

The logo for Vogtle units 3 & 4. The word "Vogtle" is in a large, white, sans-serif font, with a red horizontal bar behind the letters "o" and "g". Below "Vogtle", the words "units 3 & 4" are written in a smaller, white, sans-serif font.

Vogtle  
units 3 & 4

# Eighth Semi-Annual Construction Monitoring Report

February 2013 • Docket No. 29849



**GEORGIA  
POWER**  
A SOUTHERN COMPANY

**Vogle Units 3 and 4  
Eighth Semi-Annual Construction Monitoring Report  
and Request to Amend the Certification**

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## EXECUTIVE SUMMARY

### I. Highlights

- **The benefits to customers of completing the Vogtle Units 3 and 4 nuclear facility (“Facility”) remain overwhelmingly positive.**

Economic analyses by Georgia Power Company (“Georgia Power” or “the Company”) continue to demonstrate that completing this Facility represents the best cost option for our customers by an overwhelming margin. Similar analyses by the Staff of the Georgia Public Service Commission (“the Commission”) through the Seventh VCM Report have also demonstrated that completing the Facility represents the best cost option for our customers. Under our current schedule assumptions, the Facility will bring approximately \$4 billion in additional value to customers when it is completed as compared to alternative generation available today. Even in extended delay scenarios performed at the Commission’s request, the Facility remains economic.

- **Costs for actual engineering, procurement, and construction of the main power block and support structures remain stable and represent a less than 1 percent increase in the certified capital costs.**

Real construction costs remain essentially unchanged. The vast majority of ‘bricks and mortar’ costs for equipment, commodities, contractor labor, and installation are controlled by the fixed and firm contract for the project. This is notable given that engineering is approximately 96 percent complete, procurement of critical components is essentially complete, and construction on the Facility is greater than one third complete. In parallel with construction, the Company is coordinating an extensive effort to prepare for start-up and commercial operation. Requested changes to the certified cost are outlined in the table below:

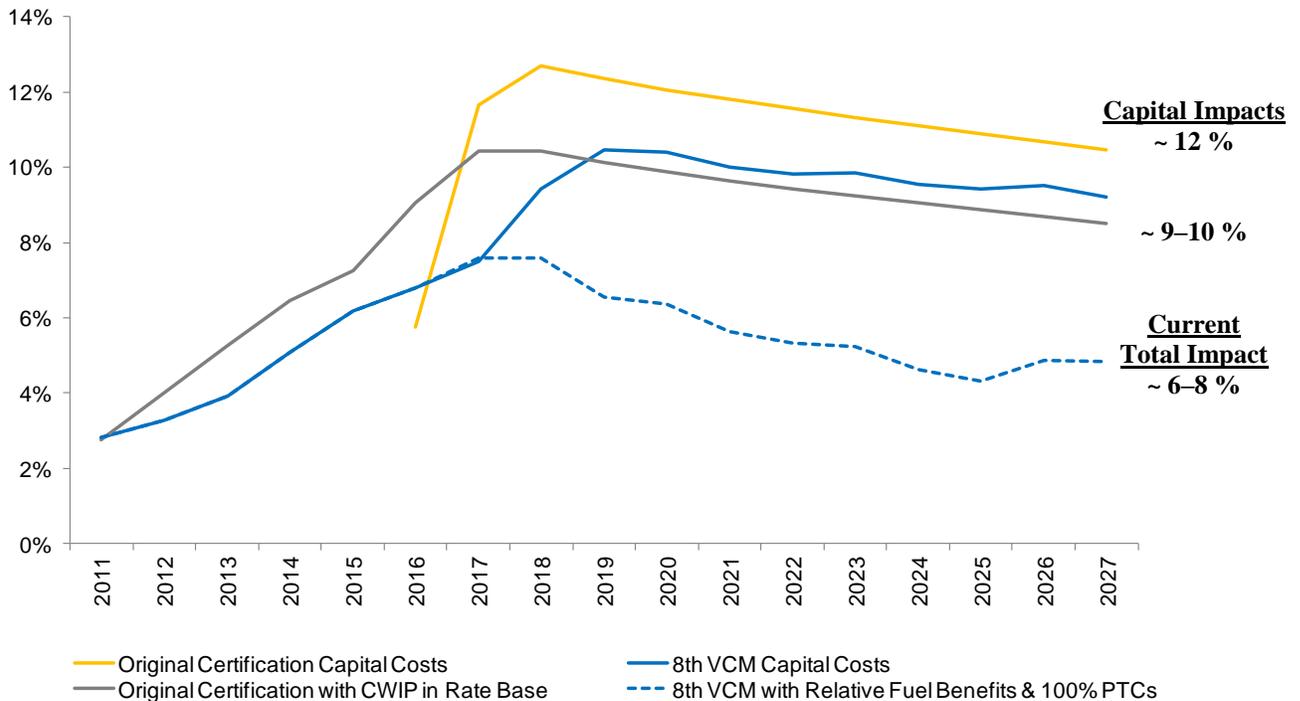
Capital Cost Category	Change including escalation (in millions)	Change as a % of Original Certified Capital
<b>Power Block and Support Structure Construction</b>	<b>\$ 24</b>	<b>0.5</b> ←
Federal Regulation Changes (e.g. cyber and physical security)	32	0.7
Taxes	50	1.1
Operational Readiness, including schedule extension	91	2.1
Owners Quality and Compliance, including schedule extension	153	3.5
Transmission	19	0.4
Legal/Environmental Permit/Misc.	12	0.3
<b>Total Change from Original Certification</b>	<b>\$ 381</b>	<b>8.6</b>

- **The extended construction schedule included in this report will not increase the cost to customers projected at Certification.**

The extended schedule is associated with the time required to obtain Nuclear Regulatory Commission (“NRC”) approval of the plant design, the translation of the certified design into approved construction drawings, and the rate of production of certain structures comprising the nuclear island. However, lower spending levels in the early construction years and a slower rate of spending increase, as well as lower interest rates than originally projected offset the related extension of the Nuclear Construction Cost Recovery (“NCCR”) tariff collection period.

- **We now project the Facility's total rate impact for customers will be about 6-8 percent after considering the positive benefits of having Construction Work In Progress (“CWIP”) in rate base, the lower cost of nuclear fuel compared to natural gas, and production tax credits.**

**Figure A - Projected Cumulative Rate Impacts**



## II. Introduction

Georgia Power is pleased to submit this Eighth VCM Report for the reporting period of July 1, 2012 through December 31, 2012. The Company reports that the Facility continues to be expertly-managed and, with construction over one third complete, is progressing toward our goal of providing a safe, reliable, clean, and cost-effective source of electricity. We are committed to providing our customers with stable prices and improving Georgia's neighborhoods and communities for generations to come.

Within this Eighth VCM Report, the Company requests the following:

That pursuant to O.C.G.A 46-3A-7 this Commission verify and approve the expenditures made during this period, which total \$209 million, as having been made in compliance with the certificate, and

That pursuant to O.C.G.A 46-3A-5 this Commission amend the existing certificate to reflect a revised construction schedule, and the associated extension costs, and a total projected capital cost of \$4.8 billion.

The cumulative capital costs for the Facility through this reporting period total \$2.21 billion. These investments were prudently incurred in compliance with the original and previously amended certificate. These costs reflect significant progress in the nearly four year period since the Facility's original certification.

The Company's revised capital forecast at \$4.8 billion is \$381 million more than the forecast in the current certificate. **Costs for actual engineering, procurement, and construction of the main power block and support structures (i.e. bricks and mortar) remain stable and represent a less than 1 percent increase in the certified capital costs. Changes in the capital cost forecast also include known and expected costs to implement NRC regulatory changes, increased taxes, costs necessary for operational readiness, quality and compliance during construction, transmission costs, and legal and environmental permitting costs.** Many of these costs are driven by the construction schedule extension to fourth quarter 2017 and fourth quarter 2018 for Units 3 and 4, respectively.

Our customers deserve safe, reliable and affordable energy – that is our focus every day. We take seriously our responsibility to make prudent investments on behalf of our customers and to hold ourselves accountable to them. The revised capital cost forecast is necessary to allow us to meet our commitments, which are:

- Maintaining our uncompromising focus on safety and quality.
- A long-term focus on the reliability of the Facility.
- Providing a safe and reliable source of electricity through the design and construction of this Facility.

This Report will show:

- We are committed to communicating clearly and comprehensively with our customers and all Georgians.
- The Facility remains the most affordable, efficient choice to meet future customer energy needs and continues to provide more overall value to customers than any other viable generation option.
- The Engineering, Procurement, and Construction Agreement is working to ensure affordability for our customers, minimizing the ultimate rate impacts and holding stable that portion of the project costs.
- While any project of this scale will face challenges, we remain committed to completing the Facility safely, successfully, in a timely fashion and at a prudent cost.
- This Facility is an important investment that is contributing to the economy of Georgia today, and that will form the basis of a strong and vibrant economy for the next 60 years and beyond.

### **III. The New Capital Construction Cost Forecast is Reasonable and Prudent and the Certificate Should Be Amended to Reflect That New Forecast**

In 2009, this Commission selected and certified this Facility as the most cost-effective resource to provide long term savings and value for our customers. As of this Eighth VCM Report, the Facility remains the most cost-effective resource and will result in significant long-term customer savings and value.

Including the additional requested capital costs, the Facility remains the most cost-effective option by a wide margin. Under our current schedule assumptions, the Facility will bring approximately \$4 billion in additional value to customers when it is completed as compared to alternative generation available today.

When the Facility was originally certified as the most cost-effective resource for our customers, **the Facility's capital cost was expected to raise customers' bills by approximately 12 percent without CWIP in rate base, and 9-10 percent with CWIP in rate base. Our current projection is that the total customer rate impact of the new Units in the first several years of their operations will be approximately 6-8 percent.** This estimate takes into consideration CWIP in rate base treatment, the full impact of the revisions to the forecasted construction schedule and capital cost described in this Eighth VCM report, the effects of the lower cost of nuclear fuel compared to other forms of generation, and the positive benefits of the production tax credits to be provided by the Federal government for the first eight years of the Facility's operation.

The current expected total rate impact on customers is less than 8 percent in the first full year of operation for both units, declines to under 6 percent after ten years, and continues to decline throughout the life of the Facility. **Extending the construction schedule to the fourth quarter of 2017 and 2018 does not meaningfully change the expected customer rate impact.**

We realize that whenever forecasted capital costs increase over a prior forecast, our customers ask several fair questions, such as:

**1. Is this Facility going to be safe?**

Yes. Our first and foremost focus is on safety. The design of this Facility is state of art. It is being constructed to a level of precision that is unmatched in almost any other endeavor. The NRC and the Company are providing constant oversight and ensuring its safety. In fact, a portion of the increase in forecasted capital costs is driven by the rigorous essential safety standards that we have implemented at every stage of the design and construction process. This is driven by our commitment to safety and the NRC's demanding standards to verify that safety.

**2. Are these cost increases necessary and what is driving them?**

Yes, these costs are necessary. The increased construction costs include schedule changes associated with the time required to obtain NRC approval of the plant design, the translation of the certified design into approved construction drawings, and the rate of production of certain structures comprising the nuclear island. All of the additional

costs are based on the Owners' reasonable and prudent budgets, which reflect our best projections based on progress over the past 48 months of engineering, procurement and construction for Vogtle 3 and 4. Commercial responsibility for the extended schedule remains in dispute, and the Engineering, Procurement and Construction ("EPC") Agreement contemplates a construction duration that is shorter than that reflected in the extension to fourth quarter 2017 and 2018. The Company will engage with the Contractor to determine whether a shorter construction duration is possible while continuing to allow for the time required to satisfy the rigorous nuclear safety standards applicable to this "first of a kind" endeavor. If a shorter construction schedule is implemented, it will be accomplished in a manner that will ensure our commitment to safety, quality and compliance.

**3. Is this Facility still the best-value option for customers?**

Yes. As shown in this report, even with the new capital cost forecast, the Facility will provide approximately \$4 billion of value for our customers over its useful life as compared to the next best alternative source of generation.

**4. What is the Company doing to control the costs of constructing the Facility?**

The Company is actively managing the project in conjunction with the other Owners, and ensuring that the value our customers expected at the time of certification is delivered – the value being delivered is more than was expected at the time of certification as discussed in the Customer Benefits section.

**5. How does the PSC maintain rigorous oversight?**

We also recognize and welcome that all of our actual expenditures, whether forecasted or not, are subject to verification and approval by the Commission. Only prudently incurred costs will be put into rates when the Facility goes into service. In that way, the Commission itself and its regulatory process, including these VCM proceedings, act to limit the cost of the Facility to only prudently incurred costs and to ensure that it maximizes the life cycle value to our customers.

