the Nuclear Energy Institute Digital Instrumentation and Controls Working Group; member of the Electric Power Research Institute Nuclear Power Council Executive Committee; past Chairman and Member of the Pressurized Water Reactors Owners Group Executive Management Group and Executive Committee; past Chairman of the Carolinas

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Nuclear Cluster; and have served as a member of several Nuclear Energy Institute industry groups. I began my career at Duke Energy Carolinas, LLC ("Duke Energy") (formerly known as Duke Power Company) in 1980 as an engineer at Catawba Nuclear Station. I received my senior reactor operator license for Catawba Nuclear Station from the U.S. Nuclear Regulatory Commission ("NRC") in 1987. I also held various leadership positions at Catawba, McGuire, and Oconee Nuclear stations and, after a series of promotions, was named as the Vice President of Oconee Nuclear Station in 2002. In 2005, I assumed the role of Senior Vice President of Nuclear Operations for Duke Energy and provided oversight for the safe and reliable operation of Duke Energy-operated nuclear stations at Catawba, McGuire, and Oconee. I became Senior Vice President of Nuclear Plant Development for Duke Energy in December 2010 and served in this role until my retirement from Duke Energy in December 2011. In July 2012, I began my employment with SCE&G.

Q. WHAT ARE YOUR PRESENT RESPONSIBILITIES AT SCE&G?

A. As Vice President for New Nuclear Operations, I lead the organization responsible for operational readiness and construction of the two new AP1000 nuclear generating units in Jenkinsville, South Carolina (the "Units"), which are being constructed by Westinghouse Electric Company ("WEC") and the Chicago Bridge & Iron ("CB&I," and together with WEC, "WEC/CB&I"). In this role, my team and I are responsible for overseeing the planning, licensing, design, and engineering services of the project, as well as the acquisition, procurement,

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construction, testing, start-up, and preoperational turnover for the Units. This includes overseeing WEC/CB&I's project design work and licensing and permitting efforts, the engineering oversight of major suppliers to the project, auditing manufacturing facilities around the world that furnish equipment and components for the Units, and conducting quality assurance and quality control audits and supervision of the construction. I also am responsible for ensuring compliance with the Engineering, Procurement, and Construction Contract ("EPC Contract"). In addition, my responsibilities include all operating, maintenance, and support functions associated with SCE&G's readiness to operate the Units safely, reliably, and efficiently once completed. My duties also include recruiting, training, and staffing the Units. The staff that we are assembling to carry out the permanent operation of the Units also will take primary responsibility for the maintenance and startup testing of the Units as systems are completed and turned over to SCE&G.

Q. HAVE YOU EVER TESTIFIED BEFORE THIS COMMISSION IN THE PAST?

A. Yes. I have testified before the Public Service Commission of South Carolina (the "Commission") in several past proceedings.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to discuss the modifications and updates to the anticipated schedule of cost under the EPC Contract that have been identified since the forecasts approved in Order No. 2012-884 were prepared. Specifically, I

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discuss the effects of the delayed Substantial Completion Dates for the Units on the Estimated at Completion ("EAC") cost of the project. I also discuss the cost increases related to additional labor and related expenses for the project. I next review the modifications and updates to the EAC cost due to design finalization for the project and the impact of the ten additional change orders and related matters. My testimony also addresses the updated allocation of Switchyard cost between SCE&G and the South Carolina Public Service Authority ("Santee Cooper"). I then describe the Owner's cost revisions associated with the delay of the project, including the cost associated with retaining staff for longer than originally projected; and the operational, facilities, and other related cost resulting from the updated construction schedule. Finally, I address Owner's cost increases not associated with delay related to additional ("NND") staffing needs, NRC fees, information technology ("IT"), and other cost factors.

I. EPC CONTRACT COST

Q. WHAT IS THE CURRENT STATUS OF THE SUBSTANTIAL COMPLETION DATES FOR THE UNITS?

A. WEC/CB&I informed SCE&G in the middle of 2013 that delays in the production schedules for structural sub-modules would result in revisions to the construction and cost schedules for the project. As discussions on this issue developed, the Company also raised concerns about the fabrication schedule of Shield Building Panels for the project. Based on the initial estimates by WEC/CB&I, it was forecasted that Units 2 and 3 would be completed in the last

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quarters of 2017 and 2018 or the first quarters of 2018 and 2019, respectively. From an EPC Contract perspective, however, SCE&G did not agree to these schedule changes and advised WEC/CB&I that it remained obligated to satisfy the dates previously agreed to in the EPC Contract.

In the ensuing months, WEC/CB&I began a full re-baselining of the Unit 2 and 3 construction schedules to incorporate a more detailed evaluation of the engineering, procurement, and construction activities necessary to complete the Units. In addition, WEC/CB&I developed a detailed reassessment of the impact of the revised schedule on engineering and design resource allocations, procurement, construction work crew efficiencies, and other items. As a result of this effort, WEC/CB&I issued in the third quarter of 2014 a revised, fully-integrated construction schedule indicating new substantial completion dates for Units 2 and 3 of June 19, 2019, and June 16, 2020, respectively ("Substantial Completion Dates").

Q. WHAT LED TO THE DELAY IN THE SUBSTANTIAL COMPLETION DATES?

A. As Mr. Byrne discusses in more detail, a primary source of the delay in the Substantial Completion Dates of Units 2 and 3 is the result of the delay in the production of modules, sub-modules, and Shield Building Panels for the Units, which is driving the critical path for the project at this time. In addition, design delay and design changes related to the Nuclear Island have been a major source

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of delay in the project to date, and have contributed to delay in sub-module production.

Q. DID SCE&G TAKE ACTION TO ADDRESS THESE ISSUES?

A. Yes. As reflected in the quarterly reports filed pursuant to the Base Load Review Act and the provisions of Order No. 2009-104(A) issued in Docket No. 2008-186-E, SCE&G has consistently focused its attention on these concerns and urged WEC/CB&I to take corrective action. In response to concerns SCE&G raised relating to structural module fabrication issues, WEC/CB&I shifted fabrication of the Shield Building Panels to Newport News Industries ("NNI") in Newport News, Virginia. As a result of this reassignment, the panels currently are being fabricated and delivered. SCE&G also placed four permanent on-site inspectors to monitor the Lake Charles facility, the NNI facility, the Oregon Iron Works and Greenberry facilities in Oregon, and the SMCI facility in Lakeland, Florida, due to their potential to affect the construction schedule. Further, SCE&G holds weekly meetings on critical path structural sub-modules and Shield Building Panels, monthly project review meetings, and regular production review meetings, in addition to conducting regular site visits of the fabrication facilities and the construction site. Despite these and other substantial efforts by the Company, WEC/CB&I has informed SCE&G that the Substantial Completion Dates of Units 2 and 3 will be delayed by 27 and 25 months, respectively from the schedules currently approved in Order No. 2012-884. SCE&G has not, however, accepted

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WEC/CB&I's contention that the new Substantial Completion Dates are made necessary by delays that are excusable under the EPC Contract.

