

August 31, 2018

Mr. Reece McAlister
Executive Secretary
Georgia Public Service Commission
244 Washington Street, First Floor
Atlanta, Georgia 30334-5701

RE: Georgia Power Company's Nineteenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849

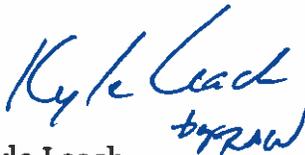
Dear Mr. McAlister:

Enclosed for filing is Georgia Power Company's Nineteenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4 pursuant to O.C.G.A. § 46-3A-7(b), Georgia Public Service Commission's ("Commission") Rule 515-3-4-.07(2)(b), and the Commission's Final Order in Docket No. 27800.

There is no trade secret information included in this Nineteenth Semi-Annual Report.

Should you have any questions, please call me at 404-506-3050 or Dick White at 404-506-2393.

Sincerely,

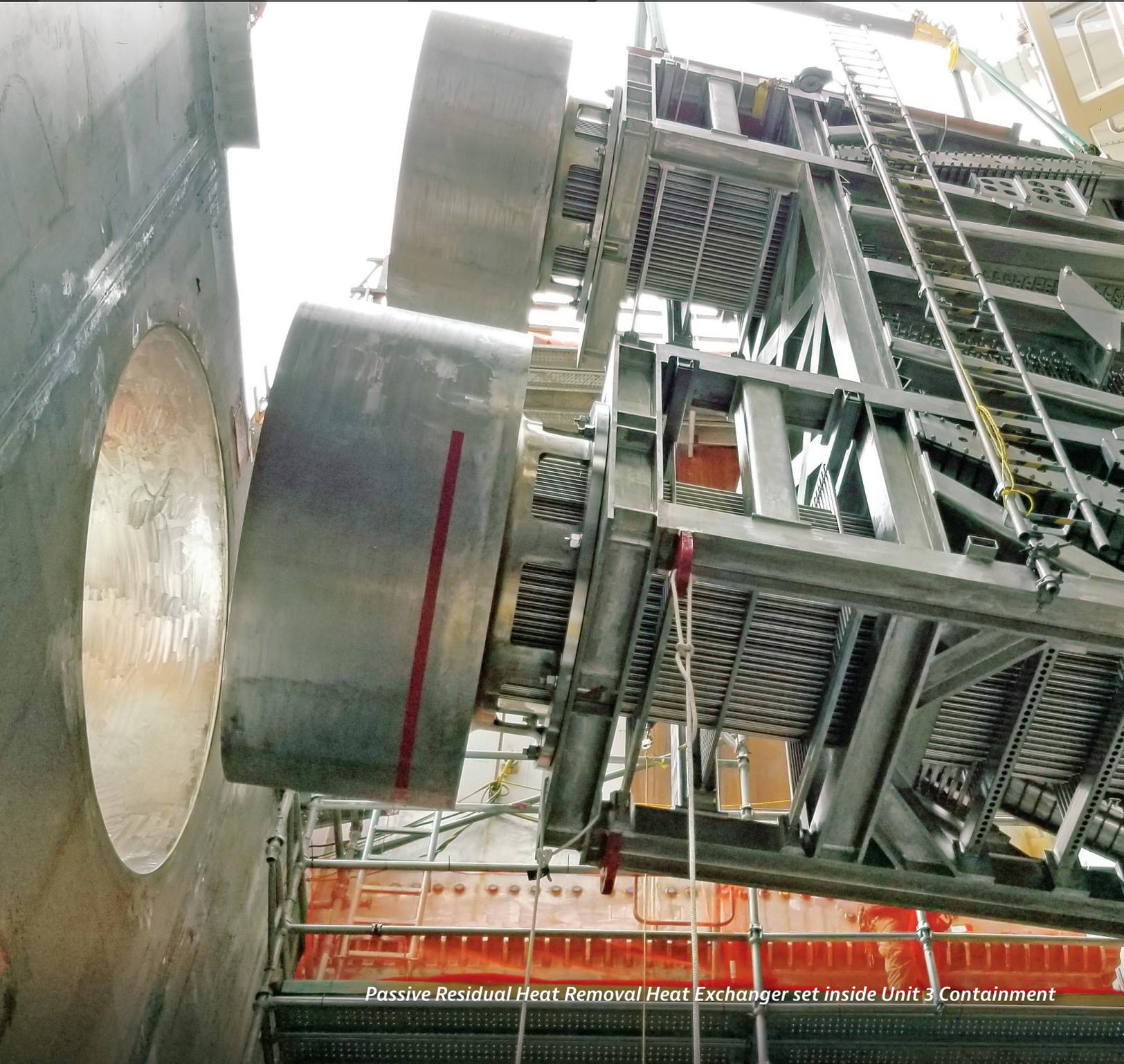


Kyle Leach
Vice President, Regulatory Affairs
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Enclosure

Nineteenth Semi-annual Vogtle Construction Monitoring Report

August 2018 • Docket No. 29849



Passive Residual Heat Removal Heat Exchanger set inside Unit 3 Containment

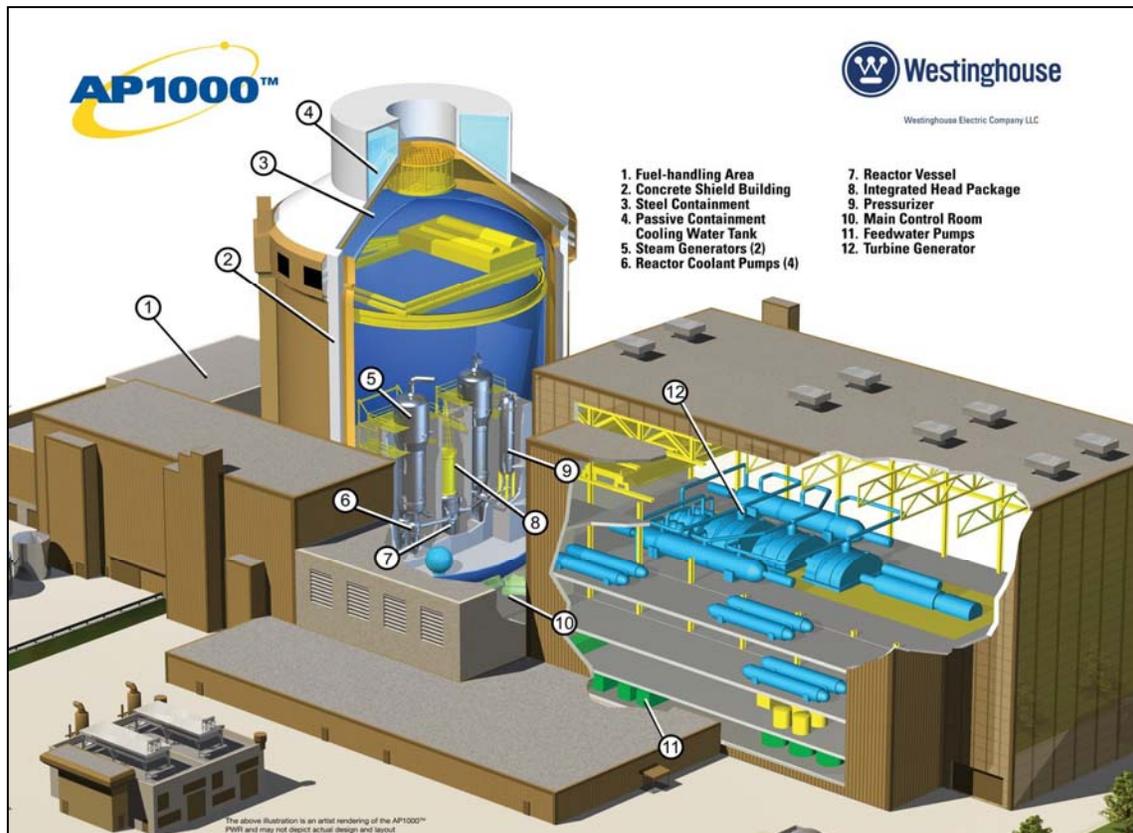
**Vogle Units 3 and 4
Nineteenth Semi-Annual Construction Monitoring Report**

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Unit 3 Nuclear and Turbine Islands

As of June 2018



EXECUTIVE SUMMARY

I. Highlights

- **Georgia Power Company (“Georgia Power” or the “Company”) and Southern Nuclear Operating Company (“SNC”), as agent for Georgia Power, are fulfilling their commitment to safety, quality and compliance.**

During the reporting period of January 1, 2018 to June 30, 2018 (the “Reporting Period”), approximately 9 million man-hours were performed safely with no lost time injuries. More than three years, or nearly 55 million man-hours, have been performed on the Project since the last lost time injury. SNC and contractor leadership constantly evaluate opportunities to enhance and cultivate a culture that promotes safety first. The Project has embraced a people-based safety program that emphasizes results and encourages an owner-mindset among personnel at the Project.

SNC received no Notices of Violation and remained in favorable standing with the Nuclear Regulatory Commission (the “NRC”) as indicated by its green status under the NRC’s Construction Reactor Oversight Process (the “cROP”). The cROP was designed and implemented to assure reactors under construction are built according to the NRC-approved design. This program allows the NRC to arrive at objective conclusions about a licensee’s effectiveness in assuring construction quality, providing for predictable responses to performance issues, and clearly communicating performance assessment results to the public.

- **Georgia Power is requesting verification and approval of \$578 million of capital expenditures incurred during the Reporting Period.**

Table 1 - 19th VCM Expenditures

<i>Dollars in Millions</i>	
Original EPC & EPC Scope Change	\$ 0
Interim Payments & Liens ⁽¹⁾	(22)
Site Forecast EPC	549
Owner’s Costs	38
Ad Valorem Tax	13
Transmission Interconnection	0
Total 19th VCM Expenditures	<u>\$ 578</u>

⁽¹⁾ Includes refund of approximately \$23 million from Westinghouse received in January 2018 related to the Interim Assessment Agreement.

- **The Company does not seek approval of any additional forecasted costs above the already approved \$7.3 billion in this VCM Report.**

After Westinghouse filed for bankruptcy on March 29, 2017, part of SNC's new role was to develop a new cost and schedule estimate for completion of the Project as Georgia Power and the other Owners no longer had the benefit of the fixed and firm Engineering, Procurement and Construction ("EPC") Agreement with the original contractor. This was the first time the Company and SNC had broad access to Westinghouse's more detailed cost information, invoices, subcontracts, and planning and schedule documents, including the basis of estimates being discussed between Fluor and Westinghouse.

