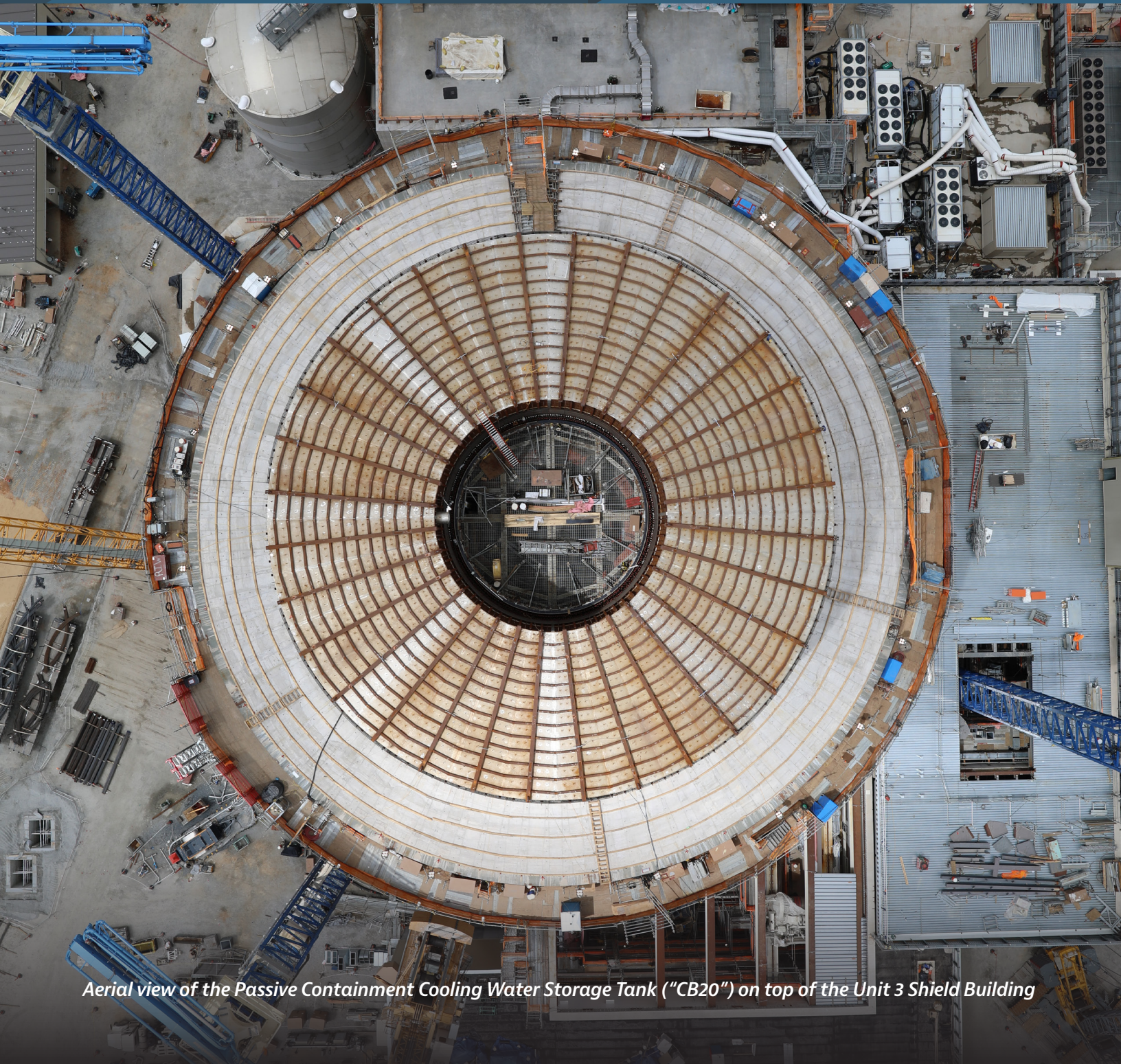


## Twenty-third Semi-annual Vogtle Construction Monitoring Report

August 2020 • Docket No. 29849



Aerial view of the Passive Containment Cooling Water Storage Tank ("CB20") on top of the Unit 3 Shield Building



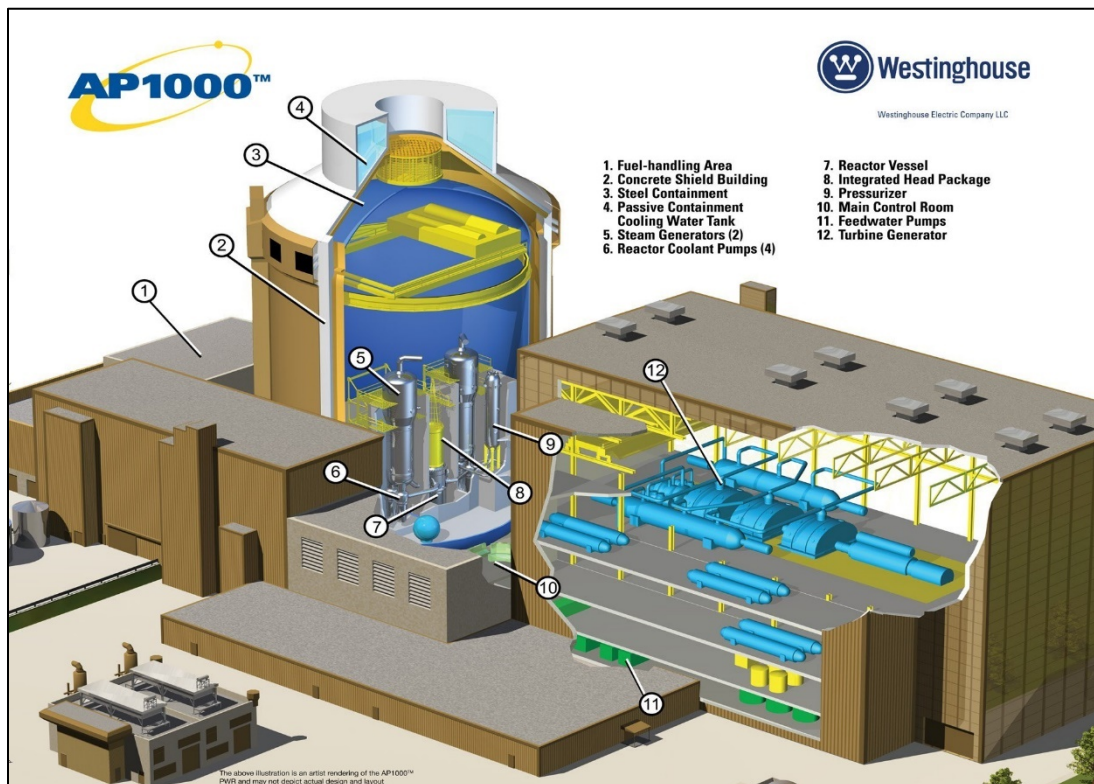
**Vogle Units 3 and 4  
Twenty-third Semi-annual  
Construction Monitoring Report**

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## Unit 3 Nuclear and Turbine Islands

*As of June 2020*



## EXECUTIVE SUMMARY

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

Site leadership continues to cultivate and enhance a culture that promotes safety first. After more than 34 million man-hours since its most recent lost-time incident in November 2018, the Project experienced a lost-time incident in April 2020. This event reset the clock on lost-time incidents. Since April 2020, approximately 8 million hours have been performed safely. Site leadership continues to emphasize the importance of safety on the Project to prevent future incidents.

During the reporting period of January 1, 2020 through June 30, 2020 (the “Reporting Period”), 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 ensure 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 guaranteeing construction quality, providing for predictable responses to performance issues, and clearly communicating performance assessment results to the public.

- **COVID-19 Update**

The Project continues to navigate the effects of the COVID-19 pandemic on the Project’s workforce, schedule, and cost. Protecting the health and safety of the Vogtle 3 and 4 team, as well as the surrounding community, continues to be the highest priority for the Project. As mentioned in previous filings and testimony, the Project team has taken numerous proactive measures in response to COVID-19. These actions include the expansion of on-site medical facilities that are equipped to administer COVID-19 testing, deep cleaning of workspaces, reducing the number of workers in given areas, and utilizing facial coverings when social distancing is not possible. The Project team will continue to monitor these actions and adjust as necessary to reduce the impacts of the pandemic on the Project.

Following the initial onset of the COVID-19 pandemic at the Project site, the number of confirmed positive tests spiked in late April before declining in a manner similar to that witnessed in the public at large. Following several weeks of zero confirmed cases on site, the number of confirmed positive tests began climbing again and followed a similar trajectory to the local area. As of the date of this filing, over 800 workers on site have tested positive, with over 700 eligible to return to work, since the beginning of the pandemic. In recent weeks, the site has followed the general trend in the region with a decline in the number of active cases.

Similar to the pandemic responses around the globe, the Project team’s response plans have evolved as more information has become available. The Project’s reduction in workforce during April 2020 helped to slow the spread of the pandemic on-site, but also contributed in part to the increased costs, productivity challenges and milestone schedule delays on the

Project. Throughout the Reporting Period, the impacts of COVID-19 on Project performance included high absenteeism for both craft and non-manual personnel, an inability to retain key specialty craft and non-manual personnel, disruptions in supply chain as a result of COVID-19 measures undertaken by suppliers, and degradation of subcontractor performance.

These impacts were the result of circumstances outside of the Project team's direct control. Significant uncertainty remains surrounding COVID-19 globally, and the Project is no exception. The Company, SNC, and Bechtel continue to monitor and address these and other risks as the pandemic evolves.

- **Georgia Power is requesting verification and approval of \$701 million of capital expenditures incurred during the Reporting Period.**

<b>Table 1 – 23<sup>rd</sup> VCM Expenditures</b>		
<i>Dollars in Millions</i>		
Interim Payments & Liens	\$	(6)
Site Construction Management		650
Owner's Costs		39
Ad Valorem Tax		18
Transmission Interconnection		0
Total 23 <sup>rd</sup> VCM Expenditures	\$	<u>701</u>

- **The Company's share of the total Project cost is projected at \$8.5 billion.**

The Company and SNC continue to monitor and evaluate costs associated with the completion of the Project. The Company's projected share of the total Project cost has increased to \$8.5 billion following the recently announced contingency allocations and replenishment of contingency. The Company is not seeking approval of costs above the Commission-approved \$7.3 billion estimate in this filing.

With the allocation of contingency for the second quarter of 2020, Georgia Power's \$366 million share of Project contingency established in 2018 was exceeded by approximately \$34 million. Drivers for the most recent allocation of contingency are similar to those over the past year, with many of those drivers being amplified by the impact of the COVID-19 pandemic on the Project's aggressive site work plan. Through June 30, 2020, contingency allocations had been made to address higher forecasted costs for construction productivity, including the April 2020 reduction in workforce; craft labor incentives; additional resources for supervision, field support, project management, initial test program, start-up, operations and engineering support; subcontracts; and procurement.

Southern Nuclear subsequently recommended additional construction contingency, of which Georgia Power's share is approximately \$114 million, for further potential risks, including: construction productivity and potential impacts of the COVID-19 pandemic; additional resources for supervision, field support, project management, initial test program, start-up, operations and engineering support; subcontracts; and procurement.

The Company continues to anticipate that all the forecasted contingency, including the additional construction contingency, will be spent by the completion of the Project. The Company is not requesting Commission approval of these costs in this filing but may request that the Commission evaluate expenditures allocated to contingency for future rate recovery as and when appropriate.

Capital expenditures through the Reporting Period are \$6.6 billion after accounting for receipt of the Toshiba Parent Guaranty. The estimated remaining capital spend to complete the Project is approximately \$1.9 billion, which includes Georgia Power's share of Project contingency.

- **The target in-service dates remain November 2021 for Unit 3 and November 2022 for Unit 4.**

The target in-service dates of November 2021 and November 2022, for Units 3 and 4, respectively, remain unchanged from the dates approved by the Commission in the 17<sup>th</sup> VCM proceedings. The Project team continues to review its cost and schedule forecasts to incorporate current information, particularly in the areas of commodity installation, system turnovers, testing progress, and attraction and retention of craft labor.

Due to impacts from the COVID-19 pandemic and other factors, the Project team performed a schedule update in July 2020 ("July 2020 Schedule Update"). This update resulted in no changes to the regulatory-approved in-service dates, which are November 2021 for Unit 3 and November 2022 for Unit 4.

As part of the July 2020 Schedule Update, the Project team revised the November benchmark schedule that tracks to the regulatory-approved in-service date for Unit 3. The Unit 3 November benchmark schedule update accounted for the construction and testing progress on site since the November benchmark schedule was set in February 2020. The November benchmark schedule forecasts production levels and adjusts milestones based on construction and testing assumptions to align with the regulatory commitments for Unit 3. Analysis of the production levels required for overall construction and key commodities as well as current construction progress provides reasonable assurance that the Project should meet the regulatory-approved in-service date for Unit 3.

The Project team has also developed a preliminary view of the Unit 4 November benchmark schedule that tracks to the regulatory-approved in-service date of November 2022. The preliminary Unit 4 November benchmark schedule utilized a similar approach to the November benchmark schedule developed for Unit 3, but work remains before the Unit 4 November benchmark schedule can be finalized.