The Company will only pay costs which are reasonable and prudent Owners' costs, payments required under the terms and conditions of the EPC Agreement, including change orders as provided to be paid under that Agreement, and costs which represent a reasonable compromise of disputes if such are in the best interests of the Facility and our customers.

In seeking to amend the certified construction budget, we ask only that the Commission find that the revisions support a reasonable and prudent budget. We recognize that all amounts actually spent pursuant to the certified budget remain subject to approval and verification during the VCM semi-annual process, just as the Company is seeking to have verified and approved the \$209 million spent during this Eighth VCM period.

#### **IV. The Facility Represents an Important Investment in Georgia's Critical Energy Infrastructure**

Given the scope, magnitude and importance of this Project, we have continually managed this Project with its life cycle costs in mind. This Facility was selected as the most cost-effective option to serve our customers because of its life cycle analysis, not because it was the lowest or cheapest capital cost option. While capital costs are important, it is more important to build the Facility safely and with a cost-effective total life cycle cost in mind. All of the investment will enable us to meet that priority.

The Company has a long and proud history of meeting the needs of its customers and the state of Georgia with safe, clean, reliable and affordable electric energy. We have provided the energy backbone that has fueled the solid economic development over the past hundred years. Georgia is now among the nation's leaders in economic growth, and our services have improved lives in Georgia's neighborhoods and communities. By 2020, the state of Georgia expects to add more than one million new residents. That growth will continue well into the future. The Facility will provide our customers with safe, clean, reliable and affordable electricity for generations to come - it is a substantial investment for the future.

The approach we have taken is working. We are committed to doing our part to ensure the continued growth of the Georgia economy and the well-being of its citizens. This ability to have the proper energy infrastructure in place when it is needed is not the result of happenstance or luck. It is the result of long-range planning by the Company and this Commission. The Commission, through its resource certification and rate case decisions, has maintained the proper balance between low customer rates and a utility with the financial integrity required to attract the capital to build and maintain the necessary infrastructure.

As this Commission recognizes, the electric industry is among the most capital-intensive industries in the country. For instance, Georgia Power has over \$20 billion invested in the electric generation, transmission and distribution system in Georgia today. Moreover, the other utilities in Georgia also have substantial amounts invested to serve their customers, including investments by Oglethorpe Power Corporation, the Municipal Electric Authority of Georgia and the City of Dalton (collectively with Georgia Power, the "Owners") in the Vogtle Facility. Much of the current infrastructure was designed, built and put in service by generations before us. They saw the future needs and invested their capital to ensure that the necessary electric system would be in place to meet our needs. For Georgia Power, approximately half of the invested capital is borrowed in the form of debt and the other half is invested by shareholders, many of whom are individuals who work or live in Georgia.

The design and construction of the Facility is a massive undertaking by any measure. It is one of the largest and most capital-intensive infrastructure projects currently underway in the United States. Over 5,000 jobs are being created, with more than 2,200 workers on the Vogtle site today. The Facility has increased the tax base of Burke County as well as the state of Georgia and will continue to do so by creating over 800 full-time, highly skilled and highly paid careers, which will have a compounding effect on the local economy. Georgia's electric generation will continue to have a diverse fuel supply, helping to ensure that prices remain stable and cost

competitive for many decades to come, thus providing the foundation for a strong and vibrant economy. As capital intensive as this project is, completing it still represents net savings of approximately \$4 billion for our customers compared to the next best alternative over the life of the Facility. The Facility represents a commitment by the utilities of Georgia, their current customers, the General Assembly and this Commission to strengthen the economic foundation of our state for those who will come after us.

**V. The Commission Should Amend the Certified Capital Construction Cost and Approve and Verify Actual Expenditures Made During the Reporting Period**

Through the close of the Eighth VCM reporting period, the Company has invested \$2.21 billion in the Facility. For this period (July 1, 2012 through December 31, 2012), we have made \$209 million in investments. Several significant milestones were reached during this period. Evidence of this progress is depicted in the pictures included in the Progress Photographs section (Photos 1 through 12) and then discussed in more detail in the Status of the Facility section that follows. The total investment to date includes payments made to Westinghouse Electric Company and Stone & Webster (collectively, the “Contractor”) pursuant to the EPC Agreement for the design engineers who have worked both at the site and at remote locations, the craft labor at the site, for commodities such as piping, concrete, cable and steel. It includes payments to vendors worldwide that are constructing and assembling the many components that will be sent to the site for installation as well as payments made to Southern Company affiliates for work performed in support of the Facility, including quality assurance and compliance. These investments were all prudent and made in accordance with the EPC Agreement and principles of sound project management. The Company requests that these costs be verified and approved.

Our goal is to build the safest, most reliable facility possible, one that will deliver safe, clean, reliable and affordable energy for decades to come. We have a steadfast commitment to managing the project responsibly and ensuring that the investments we make during construction and during the life of the Facility ensure it is the energy source Georgia expects and deserves: safe, reliable, clean, fuel-diverse, and affordable.

In summary, construction of the Facility is progressing well. We are on track to build an advanced Facility that is on the leading edge of technology and safety, and that delivers excellent value for our customers. As new challenges arise, as is inevitable in a project of this scale, we will be ready to face them with one question in mind: “What best serves our customers?” The Company is providing and will continue to provide effective management. The Facility itself will provide tremendous benefits to Georgians today and for generations to come.

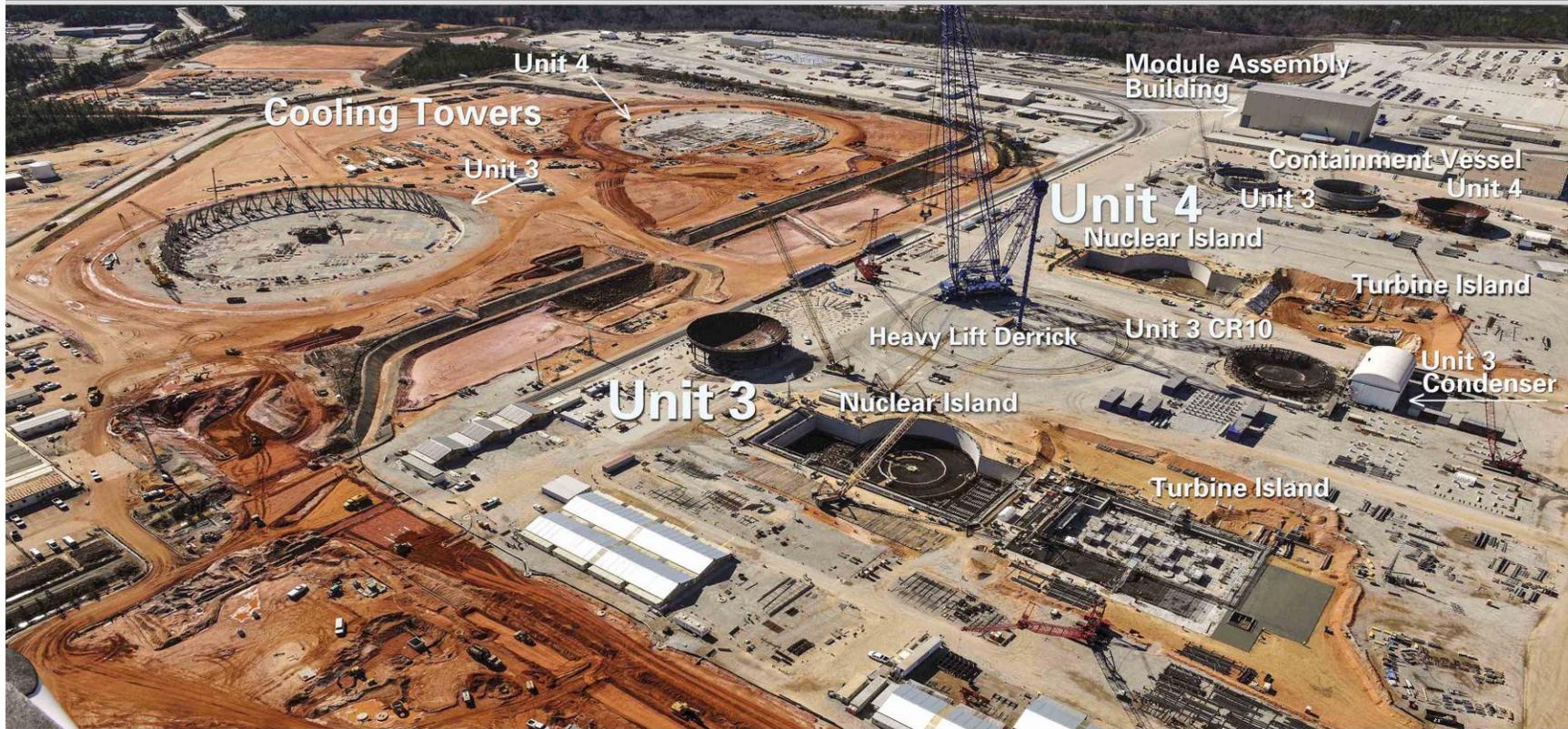
The Company requests that this Commission verify and approve the construction expenditures incurred during the Eighth VCM reporting period. The Company further requests that the Commission amend the certificate to reflect Georgia Power’s share of the Owners’ revised capital construction forecast.

## **PROGRESS PHOTOGRAPHS**

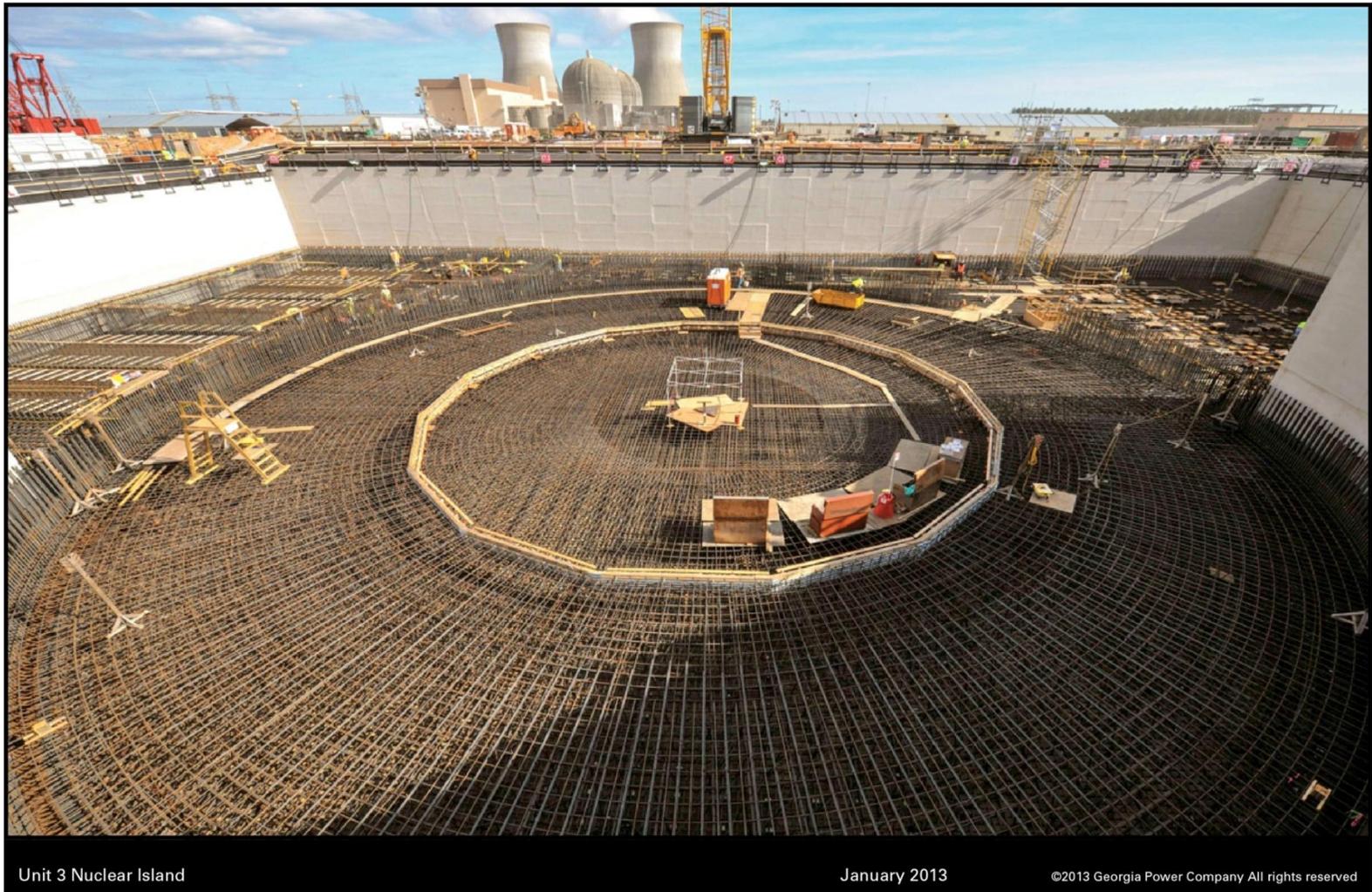
We refer the reader to the Georgia Power website at [www.georgiapower.com](http://www.georgiapower.com) (click on the button in the lower right corner titled Vogtle Update) for a more complete and up-to-date overview of the status of the Facility, periodic status reports since the beginning of construction, a construction time line and additional pictures of the Facility. The following pages contain photos of the Facility components and construction in progress.