In connection with the EPC Contractor's bankruptcy filing, Georgia Power, acting for itself and as agent for the Owners, entered into the Interim Assessment Agreement (the "IAA") with Westinghouse to allow construction to continue. SNC took actions to stabilize the construction site, improve productivity levels, and achieve significant milestones to complete the Project. In parallel, SNC began building what became the VCM 17 Estimate to Complete ("ETC"), as submitted to the Georgia Public Service Commission (the "Commission") on August 31, 2017 as part of the VCM 17 Report.

The VCM 17 ETC was based on data and information obtained from Westinghouse and Fluor, as independently assessed by SNC and its consultants. Additionally, the Company and SNC were in negotiations with Westinghouse to provide engineering, design, and support services to the Project in what is now known as the Westinghouse Services Agreement.

The VCM 17 Report also contained independent estimates of the costs to complete the Project, which were in general agreement with the VCM 17 ETC. As with any construction forecast, the VCM 17 ETC was based heavily on assumptions regarding scopes of work, labor productivity, and cost escalation. The VCM 17 Report also included discussions of Project risks, including an acknowledgement that work was still ongoing on key terms that could impact cost, that the labor force and craft may be unable to maintain their productivity improvements, and that some scope might be unidentified at the time of the VCM 17 Report.

Recognizing the potential for cost increases relating to the transition of the Project, SNC added contingency to the estimate. This contingency covered costs expected to be specifically allocable within a reasonably short period of time.

Following an exhaustive review of the VCM 17 Report, the Commission, on December 21, 2017 approved Georgia Power's recommendation to continue construction, the proposed new Project structure, the revised Project schedule, and \$7.3 billion as a reasonable total cost for Georgia Power's share of completing the Project. This cost reflected the VCM 17 ETC, net of the \$1.7 billion Toshiba Parent Guaranty and partial customer refunds of that guaranty.

In the year since completing the VCM 17 ETC, SNC has been able to maintain Project momentum consistent with the schedule approved by the Commission. Although the

Commission recognized that the \$7.3 billion revised capital cost forecast was not a cost cap, SNC undertook significant efforts to manage the Project within that forecast, while at the same time sustaining Project momentum and transitioning project management. In connection with this effort, SNC determined that it needed to implement changes at the Project to lower Project risks and maintain its schedule. Among others, these changes included expanding the scope of Bechtel's contractor duties and resulting fees, increasing field supervision and engineering support, and implementing craft labor incentives to attract and retain adequate staffing. The Project team has also continued its efforts to firm up other estimated costs, such as the 60-plus subcontracts that had not yet been negotiated at the time of the VCM 17 ETC. Many of these new subcontracts reflect changes in market conditions and, in several cases, increased scope.

As part of the process to continually review and assess costs and schedule and based on a year's worth of experience managing the Project, SNC recently revised its estimate of the cost to complete the Project. Based on this latest estimate, the Company recognizes the previous contingency was insufficient to fully offset forecasted cost increases. The new estimate reflects that Georgia Power's projected share of the total cost has increased from \$7.3 billion to \$8.4 billion, an increase of approximately \$1.1 billion. This increase includes a new contingency estimate of \$366 million. The Company and SNC will continue to monitor and evaluate costs associated with completion of the Project and provide updates on the estimate as appropriate.

Although the Company and SNC believe the increased projected costs are reasonable and necessary to complete the Project, Georgia Power has made the judgment that it is in the best long-term interests of customers, investors, and other stakeholders that it not disrupt Project momentum by seeking approval of the base capital cost increase so soon after receiving Commission approval to continue with the Project. Therefore, Georgia Power will not request recovery of the \$694 million in base capital cost increases. As to the \$366 million of contingency estimate included in the revised capital cost forecast, Georgia Power may request the Commission to evaluate such costs for rate recovery as and when appropriate.

The Company believes that this revised forecast and new contingency should be sufficient to take the Project to completion. However, the Company and SNC recognize that a nuclear construction project may continue to experience challenges and that unanticipated events may require further revision to the capital cost forecast and Project schedule to get to completion.

Capital expenditures to date are \$3.976 billion after accounting for receipt for the Toshiba Parent Guaranty. The remaining capital spend to complete the Project is approximately \$4.018 billion. This amount does not include the additional contingency amount of \$366 million.

- **The target in-service dates remain unchanged, with approved commercial operation dates of November 2021 for Unit 3 and November 2022 for Unit 4.**

During the Reporting Period, Bechtel completed its schedule re-baseline effort and provided a revised schedule to SNC on June 2, 2018, which included no change to major Project milestone completion dates. Major milestones were recently achieved, including the setting of the Unit

3 Pressurizer, final welding of the Unit 3 reactor coolant loop piping, completion of the Unit 3 Shield Building to elevation 149 feet, completion of the maintenance deck inside Unit 3 Containment, setting of the Unit 4 Reactor Vessel, the placement of concrete for the Unit 4 Turbine Building tabletop at elevation 170 feet, setting of the first Unit 4 Steam Generator, and setting of the Unit 4 Generator stator.

The Project's ability to meet the approved schedule is dependent on numerous factors, including the increased production targets included in the current schedule, as well as increased craft labor levels for certain disciplines as construction work transitions from the civil phase to mechanical and electrical phases. The Project continues to work diligently to attract the necessary craft labor and has benefitted from its recruitment efforts and recently implemented incentives program (i.e., per diem). Project leadership continues to evaluate processes for improvements, implementing proactive planning and scheduling enhancements designed to minimize negative impact on Project performance.

- **Completing Vogtle Units 3 and 4 remains the best decision for our customers.**

Upon completion, Vogtle Units 3 and 4 will be a valuable asset to Georgia Power, its customers, the state and the nation for 60 or more years. The Project represents an economic option to meet the electricity needs of our customers, in addition to the value that nuclear energy provides to Georgia's future considering potential environmental regulations. The Project remains the most important infrastructure project currently under way in Georgia, providing over 7,000 construction jobs and approximately 800 permanent careers once complete. The Project will support Georgia's economic growth and provide economic benefit to current electric customers, as well as those looking to expand or relocate to the state.

Vogtle Units 3 and 4 preserve the benefit of carbon-free, diverse base load generation for 60 years or longer. Nuclear generation provides an important hedge against the impact of potential carbon costs and fossil fuel cost volatility that could impact the ability to deliver reliable and economic power to customers over the next several decades.

- **Project leadership continues to provide oversight and actively address issues and concerns.**

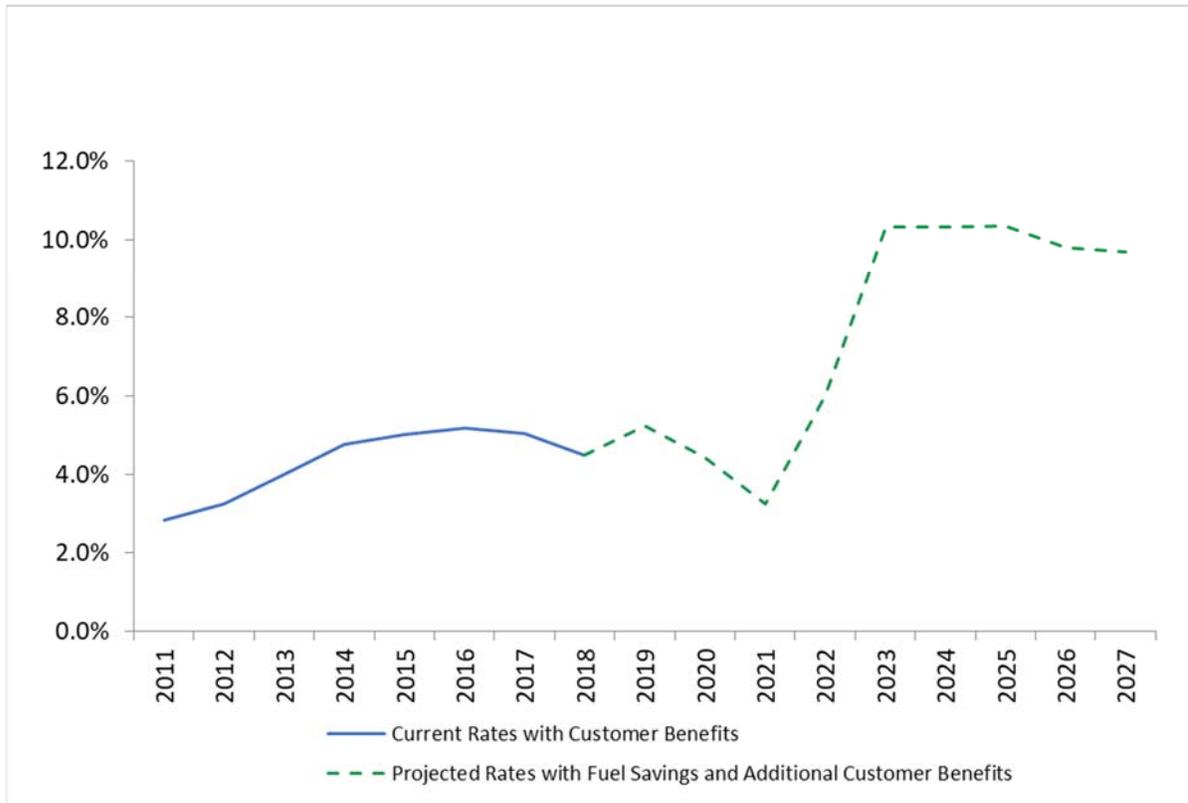
The Company and SNC continue active oversight and management of engineering, procurement, and construction quality to assure the as-built plant continues to meet design and regulatory requirements. The Company, SNC, and Bechtel continue to focus on increasing productivity and momentum on the Project. Through active engagement with Project leadership at meetings and regular review of enhanced performance metrics, Company executives are kept abreast of issues and concerns as they occur.

While Project leadership has mitigated various risks over the course of the year since transitioning project management from Westinghouse, challenges remain. Executive and

project management continue their engagement with the national labor unions to obtain sufficient resources to achieve the accelerated schedule. During the Reporting Period, the Company, SNC, and Bechtel continued to negotiate new subcontracts for current and upcoming work and implemented enhanced performance reporting to support subcontractor management on the Project. Lessons learned from the Chinese AP1000 projects continue to be captured and incorporated into the Project to avoid, to the extent possible, obstacles for this First of a Kind (“FOAK”) technology observed in China.

- **Vogle Units 3 and 4 peak rate impacts for customers is expected to be 10.4 percent.**

Figure A – Projected Cumulative Rate Impacts



For VCM 19, the projected peak rate impact to retail customers is 10.4%, with approximately 4.5% already in customers’ rates. Consistent with previous VCM reports, the rate impacts include customer benefits that the Company proactively pursued, including federal production tax credits and interest savings from the Department of Energy (the “DOE”) loan guarantees. The projections also include lower financing costs and the fuel savings associated with adding additional nuclear units to the generation mix.

