

**BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION
GEORGIA POWER COMPANY
DOCKET NO. 29849**

**Georgia Power Company's Application to Adjust Rates to Include Reasonable and Prudent
Plant Vogtle Units 3 and 4 Costs**

**Basis for the Assertion that Redacted Portions of the Information Submitted
are Protected Trade Secrets**

In support of its Application to Adjust Rates to Include Reasonable and Prudent Plant Vogtle Units 3 and 4 Costs, in Georgia Public Service Commission Docket No. 29849, Georgia Power Company ("Georgia Power" or the "Company") has provided Information in the form of an expert cost report (the "Information"). Certain provisions of the Information are trade secrets of Georgia Power, Southern Company, Oglethorpe Power Corporation, the Municipal Electric Authority of Georgia, and the City of Dalton (collectively, the "Owners"), and their affiliates and contractors. These portions of the Information are protected under Commission Rule 515-3-1-.11.

The trade secret portions of the Information derive economic value from not being generally known to, and not being readily ascertainable by proper means by other persons who can obtain economic value from their disclosure or use. Public disclosure of the trade secret portions of the Information could give competitors and vendors an unfair advantage by showing the Company's individual components of costs, forecasts, plans, estimates, and models. The resulting economic harm could in turn impair Owners, Owners' affiliates and contractors, and Owners' customers.

More specifically, the trade secret portions of the Information pertaining to the proposed nuclear units that have been redacted contain contract information, construction scheduling, cost analyses, design changes, and sensitive financial and risk information that is specific to Vogtle Units 3 and 4. The trade secret portions of the Information are considered confidential and proprietary by the Company and its contractors and are not generally known by the public. Revealing these terms would compromise the Company's ability to procure the best cost resources from fuel, labor, equipment, or commodity suppliers in future solicitations. In the event such information were released, it is likely that suppliers for future services and materials would use this Information to set the floor on negotiated pricing or that bidders in future Requests For Proposals would use the trade secret portions of the Information to set the floor in constructing their own bids, thus artificially and inefficiently setting a market price and other generation characteristics for the Company that may not be representative of the best cost or best resource that the market could offer.

Moreover, public release of the trade secret portions of the Information could have adverse economic consequences for the Company. Public release of the trade secret portions of the Information could make potential vendors unwilling or unable to conduct business with the Company. By causing proprietary information to be publicly available, even fewer vendors might be willing to sell to the Company, thus, reducing the opportunity for the Company to purchase the materials or services best suited to meeting its customers' needs, and potentially compelling the Company to deal with a vendor that does not offer the best cost option. This could cause significant

added costs to the Company and ultimately to Georgia Power's ratepayers. Additionally, potential competitors of the Company could use the trade secret portions of the Information to guide purchases from and sales to the Company, thereby gaining an unfair competitive advantage to the disadvantage of the Company's customers. Finally, competitors, investors, and other external stakeholders could use the financial data to determine non-public information on the Owners' financial assumptions, assets, liabilities, and other positions, to the detriment of the Owners, their affiliates, and their customers.

The trade secret portions of the Information are subject to extensive efforts to maintain their secrecy. Only select Georgia Power and Southern Company personnel and their legal counsel are granted access to this information. Those personnel receive access only on a "need to know" basis. If a party outside Georgia Power and Southern Company and their legal counsel are granted access to the trade secret portions of the Information, the party is required to sign a confidentiality agreement.

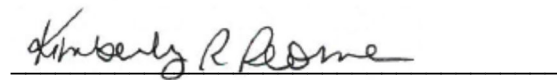
DOCKET NO. 29849
STATE OF GEORGIA
BEFORE THE GEORGIA PUBLIC SERVICE COMMISSION

IN RE: GEORGIA POWER COMPANY'S APPLICATION TO ADJUST RATES TO
INCLUDE REASONABLE AND PRUDENT VOGTLE UNITS 3 AND 4 COSTS

EXPERT REPORT OF KIMBERLY R. REOME

September 8, 2023

ON BEHALF OF: Georgia Power Company
PREPARED FOR: Troutman Pepper Hamilton Sanders LLP
SUBJECT MATTER: Analysis of Vogtle Units 3 and 4 Cost Growth



Kimberly R. Reome

September 8, 2023



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APPENDICES

Appendix 1	Kimberly R. Reome Curriculum Vitae
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EXHIBITS

Exhibit 1	Monthly Estimate At Completion ("EAC") Summary
Exhibit 2	Time-Related Cost Analysis
Exhibit 3	Total Project EAC Variance By Level 1 Cost Categories

1. EXECUTIVE SUMMARY

1.1 OVERVIEW

The issues which I have been requested to provide my opinion on are as follows:

- The overall cost growth for Vogtle Units 3 and 4 since Georgia Power Company's ("Georgia Power") Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4 ("VCM 17");
- The categories of cost with the greatest cost growth; and
- The impact of delays to the Project costs (the "Project" is defined in Section 2.3 below).

1.2 SUMMARY OF OPINION

I set out below my opinion in summary:

- Georgia Power estimated that Vogtle Units 3 and 4 would have a Total Construction & Capital Cost, net of Toshiba Parent Guarantee, of \$7.293 billion (Georgia Power's share) as of its VCM 17 submission in August 2017. The current Estimate at Completion ("EAC") of Total Construction & Capital Cost, net of Toshiba Parent Guarantee, with minimal costs remaining, is \$10.188 billion (Georgia Power's share), an increase of \$2.895 billion.
- Of the \$2.895 billion of increased costs (Georgia Power's share), Georgia Power is seeking recovery for \$269 million. Georgia Power is not seeking recovery for \$1.362 billion, plus Georgia Power has decided to forgo recovery of an additional \$1.264 billion per the August 29, 2023 Stipulation with the Georgia Public Service Commission's (the "Commission") Public Interest Advocacy Staff ("PIA Staff") and several intervenors.
- Georgia Power estimated that Vogtle Units 3 and 4 would have a to-go cost of \$4.244 billion (Georgia Power's share) as of its VCM 17 submission in August 2017 (for costs July 2017 forward). The current EAC (for costs July 2017 forward), with minimal costs remaining, is \$7.044 billion (Georgia Power's share), an increase of \$2.800 billion. The cost growth of \$2.800 billion in Georgia Power's share is \$6.127 billion in 100% of dollars.

- The primary drivers of the cost growth included: delay-related costs, productivity performance, craft labor per diems and wage incentives, COVID-19 impacts, rework, technical changes, and scope increase. The following summarizes the quantification of the \$6.127 billion cost growth (all in 100% of dollars):¹
 - The Project experienced delays that are explained further in the Gentry Report. I calculated the time-related cost rate for delay on the Project to be approximately \$94 million per month. I applied the rate of delay to the months of delay quantified in the Gentry Report to reach a total time-related cost impact of \$1.6 billion for delays.
 - The Project experienced lower than expected productivity. Lower productivity caused an increase of \$1.3 billion in costs. Productivity was caused by COVID-19 impacts, rework and emergent scope, subcontractor impacts and other issues.
 - Bechtel Power Corporation ("Bechtel") incurred additional manhours and costs related to what it referred to as "Excluded Costs" that were not included in the VCM 17 estimate. These Excluded Costs include costs for craft labor per diem, craft labor wage incentives, taxes, work scope that is not related to the achievement of final completion, and other costs. The total cost impact of the Bechtel "Excluded Costs" is \$606 million.
 - Design and technical changes caused increased costs. These included design changes, First Of A Kind ("FOAK") issues, and increased procurement costs. These technical changes resulted in an increase of \$335 million.
 - The Project saw growth in the estimated quantities for certain material, including rebar, formwork, and embeds. This scope increase caused an increase of \$130 million.
 - The Project incurred costs for direct mitigation of COVID-19. This included infrastructure costs such as medical village, testing, and janitorial services; and workforce isolation costs for workers who were in quarantine. The COVID-19 direct mitigation costs totaled \$82 million. This is in addition to the productivity impacts of COVID-19, which are included in the productivity impacts described above.
 - The Project experienced cost growth due to a re-baseline and re-allocation of scope at the time of VCM 19. Georgia Power finalized agreements with Bechtel and Westinghouse and

¹ HKA Exhibit 3.

incorporated these changes into the EAC. The re-baseline and scope adjustments increased costs by \$764 million.

- Other discrete issues caused an increase in cost of \$94 million.
- After accounting for the above cost increases, the remaining uncategorized impacts are \$1.2 billion. I analyzed the remaining amounts by each category of cost (i.e., construction, Westinghouse, procurement, subcontracts, etc.) and provided examples that explain the remaining \$1.2 billion in cost increases.

2. INTRODUCTION

2.1 EXPERT QUALIFICATIONS

I, Kimberly R. Reome, am a Partner of HKA Global, LLC ("HKA"), based in the company's Chicago office. HKA is a consulting firm of accounting, financial, economic, and engineering professionals with expertise in the evaluation of economic damages and the determination of delays in the construction and electric power industries. HKA's professionals have substantial experience regarding financial, accounting, economic, business operations, and damages issues on complex commercial litigation and regulatory proceedings.

I have a Master of Business Administration from Northwestern University Kellogg School of Management, and I graduated with high honors with a Bachelor of Arts in Finance from Michigan State University Honors College. I am a Certified Construction Industry Financial Professional and a Certified Fraud Examiner.

I have over 30 years of experience analyzing, quantifying, and developing damages claims, with experience analyzing accounting, financial, and economic issues in various types of disputes, with a primary focus in the electric power and construction industries. I have provided expert testimony, authored expert reports, and assisted in the production of expert reports on numerous electric power and construction disputes. I have provided consulting and expert services on over 75 matters related to over 40 nuclear power plants, as well as numerous coal, natural gas, wind, solar and hydroelectric plants. In addition to my prior work regarding Vogtle Units 3 and 4 construction cost analysis (described in Section 2.2 below), I have also provided consulting and expert services on numerous disputes regarding spent nuclear fuel related to Vogtle Units 1 and 2 before the U.S. Court of Federal Claims.

Prior to my work at HKA, I previously worked at The Kenrich Group LLC ("Kenrich"),² Tucker Alan Inc., and Peterson Consulting LP.

My Curriculum Vitae is appended to this Report as Appendix A.

2.2 RETENTION

HKA has been retained by Troutman Pepper Hamilton Sanders LLP ("Troutman Pepper" or "Counsel"), acting on behalf of Georgia Power, for Kimberly R. Reome to provide expert opinion on Vogtle Units 3 and 4 cost growth.

In 2011, Balch & Bingham LLP (counsel for the Owners), engaged Kenrich as the expert witnesses for cost and schedule damages in the litigation between the Owners and the Contractor ("the litigation") ("Owners" and "Contractor" are defined in Section 2.3 below). After the settlement of the litigation, Troutman Sanders LLP,³ counsel for Georgia Power, engaged Kenrich in December 2015 as the scheduling expert for the prudence review before the Commission in 2016.⁴ Additionally, Kenrich authored a report that analyzed the Project Estimate to Complete ("ETC") as a part of VCM 17.⁵ I worked extensively on Kenrich's reports for the litigation, as well as on Kenrich's 2017 ETC report.

In 2023, Troutman Pepper engaged HKA to assist with prudence review and analysis in the current proceeding. This Report relates to Georgia Power's Application to Adjust Rates to Include Reasonable and Prudent Plant Vogtle Unit 3 and 4 and Common Costs ("Application"). Georgia Power filed this Application to be decided by the Commission. In addition to my Report, HKA partners are filing separate reports on schedule delay (Mark Gentry) and technical issues (Timothy Chitester).

2.3 THE PROJECT

The costs reviewed in this Report relate to the construction of Units 3 and 4 at the Vogtle Electric Generating Plant (the "Project"). The Project is located near Waynesboro, Georgia, with Units 1 and 2 achieving commercial operation in May 1987 and May 1989 respectively.⁶ In 2008, Georgia Power filed an application

² HKA acquired Kenrich in July 2019.

³ Troutman Sanders LLP became Troutman Pepper Hamilton Sanders LLP in 2020.

⁴ Expert Report of Richard J. Sieracki and Mark A. Gentry dated April 5, 2016, provided in the Supplemental Information Report filing to support the 2016 Definitive Settlement Agreement.

⁵ Report of Richard J. Sieracki and Mark A. Gentry dated August 11, 2017.

⁶ https://www.southernnuclear.com/content/dam/southern-nuclear/pdfs/our-plants-/plant-vogtle/vogtle-plant_brochure.pdf.

for certification of Vogtle Units 3 and 4.⁷ The Commission approved the proposed Vogtle expansion in 2009.⁸

In April 2008, Georgia Power, Oglethorpe Power Corporation, the Municipal Electric Authority of Georgia ("MEAG"), and the City of Dalton through Dalton Utilities (collectively the "Owners") contracted with the consortium of Westinghouse Electric Company LLC ("Westinghouse" or "WEC") and Stone & Webster, Inc. ("S&W")⁹ (collectively, the "Contractor") for the engineering, procurement and construction of two new AP1000 nuclear plants at Vogtle Units 3 and 4 (the "EPC Agreement").

Georgia Power owns 45.7% of the Project, along with Oglethorpe Power Corporation (30%), MEAG (22.7%), and Dalton Utilities (1.6%).¹⁰

In March 2017, Westinghouse declared bankruptcy.¹¹ In March 2017, the Owners entered into an Interim Assessment Agreement ("IAA") with Westinghouse.¹² Westinghouse and the Owners entered into a Services Agreement which became effective in July 2017, under which Westinghouse serves as the engineering and design contractor for the remainder of the Project.¹³ Georgia Power, along with Southern Nuclear Operating Company ("Southern Nuclear") acting as the project manager, took over management of the Project.¹⁴ Southern Nuclear prepared an ETC Report which Georgia Power filed with VCM 17.¹⁵

Prior to Westinghouse's bankruptcy, Westinghouse had hired Fluor Corporation ("Fluor") as a subcontractor and then construction contractor in 2016.¹⁶ After Westinghouse declared bankruptcy, Georgia Power entered into an agreement with Fluor.¹⁷ Georgia Power solicited bids from potential construction

⁷ Georgia Power's Application for the Certification of Units 3 and 4 at Plant Vogtle and Updated Integrated Resource Plan; Docket No. 27800.

⁸ Georgia Public Service Commission Certification Order; Georgia Power's Application for the Certification of Units 3 and 4 at Plant Vogtle and Updated Integrated Resource Plan; Docket No. 27800.

⁹ S&W was the party named in the litigation with the Owners. The Shaw Group acquired S&W in July 2000. Chicago Bridge & Iron Company ("CB&I") agreed to acquire Shaw in July 2012. That acquisition was completed in February 2013. In January 2016, Westinghouse completed the acquisition of CB&I Stone & Webster, Inc., the nuclear construction business responsible for the Vogtle Project for CB&I. The acquired business resides in a Westinghouse subsidiary called WECTEC.

¹⁰ <https://www.georgiapower.com/content/dam/georgia-power/pdfs/company-pdfs/Vogtle-Update-3-4-Fact-Sheet-03212022.pdf>.

¹¹ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 33.

¹² Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Pages 39-41.

¹³ Amended and Restated Services Agreement between Georgia Power Company, et al and Westinghouse Electric Company LLC et al, July 20, 2017 (Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Exhibit 1).

¹⁴ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Pages 6-7.

¹⁵ Southern Nuclear Estimate to Complete (ETC) Report, Revision 1.

¹⁶ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 31.

¹⁷ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 37.

contractors, including Fluor and Bechtel, and ultimately selected Bechtel as the construction contractor.¹⁸
In October 2017, the Owners contracted with Bechtel to complete the construction of the Project.¹⁹

Vogtle Unit 3 achieved Commercial Operation on July 31, 2023, and the current projected date for Unit 4 commercial operation is around December 2023.²⁰

2.4 INFORMATION AND DATA ON WHICH THIS OPINION IS BASED

My opinion is based upon documents, data, and information that have been provided to me. The following is a general description of the types of documents I have relied upon:

- a) Monthly Cost Performance Reports ("CPR"s);
- b) Vogtle Project Management Board ("VPMB") meeting minutes;
- c) VCM filings, testimony transcripts and orders;
- d) Cost estimates;
- e) Contracts and change orders;
- f) Bechtel Quantity and Unity Rate Reports, Scorecards, and monthly status reports;
- g) Change Control Forms;
- h) Reports of Mark Gentry and Timothy Chitester of HKA;
- i) Industry publications;
- j) In-person site visits;
- k) Discussions with Southern Nuclear and Georgia Power current and former personnel, including Redacted (Business Operations Director), Redacted (Project Oversight Director), Redacted (Project Director), Redacted (Budgeting and Reporting Manager), Redacted (Regulatory & External Affairs Project Manager), Redacted (Nuclear Development Regulatory

¹⁸ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 58.

¹⁹ Construction Completion Agreement between Georgia Power, et al and Bechtel, October 23, 2017, including Exhibit A.

²⁰ Gentry Report, Section 5.2.

Support), Redacted (Commercial Director – Nuclear Development), Redacted (Business Operations), and Redacted (Cost Manager), among others; and

l) Other select Project records.

2.5 RESERVATIONS

The opinions presented in this Report are based on the documents and information in my possession as of the date of this Report. I reserve the right to amend this Report if further information or documents are provided to me or otherwise become available to me. I reserve the right to respond to any additional information obtained through discovery or issues raised by experts retained by the PIA Staff, intervenors, or other parties, if any. In addition, I reserve the right to prepare additional exhibits, charts, graphs, tables, demonstratives, and diagrams to summarize or support the opinions and analyses set forth in this Report. If called as a witness at the Commission hearings, I may testify to some or all of the opinions in this Report. I will notify Troutman Pepper if, for any reason, my existing report requires any correction or qualification that impacts my opinion(s).

2.6 ASSISTANCE

I have been assisted by others at HKA in the preparation of this Report. I confirm that these individuals worked under my supervision and direction.

The opinions expressed in this Report are mine and mine alone.

3. METHODOLOGY

As described in Section 2.2 above, I was asked by Counsel to provide expert opinion on Vogtle Units 3 and 4 cost growth, related to Georgia Power's Application to Adjust Rates to Include Reasonable and Prudent Plant Vogtle Unit 3 and 4 and Common Costs.

Georgia law provides that plant construction costs can be included in rate base if those costs are found to be reasonable and prudent:

“(a) So long as the commission has not modified or revoked the certificate for an electric plant . . . and to the extent the utility seeks to add to its rate base upon completion of the plant construction costs that do not exceed 100 percent of those approved by the commission . . . , that construction cost amount may be excluded from the rate base only on the basis of fraud, concealment, failure to disclose a material fact, imprudence, or criminal misconduct. Inclusion of costs in excess of 100 percent of those

*approved by the commission shall not be permitted unless shown by the utility to have been **reasonable and prudent.**" [emphasis added]²¹*

I analyzed the Project's cost growth from VCM 17 to the current costs using the following methodology.

I performed a variance analysis by comparing the cost estimate at VCM 17 to the current actual costs and ETC. Variance analysis can be explained as an analysis of the difference between planned and actual costs. Variance analysis determines which costs are higher than planned, which costs are lower than planned, and what caused each of the variances.²² Variance analysis can include variance of budgeted to actual costs, unit variance analysis, analysis of labor rates and labor productivity, material rates and usage, schedule variance, and other cost analyses. This comparison can include identification of potential changes and their causes, with independent review and thought to understand how, why, and where project accounts changed.²³ I performed this variance analysis by major cost category.

I investigated how the VCM 17 estimate was prepared and analyzed the estimate calculation files prepared at the time of VCM 17. Because Southern Nuclear further developed its cost reporting structure between VCM 17 and VCM 19, I further investigated the files supporting the VCM 19 cost estimates.

I analyzed the actual costs incurred to date starting from July 2017. I aggregated the monthly CPRs, which provided detailed accounting for the Project, into one spreadsheet to have costs incurred by month by cost code all in one file. I added the current ETC to the costs incurred to date to arrive at the current EAC.

I analyzed the total cost variance from VCM 17 to the most recent cost estimate, and identified and quantified six overall categories of cost growth. (See Section 7.)

Mark Gentry's report identified the Project schedule delays. I quantified the cost impact of schedule delays through an analysis of the time-related costs incurred on the Project. See Section 7.1, which provides more specific description of the methodology I used to calculate the time-related costs.

Productivity issues are identified and described in the reports of both Mark Gentry and Timothy Chitester. The impact of lower productivity is found by determining the amount of additional labor hours expended, the applicable hourly wage rate, and the labor burdens. Productivity loss on this Project was calculated using an earned value approach.²⁴ I used this method to quantify the productivity impact to Bechtel and

²¹ FindLaw.com - Georgia Code Title 46. Public Utilities and Public Transportation § 46-3A-7 - last updated April 14, 2021 | <https://codes.findlaw.com/ga/title-46-public-utilities-and-public-transportation/ga-code-sect-46-3a-7.html>.

²² Charles Horngren, Gary Sundem and William Stratton, *Introduction to Management Accounting*, 11th ed., Prentice Hall, New Jersey, 1999, pages 288-289.

²³ *Recommended Practice 10S-90: Cost Engineering Terminology*, AACE International, 2023, pages 13 and 130-131.

²⁴ *Recommended Practice 25R-03: Estimating Lost Labor Productivity in Construction Claims*, AACE International, 2004, pages 1-2, 9 and 13.

subcontractors. See Section 7.2, which provides more specific description of the methodology I used to calculate the productivity impacts.

In addition to productivity impacts, certain other hours and costs were excluded from Bechtel's base construction estimate that directly contributed to increases in the estimate since VCM 17. See Section 7.3, which provides more specific description of the methodology I used to calculate the costs for Bechtel's "Excluded" hours and costs.

Timothy Chitester's report details certain risks that were identified in VCM 17 and eventually impacted the Project, including FOAK issues and procurement. I quantified the costs that relate to these issues through review of Project Change Control Forms ("CCF"s). See Section 7.4 for more specific description of the methodology I used to calculate the costs related to these technical changes.

I quantified the impact of scope increases to the Project through a review of the total scope hours estimated by Bechtel as of VCM 17 compared to the total estimated scope hours from the latest Bechtel Scorecard available. The increase in estimated hours is explained through additions to Project scope, as the unit rates of hours did not change throughout the Project. See Section 7.5 for more specific description of the methodology I used to calculate the costs related to scope increases.

Finally, Georgia Power quantified the impacts of COVID-19 as identified in updated versions of analyses that were filed with the Commission. I relied on Georgia Power's analysis to determine the direct mitigation costs incurred due to COVID-19 impacts. See Section 7.6 for more specific description of the methodology I used to calculate the costs related to COVID-19 direct mitigation.

After quantifying each overall cost category, I then further explained the remaining variance through review of the variances found in Bechtel's monthly cost reports and CCFs, as explained in Section 8.

4. OVERALL VARIANCE BETWEEN VCM 17 AND CURRENT COSTS

I analyzed the cost growth from VCM 17 to the actual costs incurred and current ETC. The most recent actual cost data I analyzed was from July 1, 2017 through May 31, 2023, and a May 2023 Southern Nuclear projection of forecasted remaining costs. The May 2023 actual costs to date plus the May 2023 ETC results in the May 2023 EAC. Table 1 below provides an overall summary of the cost growth from VCM 17 to the May 2023 EAC. Table 1 is presented at 100% of dollars, meaning total costs shared by all Owners of the Project, not just Georgia Power's share. Throughout this Report, I identify whether the costs referred to are 100% of dollars, or Georgia Power's share. Further, Table 1 presents the costs from July 2017 forward.

Table 1 – VCM 17 and May 2023 EAC Comparison (100% of Dollars in Thousands) (July 2017 Forward)

Category	VCM 17	May 2023 EAC	Variance
Construction (CCA Bechtel & Fluor)	\$ 3,511,386	\$ 6,579,505	\$ 3,068,119
Westinghouse (Engineering, Licensing, etc.)	264,145	468,910	204,765
Procurement	754,478	1,046,881	292,403
Subcontracts	1,295,133	2,114,366	819,233
IT	76,776	207,013	130,237
Distributables	203,497	437,415	233,918
Southern Company Labor, Supplemental, & other FNM	1,296,476	3,489,015	2,192,539
Owner's Costs (non-labor)	688,128	781,069	92,941
SNC Escalation Estimate	84,780	868	(83,912)
VCM17 Cost Basis Difference	(21,985)	-	21,985
Contingencies	1,134,308	288,702	(845,606)
Estimate-At-Completion (100% of Costs)	\$ 9,287,122	\$ 15,413,744	\$ 6,126,622
Estimate-At-Completion (Georgia Power Share 45.7%)	\$ 4,244,215	\$ 7,044,081	\$ 2,799,866

The overall variance, at 100% of dollars, is \$6.127 billion. Georgia Power's share of that variance, at its 45.7% ownership share, is \$2.800 billion.

In each VCM filing, Georgia Power reported on the then-current EAC in what is referred to as "Table 1.1." Table 1.1 from Georgia Power's VCM 17 filing is excerpted in Figure 1 below.