- **The July 2020 Schedule Update supports planned completion by the regulatory-approved in-service dates.**

The July 2020 Schedule Update revised the aggressive site work plan, accounting for recent performance and anticipated future production due to a number of factors, among them impacts from the COVID-19 pandemic. The schedule refinement effort resulted in shifts to milestone dates as well as the addition of approximately 875,000 hours to the to-go scope. In the updated site work plan for Unit 3, Cold Hydro Testing (“CHT”) is planned to occur in September 2020, with Hot Functional Testing (“HFT”) planned to occur during the fourth quarter of 2020. The resulting Unit 3 Fuel Load date is still planned to occur before the end of this year, with the targeted Commercial Operation Date holding to May 2021 under the aggressive site work plan.

Following the schedule update, the site work plan is even more aggressive than past iterations given the productivity challenges experienced by the site during the Reporting Period, particularly with respect to electrical and subcontract work. Unit 3 direct construction is approximately 91% complete and the aggressive site work plan is premised on 1.7% completion per month. The average monthly percentage completion since the onset of the COVID-19 pandemic is approximately 1.5% per month, which remains above the 1% per month estimated to be necessary to meet the regulatory-approved in-service dates according to the Unit 3 November benchmark schedule.

Unit 4 direct construction is approximately 68% complete. The aggressive site work plan projects 1.7% completion per month through the end of 2020, while the preliminary Unit 4 November benchmark schedule assumes 1.2% per month during the same period to support the regulatory-approved in-service date. Since the beginning of 2020, Unit 4 has averaged approximately 1.3% completion per month, although it has averaged 1.1% since the onset of the COVID-19 pandemic.

The Company and SNC recognize that the Project may continue to experience challenges and that unanticipated events, or failure to meet the current plan, may require further revision to the site work plan, capital cost forecast, and/or Project schedule.

- **The Project continues to reach significant milestones.**

During the Reporting Period, the Project continued to reach milestones on Unit 3 with the setting of CB20 (the passive water cooling tank) on top of the Shield Building, completion of the turbine assembly, and successful completion of the Structural Integrity Test (“SIT”) and the Integrated Leak Rate Test (“ILRT”). For Unit 4, the Reporting Period included setting the top on the Containment Vessel, completion of all remaining Shield Building courses, and progressing with the placement of the air inlet panels on the Shield Building.

An additional historic milestone for the project was achieved when the NRC issued the first 62 Reactor and Senior Reactor Operators licenses. This milestone was the culmination of a multi-year process that ensures there will be enough licensed operators to safely and efficiently operate Units 3 and 4.



- **The Project continues system turnovers from Construction to Testing.**

Through the end of July 2020, thirty-five systems or partial systems had been turned over from Construction to Testing for Unit 3, and four systems or partial systems had been turned over for Unit 4. These system turnovers at both units are necessary to support future testing milestones, but with a particular focus on Unit 3 for upcoming CHT, HFT, and Fuel Load.

The Project team will continue to utilize its strategy of the Partial Release to Test (“PRT”) program. The team believes that this strategy has provided valuable lessons learned and the opportunity to identify issues more quickly than they otherwise would with a full system test. While the number of system turnovers does lag the aggressive site work plan, it is important to note that approximately 70 systems are more than 80% complete.

- **The Project team is working diligently to mitigate risks and pressures on performance.**

The Project has continued to face significant challenges to performance, particularly in the areas of electrical commodity installation and for subcontracted scopes of work. During the Reporting Period, actual earnings in electrical hours continued to be challenged compared to the planned earnings in the aggressive site work plan and contributed to lower than planned system turnovers. The Project team has worked closely with Bechtel and other subcontractors to remove barriers to production, where possible, to support their efforts to increase production. Additionally, the Project team continues to monitor the impacts of the COVID-19 pandemic and is working diligently to mitigate potential risks to the health and safety of workers on site and in the community, as well as to achieve critical progress necessary to meet the Project’s regulatory commitments. Through its recent contingency allocation, the Project team has budgeted for these pressures and reduced potential future cost risks to the Project.

Project success is dependent on continued coordination between the Construction and Testing organizations. Success will specifically depend on Construction’s ability to meet its projected production curves, particularly in bulk electrical commodity installation, as well as improving subcontractor access to work fronts, increasing the rate of work package closures, and detailed planning and coordination of scope following the start of HFT.

As stated previously, the Project team will continue to utilize the PRT process to conduct tests on installed components and portions of systems prior to the complete system turnover as a risk mitigation tool. The PRT process has allowed the Project testing teams to get ahead of component and system issues and reduce the risk of a significant equipment or test failure due to damage or defect earlier than it may have been discovered without the use of PRT.

- **Completing Vogtle Units 3 and 4 remains in the best interests of Georgia Power customers.**

Nuclear generation is vital to Georgia Power’s diverse energy mix and provides an important hedge against the impact of potential carbon costs and fossil fuel cost volatility that could impact the Company’s ability to deliver reliable, resilient, and economic power to customers in the decades ahead. Vogtle Units 3 and 4 will serve as an economic baseload resource to meet the electricity needs of our customers, in addition to the value that nuclear energy



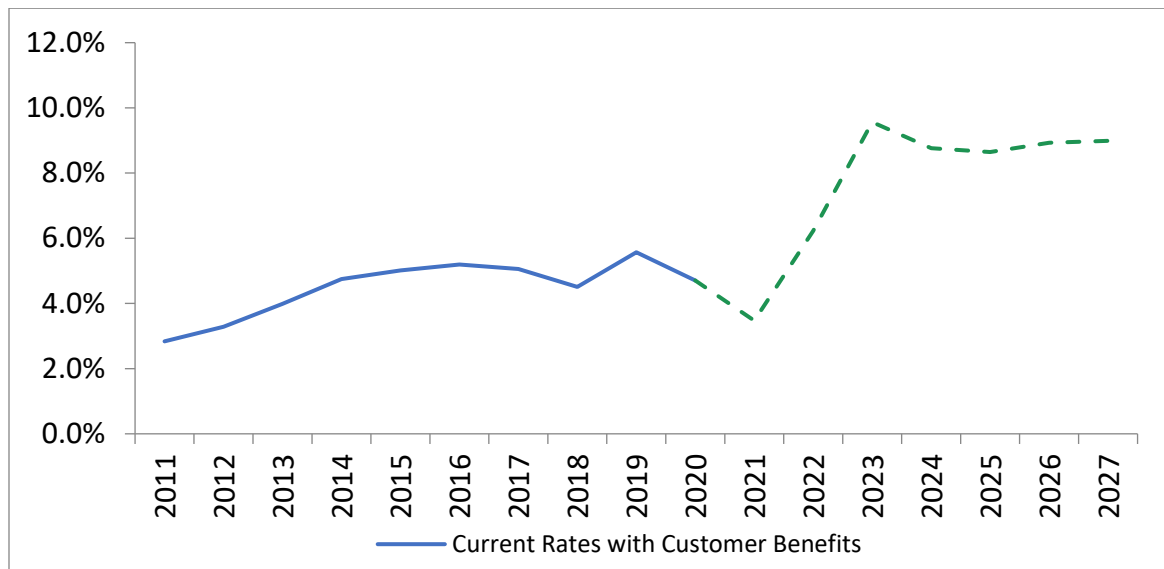
provides to Georgia’s future considering potential environmental regulations. Economic analysis shows that completion of the Project provides approximately \$3.9 billion in relative savings for customers over a gas-fired combined cycle alternative.

Upon completion, Vogtle Units 3 and 4 will be an asset to Georgia Power, its customers, the state, and the nation for 60 or more years. The Project remains the most important infrastructure project currently underway in Georgia, providing over 7,000 construction jobs and approximately 800 permanent careers once complete. The new units will support Georgia’s economic growth and provide economic benefits to current electric customers, as well as those looking to expand or relocate to the state.

- **Vogtle Units 3 and 4 peak rate impact for customers is expected to be approximately ten percent.**

For the 23<sup>rd</sup> VCM, the projected peak rate impact to retail customers is approximately ten percent, with approximately 4.7% already in rates. Consistent with previous VCM reports, the rate impacts include customer benefits that the Company proactively pursued – including federal production tax credits (“PTCs”) and interest savings from the Department of Energy (“DOE”) loan guarantees. The projections also include the fuel savings associated with adding additional nuclear units to the generation mix.

In addition, as a result of the Public Service Commission’s Order on the 17<sup>th</sup> VCM, penalties against the Company for schedule delays are providing customers with positive benefits in the form of decreasing financing costs while the Project remains under construction.



*Figure A – Projected Cumulative Rate Impacts*

## RESPONSES TO STIPULATED QUESTIONS

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

Since the 22<sup>nd</sup> VCM Report, the Project cost forecast has increased to \$8.5 billion. The details of the new Project cost forecast are provided in Table 1.1, which 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 pursuant to the NCCR tariff and amounts accrued and forecasted to be accrued through AFUDC.

The second quarter contingency allocation exceeded the remaining balance from the \$366 million Georgia Power contingency established in 2018 by approximately \$34 million. Approximately \$140 million of the \$366 million contingency had been allocated to anticipated future costs on the Project as of year-end 2019, as reported in the 22<sup>nd</sup> VCM. Drivers for the most recent contingency allocation are similar to historic drivers over the past year and include the impact of the COVID-19 pandemic to the Project's aggressive site work plan. Through June 30, 2020, contingency allocations were made to cover higher forecasted costs for construction productivity; craft labor incentives; additional resources for supervision, field support, project management, initial test program, start-up, operations and engineering support; subcontracts; and procurement.

Southern Nuclear subsequently recommended additional construction contingency, of which Georgia Power's share is approximately \$114 million, for further potential risks, including: construction productivity and potential impacts of the COVID-19 pandemic; additional resources for supervision, field support, project management, initial test program, start-up, operations and engineering support; subcontracts; and procurement. Table 1.1 also shows the amount of Georgia Power's share of total Project contingency allocated as of June 30, 2020, which totals approximately \$400 million to address potential risks in the areas listed above.

The target in-service dates remain unchanged from the dates approved by the Commission in the 17<sup>th</sup> VCM proceedings, which are November 2021 for Unit 3 and November 2022 for Unit 4. The aggressive site work plan in-service dates for each unit remain ahead of the regulatory-approved in-service dates. While the in-service dates in the aggressive site work plan did not change as a result of the July 2020 Schedule Update, there were changes to testing and start-up milestone dates in both the aggressive site work plan and in the November benchmark schedule to account for construction and testing progress on site since the schedule refinement in February 2020.

Among the changes in the July 2020 Schedule Update was a shift in the start of Unit 3 milestones CHT and HFT from June and August 2020, respectively, to September and October 2020, respectively. The compressed time between the two testing activities was accommodated by resequencing the order of CHT and SIT/ILRT. In the February 2020 schedule refinement, CHT was set to occur before SIT/ILRT. Instead, the Project team elected to perform the SIT/ILRT

before CHT. The SIT and ILRT tests were completed successfully in July 2020. CHT is now targeted to occur in September 2020. The July 2020 Schedule Update also evaluated the amount of effort and associated hours necessary to complete the final phases of construction, resulting in the addition of approximately 875,000 direct hours to the Bechtel scope across both units, Balance of Plant (“BOP”), and fabrication in the areas of electrical, civil, mechanical, pipe, and instrumentation installation.

As part of the July 2020 Schedule Update, the Project team updated the November benchmark schedule that tracks to the regulatory-approved in-service date of November 2021 for Unit 3 and developed a preliminary November benchmark schedule that tracks to the regulatory-approved in-service date of November 2022 for Unit 4. Each November benchmark schedule provides points of comparison with the aggressive site work plans and regulatory-approved in-service dates. The November benchmark schedules forecast the production levels and adjust milestones based on construction and testing assumptions to align with the regulatory commitments. Analysis of the production levels required for direct construction and key commodities provides reasonable assurance that the Project should be able to meet the regulatory-approved in-service dates for Unit 3 based on current production and for Unit 4 with a moderate increase in production.

In Table 1-A below, the Unit 3 November benchmark schedule milestone dates are shown in comparison to the milestone dates for the aggressive site work plan from the schedule updates in February 2020 and July 2020.

Table 1-A – Unit 3 Comparison to November Benchmark Schedule			
	Aggressive Site Work Plan		Regulatory
Unit 3 Major Milestone	February 2020 Schedule Refinement	July 2020 Schedule Update	November Benchmark
Cold Hydro Testing	June 2020	September 2020	November 2020
Hot Functional Testing	August 2020	October 2020	February 2021
Fuel Load	November 2020	December 2020	June 2021
Commercial Operation Date	May 2021	May 2021	November 2021



Table 1-B below shows a comparison of milestone dates between the July 2020 aggressive site work plan and the preliminary November benchmark schedule for Unit 4.