At the outset of the Project, the Nuclear Construction Cost Recovery (“NCCR”) rate was expected to have steadily increased until Vogtle Units 3 and 4 went into commercial operation. However, as shown in Figure A, the curve flattened in 2015 and 2016 as a result of lower than

expected milestone payments to Westinghouse under the EPC Agreement as Westinghouse began to miss key milestones, and the final amortization of the pre-2011 Allowance for Funds Used During Construction (“AFUDC”) balance. The decrease in 2017 and 2018 was the result of the receipt of the Toshiba Parent Guaranty and the Commission’s Orders capping the amount of investment subject to the NCCR rate at \$4.418 billion. The projected lower NCCR rate impacts in the three years between 2019 and 2021 are primarily the result of the Commission’s Orders in the Supplemental Information Review proceeding and the VCM 17 proceeding that substantially lowered the Company’s return on equity used to calculate the NCCR rate. The projected increase in 2021 and 2022 reflects Vogtle Units 3 and 4 being placed into full retail service in those years.

Recent tax reform enacted by Congress has provided additional rate benefits to customers in the form of lower corporate income tax rates.

- **Customers received immediate benefit of Toshiba’s fulfillment of the Toshiba Parent Guaranty.**

The Company’s active enforcement of the EPC Agreement following Westinghouse’s bankruptcy provided customers with both immediate and long-term financial benefits through the Company’s proportionate share of the \$3.68 billion Toshiba Parent Guaranty. Pursuant to the VCM 17 Order issued by the Commission, Georgia Power will refund customers approximately \$188 million from the Toshiba Parent Guaranty receipts in the form of three \$25 credits on customer bills. Customers received the first two credits in April and July and will receive the final credit by the end of the third quarter of 2018.

- **Progress at the AP1000 projects in China demonstrate the viability of new reactor technology and provide valuable information for Vogtle Units 3 and 4.**

Recently, significant progress has been achieved in China with the AP1000 projects at Sanmen and Haiyang. All four units were approved for initial fuel load and are progressing toward commercial operation. Sanmen Unit 1 has reached full power and is estimated to be commercially operational by late September 2018. Sanmen Unit 2 and Haiyang Unit 1 are following closely behind Sanmen Unit 1, with both completing initial criticality in August 2018. It is expected that Haiyang Unit 1 will be commercially operational in early November 2018, with the other two units following closely behind.

These operational achievements at the first AP1000 projects in China demonstrate the successful deployment of the nuclear technology being constructed at Vogtle Units 3 and 4 and should mitigate potential concerns associated with FOAK risks.

- **Brookfield Business Partners LP closed on its acquisition of Westinghouse from Toshiba.**

On August 1, 2018, Brookfield Business Partners LP closed on its previously-announced acquisition of Westinghouse from Toshiba. The completion of this transaction provides Westinghouse with additional financial stability to support its commitments under the Westinghouse Services Agreement.

RESPONSES TO STIPULATED QUESTIONS

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

The target in-service dates remain unchanged from the previous VCM Report. The target in-service dates are November 2021 and November 2022 for Vogtle Units 3 and 4, respectively.

As discussed in the Executive Summary of this Report, SNC recently revised its estimate of the cost to complete the Project. The new estimate reflects an increase in Georgia Power's projected share of the total cost from \$7.3 billion to \$8.4 billion. This increase of approximately \$1.1 billion includes a contingency estimate of \$366 million. The increase in Project forecast was a result of management decisions by SNC intended to lower project risks and maintain the target schedule. These changes included an expansion of Bechtel's scope and resulting fee structure, increased field supervision and engineering support, and the implementation of incentives to recruit and retain adequate staffing. Following efforts to review and assess cost and schedule based on a year's worth of experience managing the Project, SNC revised its estimate of the cost to complete the Project.

The details of the new forecast are provided in Table 1.1. The categories found in Table 1.1 are the same as provided in previous VCMs. However, variances between the VCM 18 and VCM 19 forecasts are not solely attributable to changes in forecast alone, but in some instances, are the result of revised categorization of certain costs. Summary explanations of the variances in the VCM 19 forecast are included below. Table 1.1 also reflects the to-date capital investment, actual-to-forecast variances, and the total financing costs during construction. Total financing costs include amounts collected and forecasted to be collected under the NCCR tariff and amounts accrued and forecasted to be accrued through AFUDC.

Engineering Contractor

The variance in the Engineering Contractor category is a result of the recategorization of the costs for Westinghouse staff augmentation, which is now captured in the Construction Support & Project Management category.

Procurement

The Procurement category includes current estimates for costs associated with both procurement of materials for the Project and subcontracts to be managed by either Bechtel or SNC. SNC and Bechtel continue to make progress towards the completion of the Subcontract Alignment Process as defined in the Bechtel Construction Completion Agreement ("BCCA"). Subcontracts that directly support Bechtel's scope of work will be managed by Bechtel. This decision is expected to reduce performance risk of Bechtel to the Company and its customers. Additionally, a portion of the subcontracts are estimated to be higher than originally contemplated in the forecast presented in VCM 17, such as work for coatings and fireproofing,

Containment Vessel and Shield Building assembly and support, HVAC fabrication and installation. The increases are attributed, among other items, to scope adjustments ascertained during the Subcontract Alignment Process.

Contract Construction

Variances in the Contract Construction category are associated with the finalization of Bechtel's scope and resulting fee structure through the execution of the BCCA on October 23, 2017. Also included in the Contract Construction category are costs for the craft incentive programs used to recruit and retain labor on the Project. Increases to the forecast for distributables were also captured in this category, which included some scope changes, a revised site crane plan, and costs associated with construction equipment needed longer than originally anticipated.

Construction Support & Project Management

Previously, the majority of unallocated funds were included in the Construction Support & Project Management category. These unallocated funds previously identified have been fully allocated to the category in which they are expected to be spent over the course of the Project. As mentioned previously, costs for Westinghouse staff augmentation were reallocated from the Engineering Contractor category to this category. Escalation costs, which were previously allocated across multiple categories in the forecast, are now consolidated in this category.

Owner's Costs

The increase in Owner's Costs is attributable to, among others, efforts to mitigate Project infrastructure and data risk and improve Project oversight and support. Contributors to these increases were costs associated with transferring critical information from a Westinghouse information technology platform to an SNC platform, as well as increases in Project oversight, legal fees, and regulatory support costs.

Table 1.2 shows the cost of replacement energy as required by the VCM 12 Order. In addition, it includes other costs impacted by the schedule, such as PTCs, O&M, depreciation, and Ad Valorem expenses. To date, the revised extended schedule, approved by the Commission in its VCM 17 Order, has added minimal incremental schedule-related costs to customers. The impacts related to schedule delay are partially offset by the avoided operating costs that are not incurred during construction. Only after Vogtle Units 3 and 4 are in operation (and therefore incurring operating costs) are customers able to benefit from fuel savings expected to be realized by the Project. Financing costs are excluded from Table 1.2 since they would continue to be incurred whether the Units come online under the prior schedule or the revised schedule.

Table 1.1

Vogtle 3&4 Project
 Georgia Power Company Cost - **Subject to Commission Verification and Approval**
 Project To Date
 Through Period Ending June 30, 2018

	<u>Total Project Capital</u>			<u>Project to Date Capital</u>		
	VCM 18 (\$ millions)	Total Current Forecast (\$ millions)	Variance (\$ millions)	Actual To Date (\$ millions)	Budget To Date (\$ millions)	Variance (\$ millions)
Construction & Capital Cost						
Original EPC ⁽¹⁾	3,198	3,198	0	3,198	3,198	0
Interim Payments & Liens	440	440	0	445	440	6
Site Construction Management						
Engineering Contractor	427	270	(157)	124	145	(21)
Procurement	960	1,244	284	297	210	87
Contract Construction	1,571	2,142	571	445	383	62
Construction Support & Project Management	877	719	(158)	65	114	(49)
Total Site Construction Management	3,835	4,375	540	931	852	79
Owner's Costs	1,012	1,173	161	726	725	1
Ad Valorem	273	273	0	110	111	(1)
Transmission Interconnection	61	61	0	59	60	(1)
Test Fuel Offsets	(33)	(33)	0	0	0	0
	1,313	1,475	161	895	896	(1)
Total Construction & Capital Cost	8,786	9,488	702	5,469	5,386	84
Toshiba Parent Guarantee, net of customer refunds	(1,493)	(1,493)	0	(1,493)	(1,493)	0
Total to be Absorbed by GPC	0	(694)	(694)	0	0	0
Total Construction & Capital Cost, net of Parent Guarantee and amounts to be absorbed by GPC	7,293	7,300 ⁽²⁾	7	3,976	3,892	84

Vogtle 3&4 Project
 Georgia Power Company Financing Cost - **Recovered Pursuant to O.C.G.A. 46-2-25 (c.1),**
the January 3, 2017 Order Adopting Stipulation, and the VCM 17 Order
 Project To Date
 Through Period Ending June 30, 2018

	<u>Total Project Financing</u>	<u>Project to Date Financing</u>		
	Total Current Forecast (\$ millions)	Actual To Date (\$ millions)	Budget To Date (\$ millions)	Variance (\$ millions)
Project Schedule Financing				
Return on CWIP in Rate Base ⁽³⁾	2,734	1,592	1,586	6
AFUDC - Accrued on CWIP Above Original Certified Cost	349	0	0	0
AFUDC - Accrued through Dec 2010 and Related Return	109	109	109	0
Total Project Schedule Financing	3,192	1,702	1,696	6
Total Capital Cost and Financing	10,492	5,678	5,588	90

Footnotes:

1. Includes Original EPC contract payment milestones and EPC Scope Change.
2. \$7.3 billion is the Total Construction & Capital Cost approved by Georgia Public Service Commission (Order dated January 11, 2018). Above excludes \$366 million in unspecified project contingency. Such amounts may be recommended for consideration by the GPSC as and when included in the Construction and Capital Cost forecast.
3. NCCR will only be collected on the certified capital cost of \$4.418 billion per the January 3, 2017 Order Adopting Stipulation and VCM 17 Order.