Photo 1 – Aerial View of the Construction Site

# Vogtle 3&4 - Construction, January 31, 2013



**Photo 2 – Unit 3 Nuclear Island**



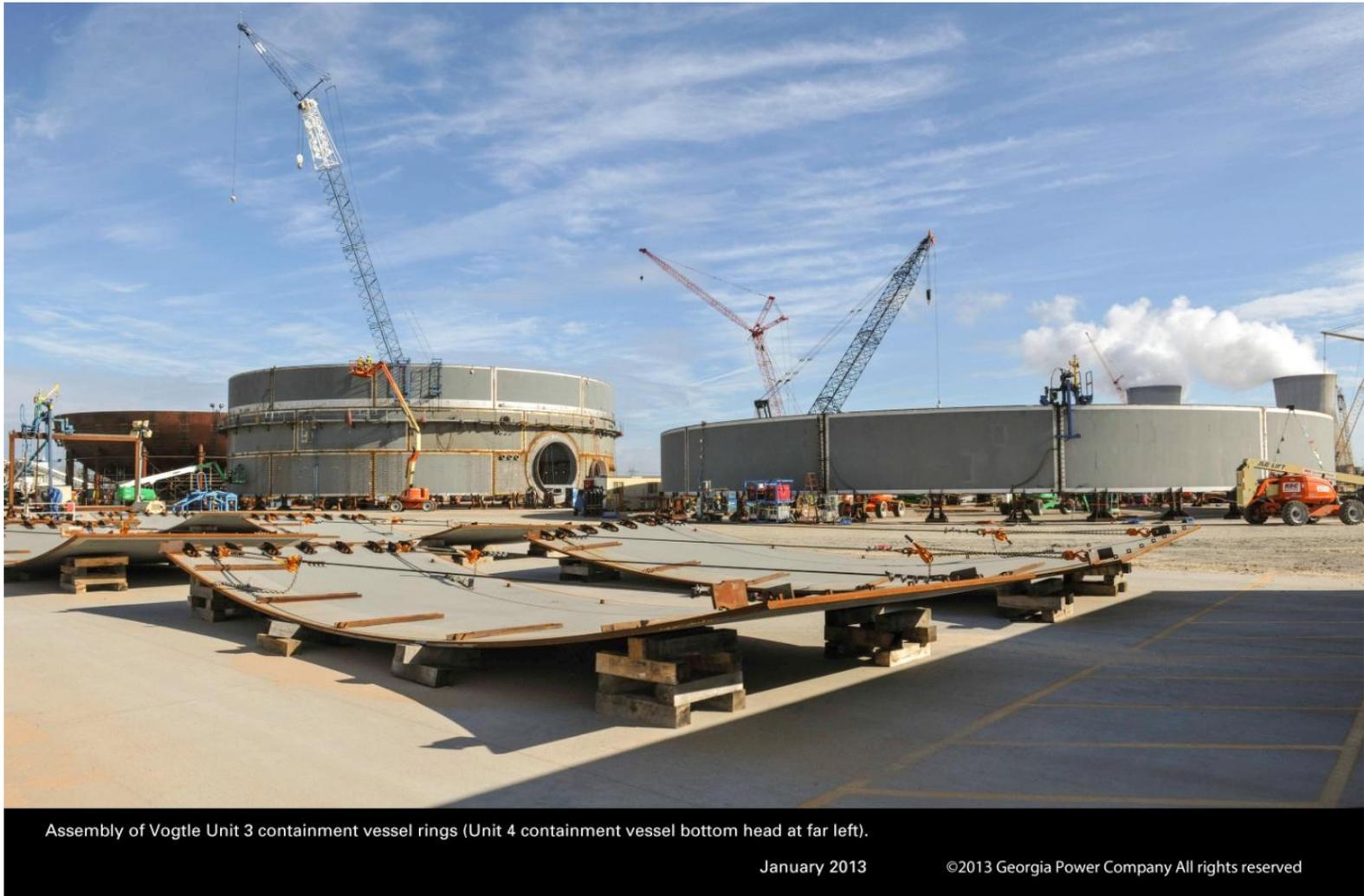
Unit 3 Nuclear Island

January 2013

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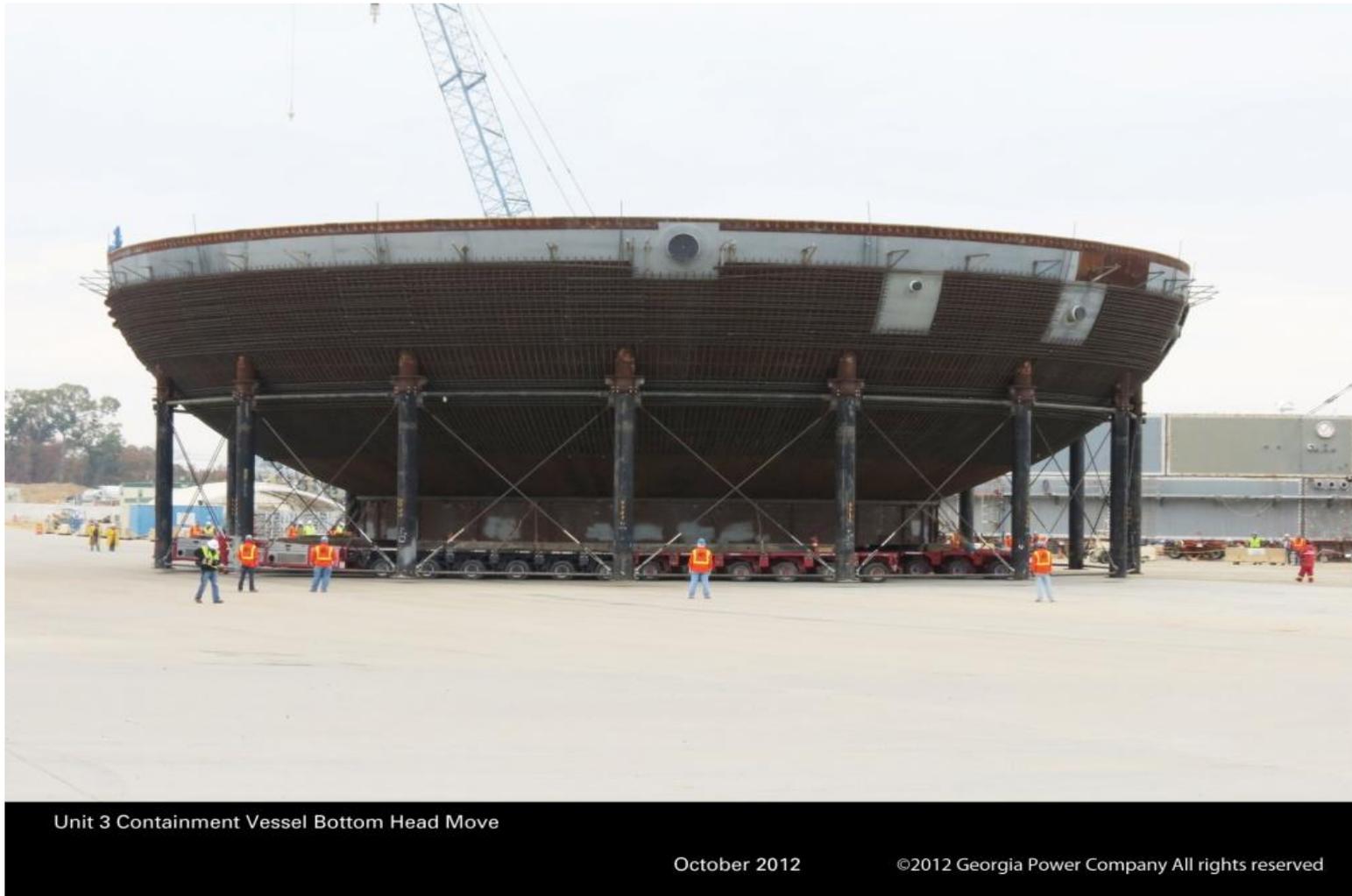
The nuclear island is the heart of the AP 1000 where the containment vessel will be placed along with the auxiliary systems including pumps, pipes, and tanks.

**Photo 3 – Units 3 and 4 Containment Vessel Assembly**



The containment vessel is assembled in stages and placed into the nuclear island using the heavy lift derrick. The containment vessel will hold the AP1000 reactor, the steam generators, the pressurizer, the reactor coolant pumps and other supporting safety systems.

**Photo 4 – Unit 3 Containment Vessel Bottom Head**



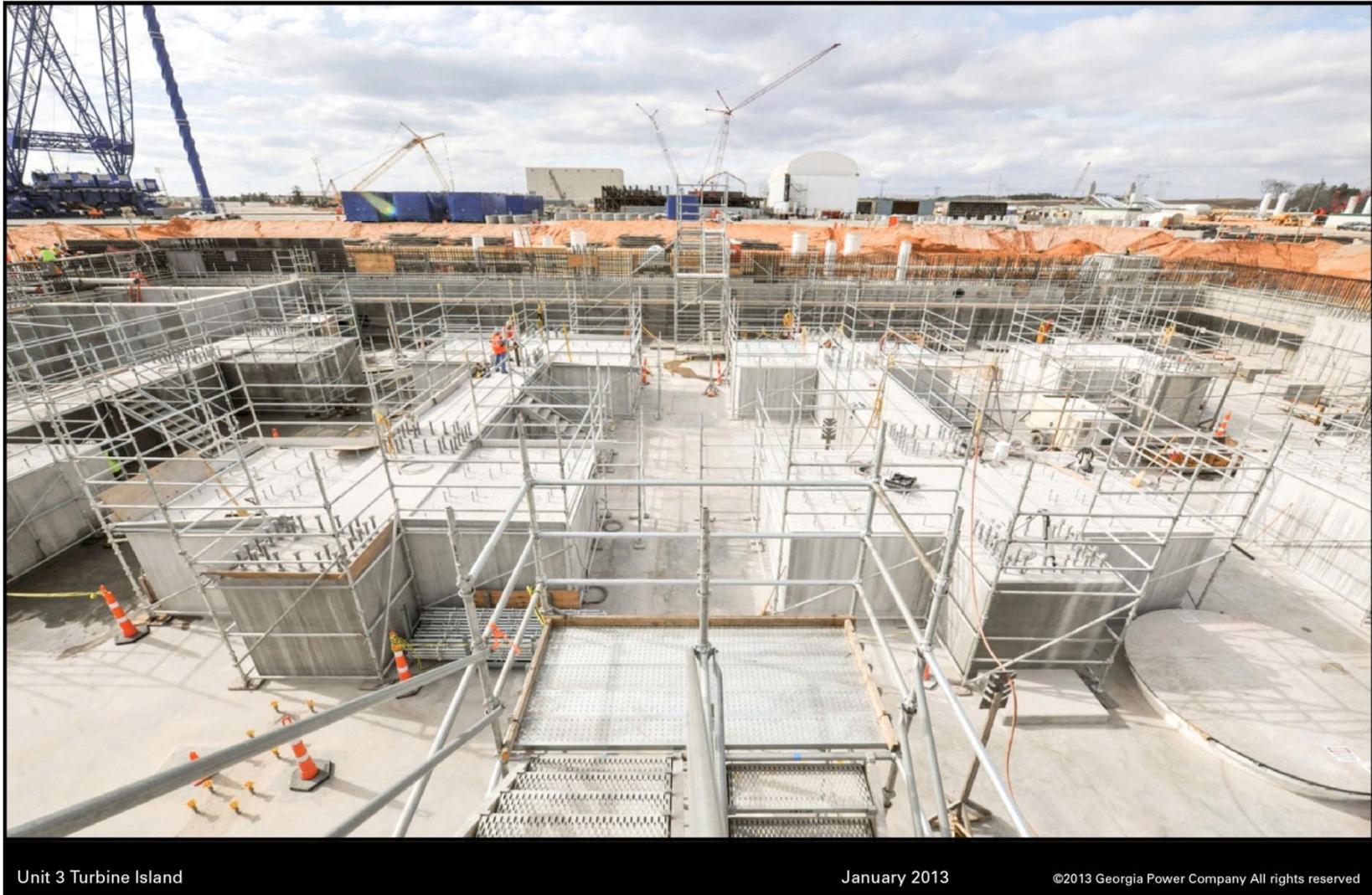
The 879 ton Unit 3 containment vessel bottom head was moved to a staging area adjacent to the nuclear island.