<b>Table 1-B – Unit 4 Comparison to Preliminary November Benchmark Schedule</b>		
	<b>Aggressive Site Work Plan</b>	<b>Regulatory</b>
<b>Unit 4 Major Milestone</b>	<b>July 2020 Schedule Update</b>	<b>Preliminary November Benchmark</b>
Open Vessel Testing Start	May 2021	June 2021
Open Vessel Testing Finish	July 2021	August 2021
Cold Hydro Testing	August 2021	October 2021
SIT/ILRT Start	September 2021	February 2022
Hot Functional Testing	October 2021	March 2022
Fuel Load	January 2022	June 2022
Commercial Operation Date	May 2022	November 2022

The Company and SNC recognize that the Project may continue to experience challenges and that unanticipated events, or failure to meet the current site work plan, may require further revision to the aggressive site work plan, capital cost forecast, and/or Project schedule.

# Table 1.1

Vogle 3&4 Project  
Georgia Power Company Cost - **Subject to Commission Verification and Approval**  
Project To Date  
Through Period Ending June 30, 2020

	<u>Total Project Capital</u>			<u>Project to Date Capital</u>		
	VCM 22 (\$ millions)	Total Current Forecast (\$ millions)	Variance (\$ millions)	Actual To Date (\$ millions)	Budget To Date (\$ millions)	Variance (\$ millions)
<b>Construction &amp; Capital Cost</b>						
Original EPC <sup>(1)</sup>	3,198	3,198	0	3,198	3,198	0
Interim Payments & Liens	440	413	-27	409	415	(6)
Site Construction Management						
Engineering Contractor	317	445	128	330	284	46
Procurement	1,242	1,309	67	971	977	(6)
Contract Construction	2,282	2,428	146	1,767	1,825	(58)
Construction Support & Project Management	715	662	(53)	293	347	(53)
Total Site Construction Management	4,556	4,843	288	3,361	3,432	(71)
Owner's Costs	1,131	1,103	(28)	861	877	(17)
Ad Valorem	273	273	0	165	169	(4)
Transmission Interconnection	62	62	0	61	61	0
Test Fuel Offsets	(33)	(7)	27	0	0	0
	1,433	1,431	(2)	1,087	1,107	(21)
<b>Total Construction &amp; Capital Cost</b> <sup>(3)(6)</sup>	<b>9,626</b>	<b>9,886</b>	<b>259</b>	<b>8,055</b>	<b>8,153</b>	<b>(98)</b>
Toshiba Parent Guarantee, net of customer refunds	(1,492)	(1,492)	0	(1,492)	(1,492)	0
Total to be Absorbed by GPC	(694)	(694)	0	0	0	0
Allocated Contingency Included Above <sup>(3)</sup>	(140)	(400)	(259)	0	0	0
<b>Total Construction &amp; Capital Cost, net of Parent Guarantee, amounts absorbed by GPC, and allocated contingency not yet submitted for approval</b> <sup>(4)</sup>	<b>7,300</b>	<b>7,300</b> <sup>(2)</sup>	<b>0</b>	<b>6,563</b>	<b>6,661</b>	<b>(98)</b>
<b>Other Capital Cost</b>						
Construction Monitor	22	22	0	12	12	0

Vogle 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, 2020

	<u>Total Project Financing</u>	<u>Project to Date Financing</u>	
	Total Current Forecast <u>(\$ millions)</u>	Actual To Date <u>(\$ millions)</u>	Budget To Date <u>(\$ millions)</u>  Variance <u>(\$ millions)</u>
<b>Project Schedule Financing</b>			
Return on CWIP in Rate Base <sup>(5)</sup>	2,677	2,237	2,242 (5)
AFUDC - Accrued on CWIP Above Original Certified Cost	257	52	61 (9)
AFUDC - Accrued through Dec 2010 and Related Return	<u>109</u>	<u>109</u>	<u>0</u>
<b>Total Project Schedule Financing</b>	<b>3,043</b>	<b>2,398</b>	<b>2,412 (13)</b>
<b>Total Capital Cost and Financing</b> <sup>(4)</sup>	<b>10,343</b>	<b>8,962</b>	<b>9,073 (111)</b>

**Footnotes:**

- Includes Original EPC contract payment milestones and EPC Scope Change.
  - \$7.3 billion is the Total Construction & Capital Cost approved by the Georgia Public Service Commission (Order dated January 11, 2018). Above excludes \$114 million in unspecified project contingency. Such amounts may be recommended for consideration by the GPSC as and when appropriate.
  - The Company is not requesting Commission approval of the \$400 million of contingency allocated to construction cost categories in this filing but may request that the Commission evaluate these amounts allocated from contingency for rate recovery as and when appropriate.
  - Excludes construction monitor fees pursuant to the VCM 19 Order.
  - 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.
  - Includes approximately \$19 million in discrete costs related to the COVID-19 pandemic (e.g., medical village, testing, supplies, etc.).
- Note: Details may not add to totals due to rounding.

# Table 1.2

Replacement Energy Costs and Deferred Operating Costs								
Million of Dollars								
		Deferred Benefits		Deferred Operating Costs				
Date	VCM	Replacement Energy Cost	Deferred PTCs	O&M	Depreciation	Ad Valorem	Total Deferred Operating Costs	Net Cost
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
Total 2018								
		174.3	161.5	(131.9)	(127.7)	(25.6)	(285.1)	50.7
Total 2019								
		140.2	161.5	(150.2)	(127.9)	(25.0)	(303.1)	(1.4)
Jan-20	23rd	8.3	13.5	(12.6)	(10.6)	(3.0)	(26.3)	(4.5)
Feb-20	23rd	7.5	13.5	(13.3)	(10.6)	(3.0)	(26.9)	(5.9)
Mar-20	23rd	7.6	13.5	(13.0)	(10.6)	(3.0)	(26.6)	(5.6)
Apr-20	23rd	4.6	13.5	(13.2)	(10.7)	(3.0)	(26.9)	(8.8)
May-20	23rd	6.2	13.5	(11.9)	(10.7)	(3.0)	(25.6)	(5.9)
Jun-20	23rd	8.6	13.5	(12.1)	(10.7)	(3.0)	(25.7)	(3.6)
Total VCM 23		42.8	80.8	(76.1)	(63.9)	(18.1)	(158.0)	(34.4)
Total to Date								
		516.8	679.9	(555.5)	(473.1)	(101.1)	(1,129.7)	67.0
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. PTC's 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
\$5.13 billion	\$4.36 billion	\$0.77 billion

As of the end of the Reporting Period, Georgia Power has borrowed \$4.36 billion related to Vogtle Units 3 and 4 costs through the DOE Loan Guarantee Agreement and a multi-advance credit facility among Georgia Power, the DOE, and the Federal Financing Bank.

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. Georgia Power customers are expected to save approximately \$564 million, of which approximately \$490 million has already been secured through draws against the credit facility.

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

#### TOTAL PROJECT PERCENT COMPLETE

As of July 31, 2020, the total Project is approximately 87% complete. The major remaining scopes of work are finishing Direct Construction, Subcontractor Construction and Initial Test Program/Start-Up. As shown below, total construction, covering both Units 3 and 4, is approximately 83% complete. Direct construction (as shown in Figure B on page 19) is approximately 81% complete, which represents approximately 65% of the total construction scope. The remaining 35% of construction scope includes subcontracted scopes of work, which is approximately 88% complete as of July 2020. The ITP/Start-Up Testing scope is approximately 27% complete and will continue to progress as Construction completes and turns over components and systems to the ITP team. Following the July 2020 Schedule Update, an additional 875,000 hours were added to the Construction to-go scope to take the Project to completion.

Table 3.1 – Total Project Percent Complete	
Project Phase	July 2020 % Complete
Engineering	99.9%
Procurement	99.5%
Construction	83.4%
I&C / Cyber Security	99.9%
ITP / Start-Up Testing	27.4%
<b>Total Project</b>	<b>87.4%</b>

#### QUALITY AND COMPLIANCE

During the Reporting Period, the Company continued to provide oversight of the Project while SNC directed and provided guidance to contractors and actively addressed issues and concerns. SNC also continued quality oversight of construction, the ITP organization, and Site Operations to ensure compliance with laws, regulations, and Project licensing documents. SNC-led Quality Assurance (“QA”) teams monitored the safety and quality of work being conducted by Bechtel and various subcontractors through audits, field surveillances, and inspections. During the Reporting Period, QA continued to support early and proactive identification of issues to provide an additional level of assurance for quality control in construction.

Quality control acceptance rates remained at acceptable levels during the Reporting Period, with both units averaging acceptance rates of over 99%, which are in line with historical figures. Deviations from the design specifications were addressed and repaired, as appropriate.

## ENGINEERING

During the Reporting Period, the Engineering organization continued to support construction and start-up. The Construction Engineering organization continued to support Construction by ensuring all engineering documentation was completed and ready for system turnover, while the Start-up Engineering organization focused on processes and programs to support Fuel Load and plant operation. A third branch of the Engineering organization was created during the Reporting Period, with an ITP Design Engineering team focused on resolving issues that arise during component and system testing with the goal of resolving issues before impacting the schedule. Since its creation this year, the ITP Design Engineering organization resolved issues pertaining to Integrated Flush (“IF”), Open (“OVT”) and Closed Vessel Testing (“CVT”), ILRT, and Turbine on Gear (“TOG”).

The Construction Engineering organization continued their involvement in the American Society of Mechanical Engineers (“ASME”) Nuclear Component Stamp (“N-Stamp”) approval process and work package closure. The NRC utilizes the ASME N-Stamp to ensure safety-related piping systems, pumps, and other equipment meet the quality requirements set forth under the ASME Boiler and Pressure Vessel Code. The organization is also supporting the completion of Containment Vessel Design report, which is expected by the fourth quarter of 2020, and will provide the results of various stress and buckling analyses that consider the final attachment loading on the Containment Vessel and the vessel structural design.

The Construction Engineering organization had several significant accomplishments during the Reporting Period. These accomplishments include:

- Closeout of all remaining Engineering holds affecting Construction and ITP with the exception of those related to the heat tracing subcontracted scope
- Successful release for and support of Unit 3 Containment Vessel SIT and ILRT
- Completion of 75 additional Unit 3 ASME Installation N-5 Data Reports and one additional Unit 3 ASME System N-5 Data Report (5 of 24 complete)
- Installation of Unit 3 Plant Control software releases to support component testing, CHT, and HFT
- Installation of Unit 3 Protection System software to support plant testing and operations
- Installation of Unit 3 Special Monitoring System software and hardware Field Change Notices (“FCN”) to support Reactor Coolant Pump (“RCP”) operation
- Installation of Unit 3 RCP Switchgear hardware FCNs to support RCP operation

The start-up Engineering organization continued to develop processes and programs for Fuel Load and plant operation, as required by NRC regulations. Engineering also made progress to establish the Project’s readiness to accept fuel with trained reactor engineering inspectors and fuel receipt processes in place. Several major accomplishments during the Reporting Period include:

- Reactor Engineering worked with the Nuclear Fuels organization to ensure the plant is ready to receive nuclear fuel during the fourth quarter of 2020



- Implemented the Vogtle Units 3 and 4 setpoint control program, software control program, and human factors program
- Upgraded the Instrumentation and Controls (“I&C”) Engineering development and testing facility to support Cyber Security design development and Programmable Logic Controller design change capability
- Created the Plant Health Working Group, a cross functional committee intended to provide detailed reviews of plant issues and provide recommendations for resolution to the Plant Health Committee
- Implemented the Maintenance Rule Program, which provides reasonable assurance for assessing and managing potential risks that may result from proposed maintenance activities
- Completed Phase 1 of Equipment Reliability Project
- Scoped all Group 1, 2 and 3 systems for transition to Site Operations

## PROCUREMENT

During the Reporting Period, SNC continued management of major equipment and commodity fabrication at its international and domestic vendors.

Recent major equipment deliveries include all remaining Air Baffles for Unit 3, Station Communication equipment for Unit 3, both MSIVs for Unit 4, and the security equipment and computer for Unit 4. Procurement of ASME and non-ASME tubing, fittings, and support materials continued during the Reporting Period as well.