Q. PLEASE EXPLAIN THE BASIS FOR THE REVISED EPC CONTRACT COST PRESENTED FOR APPROVAL IN THIS MATTER.

A. Please refer to Mr. Byrne's testimony for a detailed explanation of the events that led to the revised construction schedule presented in this proceeding. As to EPC Contract cost resulting from the revised schedule, WEC/CB&I also reevaluated the EAC cost estimate for the project in conjunction with preparing the revised construction schedule. In the third quarter of 2014, WEC/CB&I provided SCE&G with a revised cost schedule and revised cost forecast for the remaining scopes of work as impacted by various identified changes. This schedule reflects that the EAC cost will increase due to (1) the delay; (2) the cost associated with reduced productivity and increased staffing ratios; (3) the cost associated with additional Time and Material scopes of work that WEC forecasts will be necessary to staff the start-up of the Units and to provide for the processing of License Amendment Requests ("LARs") to support construction; and (4) labor associated with the quantity changes in the amount of commodities that must be installed to complete the project. In addition to the EAC cost forecast, the revised cash flow forecast reflects the anticipated additional cost associated with certain change orders under the EPC Contract. Finally, the EPC Contract cost will be adjusted to reflect cost savings for the project identified by SCE&G as a result of the reallocation of Switchyard costs between SCE&G and Santee Cooper.

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A. Delay and Other EAC Cost

Q. WHAT EFFECT HAS THE DELAY HAD ON THE EAC COST FOR THE PROJECT?

A. Because it will take an additional 27 and 25 months to complete Units 2 and 3, respectively, WEC/CB&I projects that the delay will result in additional labor cost and other related cost that the Company has determined impact four main areas: (1) Indirect Craft and Field Non-manual Labor cost; (2) Temporary Facilities cost; (3) Other Distributable cost; and (4) Containment Vessel ("CV") Assembly Sub-contract cost.

Q. IN GENERAL, PLEASE DESCRIBE THE MAIN CATEGORIES OF LABOR COST CHARGED TO THE PROJECT.

A. In general, there are three main categories of labor cost that are charged to the project. They are: (1) Direct Craft Labor; (2) Indirect Craft Labor; and (3) Field Non-manual Labor. Direct Craft Labor includes construction personnel tasked with specific scopes of work such as the installation of rebar, forms, concrete, piping, and electrical cable in the permanent plant. Indirect Craft Labor cost includes personnel that do not work directly on permanent plant construction, but support the work of Direct Craft employees. This category includes labor for training, safety, equipment operations, facilities maintenance, site clean-up, site potable water and ice distribution, warehouse staffing, and site equipment operators. Field Non-manual Labor cost includes cost associated with employing

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field engineers, Quality Assurance/Quality Control ("QA/QC") personnel, site project management, and administrative support personnel.

Q. WHICH LABOR COST CATEGORIES ARE PROJECTED TO INCREASE AS A RESULT OF THE DELAY?

A. Indirect Craft Labor cost and Field Non-manual Labor cost, both of which support the work of Direct Craft Labor, will increase as a result of the delay because these personnel will be employed for longer than originally projected.

Q. ARE INCREASES IN THE COST OF TEMPORARY FACILITIES, OTHER DISTRIBUTABLES, AND CV ASSEMBLY SUB-CONTRACT FORECASTED TO OCCUR?

A. Yes. Temporary Facilities cost includes cost for workshops, offices, training facilities, warehouses, toilet facilities, break facilities, and related items. These temporary facilities are all required to be on site longer and will require additional maintenance as a result of the delay. Also, additional warehouse and lay-down space will be required to store the permanent plant equipment which cannot be installed when originally expected due to the project delay resulting in increased cost to the project. Similarly, increases in Other Distributable cost reflect the increased cost that will result from providing site security, site water system, site sewer service, warehouse supplies, dust control, first aid and safety supplies, small tools, and related items on site longer as a result of the delay. Finally, CV Assembly Sub-contract cost is projected to increase due to the project delay as a result of the longer total period that the sub-contractor is required to

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remain on site for the completion of this scope of work, primarily because the rings and upper heads cannot be installed and welded out until the work inside of the CV is completed.

Q. DOES SCE&G AGREE WITH WEC/CB&I'S FORECAST OF ADDITIONAL COST RESULTING FROM THE DELAY IN THE SUBSTANTIAL COMPLETION DATES?

A. Based on discussions with WEC/CB&I's EAC team, our careful review and analysis of information provided, and the representations of WEC/CB&I, the Company believes that the revised EAC cost reflects a reasonable and prudent estimate of the actual EAC cost to be expected for completion of the project based on the revised Substantial Completion Dates. However, the Company disputes that it is contractually responsible for increased costs resulting from the delay. As discussed by Mr. Byrne, SCE&G takes the position that, under the EPC Contract, the costs resulting from the delay are the responsibility of WEC/CB&I. For this reason, SCE&G has advised WEC/CB&I that it will only pay 90% of the properly invoiced disputed amounts and reserves its rights to contend that no such payments are properly due and to pursue claims for such amounts.

Q. WHAT AMOUNT OF THE REVISED EAC COST RELATES TO THE DELAY?

A. After withholding 10% of the properly invoiced disputed amounts due to the delay, Indirect Craft Labor and Field Non-Manual Labor cost, Temporary Facilities cost, Other Distributable cost, and CV Assembly Sub-contract cost are

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projected to increase by approximately $228 million,[1] or approximately 33% of the total change in the capital cost schedule.

Q. PLEASE EXPLAIN THE DECREASED PRODUCTIVITY AND THE INCREASE IN THE STAFFING RATIOS (INDIRECT CRAFT AND FIELD NON-MANUAL) ASSOCIATED WITH THE LABOR COST.

A. As discussed by Mr. Byrne, WEC/CB&I has revised its Direct Craft Labor productivity factors to reflect less favorable productivity than originally projected. As a result, the number of actual Direct Craft Labor hours anticipated to be charged to the project has increased.

Based on the historical values experienced on the project, WEC/CB&I also increased the forecasted ratios of (1) Indirect Craft Labor to Direct Craft Labor and (2) Field Non-manual Labor to Direct Craft Labor. These revised labor ratios have the effect of increasing the number of Indirect Craft Labor and Field Non-Manual Labor hours charged to the project from those originally forecasted, resulting in additional cost.

Q. WHAT PORTION OF THE UPDATED EAC COST RELATES TO THE REVISED PRODUCTIVITY AND LABOR RATIOS?

A. After withholding 10% of the properly invoiced disputed amounts due to the decreased productivity and increased labor ratios, these updated revisions

[1] Unless otherwise specified, all cost figures in this testimony are stated in 2007 dollars and reflect SCE&G's share of the cost of the Units.

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account for an increase of approximately $155 million, or approximately 22% of the total change in the capital cost schedule.