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

Table 1.2 - Replacement Energy Costs and Deferred Operating Costs*Million of Dollars*

Date	VCM	Deferred Benefits		Deferred Operating Costs			Total Deferred Operating Costs	Net Cost
		Replacement Energy Cost	PTCs	O&M	Depreciation	Ad Valorem		
Total 2016		43.6	89.6	(67.0)	(41.2)	(9.3)	(117.5)	15.7
Total 2017		115.8	186.5	(130.4)	(112.3)	(23.2)	(265.9)	36.4
Jan-18	19th	46.0	13.5	(10.4)	(10.7)	(2.1)	(23.2)	36.3
Feb-18	19th	6.2	13.5	(11.1)	(10.7)	(2.1)	(23.9)	(4.3)
Mar-18	19th	7.4	13.5	(10.6)	(10.7)	(2.1)	(23.4)	(2.6)
Apr-18	19th	9.1	13.5	(10.7)	(10.7)	(2.1)	(23.5)	(1.0)
May-18	19th	8.9	13.5	(10.8)	(10.7)	(2.1)	(23.7)	(1.3)
Jun-18	19th	11.8	13.5	(10.9)	(10.7)	(2.1)	(23.7)	1.5
		89.4	80.8	(64.5)	(64.0)	(12.9)	(141.4)	28.7
Total to Date		248.8	356.8	(261.9)	(217.6)	(45.4)	(524.8)	80.9

Assumptions:

1. Replacement Energy Cost compares the actual hourly Pool Interchange Rate (PIR) to the estimated Vogtle 3&4 average cost.
2. O&M is calculated by taking the current forecast Post COD O&M adjusted for inflation and netting with current period actual Pre COD O&M.
3. Depreciation is the current forecast post COD.
4. Ad Valorem is the current period actuals.
5. PTCs are grossed up with federal tax rate of 35% through 2017, 21% 2018 forward.

2. **The status of the Company’s loan guarantee application at the DOE and to the extent that the 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.**

Table 2 – DOE Loan Guarantee		
Available	Received	Remaining
\$3.46 billion	\$2.63 billion	\$0.83 billion

The DOE Loan Guarantee does not have a material impact on the in-service cost of Vogtle Units 3 and 4, but it does provide benefits to customers through access to lower credit spreads during construction and for many years beyond. Should the additional loan guarantee capacity be secured, Georgia Power customers are expected to save approximately \$500 million, of which approximately \$300 million has been secured from draws on the existing guarantee.

Georgia Power has borrowed \$2.6 billion related to Vogtle Units 3 and 4 costs through the current Loan Guarantee Agreement and a multi-advance credit facility among Georgia Power, the DOE, and the Federal Financing Bank (the “FFB”), which provides for borrowings of up to \$3.46 billion, subject to the satisfaction of certain conditions. In September 2017, the DOE issued a conditional commitment to Georgia Power for up to approximately \$1.67 billion in additional guaranteed loans under the Loan Guarantee Agreement. In June 2018, the DOE approved a request by Georgia Power to extend the conditional commitment to September 30, 2018. Any further extension must be approved by the DOE. Final approval and issuance of these additional loan guarantees by the DOE cannot be assured and are subject to the negotiation of definitive agreements, completion of due diligence by the DOE, receipt of any necessary regulatory approvals, and satisfaction of other conditions, including the Owners' vote to continue construction.

3. The status of Quality and Compliance, Procurement, Engineering, Construction and Operational Readiness.

QUALITY AND COMPLIANCE

During the Reporting Period, the Company continued to provide oversight of the Project, while SNC actively addressed issues and concerns and provided guidance and direction to contractors, as necessary. The Company and SNC continued to assess and allocate resources necessary to perform their oversight for optimization of project progression. This included the use of SNC-led Quality and Compliance teams to monitor the safety and quality of work being conducted by the primary construction Contractor and various subcontractors.

Quality and Compliance teams are staffed with experienced quality control and technical personnel, who spend much of their time in the field reviewing construction activities. These personnel provide an additional level of assurance for quality control in construction. Quality control acceptance rates remained at acceptable levels during the Reporting Period, with Unit 3 and Unit 4 averaging acceptance rates of 99.4% and 99.6%, respectively. Any deviations are dispositioned and repaired as appropriate.

ENGINEERING

During the Reporting Period, the Site Operations engineering organization merged with the Construction engineering organization to form a single engineering organization to support construction and testing. The engineering organization continued to manage and improve performance on the Project through the review and enhancement of engineering schedule logic and refinement of metrics reporting.

The Engineering Constructability Review Team (the “eCRT”) continued to actively review and optimize engineering designs to identify and resolve potential issues during the construction phase of the Project. The eCRT has completed the electrical design optimization for Containment and Auxiliary Building raceway conduit cable design. Additional efforts continue by the eCRT to review safety-related Air Operated Valves located in the Nuclear Island, and various structural steel reviews in the Turbine Buildings, diesel generator buildings, and the Radwaste Buildings.

The Engineering organization continues to work on the Air Baffle reduction effort, where tests are being performed to reduce the number of air baffles by up to 50%. The organization is also providing critical support for the installation of new isolated phase and cable bus ducts. All four cable-bus runs that support Unit 3 Initial Energization are in fabrication.

Engineering introduced a new Field Change Process (“FCP”), which streamlines execution of design changes within the non-safety related portions of the Project, thereby reducing the engineering resources required. During the Reporting Period, over 1,700 Field Change Requests (“FCR”) were initiated and completed.

PROCUREMENT

SNC continued management of major equipment and commodity fabrication at its international and domestic vendors, ensuring adequate resolution of issues before installation, particularly at safety-related commodity vendor locations. Additionally, a “Min/Max” system has been put in place on the Project. This system assures frequently used commodity materials are continually kept in stock at necessary stocking levels and are available to construction when needed.

Recent major equipment deliveries included: safety-related Unit 3 and 4 Q601 mechanical module, Unit 4 Refueling Machine, and the Unit 3 Polar Crane. Additionally, the final shield building roof sections are in transit. Table 3.1 shows the status of major equipment items.

During the next Reporting Period, procurement will continue with expected delivery of the Unit 4 Fuel Handling Machine, the Unit 3 Cask Crane, and Unit 3 safety-related batteries and associated safety-related Uninterruptible Power Supply (“UPS”) system.

Component	Unit 3 Status	Unit 4 Status
Accumulator Tanks	Installed	On-site
Core Makeup Tanks	Installed	On-site
Deaerators	Installed	Installed
Diesel Generators	On-site	On-site
Integrated Head Package	On-site	On-site
Main Step-up Transformers	Installed	Installed
Main Turbine Generator	In Process	In Process
Moisture Separator Reheater	Installed	Installed
Passive Residual Heat Removal Heat Exchanger	Installed	On-site
Polar Crane	On-site	In Fabrication
Pressurizer	Installed	On-site
Reactor Coolant Loop Piping	Installed	In Process
Reactor Coolant Pumps	On-site	On-site
Reactor Vessel	Installed	Installed
Reactor Vessel Internals	On-site	On-site
Reserve Auxiliary Transformers	Installed	Installed
Squib Valves 8”	On-site	On-site
Squib Valves 14”	On-site	On-site
Steam Generators	Installed	1 of 2 Installed

During the Reporting Period, SNC and Bechtel continued to negotiate long-term subcontracts for new and existing work scopes following the transition from the EPC Agreement and Westinghouse bankruptcy. These long-term subcontracts will replace bridge agreements signed during the IAA Period to continue work. As of July 2018, 27 of the 44 Bechtel-managed and 13 of the 21 SNC-managed subcontracts had been awarded. The remainder of subcontracts have been estimated or are currently in the bid process, giving the Project more confidence in the revised subcontract cost forecast.

PROJECT PERFORMANCE

Total Project Percent Complete

As of the end of July 2018, the total Project is approximately 69.9% complete. Design engineering is largely complete at 98.1%. Procurement of major equipment is nearly complete, with the Project currently focusing efforts on commodity purchases to support construction. Total construction is over halfway complete. As shown in Figure B, direct construction by Bechtel is approximately 45.7% complete and represents approximately 65% of the total construction scope. The remaining 35% of construction scope is non-Bechtel subcontracted scopes of work. Combined, Bechtel direct construction and the subcontracted scopes of work are 55.3% complete.

Table 3.2 – Total Project Percent Complete	
Project Phase	July 2018 % Complete
Engineering	98.1%
Procurement	89.1%
Construction	55.3%
I&C / Cyber Security	90.2%
ITP / Start-Up Testing	5.3%
Total Project	69.9%