**Photo 5 – Unit 3 CR10 Containment Cradle**



The CR10 containment cradle is the structure upon which the containment vessel head is set. The structure will be placed in the nuclear island after the completion of the nuclear island basemat concrete pour.

**Photo 6 – Unit 3 Turbine Island**



The turbine island will house the turbine generator, condensers, pumps and supporting systems.

**Photo 7 – Unit 3 Cooling Tower Construction**



Plant Vogtle Unit 3 cooling tower construction

January 2013

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The cooling towers remove heat from the condensed steam that powers the turbine generators and circulate the cooler water back to the steam generators. The installation of the 40 foot “legs” on the base of the towers marks the first above-ground permanent structure.

**Photo 8 – Vogtle Unit 3 and 4 Switching Station**



Physical work for the new 230 kV reserve auxiliary transformer switching station is complete. This is one of two new switchyards that will be constructed at the Vogtle 3 and 4 site.

**Photo 9 – Transportation of the Unit 3 Reactor Vessel**

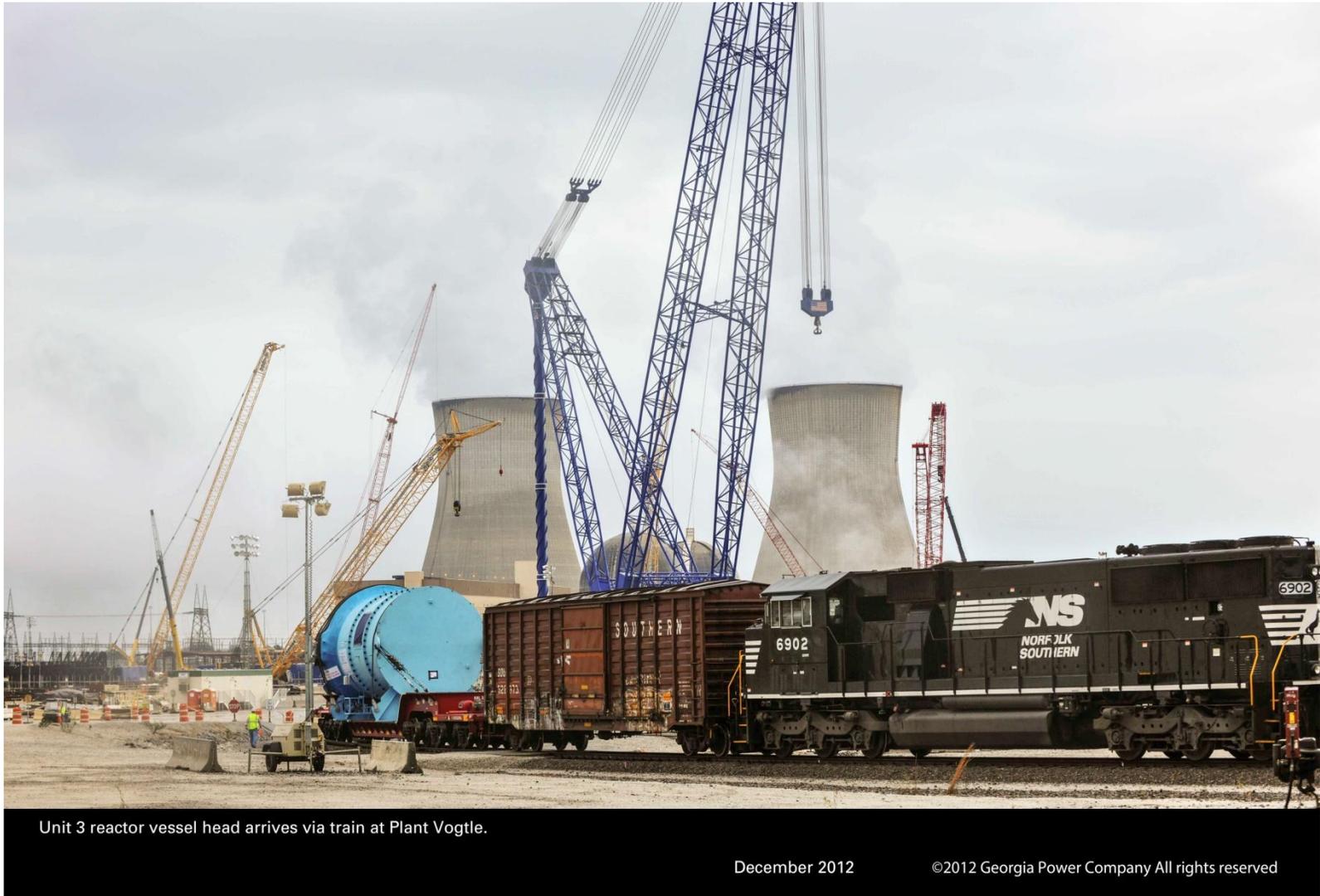


**Unit 3 Reactor Vessel**

December 2012 ©2012 Georgia Power Company All rights reserved

The 300 ton reactor vessel houses the nuclear fuel assemblies, where heat is transferred to the reactor coolant system water. The collection of assemblies is called the core.

**Photo 10 – Unit 3 Reactor Vessel Head Delivery**



The reactor vessel head weighs 150 tons and is the “lid” of the reactor that will be bolted to the reactor vessel body.

**Photo 11 – Unit 3 Pressurizer**



The pressurizer is used by operators to raise or lower the reactor coolant system pressure by expanding or collapsing a water-steam bubble.

**Photo 12 – Unit 3 Accumulator Tank**



The accumulator tanks hold 15,000 gallons of water each. The accumulators are available to passively inject water into the core to provide backup cooling to the reactor.

## STATUS OF THE FACILITY

### **I. Safe, Quality, Compliant Construction**

The Company is requesting verification and approval for \$209 million in investments made during this six month Eighth VCM Reporting Period for the significant progress that occurred in construction, engineering and procurement for the Facility. Construction has gone vertical and work in all major areas continues for both Units 3 and 4, including the nuclear island foundation work, assembly of the containment vessel, turbine island activities, cooling tower erection, raw water intake structure preparation, and switchyard modifications. In October 2012, the Facility reached a major milestone of 10 million work hours on the construction site without a life-altering injury.

#### **A. Construction Activities**

##### **Progress continues in the nuclear islands.**

Work continues to progress on the Unit 3 nuclear island and approximately 1,000 tons of rebar have now been installed (see Progress Photo 2).

In August 2012, the Company submitted a License Amendment Request (“LAR”) to the NRC to reconcile the plant’s licensing basis to the final rebar design. The NRC approved and issued the first license amendment under the Part 52 process in October 2012. In the Fall of 2012, additional, non-safety significant deviations between the plant licensing basis and the rebar design were identified and evaluated. Those deviations will be resolved by two LARs, but did result in a postponement of the placement of the nuclear island basemat concrete, known as first nuclear concrete (“FNC”). The NRC has issued “no objection” responses to the associated Preliminary Amendment Requests, which provide a basis for resuming construction activities in the affected basemat area. The remaining Unit 3 basemat rebar to be installed is in three small areas primarily associated with sump and elevator pit shear reinforcing. The Company expects FNC to occur in the first quarter of 2013.

To validate planning and execution efforts ahead of FNC, a 1,000-cubic-yard nuclear island mock-up concrete pour was completed on September 25, 2012. The mock-up pour, intended to simulate FNC placement, lasted approximately nine hours and resulted in the identification of best practices and lessons learned that will be used to better ensure a successful FNC placement.

Waterproofing of the Unit 4 nuclear island is in progress, and the Unit 4 basemat rebar installation is expected to occur this year.

##### **Assembly of the Unit 3 containment vessel bottom head is complete and has been staged.**

The Company is overseeing the assembly of the containment vessel and its support and alignment structure, CR10. Assembly of Unit 3 CR10 is complete and has been staged for placement in the nuclear island, which will occur after the placement of FNC (see Progress Photo 5). Each containment vessel is made up of a bottom head, three rings (lower, middle, and upper)

and a top head. The completed Unit 3 containment vessel bottom head was moved to a staging area adjacent to the nuclear island, from where the heavy lift derrick will set it in place (see Progress Photo 4). The lower ring, which will attach to the bottom head and form part of the vertical wall of the containment vessel for Unit 3, is over 50 percent complete and assembly of the Unit 3 middle ring has begun. Also, assembly of the Unit 4 containment vessel bottom head is over 90 percent complete (see Progress Photo 3).

**Turbine island work is progressing on schedule.**

The Unit 3 turbine building lower foundation is complete with upper foundation work progressing as scheduled (see Progress Photo 6). The Unit 4 turbine island condensate pit and waste water sumps have been poured and backfill is in progress to begin the Unit 4 foundation work. Approximately 1,400 tons of rebar have been installed and 10,400 cubic yards of concrete have been poured in the turbine islands for both Units 3 and 4. Assembly of the Unit 3 condenser, a major turbine building component, is almost complete.

**The Unit 3 cooling tower is on schedule and over 40 percent complete.**

The above-grade construction of the Unit 3 cooling tower began with setting the first x-brace on December 8, 2012. This marked the first above-ground permanent structure at the Facility. Each x-brace weighs more than 52 tons and is 40 feet tall. Over half of the 52 Unit 3 x-braces have been installed to date (see Progress Photo 7). Overall construction of the Unit 3 cooling towers is over 40 percent complete. Similar progress on the Unit 4 cooling towers is scheduled to occur in 2013. Approximately 9,100 tons of rebar have been installed and 72,400 cubic yards of concrete have been poured to make up the Units 3 and 4 cooling tower foundations.

**Raw water intake structure preparation work is underway.**

Preparation is also underway for construction of the raw water intake structure. The raw water intake work involves construction of a facility that will house pumps to provide cooling water from the Savannah River and send that water through pipes to the Facility. Initial site preparation work (roadway, erosion control, and sheet pilings) is nearing completion. Also, the first phase of the Raw Water System and Waste Water System piping is nearing completion, with phase 2 of 3 scheduled to begin during the first quarter of 2013.

**Transmission upgrades necessary to connect the Facility to the grid are going well.**

Modifications including upgrading breakers and associated equipment and making physical adjustments to the existing 230-kV and 500-kV switchyards are necessary to support Vogtle Units 3 and 4 coming online. These activities continue to progress on schedule. Physical construction of a new 230-kV switching station for the new units is complete with connection to the transmission network scheduled in early 2014 (see Progress Photo 8). Work is also underway and on schedule for a 55-mile 500-kV transmission line that provides infrastructure support for the new units. As of December 31, 2012, acquisition of the related land rights was 92 percent complete. Line clearing for the 55-mile run is scheduled for mid-2013 through late Fall 2014 with construction starting in late 2013.

## **B. Engineering**

### **Design engineering activities for the Facility are approximately 96 percent complete.**

The remaining engineering work consists of finalizing the AP1000 standard design that was certified by the NRC in December 2011, finalization of site specific design and issuance of Certified for Construction (“CFC”) documents. The Contractor effort to deliver CFC documents for use in the preparation of field work packages continues but has fallen short in delivering on an established schedule. The Contractor continues to report that there are no expected adverse impacts to the procurement or on-site construction durations at this time resulting from later than expected CFC document deliveries. An effort to improve schedule linkages between engineering activities and the associated procurement, licensing, and construction activities is currently underway.

As discussed in the Seventh VCM Report, a joint effort between the Company and Contractor was initiated in early 2012 to review design documents issued to the site and compare them to Vogtle Units 3 and 4 licensing documents to ensure that the Contractor design meets all licensing requirements. This effort, known as Construction to Licensing Basis, was completed in October 2012 and resulted in 22 LARs that are being submitted to the NRC for approval to preclude impacts to the construction schedule. In the Fall of 2012, the effort was extended to review procurement related design documents to ensure component compliance with licensing documents. This joint initiative is expected to continue through the first quarter of 2013.

In addition to these efforts, and in preparation for placement of FNC, the Company performed a detailed design review during the Fall of 2012 of the nuclear island drawings, specifications and calculations in order to provide an additional level of confidence that current basemat design documents meet licensing requirements. All items identified during this review have been resolved with no impact on FNC placement expected in the first quarter 2013.