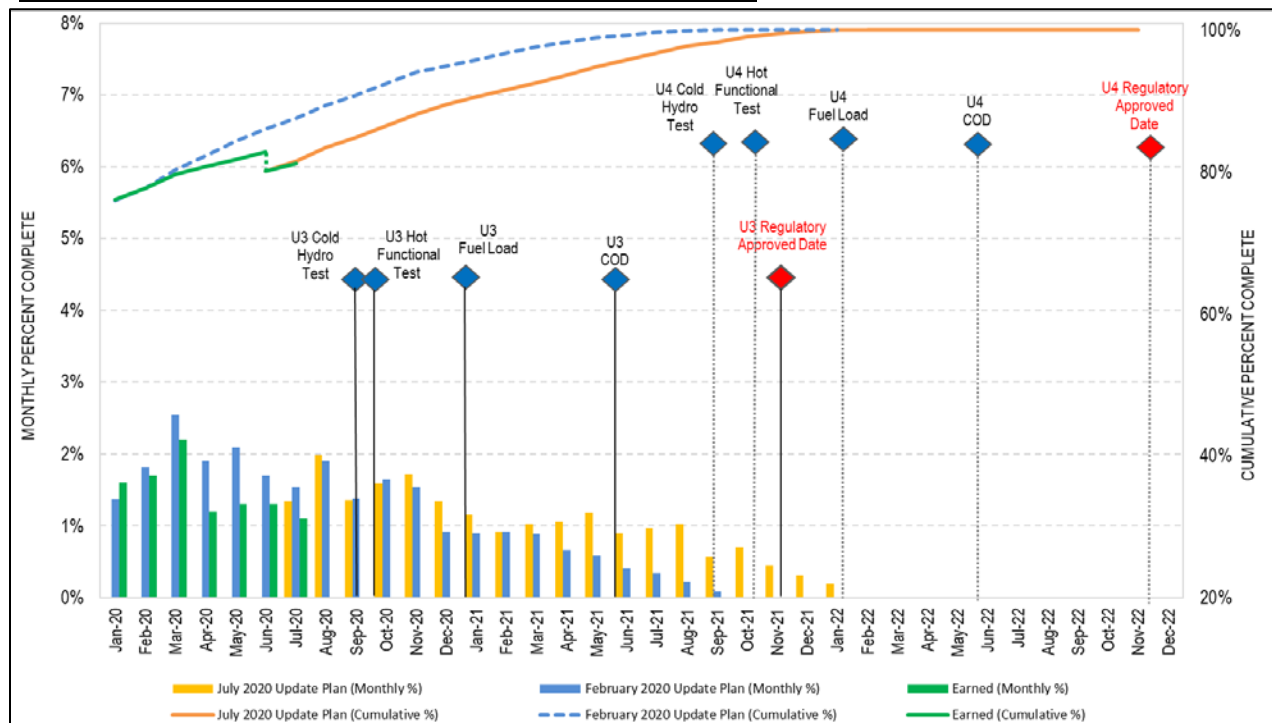
Table 3.2 shows the status of major equipment items.

Table 3.2 – Major Equipment Status		
Component	Unit 3 Status	Unit 4 Status
Accumulator Tanks	Installed	Installed
Core Makeup Tanks	Installed	Installed
Deaerators	Installed	Installed
Diesel Generators	Installed	Installed
Integrated Head Package	Installed	In Progress
Main Step-up Transformers	Installed	Installed
Main Turbine Generator	Installed	Installed
Moisture Separator Reheater	Installed	Installed
Passive Residual Heat Removal Heat Exchanger	Installed	Installed
Polar Crane	Installed	Installed
Pressurizer	Installed	Installed
Reactor Coolant Loop Piping	Installed	Installed
Reactor Coolant Pumps	Installed	Installed
Reactor Vessel	Installed	Installed
Reactor Vessel Internals	Installed	On-site
Reserve Auxiliary Transformers	Installed	Installed
Squib Valves 8"	In Progress	On-site
Squib Valves 14"	In Progress	On-site
Steam Generators	Installed	Installed

During the next Reporting Period, delivery will continue with special doors, security doors, and safety relief panels for both units, the upper Air Baffles for Unit 4, communications equipment for Unit 4, ASME and non-ASME tubing, fittings, and support materials, and safety-related 250V batteries for Unit 4.

## PROJECT PERFORMANCE

### Direct Construction Percent Complete – Total Project



*Figure B –Direct Construction Percent Complete – Total Project*

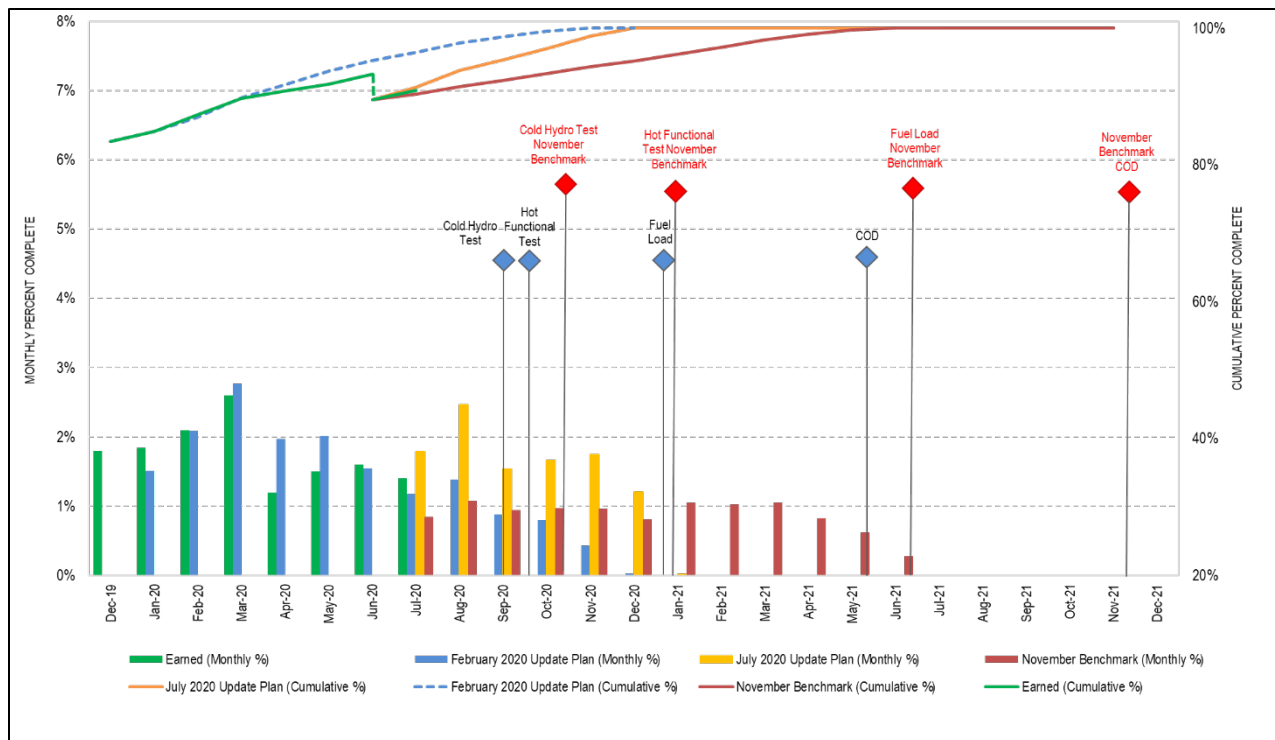
*(Note: The chart above shows earnings through July 2020 against the plan developed through the February 2020 Schedule Refinement. The July 2020 Update Plan is shown from July 2020 through the end of the Project. The addition of approximately 875,000 hours in the July 2020 Schedule Update resulted in an adjustment to the cumulative percent complete, as illustrated by the vertical dotted line connecting the “Earned (Cumulative %)” curve to the “July 2020 Update Plan (Cumulative %)” curve.*

*The Project is now being measured against the site work plan developed during the July 2020 Schedule Update.)*

Direct construction is working to an aggressive site work plan set following the July 2020 Schedule Update. Direct construction represents the Bechtel scope of work on the Project and includes the power blocks for both units and certain BOP areas. Direct construction does not include certain subcontracted scopes of work (e.g., cooling towers, Raw 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). The forward-looking projections are subject to change pending Project performance, unforeseen impacts of the COVID-19 pandemic, engineering changes, resequencing of activities, potential lessons learned from the Chinese AP1000 projects, and construction of Unit 3.



## Direct Construction Percent Complete – Unit 3

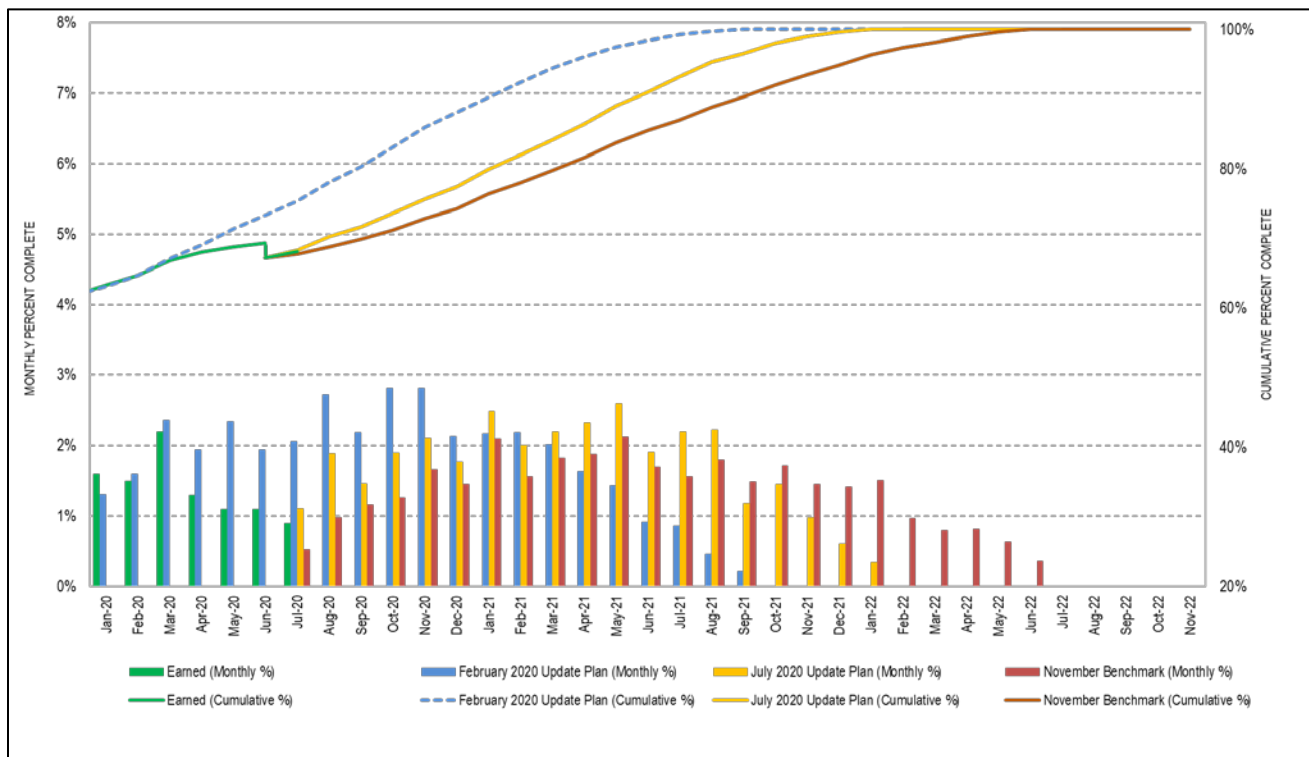


*Figure C –Direct Construction Percent Complete – Unit 3*

In Figure C above, Unit 3’s direct earnings through July 2020 are shown relative to the July 2020 aggressive site work plan. As part of the July 2020 Schedule Update, which resulted in the site’s current aggressive work plan, approximately 550,000 hours were added to Unit 3’s direct scope, causing the cumulative earned percent complete to adjust downward from approximately 93% to 91%. The monthly planned percentages and milestone dates for Unit 3 are included for both the aggressive site work plan and the November benchmark schedule. The November benchmark schedule, which was updated in July 2020, illustrates the earnings curves and milestone dates estimated to be necessary to meet the regulatory-approved in-service date for Unit 3.

Following the July 2020 Schedule Update, the site work plan is even more aggressive than past iterations given the productivity challenges experienced by the site during the Reporting Period, particularly with respect to electrical and subcontract work. Unit 3 direct construction is approximately 91% complete and the aggressive site work plan is premised on 1.7% completion per month. The average monthly percentage completion since the onset of the COVID-19 pandemic is approximately 1.5% per month, which remains above the 1% per month estimated to be necessary to meet the regulatory-approved in-service dates according to the Unit 3 November benchmark schedule.

## Direct Construction Percent Complete – Unit 4



*Figure D –Direct Construction Percent Complete – Unit 4*

In Figure D above, Unit 4’s direct earnings through July 2020 are shown. Through the July 2020 Schedule Update, which developed the site’s current aggressive work plan, approximately 225,000 hours were added to Unit 4’s direct scope, causing the cumulative earned percent complete to adjust downward from approximately 69% to 67%. The monthly planned percentages and milestone dates for Unit 4 are included for both the aggressive site work plan and the preliminary November benchmark schedule. The preliminary November benchmark schedule illustrates the earnings curves and milestone dates estimated to be necessary to meet the regulatory-approved in-service date for Unit 4.

Unit 4 direct construction is approximately 68% complete. The aggressive site work plan projects 1.7% completion per month through the end of 2020, while the preliminary Unit 4 November benchmark schedule assumes 1.2% per month during the same period to support the regulatory-approved in-service date. Since the beginning of 2020, Unit 4 has averaged approximately 1.3% completion per month, although it has averaged 1.1% since the onset of the COVID-19 pandemic.