Figure 1 – Table 1.1 From VCM 17 (Georgia Power's Share in Millions)

Table 1.1

Vogtle 3&4 Project Georgia Power Company Cost - Subject to Commission Verification and Approval Total Project Costs ⁽¹⁾	
Construction & Capital Cost	Total Current Forecast (\$ millions)
Original EPC ⁽²⁾	\$3,257
Interim Payments & Liens ⁽³⁾	493
New Site Forecast EPC	
Engineering Contractor	545
Procurement	938
Contract Construction	1,374
Construction Support	388
Project Management	478
	3,723
Owners Cost	996
Ad Valorem Tax	273
Transmission Interconnection	61
Test Fuel Offsets	(33)
	1,298
Total Construction & Capital Cost ⁽¹⁾	\$8,771

Footnotes:

1. Total Current Forecast includes project to date actuals of \$4.444 billion through June 30, 2017 and forecasted costs for July 1, 2017 through November 2022. \$542 million was incurred during the VCM 17 reporting period of January 2017 through June 2017.
2. Includes payments under the original EPC Agreement and EPC Scope Change costs.
3. Includes liens and liabilities under the Interim Assessment Agreement.

Additional adjustments are necessary to convert Table 1 above to the Total Construction & Capital Costs shown in Table 1.1 of the VCM filings. First, the EAC (Georgia Power Share 45.7%) in Table 1 above, is shown in Table 2 below on the line EAC (Georgia Power %) calculated from the Site ETC. Next, the Original EPC, Interim Payments & Liens, and Georgia Power Additional Costs are added. Also, a subtraction is made for Duplicate Costs which are included in the Site ETC but are shown in the Georgia Power Additional Costs in Table 1.1 of the VCM filing. Then, the Total Construction & Capital Cost is reduced by the Toshiba parent guarantee received net of customer refunds. A parent guarantee monetization fee was added to the VCM 17 EAC. Finally, the Construction Monitor costs are included in the May 2023 EAC. Table 2 below summarizes these adjustments.

Table 2 – Summary Georgia Power Construction & Capital Cost Variance (Georgia Power's Share in Millions)

Description	VCM 17	May 2023 EAC	Variance
Original EPC	\$ 3,257	\$ 3,198	\$ (59)
Interim Payments & Liens	493	411	(82)
EAC (GPC %) calculated from Site ETC	\$ 4,244	\$ 7,044	\$ 2,800
Credits not included in site ETC	(89)	-	89
Duplicate Costs	(432)	(608)	(176)
EAC (GPC%) in Table 1.1 in VCM filings	\$ 3,723	\$ 6,436	\$ 2,713
GPC Additional Costs			
Owner's Cost	\$ 996	\$ 1,208	\$ 212
Ad Valorem Tax	273	336	63
Transmission Interconnection	61	62	1
Test Fuel Offsets	(33)	(4)	29
Total GPC Additional Costs	\$ 1,298	\$ 1,601	\$ 304
Total Construction & Capital Cost	\$ 8,771	\$ 11,646	\$ 2,876
Toshiba Parent Guarantee			
Parent Guarantee (GPC%)	\$ (1,682)	\$ (1,682)	\$ -
Customer Refunds (GPC %)	188	190	2
Net Toshiba & Customer Guarantee	\$ (1,493)	\$ (1,492)	\$ 2
Parent Guarantee Monetization Fees	\$ 15	\$ -	\$ (15)
Construction Monitor	-	33	33
Total Construction & Capital Cost, net of Parent Guarantee	\$ 7,293	\$ 10,188	\$ 2,895

In total, the variance at the Georgia Power ownership share level, after the adjustments, is \$2.895 billion between VCM 17 and the May 2023 EAC. The focus of my analysis was on the \$2.800 billion variance on the "EAC (GPC %) calculated from Site ETC" line in Table 2, which is the same as the \$2.800 billion variance explained in the paragraph following Table 1 above.

Georgia Power maintains that all \$10.188 billion in construction and capital cost is reasonable and prudent. Georgia Power previously stated, however, that it will not be seeking recovery for \$694 million identified in VCM 19.²⁵ In its August 30, 2023 Prudence Application, Georgia Power identified another \$668 million for which it elected not to seek recovery, resulting in a total of \$1.362 billion for which Georgia Power elected not to seek recovery. Georgia Power concluded that \$8.826 billion was a reasonable amount to recover

²⁵ Georgia Power Company's Nineteenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 5.

from customers.²⁶ Georgia Power reached Stipulation with PIA Staff and several intervenors, agreeing to forgo additional recovery of \$1.264 billion.²⁷ These reductions result in Total Construction & Capital Cost, net of the Toshiba Parent Guarantee and amounts to be absorbed by Georgia Power, of \$7.562 billion.²⁸ These reductions are shown in Table 3 below.

Table 3 – Summary Georgia Power Total Costs Less Amounts To Be Absorbed by Georgia Power
(Georgia Power Share in Millions)

Description	VCM 17	May 2023 EAC	Variance	
Total Construction & Capital Cost, net of Parent Guarantee	\$ 7,293	\$ 10,188	\$ 2,895	[A]
Amount To Be Absorbed by GPC At VCM 19	\$ -	\$ (694)	\$ (694)	[B]
Additional GPC Elected Not To Seek Recovery	-	(668)	(668)	[C]
GPC Elected Not To Seek Recovery	\$ -	\$ (1,362)	\$ (1,362)	[D = B + C]
GPC Position: Amount To Recover	\$ 7,293	\$ 8,826	\$ 1,533	[E = A + D]
GPC Forgo Addl Recovery Per Settlement & Stipulation	\$ -	\$ (1,264)	\$ (1,264)	[F]
Total Construction & Capital Cost, net of Parent Guarantee and amounts to be absorbed by GPC	\$ 7,293	\$ 7,562	\$ 269	[G = E + F]

In total, the variance between VCM 17 and the May 2023 EAC, after reducing amounts Georgia Power agreed to not recover, is \$269 million.

For the remainder of this Report, I focus on the variance shown in Table 1 above; in other words, the 100% of dollars at the Site Construction Management portion of the work. I did not investigate differences between Georgia Power Additional Costs and certain interim and lien costs shown in Table 2 above. I present Table 2 and Table 3 for purposes of context to show how Table 1 amounts relate to the Georgia Power amounts presented in the VCM filings and its August 30, 2023 Prudence Application.

²⁶ Georgia Power Company's Application to Adjust Rates to Include Reasonable and Prudent Plant Vogtle Units 3 and 4 Costs; Docket No. 29849, pages 6, 28-31.

²⁷ Georgia Power Company's Application to Adjust Rates to Include Reasonable and Prudent Plant Vogtle Units 3 and 4 Costs; Docket No. 29849, page 6.

²⁸ Georgia Power Company's Application to Adjust Rates to Include Reasonable and Prudent Plant Vogtle Units 3 and 4 Costs; Docket No. 29849, pages 6-7, 28-31, 34.

5. COST ESTIMATES: VCM 17 AND VCM 19

5.1 VCM 17 ESTIMATE

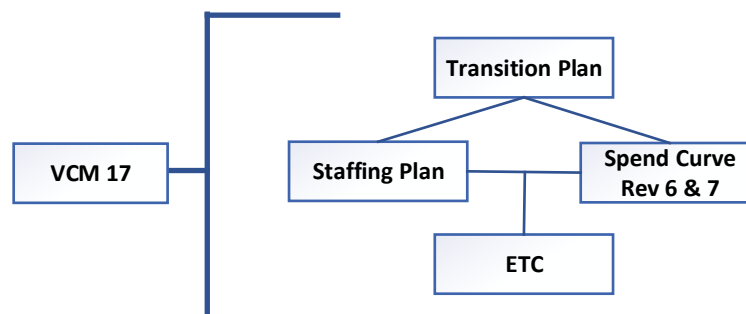
How Southern Nuclear Prepared Its Estimate

Westinghouse filed for bankruptcy on March 29, 2017, and entered into the IAA with Georgia Power and the other Owners.²⁹ The IAA allowed for the construction of Vogtle Units 3 and 4 to continue.³⁰ Eventually, Westinghouse continued to provide engineering and design services as part of the Westinghouse Services Agreement.³¹ After Southern Nuclear took over the Project, Westinghouse and Fluor provided detailed cost data to Southern Nuclear.³² Southern Nuclear used this information to develop the VCM 17 ETC.³³ Southern Nuclear performed analyses regarding Performance Factors, Labor Estimates, Procurement, Subcontracts, Distributables, Contingency, Owners' Costs, Escalation and more. Further information regarding these analyses can be found below in the Files Relied Upon subsection.

Files Relied Upon

Southern Nuclear prepared numerous files to support its VCM 17 ETC. Figure 2 is a flowchart depicting the various files that supported the development of VCM 17.

Figure 2 – Flow Chart of Files Supporting VCM 17 Cost Estimates



Shortly after Southern Nuclear took over the Project, Westinghouse and Fluor provided documentation to Southern Nuclear. This documentation included detailed cost information, invoices, subcontracts, and

²⁹ Georgia Power Company's Nineteenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 4.

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ *Id.*

planning and schedule documents, including the basis of estimates being discussed between Fluor and Westinghouse.³⁴

As depicted in Figure 2, the primary source files for VCM 17 included the following: (a) Transition Plan; (b) Staffing Plan; and (c) Spend Curves with Revisions 6 and 7. I analyzed these documents, which are described as follows:

- a) **Transition Plan.**³⁵ The Bechtel Transition Plan describes proposed activities for the transfer of construction responsibilities for the Project to Bechtel. Transition activities occurred in three different phases. The first phase, "Transition Planning," assessed the then-current policies, processes, programs, procedures, tools, etc. and identified recommended transition activities. Phase 1 culminated in the preparation of the Transition Plan. In the second phase, "Pre-Implementation Transition Activities," pre-implementation transition activities in targeted areas were performed as identified in the Transition Plan. Phase 2 was to be complete before August 31, 2017. The third phase, "Transition Implementation," was scheduled to begin directly after the completion of Phase 2. The remaining activities included in Phase 3 consist of four general categories: Core Services, Core Support Services, Quality Program Support Services, and Contract Administration and Support Services. The information included in the Transition Plan informed the "Staffing Plan" and the "Spend Curves."
- b) **Staffing Plan.**³⁶ As referred to in Figure 2, the Staffing Plan refers to a series of files that contain staffing information, including scope adjustments, baseline hour estimates, work down curves, construction metrics packages, total Project target hours, total Project earned hours and more. These files provided necessary information to develop the inputs for creating the schedule included in VCM 17 and the subsequent projections for the Project.
- c) **Spend Curve Revision 6 and Spend Curve Revision 7.**³⁷ Southern Nuclear created the Spend Curve files to assist in the creation of the ETC for VCM 17 and to track the progress of the Project after VCM 17 filing. The Spend Curve files show the buildup of costs according to the different estimated completion dates. The Spend Curve files provide the ETC buildup for an additional 20, 23, 29, and 33 months of time required to complete the Project. The Spend Curve files calculated projected costs in the following categories: craft labor, non-manual labor, procurement, subcontracts, distributables, contingency, and other (including Owners' costs). The values of each of these categories were derived as total values and did not originally exist on a month-by-month basis.

³⁴ *Id.*

³⁵ Bechtel Transition Plan For The Completion Of Construction For Southern Nuclear Operating Company's Vogtle Units 3 & 4, page 7.

³⁶ The Staffing Plan is a collection of over 200 Excel and pdf files.

³⁷ Spend Curve Revision 6; Spend Curve Revision 7.

To create time-phased costs, Southern Nuclear used a polynomial formula to calculate the month-by-month costs.³⁸ The file includes a list of inputs and assumptions used in the buildup of the Spend Curve file ETC. Additional information regarding performance factors is provided in the Spend Curve files.

- d) **Other Documentation Cited in VCM 17.** VCM 17 lists several inputs considered for the analysis that is included in the VCM 17 filing, including Fuel Forecast, Load and Energy Forecast, Carbon Assumptions, Natural Gas-Fired Generation Technology, Needs Assessment, Production Tax Credits, DOE Loan Guarantees, and Incremental Cost to Complete vs. Total In-Service Cost Analysis.³⁹

Range of Estimates

Georgia Power's VCM 17 filing included a range of estimates, both from Southern Nuclear as well as from several consultants' reports. Georgia Power commissioned several outside experts to provide opinions about cost and schedule: these included reports from Kenrich, Bechtel, Pegasus-Global, Black & Veatch, and PwC. Georgia Power and the various independent experts prepared a range of estimates, some of which were higher than the expected cost on which Georgia Power based its VCM 17 forecast. Further, Georgia Power's VCM 17 filing identified numerous risks that also could have increased the VCM 17 forecast, and some of these risks ultimately transpired.

The following subsections discuss Southern Nuclear's ETC range of estimates, the range of estimates in the other consultants' reports, and the risks identified in the VCM 17 filing.

Southern Nuclear ETC estimates ranged from \$8.993 billion - \$9.912 billion.

Georgia Power's VCM 17 filing summarized its ETC as follows:

*"The Owners' capital estimate to complete the Project is \$9.45 billion (as of July 1, 2017). The most reasonable schedule is that Unit 3 will reach COD in November 2021 and Unit 4 will reach COD in November 2022, which is an additional 29 months for each unit from the currently approved schedule. The Owners have adopted that schedule and the associated forecasted capital cost to complete of \$9.45 billion. Georgia Power's share of that estimated capital cost to complete is \$4.50 billion."*⁴⁰

³⁸ The polynomial function uses constants, variables, and exponents to calculate monthly costs along a curve that compensates for build-up and closeout periods.

³⁹ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Pages 68-74.

⁴⁰ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 12.

Southern Nuclear's range of ETCs considered four schedule scenarios and associated costs, which are summarized in Table 4 below.⁴¹

Table 4 – Southern Nuclear ETC Ranges At VCM 17 (100% of Dollars in Thousands) (June 2017 Forward)

Category	+20/+20	+23/+23	+29/+29	+33/+33
Craft Labor	\$ 1,505,256	\$1,508,903	\$1,515,120	\$1,518,627
Non Manual Labor	2,829,987	2,974,495	3,245,436	3,457,568
Procurement (Materials & Equipment)	765,965	767,265	769,522	770,817
Sub-Contracts	1,281,483	1,317,084	1,362,863	1,381,948
Distributables	281,433	285,251	292,786	297,753
Contingency	1,159,397	1,159,397	1,159,397	1,159,397
Other (Including Owner's Costs)	1,169,375	1,205,506	1,277,288	1,325,934
Total	\$ 8,992,896	\$9,217,901	\$9,622,413	\$9,912,045

Southern Nuclear's four schedule scenarios presented forecasted commercial operation dates ranging from +20/+20 (February 2021 and 2022 for Units 3 and 4, respectively), to +33/+33 (March 2022 and 2023 for Units 3 and 4, respectively).⁴² At the time, the Owners determined the most reasonable schedule was Unit 3 and Unit 4 to reach commercial operation dates +29/+29 (November 2021 and November 2022, respectively).⁴³ Based on the +29/+29 schedule conclusion, and the associated costs in Table 4 above, Georgia Power stated that the expected cost of completion was \$9.6 billion (from June 1, 2017, and converted to a July 1, 2017 forward estimate of \$9.45 billion).^{44,45}

Ranges in Consultants' Reports

Georgia Power retained several outside experts to provide opinions on estimated cost to complete and schedule, and these reports were attached as exhibits to Georgia Power's VCM 17 filing.⁴⁶ Kenrich provided an analysis of the cost and schedule to complete (VCM 17 Exhibit 4). Bechtel provided an independent assessment and estimate of the cost-to-complete and schedule (VCM 17 Exhibit 11). PwC developed a quantitative risk analysis for the options under consideration (VCM 17 Exhibit 7).⁴⁷

⁴¹ Southern Nuclear Vogtle 3&4 Estimate to Complete (ETC) Report, Revision 1, page 3 (Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Exhibit 3).

⁴² Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 48.

⁴³ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 48, footnote 27.

⁴⁴ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 50.

⁴⁵ In order to compare the \$9.45 billion to the \$9.287 billion shown in Table 1 above, approximately \$163 million was deducted for items included in different categories in the VCM 17 Table 1.1.

⁴⁶ Several other expert reports were attached to VCM 17 that did not relate to the ETC. Pegasus-Global analyzed the costs of cancelling the Project (VCM 17 Exhibit 5). Black & Veatch estimated the costs associated with demobilizing the Project under the cancellation scenario (VCM 17 Exhibit 6).

⁴⁷ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 45.

Kenrich assessed the cost and schedule to complete the Project.⁴⁸ Kenrich presented a range of estimated costs to complete from \$7.4 billion to \$10.1 billion (varying on productivity and schedule). Kenrich's ETC was from June 1, 2017 forward. Kenrich's schedule range presented was Unit 3 commercial operation from February 2021 to November 2022, with a one-year lag to Unit 4. Kenrich's range also varied on improved, similar-to-recent, or worsening productivity (as measured by direct labor "performance factor" or "PF").⁴⁹

Kenrich's ETC included costs directly related to the EPC Agreement only and did not include Southern Company Labor or other Owners' costs. Southern Nuclear's estimates in Table 4 and the variance identified in Table 1 above include Southern Company Labor costs and other Owners' costs which were not included in Kenrich's ETC.

Table 5 below presents the ETC findings of Kenrich that were submitted with VCM 17.

Table 5 – Kenrich ETC Ranges At VCM 17 (100% of Dollars in Millions) (From June 2017)

	Total Dollars to Complete (\$ Millions)		
	Improved Performance (PF = 2.0)	Similar Performance (PF = 2.5)	Worsening Performance (PF = 3.0)
Schedule Extension			
Early Date	\$ 7,413	\$ 8,438	\$ 9,540
Late Date	\$ 7,929	\$ 8,953	\$ 10,056

PwC prepared a quantitative risk analysis to analyze the estimated costs related to different scenarios. One of the scenarios PwC analyzed was the scenario of completing the Project. PwC explained its analysis as follows: "Quantitative risk analysis uses the Monte Carlo method for simulating project outcomes."⁵⁰ PwC relied on the Southern Nuclear ETC and discussions with Southern Nuclear and Kenrich. One of the inputs PwC modelled in its simulation was a range of performance factors that was developed by Southern Nuclear.⁵¹ PwC also modelled various schedule outcomes in its simulation. PwC's "Estimate Uncertainty" varied on schedule delay and performance, and PwC's "Event Driven Risk" included various inputs such as attraction pay for field non-manual labor, startup testing risk for new technologies, and other identified

⁴⁸ The Kenrich Group LLC Expert Report, "Analysis Of Project Estimate-To-Complete", August 11, 2017. (Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Exhibit 4.)

⁴⁹ The performance factor Kenrich analyzed at the time of the 2017 report was as compared to performance factor at that time. After VCM 17 and when Bechtel's contract was established, the unit rates were re-established resetting performance factor to 1 at that time (for example, see the first Bechtel scorecard for week ending January 7, 2018). Therefore, the performance factor referred to in Kenrich's 2017 report does not align with Bechtel's achieved performance factor as of 2023, which is discussed in Section 7.2 below.

⁵⁰ PwC report, "Plant Vogtle Units 3 & 4 Quantitative Risk Assessment," August 29, 2017. (Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Exhibit 7.)

⁵¹ The Southern Nuclear-prepared Spend Curve files discussed in the Files Relied Upon subsection above contain further variation on performance factor projections. For example, the Spend Curve R7 file contains a "Performance Factor" tab which provides construction cost estimates ranging from \$1.282 billion to \$2.137 billion based on performance factors ranging from 1.20 to 2.00. Ultimately, Southern Nuclear used the manhours calculated from roughly the middle of this range (1.46 performance factor) in its ETC.

risks. PwC's range of estimates was \$9.0 billion to \$10.5 billion, as shown in Figure 3 below which is an excerpt from PwC's report.⁵²

Figure 3 – PwC Risk-Adjusted Range of ETC at VCM (100% of Dollars in Millions)

Table 6 Risk Adjusted Cost to Complete Units 3 & 4 Based on the SNC ETC (August 4, 2017)

	Risk Adjusted ETC (\$M)			
	P20	P50	P80	P90
1. Estimate Uncertainty Total	\$8,427	\$8,903	\$9,537	\$9,864
2. Event Driven Risk	\$437	\$531	\$663	\$842
Project Cost Total*	\$8,981	\$9,484	\$10,129	\$10,461

*The total does not necessarily equal the sum of the two numbers shown for estimate uncertainty and event driven risk because the simulation runs the estimate uncertainty and event driven risk separately from total project cost and is performing iterations on the total project cost as well.

Bechtel provided a cost and schedule assessment for completion of construction of the Project. Bechtel's schedule assessment provided various ranges for schedule scenarios. Bechtel prepared a cost to complete assessment for construction costs of \$4.4 billion, from September 1, 2017 forward.⁵³

Bechtel's cost assessment was for construction costs only, and did not include engineering, subcontractors or owners' costs. In other words, Bechtel's cost assessment for construction costs is comparable to the craft labor and non-manual labor categories in Southern Nuclear's estimates in Table 4 above. Southern Nuclear's estimates in Table 4 also include procurement, subcontracts, distributables, contingency and owners' costs, which are not included in Bechtel's assessment. Further, Bechtel's assessment would be most comparable to the Construction line item only of Table 1 above.

Table 6 below is a summary of Bechtel's construction cost assessment in the VCM 17 filing.⁵⁴

⁵² Daryl Walcroft of PwC explained the P20, P50, P80, P90 designations in his testimony:

"The P-values . . . all represent the confidence interval between the corresponding cost to complete and zero. For example, if the P50 value is \$100, then the QRA estimates that there is a 50% chance that the cost to complete will be less than \$100. . . . The 'P' signifies the calculated probability. In my previous example, P50 signified that there was a 50% probability that the actual value was between \$100 and \$0."

Direct Testimony of Daryl Walcroft, In Support of Georgia Power Company's Seventeenth Semi-Annual Vogtle Construction Monitoring Report, Docket No. 29849, page 5.

⁵³ Bechtel report, "Cost and Schedule Assessment for the Completion of Construction for Southern Nuclear Operating Company's Vogtle Units 3 & 4," July 28, 2017. (Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Exhibit 11.)

⁵⁴ *Id.*

Table 6 – Bechtel Construction Cost ETC at VCM 17 (100% of Dollars in Thousands) (From September 2017)

Table 1-2. Construction Cost Assessment Results		
Cost Category	Hours (in 1,000s)	Estimated Cost (in 1,000s)
Direct Craft Labor	23,955	\$1,149,040
Field Indirects	12,589	\$624,575
Field Non-Manual Services	11,032	\$1,400,405
Home Office Services	39	\$6,667
Subtotal		\$3,180,687
Escalation		\$128,497
Taxes, Bonds, Other		\$46,310
Construction Contingency		\$409,733
Craft Per Diem and Incentives		\$418,956
Fee		\$240,000
Total		\$4,424,183

See also Mr. Gentry's report, Section 4.1, which also discusses the Kenrich, PwC and Bechtel estimates at the time of VCM 17.

Risks Identified in VCM 17 Filing

Georgia Power identified numerous risks to the assumptions made when recommending the completion of the Project.⁵⁵ Some of these identified risks did end up impacting the Project.⁵⁶ Some of these risks include the following:

- a) Risks that labor force and craft will be unable to maintain their productivity improvements, rework and design changes.

*"This risk was identified as **project execution risk** and it will continue throughout the life of the Project. Simply stated, the project execution risk encompasses the risk that the Project is unable to execute with the resources or in the timeframe that is accounted for by the current projections. Possible manifestations of this risk include an **inability to reach forecasted production rates or sustain the productivity rates** that are incorporated into the Southern Nuclear ETC. The risk that the Project cannot execute in accordance with the forecasted rates of production comprises a significant project execution risk. This risk also encompasses **higher than anticipated rates of rework, or greater than***

⁵⁵ Certain risks identified in the Georgia Power VCM 17 filing did not come to fruition and therefore are not discussed in this Report.

⁵⁶ Chitester Report, Section 8.

expected design changes. *Personnel factors, such as not having sufficient field engineering resources available for a period of time, also fall into project execution risk.” [emphasis added]⁵⁷*

b) Risk that the Project will be unable to continue to meet FOAK challenges.

“As with any FOAK project, a broad range of FOAK execution risks remain. One FOAK risk unique to this Project is the possibility of a delay to fuel load as a result of ITAAC [Inspections, Tests, Analyses, and Acceptance Criteria] closure, licensing challenges, or inadequate quality assurance documentation. One possible source of a delay is challenges in closing one or more ITAAC to enable fuel load. While 10 CFR Part 52 has limited this risk, it remains possible that it will take the NRC more time than currently anticipated to approve the fuel load, either due to an issue involving ITAAC or other issues. In addition to the closure of all ITAACs, the possibility of emergent licensing and design issues exists. There is also a potential risk of discovery of an issue that calls the quality assurance pedigree of a component into question. In this event, the nonconformance with quality assurance requirements must be dispositioned, which could result in a decision to use the component as-is or to remove and replace the component. Late discovery of quality assurance problems could delay fuel load while the problems are resolved.”⁵⁸

c) Procurement risk.

“Procurement risk encompasses problems such as a major defect in a long-lead procurement item or the necessity for a design change to a procurement item, which would affect its price or the timing of its delivery. Another possible risk is that design finalization does not occur in time to procure items to meet construction need. Georgia Power and Southern Nuclear have continuously monitored key procurement items over the duration of the Project. While there continues to be a risk related to procurement for the project moving forward, the potential impact of this risk has been greatly reduced by the completion of fabrication and delivery of most long-lead items to the site. These items include Unit 3 & 4 reactor vessels, steam generators, accumulators, core make-up tanks, pressurizers, and all turbine/generator equipment. Procurement oversight has involved enhanced inspection programs, visits to fabrication facilities for procurement items, and, in some cases, the establishment of an on-site resident at certain fabrication facilities. Southern Nuclear will continue to maintain a robust oversight program for procurement and will add resources to oversee vendors who are not performing to expectation or where additional oversight resources are otherwise deemed appropriate.”⁵⁹

⁵⁷ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Executive Summary, Page 94.