## **C. Procurement**

### **Procurement and delivery of major components and bulk commodities continues to progress on a schedule to meet construction needs.**

Major components such as those described below are being manufactured all over the world. The design, manufacture and assembly process is critical to the success of the Facility and is on schedule to meet construction needs. This is a tremendous accomplishment for the Facility since procurement of these major components constitutes a large portion of the front end cost of the Facility.

#### **Doosan Components**

**Hydrostatic testing for the Unit 3A steam generator was successfully completed in November 2012, marking the completion of fabrication activities for this major component.**

The Unit 3 reactor vessel and vessel head were also completed and shipped to the Port of Savannah in December 2012 (see Progress Photo 9). While transporting the reactor vessel from

the Port of Savannah to the Vogtle 3 and 4 site on a specially designed railroad car (Schnabel car), the shipment was stopped due to anomalies in the performance of the Schnabel car. The Schnabel car platform was realigned and the reactor vessel was safely returned to the port the same day. There was no damage to the reactor vessel and there is no impact to the Facility construction schedule. A Westinghouse team is reviewing the cause of the anomalies and will establish a plan to successfully transport the reactor vessel to the site. Separately, the 160 ton reactor vessel head was successfully transported from the Port of Savannah and is being stored on the Vogtle 3 and 4 site (see Progress Photo 10).

### **Mangiarotti Components**

**Fabrication of both Unit 3 accumulator tanks was completed by Mangiarotti along with successful hydrostatic testing during the Reporting Period** (see Progress Photo 12). The Unit 4 accumulator tanks also have been hydrostatic tested satisfactorily since then. Fabrication activities continue on the core makeup tanks, the passive residual heat removal heat exchanger and the pressurizer for both Units (see Progress Photo 11).

Although challenges have arisen with regard to completeness and accuracy of the documentation required to support shipment of Mangiarotti components, the Company has monitored the Contractor efforts to resolve these issues and shipments are expected to occur in 2013 with no adverse impact to construction activities. Company personnel are actively focusing oversight efforts on review of procurement documentation to streamline and expedite the procurement, delivery and receipt process.

### **Other Major Components**

**The Unit 3 reactor coolant loop piping fabrication activities are complete** and shipment of the cold, hot and surge lines is imminent. Fabrication activities for the Unit 3 high pressure and low pressure turbine rotors, as well as the turbine generator are complete. Two Unit 3 moisture separator reheaters (MSRs) have also been completed and are on the construction site.

### **Structural Modules**

**Structural modules continue to be a focus of management attention, but progress is being made.** The Company continues to focus its oversight on the ongoing activities at the Shaw Modular Solutions (“SMS”) facility in Louisiana. Several actions have been taken by the Company and Contractor to address ongoing quality issues with SMS, including assigning new management, forming a High Impact Team (“HIT”) to improve work quality, and focusing on improving design stability. Management changes include a new Senior Executive Vice President over SMS who brings a continuous improvement background to the team and will serve as the single point of contact for leadership at SMS. Westinghouse has also stationed six design engineers at SMS to assist in closing the backlog of engineering-related open items.

The HIT team was initiated to proactively identify issues and barriers to success, verify that work is completed (review documentation at the end of shifts), and to report progress against the scheduled plan. During the Reporting Period, the HIT team was responsible for following three

high-priority sub-modules. Noticeable improvement in quality and schedule was observed during the focused effort by the HIT team on those sub-modules.

Newport News Industrial began pre-fabrication activities for the nuclear island shield building sub-modules during the Reporting Period. Welding has recently begun on the first steel plates that will make up this significant structure.

## **II. Transition to Operations**

In parallel to Facility construction, the Company is coordinating an extensive effort to prepare for pre-operational and start-up testing and ultimately commercial operation.

### **Building the Operational Organization**

**The Company is building the operational organization with personnel with diverse backgrounds.** An accredited training program has been established for licensed plant operator candidates and there are currently 101 candidates in different phases of that program. These candidates are taking part in rigorous classroom and simulator training and will be examined by the NRC to obtain their operator licenses. Operations and engineering personnel have been hired per the staffing plan and are enrolled in comprehensive training programs.

### **Programs, Processes and Procedures to meet Combined Construction and Operating License (“COL”) Requirements**

**Approximately 25 percent of the required programs that govern testing and maintenance of major components have been developed in accordance with the schedule.** Thousands of operations and maintenance procedures are currently being developed by both the Contractor and the Company for testing and operations. When possible, existing procedures from the operating fleet are being adopted.

### **Testing, Turnover and Startup**

**The operational readiness organization is preparing to support the initial testing phase of the Facility.** Testing procedures are being developed and divisions of responsibilities are being defined for the Contractor and Company.

### **Integrate the Four Unit Site**

**Collaborative efforts are underway to ensure a smooth transition from a construction site to an operational site** with no adverse impacts to the existing units 1 and 2 and the new units 3 and 4. Preparations for integration into a shared site include, but are not limited to, coordination of physical security changes and emergency planning procedures in order to remain compliant with all NRC regulations and requirements.

### **III. Facility Investment Overview**

#### **A. Status of Facility Investment**

We are committed to building the safest, most technologically advanced, and most cost-effective nuclear energy facility. As a result, cost projections will vary up and down throughout the construction period. In the end, **we will only be able to recover those costs that the Commission, acting on the advice of its independent Construction Monitor, agrees are prudently incurred.** The only capital construction costs recovered from our customers over the 60 year life of this Facility will be those that the Commission approves and determines to be the appropriate cost of the Facility, regardless of what projections may have been at any particular point in time. To be clear, this Commission has currently certified the projected capital construction cost at \$4.418 billion. That projected cost was based on a certain set of assumptions, and as those assumptions change, or as they become facts, the projected cost will change, as reflected herein.

In the Second through Seventh VCM proceedings, while the projected capital construction amount changed from report to report, the certified capital construction amount did not. The projected capital construction amount is the most current projection of capital construction costs based upon the most current assumptions such as schedule, scope, and escalation rates. The certified cost is the amount that the Commission has determined will be allowed to be included in rate base, assuming it is invested prudently. The regulatory framework under which this Facility is being built clearly provides that the certified amount may change from time to time. The certified amount is intended to reflect the presumed prudent investment at a particular point in time, not to act as a permanently fixed or capped amount regardless of how the assumptions upon which it was based change over time or regardless of the actual prudent investment.

The original projected capital construction cost and related value to customers was based on a projected schedule to complete the first-of-a-kind licensing. While the current fleet of nuclear facilities is safe, this will be the safest nuclear generating facility ever constructed. The cutting edge design of the Unit 3 and 4 Facility was reviewed in detail over several years by the NRC and includes protections that would withstand a Fukushima-type event, even though a tsunami will not occur at the Vogtle site.

Our foremost focus during construction is on safety and quality. The NRC licensing of this technology was a great success for this project and this state. The limited additional time required to achieve this first-of-a-kind license, and the additional time it may take to construct this Facility with the commitment to safety and quality our customers deserve, does not diminish the value to our customers, or the communities and neighborhoods of our state. We will make decisions regarding schedule that support and maintain our commitment to safety and quality in design and construction as our highest and uncompromising priority.

As of this Eighth VCM Report, **the estimated total capital construction cost is approximately \$4.799 billion.** This includes an assumption change extending the approximate **commercial operation dates for Units 3 and 4 to the fourth quarter of 2017 and 2018, respectively.** Increased capital construction costs include schedule issues associated with the time required to

obtain NRC approval of the plant design, the translation of the certified design into approved construction drawings, and the rate of production of certain structures comprising the nuclear island. Commercial responsibility for the extended schedule remains in dispute and the EPC Agreement contemplates construction durations shorter than that reflected in the assumed schedule extension to fourth quarter 2017 and 2018. The Company will engage with the Contractor to determine whether a shorter construction duration is possible while continuing to allow for the time required to satisfy the rigorous nuclear safety standards applicable to this “first of a kind” endeavor. If a shorter construction schedule is implemented, it will be accomplished in a manner that will ensure our commitment to safety, quality and compliance. This new projection still shows a substantial savings to customers over the next best generating resource.

## **B. Power Block and Support Structure Construction**

The vast majority of the ‘bricks and mortar’ costs for equipment, commodities, contractor labor, and installation are controlled by the fixed and firm EPC Agreement for the project. There are some support buildings outside of the scope of the EPC Agreement that are also the responsibility of the Owners and represent a small portion of these costs.

The EPC Agreement is a contract under which the Contractor is responsible for the design of the Facility, the procurement and purchase of all the required materials and equipment, and furnishing the labor workforce and management required to construct the Facility. As a result of Amendment No. 3 to the EPC Agreement, essentially 100 percent of the EPC costs are either fixed or firm. By shifting more of the EPC costs from market-based indices to fixed escalators, the Company was able to reduce uncertainty and risk for our customers.

This structure of the EPC Agreement effectively insulates our customers from many cost increases that might otherwise have arisen on a project of this size. Customers are isolated from typical project risks, such as commodity price changes, commodity quantity estimates, craft availability and productivity of the labor force. The Contractor has taken the risk for procurement and timely delivery of materials, assembly of modules and design to construction interfaces, which are the risks that are most likely to affect the cost of a major project.

The original scope of the EPC Agreement covers the primary obligations of the Contractor (i.e., the Contractor’s obligation to design, procure, engineer, permit, construct, assemble, install, test and complete the Facility). These costs represent the construction cost (base cost plus agreed to escalation), exclusive of financing costs. The cost for that original scope was set at approximately \$3.8 billion (Georgia Power’s share), and includes the price of fixed semi-annual escalation, indexed escalation and other fixed escalations.

The structure of the EPC Agreement also provides that the Contractor takes the price risk on the original scope of work, and Owners take the risk of changes to the scope driven by specified events. The specified compensable change orders are those resulting from (a) certain specified changes in law or additional requirements imposed on the design of the Facility in the COLs, (b) agreement by the Owners and Contractor, or (c) Owner-directed changes, or (d) licensing delays not caused by delays in the certification of the plant design by the NRC. In those specified situations, Owners are required to compensate the Contractor for costs incurred if the Contractor

is required to perform more work and the work cost more or took longer to do. However, in all other situations in which particular work under the EPC Agreement costs more or takes longer than was contemplated, the Contractor assumed all risk of cost increases and the Owners have no obligation to compensate the Contractor for those additional costs.

The EPC Agreement specifies the manner in which disputes are resolved between the Owners and the Contractor related to the EPC Agreement, including disputes concerning a change order. The parties are first required to engage in negotiations regarding the dispute and, if they are unable to agree upon a resolution, the Owners and the Contractor begin a mediation process with a neutral third party. The mediation process is designed to facilitate negotiations between the parties with the goal of reaching a settlement agreement acceptable to both parties. However, if mediation does not resolve the dispute within 60 days of the commencement of such mediation, either party may elect to seek relief through either binding arbitration or in a court of law, depending on the amount of the claim at issue. As reported in the Seventh VCM Report, the Owners and the Contractor are currently involved in litigation regarding disputed claims, which is discussed in the Status of Major Disputes with the Contractor section.

### **C. Federal Regulation Changes**

Changes in NRC regulations have resulted in additional work that is the responsibility of the Owners. Changes to requirements for both physical and cyber security, the Fitness for Duty program, and to address lessons learned from Fukushima drive a portion of the capital cost increase.

### **D. Taxes**

The Transportation Special Local Option Sales Tax (TSPLOST) implemented by the Central Savannah Region in Georgia results in a small increase in the sales tax forecast for the Facility. The forecast of ad valorem taxes has also increased as a result of the extension of the assumed construction schedule to fourth quarter 2017 and 2018 for Units 3 and 4, respectively.

### **E. Operational Readiness**

As the Owners prepare for startup and commercial operations, additional costs have been identified that are necessary for an efficient transition from construction. Cost changes include additional equipment, hardware and software required for plant operations as well as an observation program at the China AP1000 sites.

### **F. Quality and Compliance**

In addition to payments to the Contractor, there are also Quality Assurance and Compliance costs to complete the Owners' scope of work, and to oversee the Contractor. A large portion of the change in forecasted Owners' costs is the cost (primarily labor) associated with extending the commercial operation dates to the fourth quarter 2017 and 2018 for Units 3 and 4, respectively.