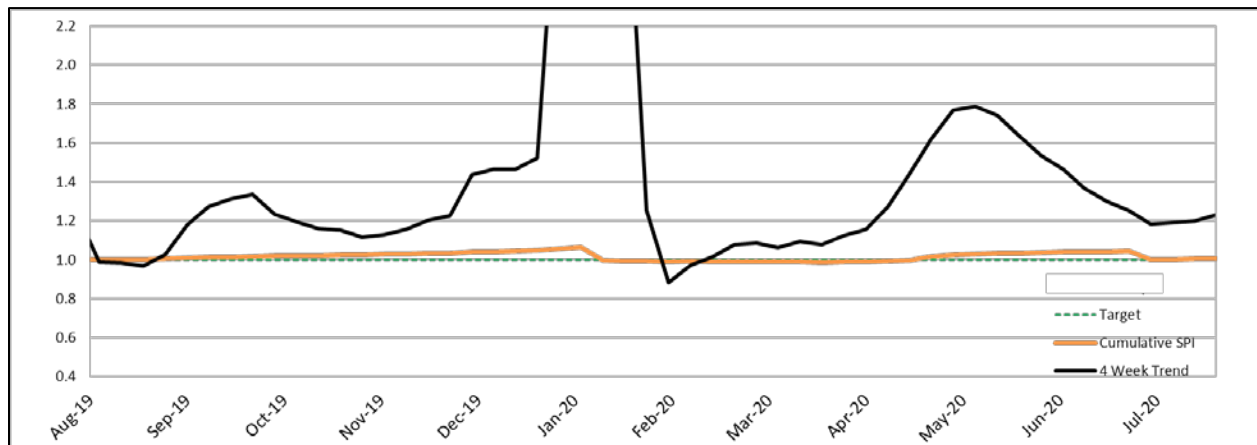
## Construction Schedule Performance

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

Following the July 2020 Schedule Update, the cumulative SPI was reset to 1.0 since the previous planned hours are set to equal the earnings to date. As a result, the total project is currently running a cumulative direct construction SPI of approximately 1.0. During the Reporting Period and as discussed previously, the Project experienced challenges due to lower than expected electrical productivity, which was further impacted by the COVID-19 pandemic. These challenges negatively impacted schedule performance and caused a spike in the 4-week rolling SPI average.



*Figure E – Direct Construction Schedule Performance Index*

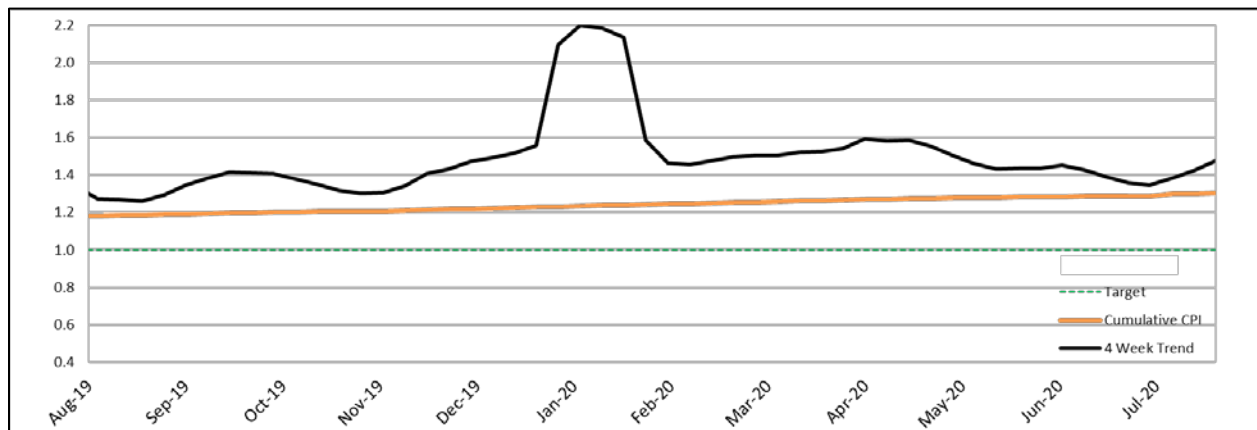
## Construction Cost Performance

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 of approximately 1.3, which is largely attributable to high Unit 3 CPIs on bulk electrical commodities as a result of the difficult electrical installation, which has recently been amplified due to the impacts of COVID-19. To better quantify the impacts of lower than desired productivity on the required direct construction resources, the Project continues to adjust the to-go budget forecast for Unit 3 with the allocation of contingency dollars as necessary to account for higher CPI. Currently an assumed to-go CPI of 1.5 on Unit 3 is considered in the recent to-go budget forecast. Additionally, the Unit 4 planned CPI has been adjusted to 1.35 in the to-go budget forecast to account for lessons learned on Unit 3 while also assuming reduced productivity as Unit 4 moves into installation of electrical commodities.



*Figure F – Direct Construction Cost Performance Index*

### Critical Path – Unit 3

The Unit 3 Critical Path begins with Main and Startup Feedwater System cable, terminations, and system turnover and continues with ITP component testing, Condenser Vacuum, HFT, test report, 30-day surveillance and Fuel Load.

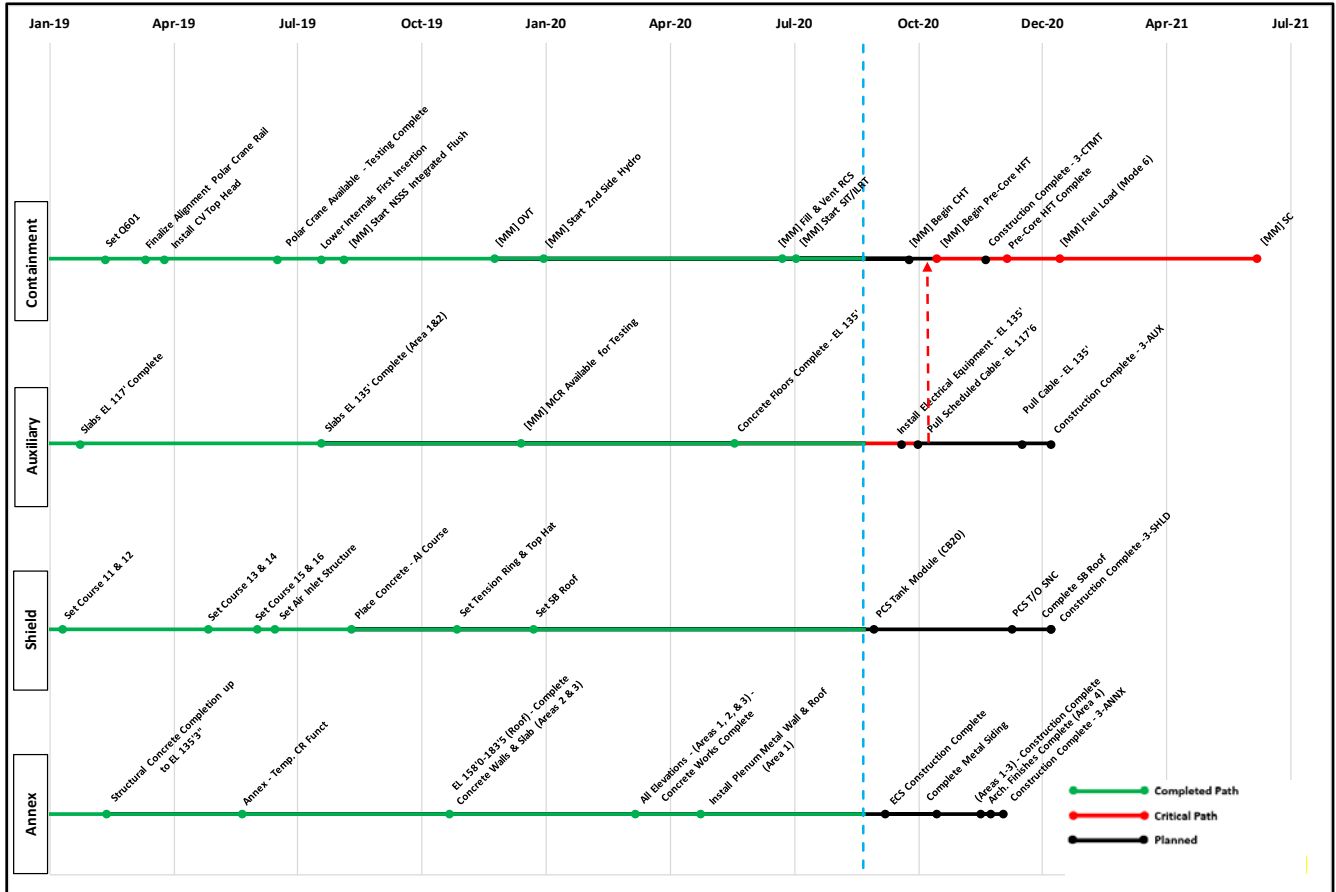


Figure G – Unit 3 Critical Path following July 2020 Schedule Update



## Critical Path – Unit 4

The Unit 4 Critical Path begins with Auxiliary Building structural buildout of areas 5 & 6, Spent Fuel Pool Cooling System (“SFS-1”) conduit, cable tray, cable, terminations, hydro and SFS-1E system turnover, and continues with component testing, SFS flushing, OVT, reactor vessel internals and head installation, CHT, SIT/ILRT, Shield Building air baffles, ITAAC 138, NRC 103(g) letter, and Fuel Load.



Figure H – Unit 4 Critical Path following July 2020 Schedule Update

## **Project Milestones**

The Project team has identified twenty milestones as goals for 2020. The table of milestones is included below, along with the actual completion dates where applicable. The table includes both start (5) and finish (15) milestones for the Project, and the Project team tracks progress for both start and finish dates for all Project milestones in the IPS. Certain milestones were shifted as a result of the July 2020 Schedule Update. New expected completion dates are shown below in parentheses.

<b>Table 3.4 – 2020 Aggressive Site Work Plan Milestones*</b>		
<b>Milestone</b>	<b>Plan Date</b>	<b>Actual</b>
Set Unit 4 Containment Vessel Top Head	1 <sup>st</sup> Quarter	March 2020
Finish Turbine on Turning Gear on Unit 3	2 <sup>nd</sup> Quarter	
Complete Condenser Vacuum	2 <sup>nd</sup> Quarter (3 <sup>rd</sup> Quarter)	
Start Structural Integrity Test & Integrated Leak Rate Test on Unit 3	2 <sup>nd</sup> Quarter	July 2020
Start Unit 3 Cold Hydro Testing	2 <sup>nd</sup> Quarter (3 <sup>rd</sup> Quarter)	
Complete Unit 4 Initial Energization	3 <sup>rd</sup> Quarter (4 <sup>th</sup> Quarter)	
Start Unit 3 Hot Functional Testing	3 <sup>rd</sup> Quarter (4 <sup>th</sup> Quarter)	
Complete Unit 3 Shield Building Civil Construction	3 <sup>rd</sup> Quarter	
Ready to Assume Design Authority for Unit 3	3 <sup>rd</sup> Quarter (4 <sup>th</sup> Quarter)	
Unit 3 Protected Area Lockdown	3 <sup>rd</sup> Quarter (4 <sup>th</sup> Quarter)	
Operator License Received for Unit 3	3 <sup>rd</sup> Quarter	August 2020
Unit 4 Main Control Room Ready for Testing	3 <sup>rd</sup> Quarter (4 <sup>th</sup> Quarter)	
Start Unit 4 Integrated Flush	3 <sup>rd</sup> Quarter (4 <sup>th</sup> Quarter)	
Implement Regulatory Required Programs for Unit 3	4 <sup>th</sup> Quarter	

Table 3.4 – 2020 Aggressive Site Work Plan Milestones*		
Transition from ASME Section III to ASME Section XI on Unit 3	4 <sup>th</sup> Quarter	
Satisfactorily Complete NRC Graded EP Exercise for Unit 3	4 <sup>th</sup> Quarter	
Ready for Fuel Receipt for Unit 3	4 <sup>th</sup> Quarter	
Submit Final Unit 3 ITAAC to NRC	4 <sup>th</sup> Quarter	
Complete WANO Pre-Start Up Review	4 <sup>th</sup> Quarter	
Set Unit 4 Shield Building Roof	4 <sup>th</sup> Quarter (1st Qtr. 2021)	
Start Unit 4 Open Vessel Testing	4 <sup>th</sup> Quarter	

*\* On June 23, 2020, Georgia Power announced a resequencing of certain planned activities on the Project as a result of continued challenges in electrical construction productivity and impacts due to the COVID-19 pandemic.*

## PROJECT RISK

With Company oversight, SNC actively manages risk on the Project, continuing its focus on targeted areas including schedule adherence, construction productivity, subcontracts management, testing, and start-up. These areas could have significant impact on the Project if the risks are unmitigated. With continued focus on these areas and commensurate with the significance of the potential impacts, the Project continues to administer risk mitigation plans to reduce the probability of such impacts.

Administration of the Project risk management program includes the proactive identification of risks and, where appropriate, execution of mitigation strategies. SNC functional areas and contractors on the Project work collectively to implement a comprehensive risk program that captures and tracks the potential risks to the Project. The Company's continued oversight of the risk program and its execution reduces the probability of experiencing potential risks and minimizes impacts to the Project from realized risks.