⁵⁸ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Executive Summary, Pages 94-95.

⁵⁹ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Executive Summary, Page 96.

d) Unidentified scope risk.

*"Unidentified scope risk includes the risk of work that must be performed to finish the Project that is not included in SNC's ETC. Examples include design changes that cause the need for rework or that make performing the work more difficult than the SNC ETC currently projects. These changes could result from constructability concerns or because of NRC-driven design changes. Another example of unidentified scope would be a difference in interpretations of the applicable codes with the NRC that required the Project to perform the work differently, undertake more extensive inspections, or redo already completed work."*⁶⁰

e) Testing/startup risk.

*"This risk encompasses the possibility that the AP1000 reactor does not function as designed or that hot functional or low power testing reveal problems that must be addressed before the Project can be placed in service. The Project will be the first AP1000s to operate in the United States and will undergo an extensive testing regime. If the testing reveals a problem that requires extensive design or engineering work, additional delays to the in-service dates could result."*⁶¹

Commission-Approved Stipulation

On January 3, 2017, the Commission approved a stipulation between PIA Staff and Georgia Power.⁶² The parties agreed that no costs incurred through December 31, 2015 (i.e., through the VCM 14 reporting period) were imprudent.⁶³

The parties also agreed that the revised schedule and capital cost forecast of \$5.680 billion is presumed to be reasonable and prudent.⁶⁴ The burden of proof shall be on the party challenging such costs.

Finally, the stipulation stated that Georgia Power "will have the burden to show that Capital costs above the revised forecast of \$5.680 billion are reasonable and prudent."⁶⁵

⁶⁰ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Executive Summary, Page 96.

⁶¹ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Executive Summary, Page 99.

⁶² Construction Monitoring Proceeding for Georgia Power Company's Plant Vogtle Units 3 and 4; Supplemental Information, Staff Review, and Opportunity for Settlement; Order Adopting Stipulation; Decided December 20, 2016; filed January 3, 2017.

⁶³ Construction Monitoring Proceeding for Georgia Power Company's Plant Vogtle Units 3 and 4; Supplemental Information, Staff Review, and Opportunity for Settlement; Stipulation, October 20, 2016.

⁶⁴ *Id.* The Stipulation states that the \$5.680 billion consists of current forecast of \$5.440 billion plus contingency of \$240 million. The estimate at VCM 14 was \$5.440 billion (incorporating the settlement of the Westinghouse/S&W litigation).

⁶⁵ Construction Monitoring Proceeding for Georgia Power Company's Plant Vogtle Units 3 and 4; Supplemental Information, Staff Review, and Opportunity for Settlement; Stipulation, October 20, 2016.

Commission Decision at VCM 17

Following the filings and hearing related to VCM 17, the Commission signed an order on January 11, 2018.⁶⁶ The Commission ordered Georgia Power to move forward to complete construction of Vogtle Units 3 and 4.⁶⁷ The order also approved the revised capital cost forecast of \$7.3 billion,⁶⁸ which was the \$8.77 billion projected by Georgia Power in VCM 17, less the expected Toshiba parent guarantee settlement. (See Table 2 above.)

Westinghouse's parent company, Toshiba, paid a parent guarantee settlement of \$3.68 billion to the Owners. Georgia Power's share was \$1.68 billion.⁶⁹ Related to this settlement, Georgia Power paid refunds of \$190 million to its customers.⁷⁰ Georgia Power's share of the Toshiba guarantee, net of customer refunds, was \$1.5 billion, as summarized in Table 7 below.

Table 7 – Toshiba Parent Guarantee Summary (in Thousands)

Description	Value	
Toshiba Guarantee Settlement Total	\$3,680,000	[A]
GPC Ownership Share	45.7%	[B]
GPC Share of Toshiba Settlement	1,681,760	[C = A * B]
GPC Refunds to Customers	(190,000)	[D]
Toshiba Guarantee , Net Of Customer Refunds (GPC Share)	\$1,491,760	[E = C + D]

The Commission order also found that costs spent up to the revised cost forecast were deemed reasonable, but are subject to the findings and presumptions as defined in the stipulation approved on January 3, 2017.⁷¹

The order reaffirmed from the stipulation that Georgia Power retains the burden of proof on prudence on all capital costs above \$5.680 billion.⁷²

⁶⁶ Order on the Seventeenth Semi-Annual Vogtle Construction Monitoring Report for the Period January 1, 2017 Through June 30, 2017; signed and filed January 11, 2018.

⁶⁷ Order on the Seventeenth Semi-Annual Vogtle Construction Monitoring Report for the Period January 1, 2017 Through June 30, 2017; signed and filed January 11, 2018; page 17.

⁶⁸ *Id.*

⁶⁹ Direct Testimony of David L. McKinney and Jeremiah C Haswell in Support of Georgia Power Company's Eighteenth Semi-Annual Vogtle Construction Monitoring Report, Docket No. 29849, pages 10-11.

⁷⁰ The initial accrual for Refunds to Customers was \$188 million, as reported in the source identified in footnote . I understand that later the amount was trued up to \$190 million based on the final payout.

⁷¹ Order on the Seventeenth Semi-Annual Vogtle Construction Monitoring Report for the Period January 1, 2017 Through June 30, 2017; signed and filed January 11, 2018; page 18.

⁷² *Id.*

5.2 VCM 17 TO VCM 19 ITERATION

Southern Nuclear's cost estimates and cost reporting structures continued to evolve during the period from VCM 17 to VCM 19. Therefore, some of the VCM 19 cost estimate files are helpful, for a variance analysis, to properly align the actual cost reporting from July 2017 to current.

VCM 19 Estimate

The total construction and capital cost forecast included in VCM 19 was \$9.488 billion (Georgia Power's share). To arrive at the \$7.3 billion total construction and capital cost approved by the Commission, \$1.493 billion of Toshiba Parent Guarantee net of customer refunds⁷³ and \$694 million being absorbed by Georgia Power must be removed. The \$7.3 billion does not include \$366 million in unspecified Project contingency.⁷⁴

Table 8 provides a comparison of the cost estimates in VCM 17 to VCM 19.

⁷³ Toshiba parent guarantee net of customer refunds amount had been reported at VCM 18.

⁷⁴ Georgia Power witnesses explained the contingency as follows:

"Georgia Power does not currently seek to recover any of the \$366 million in contingency from its customers, although it may seek rate recovery for portions of the \$366 million in estimated contingency as and when such contingency is allocated to base capital forecast or spent consistent with the Company's obligation to show that any such amounts it may seek to recover must be shown to be both reasonable and prudent."

Direct Testimony of David L. McKinney and Jeremiah C. Haswell in Support of Georgia Power Company's Nineteenth Semi-Annual Vogtle Construction Monitoring Report, Docket No. 29849.

Table 8 – Summary of Georgia Power Cost Variance from VCM 17 to VCM 19 (Georgia Power's Share in Millions)

Description	VCM 17	VCM 19	Variance
Original EPC	\$ 3,257	\$ 3,198	\$ (59)
Interim Payments & Liens	493	440	(53)
EAC (GPC %) calculated from Site ETC	\$ 4,244	\$ 5,285	\$ 1,041
Credits not included in site ETC	(89)	-	89
Duplicate Costs	(432)	(544)	(112)
Contingency Remaining	-	(366)	(366)
EAC (GPC%) in Table 1.1 in VCM filings	\$ 3,723	\$ 4,375	\$ 652
GPC Additional Costs			
Owner's Cost	\$ 996	\$ 1,173	\$ 177
Ad Valorem Tax	273	273	-
Transmission Interconnection	61	61	-
Test Fuel Offsets	(33)	(33)	-
Total GPC Additional Costs	\$ 1,298	\$ 1,475	\$ 177
Total Construction & Capital Cost	\$ 8,771	\$ 9,488	\$ 717
Toshiba Parent Guarantee			
Parent Guarantee (GPC%)	\$(1,682)	\$(1,682)	\$ -
Customer Refunds (GPC %)	188	188	-
Net Toshiba & Customer Guarantee	\$(1,493)	\$(1,493)	\$ -
Total To Be Absorbed by GPC	\$ -	\$ (694)	\$ (694)
Parent Guarantee Monetization Fees	15	-	(15)
Total Construction & Capital Cost, net of Parent Guarantee & Amount To Be Absorbed by GPC	\$ 7,293	\$ 7,300	\$ 8

The new estimate of Georgia Power's projected costs increased by \$1.060 billion, which is comprised of \$366 million in unspecified Project contingency and \$694 million for which Georgia Power will not seek recovery. Georgia Power's VCM 19 filing subtracted out both the \$694 million "Total to be Absorbed by GPC," and the \$366 million in contingency, noting the following regarding the contingency:

*"\$7.3 billion is the Total Construction & Capital Cost approved by Georgia Public Service Commission (Order dated January 11, 2018). Above excludes \$366 million in unspecified project contingency. Such amounts may be recommended for consideration by the GPSC as and when included in the Construction and Capital Cost forecast."*⁷⁵

⁷⁵ Georgia Power Company's Nineteenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 12.

Changes from VCM 17 to VCM 19

Between VCM 17 and VCM 19, several changes occurred on the Project which caused Southern Nuclear to refine its ETC.

Bechtel signed its agreement to complete the construction of Vogtle Units 3 and 4 in October 2017, shortly after the VCM 17 filing.⁷⁶ The Bechtel agreement was amended on October 14, 2018 and November 8, 2019. Bechtel's scope of work included numerous activities, including, but not limited to, management of construction on site, engagement and management of craft workers, management of contractor-managed subcontract scope, support of work package planning and scoping, field procurement management for construction materials, management of construction utilities, quality control, construction training, and safety programs.⁷⁷ Bechtel's pricing per the agreement was different from that included in VCM 17 and required updating to Southern Nuclear's VCM 17 estimate.

Between VCM 17 and VCM 19, Southern Nuclear also made significant changes to its project control organization. The project control organization worked to improve the procedures, risk management, metrics, and reporting of cost and schedule on the Project. These improvements had a direct impact on the capital budget forecast that Southern Nuclear developed for VCM 19.⁷⁸ The effort to improve project controls was in process during the creation of VCM 18. Therefore, VCM 18 does not reflect any cost impact variances.

Files Relied Upon

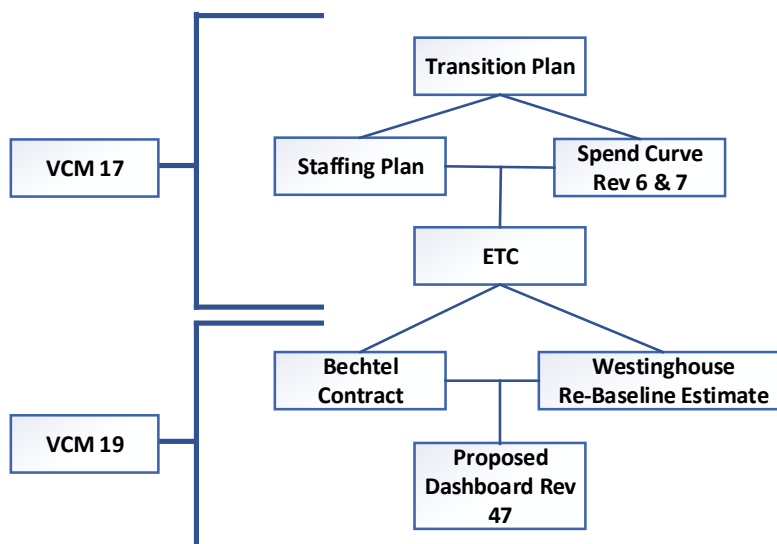
Southern Nuclear prepared numerous files to support its VCM 19 ETC. Figure 4 is a flowchart depicting the various files that supported the development of VCM 17, and subsequently, VCM 19.

⁷⁶ Construction Completion Agreement between Georgia Power, et al and Bechtel, October 23, 2017, including Exhibit A.

⁷⁷ Construction Completion Agreement between Georgia Power, et al and Bechtel, October 23, 2017, Exhibit A, pages 4-5.

⁷⁸ Georgia Power Company's Nineteenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 24.

Figure 4 – Flow Chart of Files Supporting VCM 17 and VCM 19 Cost Estimates



Based on my review of these various files supporting VCM 17 and VCM 19, I rely on the “Proposed Dashboard Rev 47” file for the VCM 17 amounts in Table 1.

As depicted in Figure 4, the primary source files for VCM 19 included the following: (a) Bechtel Construction Completion Agreement (“CCA”); (b) Westinghouse Re-Baseline Estimate; and (c) Proposed Dashboard Rev 47. I analyzed these documents, which are described as follows:

- a) **Bechtel CCA.** Georgia Power, on behalf of the Owners, signed the CCA with Bechtel on October 23, 2017. The agreement provided that Bechtel would be paid for reimbursable costs incurred, plus a base fee and earned fee (all terms defined by the agreement).⁷⁹ The earned fee would be adjusted based on a comparison of the costs to an established Target Construction Cost and based on achievement of schedule milestones.⁸⁰ The CCA was amended twice, on October 14, 2018 and November 8, 2019.⁸¹ Southern Nuclear updated its cost estimates after the pricing was agreed to in the Bechtel agreement.
- b) **Westinghouse Re-Baseline Estimate.** As previously stated, Westinghouse and the Owners entered into a Services Agreement which became effective in July 2017.⁸² Westinghouse continued to refine its estimate and provided Georgia Power a re-baseline estimate in November 2017.

⁷⁹ Bechtel CCA; Articles 7.1 and 7.2.

⁸⁰ Bechtel CCA; Articles 7.2 – 7.6 and 11, and Exhibit M.

⁸¹ Bechtel CCA, Version 10 incorporates Amendment Nos. 1 and 2.

⁸² Amended and Restated Services Agreement between Georgia Power Company, et al and Westinghouse Electric Company LLC et al, July 20, 2017 (Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Exhibit 1).

- c) **Proposed Dashboard Rev 47.** Southern Nuclear created the Proposed Dashboard Rev 47 file ("Rev 47") to assist in the creation of the ETC for VCM 19 and track the variances from VCM 17 to VCM 19.⁸³ Rev 47 provides a detailed build up for the adjusted VCM 17 and VCM 19 EACs. At the time of VCM 19, Georgia Power updated its labor forecast which led to an increase for the Southern Company Labor EAC.⁸⁴ The labor forecast increase is included in Rev 47. The Rev 47 file is the source for the VCM 17 amounts included in Table 1.

6. ACTUAL COSTS TO DATE AND CURRENT ETC

6.1 FILES RELIED UPON

Each VCM filing contains an updated version of the EAC. VCM 28 is the most recent VCM Report filed. Georgia Power filed VCM 28 in February 2023 (based on January data) but has since slightly adjusted the EAC several times. Monthly CPRs record actual costs and include updated versions of the EAC. The first monthly CPR was August 2018.⁸⁵ The most recent version of the monthly CPRs I used was from May 2023.

6.2 SUMMARY TABLE – ACTUAL COSTS TO DATE THROUGH MARCH 2023 PLUS REMAINING ETC

I analyzed the May 2023 CPR, which identified recorded costs by cost code, and the remaining forecasted costs. Table 9 summarizes the actual costs incurred from July 2017 to May 2023, and remaining forecast in May 2023, at 100% of dollars.

⁸³ Proposed Dashboard Rev 47.

⁸⁴ Proposed Dashboard Rev 47, Tab "Top Level Summary A".

⁸⁵ I determined the costs incurred from July 2017 to July 2018 as follows. The May 2023 monthly CPR includes EAC data from two periods: one as of July 2017 and another as of July 2018. Taking the difference of these two EACs calculates the actual costs from July 2017 to July 2018.

Table 9 – May 2023 Actual Costs & Current EAC Summary (100% of Dollars in Thousands) (From July 2017)

	[A]	[B]	[C = A + B]
Category	Actual (July 2017 to May 2023)	Remaining Forecast	Current EAC
Bechtel CCA - Fluor	\$ 6,512,547	\$ 66,958	\$ 6,579,505
Westinghouse Baseline	459,981	8,929	468,910
Southern Company Scope Labor	3,255,733	233,282	3,489,015
Procurement	1,021,305	25,576	1,046,881
Subcontracts	2,067,539	46,828	2,114,366
Information Technology (IT)	191,611	15,402	207,013
Distributables	436,709	706	437,415
Owner's Cost (Non-Labor)	673,040	108,030	781,069
Escalation (SNC)	-	868	868
SNC Management Reserve	-	(36,500)	(36,500)
SNC Contingency	-	87,802	87,802
Schedule Allowance	-	237,400	237,400
Total	\$ 14,618,465	\$ 795,280	\$ 15,413,745

7. DISCUSSION OF OVERALL CATEGORIES OF COST GROWTH

To explain the variance identified in Table 1 above, I identified various categories of cost growth from VCM 17 to current, including schedule delays, productivity impact, Bechtel “excluded costs” which includes per diem and other changes, technical changes, quantity growth, and COVID-19. Table 10 below summarizes the quantification of cost growth by category of impact:

Table 10 – Summary Of Major Causes Of Cost Growth (100% of Dollars in Thousands)

Category of Cost Growth	Report Section	Amount
Time-Related Impact	Section 7.1	\$ 1,614,200
Bechtel Direct Productivity Impact	Section 7.2	764,038
Subcontract Direct Productivity Impact	Section 7.2	81,510
Indirect Productivity Impact	Section 7.2	427,861
Excluded Costs Impact	Section 7.3	606,217
Technical Changes	Section 7.4	335,381
Quantity Growth	Section 7.5	130,379
COVID-19 Mitigation Direct Costs	Section 7.6	82,398
Subtotal Overall Categories Of Cost Growth		\$ 4,041,984
VCM 17 To September 2018 CPR	Sections 8.1 - 8.8	763,894
Rebaseline and Scope Adjustments		
Other Discrete Issues	Sections 8.1 - 8.8	94,056
Subtotal Cost Variance Quantified		\$ 4,899,934
Remaining Uncategorized Impacts		1,226,688
Total Cost Variance		\$ 6,126,622

As noted in Section 4 above (in the paragraphs below Table 1), of the \$6.127 billion variance (at 100% of dollars), Georgia Power has previously stated since VCM 19 that it is not seeking recovery for \$694 million at its ownership share, which when grossed up to 100% of dollars is \$1.519 billion ($\$694 \text{ million} \div 45.7\% = \1.519 billion). This \$1.519 billion is not reflected in Table 10, but generally relates to the \$0.8 billion of cost increases due to the VCM 17 to September 2018 CPR re-baseline and scope adjustments and the \$1.2 billion of remaining uncategorized impacts. As noted above in Table 3, there are additional amounts Georgia Power is not seeking recovery in its August 30, 2023 Prudence Application. However, for purposes of my analysis, I was asked to explain the variances without those additional deductions.

The overall cost variance, calculated above in Table 1, is the starting point for my analysis of cost growth on the Project. To determine each category of cost growth, I reviewed the CCFs, changes reported in monthly VPMB reports, EAC changes in the monthly CPRs, and the reports of Mark Gentry and Timothy Chitester.

The methodology used to quantify each overall category of cost growth is provided in the following Sections 7.1 – 7.6. I identified the causes of cost growth, the Project records to quantify the impacts, and the method for quantifying each cost growth category. I then reviewed the costs identified in each cost category to ensure that costs were not captured in multiple categories. For example, the cost codes used to quantify the time-related cost impact were compared to the descriptions of the discrete costs identified in the Technical Changes section. Any overlapping costs were excluded from one of the categories of cost growth.

In the following Sections 7.1 to 7.6, I discuss top contributing reasons for cost growth. Additional causes of cost growth are discussed in Section 8 below.

7.1 TIME-RELATED DELAY COSTS

As described in Mark Gentry's report, the Project was delayed: Unit 3 by 20 months, and Unit 4 by 13 months.⁸⁶ These delays resulted in the Project incurring additional time-related costs. I calculated the Project's extended time-related costs by the following steps.

- a) First, I determined the Project's time-related costs.
- b) Second, I calculated a monthly rate.
- c) Third, I multiplied the monthly rate by the months of delay.

⁸⁶ Gentry Report; Section 5.2.

Each of these three steps is further described in the following sub-sections.

Time-Related Cost Analysis

My first step in calculating the Project's delay costs was to determine the Project's time-related costs. A generally accepted industry methodology for calculating increased costs due to project delays is to identify time-related costs for general conditions or jobsite overhead costs, removing costs that are one-time or activity-related costs, to calculate a monthly rate.⁸⁷

I determined the Project's time-related costs using the following steps. I analyzed the cost accounts included in the Southern Nuclear monthly CPRs, from the first monthly CPR at August 2018 to the most recently available monthly CPR at May 2023.

I compiled all monthly CPRs, by cost code, by month.⁸⁸ For each cost code, I analyzed the costs by month, and in conjunction with my experience, classified each cost code as time-related (e.g., field non-manual personnel, security guards, project management personnel, equipment rental, etc.), activity-related (e.g., direct labor, direct subcontractors, direct materials, direct purchases, etc.), or one-time (e.g., mobilization, one-time purchases, etc.).⁸⁹

Once classified, I added all the time-related costs.⁹⁰ I analyzed the total time-related costs by month, using a three-month rolling average, to filter out fluctuations that may occur. Figure 5 below graphically depicts the three-month rolling average of the Project's time-related costs by month.

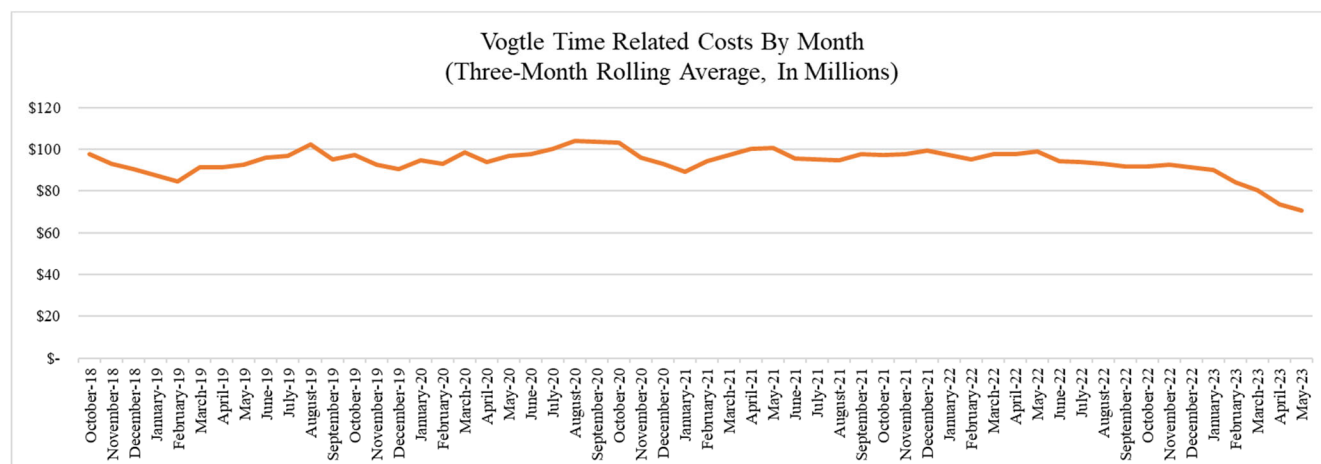
⁸⁷ *Construction Disputes: Representing the Contractor* – Callahan, Cushman, Carter, Gorman and Coppi, § 18.02, Pricing Claims, page 9.

⁸⁸ HKA Exhibit 2.

⁸⁹ *Id.*

⁹⁰ HKA Exhibit 2 and Table 11.

Figure 5 – Vogtle Time-Related Costs By Month (100% of Dollars)



I analyzed time-related costs in various time periods to determine trends. Based on results of this analysis, I concluded that the appropriate time period to use for purposes of damages was from the entire period of the available monthly data (August 2018 through May 2023).

Calculation of Monthly Rate

My second step in calculating the Project's delay costs was to calculate a monthly rate. I calculated the total time-related costs during the August 2018 to May 2023 time period. (See Table 11.)⁹¹ I then divided the costs by the number of months in the period to determine the average monthly rate of approximately \$94 million per month. (See Table 12.)⁹²

Table 11 – Project's Costs Categorized By One-Time, Time-Related and Activity-Related (100% of Dollars in Thousands) (August 2018 – May 2023)

Categorization	Number of Cost Codes	Costs
One-Time	334	\$ 314,497
Time-Related	745	5,443,229
Activity-Related	1,340	6,226,330
N/A	4,214	103,076
Total	6,633	\$ 12,087,132

⁹¹ HKA Exhibit 2.

⁹² *Id.*

Table 12 – Time-Related Cost Monthly Rate (100% of Dollars in Thousands) (August 2018 – May 2023)

Description	Value	
Total Time-Related Costs	\$ 5,443,229	[A]
Number of Months Analyzed	58	[B]
Time-Related Monthly Rate	\$ 93,849	[C = A / B]

Table 13 identifies the monthly rate of \$94 million per month, broken down by each Level 1 category. I prepared this summary in order to provide a link to causes of cost growth by cost category in Section 8 below.