Q. WHAT IS THE BASIS FOR WEC'S REVISION OF EAC COST TO REFLECT ADDITIONAL TIME AND MATERIALS SCOPE OF WORK?

A. WEC contends that additional start-up staffing will be required due to the requirement to perform First of a Kind ("FOAK") tests on Units 2 and 3. Originally, WEC estimated the EAC cost with the assumption that the results and findings of FOAK tests performed on similar projects in China would reduce the cost for this scope of work on the project. However, the NRC has been unwilling to accept the results of the Chinese FOAK testing of the AP1000 units. The design changes by WEC also have increased the anticipated number of LARs required during the construction process from those originally expected. WEC projects that additional licensing support will be necessary to process these LARs. As a result of the additional staffing to perform FOAK tests on the Units and process the increased number of LARs, WEC estimated that its Time and Materials cost would increase directly related to the expanded scope of work.

Q. HAS SCE&G ACCEPTED RESPONSIBILITY FOR THE COST RELATED TO ADDITIONAL TIME AND MATERIALS SCOPE OF WORK?

A. No. The EPC Contract provides that WEC/CB&I must provide SCE&G with two complete AP1000 Nuclear Power Plant units utilizing the NRC Certified AP1000 design and much of the forecasted additional work should be included in WEC/CB&I's Firm Price scope of work. Also, SCE&G only initiated one change

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that resulted in a LAR. All other LARs are the result of changes and design issues by WEC/CB&I. For this reason, SCE&G plans to follow the same procedure I previously described and withhold 10% of the properly invoiced disputed amounts, resulting in additional EAC cost in the category of Time and Material cost of approximately $27 million, or approximately 4% of the total change in the capital cost schedule.

Q. HAS SCE&G IDENTIFIED ANY ADJUSTMENTS THAT WOULD OFFSET A PORTION OF THIS INCREASED COST?

A. Yes. As Ms. Walker discusses in her testimony, the Company forecasts that it will recover from WEC/CB&I the full amount of liquidated damages payable under the EPC Contract, which totals approximately $86 million. Netting this amount against the Delay and Other EAC cost and accounting for the withholding of 10% of the disputed amounts results in a total increase to the EAC cost of approximately $325 million, or approximately 47% of the total change in the capital cost schedule.

B. Changes to the EAC Cost Due to Design Finalization

Q. PLEASE EXPLAIN THE EAC COST UPDATES RELATED TO CHANGES IN THE DESIGN FINALIZATION OF THE PROJECT.

A. WEC/CB&I continues to finalize the issued-for-construction design documents for the project. As it does so, WEC/CB&I updates its projections of the amount of commodities that must be installed to complete the project, such as concrete, cabling, rebar, and piping. Under the Fixed and Firm pricing

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components of the EPC Contract, WEC/CB&I is responsible for the cost of the additional commodities themselves. However, the EPC Contract provides that SCE&G is responsible for the Actual Craft Wages and Non-Labor cost associated with installing these additional units of commodities. SCE&G has determined that WEC/CB&I's entitlement for payment associated with these identified costs is approximately $72 million, or approximately 10% of the total change in the capital cost schedule.

C. Changes in EPC Cost Due to Change Orders

Q. PLEASE DISCUSS THE CHANGE ORDERS TO THE EPC CONTRACT INCLUDED IN THE UPDATED COST SCHEDULES PRESENTED IN THIS PROCEEDING.

A. There are a total of ten change orders to the EPC Contract and related matters that increase the capital cost of the project and are included in the updated capital cost schedule presented in this proceeding. They are listed below in the order that I discuss them in my testimony.

1. Plant Layout Security;
2. Cyber Security Upgrades;
3. Schedule for Mitigation for Shield Building Panels;
4. Additional Cost Related to the Federal Health Care Act;
5. Plant Reference Simulator and Software Upgrade;
6. Ovation and Common Q Instrumentation and Control Maintenance Training Systems;

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7. Simulator Development System;

8. Inspections, Tests, Analyses, and Acceptance Criteria ("ITAAC") Maintenance ;

9. Warehouse Fire Security; and

10. Perch Guards.

Q. WHAT IS THE TOTAL COST IMPACT OF THESE CHANGE ORDERS?

A. These ten change orders and related matters represent approximately $56.5 million, or approximately 8% of the total change in the capital cost schedule.

1. Plant Layout Security

Q. PLEASE EXPLAIN THE BACKGROUND OF THE CHANGE ORDER FOR PLANT LAYOUT SECURITY.

A. SCE&G recently conducted a review of plant layout to ensure that its physical security can be maintained. This was necessary as a final stage in the design review of the Units and their supporting structures and could not be done until design layouts and building orientations were finalized. These physical security reviews have been conducted based on NRC and nuclear industry standards that have become increasingly stringent in the years after the events of September 11, 2001. As well, security tactics and technology are constantly evolving. As a result of these reviews, SCE&G has determined that it is reasonable and prudent to alter the site layout in various ways to improve its physical security, and has negotiated a change order to the EPC Contract for this work.

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Q. WHAT IS THE SCOPE OF WORK RELATED TO THE CHANGES IN PLANT LAYOUT SECURITY?

A. The plant layout security changes will be segregated into three phases to allow the project to move forward. Phase 1 will involve the engineering, construction planning, and development of estimates for Phase 2 and Phase 3. Phase 2 will consist of the construction work related to the infrastructure changes included in the work scope. This phase will include site work, retaining walls, relocating permanent plant buildings and temporary construction facilities, relocating permanent plant parking, installation of underground utilities, and modifying protected area perimeter security. Phase 2 also will include engineering work required to prepare for Phase 3 of the plant layout security changes. Phase 3 will include the remaining security modifications such as fencing; Ballistic, Bullet, Resistant Enclosures; and specialized cameras and other security equipment.

Q. WHICH PHASES ARE INCLUDED IN THE CHANGE ORDER PRESENTED BY THE COMPANY FOR REVIEW IN THIS PROCEEDING?

A. This change order will include Phases 1 and 2. Phase 3 will be covered in a subsequent change order.

Q. WHY IS IT NECESSARY TO HAVE A SEPARATE CHANGE ORDER FOR PHASE 3 OF THE PLANT LAYOUT SECURITY CHANGES?

A. SCE&G determined that the design changes being made in Phase 2 should be completed so that the Company can better evaluate and determine the final

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security requirements to be addressed in Phase 3 of the scope of work and the resulting cost.

Q. WHAT IS THE COST IMPACT OF THIS CHANGE ORDER?

A. The cost of Phases 1 and 2 of the work to increase the security of the plant through physical security upgrades and improvements is forecasted to be approximately $20.4 million, or approximately 3% of the total change in the capital cost schedule.

2. Cyber Security Upgrades

Q. PLEASE EXPLAIN THE CHANGE ORDER RELATED TO CYBER SECURITY UPGRADES.

A. As the Commission is aware, in recent years the protection of key infrastructure against cyber-attack ("Cyber Security") has become an increasing priority of electric utilities, their regulators, the Department of Homeland Security, and others. The NRC now requires more elaborate Cyber Security measures to be incorporated in all new and existing nuclear facilities. The NRC Regulatory Guide RG-5.71, "Cyber Security Programs for Nuclear Facilities" ("Rule"), dated January 2010, requires that a large number of security controls must be addressed for every Critical Digital System/Critical Digital Asset ("CDA") in the Units. The Rule also requires licensees to make changes to the storage and handling of certain assets, which necessitates additional training for WEC/CB&I personnel.