A risk event is defined as an uncertain event or set of circumstances that, should it occur, will have an effect on achievement of one or more of the Project's objectives. The Project utilizes several ways to identify potential risks, including consultation with Project subject matter experts, challenge sessions, observations from the Chinese AP1000 units, lessons learned, and collaborative dialogues with Project partners. The Project risk register captures threats and opportunities that are routinely evaluated until the risk event is realized or retired. The Project risk register is a dynamic document that quantifies the potential impact of a risk event. Additionally, the risk register includes mitigation plans developed to reduce the impact of the risk in the event a risk is realized. The Project risk register is provided monthly as an update to data request STF-142-4 in the Company's Monthly Status Report. The following section identifies some of the Project risks and discusses strategies the Company is undertaking to mitigate the impacts.

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

This risk has been identified as a Project execution risk which will remain active throughout the Project lifecycle. Broadly stated, this execution risk is that the Project is unable to execute with the resources accounted for by current projections, leading to the inability to reach forecasted construction production targets.

Project management and Bechtel regularly evaluate the schedule risk through means such as reviewing production scorecards, the Integrated Project Schedule ("IPS"), and other Project resources. The Project team has implemented strategies to address challenges that impact Project performance. The strategies for each Unit vary based on the phase of the Unit and therefore require different approaches to reduce the schedule pressure.

Unit 3 continues to progress in the bulk commodity installation phase with a focus on electrical, mechanical, and I&C commodities. The near-term Project milestones of CHT and HFT require focused efforts on electrical and I&C commodity installation. As such, the collective Project team has concentrated on strategies to increase the commodity installation rates while continuing to

utilize tools such as PRT to ensure continued progress for ITP. Additional strategies include continued alignment of construction work scope with Project milestones, increased utilization of dedicated crews for complex commodity installation activities, and the expansion of milestone “work to go” meetings which concentrate on completion of outstanding scopes of work for system turnovers and Project Milestones.

Unit 4 is approaching the completion of heavy civil work and is increasing the focus on mechanical and electrical commodity installation in support of the Initial Energization (“IE”) and IF testing milestones, which are expected to commence later this year. Unit 4 continues to improve production by integrating lessons learned from Unit 3. Strategies include design and fabrication of modules outside of the Unit to reduce required activities in congested areas and allow for simultaneous progress. Additionally, Unit 4 has enhanced the commodity sequencing and installation execution by adapting the construction plan to incorporate experience gained from Unit 3 testing. Furthermore, the sequence of Unit 4 Project milestones has been adjusted to integrate testing experience from Unit 3.

During the Reporting Period, the Project experienced a reduction in average earnings to around 105,000 hours per week from approximately 140,000 hours per week during the previous Reporting Period. The contraction of average weekly earnings was largely attributed to the effects of the COVID-19 pandemic on resource availability. Prior to the COVID-19 impacts on site, the Project was experiencing weekly earnings at levels consistent with the aggressive site work plan then in place for both Unit 3 and Unit 4. In April 2020, the Project team took action to mitigate the impacts of the COVID-19 pandemic through a 20% reduction in the sitewide workforce. The reduction in workforce placed substantial pressure on the weekly average earnings. As part of the mitigation strategy, Project leadership shifted resources from Unit 4 to Unit 3 to maintain momentum towards Project testing milestones. Currently, efforts are underway to safely increase the number of craft in targeted disciplines to support the upcoming Unit 3 and Unit 4 scopes of work. Increasing electrical commodity installation across both units remains a central focus of the Project in support of the site’s aggressive work plan. The efforts described above are regularly evaluated for effectiveness and adjustments are made as needed.

- *The risk that the Project is unable to effectively manage subcontracts.*

As the Project team has issued contracts for the majority of remaining subcontracted scopes, increased focus on effectively managing the subcontractor progress is important to maintaining momentum, progressing through system turnovers and testing, and ultimately meeting Project milestones. It is important that the Project team continues to manage subcontractor progress due to historical challenges with performance and continued cost pressure on the subcontracted work scopes. Increasing the work front availability to subcontractors on Unit 3 remains a key focus for the Project. As the Project progresses toward HFT, continued increases in the production rates for several major subcontractors are anticipated to support the aggressive site work plan. Bechtel and SNC are working with subcontractors to provide sufficient work fronts, and while productivity increases are being observed, continued improvements are needed. Several subcontractors are adjusting staffing levels to support the increase in production required to achieve the aggressive



site work plan. In an effort to reduce potential impacts, the Project team continues to evaluate metrics on individual contract performance and regularly meets with Bechtel to assess and manage those underperforming subcontracts.

- *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 Cost Performance Index (CPI) continues to increase or continues to remain above budgeted rates for the duration of the Project life cycle. It is important that the Project increase the number of direct construction hours earned relative to the number of direct construction hours spent to improve the Project's CPI.

The Company is focused on initiatives to increase direct construction hours earned in comparison to the direct construction hours spent. Several of the strategies were mentioned previously as part of the description of construction schedule performance risk, including modularization of complex construction designs and reduced crew sizes. Effective implementation of these strategies will improve schedule performance and increase earnings. In addition to these activities, the Company and Bechtel continue to review productivity studies that identify underperforming areas of the Project and require performance improvements. Management focuses on scenarios that combine improvement strategies and provide the Project team opportunities for increased performance mitigation efforts.

- *The risk that COVID-19 continues to have an impact on the Project cost and schedule.*

Protecting the health and safety of the Vogtle 3 and 4 team, as well as the surrounding community, continues to be the highest priority for the Project. As mentioned in previous filings, the Project has taken several proactive measures in response to the COVID-19 pandemic, many of which remain in place. These actions include the expansion of on-site medical facilities that are equipped to administer COVID-19 testing, deep cleaning of workspaces, reducing the density of workers in given areas, and the utilization of facial coverings when social distancing is not possible. Even with the measures taken on-site to protect personnel, in April 2020, the Project team took the additional step to reduce the workforce by 20% as a further mitigation to the pandemic. This action allowed the management team to better coordinate workforce personnel in daily tasks and provided for further efficiencies with smaller crew sizes. The Project team continues to monitor these actions and others and adjust as necessary to reduce the impacts of the pandemic on the Project.

As the Project progresses toward construction completion and the COVID-19 pandemic continues to impact the country, the risk remains that the pandemic will further impact the Project's performance. During the Reporting Period, a few examples of the impacts of the COVID-19 pandemic on the Project's performance included high absenteeism, lower productivity, challenges to retaining critical specialty craft and non-manual personnel, supply chain interruptions, and subcontract performance degradation. Even with the proactive measures taken by Project Management, fully mitigating the impacts of the COVID-19 pandemic remains outside the Project team's direct control. The Company, SNC, and Bechtel continue to actively manage these and other risks as the pandemic evolves.

- *The risk that the Project is unable to complete the final work scope associated with System and Area turnovers in support of the regulatory-approved in-service dates.*

With the recent July 2020 Schedule Update, the Project team has continued to focus on successfully reaching major milestones by refining the specific work scopes required to support testing and turnover. The Project team's charge has been to support Construction with detailed plans on which scopes are required to accomplish the Project milestones. These efforts have increased alignment, improved construction turnover planning, and further enhanced the efficiency of the testing and start-up team. Although the refinement efforts were focused on identifying and completing the priority work scopes to support testing and achieving the Major Milestones, the collective efforts to refine systems and further align with ITP testing have improved the system turnover rate. The Project has doubled the number of turnovers in the two months from mid-June to mid-August as compared to the first six months of 2020. In addition to the improved turnover rate, the site has successfully completed Unit 3's Closed Vessel Testing, SIT, and ILRT.

As the testing program continues to progress towards the start of Unit 3 CHT in preparation for HFT, completing the final portions of work scopes associated with outstanding systems using PRT methods will need to be monitored. Although significant progress has been made to improve the scoping of systems to better align Construction and ITP with the focus on increasing the number of system turnovers, there remain a number of systems that contain work scope that have not been identified as critical for achieving Major Milestones. Those systems will likely remain open as the Project continues to concentrate on supporting testing evolutions for Major Milestones.

Even with the increased focus on achieving Major Milestones, construction continues to progress on all areas of the Project; however, completion of the final portion of scope for open system turnovers and the supporting Area turnovers to SNC Operations remains a risk to the regulatory-approved in-service dates. Continued collaboration from the collective team and refinement of the Area turnover plan to address open system turnovers will help mitigate the risk.

## **PROJECT CONTINGENCY**

Following the July 2018 reforecast of the Project's base capital cost forecast, a contingency amount of \$366 million was established for Georgia Power's share of the Project cost. Through the most recent two VCM periods (20<sup>th</sup>/21<sup>st</sup> VCM and 22<sup>nd</sup> VCM), the Project had allocated a total of \$140 million of Georgia Power's \$366 million share of Project contingency. These allocations for forecasted costs were associated with several risks, among them craft attraction and retention, Bechtel construction productivity, ITP and Operations support, subcontracts, engineering support, and procurement. As previously discussed, the Project team anticipated that all the contingency dollars would be allocated by the completion of the Project. As of the end of July, Georgia Power allocated the remainder of the original \$366 million contingency, plus an additional \$34 million in excess of the originally prescribed amount, and added new contingency of approximately \$114 million. Drivers for the most recent allocation of contingency are similar to those over the past year, with many of those drivers being amplified by the impact of the COVID-19 pandemic to the Project's aggressive site work plan. In addition to these drivers, as the Project developed the July 2020 Schedule Update, the re-estimate of the effort and hours required to complete the final phases of construction resulted in additional contingency allocation. With the allocation of the remaining contingency and the addition of approximately \$114 million contingency dollars, future cost risk has been reduced through the completion of Unit 4. The Project team continues to expect that the entirety of contingency funds will be utilized as the Project progresses toward completion.

## CONSTRUCTION

### Unit 3 Nuclear Island

During the Reporting Period, significant progress was made on the Unit 3 Nuclear Island to support Unit 3's 2020 milestone dates. The Nuclear Island is comprised of the Auxiliary Building, Containment Vessel, and Shield Building. As the Project continues to focus on completing the work scope to support testing, several notable testing milestones were achieved, among them Open and Closed vessel testing, SIT and the ILRT. The Shield Building is nearing completion, with the setting of the Passive Containment Cooling Water Tank ("CB20") serving as the "topping out" for the structure, and the majority of the concrete placements for CB20. Completing electrical work remains the primary focus inside Containment to support component testing necessary for the upcoming CHT testing sequence and eventually HFT. Between the walls of the Shield Building and the Containment Vessel, installing the Air Baffles will be a focus in the coming months. The air baffles will complete the final piece of the external passive cooling plan.



*The Integrated Head Package ("IHP") being installed on the Reactor Vessel inside Unit 3 Containment*

Accomplishments during the Reporting Period included:

- Set the CB20 Tank on the Shield Building Conical Roof
- Completed assembly of the Reactor Vessel Internals and set the Integrated Head Package ("IHP") on the Reactor Vessel
- Installed the spent fuel racks
- Completed installation of the refueling machine
- Completed installation of all RCP valves
- Completed installation of all RCP Heat Exchangers
- Completed installation of the 8" Squib Valves in room 11207, which are part of the Passive Core Cooling ("PXS") system
- Completed all concrete placement at the 135-foot elevation in the Auxiliary Building
- Completed and turned over all remaining PRTs for CVT

- Completed commodity installation on CH64, -65 and -66 modules
- Completed alignment and installation of the Fuel Handling System
- Completed Metal Reflective Insulation installation on the east steam generator
- Completed installation of the hydrogen vent flood weir
- Installed the upper and lower equipment hatch hoists
- Completed installation of the weir gates in the fuel transfer canal and the cask loading pit
- Completed Mechanical, Electrical and I&C activities in Containment and the Auxiliary Building required to support Closed Vessel Testing and SIT/ILRT

During the next Reporting Period, work inside Containment and the Auxiliary Building will continue to support the CHT and HFT testing milestones. Subcontracted scopes of work critical for future testing milestones, including electrical penetration seals, coatings, insulation and fireproofing inside containment, and mechanical, electrical and I&C installation, continues throughout the Nuclear Island to drive system turnovers to testing in support of major testing and start-up milestones planned for later in 2020 and into 2021.

### **Unit 3 Turbine Building**

Work on the Unit 3 Turbine Building continued during the Reporting Period with a focus on achieving the TOG milestone. The Lube Oil flush was completed in preparation for placing the turbine on gear. Electrical work continued to focus on near term system turnovers required for Condenser Vacuum (“CV”) as well as key equipment such as the non-segregated electrical bus scopes including the isophase bus ducts leading to the main step-up transformers. I&C began installation of prioritized racks, instruments, and controls for CV. The primary focus in the coming months is



*Spent Fuel Rack installation in Unit 3*

continuing critical activities required to support the CV and CHT milestones. Pipe installation continued during the Reporting Period to support multiple systems, among them the Main Turbine System (“MTS”) and the Generator Hydrogen and CO2 System (“HCS”).