Table 13 – Level 1 Summary of Time-Related Costs Monthly Rate (100% of Dollars in Thousands) (August 2018 – May 2023)

Level 1 Category	Number of Cost Codes	[A] Value	[B = A / 58] Monthly Rate
1: BECHTEL CCA - FLUOR	22	\$ 1,968,150	\$ 33,934
18: WESTINGHOUSE BASELINE	77	284,565	4,906
28: SOUTHERN COMPANY SCOPE LABOR	338	2,372,613	40,907
34: PROCUREMENT	1	44	1
38: SUBCONTRACTS	57	90,111	1,554
44: INFORMATION TECHNOLOGY (IT)	7	152,711	2,633
51: DISTRIBUTABLES	35	328,676	5,667
55: OWNERS COST (NON-LABOR)	208	246,359	4,248
Total	745	\$ 5,443,229	\$ 93,849

Monthly Rate Applied To Delay Months

My third step in calculating the Project's delay costs was to multiply the monthly rate by the months of delay. Based on the conclusions in Mark Gentry's report, Unit 3 was delayed 20 months and Unit 4 was delayed 13 months.⁹³ The planned schedule at VCM 17 was that Unit 4 would lag Unit 3 by 12 months. The current as-built schedule shows that Unit 4 will lag Unit 3 by only 5 months instead of the planned 12 months. See Figure 5-1⁹⁴ and Table 5-1⁹⁵ from Mark Gentry's report, which is excerpted as Figure 6 below.

⁹³ Gentry Report; Section 5.2.

⁹⁴ Gentry Report, Figure 5-1: Project As-Planned v. As-Built, Section 5.2.

⁹⁵ Gentry Report, Table 5-1: Schedule Analysis Summary, Section 5.2.

Figure 6 – Excerpts from Gentry Report: Project As-Planned v. As-Built and Schedule Analysis Summary

Figure 5-1: Project As-Planned v. As-Built

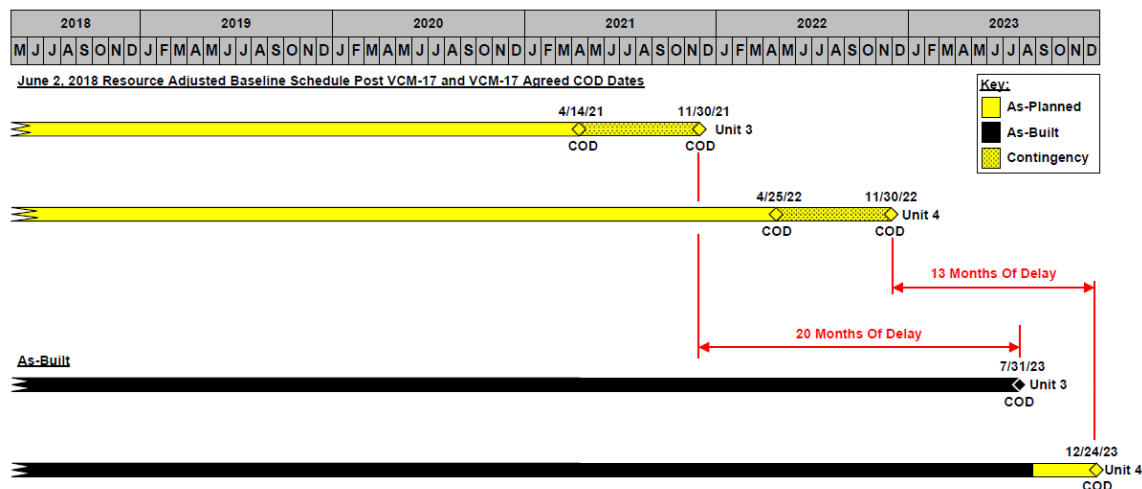


Table 5-1: Schedule Analysis Summary

Milestone	VCM 17 Approved	Actual/ Forecasted	Delay Months
Unit 3 Commercial Operation	11/30/21	07/31/23	20
Unit 4 Commercial Operation	11/30/22	12/24/23	13

The plan at VCM 17 was that once Unit 3 was complete, the time-related costs would ramp down for the following 12 months until Unit 4 completion. Therefore, I concluded, based on Mr. Gentry's schedule analysis, that 100% of the time-related costs were delayed by 13 months (11/30/22 – 12/24/23) (Unit 3, Unit 4, and common), and approximately 60% of the time-related costs were delayed by 7 months (20 months less 13 months) (Unit 3 and common). The 60% allocation of costs for Unit 3 and common is based on HKA's experience and discussion with SNC personnel. This approach is consistent with generally accepted industry methodology that provides that using different daily rates for different time periods may be appropriate depending on the circumstances of the delay.⁹⁶

This calculation is shown in Table 14 below:

⁹⁶ *Construction Disputes: Representing the Contractor* – Callahan, Cushman, Carter, Gorman and Coppi, § 18.02, Pricing Claims, page 6.

Table 14 – Calculation of Time-Related Delay Costs (100% of Dollars in Thousands)

Description	Value	
Full Project Delay		
Time-Related Monthly Rate	\$ 93,849	[A]
Months of Delay	13	[B]
Full Project Time-Related Delay Costs	\$ 1,220,037	[C = A * B]
Unit 3 and Common Delay		
Time-Related Monthly Rate	\$ 56,309	[D = A * 60%]
Months of Delay	7	[E]
Unit 3 and Common Time-Related Delay Costs	\$ 394,163	[F = D * E]
Total Time-Related Delay Costs	\$ 1,614,200	[G = C + F]

Table 15 provides the same delay calculation, at the detail of the Level 1 categories, for purposes of identifying cost growth by cost category as described in Section 8 below.

Table 15 – Summary of Total Time-Related Delay Costs by Level 1 Cost Category (100% of Dollars in Thousands)

Level 1 Category	[A] Time-Related Cost Monthly Rate	[B = A * 13 months] Full Project Time- Related Delay Costs	[C = A * 60%] 60% of Time-Related Cost Monthly Rate	[D = C * 7 months] Unit 3 and Common Delay Costs	[E = B + D] Total Time-Related Delay Costs
1: BECHTEL CCA - FLUOR	\$ 33,934	\$ 441,142	\$ 20,360	\$ 142,520	\$ 583,662
18: WESTINGHOUSE BASELINE	4,906	63,778	2,944	20,608	84,386
28: SOUTHERN COMPANY SCOPE LABOR	40,907	531,791	24,544	171,808	703,599
34: PROCUREMENT	1	13	1	7	20
38: SUBCONTRACTS	1,554	20,202	932	6,524	26,726
44: INFORMATION TECHNOLOGY (IT)	2,633	34,229	1,580	11,060	45,289
51: DISTRIBUTABLES	5,667	73,671	3,400	23,800	97,471
55: OWNERS COST (NON-LABOR)	4,248	55,224	2,549	17,843	73,067
Total	\$ 93,849	\$ 1,220,037	\$ 56,309	\$ 394,163	\$ 1,614,200

I concluded that the Project delays resulted in extended time-related costs of approximately \$1.6 billion.

7.2 PRODUCTIVITY PERFORMANCE ACHIEVED

In addition to time-related cost impacts, the Project also experienced lower than anticipated productivity in Bechtel's direct manhours. Since VCM 17, Bechtel incurred a total of 34,500,313 manhours, which is an increase of 13,655,734 manhours above the estimated Total Scope. (See Table 16.)⁹⁷

⁹⁷ April 16, 2023, Vogtle Project Hours Earnings Scorecard.

Table 16 – Calculation of Bechtel Additional Manhours Due To Productivity Performance

Description	Hours
Total Scope Hours To Be Earned	20,883,557
Cumulative Earned (As Of April 16, 2023)	20,844,579
Remaining Hours	38,978
Cumulative Spent (As Of April 16, 2023)	34,500,313
Additional Direct Manhours	13,655,734

The additional direct manhours incurred due to lower productivity also corresponds to an increase in indirect craft manhours.⁹⁸ As seen from the latest Bechtel Scorecard, the ratio of indirect craft to direct craft manhours is 0.56, which means for every direct manhour incurred there is 0.56 indirect manhours incurred.⁹⁹ Using this ratio, I calculated additional indirect manhours of 7,647,211.¹⁰⁰

The terms scope, earned hours, and spent hours are commonly used in tracking productivity on a project. The scope is the sum of all that is to be or has been invested in and delivered by the performance of the project. The earned value represents the budgeted cost of the work performed up to a certain date, whereas the spent value represents the actual cost of the work performed.¹⁰¹

To calculate the total cost impact due to the decrease in productivity, I first calculated an average wage rate by sampling the actual wage rates every six months that Bechtel reported monthly in its billings to Georgia Power from February 2018 to February 2023, and divided by the eleven data points represented. The resulting average wage rate is \$55.95 per hour. (See Table 17.)

⁹⁸ I understand that the increase in direct manhours on the Project also corresponded to a need to hire additional Field Non-Manual workers. For purposes of this analysis, the additional costs for the Bechtel field non-manuals are included in the time-related cost quantification in Section 7.1, with the exception of Bechtel Covid field non-manual, which is included in Section 7.6.

⁹⁹ The indirect manhours include the labor costs in support of direct craft labor. Examples include cleanup, training and classes, warehousing services, water services, and material handling. Indirect non-labor costs, such as per diem are not included here. See Section 7.3 for a quantification of per diem costs.

¹⁰⁰ $13,655,734 * 0.56 = 7,647,211$.

¹⁰¹ *Recommended Practice 10S-90: Cost Engineering Terminology*, AACE International, 2023, pages 50 and 115.

Table 17 – Average Bechtel Field Manual Wage Rate (\$ Per Hour)¹⁰²

Month	Field Manual Labor (Direct & Indirect)
Feb-18	\$ 48.00
Aug-18	48.00
Feb-19	54.00
Aug-19	53.00
Feb-20	54.50
Aug-20	55.00
Feb-21	57.00
Aug-21	60.00
Feb-22	62.00
Aug-22	62.00
Feb-23	62.00
Average	\$ 55.95

I then multiplied the direct and indirect manhours by the average wage rate of \$55.95 per hour, which results in a direct impact of \$764.0 million and indirect impact of \$427.9 million. The total productivity impact for both direct and indirect manhours is \$1.2 billion, as shown in Table 18 below.

Table 18 – Cost Impact of Additional Bechtel Direct And Indirect Manhours Due To Productivity Performance (100% of Dollars)

Description	Direct Impact	Indirect Impact	Total
Additional Direct Manhours	13,655,734	7,647,211	21,302,945
Blended Field Manual Labor Craft Rate	\$ 55.95	\$ 55.95	
Subtotal Cost Impact	\$ 764,038,317	\$ 427,861,455	\$ 1,191,899,772
Subtotal (100% of Dollars in Thousands)	\$ 764,038	\$ 427,861	\$ 1,191,899

Bechtel experienced lower productivity due to the impacts from COVID-19, rework, and other uncategorized impacts. Bechtel's subcontractors also experienced productivity impacts. The following subsections further discuss these impacts. Examples of uncategorized productivity impacts are work congestion, craft headcount, and electrical scope activities. See the Gentry and Chitester Reports for further discussion of the productivity impacts on the Project.¹⁰³

The total productivity impacts are summarized in Table 19 below.

¹⁰² Various Bechtel Monthly Status Reports.

¹⁰³ Gentry Report, Sections 6.1.3 and 6.4; Chitester Report, Section 9.

Table 19 – Total Productivity Impacts (100% of Dollars in Thousands)

Description	Direct Impact	Indirect Impact	Total Impact
COVID-19 Impacts	\$ 29,094	\$ 16,293	\$ 45,387
Rework & Emergent Scope	54,435	30,483	84,918
Uncategorized Productivity Impacts	680,509	381,085	1,061,594
Subtotal Bechtel Productivity Impacts	\$ 764,038	\$ 427,861	\$ 1,191,899
Subcontractor Impacts	81,510	-	81,510
Total Productivity Impacts	\$ 845,548	\$ 427,861	\$ 1,273,409

The calculations of the productivity impacts for COVID-19, Rework and Emergent Scope, and Subcontract Impacts are quantified in Table 20, Table 21, and Table 23 below.

COVID-19 Impacts

Georgia Power first quantified the productivity impacts of COVID-19 in VCM 24, where it included an estimated impact of \$150-190 million (Georgia Power's share):

*"Through the end of December 2020, it is estimated that **productivity impacts** of the COVID-19 pandemic have consumed approximately three to four months of schedule margin previously embedded in the site work plans for both units, with an estimated cost of **\$150-190 million.**" [emphasis added]*¹⁰⁴

Commission Staff asked Georgia Power to clarify the above statement in Staff Data Request No. STF-199, and Georgia Power responded on May 13, 2021, with additional Project data.¹⁰⁵ In this submission, Georgia Power calculated the cumulative Cost Performance Index ("CPI")¹⁰⁶ lost earned hours attributable to COVID-19 of 372,810 hours as of January 3, 2021.¹⁰⁷

Georgia Power has since updated its analysis to include 520,000 lost earned hours attributable to COVID-19 CPI impacts, through June 2021.¹⁰⁸ I multiplied the lost hours by the Bechtel field manual labor craft rate to reach a direct labor impact of \$29.1 million. Since Bechtel incurred 0.56 indirect hours for each direct manhour, Bechtel incurred an additional 291,200 indirect manhours. The impact of the additional 291,200 indirect manhours was \$16.3 million. The total impact of direct and indirect lost earned hours attributable to COVID-19 CPI impacts was \$45.4 million as shown in Table 20.

¹⁰⁴ Georgia Power Company's Twenty-fourth Semi-annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849.

¹⁰⁵ Georgia Power response to Staff Data Request No. STF-199, dated May 13, 2021.

¹⁰⁶ CPI is defined as the ratio of earned value to actual costs. *Recommended Practice 10S-90: Cost Engineering Terminology*, AACE International, 2023, page 37.

¹⁰⁷ Georgia Power response to Staff Data Request No. STF-199, dated May 13, 2021, Exhibit a.

¹⁰⁸ COVID-19 Cost and Schedule Estimated Impact for 2020 and 2021.

Table 20 – Cost Impact of Lost Earned Hours Attributable to COVID-19 CPI Impacts (100% of Dollars)

Description	Direct Impact	Indirect Impact	Total
Lost Hours Attributable to COVID-19 CPI Impacts	520,000	291,200	811,200
Blended Field Manual Labor Craft Rate	\$ 55.95	\$ 55.95	
Subtotal Cost Impact	\$29,094,000	\$16,292,640	\$ 45,386,640
Subtotal (100% of Dollars in Thousands)	\$ 29,094	\$ 16,293	\$ 45,387

See the Gentry report for discussion of COVID-19 impacts on the Project schedule.¹⁰⁹ The direct, non-productivity related, cost impacts of COVID-19 are discussed in Section 7.6 below.

Rework

Beginning in September 2021, Bechtel separately tracked its hours incurred each week related to Rework and Emergent Scope in a scorecard for unearned hours.¹¹⁰ From the week ending on September 26, 2021 through the week ending on September 25, 2022, Bechtel incurred 972,918 direct manhours for Rework and Emergent Scope.¹¹¹

I multiplied the direct hours by the Bechtel field manual labor craft rate to reach a direct labor impact of \$54.4 million. Since Bechtel incurred 0.56 indirect hours for each direct manhour, Bechtel incurred an additional 544,834 indirect manhours. The impact of the 544,834 indirect hours was \$30.5 million. The total impact of direct and indirect hours attributable to rework was \$84.9 million as shown in Table 21 below.

Table 21 – Cost Impact Of Rework And Emergent Scope (100% of Dollars)

Description	Direct Impact	Indirect Impact	Total
Additional Direct Hours for Rework & Emergent Scope	972,918	544,834	1,517,752
Blended Field Manual Labor Craft Rate	\$ 55.95	\$ 55.95	
Subtotal Cost Impact	\$ 54,434,762	\$ 30,483,462	\$ 84,918,224
Subtotal (100% of Dollars in Thousands)	\$ 54,435	\$ 30,483	\$ 84,918

See Mr. Gentry's report for discussion of impact of rework on the Project schedule.¹¹²

¹⁰⁹ Gentry Report, Section 6.1.

¹¹⁰ For example, Bechtel Scorecard from July 24, 2022 Unearned Hours. I understand that hours for "Emergent Scope" includes 207,000 hours for which Bechtel overreported work progress and had to then complete the work as unearned hours.

¹¹¹ Gentry Report, Attachment G.

¹¹² Gentry Report, Section 6.3.

Subcontractor Productivity Impact

The Project also experienced lower than anticipated productivity in the subcontractors' direct manhours for Bechtel-managed subcontractors. Bechtel's scorecards track the hours for the following subcontractors: CB&I, FE Moran, SSM Industries, TurbinePros, API Construction, Performance Contracting Inc. ("PCI-Promatec"), FD Thomas, and other subcontractors. Since VCM 17, the subcontractors incurred a total of 7,134,434 manhours, which is an increase of 1,456,844 manhours above the estimated Total Scope. (See Table 22.)¹¹³

Table 22 – Additional Subcontractors' Direct Manhours

Description	Hours
Total Scope Hours To Be Earned	5,877,766
Cumulative Earned (As Of April 16, 2023)	5,677,590
Remaining Hours	200,176
Cumulative Spent (As Of April 16, 2023)	7,134,434
Additional Direct Manhours	1,456,844

To calculate the total cost impact due to the decrease in productivity, I multiplied the 1,456,844 additional direct manhours by the average wage rate of \$55.95 per hour,¹¹⁴ which results in a total cost impact of \$81.5 million, as shown in Table 23 below.

Table 23 – Cost Impact of Subcontractors' Productivity Achieved (100% of Dollars)

Description	Amount
Additional Direct Manhours	1,456,844
Blended Field Manual Labor Craft Rate	\$ 55.95
Subtotal Cost Impact	\$ 81,510,422
Subtotal (100% of Dollars in Thousands) \$	81,510

Bechtel's subcontractors experienced lower productivity due to the impacts from COVID-19, lack of adequate and skilled craft, periods of heavy commodity installation and other factors. See the Gentry and Chitester Reports for further discussion related to the productivity impacts on the Project.¹¹⁵

¹¹³ April 16, 2023, Vogtle Project Hours Earnings Scorecard.

¹¹⁴ I reviewed Bechtel's invoices and concluded that it was reasonable to use the same Bechtel wage rates for Bechtel's subcontractors.

¹¹⁵ Gentry Report, Sections 6.1.3 and 6.4; Chitester Report, Section 9.

7.3 BECHTEL "EXCLUDED" HOURS AND COSTS

Bechtel incurred additional manhours and costs related to what it referred to as "Excluded Costs" that were not included in the base estimate as of VCM 17. The Bechtel CCA includes a list of all Excluded Costs in Exhibit M to the CCA, which includes costs for craft labor per diem, craft labor wage incentives, taxes, work scope that is not related to the achievement of final completion, and other costs.¹¹⁶ The CCA defined that Excluded Costs would not be included in the calculation of Combined Construction Costs. Per the CCA, Bechtel was incentivized in its earned fee by the relationship of the Combined Construction Costs to the Target Construction Cost.¹¹⁷ Bechtel tracked its hours incurred related to Excluded Costs in its weekly scorecards. Bechtel used cost code "XX.98" for Excluded and Miscellaneous Costs as reported in its Scorecard.

The latest Bechtel Scorecard from April 16, 2023, identified 1,648,593 manhours for Excluded and Miscellaneous Costs.¹¹⁸ However, 531,534 of these manhours relate to work impacted by COVID-19, and 6,023 hours relate to work included in the technical changes quantified below in Section 7.4. I removed these hours from my calculation of Excluded Cost impact to avoid duplication of the COVID-19 impacts calculated above in Section 7.2. The remaining total manhours related to Excluded Costs is 1,111,036.¹¹⁹

I multiplied the 1,111,036 direct hours by the Bechtel field manual labor craft rate to reach a direct labor impact of \$62.2 million. Since Bechtel incurred 0.56 indirect hours for each direct manhour, Bechtel incurred an additional 622,180 indirect manhours. The impact of the 622,180 indirect hours was \$34.8 million. The total impact of direct and indirect hours attributable to rework was \$97.0 million as shown in Table 24.

Table 24 – Cost Impact of Hours Related to Bechtel Excluded Costs (100% of Dollars)

Description	Direct Impact	Indirect Impact	Total
Additional Direct and Indirect Hours	1,111,036	622,180	1,733,216
Blended Field Manual Labor Craft Rate	\$ 55.95	\$ 55.95	
Subtotal Cost Impact	\$ 62,162,464	\$ 34,810,971	\$ 96,973,435
Subtotal (100% of Dollars in Thousands)	\$ 62,162	\$ 34,811	\$ 96,973

In addition to the hours tracked by Bechtel related to Excluded Costs, the largest non-labor Excluded Costs were per diem and incentive costs. Per diem and incentive costs were included in Bechtel's monthly CPRs, and because they are Excluded Costs that were not included in the original Construction estimate, these

¹¹⁶ Bechtel CCA, Exhibit M.

¹¹⁷ Bechtel CCA, Article 7.4.

¹¹⁸ April 16, 2023 Scorecard (782,509 + 866,084 = 1,648,593 hours).

¹¹⁹ 1,648,593 – 531,534 – 6,023 = 1,111,036 hours.

costs in their totality are variances from VCM 17. Per Diem and incentive was tracked in three cost codes, which added together have an EAC value of \$509.2 million as of May 2023.¹²⁰

Table 25 – Discrete Bechtel Excluded Costs (100% of Dollars in Thousands)

Description	Amount
Per Diem	\$ 470,781
Welder Incentive CAS Per Diem	24,834
Welder Incentive (Excl CAS Per Diem)	13,629
Subtotal Discrete Excluded Costs	\$ 509,244

The total cost impact of additional hours and discrete costs related to Bechtel Excluded Costs is \$606.2 million.

Table 26 – Cost Impact of Bechtel Excluded Costs (100% of Dollars in Thousands)

Description	Amount
Excluded Hours Impact	\$ 96,973
Discrete Excluded Costs	509,244
Subtotal Excluded Costs Impact	\$ 606,217

7.4 TECHNICAL CHANGES

Design and technical changes also caused increased costs to the Project. Georgia Power identified certain risks in VCM 17 that related to potential impacts from technical issues (see Section 5.1 above). The following are the key technical risks that impacted the Project:

- i) Risk 3 – The risk that the labor force and craft will be unable to maintain their productivity improvements;
- ii) Risk 4 – The risk that the Project will be unable to continue to meet FOAK challenges;
- iii) Risk 7 – Procurement risk;
- iv) Risk 8 – Unidentified Scope risk; and
- v) Risk 12 – Testing/Startup risk.

Mr. Chitester explains in his Report that Risks 3, 4, 7, 8 and 12 materialized on the Project.¹²¹ I relied on Mr. Chitester's analysis to identify which risks were realized, and in the following sections I quantified the

¹²⁰ May 2023 Bechtel CPR.

¹²¹ Chitester Report, Section 6.

impacts of these risks.¹²² I only quantified costs that could clearly be associated to each risk category.¹²³ I identified the costs through review of CCFs and CPRs.

See Table 27 below for a summary of the quantification of costs for each risk identified. Table 27 does not include Risk 3 as it relates to the entirety of productivity on the Project, which is quantified in Section 7.2 above; Risk 8, which is addressed in Section 7.5 below; or Risk 12, which is quantified in the time-related cost analysis in Section 7.1.

Table 27 – Quantification of Technical Changes (100% of Dollars in Thousands)

Description	Amount
Risk 4 - Design Changes and FOAK Issues	\$ 42,998
Risk 7 - Procurement	292,383
	\$ 335,381

Risk 4 – FOAK Issues

I identified 37 CCFs that relate to design changes and FOAK issues, as summarized in Table 28 below. Mr. Chitester is opining on the technical issues potentially causing these changes.¹²⁴

¹²² For further discussion of each risk, see Chitester Report, Section 8.

¹²³ Certain risks covered multiple cost categories and impacts that occurred due to these risks were not directly tied to a singular time period. For Risks 4, 7, and 12, I only included cost increases that clearly fit in one of these categories.

¹²⁴ Chitester Report, Section 8.

Table 28 – Risk 4: Design Changes and FOAK Issues (100% of Dollars in Thousands) (From July 2017)¹²⁵

Redacted

The ten largest design- and FOAK-related CCFs encompass \$38.6 million of the \$43.0 million in costs identified. These CCFs are explained below:

¹²⁵ See Various CCFs identified in the table. CCF 2017-062 is an estimate with a potential cost ranging from \$2.225 million to \$5.450 million. I used the mid-point of \$3.838 million for this CCF.

Redacted

¹²⁶ CCF 2018-121.

¹²⁷ CCF 2017-062.

¹²⁸ CCF 2018-089.

¹²⁹ CCF 2019-014.

¹³⁰ CCF 2017-024.

¹³¹ CCF 2017-095.

¹³² CCF 2018-116.

Redacted

The additional 37 CCFs are similar in nature and account for the remaining \$4.4 million of the total \$43.0 million in CCFs identified for design and FOAK impacts.

Risk 7 – Procurement

The Project experienced a total increase of \$292.4 million in procurement costs from the VCM 17 estimate to the May 2023 EAC. Most of these cost increases relate to SNC procurement, other Westinghouse procurement costs and additional costs as shown in Table 29. Mr. Chitester opines on the technical issues causing these changes.¹³⁶

¹³³ CCF 2017-060.