Direct Construction Percent Complete – Total Project

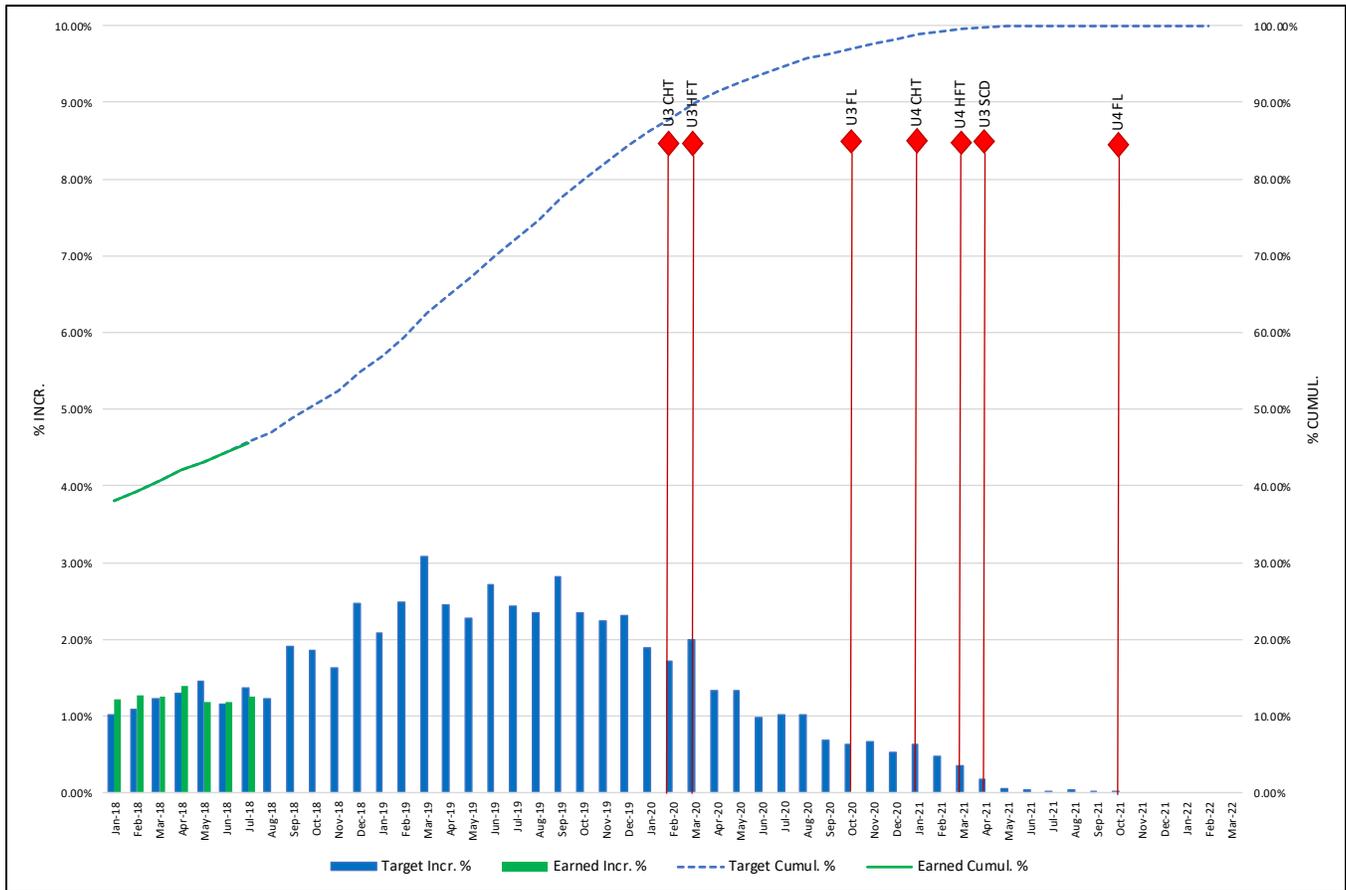


Figure B – Direct Construction Percent Complete – Total Project

Direct construction continues to work toward the accelerated schedule. The target in-service dates are November 2021 for Unit 3, and November 2022 for Unit 4. The forward-looking projections are subject to change, among other things, pending project performance, engineering changes, resequencing of activities, and potential lessons learned from the Chinese AP1000 projects. Direct construction work represents the Bechtel scope of work on the Project, which includes Units 3 and 4 power blocks and certain Balance of Plant areas. Direct construction does not include certain subcontracted scopes of work (e.g., Unit 3 and 4 cooling towers, River Water Intake Structure, and permanent buildings) or the indirect labor necessary to support construction (e.g., labor to construct temporary construction facilities, scaffolding, material handling, housekeeping, warehousing support, and training).

Construction Schedule Performance

The Schedule Performance Index (“SPI”) is a measure of how efficiently the Project is progressing compared to the Project schedule:

$$SPI = \frac{\text{hours planned}}{\text{hours earned}}$$

If the SPI is above 1.0, the Project is earning fewer hours than planned in the schedule during a given time. If SPI is less than 1.0, the Project is earning more hours than planned during a given time. The Project is currently running a cumulative direct construction SPI of approximately 1.0. However, as shown below, the Project has experienced challenges due to adverse weather in May and productivity in July.

The Project has implemented several mitigation strategies to address SPI trends through increased supervision and oversight. Craft labor incentives were instituted in an effort to attract and retain adequate staffing levels. Mitigation efforts also included the sitewide reset to clarify and reinforce standards and expectations for Project performance, site safety, and personal behaviors necessary to complete the Project efficiently and safely.

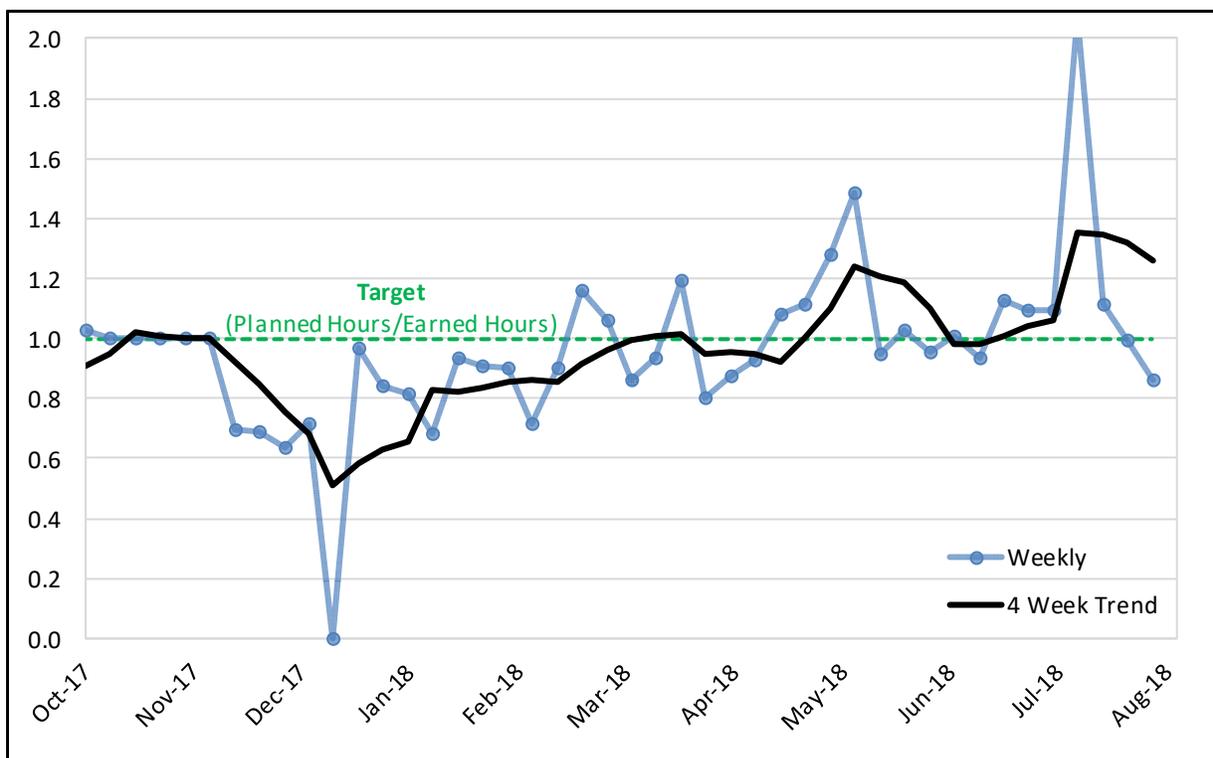


Figure C – Direct Construction Schedule Performance Index

Construction Cost Performance

The Cost Performance Index (“CPI”) is a measure of the cost efficiency of direct construction resources expressed as a ratio of earned value to actual cost:

$$CPI = \frac{\text{hours spent}}{\text{hours earned}}$$

If the CPI is above 1.0, the Project is spending more hours than planned to complete a task. If CPI is less than 1.0, the Project is spending fewer hours than planned to complete a task.

The Project is currently running a cumulative direct construction CPI that is approximately 20% above the plan. Bechtel continues to work with the Company and SNC to implement plans to improve Project performance. Project leadership continues to focus on improving cost performance but has accounted for current cost performance levels through a combination of base forecast and contingency assumptions.

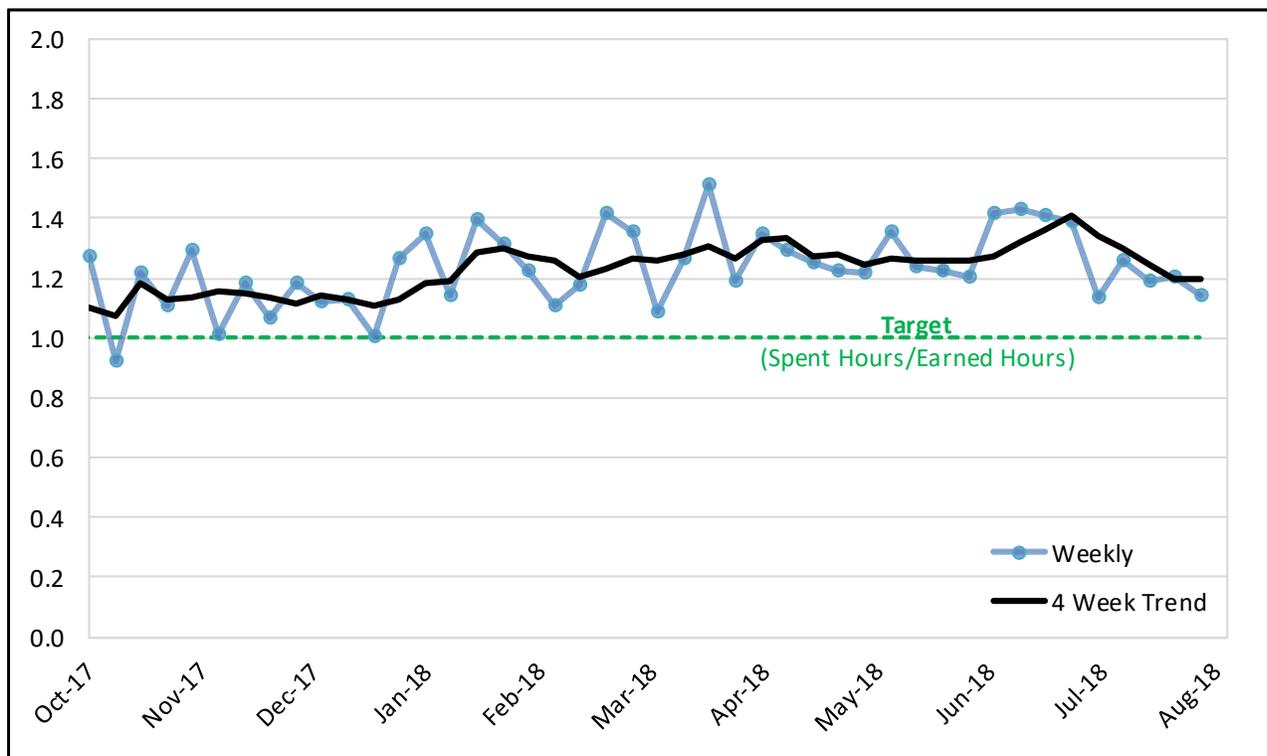


Figure D – Direct Construction Cost Performance Index

Critical Path – Unit 4

Bechtel and SNC have identified that the primary critical path for Unit 4 runs through Containment for the remainder of the project.

Inside Containment, installation of Accumulator Tank B will be followed by steel floor forms and concrete to elevation 107 feet 2 inches. As concrete placements at the 107 feet 2 inches elevation are completed, the assembly of the maintenance and operating decks will begin (SPL 18/51) and will be completed with a final concrete placement at elevation 135 feet 3 inches on the south side of Containment. Installation of Containment Vessel Ring 3 and Polar Crane will occur next and will be followed by the initial alignment of the RVI. The lower RVI will then be removed and the Integrated Flush of the RCS will be performed.