In late 2011, an agreement was reached between SCE&G and WEC/CB&I on a phased approach to strengthening Cyber Security. The cost of the Phase I

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scope of the Cyber Security plan was reviewed by the Commission and included in the cost schedules approved in Order No. 2012-884. In mid-2013, SCE&G and WEC/CB&I agreed to further divide the remaining Cyber Security plan into additional phases. The scope of work for the remaining phases of the plan will be determined as Phase II is completed.

Q. WHAT IS THE SCOPE OF WORK OF PHASE II?

A. Phase II of the Cyber Security upgrades will require the development of procedures in order to determine how to identify and assess the critical digital assets of the Units. Following this identification and assessment, Phase II also will include the design and development of a Cyber Security Monitoring System, and the testing and installation of an assessment database. Cost related to project management and onsite support of Cyber Security also is included in this scope of work.

Q. WHAT IS THE COST ASSOCIATED WITH PHASE II OF THE CYBER SECURITY UPGRADES?

A. The cost for Phase II of the plan is approximately $18.8 million, or approximately 3% of the total change in the capital cost schedule.

Q. WHAT OTHER PHASES OF WORK WILL BE REQUIRED RELATED TO CYBER SECURITY UPGRADES?

A. Following the critical digital asset assessment component of Phase II, SCE&G will determine whether suppliers will need to upgrade, upfit, or redesign certain project components. This scope of work will require component design

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and procurement, testing, quality assurance, and installation for system changes necessary to meet the Cyber Security requirements identified in Phase II. Once the scope of work has been identified and itemized, the cost associated with this phase of Cyber Security upgrades will be presented in future update proceedings.

3. Schedule Mitigation for Shield Building Panels

Q. PLEASE EXPLAIN THE ISSUES THAT CREATE THE NEED FOR A CHANGE ORDER RELATED TO SHIELD BUILDING PANELS.

A. The design documents for the AP1000 unit specified very narrow welding tolerances for the joining of the panels and smooth contours for resulting Shield Building walls. These specifications have presented fabrication challenges to the subcontractor selected by WEC/CB&I for the construction of the steel panels, NNI in Newport News, Virginia, as well as the welding together of these panels to form the Shield Building walls.

Q. WHAT STEPS ARE BEING TAKEN TO ADDRESS THESE ISSUES?

A. Schedule delays related to both the design finalization of these panels and their fabrication and assembly have placed the fabrication of these panels on the critical path for timely completion of the project. Currently WEC/CB&I estimates that the Substantial Completion Date for Unit 2 could be delayed by approximately three months and Unit 3 by approximately five months if the delay in the Shield Building Panels is not remedied. However, WEC/CB&I has devised a strategy to mitigate these additional delays by expanding NNI's manufacturing facility to allow additional panels to be worked simultaneously.

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Q. ARE THERE ADDITIONAL COSTS RELATED TO THIS MITIGATION STRATEGY?

A. Yes. The change order related to schedule mitigation for Shield Building Panels reflects SCE&G's share of the cost to expand the NNI facility, resulting in an increase to the EPC Contract cost of approximately $12.1 million, or approximately 2% of the total change in the capital cost schedule.

Q. WHY HAS SCE&G AGREED TO PAY THESE ADDITIONAL COSTS?

A. The Company is still negotiating the terms of this change order, but currently believes it is reasonable and prudent to include the forecasted cost for schedule mitigation for Shield Building Panels in an effort to maintain, and not further delay, the revised Substantial Completion Dates. In presenting this change order as being a reasonable and prudent cost for completing the Units under the BLRA, the Company does not waive any claim it may have against WEC/CB&I for the cost associated with this expansion.

4. Federal Health Care Act

Q. PLEASE EXPLAIN THE CHANGE ORDER FOR ADDITIONAL COST RELATED TO THE FEDERAL HEALTH CARE ACT.

A. On March 23, 2010, the Patient Protection and Affordable Care Act ("ACA") was signed into law. WEC has informed SCE&G that the ACA will increase its cost of health insurance for its employees and is expected to continue to impact the project cost. Specifically, this additional cost arises from the ACA's requirements to provide coverage of dependents up to age 26, the cost of

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reimbursing 100% of contraceptive cost, and the Patient-Centered Outcomes Research Institute Fee. In order to recover this increased cost of compliance with the ACA and related statutes, WEC sought change orders to the EPC Contract.

Q. ON WHAT BASIS DID WEC REQUEST THE RECOVERY OF THIS ADDITIONAL COST?

A. Article 9.1(c) of the EPC Contract permits both WEC and CB&I to pass on to SCE&G additional cost incurred for changes caused by a change in law. Pursuant to this provision, WEC is seeking the recovery of cost for those portions of the ACA related to professional labor effective for calendar years 2011, 2012, and 2013.

Q. HOW WAS THE ANNUAL IMPACT TO THE PROJECT FROM THE ACA CALCULATED?

A. The annual impact to the Project from the ACA was calculated using (1) WEC ACA-related claims; (2) WEC U.S. payroll; and (3) WEC V.C. Summer Project payroll cost, including all Firm, Fixed, Time and Material, and Ttarget payroll cost.

Q. WHAT IS THE COST IMPACT OF THE CHANGES RELATED TO THE FEDERAL HEALTH CARE ACT?

A. Through Change Order No. 20, WEC is seeking to recover $206,589 reflecting its increased cost of health insurance for its employees for calendar years 2011, 2012, and 2013. SCE&G also forecasted that the ACA will result in additional cost of approximately $2.0 million for WEC/CB&I over the life of the

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project under the new Substantial Completion Dates. The combined effect of Change Order No. 20 and the additional forecasted cost is approximately $2.2 million, or approximately 0.3% of the total change in the capital cost schedule.

5. Plant Reference Simulator and Software Upgrade

Q. PLEASE EXPLAIN THE CHANGE ORDER RELATED TO THE PLANT REFERENCE SIMULATOR AND SOFTWARE UPGRADE.

A. Change Order No. 19, relating to the Plant Reference Simulator ("PRS") hardware and software and associated training, was executed to enhance PRS displays. WEC also will provide versions of the software that will be issued subsequent to the version provided under the EPC Contract and will provide training for the updated software version.

Q. IS THIS UPGRADE NECESSARY?

A. Yes. The PRS is a critical system necessary for training and requalifying licensed operator candidates and senior operators and for developing and validating NRC license exam simulator scenarios. The cost originally forecasted for PRS hardware and software reflected the cost of the standard system used on all AP1000 units. However, these systems must be updated in order to reflect changing design conditions. Through this change order, the PRS will be synchronized to the design of the Main Control Room, which is critical and essential for training and requalifying licensed operators.

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Q. WHAT IS THE COST FORECAST FOR CHANGE ORDER NO. 19?

A. The cost of this change order is approximately $1.1 million, or approximately 0.2% of the total change in the capital cost schedule.

6. Ovation and Common Q Instrumentation and Control Maintenance Training Systems

Q. PLEASE EXPLAIN THE CHANGE ORDER RELATED TO OVATION AND COMMON Q INSTRUMENTATION AND CONTROL MAINTENANCE TRAINING SYSTEMS.