¹³⁴ CCF 2019-045.

¹³⁵ CCF 2022-215.

¹³⁶ Chitester Report, Section 11.

Table 29 – Procurement EAC Variance In CPRs (100% of Dollars in Thousands) (From July 2017)¹³⁷

Description	EAC Value - January 2019 CPR	EAC Value - May 2023 CPR	Variance
SNC Procurement			
Civil Structural Architectural	\$ 66,111	\$ 97,771	\$ 31,660
Electrical	75,797	188,568	112,771
Mechanical	16,455	64,527	48,072
Other	813	38,438	37,626
Subtotal SNC Procurement	\$ 159,176	\$ 389,303	\$ 230,128
WEC Procurement			
Civil Structural Architectural	\$ 54,323	\$ 67,907	\$ 13,584
Electrical	66,248	68,503	2,255
Mechanical	411,789	416,908	5,119
Other	44,269	82,704	38,434
QA	907	-	(907)
Subtotal WEC Procurement	\$ 577,537	\$ 636,022	\$ 58,484
Additional Costs	-	21,555	21,555
Total Procurement	\$ 736,713	\$ 1,046,880	\$ 310,167
Decrease from VCM 17 to January 2019 CPR	17,764	-	(17,764)
Subtotal Variance	\$ 754,478	\$ 1,046,880	\$ 292,403
Time-Related Impact (See Section 7.1)			20
Variance Excluding Time-Related Impacts			\$ 292,383

Georgia Power tracked the EAC values for materials and work by commodity codes in each of the procurement cost categories (i.e., Civil Structural Architectural, Electrical, etc.). I reviewed the commodity codes from the earliest point in time when costs are tracked at that level (the January 2019 CPR) and compared them to the most recent EAC values from the May 2023 CPR. In the following subsections, I explain the commodities that led to greatest cost growth, with a focus on SNC Procurement WEC – Other and Additional Costs.

SNC Procurement – Civil Structural Architectural (“CSA”)

The CSA cost category experienced a cost increase of \$31.7 million since January 2019. The largest cost increases related to structural concrete and grout, special doors, relief panels, and Plant Security Defensive Equipment. CCF 2020-125 is an example that includes \$9.6 million for multiple procurement commodity codes.¹³⁸ One of these codes is CC01 – Common Structural Concrete, Grout Aids, which increased by

¹³⁷ January 2019 and May 2023 CPRs. The total variance of \$292.4 million includes a minimal impact of \$20 thousand due to time-related delays, as quantified in Section 7.1, Table 15.

¹³⁸ CCF 2020-125.

\$2.8 million. Per the CCF, the Project needed additional amounts of these commodities while the installation of equipment and electrical component work was ongoing.

SNC Procurement – Electrical

The Electrical cost category increased by \$112.8 million since January 2019. The most substantial cost increases related to conduit and fittings, cables, gland fittings, and terminations. Multiple CCFs included purchases for conduit, such as CCF 2020-125 with \$3.6 million for conduit, and CCF 2020-050 with \$4.2 million for conduit.¹³⁹ CCFs 2021-056 and 2020-058 included \$5.3 million and \$1.9 million, respectively, for gland fittings.¹⁴⁰ These example CCFs related to buying commodities necessary for electric work on the Project.

SNC Procurement – Mechanical

The Mechanical cost category increased by \$48.1 million since January 2019. The most substantial cost increases related to piping, tubing and fittings, and control rod clusters. CCF 2020-125 included \$1.8 million and CCF 2020-051 included \$1.9 million for increased piping costs.¹⁴¹ CCF 2020-055 included \$5.3 million for non-ASME [American Society of Mechanical Engineers] III tubing, fittings, and routing support. These example CCFs related to buying commodities necessary for work on the Project.

SNC Procurement – Other

The SNC Procurement – Other cost category increased by \$37.6 million since January 2019. The most substantial cost increases related to replacement of damaged parts, VC Summer purchased material, and freight. In total, the commodity code for replacement parts increased by \$22.3 million, covering the majority of additional costs incurred in the Other category.¹⁴² CCF 2020-026 is an example that includes \$1.9 million for replacement parts.¹⁴³

Westinghouse Procurement – Other¹⁴⁴

The Other cost category in Westinghouse Procurement experienced a cost increase of \$38.4 million since January 2019. This increase is driven primarily by increases to commodity codes associated with the

¹³⁹ CCF 2020-125 and CCF 2020-050.

¹⁴⁰ CCF 2021-056 and CCF 2020-058.

¹⁴¹ CCF 2020-125 and CCF 2020-050.

¹⁴² The January 2019 CPR included an EAC value of \$0.5 million for commodity code RPLC (replacement parts), while the May 2023 CPR included an EAC value of \$22.8 million, an increase of \$22.3 million.

¹⁴³ CCF 2020-026.

¹⁴⁴ Certain commodity codes for Westinghouse Fees that were originally categorized as WEC Procurement – Other in the January 2019 CPR were categorized in a new cost code in the May 2023 CPR under “02 – WEC Fee and Other Cost” (\$40.9 million) and “1111 – Non-Meeting Departments” (\$17.0 million). These costs are included with the WEC Procurement – Other costs (\$24.8 million) in the variance for WEC Procurement – Other as the Westinghouse fee was included solely in that category in the January 2019 CPR (\$40.9 + \$17.0 + \$24.8 = \$82.7 million).

Westinghouse procurement incentive fee. I understand that Westinghouse was not including fee in its early billings, although the fee was continuing to accrue. Georgia Power then later adjusted its EAC for Westinghouse fee to account for accrued fee that was not billed by Westinghouse at the time.

Additional Costs

Costs included in Table 29 in the Additional Costs category are commodity codes that had an EAC value as of May 2023 CPR but were not included in the January 2019 CPR. The Additional Costs total \$21.6 million and included commodity codes related to squib valves, structural steel, piping, and other costs. I understand that these costs were added in to the EAC as a "holding account." Essentially, they were known costs, but the specific supplier or final costs were not yet determined at the time.

7.5 SCOPE INCREASE

Since VCM 17, the Project saw growth in the estimated quantities required for certain materials. Some of the areas experiencing growth were rebar, formwork, and embeds.¹⁴⁵ Beginning on January 7, 2018, Bechtel submitted Project Scorecards to Georgia Power that tracked the estimated quantities of materials, the unit rates estimated, and the resulting hours estimated for each building.¹⁴⁶ The increase in these quantities, which is in addition to the added manhours due to productivity impacts (see Section 7.2 above), contributed to an increase of 1,666,476 total direct manhours required on the Project from 19.2 million hours estimated in the first Scorecard to 20.9 million hours estimated in the latest scorecard.

I multiplied the 1,666,476 increased direct hours by the Bechtel field manual labor craft rate to reach a direct labor impact of \$93.2 million. Since Bechtel incurred 0.56 indirect hours for each direct manhour, Bechtel incurred an additional 933,227 indirect manhours.¹⁴⁷ The impact of the additional 933,227 indirect hours was \$52.2 million.

The quantification of Risk 4 – FOAK issues in Section 7.4 above includes cost increases to Bechtel's costs that occurred before January 7, 2018. To avoid potential duplication between the additional costs in those CCFs identified for FOAK issues and the hours added in Bechtel's scorecards prior to January 7, 2018, I reduced the total impact quantified in this section by the total of those CCFs prior to January 7, 2018, which amounts to \$15.1 million. The remaining total impact of direct and indirect hours attributable to scope

¹⁴⁵ Gentry Report, Table 6-1. Chitester Report, Section 12.

¹⁴⁶ Bechtel Project Scorecard, January 7, 2018.

¹⁴⁷ The indirect manhours include the labor costs in support of direct craft labor. Examples include cleanup, training and classes, warehousing services, water services, and material handling. Indirect non-labor costs, such as per diem are not included here. See Section 7.3 for a quantification of per diem costs.

increase is \$130.4 million as shown Table 30. See the Chitester and Gentry Reports for discussion of the scope increases experienced on the Project.¹⁴⁸

Table 30 - Cost Impact of Scope Increase (100% of Dollars) (From July 2017)¹⁴⁹

Description	Direct Impact	Indirect Impact	Total
Additional Direct Manhours From Scope Increase	1,666,476	933,227	2,599,703
Blended Field Manual Labor Craft Rate	\$ 55.95	\$ 55.95	
Subtotal Cost Impact	\$ 93,239,332	\$ 52,214,051	\$ 145,453,383
Subtotal (100% of Dollars in Thousands)	\$ 93,239	\$ 52,214	\$ 145,453
Reduction to avoid Potential Overlap With FOAK CCFs			(15,074)
Adjusted Subtotal (100% of Dollars in Thousands)			\$ 130,379

7.6 COVID-19 MITIGATION DIRECT COSTS

Georgia Power calculated \$82.4 million as the direct mitigation costs incurred related to COVID-19.¹⁵⁰ These costs included \$29.8 million for infrastructure through Summer 2021, which included the following costs:

- i) Medical village costs such as set-up, testing, diagnostics, and operating costs;
- ii) Medical advisors; and
- iii) Janitorial services.

An additional \$52.6 million was included for workforce isolation costs through December 2021, including:

- i) Bechtel direct craft hours;
- ii) Bechtel's Field Non-Manual Costs related to COVID-19;
- iii) Subcontractor COVID-19 Costs; and
- iv) Isolation and quarantine Field Non-Manual Costs (non-Bechtel).

¹⁴⁸ Gentry Report, Section 6.2; Chitester Report, Section 12.

¹⁴⁹ The manhours due to scope increases on the Project is in addition to the manhours from productivity impacts calculated above in Section 7.2. As of the April 16, 2023 Scorecard, Bechtel expected to incur 15,322,210 additional manhours beyond the original scope of 19,217,081 manhours estimated in the first scorecard submitted by Bechtel on January 7, 2018 (34,500,313 Cumulative Hours Spent – 19,217,081 Total Scope + 38,978 manhours remaining = 15,322,210 manhours).

¹⁵⁰ COVID-19 Actuals – 2023_05 Update R2 (002).xlsx, tab "July 2021."

The workforce isolation costs were categorized as Excluded Costs in Bechtel's cost records. However, I removed them from the quantification of Excluded Costs in Section 7.3 above in order to include them in this category of COVID-specific costs. Similarly, I removed Bechtel's Field Non-Manual costs related to COVID-19 from the quantification of time-related costs in Section 7.1, as those costs more appropriately fit in this section. The entire \$82.4 million calculated by Georgia Power is included in this cost category. The \$17.8 million of costs related to Isolation and quarantine Field Non-Manual Costs are non-Bechtel costs and do not identify the EAC cost category they relate to, while the remaining \$64.6 million in costs were related to Bechtel.¹⁵¹

8. KEY CAUSES OF GROWTH FOR EACH LEVEL 1 COST CATEGORY

In addition to the delay, productivity, and other cost impacts quantified in Section 7, the Project had additional cost increases. I reviewed the Project CCFs, VPMBs and monthly cost reports to identify the source behind the additional discrete cost impacts. This review resulted in identification and explanation of additional \$858.0 million (as reflected in Table 10 above for the two line items referring to Sections 8.1 – 8.8).

The following are selected examples of discrete costs in each of eight main cost categories (referred to as "Level 1 cost categories") that experienced cost growth. (See Table 31.)

Table 31 – VCM 17 and May 2023 EAC Comparison (100% of Dollars in Thousands) (From July 2017)¹⁵²

Category	VCM 17	May 2023 EAC	Variance
Construction (CCA Bechtel & Fluor)	\$ 3,511,386	\$ 6,579,505	\$ 3,068,119
Westinghouse (Engineering, Licensing, etc.)	264,145	468,910	204,765
Procurement	754,478	1,046,881	292,403
Subcontracts	1,295,133	2,114,366	819,233
IT	76,776	207,013	130,237
Distributables	203,497	437,415	233,918
Southern Company Labor, Supplemental, & other FNM	1,296,476	3,489,015	2,192,539
Owner's Costs (non-labor)	688,128	781,069	92,941
SNC Escalation Estimate	84,780	868	(83,912)
VCM17 Cost Basis Difference	(21,985)	-	21,985
Contingencies	1,134,308	288,702	(845,606)
Estimate-At-Completion (100% of Dollars)	\$ 9,287,122	\$ 15,413,744	\$ 6,126,622

The Contingency category has a negative \$845.6 million variance. Contingency was included in the ETC in VCM 17. Throughout the Project, Southern Nuclear allocated contingency to the other cost categories

¹⁵¹ \$82.4 million - \$17.8 million = \$16.4 million.

¹⁵² See Table 1. Highlighted rows are the Level 1 cost categories that experienced cost growth.

as costs increased. Therefore, the negative \$845.6 million variance in Contingency partially offsets the positive variances in the other cost categories.

Contingency is defined as:

"An amount added to an estimate to allow for items, conditions, or events for which the state, occurrence, or effect is uncertain and that experience shows will likely result, in aggregate, in additional costs. Typically estimated using statistical analysis or judgment based on past asset or project experience. . . .

Contingency is generally included in most estimates and is expected to be expended." [emphasis added]¹⁵³

Contingency is generally included in an estimate, and then throughout performance of a project, is allocated to cost categories that have overruns (also referred to as contingency drawdown) (i.e., "expected to be expended" in above quote).¹⁵⁴ VCM 28 notes that \$2 billion of contingency was allocated to construction cost categories since VCM 17.¹⁵⁵

Each of the Level 1 cost categories experienced growth from VCM 17 until the first monthly CPRs began in September 2018. The cost growth in this period relates to the \$1.5 billion (100% share) that Georgia Power is not seeking recovery. This amount is not deducted in the below sections, which means each Level 1 cost category's "Remaining Cost Increases" would be lower if that amount were reduced.

The following Sections 8.1 through 8.8 discuss the cost growth by cost category.

8.1 CONSTRUCTION (CCA BECHTEL & FLUOR)

The Level 1 cost category Construction accumulates the Bechtel CCA and Fluor construction costs. Figure 7 below shows the monthly changes in the Construction costs EAC.¹⁵⁶ The to-go construction costs were estimated at \$3.5 billion in VCM 17 and increased to \$6.6 billion as of the May 2023 EAC, an increase of \$3.1 billion (at 100% of dollars). (See Table 32.) The largest components of cost growth in Construction costs are time-related impacts, Bechtel direct and indirect productivity impacts, Bechtel "Excluded Costs," scope growth, and COVID-19 mitigation direct costs. These cost impacts are discussed in Section 7 above,

¹⁵³ *Recommended Practice 10S-90: Cost Engineering Terminology*, AACE International, 2023, pages 29-30.

¹⁵⁴ *Total Cost Management Framework*, "10.3.27 Manage Contingency and Reserves," AACE International, <https://web.aacei.org/resources/tcm/10.3.shtml> (accessed online August 22, 2023).

¹⁵⁵ Georgia Power Company's Twenty-Eighth Semi-annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, Page 9.

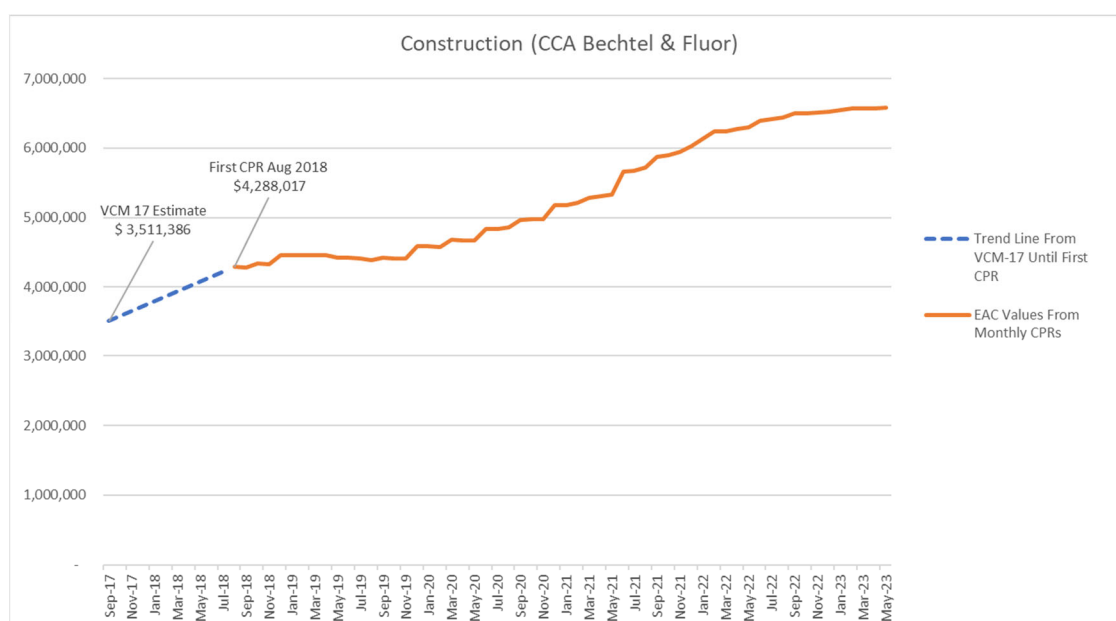
¹⁵⁶ HKA Exhibit 1.

and these amounts are the portion of those cost growth items that relate to the Construction cost category. In addition to these factors, there are \$491.4 million of remaining cost increases.

Table 32 – Actual Cost Variance: Bechtel CCA – Fluor (100% of Dollars in Thousands) (From July 2017)¹⁵⁷

Description	VCM 17	May 2023 EAC	Variance
Construction CCA Bechtel & Fluor	\$ 3,511,386	\$ 6,579,505	\$ 3,068,119
Variance Categories:			
Time-Related Impacts			583,662
Productivity - Bechtel Direct			764,038
Productivity - Bechtel Indirect			427,861
Excluded Costs			606,217
Quantity Growth Impact			130,379
COVID-19 Mitigation Direct Costs			64,563
Subtotal Variance Quantified			\$ 2,576,720
Remaining Cost Increases			491,399
Total Variance			\$ 3,068,119

Figure 7 – Construction Total EAC by Month (100% of Dollars in Thousands) (From July 2017)



The remaining \$491.4 million of cost increases relate to costs such as fee, indirect materials, and other costs. The following examples are conservative estimates of increases related to these cost categories.

Georgia Power included Redacted in the VCM 17 estimate for Bechtel's Base Fee. However, the estimate included an additional Redacted in a Bechtel Contingency line that I understand included

¹⁵⁷ HKA Exhibit 1.

additional anticipated fee as the Bechtel CCA was not yet finalized.¹⁵⁸ The Bechtel CCA was signed later that year on October 23, 2017 and included a Base Fee of Redacted and a variable Earned Fee that began at Redacted and would either be reduced or increased based on Project milestones and incentives.¹⁵⁹ In the first CPR from August 2018, Georgia Power included an estimated Redacted and Redacted respectively for Bechtel's Base Fee and Earned Fee, totaling Redacted.¹⁶⁰ In the May 2023 CPR, Georgia Power included Redacted and Redacted, respectively for Base Fee and Earned Fee, totaling Redacted, which is a total increase of Redacted.¹⁶¹ At a minimum, the Construction EAC increased by Redacted due to projected Bechtel fee increases since VCM 17. I understand that the Owners and Bechtel are in a dispute over the amount of Bechtel's Earned Fee.

The costs for Indirect Materials also grew over the course of the Project. Starting in November 2019, Georgia Power separately tracked indirect materials in the Account ID "SNC980122 Ind Matl."¹⁶² I understand that in previous periods, indirect material was included in the Construction Indirect Labor Account ID "SNC980122."¹⁶³ In November 2019, Georgia Power included \$37.2 million in estimated Indirect Materials costs. In the latest CPR from May 2023, Georgia Power included \$45.7 million for Indirect Materials, which is an increase of \$8.5 million. At a minimum, the Construction EAC increased by \$8.5 million due to an increase in Indirect Materials.

8.2 WESTINGHOUSE

The Westinghouse cost category encompasses costs related to the Westinghouse Service Agreement. Figure 8 below shows the monthly changes in the Westinghouse costs EAC. The Westinghouse to-go costs were estimated at \$264.1 million in VCM 17, and increased to \$468.9 million as of the May 2023 EAC, an increase of \$204.8 million. (See Table 33.)

A portion of the Westinghouse cost increases are explained in Section 7 above. Westinghouse costs increased by \$84.4 million due to time-related delay, as quantified in Table 15 above.

As discussed above in Section 5.2, Georgia Power and Westinghouse continued to refine their estimates after the WEC Service Agreement was executed in July 2017, and Westinghouse ultimately provided a re-baselined estimate that Georgia Power incorporated into VCM 19.¹⁶⁴ The EAC increased from \$264.1 million to \$345.5 million from VCM 17 to the September 2018 CPR, a total increase of

¹⁵⁸ Proposed Dashboard Rev 47, Tab "DASH-Management CASHFLOW B."

¹⁵⁹ Bechtel CCA; Articles 7.2 and 7.3.

¹⁶⁰ August 2018 CPR.

¹⁶¹ May 2023 CPR.

¹⁶² November 2019 CPR.

¹⁶³ October 2019 CPR. The Account ID "SNC980122" decreased from \$540.6 million in October 2019 to \$504.7 million in November 2019, which coincided with the start of the use of Account ID "SNC980122 Ind Matl" totaling \$37.2 million in November 2019.

¹⁶⁴ See Section 5.2.

\$81.4 million.¹⁶⁵ This increase included \$129.4 million in increased work scope (e.g., Engineering, Instruments & Controls, Procurement, etc.), along with an added credit of \$48.0 million for "WEC IAA Refund." In the VCM 17 filing, Georgia Power described the Westinghouse IAA:

*"In lieu of immediately rejecting the EPC Agreements with the Vogtle and V.C. Summer Owners, Westinghouse entered into IAAs to mitigate the risks created by Westinghouse's abandonment which allowed the Owners to fund work on the Project in a manner that was cost-neutral for Westinghouse while the parties determined if and how Westinghouse could continue to be involved in the projects, given Westinghouse's inability to perform its obligations under the EPC agreements. On March 29, 2017, Georgia Power, acting for itself and as agent for the non-Georgia Power Owners, entered into the IAA with Westinghouse for a term to expire on April 28, 2017. **During the interim assessment period, the Company agreed to pay all costs related to construction and supplies for the Vogtle Project during the term of the IAA.**" [emphasis added]*¹⁶⁶

Georgia Power received an additional \$5.9 million in refunds for prior Westinghouse IAA costs.¹⁶⁷ In addition to these factors, there is \$45.0 million of remaining cost increases.

Table 33 – Actual Cost Variance: Westinghouse (100% of Dollars in Thousands) (From July 2017)

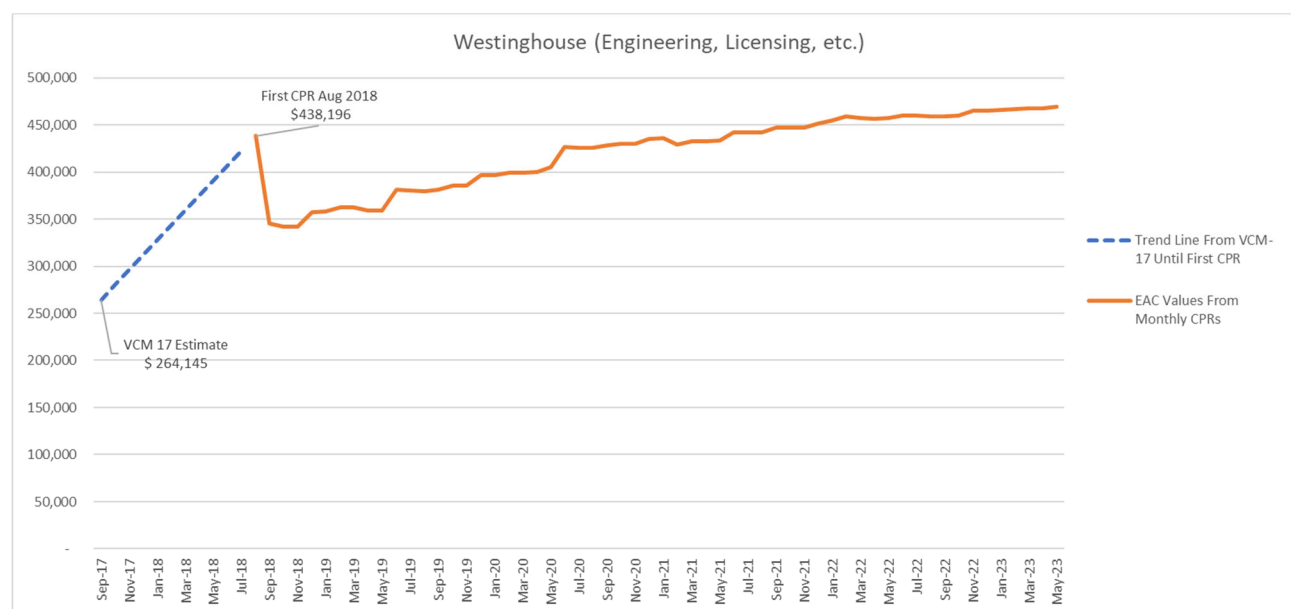
Description	VCM 17	May 2023 EAC	Variance
Westinghouse	\$ 264,145	\$ 468,910	\$ 204,765
Variance Categories:			
Time-Related Impacts			84,386
Budget - Rebaseline Adds			129,359
Budget - Initial WEC IAA Refund			(48,000)
Additional WEC IAA Refund			(5,944)
Subtotal Variance Quantified			\$ 159,801
Remaining Cost Increases			44,964
Total Variance			\$ 204,765

¹⁶⁵ See Table 1 and September 2018 CPR.