Accomplishments during the Reporting Period included:

- Completed generator/stator alignment
- Completed installation of the Deaerator trays
- Completed the iso-phase bus (IPB) installation
- Completed installation of chiller at elevation 120 feet
- Completed installation of the LOS pumps and piping
- Completed the HSS system piping
- Completed Turbine assembly and final alignment



*Unit 3 Turbine Building Operating Deck*

### **Unit 3 Annex Building**

Construction of the Unit 3 Annex Building shifted to Area and room completion during the Reporting Period. Electrical craft continue their support of system turnovers by installing raceway, pulling and terminating cables, installing permanent lighting and installing communication devices throughout the building. The installation of mechanical equipment and instrumentation continues in support of turnover of the following systems: Fire Protection System (“FPS”); Containment Filtration System (“VFS”); Central Chilled Water System (“VWS”); and Annex/Aux Building Nonradioactive Ventilation System (“VXS”). Construction of the Annex building final room layouts has started with the installation of gypsum board, tile, permanent lighting, electrical and architectural finishes.

Accomplishments during the Reporting Period included:

- Completed final concrete placement
- Installed the MH-42 and MH-43 monorail hoists
- Completed installation of siding
- Completed Architectural CMU Walls for S03 stairs
- Completed terminations for EDS-1 cables
- Installed Architectural Walls and Set interior doors throughout Building
- Installed Plant Security System (“SES”) Distribution Panels in Room 40315
- Set and aligned Hydraulic Lift Platform in Room 40352
- Completed installation of the Bullet Resistant Enclosure (“BRE”) between Annex and Radwaste Building



*Unit 3 Nuclear Island*

### **Unit 4 Nuclear Island**

Significant civil and structural work occurred on the Unit 4 Nuclear Island during the Reporting Period. This included setting the Containment Vessel Top Head, completing Shield Building courses 7 through 16 and setting all eight Air Inlet panels. Additionally, the Polar crane was installed and commissioned. Unit 4 is also installing large bore and small-bore mechanical piping, electrical supports and raceway for future conduit installation and cable pulling activities.

Accomplishments during the Reporting Period included:

- Set the completed Integrated Head Package inside Containment
- Installed the Q601 module



- Installed the RVI lower and upper internals storage stands
- Completed fabrication and setting of the Room 12501 module
- Set and placed concrete in Shield Building Courses 9 thru 16
- Set all eight Air Inlet panels
- Completed canopy seal welding for RCPs
- Installed main steam piping inside Containment Room 12404
- Installed the Motor Control Centers in Room 12321
- Completed set of R451 module in Room 12561
- Completed installation of PRHR upper ring
- Completed the installation of the Reactor Vessel lower and upper internals storage stands in Room 11504
- Set structural steel platforms and ladders SPLs-12, 13, 16 & 17
- Final set of Normal Residual Heat Removal System (“RNS”) Heat Exchangers inside the Unit 4 Auxiliary Building
- Completed the lift and set of the Reactor Vessel Internals lift rig into 11500 staging area
- Completed pre-assembly of the fuel handling machine

As Unit 4 prepares for turnover of the Main Control Room for testing, lessons learned from Unit 3 continue to improve efficiency on Unit 4, such as the pre-fabrication of Room 501 above the Main Control Room, which was outfitted with structural steel, electrical raceway, pipe, and HVAC ductwork before being placed, a significant improvement from Unit 3. Further improvements included the pre-fabrication and placement of the Main Steam Isolation Valve module, continued fabrication of rebar curtain walls and continued modularization of the Shield Building panels.



*Room 12501 module being set inside the Unit 4 Auxiliary Building*

#### **Unit 4 Turbine Island**

Mechanical work was the primary focus on the Unit 4 Turbine Island during the Reporting Period, including the installation of piping supports for multiple systems throughout the Turbine Island.

Accomplishments during the Reporting Period included:

- Completed assembly of the Generator
- Completed tops off alignment of the high-pressure Turbine
- Completed hydrostatic testing of extraction steam piping Condenser Boxes “A” and “C”
- Completed load test of the 220-ton crane

Work will continue in the Unit 4 Turbine Building to support the installation of the turbine rotors later this year, as well as other major Unit 4 milestones scheduled for 2020, including IE and the start of IF.

#### **Unit 4 Annex Building**

During the Reporting Period, progress was made as Unit 4 works toward the completion of IE later this year. Work focused on the installation of raceways and piping through the Annex Building to support forthcoming system turnovers.

Accomplishments during the Reporting Period included:

- Placed Roof Concrete Area 1, 154 Elevation Roof
- Set Containment Air Filtration Exhaust Unit A (VFS-MS-02A)
- Placed concrete slab Area 1, 117’ Elevation

#### **Balance of Plant (“BOP”)**

In BOP areas, civil work and bulk commodity installation, particularly in mechanical and electrical, continued during the Reporting Period.

There was continued coordination between Bechtel and SNC regarding the SNC-managed security subcontract scope, which included the installation of multiple BREs, as well as substantial progress on the remaining vehicle barrier ditches and security fencing systems.

Accomplishments during the Reporting Period included:

- Completed equipment sets in the Unit 3 Turbine Chemical Treatment Building
- Set high mast lighting transformer for Unit 3
- Set multiple Unit 3 SES step-down transformers
- Completed concrete placement for the Unit 4 Rad Waste Building spent fuel transfer pad
- Set the Unit 4 Demineralized water storage tank
- Set the Unit 4 Boric Acid Tank

Work will continue on site to demobilize temporary construction facilities from within the protected area footprint to support development of the protected area around Unit 3 to support fuel receipt by the end of 2020.



*Vehicle barrier ditch along the western border of Unit 4*

### **Subcontracts**

During the Reporting Period, subcontractors contributed to Project progress and significant milestone achievements and will continue to play a critical role in progress toward future testing and startup milestones, particularly HFT, in the coming months. To date, SNC has awarded 12 of 14 contracts, and Bechtel has awarded all 39 contracts. In total, this subcontracted scope represents approximately \$1.5 billion and is integral to the completion of the Project.

At the Nuclear Islands, subcontractor work notably included setting the water storage tank CB20 on the Unit 3 Shield Building, the top head for the Unit 4 Containment Vessel, and the final Unit 4 Shield Building Panels, which were all completed by subcontractor CB&I. During the Reporting Period, CB&I also made significant contributions to support the successful SIT/ILRT tests and continues to work on pre-requisite scopes for system turnovers to support HFT. SSMI continues installation of HVAC ductwork and equipment throughout both units, with significant progress in the Auxiliary, Annex, and Rad Waste buildings on Unit 3. SSMI is working towards the turnover of three different ventilation and filtration systems necessary for HFT to occur. SSMI has also been awarded additional scope under a contract amendment to perform rough HVAC system test and balance to support HFT.

Inside the Unit 3 Turbine Building, subcontractor TurbinePRO completed its scope necessary to support the Lube Oil Flush, which was completed successfully, and is currently working to support



the completion of TOG, a major Project milestone for 2020 marking the completion of the turbine generator assembly. Additionally, TurbinePRO continues to make progress on the installation of the Unit 4 Turbine Generators, having completed setting the generator rotor during the Reporting Period.

During the Reporting Period, progress on coatings continued throughout the site by contractors Williams Specialty and FD Thomas. Williams Specialty, the primary coatings subcontractor on the Project, continued to apply coatings inside Containment, the Auxiliary Building, and other areas throughout Unit 3. Williams Specialty must complete the coatings and fireproofing inside Unit 3 Containment before HFT can begin. FD Thomas continued its coatings scope for Unit 4.

Subcontractors on the Project continue to experience challenges with access to and work releases for available work fronts, which is inhibiting the ability to move from bulk construction to system turnovers. The Project continues to implement lessons learned to sequence subcontractor work scope to reduce congestion and adhere to the schedule. When necessary, the Project has also embedded personnel with subcontractors to support the management of craft and monitor productivity and progress. During the Reporting Period, Unit 4 modularized several Auxiliary Building structural steel room assemblies (most notably room 12501), allowing subcontractors to complete work scope outside of the congested areas more quickly and more efficiently than they otherwise would.



*Air Inlet Panels installed on the Unit 4 Shield Building*



## **TURNOVER AND TESTING**

### **Construction Turnover to Testing**

During the Reporting Period, the Testing & Completions team continued to make significant progress in support of testing. The Testing & Completions organization is responsible for prioritizing and sequencing work appropriately to meet testing milestones such as IF, OVT, CHT, SIT/ILRT, TOG, CV, and HFT. This team's goal is to ensure the Project is aligned on organizational structure, process, and schedule integration throughout construction completion. The Project successfully turned over thirty-five systems or partial systems to the ITP organization through the end of July 2020.

### **Initial Test Program**

During the Reporting Period, the Testing Control Center (“TCC”) continued to assist with resolution of issues discovered during system and component testing and to facilitate the Operations “Lock Out–Tag Out” program. The TCC has the personnel necessary to communicate and respond urgently to testing issues and remove barriers that affect testing preparation and execution. To ensure ITP is ready for each major testing milestone, milestone managers continue to work with all organizations on site to identify the necessary components/systems to support testing milestones.

During the Reporting Period, the ITP organization successfully completed major testing milestones for Unit 3 including IF, OVT, CVT and SIT/ILRT. During the next Reporting Period, the organization will continue work to support the completion of major testing milestones that include CHT, CV, and HFT, as well as Fuel Load getting ready for Unit 3 startup testing.



*An Initial Test Program employee performs an inspection on the Operating Deck of the Unit 3 Turbine Building*

### **Unit 3 Integrated Flush (“IF”)**

The IF testing milestone was completed during the Reporting Period. This milestone activity involved cleaning and removing any foreign material that could impact the operation of equipment. To complete the milestone, all system piping and mechanical components that feed into the Reactor Vessel or reactor coolant loops are flushed with clean water. The flushing was accomplished using permanent plant pumps and clean water, in addition to hydrolasing, air blows, and some hand cleaning. Integrated flushing ensured that systems can be tested without concern of damage from debris and to satisfy the cleanliness and chemistry requirements necessary to operate the systems per design. IF includes five main systems: Reactor Coolant System (“RCS”); PXS; Chemical and Volume Control System (“CVS”); RNS; and SFS.

### **Unit 3 Open Vessel Testing (“OVT”)**

OVT began in November 2019, with all OVT pre-op tests being completed during the Reporting Period. OVT included flow measurement, pump performance, line resistance, and tank mapping testing for the major systems flushed during IF. Measurements obtained during OVT ensure that safety and defense-in-depth systems and components function properly to support pre-operational testing and meets the design requirements for protection of the plant and public during normal and emergency operating conditions.

### **Unit 3 Structure Integrity Test/Integrated Leak Rate Testing (“SIT/ILRT”)**

During the Reporting Period, the SIT and ILRT testing milestones were completed in succession and demonstrated that the Containment Vessel met construction quality and design requirements. Successful completion of these tests is required for NRC approval to load fuel. SIT called for the Containment Vessel to be pressurized for the first time at pressure above design specification and then inspected in accordance with ASME section III. Similarly, ILRT tested the Containment Vessel leak rate at design pressure to confirm it satisfied the NRC Leak Rate Test Program requirements that all containment penetrations met the allowable leakage rate and performed their safety related functions. These tests were performed well within the design requirements with margin remaining showing the high-quality construction of the finished product. The Containment Vessel serves as a barrier to protect the public and surrounding communities by containing material produced inside the Reactor Vessel during plant operations in the unlikely event of an emergency. Successful completion of this test demonstrates that the Containment Vessel meets the design requirements for protection of the plant and public during normal and emergency operating conditions.

### **Unit 3 Turbine on Gear Testing (“TOG”)**

The TOG milestone is forecasted to complete in the third quarter of 2020. The test is conducted by simultaneously rotating the four steam turbines with the use of the turning gear motor continuously for twenty-four hours to show reliable operation. This milestone includes placing the required lubricating oil systems in operation following the completion of initial testing. Successful completion of this test is important in preparing for CV and HFT and marks the completion of the main turbine generator assembly.

### **Unit 3 Condenser Vacuum (“CV”) Testing**

The CV test is forecasted to begin during the next Reporting Period. The CV will be established with the main turbine on turning gear and by placing auxiliary steam, condensate, feedwater and their support systems in service. The test will be completed once CV has been fully established with feedwater in circulation and secondary water cleaned and deaerated. This milestone is significant in demonstrating the steam supply systems including feedwater, main steam, and the main turbine operating together to support HFT and startup.

### **Unit 3 Cold Hydro Testing (“CHT”)**

CHT is forecasted to begin in the next Reporting Period. CHT includes several separate tests in different areas of the plant to verify that welds, joints, pipes, and other components of the RCS, steam-supply system and associated high pressure systems do not leak and will hold pressure. To accomplish these tests, internals will be installed in the Reactor Vessel and the Integrated Head Package RCS will be filled and pressurized above normal operating conditions, backed down to normal design pressure, and held there while the comprehensive inspection is concluded. This test will mark the first time that the RCPs are operated to raise the pressure in the RCS.