A. The Instrumentation & Control ("I&C") and Reactor Protection Systems for the Units are managed by the Ovation and Common Q systems, respectively. I&C Technicians and I&C/Digital Engineers require initial and continuing training on these risk important systems. In order to provide the proper hands-on training to these personnel in an off-line training environment without interfering with the use of the systems for operations, a minimum set of Ovation and Common Q hardware and software is required. Additionally, Ovation and Common Q software licenses are required.

Q. WHAT PROCESS DID SCE&G USE TO EVALUATE ITS TRAINING NEEDS?

A. The Company outlined its training needs based on industry standards. SCE&G also developed a technical description of its training needs and submitted a Request for Proposal to WEC/CB&I based on this compiled information.

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Q. WHAT ARE THE COST FORECASTS ASSOCIATED WITH THIS CHANGE ORDER?

A. SCE&G has forecasted that the change order associated with acquiring the hardware and software for these maintenance training systems will cost approximately $880,000, or approximately 0.1% of the total change in the capital cost schedule.

7. Simulator Development System

Q. PLEASE EXPLAIN THE CHANGE ORDER RELATED TO THE SIMULATOR DEVELOPMENT SYSTEM.

A. SCE&G has determined that the schedule for training and scenario development on the PRS will require the PRS to be in nearly continuous use for the balance of the project. This level of use does not allow sufficient time for the PRS to be taken out of service for upgrades, modifications and routine maintenance of its software. The new Simulator Development System to be developed as part of this change order will include a complete copy of the PRS software but will be a scaled down version of the PRS. This new system will allow the software to be serviced and modified without interfering with use of the PRS. The modified software can then be uploaded to the PRS when servicing is complete. As well, the new system will allow SCE&G to test new software before it is put into use for training and scenario development on the PRS.

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Q. WHY DOES THE TRAINING SCHEDULE NOT ALLOW THE PRS TO BE TAKEN OUT OF SERVICE?

A. In June of each year, SCE&G works with the NRC to schedule operator exams for the upcoming four years. Upon agreement of these dates, the NRC and SCE&G allocate resources and time to conduct these exams. SCE&G currently has three classes of potential operator license candidates that have been training and preparing for upcoming exams. Two of the classes are two years or more into their training with examination dates already established with the NRC through 2016.

The current training schedule would be negatively impacted by any time the PRS is unavailable due to upgrades, modifications, and routine maintenance. Delays also would impact the NRC's ability to adequately manage their resources required to support the examination process. SCE&G believes that maintaining the current operator training schedule, in lieu of further postponing these tests, will maximize learning and understanding of key operational procedures and capitalize on student peak performance. The Company also believes that continuing with the operator training schedule as planned will enhance the retention of operator license candidates. Retention is critical to ensuring SCE&G will have the required number of licensed operators for fuel load of the Units.

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Q. WHAT IS THE COST ASSOCIATED WITH THE NEW SIMULATOR DEVELOPMENT SYSTEM?

A. Based upon the expertise of the Company's simulator engineering group, industry benchmarking, and knowledge of other systems in use by WEC, SCE&G forecasted that the cost of the change order to acquire the Simulator Development System would be approximately $605,000, or approximately 0.1% of the total change in the capital cost schedule.

8. ITAAC Maintenance

Q. PLEASE EXPLAIN THE CHANGE ORDERS RELATED TO ITAAC MAINTENANCE.

A. These change orders provide for the cost of new NRC regulations requiring the review of completed ITAAC packages when work is done on the associated components or systems or non-conforming conditions are discovered after the ITAAC is closed. Specifically, once an ITAAC closure letter is submitted to the NRC, any new information that materially alters the basis for determining that (1) a prescribed inspection, test, or analysis was performed correctly, or (2) finding that a prescribed acceptance criterion is met must be reported to the NRC in the form of an "ITAAC Post-closure Notification." The regulations also direct that a notice be submitted to the NRC indicating that all of the ITAACs under the combined license are complete. By imposing these new, additional ITAAC requirements, the NRC intended to facilitate the completion of all activities necessary to make a finding on ITAACs in accordance with NRC regulations, as

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well as ensure that interested parties have access to all available information should a hearing on an ITAAC be requested.

Q. WILL THESE NEW REGULATORY REQUIREMENTS RESULT IN ADDITIONAL COST?

A. Yes. As reflected in Change Order No. 21, WEC/CB&I anticipates that its cost to comply with these additional ITAAC requirements will be approximately $59,400 for 2014 and 2015. WEC/CB&I also has informed SCE&G that, from 2016 to 2020, it will submit an annual change order to recover its additional cost associated with these requirements, which SCE&G has forecasted to be $313,229. The total anticipated cost of complying with these ITAAC requirements will increase cost by approximately $372,629, or approximately 0.05% of the total change in the capital cost schedule.

9. Warehouse Fire Security

Q. PLEASE EXPLAIN THE CHANGE ORDER RELATED TO WAREHOUSE FIRE SECURITY.

A. SCE&G became concerned about the increasing value of inventory in the on-site warehouses in relation to the insurability of three on-site warehouses that serve the project and their content under the Owner's Builders' Risk Policy. In order to address these concerns and to mitigate fire insurance premiums, the Company elected to implement enhancements to the fire alarm monitoring for these warehouses, including upgrading the remote monitoring capabilities of the

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fire and security systems. These upgrades will bring the value of the insurance closer to the value of the inventory, thereby mitigating exposure.

Q. WHAT IS THE FORECASTED COST OF THE UPGRADES TO THE WAREHOUSE FIRE SECURITY SYSTEM?

A. SCE&G estimates that the cost of this change order incorporating these upgrades will be approximately $121,000, or approximately 0.02% of the total change in the capital cost schedule.

10. Perch Guards

Q. PLEASE EXPLAIN THE CHANGE ORDER RELATED TO PERCH GUARDS.

A. Change Order No. 18 provides for the installation of perch guards on transmission structures for the Unit 2 and 3 generator step up and the reserve auxiliary transformer transmission tie-lines from the Unit 2 switchyard to the Units 2 and 3 tabletop area. The perch guards will increase the reliability of these transmission lines by preventing avian interference and bird-related faults that may occur due to the number of large birds in the area. The forecasted cost of this change order is $14,056, or less than 0.01% of the total change in the capital cost schedule.

Q. HAS THE COMPANY NEGOTIATED ANY OTHER CHANGE ORDERS?

A. Yes. SCE&G negotiated Change Order No. 17 that shifted approximately $7 million from the Time and Materials category to the Firm category, and approximately $49 million from the Time and Materials category to the Target

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category. This shift reflects the agreements reached between SCE&G and WEC/CB&I to provide for (1) additional equipment required to be installed in the Off-Site Water System for the removal of Bromide from raw water during treatment; (2) the transfer of certain CB&I start-up construction support Time and Material scopes of work and associated dollars to the Target and Firm price category; and (3) other miscellaneous items. While this change order shifts cost from one pricing category to another, it does not result in any additional cost to the project.