¹⁶⁶ Georgia Power Company's Seventeenth Semi-Annual Construction Monitoring Report for Plant Vogtle Units 3 and 4; Docket No. 29849, pages 39-40.

¹⁶⁷ May 2023 CPR. The total for WEC IAA Refund in the May 2023 CPR is (\$53,944), an increase of (\$5,944) from the (\$48,000) included in the September 2018 CPR.

Figure 8 – Westinghouse Total EAC by Month (100% of Dollars in Thousands) (From July 2017)



The remaining \$45.0 million of cost increases relates to non-time-related additional costs. Example cost codes that experienced cost growth but were not time-related are construction bulk materials in Engineering and various Standard Plant codes in Instrument & Controls.¹⁶⁸

8.3 SOUTHERN COMPANY LABOR

Southern Company Labor includes the labor costs incurred by Southern Nuclear and Georgia Power. Figure 9 below shows the monthly changes in the Southern Company Labor costs EAC. The to-go Southern Company Labor costs were estimated at \$1.3 billion in VCM 17 and increased to \$3.5 billion as of the May 2023 EAC, an increase of \$2.2 billion. (See Table 34.)

A portion of the Southern Company Labor cost increases are explained in Section 7 above. Southern Company Labor increased by \$703.6 million due to time-related delay (as quantified in Table 15 above), \$525.7 million related to budget reforecast and scope adjustments (as described in Table 35 below), and \$100.0 million related to a Labor Optimization Plan (described below), leaving \$863.3 million of remaining cost increases.

¹⁶⁸ HKA Exhibit 2.

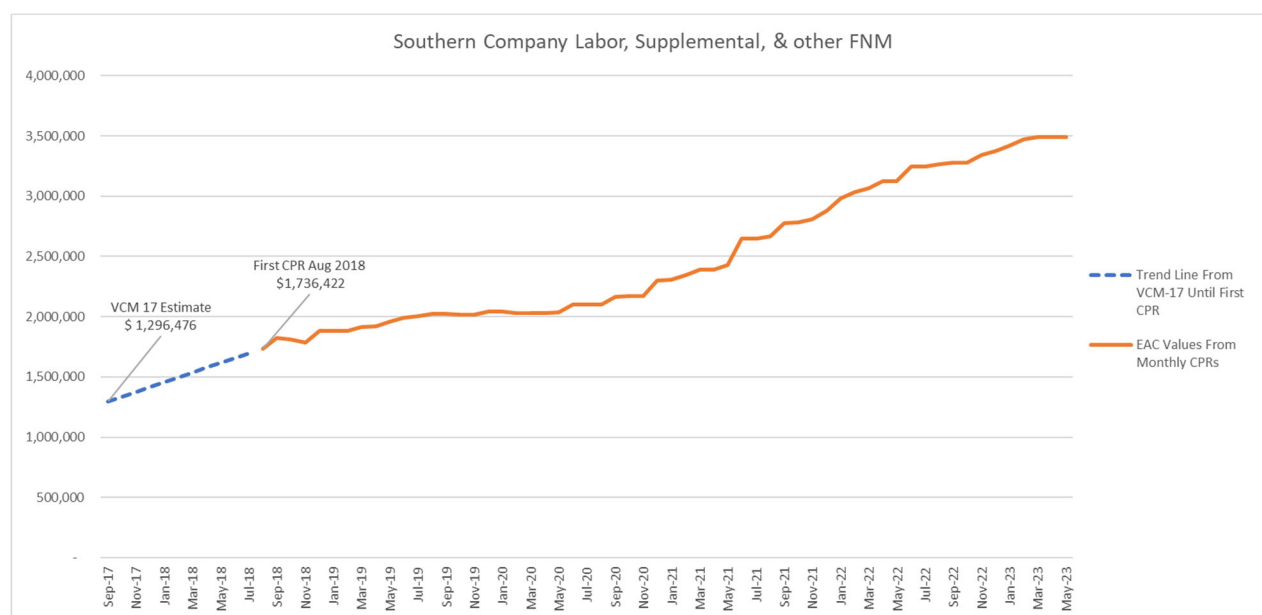
Table 34 – Actual Cost Variance: Southern Company Labor (100% of Dollars in Thousands) (From July 2017)

Description	VCM 17	May 2023 EAC	Variance
Southern Company Labor	\$ 1,296,476	\$ 3,489,015	\$ 2,192,539

Variance Categories:

Time-Related Impacts	703,599
Budget Reforecast and Scope Adjustments	525,685
Labor Optimization Plan Removed	100,000
Remaining Cost Increases	863,255
Subtotal	\$ 2,192,539

Figure 9 – Southern Company Labor Total EAC By Month (100% of Dollars in Thousands) (From July 2017)



Southern Company Labor increased by \$525.7 million between VCM 17 and the September 2018 EAC, as shown in Table 35.

Table 35 – Southern Company Labor EAC Cost Growth From VCM 17 To September 2018 CPR (100% of Dollars in Thousands) (From July 2017)

Description	Southern Company Labor EAC
VCM 17	\$ 1,296,476
VCM 19	1,556,893
Subtotal Cost Increase	\$ 260,417
VCM 19	1,556,893
September 2018 CPR	1,822,161
Subtotal Cost Increase	\$ 265,268
Total Cost Increase	\$ 525,685

As described in Section 5.2 above, at the time of VCM 19, Georgia Power updated its labor forecast which led to an increase of \$260.4 million for the Southern Company Labor EAC.¹⁶⁹ Georgia Power shifted an additional \$265.3 million in scope from the Westinghouse Baseline and Subcontracts EAC cost categories into the Southern Company Labor EAC in the September 2018 CPR.¹⁷⁰ The total Project cost from VCM 19 of \$10.9 billion remained the same in the September 2018 CPR as amounts were only adjusted between various EAC cost categories.

In addition to the above budget re-forecast and scope adjustments, the September 2018 CPR included a \$100 million credit in its EAC for SNC labor related to a Labor Optimization Plan. I understand that this efficiency was not realized and this credit was later removed from the cost estimate.

The remaining \$863.3 million of cost increases relate to indirect support contracts such as cyber security, Initial Test Program (“ITP”) maintenance support contracts, and other increases to time-related cost codes that were not due to time-related delays.¹⁷¹

One example is CCF 2022-132, totaling \$6.4 million, which relates to contracted ITP maintenance support.¹⁷² Additional costs are included for Day & Zimmerman, BHI, Control Southern, Crane Nuclear, and TurbinePros.

8.4 PROCUREMENT

The Procurement cost category includes Georgia Power's procurement efforts. Figure 10 below shows the monthly changes in the Procurement costs EAC. The to-go Procurement costs were estimated at

¹⁶⁹ Proposed Dashboard Rev 47, Tab “Top Level Summary A”.

¹⁷⁰ September 2018 CPR.

¹⁷¹ HKA Exhibit 2.

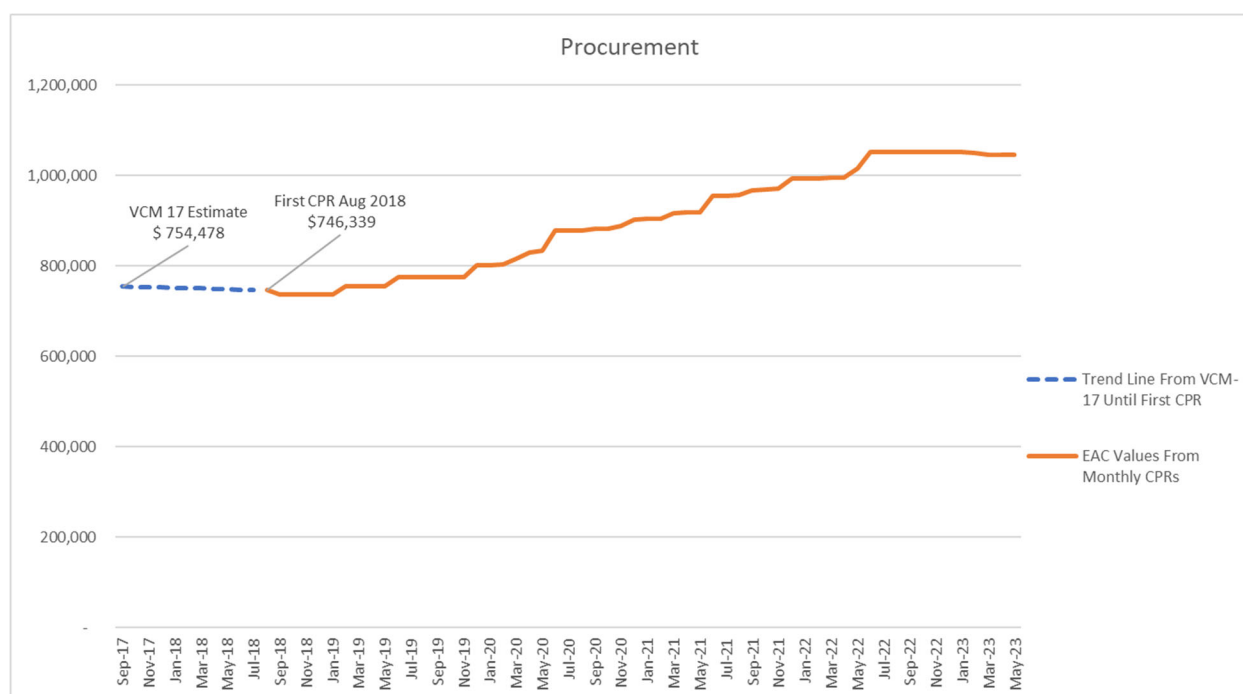
¹⁷² CCF 2022-132.

\$0.8 billion in VCM 17 and increased to \$1.0 billion as of the May 2023 EAC, an increase of \$0.3 billion. (See Table 36.) The cost variance for Procurement costs is primarily explained by Technical Changes that are quantified above in Section 7.4. Additionally, Procurement experienced minimal time-related delays quantified above in Section 7.1. There is no remaining variance beyond the quantification performed in Section 7.

Table 36 – Actual Cost Variance: Procurement (100% of Dollars in Thousands) (From July 2017)

Description	VCM 17	May 2023 EAC	Variance
Procurement	\$ 754,478	\$ 1,046,881	\$ 292,403
Variance Categories:			
Time-Related Impacts			20
Technical Changes: Risk 7 - Procurement			292,383
Remaining Cost Increases			-
Subtotal			\$ 292,403

Figure 10 – Procurement Total EAC by Month (100% of Dollars in Thousands) (From July 2017)



8.5 SUBCONTRACTS

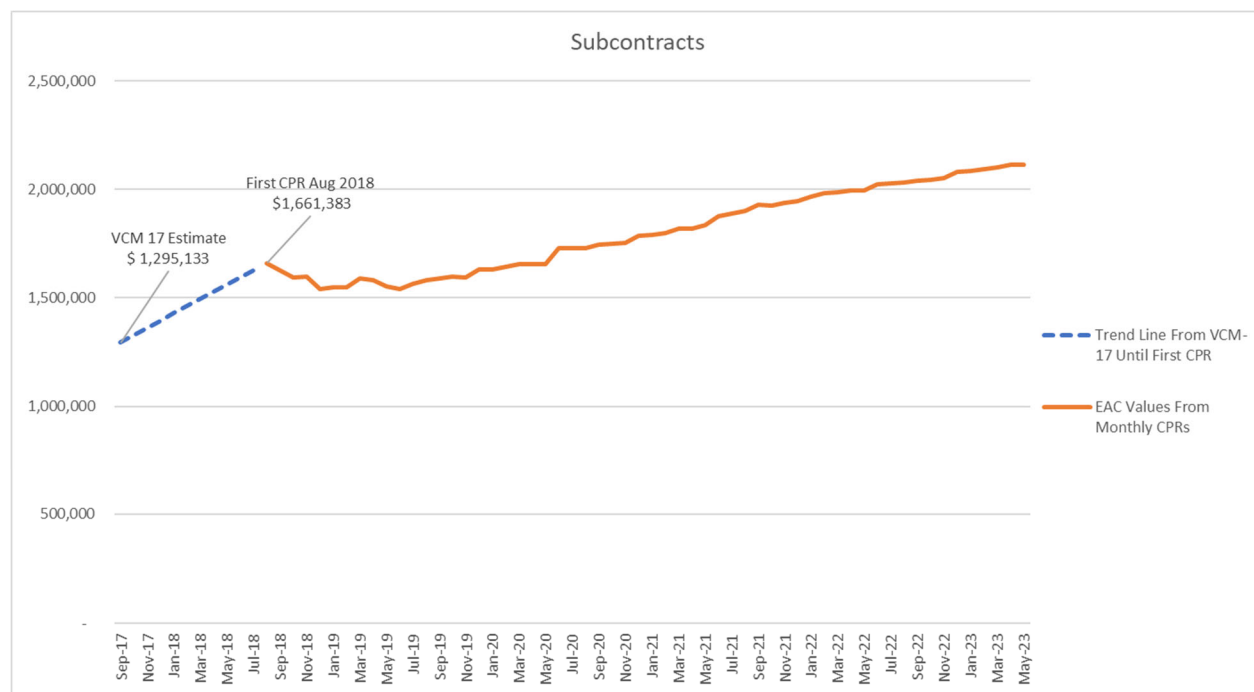
The Subcontracts cost category includes the costs of subcontracts managed by Southern Nuclear and by Bechtel. Figure 11 below shows the monthly changes in the Subcontracts costs EAC. The to-go Subcontracts costs were estimated at \$1.3 billion in VCM 17 and increased to \$2.1 billion as of the May 2023 EAC, an increase of \$0.8 billion. (See Table 37.) Subcontracts costs increased by \$26.7 million

due to time-related delay and \$81.5 million due to Bechtel-managed subcontractor productivity impacts, leaving \$711.0 million of remaining cost increases.

Table 37 – Actual Cost Variance: Subcontracts (100% of Dollars in Thousands) (From July 2017)

Description	VCM 17	May 2023 EAC	Variance
Subcontracts	\$ 1,295,133	\$ 2,114,366	\$ 819,233
Variance Categories:			
Time-Related Impacts			26,726
Productivity - Bechtel Subcontractor			81,510
Remaining Cost Increases			710,997
Subtotal			\$ 819,233

Figure 11 – Subcontracts Total EAC by Month (100% of Dollars in Thousands) (From July 2017)



When Bechtel took over as construction manager in 2017, it took over the responsibility of many of the existing and future subcontracts. As shown in Table 38, the Subcontract EAC costs grew by \$211.6 million from VCM 17 to the September 2018 CPR. Both Bechtel- and Southern Nuclear-managed Subcontract costs increased throughout the remainder of the Project.

Table 38 – Bechtel and SNC Managed Subcontract Cost Growth (100% of Dollars in Thousands) (From July 2017)¹⁷³

Description	VCM 17	September 2018 CPR	May 2023 CPR
Bechtel Managed Subcontracts	\$ -	1,417,563	1,764,648
SNC Managed Subcontracts	1,295,133	89,184	349,718
	\$ 1,295,133	\$ 1,506,747	\$ 2,114,366

An example of a Bechtel-managed Subcontract cost growth is CCF 2020-289.¹⁷⁴ This CCF included \$17.3 million in cost increases to the AMECO subcontract. AMECO supplied small and specialty tools for the Project. As of November 2020, AMECO had spent approximately 93% of its contract and requested additional funding to support the Project through completion. The increase in small tools is a natural consequence of the increased craft labor hours as described in Sections 7.2 and 7.3 above.

An example of a Southern Nuclear-managed Subcontract cost growth is CCF 2021-254.¹⁷⁵ This CCF included \$4.4 million in cost increase to the Morgan Corp. Civil Support contract. Morgan Corp. provided support including Notice of Intent closure support, Vehicle Barrier System excavation and backfill, erosion control, temporary work as requested, and other support. The additional funding was requested to support the Project through completion.

8.6 INFORMATION TECHNOLOGY (IT)

The Information Technology ("IT") cost category includes Project IT costs. Figure 12 below shows the monthly changes in the IT costs EAC. The to-go IT costs were estimated at \$76.8 million in VCM 17 and increased to \$207.0 million as of the May 2023 EAC, an increase of \$130.2 million. (See Table 39.) IT costs increased by \$45.3 million due to time-related delay and \$63.7 million due to budget reforecast and scope adjustments (described below), leaving \$21.2 million of remaining cost increases.

¹⁷³ Proposed Dashboard Rev 47, Tab "Top Level Summary A", September 2018 CPR, and May 2023 CPR.

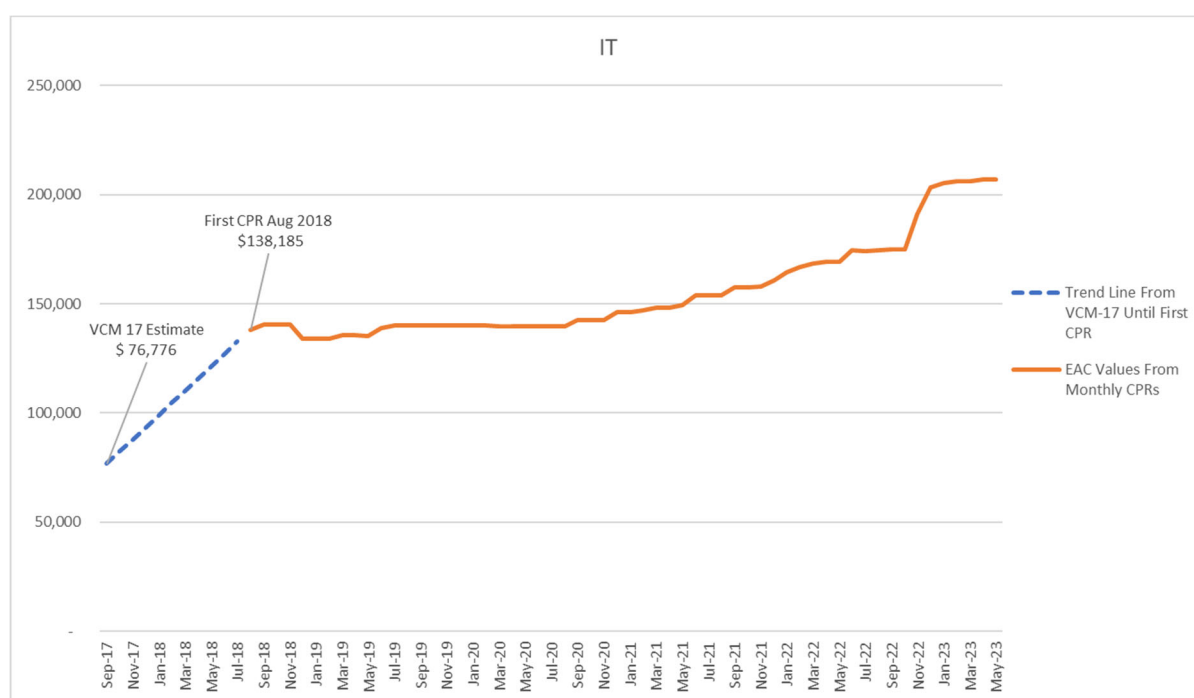
¹⁷⁴ CCF 2020-289.

¹⁷⁵ CCF 2021-254.

Table 39 – Actual Cost Variance: Information Technology (IT) (100% of Dollars in Thousands) (From July 2017)

Description	VCM 17	May 2023 EAC	Variance
Information Technology (IT)	\$ 76,776	\$ 207,013	\$ 130,237
Variance Categories:			
Time-Related Impacts			45,289
Budget Reforecast and Scope Adjustments			63,746
Remaining Cost Increases			21,202
Subtotal			\$ 130,237

Figure 12 – Information Technology Total EAC by Month (100% of Dollars in Thousands) (From July 2017)



As described in Section 5.2 above, at the time of VCM 19, Georgia Power updated many of its cost forecasts. Georgia Power increased the IT EAC from \$76.8 million in VCM 17 to \$140.5 million in the September 2018 CPR, a total increase of \$63.7 million.¹⁷⁶

The cost codes in the IT EAC cost category are primarily time-related.¹⁷⁷ This means that the remaining \$21.2 million of cost increases relate to time-related costs codes that were impacted beyond Project delays.

¹⁷⁶ Proposed Dashboard Rev 47, Tab "Top Level Summary A"; September 2018 CPR.

¹⁷⁷ HKA Exhibit 2.

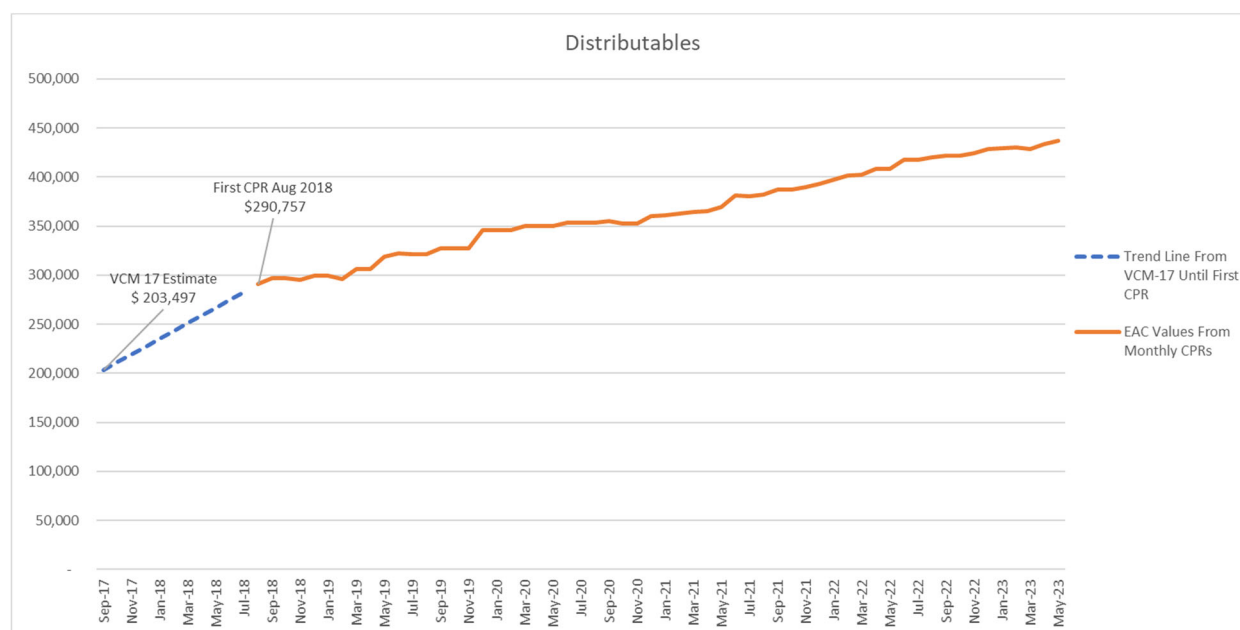
8.7 DISTRIBUTABLES

The Distributables cost category includes indirect construction costs such as crane rental, construction equipment, general site cleanup, ice and water services, etc. Figure 13 below shows the monthly changes in the Distributables costs EAC. The to-go Distributables costs were estimated at \$203.5 million in VCM 17 and increased to \$437.4 million as of the May 2023 EAC, an increase of \$233.9 million. (See Table 40.) Distributables costs increased by \$97.5 million due to time-related delay and \$93.1 million due to budget reforecast and scope adjustments (described below), leaving \$43.3 million of remaining cost increases.

Table 40 – Actual Cost Variance: Distributables (100% of Dollars in Thousands) (From July 2017)

Description	VCM 17	May 2023 EAC	Variance
Distributables	\$ 203,497	\$ 437,415	\$ 233,918
Variance Categories:			
Time-Related Impacts			97,471
Budget Reforecast and Scope Adjustments			93,104
Remaining Cost Increases			43,343
Subtotal			\$ 233,918

Figure 13 – Distributables Total EAC by Month (100% of Dollars in Thousands) (From July 2017)



As described in Section 5.2 above, at the time of VCM 19, Georgia Power updated many of its cost forecasts. Georgia Power increased the Distributables EAC from \$203.5 million in VCM 17 to \$296.6 million in the September 2018 CPR, a total increase of \$93.1 million.¹⁷⁸

The cost codes in the Distributables EAC cost category are all largely time-related.¹⁷⁹ This means that the remaining \$43.3 million of cost increases relate to time-related costs codes that were impacted beyond Project delays.

8.8 OWNERS' COSTS

The Owners' Costs category includes the Builder's Risk Insurance Premiums, Owner Controlled Insurance Program ("OCIP") costs, Site Projects, legal fees, service contracts, etc. Figure 14 below shows the monthly changes in the Owners' Costs EAC. The to-go Owners' Costs were estimated at \$688.1 million in VCM 17 and increased to \$781.1 million as of the May 2023 EAC, an increase of \$92.9 million. (See Table 41.) Owners' Costs increased by \$73.1 million due to time-related delay, leaving \$19.9 million of remaining cost increases.