Notwithstanding the Contractor's contractual obligation under the EPC Agreement to comply with regulatory requirements that assure safety and quality of construction, the ultimate responsibility for ensuring compliance with NRC requirements and the safety of the Facility is on the Southern Nuclear Operating Company ("SNC") as the NRC licensee. The Owners take this obligation very seriously and NRC enforces it under its regulations. While the NRC has supported the Facility construction schedule needs, the degree of licensee oversight necessary to assure EPC Contractor, subcontractor and vendor compliance with regulatory requirements is greater than expected at the time of project certification. Accordingly, certain costs are being driven by oversight efforts required of SNC, as the licensee, to ensure compliance by the Contractor with regulatory requirements. Ensuring quality on the front-end will also benefit our customers economically over the life of the Facility. Moreover, as with any major construction project, particularly a nuclear project, design changes and/or license amendments become necessary from time to time. This is particularly true for the first time a new process and design, such as Part 52 and AP1000, respectively, are put into practice. The anticipation of increased costs related to this new process, has been consistently acknowledged by the Company.

Additional cost changes are pending and expected as development of other new regulatory processes including Inspections, Tests, Analyses, and Acceptance Criteria ("ITAAC") and the Construction Reactor Oversight Process is finalized. The Company's diligence in overseeing the Contractor through implementation of these processes is critical. Cost increases associated with the Company's compliance efforts, while not unexpected, are becoming a reality.

#### **G. Transmission**

The capital cost also reflects an increase in the Company transmission forecast to make additional modifications to the existing switchyards, add breakers between the existing and new switchyards and install station service power to the new 500kV switchyard.

#### **H. Legal/Environmental/Permits**

The cost forecasts for legal fees and environmental permitting have increased slightly, partially as a result of the extended construction schedule.

#### **I. The Status of Major Disputes with the Contractor**

In July 2012, the Owners and the Contractor began negotiations regarding the costs associated with design changes to the DCD and the delays in the timing of approval of the DCD and issuance of the COLs, including the assertion by the Contractor that the Owners are responsible for these costs under the terms of the Vogtle 3 and 4 Agreement. The Contractor has claimed that its estimated adjustment attributable to the Company (based on the Company's ownership interest) is approximately \$425 million (in 2008 dollars) with respect to these issues. The Contractor also has asserted it is entitled to further schedule extensions. The Company has not agreed with either the proposed cost or schedule adjustments or that the Owners have any responsibility for costs related to these issues. On November 1, 2012, the Company and the other Owners filed suit against the Contractor in the U.S. District Court for the Southern District of Georgia seeking a declaratory judgment that the Owners are not responsible for these costs. Also

on November 1, 2012, the Contractor filed suit against the Company and the other Owners in the U.S. District Court for the District of Columbia alleging the Owners are responsible for these costs. While litigation has commenced and the Company intends to vigorously defend its positions, the Company expects negotiations with the Contractor to continue with respect to cost and schedule during which negotiations the parties may reach a mutually acceptable compromise of their positions.

**It should be noted, however, that we have made no provision in the cost projections included in this Eighth VCM report for any assumed settlement of the Contractors' claims which are currently subject to litigation in these federal courts.** As we have stated in prior VCM proceedings, if and when any settlement of those claims takes place, we will separately present that proposed settlement to this Commission for approval.

#### **J. The Effect of CWIP in Ratebase and NCCR Collections**

**In the First VCM Proceeding, the Commission actually reduced the certified amount from the original \$6.446 billion to \$4.418 billion.** This reduction was possible because the Georgia Nuclear Energy Financing Act and the Commission's Certification Order approved the inclusion of CWIP in rate base during the Facility's construction period, rather than capitalizing an allowance for funds used during construction and including \$6.446 billion in rate base at the time the units went into commercial service. This treatment also reduced the amount of financing costs projected to be incurred during the Facility's construction period by about \$330 million.

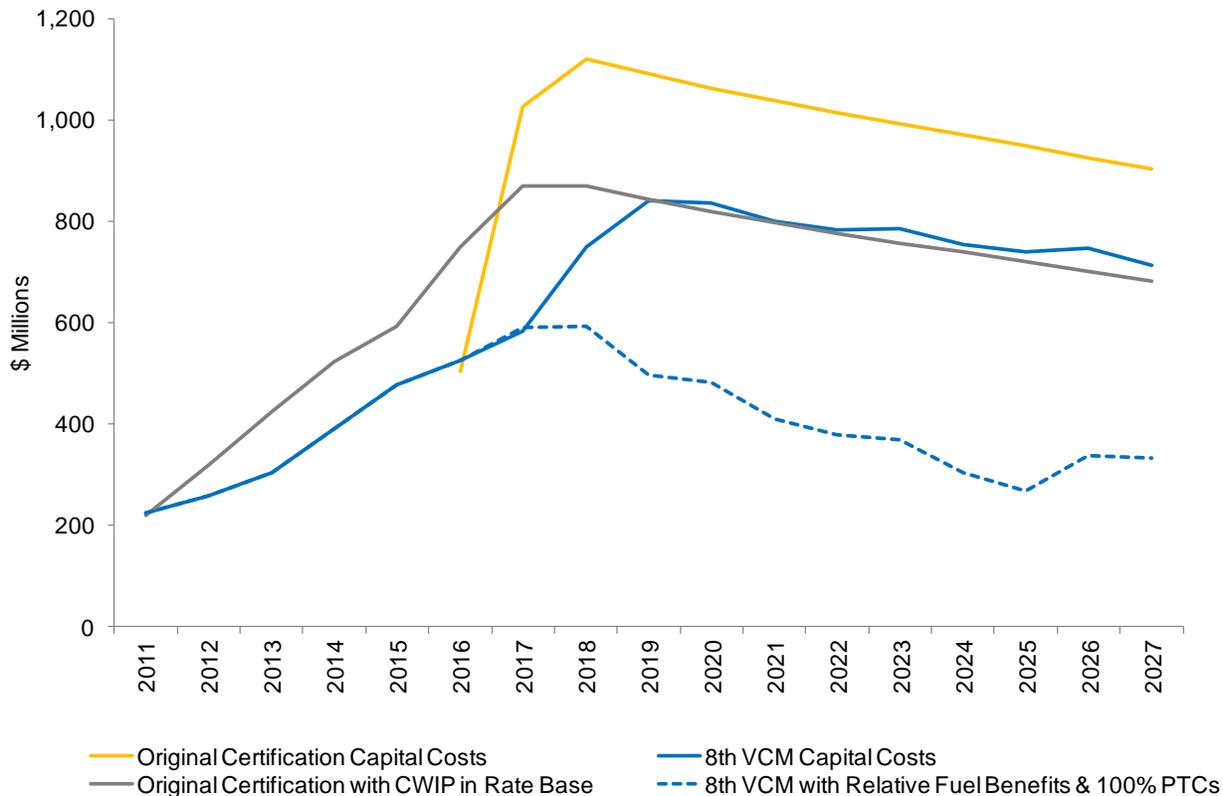
The Georgia Certification Statute provides that the Commission's certification deals with those costs which "the utility seeks to add to its rate base upon completion of the plant construction". In this docket, the certified costs are those which the Company will add to ratebase when construction is completed, or the **currently certified \$4.418 billion – now requested to increase to \$4.799 billion** – of construction costs. With the adoption of the Nuclear Energy Financing Act, the certified costs no longer include financing costs during construction. Those costs are dealt with in the NCCR tariff process where the Commission reviews the related financing costs and ensures they are calculated appropriately based on the capital construction costs verified and approved in these VCM proceedings.

With that background, it is easy to see that the "Status of the Facility Investment" is that we now project capital construction costs will be higher. We also show that the financing costs collected under the NCCR tariff will continue longer as the schedule is extended. To be clear, the amounts collected under the NCCR tariff are not Facility Investment costs. They are the carrying costs (financing costs) on the investment during the construction period.

We also know that the increase in the forecasted capital cost and the extended construction schedule has not increased the 2016 present value cost to customers projected at Certification. While it is true that our capital costs will increase by as much as \$381 million and the NCCR tariff will be collecting the related construction financing costs for a longer period, spending in the early years of construction and interest rates have been less than originally projected. As a result, the NCCR tariff collections during these years also have been less than originally anticipated, and a slower rate of increase is projected. Indeed, one indirect benefit of including

CWIP in rate base and collecting financing costs on a “pay as you go” basis is that an extended implementation schedule does not necessarily increase costs to customers on a present value basis.

**Figure B – Projected Revenue Requirements**



To provide a comparison to the \$6.113 billion, which represents the investment (capital construction cost) and the aggregate amounts collected under the NCCR tariff to finance the investment during construction, we now project \$6.850 billion as the comparable number to the \$6.113 billion. Once the units go into commercial service, the carrying costs of the Facility investment will be included in the Company’s revenue requirements and collected through base rates (see Figure B). Stated another way, financing costs do not stop when the plant goes into service, so were it not for the NCCR tariff, the typical residential customer’s bill would have risen approximately 6 percent when Unit 3 went into service and approximately 6 percent the following year when Unit 4 went into service (as shown on Figure A). With the NCCR tariff in place, customers’ rates will remain largely unchanged when the units are placed into service, even though that occurs later than originally planned.

#### **IV. Customer Benefits**

Consistent with prior VCM reports, the Company continues to report the projected 2016 value of approximately \$2.0 billion related to certain other customer benefits resulting from activities associated with Vogtle Units 3 and 4. Approximately \$0.5 billion of these customer benefits are associated with the inclusion of CWIP in rate base, as authorized by the Georgia Nuclear Energy Financing Act and the Commission, and the effectiveness of Amendment No. 3 to the EPC Contract, as approved by the Commission. The impact of these customer benefits is incorporated in the Company's construction capital forecast as previously discussed.

**In addition to these \$0.5 billion of benefits that directly impact the Facility's construction capital, there are also other customer benefits totaling approximately \$1.5 billion related to the Facility outside of the construction capital calculation.** These customer benefits are the product of the Company's effective utilization of federal government nuclear incentives and its proactive financing strategy to take advantage of historically low interest rates. These additional customer benefits are also passed along to customers, thereby increasing the overall value of the Facility to customers.

**Summary of Customer Benefits**  
(\$ billions)

<b>Customer Benefits (2016 Value)</b>	<b>Included in Construction Capital</b>	<b>PTCs (100%)</b>	<b>Interest Savings</b>	<b>Total</b>
	<b>\$0.5</b>	<b>\$0.7</b>	<b>\$0.8</b>	<b>\$2.0</b>

#### **Production Tax Credits**

The Energy Policy Act of 2005 provides Production Tax Credits ("PTCs") for companies that begin construction on new nuclear reactors by 2014 and bring them into service by 2021. The benefit of the PTCs is provided to customers through a reduction in revenue requirements over an eight year period following the in-service date for each unit. To recognize the uncertainty in the underlying assumptions behind the PTC calculations, only 50 percent of the expected tax credits are assumed in the Company's economic evaluation, discussed in Item 14.

#### **Interest Savings**

These are debt cost savings that result from lower interest rates contained in the Company's current and projected cost of capital versus the rates assumed during the original certification proceedings. Interest savings lower financing costs on all Company investments, including the Facility. The majority of these interest savings, approximately \$600 million, have already been put into place through debt issuances made through this Eighth VCM reporting period. Also included are potential annual interest cost savings from the Department of Energy ("DOE") loan guarantee. Current market rates are below current forecasted rates, so the ultimate savings could be even greater than currently expected. These savings are being passed on to customers through lower revenue requirements during the Facility's construction period (as reflected in the NCCR tariff projections), as well as during its operating life.

## RESPONSES TO STIPULATED QUESTIONS

As agreed in the Stipulation that was incorporated into the Certification Order, the Company responds to the 15 specified items in the order in which they appear in Section 2(d)(1-15) of the Stipulation below. In this Eighth VCM Report, the Company requests that it no longer report on certain specified items in future VCM reports because the responses have not changed in several reporting periods and no longer provide a relevant or necessary update to the Commission. The request for an item to be deleted in future VCM reports has been noted within each such response herein, as applicable.

### **1. The reasons for any additional change in the estimated costs of the units since the process began.**

Changes to the estimated costs of the Facility are discussed in the Executive Summary and the Status of the Facility sections of this Eighth VCM Report.

For purposes of this reporting period, the Company reports against a certified construction and capital cost of \$4.418 billion. With a current construction and capital cost forecast of \$4.799 billion, the Facility remains the most economic choice for customers with approximately \$4 billion of revenue requirements margin before the next best fuel alternative becomes more economic (as discussed in Item 14). The current cost and forecast reports are provided in Tables 1.1 and 1.1a.