Q. WHAT IS YOUR EXPERT OPINION ABOUT THE REASONABLENESS AND PRUDENCE OF THESE TEN CHANGE ORDERS AND RELATED MATTERS THAT INCREASE THE CAPITAL COST OF THE PROJECT?

A. Based on my years of experience and my direct involvement with the construction of the project and efforts related to startup of the Units for commercial operations, it is my expert opinion that these ten change orders and related matters represent reasonable and prudent changes to the EPC Contract cost for completion of the Units under the BLRA. With respect to the change order related to schedule mitigation for the Shield Building Panels, however, I would reiterate that the Company does not waive any claim it may have against WEC/CB&I for the cost associated with the expansion of the NNI facility.

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D. Switchyard Cost Re-Allocation

Q. IS SCE&G PROPOSING TO ADJUST THE ALLOCATION OF SWITCHYARD COST BETWEEN THE COMPANY AND SANTEE COOPER?

A. Yes. As discussed by Ms. Walker, SCE&G and Santee Cooper recently completed a comprehensive review of the Switchyard design and have updated the EPC Contract cost associated with the entire scope of work for the Switchyard based on each party's actual use of the facilities. This updated allocation has the effect of decreasing the allocation of Switchyard cost to SCE&G by $107,000.

II. <u>OWNER'S COST REVISIONS ASSOCIATED WITH DELAY</u>

A. Owner's Labor Cost Revisions Associated with Delay

Q. PLEASE EXPLAIN THE ROLE OF THE COMPANY'S NEW NUCLEAR DEPLOYMENT TEAM.

A. SCE&G's NND team is primarily responsible for meeting SCE&G's obligations as owner of the project and as the holder of active NRC licenses to construct and operate the Units. These obligations include responsibility for (a) construction and engineering oversight of the project; (b) QA/QC oversight both on site and at suppliers' locations worldwide; (c) the training and licensing of all personnel required for Unit operations; (d) the auditing of invoices from WEC/CB&I and other suppliers and the resolution of contractual and payment disputes with WEC/CB&I; (e) oversight and accounting for all commercial aspects of the project; (f) acceptance testing and maintenance of plant systems as they are

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completed and turned over to SCE&G; (g) accepting the handover and maintenance of engineering, QA/QC and other data necessary for operating the Units; (h) drafting the procedures for plant operations and safety; (i) conducting plant start-up and start-up testing; and (j) providing the administrative support, IT systems and software necessary to sustain these functions. The Operational Readiness group comprises all personnel necessary to operate and maintain the Units when in service. In addition, they also are responsible for developing programs and procedures for operation and maintenance of the Units and in overseeing start-up and testing.

As of March 2015, the NND team is comprised of approximately 560 SCANA, SCE&G and Santee Cooper employees, including highly skilled professionals in engineering, nuclear construction management, QA/QC, training, operational readiness, and other disciplines. Extending the duration of the construction project will require SCE&G to maintain its NND team in place to support the completion of Units 2 and 3 for an additional 27 months and 25 months, respectively.

Q. HAVE THE DELAYS IN THE PROJECT AFFECTED THE OWNER'S LABOR COST?

A. Yes. In response to the new Substantial Completion Dates, SCE&G has taken reasonable steps to delay NND hiring and to revise work assignments. However, SCE&G forecasts that the extension of the project will increase Owner's labor cost by approximately $125.3 million, or approximately 18% of the total

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change in the capital cost schedule, to allow SCE&G to support the NND team's role in the project for a longer period.

Q. PLEASE DESCRIBE THE PROCESS BY WHICH SCE&G PROJECTED THE ADDITIONAL OWNER'S LABOR COST RELATED TO THE DELAY.

A. We have reviewed our staffing plans to determine the impact of the new Substantial Completion Dates on the Owner's labor cost. As part of these studies, the Company reevaluated every position to determine its need and reassessed the need for future hire positions in order to identify positions that could be delayed.

B. Owner's Risk Insurance and Workers Compensation Insurance

Q. WILL THERE BE ANY ADDITIONAL COST FOR OWNER'S RISK INSURANCE AND WORKERS' COMPENSATION INSURANCE ASSOCIATED WITH THE INCREASED LABOR COST?

A. Yes. As discussed in more detail by Ms. Walker, all of the project insurance programs, including Builder's Risk insurance, an owner controlled insurance program ("OCIP"), and Cargo insurance, are required in Phase II of the EPC. The Owner is having on-going discussions with the project insurers about extending the policy terms resulting from the delay. As well, the delay results in additional exposure to Builder's Risk damage claims as well as worker injuries and workers' compensation claims. As a result, SCE&G anticipates that extending the project will increase Owner's cost for insurance by approximately

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$30.1 million, or approximately 4.3%, of the total change in the capital cost schedule.

C. Additional IT Cost Associated with Delay

Q. HOW HAS THE DELAY AFFECTED THE OWNER'S COST WITH RESPECT TO INFORMATION TECHNOLOGY COST?

A. As project owner, SCE&G is obligated to supply certain software and other IT resources required to support operational readiness and the work of the NND team during construction. SCE&G also must ensure that the engineering data, QA/QC documentation and other data that are necessary for testing, start-up, and operation of the Units are properly maintained in SCE&G's IT system and are available at all times to the Units' operating staff. Extending the project schedule will increase the cost of IT support for the project because software licenses and maintenance fees, equipment maintenance cost, and other IT support cost must be paid for longer periods of time. SCE&G forecasts that extending the schedule of the project will increase the IT component of Owner's cost by approximately $6.5 million, or approximately 1% of the total change in the capital cost schedule.

D. Facilities Cost Increases Associated with Delay

Q. PLEASE EXPLAIN THE FACILITIES COST INCREASE ASSOCIATED WITH THE DELAY.

A. SCE&G is responsible for the warehouse and storage space for materials and equipment necessary to operate the Units. SCE&G also is required to pay for the office space and related support facilities for its NND team personnel while

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they are on site. Because of delays in the project schedule, construction teams and operational readiness teams will overlap more, requiring more space. In addition, the maintenance, upkeep and other cost of office space and related support facilities will have to be borne by the project for a longer period of time. SCE&G has taken reasonable steps to reduce the scope and cost of the additional warehouse, storage, office, and other support facilities. Nevertheless, SCE&G forecasts that additional facilities and facilities cost associated with the new Substantial Completion Dates will increase Owner's cost by approximately $6.1 million, or approximately 1% of the total change in the capital cost schedule.

E. Other Owner's Cost Associated with Delay

Q. WILL OTHER OWNER'S COST BE AFFECTED BY THE DELAY?

A. Yes. Ms. Walker explains that extending the duration of the project also will increase Owner's cost across a broad range of cost centers related to technical, administrative, and other support for the project as well as increasing associated non-labor cost. As a result, SCE&G anticipates that Owner's cost will increase by $46.4 million, or approximately 7% of the total change in the capital cost schedule.

Q. WHAT IS YOUR EXPERT OPINION AS TO WHETHER THE OWNER'S COST INCREASES ASSOCIATED WITH DELAY ARE REASONABLE AND PRUDENT?