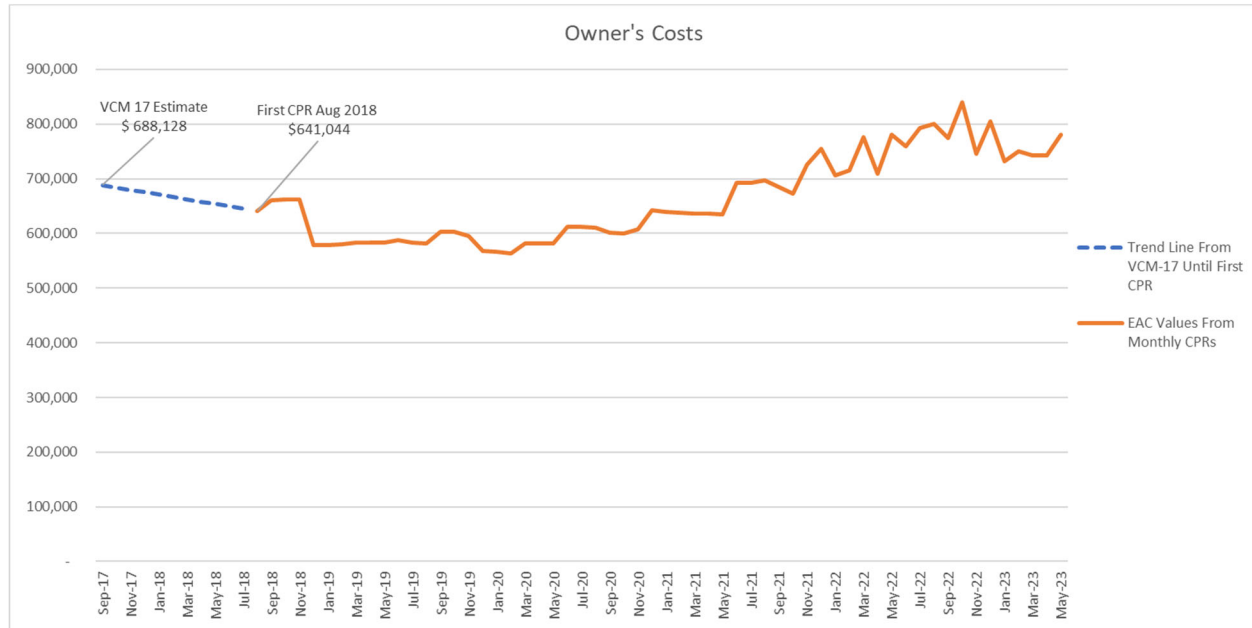
Table 41 – Actual Cost Variance: Owners' Costs (100% of Dollars in Thousands) (From July 2017)

Description	VCM 17	May 2023 EAC	Variance
Distributables	\$ 688,128	\$ 781,069	\$ 92,941
<u>Variance Categories:</u>			
Time-Related Impacts			73,067
Remaining Cost Increases			19,874
Subtotal			\$ 92,941

¹⁷⁸ Proposed Dashboard Rev 47, Tab "Top Level Summary A"; September 2018 CPR.

¹⁷⁹ HKA Exhibit 2.

Figure 14 – Owners' Costs Total EAC by Month (100% of Dollars in Thousands) (From July 2017)



The remaining \$19.9 million of cost increases largely relate to Southern Nuclear expenses (i.e., legal fees, sales tax, various owner projects, etc.), Site Projects, and OCIP. From VCM 17 to the May 2023 CPR, OCIP costs increased by \$36.6 million, and as OCIP is generally a function of labor hours, the increase was likely driven by productivity loss.¹⁸⁰ One example CCF that relates to Site Projects is CCF 2021-181, which included \$1.1 million in costs related to the Redacted Additional funding was required to fully fund the Redacted work.¹⁸¹

In addition to these increases, which exceed the remaining \$19.9 million of cost increases, builder's risk insurance premiums and other costs (i.e., Engineering Plant Support, Subcontracts, Start Up Director, etc.) experienced cost reductions.

9. CONCLUSION

In total, \$4.9 billion of the total cost variance of \$6.1 billion (100% of dollars) from VCM 17 to the actual costs incurred and ETC as of May 2023 is explained by Time-related impacts, Productivity, Excluded Costs, Technical Changes, Quantity Growth, COVID-19 Mitigation Direct Costs, and other discrete cost increases, as shown in Table 42.

¹⁸⁰ The VCM 17 estimate included \$43.4 million for OCIP, while the May 2023 CPR included \$80.0 million, an increase of \$36.6 million.

¹⁸¹ CCF 2021-181.

Table 42 - Summary Of Major Causes Of Cost Growth (100% of Dollars in Thousands)

Category of Cost Growth	Report Section	Amount
Time-Related Impact	Section 7.1	\$ 1,614,200
Bechtel Direct Productivity Impact	Section 7.2	764,038
Subcontract Direct Productivity Impact	Section 7.2	81,510
Indirect Productivity Impact	Section 7.2	427,861
Excluded Costs Impact	Section 7.3	606,217
Technical Changes	Section 7.4	335,381
Quantity Growth	Section 7.5	130,379
COVID-19 Mitigation Direct Costs	Section 7.6	82,398
Subtotal Overall Categories Of Cost Growth		\$ 4,041,984
VCM 17 To September 2018 CPR	Sections 8.1 - 8.8	763,894
Rebaseline and Scope Adjustments		
Other Discrete Issues	Sections 8.1 - 8.8	94,056
Subtotal Cost Variance Quantified		\$ 4,899,934
Remaining Uncategorized Impacts		1,226,688
Total Cost Variance		\$ 6,126,622

APPENDIX 1



CURRICULUM VITAE
KIMBERLY R. REOME
PARTNER

QUALIFICATIONS

MBA, Business Administration, Kellogg Graduate School of Management, Northwestern University
 BA, Finance, High honors, Michigan State University Honors College

MEMBERSHIPS

Association of Certified Fraud Examiners
 Construction Financial Management Association
 Association for the Advancement of Cost Engineering International
 Women Construction Owners & Executives, USA, Former Board Member (Vice President, Secretary, Associate Director-At-Large)
 American Bar Association, Associate Member – Section of Litigation; Forum on Construction Law; Infrastructure and Regulated Industries Section; Section of Environment, Energy & Resources Law
 U.S. Women in Nuclear
 Girl Scouts of Greater Chicago and Northwest Indiana, Board Member, Chair of Long-Range Property Planning Committee

CERTIFICATIONS

Certified Construction Industry Financial Professional
 Certified Fraud Examiner

PROFILE

Prior to joining HKA through its acquisition of The Kenrich Group LLC (Kenrich), Kim Reome was Vice President and Secretary of Kenrich, based in the Chicago office. Kim has over 30 years of experience in damages analysis, primarily focused in the construction, electric utility and government contracts industries. Kim analyzes accounting, financial and economic issues in various types of disputes, including analysis of increased costs, critical path schedule analysis, productivity analysis, lost profits and valuation of lost royalties. Kim's experience includes work on projects involving nuclear and other electric power plants, steel facilities, highways, aircraft modifications, hotels, casinos, residential housing, airports, oil refineries, mines and processing facilities, wastewater treatment plants, sports arenas, hospitals and other matters. Kim also has experience calculating damages for intellectual property, environmental, financial institutions and other commercial litigation.

Kim has provided trial testimony, expert reports or deposition testimony in civil courts and arbitrations as follows: U.S. Court of Federal Claims, U.S. District Court, California State Court, Colorado State Court, Illinois

State Court, Kansas State Court, Missouri State Court, Texas State Court, Washington State Court, Wisconsin State Court, and domestic and international arbitrations.

Client and Industry Experience

Electric power and telecommunication companies, construction and government contractors, owners of construction projects, real estate developers, insurance companies, manufacturers, computer software companies, service companies, steel companies, oil and chemical companies, financial institutions, universities, labor unions, state and county agencies, and others.

EXPERIENCE

CONSTRUCTION AND GOVERNMENT CONTRACTING

Assisted counsel for a general contractor and several subcontractors to prepare damages claims related to the conversion of an historic high-rise office building to a mixed-use retail and residential development. Prepared damages claims including damages for delays and disruption. Analyzed the owner's counterclaim including increased financing costs and lost sales of condominium units.

Assisted counsel for a development group who had constructed several multi-use condominium and restaurant projects. The development group suspected one of its partners and the general contractor owned by that partner of potential fraudulent use of funds. Analyzed the use of funds to determine whether any fraudulent activity may have occurred.

Assisted the owner of a multibillion-dollar mixed-use development (including high-rise hotels and condominium towers, casino, shopping center, convention center, theater, parking garages and associated infrastructure) in a dispute with the general contractor and numerous subcontractors. Analyzed damages incurred by the owner, including cost overruns, costs to repair, backcharges and liquidated damages. Analyzed subcontractors' claims (including electrical and plumbing) for delay and disruption. Assisted with contract close out of hundreds of subcontracts.

Jointly hired by both parties in a dispute between a city government and a private real estate developer over cost sharing of a joint development agreement. The city built a museum and convention center, the private developer built an office building on the same site, and the two parties shared the costs of the parking garage and various building infrastructure. Analyzed the construction costs incurred and determined appropriate cost allocations.

Assisted an owner (a county government) who had constructed a multi-purpose sports, entertainment, convention and expo complex. The steel contractor went bankrupt during the project, which caused delays and disruption to other contractors. The county was faced with delay and disruption claims from multiple contractors. Evaluated claims for three of the contractors (masonry, cement, walls). Reviewed and analyzed the contractors' claims, requested additional information from the contractors, and ultimately provided settlement recommendations to the county. The claims were settled based on our recommendations and claims analysis.

Assisted a real estate development company who constructed numerous biotechnology research facilities overseas to investigate whether fraud had occurred by some of its employees. Analyzed construction costs including contracts, bids, invoices and cost reporting systems.

Assisted a general contractor on an airport construction project, to analyze subcontractor claims involving cost overruns, delay and disruption. Assisted in negotiating change orders. Analyzed the claim of the plumbing subcontractor who was terminated for convenience.

Assisted a general contractor on a renovation project of an historic university building, in a dispute with the electrical subcontractor. Calculated the general contractor's damages for costs to complete, repair costs for defective work and other backcharges. Analyzed the subcontractor's damages claims including claims for alleged extra work and productivity claims. Analysis included schedule analysis of the subcontractor's work and the overall project work. Prepared expert report, and testified at deposition and trial.

Assisted an interior designer who was in a dispute with a hotel owner on a hotel renovation project. The hotel owner claimed that the interior designer caused delays resulting in damages. Analyzed the owner's damages claims for increased construction costs, increased procurement costs and lost profits. Prepared schedule analysis, analyzing what deadlines were met and causes of delays. Issued expert report and testified at arbitration.

Assisted counsel for a developer to calculate damages incurred on construction of numerous apartment complexes throughout the United States. The developer alleged a bribery and fraud scheme among one of its employees and the contractors of the construction projects. Calculated damages associated with this alleged bribery scheme. Damages components included liquidated damages, extended project costs, defect work costs, among others. Submitted several expert reports.

Assisted a construction joint venture with claims against the design joint venture on an airport terminal construction project. Analyzed existing claims assembled by the client and consolidated damages and supporting documents for these claims. Presented the value of these claims to the design joint venture and their insurers to assist in the negotiation process.

Assisted a contractor in a dispute with the steel subcontractor on an airport terminal construction project. Calculated the contractor's damages for increased costs including schedule delay costs for the contractor and its subcontractors, costs to complete and correct defective work and other costs. Analyzed the subcontractor's claims for increased costs due to alleged disruption, delay and repair costs. Submitted an expert report.

Assisted a developer who renovated an historic mid-rise building into a mixed-use retail and office building. Developed a framework to analyze the change order requests, allowances, contingency for numerous subcontractors to determine an adjusted guaranteed maximum price to be used in close-out negotiations with the contractor. Analyzed schedule delays caused by the architect.

Assisted a general contractor who constructed a condominium and shopping complex in a ski resort town. Analyzed cost overruns and schedule delays to determine what was caused by the owner either through additional scope or delays in providing information or payment.

Assisted counsel for a developer in a dispute with a construction manager of a mixed-use office and retail development. The construction manager did not complete the project. Prepared damages claim including cost to complete and value of the construction costs completed before termination.

Assisted the owner of a potash mine and processing facility to perform a project cost audit of the Engineering, Procurement and Construction contractors for an expansion of the facility. Audited costs that the contractors billed to the owner, including subcontractor and vendor costs, field construction equipment, payroll and non-reimbursable costs.

Assisted the owner of a bus manufacturing facility to perform a project cost audit of the construction contractor of a new bus manufacturing facility and corporate headquarters. Audited costs invoiced by the

cost-plus contractor. Audit scope included subcontractor, payroll, material, equipment, and non-reimbursable costs, as well as general conditions and profit.

Assisted a drywall subcontractor in a dispute with a contractor on several apartment construction projects. Calculated the subcontractor's damages including pricing of disputed change orders and analysis of contract balance. Submitted an expert disclosure.

Assisted a contractor on an aluminum smelter modernization project. Evaluated the cost growth of project estimates. Performed a cost analysis to determine the cause and associated cost type for the growth throughout each period. Assisted the contractor with the preparation of a root cause analysis presentation that was presented to the owner.

Assisted a framing and drywall subcontractor to prepare a claim for wrongful termination on a hospital expansion project. Analyzed the subcontractor's damages including productivity analysis and cost of changed work.

Assisted counsel for the owner of a biodiesel production facility. Analyzed a claim from the construction contractor. Analyzed the contractor's invoices for potential discrepancies, inconsistencies and double counting.

Assisted a contractor and its surety in packaging their claim against the Government for the replacement of a hydrant fuel system at a U.S. Air Force Base. Analyzed cost and schedule impacts of differing site conditions.

Assisted the owner and construction manager of a large steel mill construction project with the contract termination of the foundations contractor. The contractor was terminated due to poor performance on schedule, safety and quality issues. Assisted in preparation of preliminary claim against the contractor for use in settlement discussions. Gathered relevant documentation regarding the contractor's schedule, safety and quality performance, and prepared a document database of these relevant documents. Analyzed reasons for schedule delays.

Assisted a government contractor involving a dispute with a subcontractor for an aircraft modification project. The subcontractor claimed delay and disruption. Analyzed the subcontractor's claim and developed a counterclaim including delay costs and lost productivity. Prepared a schedule analysis for a complex long-term project.

Assisted a financial holding corporation that invested in construction of low-income housing projects to obtain tax credits. The financial holding corporation had a joint venture arrangement with various developers to build the projects, and suspected several developers of fraudulent uses of funds. Traced the sources and uses of funds to determine if fraudulent payments had been made, in either the construction or operation phases of the projects. This work involved a detailed review of project records, such as contracts, competitive bid documents, vendor invoices, funding requests and project general ledgers, financial statements and bank records, such as account statements and canceled checks.

Assisted a design-build contractor in a dispute with a construction subcontractor. The project involved construction of two electric power substations. The contractor terminated the subcontractor for cause. Calculated delay and acceleration damages. Assessed backcharges. Presented findings at a mediation.

Assisted the owner of a nuclear laboratory in a dispute with a contractor. The contractor was to decontaminate and decommission a building at the nuclear laboratory. Analyzed contractor and owner's damages. Performed detailed analysis of contractor's project costs and schedule to determine what areas of the project experienced cost overruns and responsibility for delays. Presented findings at a mediation.

Assisted a contractor on a waste treatment plant for environmental clean-up of a decommissioned U.S. Department of Energy plutonium production facility. Assisted the contractor with analysis of project delays and lost productivity. Provided technical writing for the contractor's Request for Equitable Adjustment.

Assisted a government contractor with a dispute with a railway authority involving development of a train control system that used global positioning satellite technology to allow high-speed passenger and freight trains to share the same tracks. Assisted the contractor in developing a cost and schedule claim.

Assisted counsel for a contractor who provided a wastewater treatment system to a beer company to treat wastewater from a brewery. The beer company claimed damages related to alleged non-performance of the wastewater treatment system. Evaluated the owner's claims for lost savings, lost revenue, and capital and operating expenditures.

Analyzed cost overruns and schedule delays incurred during a telecommunications construction project for a large international construction company. Prepared a damages claim for the construction company to use in settlement discussions with the owner and prime contractor.

Prepared a damages claim for a construction company in dispute with the owner of a coke battery facility. Quantified labor inefficiency and delay claims.

Assisted a general contractor to evaluate a subcontractor's claims associated with the installation of underground fiber-optic cables. Reviewed and analyzed opposing experts' reports submitted on behalf of the subcontractor. Analyzed alleged extended costs resulting from project impacts and delays, and the methodology used to calculate alleged project delays.

Prepared a labor inefficiency claim for an oil refinery that experienced delays during construction of new sulfur reduction units. Quantified inefficiency man-hours and the associated costs. Assisted in identifying late pieces of equipment to the facility and the effects the delays made to the site.

Assisted a contractor in preparation of a claim related to a highway construction project. Calculated damages due to a delay by a steel subcontractor. Performed detailed schedule analysis, review of cost and accounting records, development of claim methodology, and pricing of claim elements.

Reviewed construction liens, claims, payments and job progress reports of a general contractor and subcontractors involved in construction of a shopping center.

Assisted counsel for a labor union in reviewing claims by residential housing developers and contractors. The labor union had picketed model homes and construction sites in several new subdivisions, because these construction contractors were using non-union labor. The developers and contractors claimed damages for lost home sales during the picketing, as well as other damages such as extra security costs and vandalism. Reviewed publicly available home sales data in the two subdivisions and by the specific builders in question before, during and after the picketing. Analyzed home sales in the surrounding area to determine if there were any trends in the real estate market. Reviewed the workpapers of the opposing damages expert.

Reviewed and analyzed claims for schedule delay and disruption for a manufacturer of automation equipment.

Prepared a damages claim for changed work for a telecommunications company, including preparation of trial exhibits, as well as management of a large document library and database.

Calculated the cost impact of a change in accounting practices for a government contractor.

Assisted a developer of a conversion of a former government building to a mixed-use development with a restaurant, retail, offices and residential. Audited project costs incurred by a subcontractor to determine if the subcontractor had fraudulently billed the developer. Audited project records, such as contracts, invoices, payment applications and cancelled checks.

Assisted the general contractor of a mixed-use condominium and retail building in a dispute against the developer. Performed a project cost audit to validate that the labor, material, equipment and subcontractor costs incurred on the project were accurately reported in the contractor's cost accumulation and reporting system.

Assisted the developer/owner of a renovation of an historic mid-rise building into office space. The developer was in a dispute with the general contractor and architect. Analyzed change orders to determine adjusted value of guaranteed maximum price contract. Analyzed schedule delays.

Assisted a community park district in a dispute with the architect for a municipal renovation project. The project consisted of the renovation and construction of new facilities at a farm owned by the park district. Analyzed cost support for change orders assessed against the architect, investigated delays caused by late design work, and quantified credit owed to the park district for overpayments to the architect. Quantified the associated schedule delays and economic damages.

UTILITY REGULATION AND UTILITY CONSTRUCTION AND OPERATIONS

Assisted over a dozen electric utilities with damage claims against the U.S. Department of Energy for increased costs related to spent nuclear fuel storage. Analyzed least cost strategies for storage of spent nuclear fuel. Analyzed past and future capital, operation and maintenance, storage and decommissioning costs. Analyzed increased financing costs.

Prepared damage claims related to numerous nuclear facilities' steam generator degradation issues, including the analysis of both past and future costs related to the degradation issues, as well as the quantification of delay costs. Developed a computer model to identify the least cost steam generator remediation strategy, using degradation projections and the costs and technical feasibility of different remediation strategies. Analyzed similar models that were developed by utilities. Analyzed replacement power costs for plant shutdowns and derates caused by the degradation.

Assisted an electric utility and co-owners with a litigation over the design and construction of two new nuclear power plant units. Analyzed cost and schedule issues, including document review, assistance with fact witness deposition discovery and organization of millions of project records. Analyzed and critiqued the contractor's damages claims that included over \$1 billion in increased costs associated with design changes and years of project delays. Prepared cost estimates to complete the project.

Assisted an electric utility in a dispute with the manufacturer of a piece of equipment that failed, causing the temporary shutdown of a power plant. Analyzed lost profits and replacement power costs caused by the plant shutdown, increased financing costs, and costs to repair. Analyzed the outage schedule to determine the causes of the outage extension and responsible parties.

Assisted an electrical substation contractor in litigation with the owner of a nuclear power plant regarding a forced outage at the plant. Reviewed the damages and delay analyses prepared by the owner's expert. Analyzed alleged lost sales, replacement power costs and direct outage related expenses claimed. Analyzed the outage schedule to determine the cause of the length of the forced outage. Submitted two expert reports and provided deposition testimony.

Analyzed electric power utilities' corporate decision-making models to facilitate the determination of future claimed costs, including understanding the utilities' cost structures and numerous inputs considered in their decision-making processes, including fuel costs, escalation rates, operation costs, capital expenditures, system power outputs and cost of capital, among others.

Assisted an owner of three separate wind power generation facilities in three disputes with the construction contractor (one of the disputes also involved the wind turbine supplier). Prepared a schedule delay analysis, calculated damages, and responded to the delay and damages opinions presented by the opposing experts. Submitted expert reports. Provided expert testimony in deposition and at arbitration hearings on damages issues.

Assisted an engineering, procurement, and construction contractor on a thermosolar power plant to recalculate the owner's assessment of damages related to the plant's ability to meet performance criteria. The contract called for a performance model to determine the amount of energy which should be produced. Determined the proper methods for the performance model inputs, which are actual meteorological conditions. Analyzed meteorological inputs in the format required to run the performance model. Using the model inputs, determined the amount of energy which should be produced by the plant given the conditions at the plant site. Using the amount of energy output by the model, calculated the amount of damages which should have been assessed. Submitted three expert reports.

Assisted the owner and contractor for a solar power plant on a dispute with a supplier of major equipment. Analyzed the owner and contractor's damages for repairs and replacement of defective equipment. Issued expert report.

Assisted the owner of numerous solar power plants in a dispute with the solar equipment supplier regarding alleged defective equipment. Analyzed the owner's damages including repair and replacement costs and lost profits. Analysis included actual costs incurred and preparing a model projecting future replacement, repair and lost profits costs for equipment on thousands of solar panels. Lost profits calculation used models analyzing expected energy production based on meteorological inputs and site conditions, to compare expected energy output to actual energy output.

Assisted an electric utility with preparation for a potential prudence audit of its steam generator replacement project at a nuclear power plant. Reviewed document trail for certain key decisions regarding the project and helped the utility to complete its prudence package.

Assisted an electric utility with a prudence review of capital costs of plant modifications at a nuclear power plant. Analyzed costs budgeted and incurred, purchase orders, work orders, and reasons for cost growth.

Assisted an electric utility with termination of a contract for the fabrication of replacement steam generators at a nuclear power plant. The contract was terminated because the utility decided not to replace the steam generators at this nuclear facility. The contractor had already begun purchasing materials and performing preliminary engineering for the steam generators. Assisted the utility to determine a reasonable termination value to be paid to the contractor. Analyzed the contractor's direct and indirect costs, and overhead and profit rates. Our recommendation was used by the utility to effectively settle the contract termination.

Assisted an electric utility under investigation by a state utility commission for the prudence, reasonableness and rate recoverability of the utility's life cycle management and power uprate at a nuclear power plant. Analyzed the bases for the cost estimates during the project's design and construction phases. Identified the underlying causes for the cost overruns. Reviewed and analyzed accounting information, supporting cost information, project status reports, budgets and numerous other company

and publicly available documents. Analyzed and reconciled cost overruns on the project and the prudence of management's decisions.

Analyzed the project financial status for construction of four coal-fired power plant projects in China. The financial review also included an assessment of the financial condition of one of three consortium members who entered into an agreement to design and procure equipment and material for the projects.

Assisted an electric utility in a dispute with an independent power producer. The independent power producer had constructed a waste-to-energy plant, and under a state law, was allowed a retail rate for power produced. When the state revoked this facility's qualification, the utility instead paid a wholesale rate to the power producer. The power producer filed for bankruptcy and claimed breach of contract against the utility. Analysis included lost profits and analysis of relevant power rates.

Assisted an owner of a municipal power plant to review a claim submitted by an asbestos removal subcontractor. Reviewed relevant documents to determine the validity of the claim and prepared a counter-claim on behalf of the owner of the plant.

Assisted an electric utility involved in a prudence audit. Prepared testimony for the expert witness, critiquing a management audit ordered by the state public utility commission. Designed and developed a database of case documents, assigning relevant issues to each document.

Assisted a power plant manufacturer involved in litigation regarding cancellation of the construction of a generation facility in a Latin American country. Analyzed the opposing experts' report claiming lost profits. Analysis included appropriate discount rate, capacity factors and fuel prices, including currency and government risk.

Assisted counsel for a general contractor in a dispute with a subcontractor on a precipitator rebuild project for a coal-powered electric generating plant. The subcontractor had claimed that lack of payment on the project had put the company in severe financial condition. Analyzed the subcontractor's financial situation before, after and during the project. Evaluated the entity's financial condition based on a review of project records, estimates to completion, internal management reports, bank records and other various financial records.

Assisted a joint venture in preparation of a Request for Equitable Adjustment. The joint venture performed design, engineering and construction of a selective catalytic reducer for a coal-fired power plant. The joint venture had experienced cost overruns, disruption and schedule delays caused by late and defective equipment deliveries and changed conditions. Analyzed cost overruns attributed to discrete changes, productivity impacts and delays. Assisted the joint venture in presenting the Request for Equitable Adjustment to the owner.