**Table 1.1**

Vogtle 3&4 Facility  
Georgia Power Company Investment  
Project To Date  
Through Period Ending December 31, 2012

	Total Facility Investment				Facility To Date Investment			
	Certified Cost (\$ millions)	Total Current Forecast (\$ millions)	Variance (\$ millions)	Footnote	Budget To Date (\$ millions)	Actual To Date (\$ millions)	Variance (\$ millions)	Footnote
<b>Construction &amp; Capital Cost</b>								
EPC Base								
Fixed Semi Annual Escalation	1,978	1,976	-2		1,167	1,105	-61	7
Indexed Escalation	468	470	2		110	94	-15	
Other Fixed Escalation	670	674	4		531	533	2	
Total EPC Base	3,116	3,121	4		1,807	1,732	-75	
EPC Escalation								
Fixed Semi Annual Escalation	431	355	-76	1	117	106	-10	
Indexed Escalation	142	117	-25	2	13	10	-3	
Other Fixed Escalation	108	110	2		61	62	0	
Total EPC Escalation	681	582	-99		191	178	-13	
Quality Assurance, Compliance and Operations & EPC Scope Change	507	931	423	3	277	275	-2	
Ad Valorem	111	159	48	4	7	7	0	
Test Fuel Offsets	-34	-49	-15	5	0	0	0	
Transmission Interconnection	37	56	19	6	13	17	3	
	621	1,097	475		297	299	1	
<b>Total Construction &amp; Capital Cost</b>	<b>4,418</b>	<b>4,799</b>	<b>381</b>		<b>2,296</b>	<b>2,210</b>	<b>-85</b>	
<b>Construction Schedule Financing</b>								
Return on CWIP in Rate Base	1,545	1,942	397		261	258	-2	
AFUDC - Accrued through Dec 2010	111	91	-20		91	91	0	
Return on Unamortized AFUDC Balance	39	18	-21		12	12	0	
<b>Total Construction Schedule Financing</b>	<b>1,695</b>	<b>2,051</b>	<b>356</b>	<b>8</b>	<b>364</b>	<b>361</b>	<b>-2</b>	
<b>Total Facility Investment</b>	<b>6,113</b>	<b>6,850</b>	<b>737</b>		<b>2,660</b>	<b>2,572</b>	<b>-88</b>	
<b>Other Capital Cost</b>								
Certification & Independent Evaluator Fees	0	0	0		0	2	2	
Construction Monitor	0	4	4		1	1	0	
<b>Total Other Capital Cost</b>	<b>0</b>	<b>4</b>	<b>4</b>		<b>1</b>	<b>3</b>	<b>2</b>	

Footnotes

- 1 The Certified Cost reflects the original market-based index escalation rate; current forecast reflects the Fixed Semi Annual Escalation provisions of Amendment No. 3 to the EPC Agreement.
- 2 Indexed escalation current forecast reflects actual to date and projected escalation rate under-runs.
- 3 Quality Assurance, Compliance and Operations & EPC Scope Change reflects an increase of \$203 million from the Seventh VCM Report for items further described in the Facility Investment Overview section.
- 4 Ad Valorem reflects an increase due to an extension of CODs and an increase in Total Construction and Capital Cost.
- 5 Test Fuel Offsets reflects a decrease due to an increase in test plan capacity factors partially offset by increases due to changes in production costs and price forecasts.
- 6 Transmission Interconnection reflects an increase of \$19 million, which is the current estimate for cost items associated with additional detail engineering estimates, scope refinements, and work requirements and covers currently known and expected costs to completion.
- 7 EPC Base variance is due to timing of certain milestones.
- 8 Construction Schedule Financing cost reflects increases for schedule extension and increased Total Construction & Capital Cost, partially offset by lower interest rates and changes in the timing of cash expenditures.

Note: Details may not add to totals due to rounding.

**Table 1.1.a (Trend)**

Vogtle 3&4 Project  
Georgia Power Company Cost Forecast  
Through Period Ending December 31, 2012

	Certified Cost (\$ millions)	Jun 2009 Forecast (\$ millions)	Dec 2009 Forecast (\$ millions)	Jun 2010 Forecast (\$ millions)	Dec 2010 Forecast (\$ millions)	Jun 2011 Forecast (\$ millions)	Dec 2011 Forecast (\$ millions)	Jun 2012 Forecast (\$ millions)	Dec 2012 Forecast (\$ millions)
<b>Construction &amp; Capital Cost</b>									
EPC Base									
Fixed Semi Annual Escalation	1,978	1,978	1,976	1,976	1,976	1,976	1,976	1,976	1,976
Indexed Escalation	468	468	470	470	470	470	470	470	470
Other Fixed Escalation	670	670	674	674	674	674	674	674	674
Total EPC Base	3,116	3,116	3,121	3,121	3,121	3,121	3,121	3,121	3,121
EPC Escalation									
Fixed Semi Annual Escalation	431	431	336	336	337	344	343	353	355
Indexed Escalation	142	142	142	142	142	119	118	120	117
Other Fixed Escalation	108	108	109	109	109	110	110	111	110
Total EPC Escalation	681	681	586	587	589	573	572	585	582
Quality Assurance, Compliance and Operations & EPC Scope Change Ad Valorem	507	507	576	589	582	675	675	727	931
Test Fuel Offsets	111	111	111	111	111	111	111	125	159
Transmission Interconnection	-34	-34	-34	-34	-34	-60	-60	-60	-49
	37	37	37	40	40	40	40	41	56
	621	621	689	706	699	766	766	833	1,097
<b>Total Construction &amp; Capital Cost</b>	<b>4,418</b>	<b>4,418</b>	<b>4,395</b>	<b>4,414</b>	<b>4,408</b>	<b>4,460</b>	<b>4,459</b>	<b>4,539</b>	<b>4,799</b>
<b>Construction Schedule Financing</b>									
Return on CWIP in Rate Base	1,545	1,507	1,505	1,546	1,553	1,524	1,516	1,552	1,942
AFUDC - Accrued through Dec 2010	111	97	99	99	91	91	91	91	91
Return on Unamortized AFUDC Balance	39	32	33	33	31	19	19	18	18
<b>Total Construction Schedule Financing</b>	<b>1,695</b>	<b>1,636</b>	<b>1,637</b>	<b>1,678</b>	<b>1,675</b>	<b>1,635</b>	<b>1,626</b>	<b>1,662</b>	<b>2,051</b>
<b>Total Facility Investment</b>	<b>6,113</b>	<b>6,054</b>	<b>6,032</b>	<b>6,092</b>	<b>6,083</b>	<b>6,095</b>	<b>6,085</b>	<b>6,201</b>	<b>6,850</b>
<b>Other Capital Cost</b>									
Certification & Independent Evaluator Fees	0	0	0	0	0	0	0	0	0
Construction Monitor	0	5	5	5	4	4	4	4	4
<b>Total Other Capital Cost</b>	<b>0</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>	<b>4</b>

Note: Details may not add to totals due to rounding.

**2. A description of any cooperative actions between other builders of nuclear units in the southeast to address labor, crafts, engineering and management requirements.**

As reported in previous VCM reports, SNC, as agent for the Company, continues to actively participate as a member of APOG LLC (“APOG”) with other members, Progress Energy Carolinas, Florida Power & Light, and South Carolina Electric and Gas Company (“SCE&G”) to support multiple engineering, licensing, quality assurance, operational readiness and training initiatives.

As the Facility progresses, the Company has also engaged with SCE&G on the peer to peer level in each functional area of the oversight organization to ensure alignment and to utilize lessons learned and best practices. For example, SNC and SCE&G often participate in joint quality assurance audits and oversight surveillances of our Contractors. Engineering and licensing personnel from the two companies communicate regularly to ensure alignment on resolution to standard design challenges, and also communicate potential impacts to licensing requirements. Collaboration with the SCE&G ITAAC team is ongoing and is resulting in identification and sharing of best practices to support implementation of an effective and streamlined ITAAC program.

**3. An explanation of how the indices used in the EPC contract are tracking.**

The index in the EPC Agreement is currently tracking below original estimates on a cumulative basis. The original certified projected cost included a forecast for this index based on 5 percent annual escalation. To date, the indexed rates have experienced a 2-3 percent annual escalation rate. The Company’s current forecast reflects \$25 million in potential savings as compared to certification.

The Company recommends removing this item in future VCM reports.

**4. Any updated estimate of onsite spent fuel storage costs, including the costs for dry storage of spent fuel for an extended period of time after shutdown, and any updated calculation of spent fuel storage costs assuming Yucca Mountain is never available.**

There has been no change in the status of this item since the last reporting period.

The Company recommends removing this item in future VCM reports.

**5. The status of the Company’s loan guarantee application at the Department of Energy and to the extent that application is granted, then the Company shall also report on the impact it has or would have on the final expected in-service cost of the units.**

In December 2012, the Company and the DOE agreed to further extend the loan guarantee conditional commitment period through June 30, 2013. The Company remains engaged with the DOE in negotiation of definitive agreements, completion of due diligence by the DOE, and receipt of any necessary regulatory approvals or conditions as defined in the definitive agreements. In the event that DOE does not issue a loan guarantee, Congress takes action to

rescind the DOE Loan Program, or the Company determines that the final terms and conditions of the loan guarantees by the DOE are not in the best interest of its customers, the Company expects to finance the construction of the Facility through more traditional means such as security issuances and term loans. Should any of the preceding events occur, the Company requests that the related deferred issuance costs be reclassified as a regulatory asset and recovered, to the extent they are not refunded, over a period to be decided in the next base rate proceeding.

The current estimated impact of the DOE loan guarantee on this Facility is reflected in financing costs in Tables 1.1, 1.1a, and 8.1. The portion of the estimated net benefits of the loan guarantee that is allocated to the Facility has been reflected in the Total Current Forecast based on the information available at this time. Additional costs associated with compliance with applicable federal regulations pertaining to the acceptance of a loan guarantee may be identified and incorporated at a later date.

**6. Whether the Company is using trust preferred financing and the impact it has or would have on the expected in-service cost of the units.**

There has been no change in the status of this item since the last reporting period.

The Company recommends removing this item in future VCM reports.

**7. The extent to which the Company is using short term debt and the impact it has or would have on the expected in-service cost of the units.**

There has been no change in the status of this item since the last reporting period.

The Company recommends removing this item in future VCM reports.

**8. An update of the estimated in-service cost and projected date of commercial operation of both units.**

The increased capital construction cost reflected herein includes schedule issues associated with the time required to obtain NRC approval of the plant design, the translation of the certified design into approved construction drawings, and the rate of production of certain structures comprising the nuclear island. Commercial responsibility for the extended schedule remains in dispute, and the EPC Agreement contemplates construction durations shorter than that reflected in the assumed schedule extension to fourth quarter 2017 and 2018. While the Company will engage with Contractor to determine whether a shorter construction period is possible, the Company believes that the extended schedule reflects the time required to satisfy rigorous nuclear safety standards applicable to this “first of a kind” endeavor. Other cost increases are associated with known and expected quality assurance, compliance, operations, taxes, and transmission upgrades.

An update of the estimated in-service cost of both units is shown in Table 8.1. As discussed in the Executive Summary, the Company is requesting a revision to the Facility’s certified

cost in this Eighth VCM Report. The Company forecasts costs through fourth quarter 2017 and fourth quarter 2018 in-service dates for Units 3 and 4, respectively.

**Table 8.1**

**Vogle 3&4 Facility  
Capital Expenditure and Financing Cost Report  
Through Period Ending December 31, 2012**

**TOTAL FACILITY INVESTMENT**

	Construction & Capital Balance			Certified Projected Project Balance		
	(\$ millions)	Financing Balance (\$ millions)	Total Project Balance (\$ millions)	(\$ millions)	Variance Dollars (\$ millions)	Variance Percent
Jun 30, 2009	314	9	323	349	-26	-7%
Dec 31, 2009	583	25	608	635	-27	-4%
Jun 30, 2010	994	54	1,048	949	99	10%
Dec 31, 2010	1,246	91	1,337	1,341	-4	0%
Jun 30, 2011	1,580	144	1,724	1,716	8	0%
Dec 31, 2011	1,808	208	2,016	2,137	-121	-6%
Jun 30, 2012	2,001	278	2,279	2,590	-311	-12%
Dec 31, 2012	2,210	361	2,572	3,057	-485	-16%
Jun 30, 2013	2,490	448	2,938	3,569	-631	-18%
Dec 31, 2013	2,770	550	3,320	4,063	-743	-18%
Jun 30, 2014	3,204	663	3,867	4,557	-690	-15%
Dec 31, 2014	3,588	797	4,385	4,963	-578	-12%
Jun 30, 2015	3,911	937	4,848	5,304	-456	-9%
Dec 31, 2015	4,209	1,103	5,312	5,676	-364	-6%
Jun 30, 2016	4,429	1,269	5,698	5,915	-217	-4%
Dec 31, 2016	4,590	1,466	6,056	6,049	7	0%
Jun 30, 2017	4,684	1,647	6,331	6,113	218	4%
Dec 31, 2017	4,732	1,862	6,594	6,113	481	8%
Jun 30, 2018	4,779	1,949	6,728	6,113	615	10%
Dec 31, 2018	4,799	2,051	6,850	6,113	737	12%

**9. A description of all major sources of changes (both increases and decreases) to the in-service cost and sources of change in commercial operation dates, if any.**

A description of the major sources of changes to the current forecasted capital cost as compared to the certified capital cost and changes in the commercial operation dates is outlined in the Executive Summary and the Status of the Facility sections of this report.