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A. Based upon my experience and direct involvement with the project, it is my expert opinion that the increases in Owner's cost associated with the delay reflect reasonable and prudent changes for completion of the Units under the BLRA.

III. OWNER'S COST INCREASES NOT ASSOCIATED WITH DELAY

A. Additional NND Staff

Q. PLEASE DESCRIBE THE PROCESS BY WHICH YOU HAVE UPDATED THE NND STAFFING PLANS PRESENTED.

A. In 2012, SCE&G updated its NND staffing plan, which was approved by the Commission in Order No. 2012-884. Since that time, we have continued to review our staffing plans as new information has emerged concerning the design of the plant, regulatory requirements, physical, and Cyber Security requirements for the plant, and similar matters. During this period, we conducted extensive interviews with the leadership of each department of the current operating unit, Unit 1, and with each department involved in the construction and operational readiness of the new Units. The Company also engaged an industry recognized consultant to review, validate, and make recommendations to SCE&G's staffing plan.

Q. WHAT WAS THE RESULT OF THESE REVIEWS?

A. Our careful analysis and review has resulted in an identified need to add 64 Full Time Equivalents ("FTEs") to the NND Staff, as presented in Chart A, below. The cost associated with these staffing changes is $7.5 million, or approximately 1% of the total change in the capital cost schedule.

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1 **CHART A**

	Full Time Equivalents ("FTEs") (excluding Security Contractors)							
	New Nuclear & Operational Readiness Labor Variance							
	Full Time Equivalents Units 2 & 3			FTE Increase by Functional Area				
Group	**Order 2012-884 PSC Approved Budget**	**Proposed Staffing Plan**	**Increase to Staffing Plan**	**Operational Readiness**	**Cyber Security**	**Training**	**Industry Coordinators**	**Other**
Management Admin	2	4	2	2				
Operations	167	167	0					
Maintenance	128	128	0					
Planning & Scheduling	36	41	5	5				
Outage	7	11	4	4				
Business & Financial	22	22	0					
Engineering	107	151	44	31	10		3	0
Licensing	16	15	-1					-1
Emergency Services	27	27	0					
Health Physics	61	61	0					
Chemistry	31	31	0					
Training	58	64	6			6		
Security (SCE&G only)	25	25	0					
Quality Systems	27	27	0					
Organizational, Development, & Performance	16	13	-3					-3
Records, Documents, and Reproductions	10	11	1	1				
Construction	20	26	6					6
Total	**760**	**824**	**64**	**43**	**10**	**6**	**3**	**2**

2 This chart is net of internal transfers.

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Q. PLEASE PROVIDE A BREAKDOWN OF THE FUNCTIONS THAT IMPACTED THE NEED FOR ADDITIONAL STAFFING.

A. The functional areas that drove the need for additional staffing consist of Operational Readiness, Cyber Security, Training, Industry Coordinators, and Other. These areas are reflected in Chart A as well as in Chart B below.

CHART B

Functional Area	FTE Change	Total Cost Change
Operational Readiness	43	$ 6,368,402
Cyber Security	10	$ 222,164
Training	6	$ 1,044,322
Industry Coordinators	3	$ 104,309
Other	2	$ (204,696)
TOTAL	64	$ 7,534,501

Q. PLEASE EXPLAIN THE IMPACT OF THE CHANGES TO THE OPERATIONAL READINESS CATEGORY.

A. Much of the change in this category is the result of the identified need to add 31 additional engineering positions. The original project intent was to supplement the engineering staff for Units 2 and 3 with elements of the engineering staff for Unit 1 to support an overall integrated engineering program for the three units. Due to a number of major engineering projects at Unit 1, the ability to support efforts at Units 2 and 3 has been extremely limited. As such, the overall engineering structure was revalidated and the need for increased staff to meet schedule needs was identified. In addition, initial estimates for major

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engineering project work such as maintenance rule development, equipment reliability, program development and establishment of a fully integrated configuration management information system have been revised to support project goals. These positions primarily will be utilized to develop the engineering programs, plans, and procedures needed to successfully operate the two AP1000 nuclear units. This group also will supplement the preoperational and start up test organization as outlined in the EPC agreement.

Q. WHAT OTHER POSITIONS IMPACT THE OPERATIONAL READINESS CATEGORY?

A. An additional nine positions are needed to staff the Planning and Scheduling group and the Outage group. In May 2013, the Institute of Nuclear Power Operations ("INPO") performed a Construction Review Visit on Units 2 and 3 to determine, in part, our preparation and planning capabilities to support the plants when operational and during the transition phase to plant operations. INPO identified that based on industry experience, we needed to more fully develop an Integrated Operational Readiness Schedule ("IORS"). Detailed procedures were developed and the transition to an IORS was begun. This effort identified that nine additional positions are needed to support the earlier integration of all scheduled operational activities into the IORS. INPO returned to the site in May 2014 and concluded that we were on track to meet our goals in the IORS area.

The Company also identified a need to add one additional supervisor position to the Records, Documents, and Reproduction group in order to support a

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better integration of Units 1, 2, and 3 and to better align accountabilities. This additional supervisor was deemed necessary to assure that all records, documents, and reproduction activities would properly align and transcend the individual units, assuring proper integration of all three units. Additional benchmarking with other industry nuclear plants also determines this to be a best industry practice.

Finally, to support functional organizational alignments within the NND Department, two additional positions were added to the Administrative Management Group. A Vice President of Nuclear Operations for Units 2 and 3 was deemed necessary to support the division of responsibilities between the three units. This position was created to assure all support functions common to three units had a reporting structure that provided effective allocation of budget, resources and oversight of all three units. In addition, a new position was identified after benchmarking several nuclear utilities to combine the effective efforts of existing environmental, health, and safety professionals under one Manager of Environment, Safety and Health. This organizational change will provide for more efficient interface with the NRC and state and local officials for all compliance matters relating to permits, safety, environmental, and compliance reports.

Q. WHAT IS THE COST ASSOCIATED WITH THESE PERSONNEL CHANGES?

A. The combined effect of the additional staffing positions for these five groups will add 43 FTEs totaling an increase for Units 2 and 3 of $6,368,402.

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Q. PLEASE DESCRIBE THE IMPACT OF THE CHANGES TO THE CYBER SECURITY CATEGORY.

A. Regulatory changes in the Cyber Security area have required additional consideration of the staff needed to support current NRC requirements. In August 2010, the NRC published 10 CFR 73.54. This rule, combined with the guidance set forth in Regulatory Guide 5.71 released in January 2010, requires licensees to submit a new Cyber Security plan and an implementation timeline for NRC approval, and show how the facility will identify critical digital assets and describe its protective strategy, among other requirements. Based on the NRC Rule, the Nuclear Energy Institute ("NEI") also developed NEI 08-09, Revision 6 ("NEI 08-09"), which was approved by the NRC in letters dated May 10, 2010, and June 7, 2010, and consists of a series of standards to assist facilities in meeting cyber security regulations.