Assisted a contractor to assist with claims over a construction of new units at a coal power plant in Asia. Our client was the engineering, procurement and construction subcontractor to the overall project contractor. Calculated increased costs for procurement, engineering and construction, and prolongation costs. Calculated schedule delays. Analyzed claims from the contractor's procurement joint venture partner.

Assisted an Engineering, Procurement, and Construction contractor in a dispute with the owner of a power plant construction project. The owner had terminated the contractor for default, and the contractor's position was that termination for default was not reasonable. Analyzed and responded to the expert report filed on behalf of the owner. Our work included analysis of project documentation and schedule analysis. Analysis included reconciliation of initial cost estimate and pre-termination target price estimate.

Prepared a claim for a general contractor in a dispute with a manufacturer and two insurance companies (builders' risk and ocean cargo insurance), related to construction of a power plant. Major equipment for the plant was damaged in shipment, causing delays to the construction of the plant. The contractor accelerated its work to mitigate the delays. Calculated damages relating to productivity impacts and delays.

Assisted an electric utility to assess a claim submitted by its contractor on a retrofit of an existing coal and natural gas power plant. The contractor was responsible for installing pollution controls and emissions monitoring equipment to make the plant compliant with new regulatory requirements. Analyzed the contractor's claim for extended overhead costs caused by the delays and productivity impacts.

Assisted an electric utility in a dispute with the contractor for construction of a combined-cycle natural gas power plant. The utility terminated the contractor for default and took over management of the remaining construction and start-up efforts. Developed schedule and percent-complete analyses to support the utility's decision to terminate the contractor for default. Assisted in cost and damages analysis.

Assisted an electric utility with analysis of replacement options for a breached reservoir for a hydroelectric power facility. The utility was in negotiations with its insurance company over various repair or replacement options. Analyzed the cost estimates for various options provided by the utility's and the insurance company's engineers, to provide comparable cost estimates on which to base decisions. Analyzed contractors' bids and contract estimates, adjusting project estimates for risks not covered in the estimates.

Assisted an electrical subcontractor in a dispute with the contractor on a natural gas-fired power plant. Analyzed increased costs and prepared a productivity claim for labor inefficiencies caused by the owner and contractor.

INTELLECTUAL PROPERTY

Assisted an international engineering and manufacturing company in an international arbitration dispute with a US-based competitor. The two parties had recently ended a long-term relationship of sharing technology in the areas of nuclear fuel and nuclear power plant design, fabrication, construction and servicing. Quantified economic damages including lost profits and reasonable royalty due to alleged contract breaches and unauthorized use of nuclear design technologies.

Assisted a chemical company who was a defendant in a patent infringement dispute with a competitor. The plaintiff's claim included damages for lost profits and price erosion. Analyzed the case issues and Panduit criteria and determined that lost profits and price erosion were not applicable. Analyzed the company's incremental profit to determine a reasonable royalty.

Assisted a university who was a defendant in a patent infringement dispute with a biomedical device company. The plaintiff company had a consulting arrangement for research with a doctor at the university. The plaintiff alleged breach of contract and trade secret violations, and claimed lost profits damages. Analyzed plaintiff's claim for lost profits using the Panduit criteria and determined that lost profits were not applicable. Determined a reasonable royalty for an alternate damages amount.

Analyzed a lost profits claim for patent infringement in the computer software industry.

ENVIRONMENTAL

Assisted potentially responsible parties of an environmental cleanup site by reviewing the costs incurred to date by the Environmental Protection Agency and other government entities. Identified the level of

supporting documentation provided by the government to assist the companies in settlement negotiations.

Prepared a damages claim for potentially responsible parties of environmental cleanup site. Determined the costs incurred and anticipated to be incurred to remediate the site. Calculated weighted average cost of capital rates for the companies involved.

Reviewed a draft Environmental Protection Agency settlement for de minimis parties for potentially responsible parties of an environmental cleanup site. Analyzed how proposed settlement would affect payments by various parties. Prepared questions for the Environmental Protection Agency regarding proposed settlement.

Identified potentially responsible parties for an environmental cleanup site.

HEALTH CARE

Assisted states in identification and quantification of health care expenditures associated with Medicaid, state employees and charitable hospitals, that were attributable to the use of tobacco by individuals.

Performed a business valuation of a surgical clinic.

FINANCIAL INSTITUTIONS

Analyzed the accounting and business records of a rental property manager claiming lender liability. Performed analysis to support the lender's claim that the loan default was caused by the rental property manager's poor management practices. Performed market analysis of rental rates charged for other apartment complexes in the area.

OTHER COMMERCIAL LITIGATION

Assisted counsel on a breach of contract matter involving a failed joint venture between two companies that manufactured prefabricated shelters used for telecommunication projects or power conversion stations. Calculated lost profits and increased cost damages, and analyzed the alleged lost profits and increased costs claimed by the opposing party. Submitted two expert reports and provided trial testimony.

Assisted counsel for contractor to analyze potential lost profits and other damages allegedly incurred at a refinery that lost electric power. The owner of the refinery was in a dispute with the utility who supplied power and a contractor who manufactured components at the electrical substation. The refinery's alleged damages included lost profits during the power outage, and increased costs. Analyzed the plaintiff's damages. Submitted an expert report and provided deposition testimony.

Assisted counsel for a contractor to analyze lost profits incurred at a petrochemical plant that lost electric power. The owner of the petrochemical plant was in dispute with a contractor who performed services and supplied equipment at an electrical substation at the plant. Analyzed the plaintiff's lost profits damages calculations. Submitted an expert report and provided deposition testimony.

Assisted an insurance company in defense of a steel company's lost profits claim for a shutdown blast furnace. Analyzed opposing expert's lost profits claim based on lost production.

Assisted counsel for an automotive crankshaft manufacturer in a commercial damages dispute with a steel supplier. Prepared lost profits claim on lost sales caused by the manufacturer's damaged reputation caused by the defective steel supplied by the supplier.

Assisted counsel for an operator of several cemeteries. The operator was accused in a criminal investigation of misappropriation of funds from the cemetery operating accounts. Analyzed numerous checking account and investment accounts records for various operating and capital funds for numerous cemeteries. Performed a detailed forensic accounting analysis of the sources and uses of funds to determine what the funds were used for and whether any personal expenses were paid for via the cemetery operating accounts.

Assisted counsel for both plaintiffs and defendants in several wrongful death matters. Prepared and reviewed damages claims for future lost earnings, which considered various inputs such as salary, benefits, salary growth rate based on industry data and personal consumption. Provided videotaped testimony that was used in mediation.

SELECTED LECTURES AND SEMINARS

Lectured at seminars on accounting, nuclear power and construction damages, delay, fraud and contractual issues for various organizations including Northwestern University School of Engineering; American Bar Association Forum on Construction Law; American Bar Association Section of Litigation, Construction Litigation and Expert Witness Committees; Construction Super Conference; Construction Financial Management Association; National Association of Women in Construction; Construction Owners Association of America; National Contract Management Association; Lorman Education; and law firms.

PAPERS & PUBLICATIONS

“The coming wave of construction disputes – supply chain disruptions and material price increases,” Co-author, *Who’s Who Legal*, October 7, 2022.

“Don’t Let the Poppies Slow You Down – Flow-down, Delay and Liquidated Damages Provisions,” American Bar Association Forum on Construction Law, Co-author, presented at the 2018 Midwinter Program, January 17-19, 2018.

“CFMA’s Study Guide for the CCIFP [Certified Construction Industry Financial Professional] Exam, 2017-18,” Co-author, Construction Financial Management Association.

“Spent Nuclear Fuel and the U.S. Response to Fukushima,” Co-author, *Energy Litigation*, a publication of the American Bar Association Section of Litigation Energy Litigation Committee, Fall 2011, Vol. 11 No. 1.

“Nuclear energy powers up, but challenges remain . . .,” Co-author, *Trends*, a publication of the American Bar Association Section of Environment, Energy and Resources, November/ December 2010, Vol. 42, No. 2.

“Nuclear Waste Issue Persists as New Plants Forge Ahead,” Co-author, *Ecopolitology*, April 28, 2010.

“DOE’s Non-Performance On Permanent Storage Of Spent Nuclear Fuel Costs Billions,” Co-author, *Ecopolitology*, November 17, 2009.

“A Lack Of Performance On Nuclear Waste Storage,” Co-author, *Nuclear Street*, July 21, 2009.

“Nonperformance On Nuclear Waste Storage,” Co-author, *Law360*, April 17, 2009.

“Serving Clients by Managing Your Experts and Consultants: Up-Front Planning and Regular Communications Are Essential,” Co-author, *Of Counsel*, Aspen Publishers, July 2008, Vol. 27, No. 7.

“Expert Use in Claims of Construction Defects and Code Violations,” Co-author, *Construct!*, a publication of the American Bar Association Construction Litigation Committee, Spring 2007, Vol. 16 No. 2.

LANGUAGES

English (native)

In Re: Georgia Power Company's Application to Adjust Rates to
Include Reasonable and Prudent Vogtle Unit 3 and 4 Costs
Expert Report of Kimberly R. Reome

EXHIBIT 1

**Monthly Estimate-At-Completion Summary
(100% of Dollars in Thousands)**

Level 1 Category	VCM 19					VCM 20					
	August-18	September-18 ⁽¹⁾	October-18	November-18	December-18	January-19	February-19	March-19	May-19	June-19	July-19
Bechtel CCA - Fluor	\$ 4,288,017	\$ 4,285,110	\$ 4,337,916	\$ 4,334,740	\$ 4,453,325	\$ 4,453,325	\$ 4,453,325	\$ 4,453,325	\$ 4,453,325	\$ 4,427,297	\$ 4,427,571
Westinghouse Baseline	438,196	345,504	342,015	342,015	357,343	358,199	362,282	362,282	359,279	359,329	380,881
Southern Company Scope Labor	1,736,422	1,822,161	1,808,731	1,788,136	1,884,772	1,883,862	1,882,939	1,917,395	1,920,395	1,961,870	1,990,193
Procurement	746,339	736,937	736,937	736,937	736,713	736,713	755,825	755,825	755,825	755,825	775,825
Subcontracts	1,661,383	1,628,746	1,592,870	1,596,046	1,541,294	1,549,870	1,549,870	1,591,470	1,582,469	1,550,957	1,541,684
Information Technology (IT)	138,185	140,522	140,522	140,522	134,134	134,156	134,156	135,449	135,449	135,347	139,050
Distributables	290,757	296,601	296,601	294,898	299,838	299,213	296,228	306,621	306,621	318,931	322,217
Owners Cost (Non-Labor)	641,044	661,224	661,597	661,597	578,061	579,133	579,498	582,774	583,000	583,171	588,002
Escalation (SNC)	107,576	107,576	107,576	107,576	39,939	36,877	36,877	36,877	36,877	36,877	30,663
SNC Management Reserve	26,530	50,067	49,685	71,983	39,450	42,312	23,286	82,269	91,047	94,682	28,201
SNC Contingency	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000	800,000
Estimate-At-Completion (100% of Dollars)	\$ 10,874,448	\$ 10,874,450	\$ 10,874,450	\$ 10,874,450	\$ 10,864,871	\$ 10,873,660	\$ 10,874,286	\$ 11,024,286	\$ 11,024,286	\$ 11,024,286	\$ 11,024,287

Sources:

Cost Performance Reports ("CPR"s) from
August 2018 - May 2023

Note:

(1) The SNC Contingency (\$800 million) and SNC Management Reserve (\$50.1 million) are combined into one line the September 2018 CPR summary tab "12. Sept CPR V5 L2". The total for SNC Management Reserve (\$50.1 million) is shown in the tab "9. Sep SNC Management Reserve".

Monthly Estimate-At-Completion Summary
(100% of Dollars in Thousands)

Exhibit 1

Level 1 Category	VCM 21						VCM 22					
	July-19	August-19	September-19	October-19	November-19	December-19	January-20	February-20	March-20	April-20	May-20	June-20
Bechtel CCA - Fluor	\$ 4,407,228	\$ 4,390,251	\$ 4,424,629	\$ 4,415,797	\$ 4,409,955	\$ 4,586,751	\$ 4,584,023	\$ 4,574,659	\$ 4,683,336	\$ 4,673,336	\$ 4,675,204	\$ 4,835,111
Westinghouse Baseline	380,247	379,806	381,197	385,567	385,644	396,205	396,235	399,176	399,265	400,362	405,018	426,582
Southern Company Scope Labor	2,001,977	2,021,522	2,023,305	2,019,471	2,019,076	2,040,569	2,041,348	2,030,324	2,027,671	2,029,550	2,036,462	2,101,308
Procurement	775,180	774,484	774,581	774,313	774,224	801,563	801,523	803,395	816,087	828,810	834,747	877,933
Subcontracts	1,564,008	1,576,450	1,588,240	1,597,091	1,595,667	1,629,805	1,631,821	1,641,182	1,655,397	1,655,397	1,656,299	1,730,423
Information Technology (IT)	139,935	139,935	139,935	139,935	139,935	139,935	139,935	139,935	139,496	139,496	139,496	139,496
Distributables	321,685	321,685	327,185	327,185	327,185	345,910	345,910	345,910	349,910	349,910	349,910	353,322
Owners Cost (Non-Labor)	582,463	582,420	603,188	603,082	595,242	568,079	566,722	563,791	581,314	582,120	581,600	612,249
Escalation (SNC)	30,663	29,163	28,927	28,836	28,836	22,889	22,889	22,889	22,889	22,889	22,889	22,835
SNC Management Reserve	20,901	4,402	-	(89)	15,347	-	1,325	10,445	-	(6,201)	(25,955)	-
SNC Contingency	800,000	800,000	733,177	733,177	733,177	492,582	492,582	492,582	348,618	348,618	348,618	250,000
Estimate-At-Completion (100% of Dollars)	\$ 11,024,287	\$ 11,020,119	\$ 11,024,364	\$ 11,024,364	\$ 11,024,287	\$ 11,024,287	\$ 11,024,313	\$ 11,024,287	\$ 11,023,983	\$ 11,024,287	\$ 11,024,287	\$ 11,349,257

Sources:

Cost Performance Reports ("CPR"s) from
August 2018 - May 2023

Monthly Estimate-At-Completion Summary
(100% of Dollars in Thousands)

Exhibit 1

Level 1 Category	VCM 23						VCM 24					
	July-20	August-20	September-20	October-20	November-20	December-20	January-21	February-21	March-21	April-21	May-21	June-21
Bechtel CCA - Fluor	\$ 4,837,411	\$ 4,858,899	\$ 4,967,699	\$ 4,983,189	\$ 4,983,189	\$ 5,180,564	\$ 5,180,564	\$ 5,212,021	\$ 5,281,488	\$ 5,304,198	\$ 5,336,636	\$ 5,664,775
Westinghouse Baseline	425,482	425,768	428,672	429,818	429,818	434,872	435,582	429,045	432,743	432,761	433,595	441,761
Southern Company Scope Labor	2,101,426	2,100,192	2,163,412	2,172,874	2,170,696	2,297,936	2,308,065	2,348,030	2,389,314	2,392,204	2,428,017	2,649,940
Procurement	878,655	878,655	882,343	882,343	887,586	902,587	904,400	905,248	916,106	919,322	919,459	955,551
Subcontracts	1,728,119	1,730,771	1,745,771	1,747,879	1,753,406	1,785,948	1,788,952	1,800,226	1,820,354	1,820,354	1,836,230	1,874,393
Information Technology (IT)	139,496	139,496	142,496	142,496	142,496	146,130	146,130	147,180	148,250	148,250	149,560	153,690
Distributables	353,322	353,115	355,115	353,038	353,038	360,427	360,715	362,465	364,224	365,329	369,772	381,173
Owners Cost (Non-Labor)	612,071	610,089	601,210	599,741	606,900	642,641	639,506	637,343	636,904	636,896	635,004	691,955
Escalation (SNC)	22,835	22,835	22,835	22,835	22,835	8,182	8,182	8,182	8,147	8,147	8,147	8,147
SNC Management Reserve	471	(20,533)	-	(24,659)	(40,466)	-	(12,810)	(35,453)	-	(29,932)	(118,890)	-
SNC Contingency	250,000	250,000	239,734	239,734	239,734	375,000	375,000	375,000	297,758	297,758	297,758	260,000
Estimate-At-Completion (100% of Dollars)	\$ 11,349,287	\$ 11,349,287	\$ 11,549,287	\$ 11,549,287	\$ 11,549,231	\$ 12,134,287	\$ 12,134,287	\$ 12,189,287	\$ 12,295,287	\$ 12,295,287	\$ 12,295,287	\$ 13,081,386

Sources:

Cost Performance Reports ("CPR"s) from
August 2018 - May 2023

Monthly Estimate-At-Completion Summary
(100% of Dollars in Thousands)

Exhibit 1

Level 1 Category	VCM 25						VCM 26					
	July-21	August-21	September-21	October-21	November-21	December-21	January-22	February-22	March-22	April-22	May-22	June-22
Bechtel CCA - Fluor	\$ 5,672,421	\$ 5,718,102	\$ 5,874,725	\$ 5,902,495	\$ 5,948,381	\$ 6,024,229	\$ 6,134,403	\$ 6,238,390	\$ 6,241,524	\$ 6,277,937	\$ 6,301,205	\$ 6,390,207
Westinghouse Baseline	441,833	442,032	446,749	446,821	447,295	451,639	454,981	459,014	457,001	456,882	457,520	459,699
Southern Company Scope Labor	2,649,056	2,664,378	2,776,608	2,782,746	2,812,092	2,876,682	2,981,315	3,033,659	3,066,640	3,124,938	3,121,814	3,247,287
Procurement	955,551	957,849	967,877	968,603	970,751	993,084	993,084	993,413	996,432	994,834	1,015,080	1,051,898
Subcontracts	1,887,138	1,901,884	1,929,988	1,926,190	1,935,996	1,943,925	1,968,228	1,980,847	1,985,823	1,993,870	1,996,001	2,023,611
Information Technology (IT)	153,690	153,690	157,403	157,403	157,803	160,688	164,355	166,744	168,353	169,153	169,318	174,539
Distributables	380,779	382,176	387,617	387,616	389,869	393,504	397,587	401,277	402,110	408,394	408,424	417,629
Owners Cost (Non-Labor)	692,743	696,675	685,271	672,216	726,140	754,354	706,499	714,929	776,404	709,548	780,288	759,815
Escalation (SNC)	8,147	8,147	8,147	8,147	8,147	2,646	2,646	2,646	2,646	2,646	2,646	2,646
SNC Management Reserve	(19,971)	(103,548)	-	(17,853)	(54,089)	-	(12,347)	(62,067)	-	(15,868)	(56,962)	-
SNC Contingency	260,000	260,000	300,000	300,000	300,000	328,000	328,000	328,000	232,917	232,917	232,917	131,616
Estimate-At-Completion (100% of Dollars)	\$ 13,081,386	\$ 13,081,386	\$ 13,534,385	\$ 13,534,385	\$ 13,642,385	\$ 13,928,752	\$ 14,118,752	\$ 14,256,852	\$ 14,329,852	\$ 14,355,252	\$ 14,428,252	\$ 14,658,945

Sources:

Cost Performance Reports ("CPR"s) from
August 2018 - May 2023

Monthly Estimate-At-Completion Summary
(100% of Dollars in Thousands)

Exhibit 1

Level 1 Category	VCM 27						VCM 28				
	July-22	August-22	September-22	October-22	November-22	December-22	January-23	February-23	March-23	April-23	May-23
Bechtel CCA - Fluor	\$ 6,410,640	\$ 6,441,682	\$ 6,495,648	\$ 6,501,039	\$ 6,514,201	\$ 6,526,840	\$ 6,546,835	\$ 6,570,393	\$ 6,569,841	\$ 6,572,907	\$ 6,579,505
Westinghouse Baseline	459,601	459,145	459,011	459,763	464,709	464,641	465,684	467,091	467,389	467,367	468,910
Southern Company Scope Labor	3,249,745	3,267,710	3,281,248	3,279,531	3,340,480	3,373,944	3,423,122	3,471,299	3,491,659	3,488,424	3,489,015
Procurement	1,052,391	1,052,391	1,052,500	1,052,500	1,052,500	1,052,500	1,052,169	1,050,969	1,046,881	1,046,881	1,046,881
Subcontracts	2,027,633	2,033,258	2,038,752	2,044,287	2,053,003	2,080,451	2,086,852	2,094,658	2,101,193	2,111,666	2,114,366
Information Technology (IT)	174,289	174,692	174,992	174,992	191,038	203,113	205,213	206,213	206,113	207,113	207,013
Distributables	417,935	419,871	421,846	421,994	424,177	428,430	429,490	430,279	428,968	433,573	437,415
Owners Cost (Non-Labor)	793,076	800,477	774,694	840,196	745,655	804,789	732,001	750,689	742,531	742,158	781,069
Escalation (SNC)	2,646	2,646	2,646	2,646	2,646	1,066	1,066	955	868	868	868
SNC Management Reserve	(15,626)	(39,241)	-	(9,611)	(21,074)	-	(13,156)	(32,571)	-	1,085	(36,500)
SNC Contingency	131,616	131,616	106,909	106,909	106,909	131,370	131,370	131,370	87,802	87,802	87,802
Estimate-At-Completion (100% of Dollars)	\$ 14,703,945	\$ 14,744,245	\$ 14,808,245	\$ 14,874,245	\$ 14,874,245	\$ 15,067,146	\$ 15,060,645	\$ 15,141,345	\$ 15,143,245	\$ 15,159,845	\$ 15,176,345

Sources:

Cost Performance Reports ("CPR"s) from
August 2018 - May 2023

**EXHIBIT 2 has been
redacted in its entirety**

EXHIBIT 3

Total Project EAC Variance By Level 1 Cost Categories
(100% of Dollars in Thousands)

Exhibit 3

	[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I = SUM(A:H)]	[J]	[K = J - I]
							VCM 17 to September 2018 CPR Rebaseline and Scope Adjustments				
Cost Category	Time-Related Costs	Productivity	Excluded Costs	Technical Changes	Quantity Growth	COVID-19 Mitigation Direct Costs ⁽³⁾		Additional Discrete Cost Increases	Subtotal Quantified Variances	Total Variance From VCM 17	Remaining Uncategorized Impacts
	Section 7.1	Section 7.2	Section 7.3	Section 7.4	Section 7.5	Section 7.6	Section 8	Section 8		Table 1	
Construction (Bechtel & Fluor)	\$ 583,662	\$ 1,191,899	\$ 606,217	\$ -	\$ 130,379	\$ 64,563	\$ -	\$ -	\$ 2,576,720	\$ 3,068,119	\$ 491,399
Westinghouse	84,386	-	-	-	-	-	81,359	(5,944)	159,801	204,765	44,964
Procurement	20	-	-	292,383	-	-	-	-	292,403	292,403	-
Subcontracts	26,726	81,510	-	-	-	-	-	-	108,236	819,233	710,997
IT	45,289	-	-	-	-	-	63,746	-	109,035	130,237	21,202
Distributables	97,471	-	-	-	-	-	93,104	-	190,575	233,918	43,343
Southern Company Labor	703,599	-	-	-	-	-	525,685	100,000	1,329,284	2,192,539	863,255
Owner's Costs	73,067	-	-	-	-	-	-	-	73,067	92,941	19,874
SNC Escalation Estimate	-	-	-	-	-	-	-	-	-	(83,912)	(83,912)
VCM17 Cost Basis Difference	-	-	-	-	-	-	-	-	-	21,985	21,985
Contingencies	-	-	-	-	-	-	-	-	-	(845,606)	(845,606)
Subtotal	\$ 1,614,220	\$ 1,273,409	\$ 606,217	\$ 292,383	\$ 130,379	\$ 64,563	\$ 763,894	\$ 94,056	\$ 4,839,121	\$ 6,126,622	\$ 1,287,501
Uncategorized ⁽¹⁾	-	-	-	42,998	-	17,835	-	-	60,833	-	(60,833)
Total	\$ 1,614,220	\$ 1,273,409	\$ 606,217	\$ 335,381	\$ 130,379	\$ 82,398	\$ 763,894	\$ 94,056	\$ 4,899,954	\$ 6,126,622	\$ 1,226,668

Notes:

(1) Uncategorized cost variances relate to two or more cost categories, and at this time, have not been allocated at the cost category-level.

(2) The total Time-Related Delay Costs in Table 15 is \$1,614,200 due to rounding differences in the calculation shown in Table 15. The subtotals and totals noted will differ from Table 10 by this difference.

(3) The \$17.8 million of costs related to Isolation and quarantine Field Non-Manual Costs are non-Bechtel costs and do not identify the EAC cost category they relate to, while the remaining \$64.6 million in costs were incurred by Bechtel.

Sources:

[A] Reome Expert Report, Table 15.

[B] Reome Expert Report, Table 19.

[C] Reome Expert Report, Table 26.

[D] Reome Expert Report, Table 27.

[E] Reome Expert Report, Table 30.

[F] Reome Expert Report, Table 32.

[G] Reome Expert Report, Tables 33, 35, 39, and 40.

[H] Reome Expert Report, Tables 33 and 34.

[J] Reome Expert Report, Table 1.