### **Unit 3 Hot Functional Testing (“HFT”)**

Hot Functional Testing is forecasted to begin in Q4 2020. Many of the plant systems will be required to be turned over and tested to complete this milestone. HFT will demonstrate the integrated operation of the primary coolant system and steam supply system at design temperature and pressure, but without fuel in the reactor. Operators use the heat generated by RCPs to raise the temperature and pressure of plant systems to normal operating levels. The unit’s main turbine will be raised to normal operating speed using plant steam. This test will be the first time that components and systems are operated together, allowing operators to exercise and validate procedures as required before Fuel Load. Completion of the test will validate many testing ITAACs, which are required for Fuel Load. While major construction of the Primary and Secondary portions of the plant are complete, the current site work plan calls for some system-related and common plant construction to occur after HFT.

### **Unit 3 Startup Testing**

Startup testing is expected to begin in the first quarter of 2021. Successful completion of HFT and the NRC’s issuance of the 103(g) letter will allow the site to load fuel into the Reactor Vessel to perform startup testing. Startup testing will demonstrate the integrated operation of the primary coolant system and steam supply system at design temperature and pressure with fuel inside the reactor. Operators will utilize the general operating procedures to bring the plant from cold shutdown to initial criticality, synching to the grid, power ascension through multiple steps and ultimately raising power to 100%. This test is to ensure all systems are operating together and to validate operating procedures prior to declaration of commercial operation.

## **SITE OPERATIONS**

### **Digital Instrumentation & Controls**

During the Reporting Period, the I&C and Maintenance organizations remained involved in turnover and testing of the Plant Control System (“PLS”) to support ITP testing. The team supported the update of the I&C software in digital cabinets to align with plant design changes and to support major testing milestones.

### **Cyber Security**

Throughout the Reporting Period, the Cyber Security organization continued to make significant progress toward the completion of the Cyber Security program, including the completion of program development to support the NRC Cyber Security inspection in the third quarter of 2020. The organization has begun to implement those programs, which include procurement of software tools and the implementation of password protections for system and vulnerability management tools. In addition, the Cyber Security organization completed the tailored assessment for major digital systems and is performing walkdowns to review those systems once turned over to validate the as-built design. Tailored assessments are based on the reference assessment for a device but are applied in a situation to assess a unique application of the device. The organization also developed a strategy for phased implementation of cyber security requirements that support the transition from construction to operations.

### **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, the majority of high complexity LARs were approved by NRC to support Fuel Load and Start-up. Additionally, Site and Corporate Licensing and Inspection, Test, Analysis, and Acceptance Criteria (“ITAAC”) teams continue to work with the NRC on timely submittal of ICNs for review.

### **ITAAC Organization**

During the Reporting Period, the ITAAC organization continued to support construction and testing for submittal of ITAAC Completion Notifications. SNC is planning to submit the ALL ITAACs Completed Letter to the NRC in December 2020, which is the final submission by SNC to support the NRC’s issuance of the 103(g) letter required for Fuel Load. Each of the 399 Unit 3 ICNs must be submitted and verified complete in order to provide this letter to the NRC and allow for Fuel Load of Unit 3.

### **Operations and Maintenance**

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, 77 operators have passed the NRC exam. The fifth Initial Licensing Training class began in July 2020 and includes 16 operators. The Project currently has enough licensed operators to support Unit 3 Fuel Load.

During the Reporting Period, the organization received 62 NRC Operator Licenses in preparation for Unit 3 fuel load later in the year. The remaining 15 licensed operators continue to accumulate meaningful work time and documentation will be submitted to the NRC once requirements for Cold Licenses are met. In addition, the World Association of Nuclear Operators (WANO) team conducted a Crew Performance Observation as part of WANO's Pre-Startup Review in August 2020. In the Crew Performance Observation, they observed the licensed operators' responses to plant events in the simulator as well as field observations. The WANO team found no areas for improvement and no focus area gaps. This result was a significant achievement for Operations as the organization prepares to support Fuel Load and plant start-up during the next Reporting Period.

To assist critical work within construction and ITP, the Operations organization continued to provide Operations personnel to support these areas. These individuals have applied their knowledge of the AP1000 design to provide additional assurance that the plant is being built as designed. Operations personnel are also being utilized to develop test procedures for ITP and are performing the tests according to the schedule. Maintenance personnel are similarly supporting ITP for testing. Trained maintenance and I&C technicians, at the direction of ITP Test Engineers, are validating component functionality to ensure equipment can be safely energized and function as part of the plant electrical system.

In preparation for the transition to operations, the organization has established a turnover and acceptance process to systematically assume 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 site, while the Maintenance organization is engaged in the preservation of installed equipment yet to be turned over for testing. Utilizing the SNC Maintenance group to preserve equipment minimizes equipment failure prior to operation while providing valuable on the job training prior to acceptance.

### **Integration of the Four Unit Site**

During the Reporting Period, the site team continued training and qualifying personnel in preparation for the NRC Emergency Preparedness graded exercise currently scheduled for November 2020. This exercise must be completed successfully to load fuel in Unit 3. Preparation of the Personnel Access Point building continues to support site integration, with the successful installation of necessary equipment. Equipment testing has begun and will be completed during the next Reporting Period.

In addition, site integration continued in the area between Vogtle Units 2 and 3, specifically for the Emergency Communications and Security Systems. Security perimeter installation to add Unit 3 to the Protected Area is ongoing with substantial completion on the northern and southern perimeter, and remaining work to be completed between Unit 3 and Unit 4.

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

The economic analysis performed for this 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 Report is based on the same underlying planning assumptions used in the VCM 22 Report, including fuel forecasts, load forecasts, and new generation technology costs.

The analysis incorporates the regulatory-approved 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, and excludes the approximate \$150 million cost increase recently announced by Georgia Power. Pre-in-service O&M, post-in-service O&M, Ad Valorem taxes, post in-service ongoing capital, spare parts average balances, marginal cost of capital, and spent fuel storage costs 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 17<sup>th</sup> VCM Order issued on January 11, 2018. In addition, the marginal cost of capital utilized in the analysis reflects the capital structure and return on equity as approved in the Company's 2019 base rate case. In terms of nominal dollars, decommissioning costs and nuclear fuel have not changed. The assumed operating characteristics of the Project have also not changed.

The results presented in Table 4.1 reflect receipt of 100% of the 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 additional DOE loan guarantee of \$1.67 billion that closed on March 22, 2019.

The analysis does not include any potential cancellation fees or any fully committed construction costs that would be unavoidable in the event the Project is cancelled. It is expected that inclusion of these costs in the analysis would serve to favor completing the Project. Since the results of the current economic analysis reflects significant savings to customers across a wide range of possible future fuel and carbon prices, an updated cancellation assessment is not warranted at this time.

**Table 4.1:**

**Relative Savings of the Project versus CC as of February 1, 2021**  
**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 <sub>2</sub>	\$0 CO <sub>2</sub>	\$10 CO <sub>2</sub>	\$20 CO <sub>2</sub>
High	\$4,767,000,000	\$5,960,000,000	\$7,172,000,000
Moderate	\$2,543,000,000	\$3,757,000,000	\$4,878,000,000
Low	\$920,000,000	\$2,122,000,000	\$3,213,000,000

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 \$3.9 billion based on the results provided in Table 4.1.

**Economic Analysis Conclusion / Summary of Results**

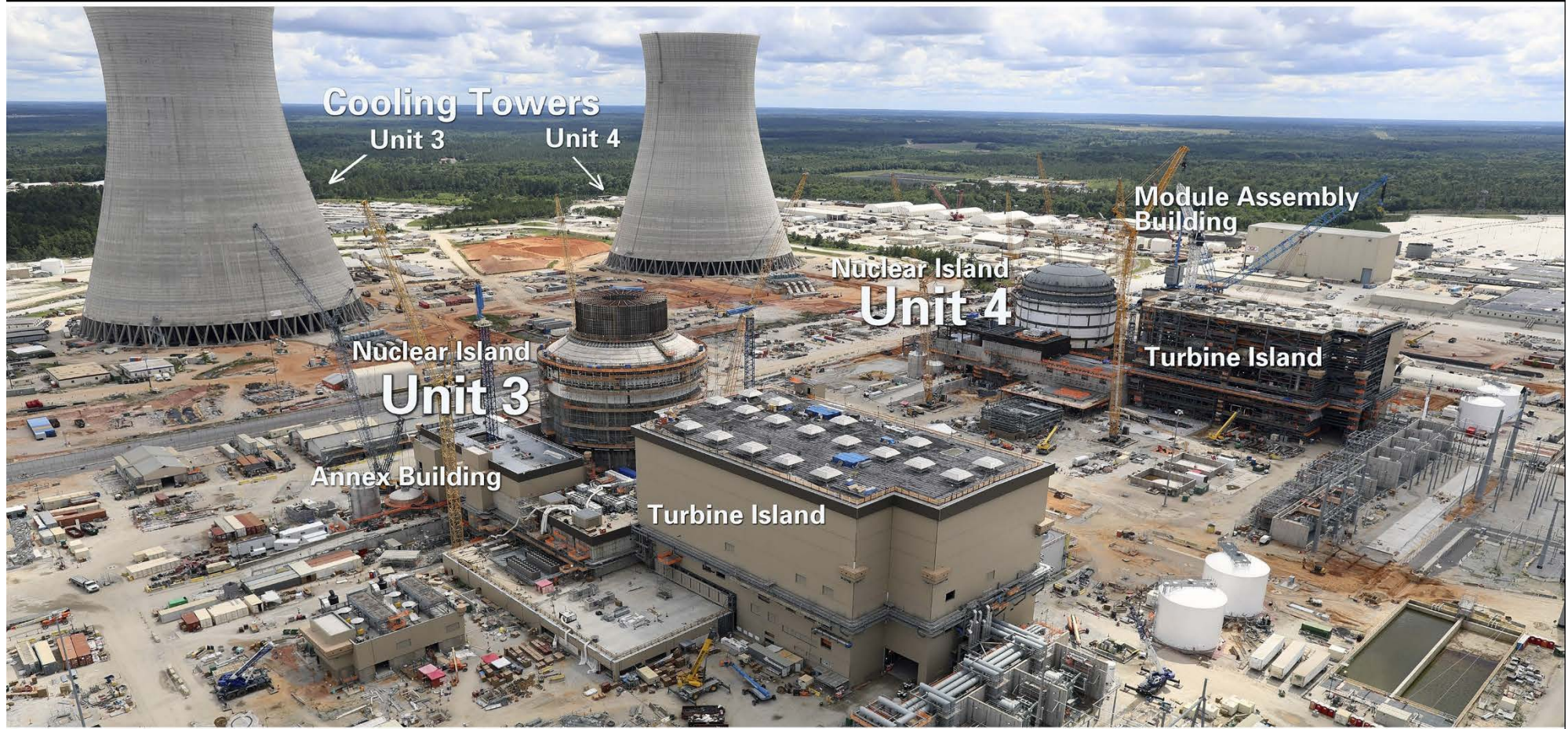
In summary, analysis utilizing the Company’s current schedule and cost forecast indicates that completing the Project is the best cost option for our customers.



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.

# Vogtle 3&4 - Construction, June 21, 2020



Glossary of Abbreviations	
ASME	American Society of Mechanical Engineers
BOP	Balance of Plant
BRE	Bullet Resistant Enclosure
CHT	Cold Hydrostatic (or “Hydro”) Testing
CPI	Cost Performance Index
cROP	Construction Reactor Oversight Process
CV	Condenser Vacuum
CVS	Chemical and Volume Control System
DOE	Department of Energy
FCN	Field Change Notice
FPS	Fire Protection System
HCS	Generator Hydrogen and CO2 Systems
HFT	Hot Functional Testing
HSS	Hydrogen Seal Oil System
I&C	Instrumentation & Controls
ICN	ITAAC Closure Notifications
IE	Initial Energization
IF	Integrated Flush
IHP	Integrated Head Package
ILRT	Integrated Leak Rate Test
IPS	Integrated Project Schedule
ITAAC	Inspection, Test, Analysis, and Acceptance Criteria
ITP	Initial Test Program
LAR	License Amendment Request
LOS	Main Turbine and Generator Lube Oil System
MCR	Main Control Room
MTS	Main Turbine System
NRC	Nuclear Regulatory Commission
N-Stamp	Nuclear Component Stamp
OVT	Open Vessel Testing
PLS	Plant Control System
PMS	Protection and Safety Monitoring System
PRT	Partial Release to Test
PTC	Production Tax Credit
PXS	Passive Core Cooling System
QA	Quality Assurance
RCP	Reactor Coolant Pump
RCS	Reactor Coolant System
RNS	Normal Residual Heat Removal System
SES	Plant Security System

Glossary of Abbreviations	
SFS	Spent Fuel Pool Cooling System
SIT	Structural Integrity Test
SNC	Southern Nuclear Company
SPI	Schedule Performance Index
SWS	Service Water System
TCC	Testing Control Center
TOG	Turbine on Gear
UIN	Uncompleted ITAAC Notifications
VCM	Vogtle Construction Monitoring
VFS	Containment Filtration System
VWS	Central Chilled Water System
VXS	Nonradioactive Ventilation System