Since the issuance of these publications, efforts have been on-going to define and identify the staffing impact to Units 2 and 3. The Company used the NEI 08-09 resource staffing model for Unit 1, and subsequently modeled the staffing for Units 2 and 3 accordingly. SCE&G then analyzed and compared the potential number of critical digital assets used in Unit 1. This resulted in ten FTEs totaling identified and itemized cost for Units 2 and 3 of $222,164.

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Q. DID SCE&G ALSO IDENTIFY A NEED TO ADD POSITIONS TO THE CRAFT AND TECHNICAL TRAINING GROUP?

A. Yes. Personnel in the Training Department have highly marketable skills resulting in higher than anticipated turnover. Even if the Company were to hire only experienced industry staff, it still takes several months to two years to fully integrate training instructors into the department. To help mitigate this known loss of personnel, the Company determined that six additional positions are needed in the training department to meet the need to hire and train skilled replacements for the Operation and Maintenance department. These six FTEs increase the identified and itemized Owner's cost related to NND staffing by $1,044,322.

Q. PLEASE DESCRIBE THE IMPACT OF THE CHANGES TO THE INDUSTRY COORDINATORS CATEGORY.

A. Currently, Unit 1 utilizes three positions to support strategic industry interfaces which are common to all nuclear power plants. These areas support INPO, operating experience reviews and follow-up actions indicated by the reviews. It was intended that Unit 1 would support these areas with existing resources. Several months ago, management for Units 1, 2, and 3 met to discuss current duties and responsibilities of the three resources currently engaged to perform these functions for Unit 1. They determined that the workload in these areas had increased at Unit 1 to the point that they could not support performing this activity for Units 2 and 3. This resulted in 3 FTEs totaling an identified and itemized cost increase for Units 2 and 3 of $104,309.

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Q. PLEASE EXPLAIN THE "OTHER" CATEGORY AND HOW CHANGES TO THOSE ITEMS IMPACT STAFFING AND OWNER'S COST.

A. SCE&G identified the need to add four NND Construction positions to support the continued oversight of construction. In addition, management of the Start Up group initially was placed under the direct control of WEC/CB&I. As the project has progressed, the Company has determined that it needs to assume a more direct interface and control of Initial Test Program activities, resulting in the addition of a Start Up manager position. Finally, continued refinement of the staffing projections identified the ability to reduce the initial projections for the Organizational, Development, & Performance Specialists resulting in a net decrease of three FTEs. The combined effect of these adjustments results in 2 additional FTEs totaling an identified and itemized decrease in capital cost for Units 2 and 3 of $204,696.

Q. HOW DID YOU ASCERTAIN THE REASONABLENESS OF THE ADDITIONAL COSTS PROPOSED HERE?

A. I have personally reviewed the budget forecasts presented here to ensure that the costs they include are reasonable and necessary. We are very sensitive to the need to control costs on this project. SCE&G management has been unrelenting in its review of the reasonableness of this plan and its insistence that the entire project team remain fully committed both to controlling costs and to ensuring the success of the project. Each team within NND and NND leadership has been required to justify the necessity of each position and the timing of each

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hiring date. Based on my years of experience in the nuclear industry, and my involvement in these reviews, it is my opinion that these costs are reasonable and prudent and reflect a strong commitment to control costs without unreasonably putting the success of the project at risk.

B. NRC Fees

Q. HAS THERE BEEN ANY CHANGE IN THE ESTIMATED NRC FEES ASSOCIATED WITH THE PROJECT?

A. Yes. The NRC continues to evaluate its cost to provide regulatory oversight of the construction of the Units. As discussed by Ms. Walker, the NRC recently revised its estimated fees for the project to include the cost associated with work its staff members performed off-site but which related to the project. Additionally, staff time for off-site oversight of the project was likewise included in the NRC's updated cost estimate. As a result, the NRC has increased its estimate by approximately $7.1 million based upon its most recent analysis. This additional cost is reflected in the revised cost forecast and is approximately 1% of the total change in the capital cost schedule. This cost is reasonable and necessary for the project to proceed.

C. Other IT Cost and Other Owner's Cost Not Associated with Delay

Q. IS THE COMPANY PROPOSING TO INCREASE OWNER'S COST FOR OTHER IT COST AND OTHER OWNER'S COST NOT ASSOCIATED WITH THE DELAY?

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A. Yes. Notwithstanding SCE&G's care and diligence to mitigate or avoid additional cost, SCE&G anticipates that it will be required to incur cost for certain software and other IT resources that are necessary for the project. These resources include increased cyber security resources for NND project personnel, fatigue and stress monitoring software, and software to capture and monitor plant operating data. Ms. Walker addresses the cost related to these items more fully. However, the Company forecasts that the additional IT cost will add $3.3 million to Owner's cost, or approximately 0.5% of the total change in the capital cost schedule.

The Company also has identified other areas, not related to the delay, that will result in an increase to Owner's cost. Again, Ms. Walker addresses the drivers for these increased costs, including increased facilities cost, the cost of additional contractors for oversight of construction and component fabrication, and increased fees for participation in the AP1000 Users Group, among others. SCE&G anticipates that the amount of other Owner's cost not associated with the delay is $12.9 million, or approximately 2% of the capital cost schedule.

CONCLUSION

Q. ARE THE UPDATES REQUESTED IN THIS PROCEEDING REASONABLE AND PRUDENT?

A. Yes they are. The adjustments requested in this proceeding, adjustments as to EPC cost and Owner's cost, are adjustments that I know to represent reasonable and prudent changes in the cost and construction schedules for the Units, based upon the information currently available to SCE&G. In my professional opinion,

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the adjustments are the result of the normal and expected evolution of project cost forecasts in conjunction with the current Substantial Completion Dates.

In sum, it is my expert opinion that the costs in the Company's updated capital cost schedule are reasonable and prudent for completing the Units under the BLRA. Notwithstanding the fact that the anticipated cost to complete the Units is reasonable and prudent, SCE&G has carefully reserved its rights to assert claims against WEC/CB&I for the cost resulting from the delay.

Q. WHAT IS SCE&G REQUESTING OF THE COMMISSION IN THIS PROCEEDING?

A. The Company is requesting that the Commission approve, pursuant to S.C. Code Ann. § 58-33-270(E), (1) the updated milestones as set forth in Mr. Byrne's testimony and Exhibit No. __ (SAB-2) and (2) the updated capital cost schedule in Exhibit No. ___ (CLW-1) as the approved schedule of capital cost for the Units. On behalf of the Company, I respectfully request that the Commission approve these adjustments as presented.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

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C E R T I F I C A T E

I, Jo Elizabeth M. Wheat, CVR-CM-GNSC, Notary Public in and for the State of South Carolina, do hereby certify that the foregoing is, to the best of my skill and ability, a true and correct transcript of proceedings had and testimony adduced in a hearing held in the above-captioned matter before the PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA;

That the witnesses appearing during said hearing were sworn or affirmed by me to state the truth, the whole truth, and nothing but the truth;

IN WITNESS WHEREOF, I have hereunto set my hand and seal, on this the 7th day of August, 2015.

Jo Elizabeth M. Wheat, CVR-CM/M-GNSC
Hearings Reporter, PSC/SC
My Commission Expires: January 27, 2021.