From there, the Critical Path takes a similar form to that of Unit 3. After the completion of the Integrated Flush, a series of preoperational tests will be required for equipment supporting PXS and RNS systems. RVI and the IHP will then be installed to support CHT and HFT, followed by the ILRT, fuel load, power ascension, and declaration of commercial operations. The projected in-service date for Unit 4 is currently scheduled ahead of the target in-service date of November 2022.

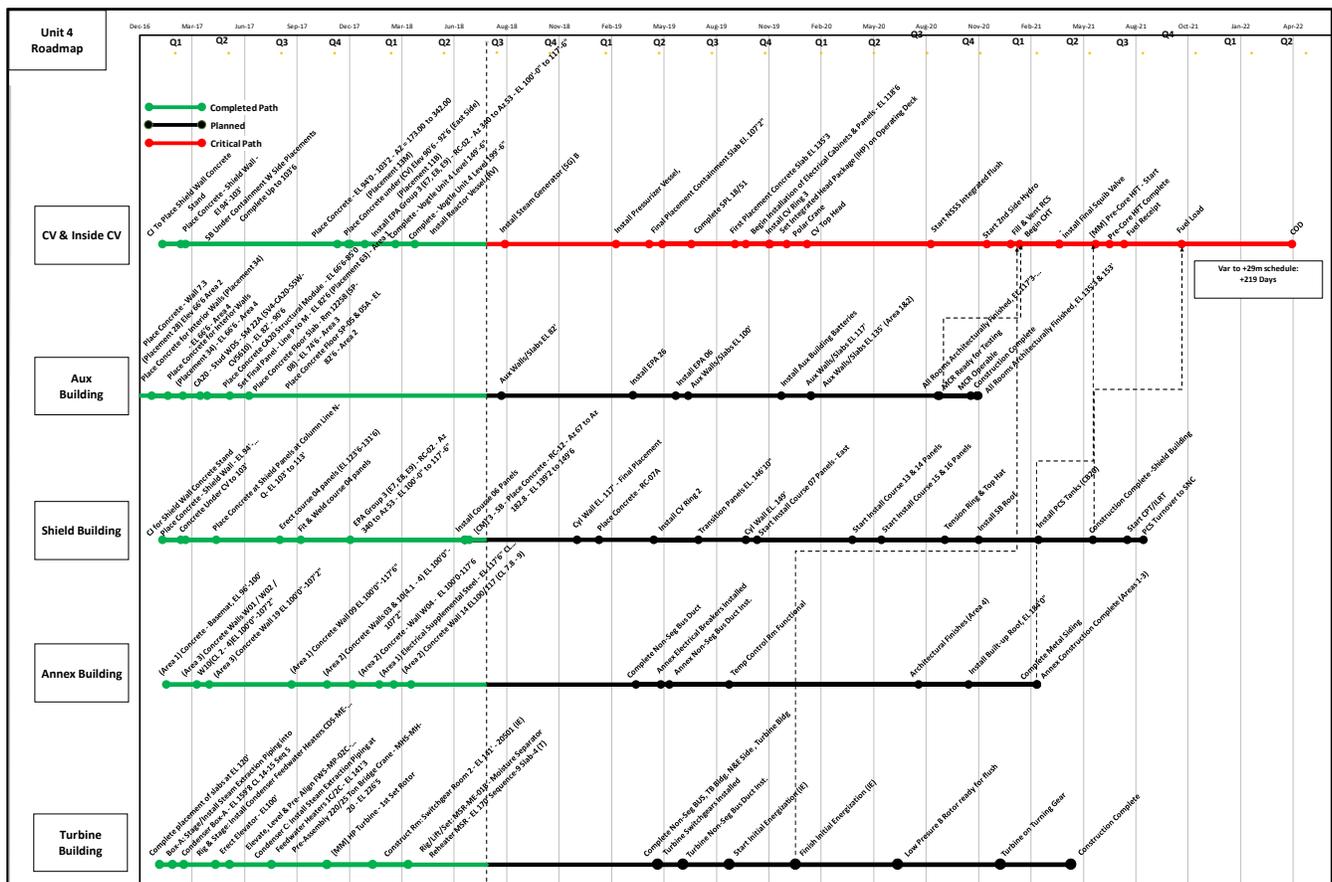


Figure F – Unit 4 Critical Path

2018 Milestones

The Project has selected the fifteen milestones listed below as goals for 2018. These goals include both Unit 3 and Unit 4 Construction, Engineering, Operational Readiness and Licensing activities that are critical to the Project. The Company will continue to update the status of these milestones during the VCM 19 proceedings.

Table 3.3 – 2018 Milestones		
Milestone	Target Date*	Actual
Set Unit 4 Reactor Vessel	March	March 28
Achieve 90 percent pass rate on NRC initial license exam	March	March 21
Integrated System Validation (“ISV”) retest complete	March	March 13
Operations accreditation renewal	April	April 19
Unit 3 Shield Building reinforced concrete placement RC-12	June	June 29
Set Unit 4 Steam Generator B	August	August 24
Delivery of Unit 3 CYS hardware and software	August	July 10
Establish Southern-controlled technology platform for site	August	July 5
Design complete for site-specific engineering and NI electrical raceway design optimization	September	
Set Unit 4 generator stator	November	June 4
Unit 3 direct construction percent complete > 62	December	
Unit 4 direct construction percent complete > 44	December	
Unit 3 Main Control Room roof complete CA51	December	
ITAAC – 34 ICNS and 297 UINs submitted**	December	
Complete Initial Test Program component test procedures	December	August 27

*Target completion dates align with the accelerated schedule of April 2021 and April 2022 for Units 3 and 4, respectively

** The Project adjusted the ITAAC milestone to align resources from the Site Operations organization in support of near-term construction activities. All ITAAC will be complete and submitted to the NRC in accordance with 10.CFR.52.

PROJECT RISK

With Company oversight, SNC actively manages risk on the Project, with current focus on schedule adherence, craft availability, construction productivity, subcontracts management, and Initial Test Program (“ITP”). These are areas that could have a significant impact on the Project if such risks are unmitigated.

Recent organizational changes resulted in an enhanced Project Controls organization, which has responsibility for the procedures, risk management, metrics, and reporting of cost and schedule on the Project. This enhanced organization played a critical role in the development of the capital budget reforecast and will manage adherence to the new capital forecast.

The Project Controls organization is also responsible for the execution of the Project risk management program. The risk management program is essential to proactive identification of risks, and where appropriate, implementation of mitigation strategies. By working with the SNC functional areas and contractors on the Project, the Company has established a robust risk program that captures and tracks the known risks to the Project. Georgia Power’s continued oversight of the risk program and its execution assures that risks are mitigated where possible to minimize impacts to customers.

Risk events are identified by consulting with Project subject matter experts, challenge sessions, observations from the Chinese AP1000 units, and cross-functional discussions with both Bechtel and Westinghouse. The Project risk register considers threats and opportunities that are continuously monitored until the event is realized or retired. The Project risk register is a living document that quantifies the potential impact of a risk event and includes mitigation plans designed to minimize the impact to the Project should the risk event be realized. The Project risk register is provided monthly as an update to data request STF-142-4 in the Company’s Monthly Status Report (“MSR”). Below is a discussion of Project risks and strategies that the Company is undertaking to mitigate their impacts:

- *The risk that even with sufficiently qualified resources available, construction is unable to meet the current schedule.*

This risk has been identified as a Project execution risk and it will continue throughout the life of the Project. Broadly stated, an execution risk is the risk that the Project is unable to execute with resources accounted for by the current projections, such as the inability to reach forecasted production targets.

Project management and the primary contractor regularly monitor and discuss this risk by utilizing production scorecards, the Integrated Project Schedule (“IPS”), and other resources at their disposal. In addition to monitoring progress, the Project has instituted efforts to clear roadblocks with potential to hamper productivity. These efforts include the establishment of organizations (e.g., eCRT, scoping teams, central planning group) to improve processes, increase work package backlogs, and implementation of programs to identify inefficiencies in advance of the work to avoid impacts to performance. Additionally, Bechtel and SNC continue to improve schedule

fidelity by breaking down level of effort activities into more discrete scopes as system turnovers approach.

- *The risk that additional subcontract scope is identified after the award of all subcontract scopes.*

As with any large and complex construction project, the identification and definition of subcontractor scope is vital to the successful completion of the Project. Recent efforts to refine subcontract scopes have been completed, but there still exists the potential for additional scope to be identified in the future. The cause of missed scope could result from unidentified constructability concerns, increases in commodity estimates, regulatory design changes, or rework of already completed work.

To reduce the impact of these types of risks, SNC has worked with Bechtel and subcontractors to facilitate independent estimates of quantities and scopes for each subcontract. Through the review of these estimates, the Company understands the scope of the work remaining to validate subcontractor estimates. Additionally, efforts continue to develop and monitor metrics for subcontractor performance.

- *The risk that construction is unable to maintain or improve performance.*

This risk has been identified as a Project execution risk that may be realized if CPI continues to increase or continues at its current rate throughout the life of the Project. It is important that the Project be able to increase the number of hours earned relative to the number of hours spent to reduce the impact of negative cost performance.

The Company is focused on initiatives to increase hours earned and reduce the hours spent. Several of the initiatives were mentioned previously as part of the description of construction schedule performance risk, such as putting in place programs to increase work package backlogs and process improvements to clear roadblocks. Effective implementation of these initiatives should improve schedule performance and increase earnings. In addition to these activities, the Company and Bechtel have commissioned productivity studies to focus on identified underperforming areas which will help enhance existing initiatives and mitigations to improve Project performance.

- *The risk that the Project is unable to attract and retain sufficiently skilled craft needed to complete the Project within the schedule.*

As production increases to achieve the current schedule, the Project will need to attract additional resources, particularly in the electrician and pipefitter disciplines. The inability to attract and retain the appropriately skilled craft is a risk that has been a topic of discussion among project management for some time and will continue to be watched for the foreseeable future.

To lessen the level of risk associated with craft availability, the Company has implemented several strategies to recruit additional craft to the Project and to retain the craft currently employed. Several career fairs were conducted in targeted areas of the southeastern United States to attract

necessary skilled craft resources to the Project. Through these career fairs, the Company has been able to identify additional craft personnel and is working through the hiring process. Additionally, the Company is working with national and international labor unions to identify resources that can be brought to the Project. Project leadership is currently engaging with the Department of Labor to secure H2B visas which would allow for international craft to support the Project on a temporary basis. Additionally, the Company, SNC, and Bechtel took further action to retain current craft resources and provide an incentive for craft personnel by implementing a per diem program. This program provides financial incentives intended to attract and retain craft and should reduce absenteeism on the Project.