**10. The status of the Company's COL applications at the Nuclear Regulatory Commission.**

As reported in the Sixth VCM Report, the NRC approved the Unit 3 and Unit 4 COLs on February 9, 2012 and subsequently issued the COLs on February 10, 2012. The issuance of the nation's first COLs is a monumental step for Southern Company, Georgia Power, our partners, the nuclear industry and the state of Georgia. As of December 31, 2012, three amendments to the COLs have been issued by the NRC, and additional amendments are

expected during construction to address issues that emerge as work progresses and to incorporate changes to the standard design, as described in the Status of the Facility section of this report.

Several environmental groups challenged the NRC's issuance of the COLs, and of the AP1000 design certification rule, in the United States Court of Appeals for the D.C. Circuit in the Spring of 2012. The Company and the other Owners intervened and participated in proceeding in support of both licensing actions by the NRC. The court held oral arguments on the petitions for review in November of 2012 but has not yet issued a decision on the petition.

The Company recommends removing this item in future VCM reports.

**11. The status of all other significant permits and licenses required from other governmental agencies.**

All other required permits and licenses have been approved or are on track to be approved to meet construction need dates as shown in the Permits Update filed monthly with the Commission. There has been no change in the status of this item since the February 2013 Monthly Status Report was filed.

The Company recommends removing this item in future VCM reports.

**12. The status of procurement, engineering, fabrication, transportation and erection of major equipment.**

The status of procurement, engineering, fabrication, transportation and erection of major equipment is reported in the Status of the Facility section of this report.

**13. The status of transportation links for heavy forgings and modules.**

Forging activities have been completed and all required forgings have been transported for major components to begin fabrication. Fabrication of equipment from these forgings is progressing on schedule and deliveries of all major components are scheduled to meet construction need dates. No additional heavy forgings were transported to manufacturing facilities during the reporting period. To date, 37 structural sub-modules have been transported by truck from the SMS facility to the Facility site.

The Company recommends removing this item in future VCM reports with the understanding that module delivery status will be provided in Item 12.

#### **14. An updated comparison of the economics of the certified project to other capacity options.**

The relative economic value for the Facility can be determined by comparing the costs associated with completing, operating, and maintaining the Facility over its expected 60 year useful life with the costs to build, operate, and maintain a combined cycle (“CC”) natural gas alternative, which is the next most viable generation alternative, over a comparable time period. The economic analysis performed for this Eighth VCM Report has relied on the methodologies used in all previous economic evaluations conducted in Docket Nos. 27800 and 29849.

The economic evaluation presented in this Eighth VCM Report includes updates of all major underlying planning assumptions including fuel forecasts, load forecasts, and new generation technology costs. Consistent with the original certification filing and all previous VCM reports, a range of planning scenarios was used to evaluate the possible impacts of varying fuel prices and carbon costs. Three possible fuel price forecasts were used along with three possible carbon cost scenarios. The fuel forecasts are based on the Company’s 2013 fuel forecasts. The carbon cost scenarios are: “Existing” (\$0), “Moderate” (\$10, beginning in 2017 and escalated), “Substantial” (\$20, beginning in 2020 and escalated).

The estimate of the capital cost to complete and the in-service dates of the Facility have been updated from the Seventh VCM Report along with pre-COD Operations and Maintenance (“O&M”), post-COD O&M for the Facility, projected post-COD ongoing capital additions, and nuclear fuel. The in-service dates of the gas-fired CC units have been updated from the Seventh VCM Report to be consistent with the revised in-service dates of the Facility. Decommissioning costs, spent fuel storage cost estimates, and the assumed operating characteristics of the Facility have not changed. The long-term marginal financing rates for debt and preferred stock have not been changed since the Seventh VCM Report. It should be noted that these marginal financing costs are higher than the current estimate of embedded average financing costs, which are used in all other references to financing costs in this report. Consistent with the Seventh VCM Report, the current economic evaluation assumes 50 percent of potentially available PTCs. Finally, this economic analysis continues to exclude the expected benefits of the DOE loan guarantee even though the Company expects net savings to customers resulting from the program.

“Sunk costs” (non-refundable capital and financing costs already incurred or projected to have been incurred as of February 28, 2013) are excluded from this forward-looking analysis. The current forecast of construction and capital costs as shown in Table 1.1, net of sunk costs, is used as the basis to determine “cost to complete.”

The relative economics for the Facility, when compared to the gas-fired CC alternative, vary depending on the assumptions for future fuel prices as well as with the projected carbon costs associated with potential future carbon regulation. Table 14.1 shows the difference between the lifetime costs of building, operating, and maintaining the gas-fired CC alternative and the Facility, with positive savings meaning the Facility is less expensive to customers than the gas-fired CC alternative. All nine scenarios show positive benefits to customers for completing and operating the Facility.

**Table 14.1**

**Relative Savings of the Facility versus CC as of February 28, 2013**  
**“Incremental Cost to Complete”**  
(Net present value of lifetime costs of CC minus the Facility)

Fuel \ CO <sub>2</sub>	Existing CO <sub>2</sub>	Moderate CO <sub>2</sub>	Substantial CO <sub>2</sub>
High	\$4,759,000,000	\$5,900,000,000	\$6,887,000,000
Moderate	\$2,178,000,000	\$3,841,000,000	\$5,028,000,000
Low	\$686,000,000	\$2,659,000,000	\$3,864,000,000

Positive number means the Facility is less costly than the gas-fired CC alternative.

**The weighted average expected value of the relative savings for completion of the Facility as compared to the gas-fired CC alternative is \$4.0 billion based on the results provided in Table 14.1.** The Company continues to believe equal weighting of these scenario outcomes is most appropriate given the difficulty in assessing the outcome of a vast range of key variables such as future environmental regulations, possible climate change regulation, fuel prices, demand levels, potential federal portfolio requirements, federal policies toward new nuclear, the breadth and rate of expansion of new nuclear in the United States, and the interplay of other market forces.

Alternatively, the results of the updated economic evaluation can be expressed in terms of the “breakeven capital cost to complete.” Table 14.2 shows the results of the breakeven analysis that calculates the maximum capital expenditure that could be spent to complete the Facility and maintain lifetime costs that are equal to the cost of the gas-fired CC alternative. In all of the scenarios, the maximum capital cost to complete the Facility exceeds the Company’s current estimate of the cost to complete the Facility (including marginal construction financing costs) of \$3.4 billion.

**Table 14.2**

**Relative Savings of the Facility versus CC as of February 28, 2013**  
**“Break-Even Cost to Complete”**  
(Maximum Capital Costs to Complete the Facility and Remain Economic)

Fuel \ CO <sub>2</sub>	Existing CO <sub>2</sub>	Moderate CO <sub>2</sub>	Substantial CO <sub>2</sub>
High	\$7,356,000,000	\$8,307,000,000	\$9,129,000,000
Moderate	\$5,205,000,000	\$6,591,000,000	\$7,581,000,000
Low	\$3,962,000,000	\$5,606,000,000	\$6,611,000,000

If value is higher than current estimated cost to complete of \$3.4 billion of in-service and construction financing costs, the Facility benefits customers. On an expected value basis, the Company’s results indicate that the cost to complete the Facility could increase by \$3.3 billion over the current estimated cost to complete the Facility before becoming uneconomic. (This value can be derived by averaging the results from the nine scenarios above and then subtracting the current estimated cost to complete).

The analyses provided in Tables 14.1 and 14.2 are based on an economic assessment from an “incremental cost to complete” perspective, which ignores any potential cancellation fees or other costs that would be incurred if the project were stopped, as well as any fully-committed construction costs that would not be avoidable in the event the project is cancelled. If the results from the incremental cost to complete evaluation showed it was no longer cost-effective to pursue completing the Facility, a second cancellation assessment would be performed to determine the economic value of canceling the Facility. A cancellation assessment can provide the most appropriate perspective for deciding whether to cancel the Facility as it would include the impacts of any cancellation fees or other costs associated with cancelling the Facility in the economic analysis. However, because Tables 14.1 and 14.2 both reflect significant savings and benefits to customers from the incremental cost to complete perspective across a wide range of possible future fuel and carbon prices, a cancellation assessment is not warranted at this time.

In the Seventh VCM process, the Staff requested and the Company agreed to provide scenario studies for comparison purposes to the results provided in Table 14.2 in which the in-service dates are delayed by 24 months, 36 months and 48 months from April 2016 and April 2017 for Units 3 and 4, respectively. These scenarios include additional capital costs and financing costs related to the delay scenarios, and the results are provided in Table 14.3, 14.4 and 14.5.

**Table 14.3**

**Relative Savings of the Facility versus CC as of February 28, 2013  
April 2018 / April 2019 In-service (24 Month Delay) Scenario  
“Break-Even Cost to Complete”  
(In 2016 Dollars)**

(Maximum Capital Costs to Complete the Facility and Remain Economic)

Fuel \ CO <sub>2</sub>	Existing CO <sub>2</sub>	Moderate CO <sub>2</sub>	Substantial CO <sub>2</sub>
High	\$7,307,000,000	\$8,253,000,000	\$9,095,000,000
Moderate	\$5,146,000,000	\$6,536,000,000	\$7,538,000,000
Low	\$3,906,000,000	\$5,546,000,000	\$6,569,000,000

If value is higher than this scenario estimated cost to complete of \$3.5 billion of in-service and construction financing costs, the Facility benefits customers.

**Table 14.4**

**Relative Savings of the Facility versus CC as of February 28, 2013  
April 2019 / April 2020 In-service (36 Month Delay) Scenario  
“Break-Even Cost to Complete”  
(In 2016 Dollars)**

(Maximum Capital Costs to Complete the Facility and Remain Economic)

Fuel \ CO <sub>2</sub>	Existing CO <sub>2</sub>	Moderate CO <sub>2</sub>	Substantial CO <sub>2</sub>
High	\$7,401,000,000	\$8,339,000,000	\$9,239,000,000
Moderate	\$5,222,000,000	\$6,603,000,000	\$7,670,000,000
Low	\$3,971,000,000	\$5,612,000,000	\$6,706,000,000

If value is higher than this scenario estimated cost to complete of \$3.8 billion of in-service and construction financing costs, the Facility benefits customers.

**Table 14.5**

**Relative Savings of the Facility versus CC as of February 28, 2013  
April 2020 / April 2021 In-service (48 Month Delay) Scenario  
“Break-Even Cost to Complete”**

(In 2016 Dollars)

(Maximum Capital Costs to Complete the Facility and Remain Economic)

Fuel \ CO <sub>2</sub>	Existing CO <sub>2</sub>	Moderate CO <sub>2</sub>	Substantial CO <sub>2</sub>
High	\$7,346,000,000	\$8,278,000,000	\$9,208,000,000
Moderate	\$5,163,000,000	\$6,531,000,000	\$7,636,000,000
Low	\$3,906,000,000	\$5,544,000,000	\$6,681,000,000

If value is higher than this scenario estimated cost to complete of \$4.2 billion of in-service and construction financing costs, the Facility benefits customers.

**Economic Analysis Conclusion / Summary of Results**

In summary, all scenario studies, with the one exception of the Low Fuel/Existing CO<sub>2</sub> in the 48 Month Delay Scenario, indicate that the Facility would remain economic despite the additional costs associated with the delay scenarios. In the delay scenarios, the Facility remains less costly than the next best fuel alternative and will continue to benefit customers. These scenarios do not represent the Company’s projection for the ultimate outcome of the project but instead represent the delay scenarios requested by the PSC Staff during the Seventh VCM proceedings.

- 15. The Company will be under a continuing obligation to supplement its response to PIA Staff DR STF-TN-1-2 by ensuring that the financing data reflected in the schedules attached to that DR response reflect the most current and updated information at the time of each semi-annual monitoring report. In addition, the Company will provide the most current information shared with each of the Rating Agencies.**

Simultaneous with this filing, the Company has filed supplemental PIA Staff DR STF-TN-1-2, and has included in that filing the most current information shared with each of the Rating Agencies.

The Company recommends removing this item in future VCM reports with the understanding that supplemental responses to STF-TN-1-2 will continue to be filed simultaneously with the VCM Reports.