- *The risk that the Project has underestimated the cost of materials and labor required for ITP / Start-up of the Project.*

As turnover of systems from construction to the testing organization begin, there is potential for underestimated scope of labor and materials to be realized. To mitigate this risk, the Project brought in senior leadership with project management and engineering expertise from the Watts Bar Nuclear Plant and AP1000 projects in China to enhance testing and start-up knowledge. The Company also sent several members of the ITP / Start-up organization to the Chinese AP1000 projects to observe and document testing and start-up challenges and lessons learned that can be used to reduce exposure during this phase of the Project.

SNC has implemented processes to improve productivity across the Project whereby material and labor requirements are identified weeks in advance of need dates. These activities are physically walked down in the field in advance of work commencing to identify material constraints and/or labor requirements. The early identification of material and labor concerns will allow for mitigating actions to be in place and reduce impacts to the Project. These efforts are benefitting current construction activities. Additionally, the ITP organization continues to refine scoping requirements for preoperational testing, which identifies the commodities and equipment necessary for system turnover and testing.

PROJECT CONTINGENCY

As discussed earlier, the contingency established in the VCM 17 ETC was fully exhausted as part of the VCM 19 forecast and a new contingency estimate of \$366 million was established. This contingency will be monitored and any changes will be reported moving forward. As of this filing, no amounts in the newly established contingency have been allocated to any specific capital costs. The Project risk register, discussed above, was used to inform the level of contingency established as part of the VCM 19 forecast.

CONSTRUCTION

Unit 3 Nuclear Island

Construction on the Unit 3 Nuclear Island continued with several major accomplishments during the Reporting Period. These include the placement of several pieces of major equipment such as the Pressurizer, Core Makeup Tank B, and the west side reactor coolant piping to the Steam Generator. Containment and the Shield Building made significant progress in elevation with the installation of the structural steel inside Containment, the final reinforced concrete placement for Shield Building East to elevation 149 feet and 6 inches, and the setting of all Course 7 panels. Additionally, Auxiliary Building walls and floors up to the 100 feet elevation were completed. This satisfies a licensing requirement and allows for further



Aerial view inside Unit 3 Containment

progress on the Shield Building. Work at the end of the Reporting Period included the setting of three floor modules at elevation 135 feet inside containment, making substantial progress towards completion of the operating deck. All electrical penetration assemblies (“EPAs”) have been installed, connecting the Nuclear Steam Supply System (“NSSS”) components to the Main Control room located inside the Auxiliary Building, where electrical work will commence once civil work is completed. These activities have, and will, provide valuable lessons learned that will offer efficiencies for the construction of Unit 4.

In the next Reporting Period, work inside Containment will include the preparation and installation of the Reactor Coolant Pumps, installation of the main steamwater feed pipes, and completion of the operating deck at elevation 135 feet after the installation of additional structural steel modules. Auxiliary Building work will include setting of the Main Control Room floor, the setting of Normal Residual Heat Removal System (“RNS”) Heat Exchanger B, and progress towards setting the roof in areas 1 and 2. Work on the Shield Building will include the completion of the Course 7 and Course 8 Shield Building panels and substantial progress on the completion of Course 9/10 panels, which will tie to the Auxiliary Building roof at elevation 179 feet.

The following activities have occurred since the last VCM report:

- Set the Pressurizer inside Containment
- Placed concrete in Shield Building East to elevation 149 feet and 6 inches
- Set and placed concrete for the main steam and feedwater penetrations at elevation 117 feet 6 inches in area 1 of the Auxiliary Building
- Placed concrete in CA01 and CA02 walls
- Set KB37, Liquid Radwaste System (“WLS”) Monitor Pump A Module
- Set both Core Makeup Tanks inside Containment
- Set Course 7 Shield Building panels
- Placed concrete for Reactor Vessel wall at elevation 109 feet inside Containment
- Set RNS Heat Exchanger A
- Set Chemical Volume Control System (“CVS”) Makeup Pumps
- Set Passive Residual Heat Removal Heat Exchanger (“PRHR”)
- Set Q305, Containment Isolation Valve module
- Set MY07, Passive Core Cooling System (“PXS”) pH Adjustment Baskets
- Set the Lower Personnel Hatch
- Set floor modules CA55, CA56, and CA57 inside Containment
- Concrete floor placements inside the Auxiliary Building
- Concrete wall placements inside the Auxiliary Building

Unit 3 Turbine Island

During the Reporting Period, the Construction organization turned over the Unit 3 220-/25-ton cranes to the ITP Organization. Civil work for Unit 3 included the placement of both main steam and feedwater penetration rebar assemblies and concrete in the First Bay walls 1-5 to elevation 154 feet. Due to civil construction being largely complete, the majority of Turbine Island activities involved equipment and commodity installation to tie these systems together. Installation of various Unit 3 system components continued for the Demineralized Water Treatment, Compressed and Instrument Air, Heater Drain, and Condensate Polishing Systems, all of which support the movement of water and steam through the Plant.



Low pressure turbine casings inside the Unit 3 Turbine Building

The installation of Unit 3 large bore pipe and support commodities continues throughout the turbine building on Main Steam, Condensate, Main and Startup Feedwater, and Heater Drain systems. In addition, the lower outer casings for all three Unit 3 low-pressure and high-pressure turbines were installed.

During the next Reporting Period, the First Bay walls 1-5 in the Unit 3 Turbine Building will reach 168 feet 3 inches. Also, concrete will be poured in the First Bay slab at elevation 148 feet and 10 inches.

Unit 3 Annex Building

During the Reporting Period, significant progress was made toward multiple partial system turnovers in the Unit 3 Annex Building. Cable tray and conduit installation was completed for the Unit 3 EDS-1 (Non-Class 1E DC and UPS System, batteries and major distribution equipment) system turnover, which occurred in August 2018, and was the first major partial system to be turned over to ITP. This partial system turnover was accelerated in the schedule to use as a pilot. Lessons learned from this pilot turnover will be used in future turnovers. Following the EDS-1 turnover, the turnovers of EDS-2 (Non-Class 1E DC and UPS System, Annex and Turbine building distribution panels) and ECS-1 (Main AC Power System, Annex and Turbine building medium and low voltage distribution equipment) partial systems will occur as the Project prepares for initial energization.



EDS Batteries inside the Unit 3 Annex Building

Civil and structural work continues in Area 2 of the Unit 3 Annex Building to reach the roof elevation, while structural steel is being installed in Area 3 to support completion of elevation 135 feet.

During the next Reporting Period, Unit 3 will see several additional partial system turnovers and continued installation of cable trays, cable pulls, and terminations. Leadership will continue to focus on the system turnover waterfall and lessons learned will positively benefit the remaining Unit 3 and Unit 4 system turnovers.

The following activities have occurred since the last VCM Report:

- Concrete wall placements 16/19 to elevation 131 feet
- Concrete slab placement in Area 4N at elevation 100 feet
- Concrete roof slab placement in Area 4E at elevation 121 feet 6 inches

- Concrete slab placement in Room 40400 at elevation 117 feet 6 inches
- Concrete wall placement 10.2 in Area 2 to elevation 158 feet
- Set breaker load centers ECS-EK-11, 12, 13, 14, 21, 22, 23, and 24
- Installed AC and DC distribution panels at elevation 117 feet 6 inches

Unit 4 Nuclear Island

Major accomplishments in the construction of the Unit 4 Nuclear Island during the Reporting Period include the setting of the Reactor Vessel inside Containment, pump module KB26 in the Auxiliary Building, and Shield Building concrete placements RC02, RC11A, and RC04A. Additionally, several concrete pours occurred throughout the Nuclear Island, which will support the progression of large commodity installation. In the coming Reporting Period, progress on the Containment Building will include building the west side elevation to 103 feet and the setting of the Steam Generators. Shield Building work will include the weld out of the Course 6 panels and the placement of RC-03A and B. In the Auxiliary Building, module KB38 will be set in addition to wall placements 89, 90, and 93.



Steam Generator B being set inside Unit 4 Containment

The following activities have occurred since the last VCM Report:

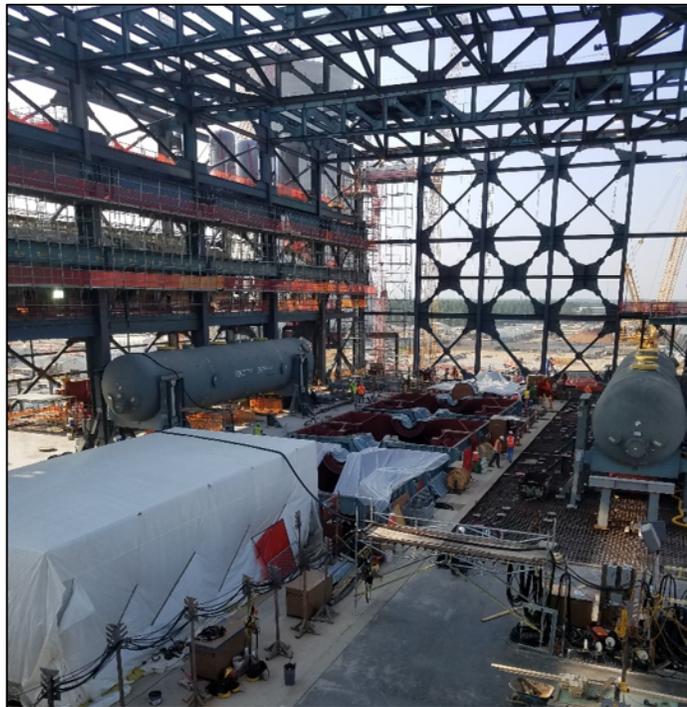
- Set CB34, PXS B Valve Room North Wall Panel
- Set CB46, PXS A Valve Room East Wall Panel
- Set CB47, PXS A Valve Room South Wall Panel
- Set KU21 floor modules
- Set lower and upper equipment hatches
- Placed concrete SP09A at elevation 82 feet 6 inches

- Concrete placement for CA20 walls to elevation 128 feet
- Set spent fuel pool heat exchanger at elevation 82 feet 6 inches
- Set Q240, Normal RNS Piping Module
- Set Q233, Direct Vessel Injections (“DVI”) A Valve Module
- Concrete placement in CA01 walls
- Installed R219 commodity piping module at elevation 82 feet 6 inches in the Auxiliary Building
- Concrete placement in Course 05 of Shield Building
- Set all Course 06 Shield Building panels
- Concrete floor placements SP-11/-13/-16/-17/-18 in the Auxiliary Building
- Concrete wall placements 72/73/75/76/77/82/88 in the Auxiliary Building
- Set Steam Generator B

Unit 4 Turbine Island

The Turbine Tabletop for Unit 4 was completed this Reporting Period. This allows for progress to continue on the Turbine Assembly and the placement of other components, such as the Generator Stator, which was also set during the Reporting Period. All three lower outer casings for the Unit 4 low pressure turbines were installed. Unit 4 equipment installation also included both Moisture Separator Reheaters.

Unit 4 structural work will continue as the roof is placed on the building. Work in the Unit 4 Turbine Building will also include placement of the 170 feet floor slabs and the setting of the 15-ton and 220-/25-ton bridge cranes, which will be turned over from Construction to ITP after site acceptance testing.



Turbine deck inside the Unit 4 Turbine Building

Unit 4 Annex Building

Work on the Unit 4 Annex Building during the Reporting Period consisted of civil and structural work, with structural steel completed in Area 1. Construction on the Unit 4 Annex building has greatly benefitted from lessons learned on Unit 3 with construction sequences for the setting of walls and floors and efficiencies in system and equipment turnovers.

- Concrete wall placements 10/14/20/21 to elevation 117 feet
- Concrete slab placement in room 40357 at elevation 107 feet 2 inches

- Concrete wall placements 20/22/23/24/25C to elevation 107 feet 2 inches
- Concrete placement for Area 2 corridor slab landing at elevation 107 feet
- Concrete slab placement in Area 1 at elevation 117 feet 6 inches

Balance of Plant

During the Reporting Period, work to tie the Circulating Water System (“CWS”) to the Unit 3 Cooling Tower continued. This same activity for Unit 4 is in early preparations and will continue into the next Reporting Period. Progress was made on the Service Water System (“SWS”) Cooling Towers, with the completion of the north and south walls for phase 3 of Cooling Tower construction. SWS Cooling Tower work will continue with excavation on the west side of the Unit 3 Turbine building. As of the end of the Reporting Period, all Unit 4 transformers have been set. At the River Water Intake Structure, the deck 1 concrete placement was completed, in addition to the retaining walls on either side of the structure. Work in the next Reporting Period will commence to tie the Intake Structure to the piping at the top of the bluff. Foundation work for the Unit 3 and Unit 4 diesel generator buildings will also begin.



Cooling Tower Pumps

Initial Test Program

During the Reporting Period, the ITP organization transitioned under Construction to facilitate a more seamless turnover from construction to testing activities. This is expected to improve efficiency by integrating component tests, flushing, and preoperational testing activities. The ITP organization completed all component test procedures in 2018 ahead of schedule.

With the first AP1000 units in China making substantial progress towards commercial operation, the Vogtle 3 and 4 ITP and Operations organizations had multiple rotations of personnel in China to observe the startup and commissioning processes, and document lessons learned to benefit the Project during testing and startup.

Digital Instrumentation & Controls (“I&C”)

During the Reporting Period, the Digital I&C organization continued to support the Cyber Security organization in Cyber Security Monitoring testing and acceptance. This organization worked with

the Site Operations organization to successfully complete the Integrated System Validation (“ISV”) retest, a critical requirement for the completion of the Plant Reference Simulator. The Digital I&C organization continues to support Site Operations Maintenance as they perform routine preventive maintenance on the Plant Control System (“PLS”) cabinets, and Protection and Safety Monitoring System (“PMS”) cabinets. The organization also submitted four Human Factor Engineering ITAAC Closure Notices (“ICNs”), and successfully assumed responsibility for the Programmable Logic Control (“PLC”) packaging system from Westinghouse and ensured these PLCs are programmed to their design function.

Cyber Security

The Cyber Security organization continued to maintain a constructive relationship with the NRC to support the successful implementation of the Cyber Security Program. The proposed framework for Cyber Security Program implementation has been provided to the NRC and constructive feedback was provided to SNC. The NRC continues to engage in its review of the Cyber Security Program, including procedural reviews, warehouse preventative maintenance observations, and Cyber Security Program assessments to assure successful program implementation prior to fuel receipt.

During the Reporting Period, the organization continued to support construction in the maintenance and control of cabinet integrity. The organization additionally achieved a 2018 milestone with the receipt of a portion of the Cyber Security monitoring system (“CYS”) to support initial energization in 2019. The department is on track for program development and has developed a plan to complete cyber security assessments with completion anticipated in fourth quarter of 2019.

Licensing

Site and Corporate Licensing provide continuous support to construction, operations, and engineering to ensure the Project’s compliance with regulatory requirements. During the Reporting Period, efforts were focused on NRC approval of a License Amendment Request (“LAR”) that would allow changes to Tier 2* material in the licensing documents without prior NRC approval provided the Tier 2* material passes new proposed criteria to be included as a license condition. It is anticipated that this LAR will be approved during the next Reporting Period, and if approved, would reduce potential schedule impacts from Tier 2* design changes.

During the Reporting Period, the following significant amendments were received: 1) an amendment to the Pipe Rupture Hazard and Flooding Analyses which supported the 2018 ITAAC milestone and 2) an amendment to the Control Room Emergency Habitability System Technical Specifications.

Additionally, a joint effort between the ITP and Operations organizations is underway to remove certain First Plant Only/First Three Plants Only tests from the Vogtle Units 3 and 4 scopes, based on the successful outcome of tests conducted at the AP1000 nuclear plants being constructed in

China. The first LAR containing four First of A Kind Tests (“FOAK”) was submitted to the NRC on August 3, 2018. Once reviewed and approved by the NRC, this will reduce critical path impact during testing.

ITAAC

The ITAAC organization remains on track to meet the ITAAC milestone for the year with the submittal of 34 ICNs. Currently the department has submitted 20 ICN submissions, and 143 Uncompleted ITAAC Notifications (“UINs”). UINs are required for all outstanding ITAAC at least 225 days prior to fuel load. SNC has committed to the NRC to submit all outstanding UINs 315 days before fuel load.

Operations and Maintenance

As the Project progresses toward start-up operations, several key milestones were achieved during the Reporting Period. In March 2018, the Site Operations organization completed the ISV retest to drive the completion of the Plant Reference Simulator. The Operations organization also received unanimous approval for renewal of the operational training program from INPO in April 2018. The third class of Initial Licensing Training (“ILT-3”) completed the NRC exam in March 2018 and all 20 licensed operator candidates have successfully passed.

In preparation for the transition to operations, the Operations organization continues to work with Westinghouse to review, approve, and localize Emergency, Abnormal, System, General Operating, and Alarm Response procedures. The organization has established a turnover and acceptance process to systematically take over plant ownership, which is managed by the Project’s Operations, Maintenance and Engineering organizations as an integrated turnover acceptance team. SNC operators continue to perform monitoring activities across the construction site while the Maintenance organization is engaged in the preservation of installed equipment not yet turned over for testing. Utilizing the maintenance group to preserve equipment minimizes equipment failure prior to operation.

The Operations organization continues to focus on obtaining the required number of licensed operators to support Unit 3 and Unit 4 fuel load. As of the end of the Reporting Period, 52 Senior Reactor Operators (“SROs”) and 17 Reactor Operators (“ROs”) have passed the NRC exam in total. The fourth Initial Licensing Test class including 8 SROs and 14 ROs began in June 2018 and is expected to be completed in early 2020. The Project now has enough licensed operators to support Unit 3 fuel load.

Integration of the Four Unit Site

During the Reporting Period, site excavation work began in the area between Vogtle Unit 2 and Unit 3, which is necessary for the integration of the four-unit site. Significant work was accomplished on the shared Communications Support Center (“CSC”), which is scheduled for completion during the next Reporting Period. Completion of the CSC will include turnover of the Technical Support Center (“TSC”) and Central Alarm Station (“CAS”) building.



Plant Vogtle Units 1-4

4. An updated comparison of the economics of the certified project to other capacity options.

The economic analysis performed for this VCM 19 Report has relied on the same core methodologies used in all previous economic evaluations conducted in Docket Nos. 27800 and 29849. The economic evaluation presented in this VCM 19 Report is based on the same underlying planning assumptions used in the VCM 18 Report, including fuel forecasts, load forecasts, and new generation technology costs. The analysis presented is based on an Incremental Cost to Complete (marginal) analysis. Sunk costs, including any tax implications of these sunk costs, are excluded from consideration.

The analysis provided incorporates the target in-service dates of November 2021 for Unit 3 and November 2022 for Unit 4. The economic analysis reflects recovery of \$7.3 billion, which is currently the forecast approved by the Commission. Pre-in-service O&M, post-in-service O&M, post-in-service ongoing capital, Ad Valorem taxes, marginal cost of capital, and nuclear fuel have been updated and are consistent with the revised cost forecast. Return on equity assumptions during construction are consistent with the January 3, 2017 Order Adopting Stipulation as adjusted by the VCM 17 Order issued on January 11, 2018. Decommissioning costs, spare parts inventories, and the assumed operating characteristics of the Project have not changed.

The results presented in Table 4.1 reflect receipt of 100% of PTCs. Regarding the DOE Loan Guarantees, the results presented incorporate the marginal impacts of the original \$3.46 billion loan guarantee as well as the conditional commitment of approximately \$1.67 billion discussed earlier. Final approval and issuance of the additional loan guarantees by the DOE cannot be assured and are subject to the negotiation of definitive agreements, completion of due diligence by the DOE, receipt of any necessary regulatory approvals, and satisfaction of other conditions.

Since the Toshiba Parent Guaranty payment has been received in full, its impact is not accounted for in this forward-looking analysis. The analysis does include potential cancellation fees and any fully-committed construction costs that would not be avoidable in the event the Project is cancelled. The portion of cancellation costs pertaining to accelerated repayment of the DOE loans has been updated with current treasury information, while the other fees and costs were included as valued in VCM 17.

Table 4.1:

**Relative Savings of the Project versus CC as of February 1, 2019
November 2021 / November 2022 In-service
“Incremental Cost to Complete”**

(In 2021 Dollars)

(Net present value of lifetime costs of CC minus the Project)

Fuel \ CO ₂	\$0 CO ₂	\$10 CO ₂	\$20 CO ₂
High	\$4,282,000,000	\$4,844,000,000	\$5,813,000,000
Moderate	\$1,081,000,000	\$1,856,000,000	\$2,918,000,000
Low	(\$1,250,000,000)	(\$374,000,000)	\$484,000,000

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

The weighted average expected value of the relative savings for completion of the Project as compared to the gas-fired CC alternative is \$2.2 billion based on the results provided in Table 4.1.

Economic Analysis Conclusion / Summary of Results

In summary, analysis utilizing the Company’s current schedule and cost forecast indicates that completing the Project is the best cost option for our customers.

- 5. 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.

Vogtle 3&4 - Construction, June 24, 2018

