

**PUBLIC DISCLOSURE**

**BEFORE THE  
GEORGIA PUBLIC SERVICE COMMISSION**

**In the Matter of:**

**Georgia Power Company's Application for     )  
The Certification of Units 3 and 4 At         )  
Plant Vogtle and                                     )  
Updated Integrated Resource Plan             )**

**Docket No. 27800**

**DIRECT TESTIMONY  
OF  
TOM J. NEWSOME, PE, CFA**

**ON BEHALF OF THE  
GEORGIA PUBLIC SERVICE COMMISSION  
PUBLIC INTEREST ADVOCACY STAFF**

**December 19, 2008**

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PUBLIC INTEREST ADVOCACY STAFF**

**CONTENTS**

	<b><u>Page</u></b>
<b>1) Testimony</b>	<b>1</b>

**Attachment:  
Appendix TJN-1, Qualifications and Experience**



1 ("Application") filed by the Georgia Power Company ("Company" or "Georgia Power")  
2 on August 1, 2008.

3  
4 **Q. WHAT ISSUES WILL YOU BE ADDRESSING IN YOUR TESTIMONY?**

5 A. My testimony addresses the testimony of Company witnesses Ms. Diass and Mr. Morris  
6 concerning certain accounting and financial issues relevant to the Vogtle Certification.  
7 My testimony specifically addresses the Company's request to include Construction  
8 Work in Progress ("CWIP") in rate base and proposed adoption of a Nuclear  
9 Construction Cost Recovery ("NCCR") tariff (collectively the "Proposal").

10  
11 I will also address the sources, impact and mitigation of financial risk from the  
12 construction and operation of the proposed Plant Vogtle Units 3 and 4 ("Units") in the  
13 Company's Application.

14  
15 **I. CWIP AND CREDIT RATINGS**

16  
17 **Q. PLEASE SUMMARIZE YOUR UNDERSTANDING OF THE COMPANY'S**  
18 **CWIP PROPOSAL.**

19 A. The Proposal would allow the Company to collect revenue derived from an asset, Vogtle  
20 3 and 4, during its construction period when the asset is not providing service. The  
21 ratepayer would be making prepayments prior to receiving service. These prepayments  
22 would result in a less expensive asset being placed in rate base and lower rates once the

1 Units come on line. Ratepayers would make prepayments but pay lower rates once the

2 Units come on line.

3

4 **Q. PLEASE SUMMARIZE YOUR UNDERSTANDING OF THE COMPANY'S**  
5 **JUSTIFICATION FOR CWIP IN RATE BASE AND ADOPTION OF NCCR**  
6 **TARIFF.**

7 A. The Company provided financial projections that show a potential temporary  
8 deterioration in certain financial ratios. The Company asserts this deterioration could lead  
9 to a downgrade in the credit rating of the Company's debt.<sup>1</sup> According to the Company,  
10 the Company's Proposal would strengthen these financial ratios and help prevent a  
11 downgrade in Georgia Power's credit rating.

12

13 **Q. WHAT IS PIA STAFF'S RECOMMENDATION CONCERNING THE**  
14 **COMPANY'S CWIP PROPOSAL?**

15 A. The Commission should reject the Company's CWIP Proposal in its entirety.

16

17 **Q. PLEASE PROVIDE A SUMMARY JUSTIFICATION OF YOUR**  
18 **RECOMMENDATION.**

19 A. The primary issue is intergenerational equity. Revenues should only be collected from  
20 those ratepayers who are receiving service, otherwise current ratepayers are forced to

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<sup>1</sup> Pre filed Direct Testimony of Daiss and Morris Page 5 of 8 Lines 16 – 18. "Our current projections of interest and debt coverage ratios indicate that the Company faces a possible credit rating downgrade during the Vogtle 3 & 4 construction period."

1 subsidize future ratepayers and they are forced to pay for assets that are not benefiting  
2 them. The Company's Proposal violates this economic and regulatory principle and  
3 should be rejected. Current ratepayers, as a group, as well as most ratepayers  
4 individually, would be harmed under the Company's Proposal.

5  
6 In addition, PIA Staff does not agree that a temporary decline in financial ratios would  
7 necessarily lead to a downgrade and require additional ratepayer revenues. Finally, to the  
8 extent that financing the Units poses a threat to the Company's credit rating, there are  
9 more appropriate steps to support the Company's credit rating than implementing CWIP  
10 treatment for Vogtle 3 and 4 at this time.

11  
12 **Q. PLEASE DESCRIBE HOW THE RATEPAYERS ARE HARMED BY THE**  
13 **PROPOSAL.**

14 A. Mr. Kollen describes how ratepayers as a group are harmed since the CWIP proposal  
15 costs them \$570 million more in net present value dollars than the AFUDC method. From  
16 the standpoint of individual ratepayers, most ratepayers who make prepayments would  
17 not accrue enough savings through subsequent lower rates to offset the prepayments.<sup>2</sup>

18 PIA Staff developed a simple model to estimate the amount of prepayments and savings  
19 for the ratepayers under the Proposal. The primary results from the model are:

20 1) Approximately 75 to 80 percent of the ratepayers would be harmed. Prepayments  
21 would exceed savings from lower rates for these ratepayers.

---

<sup>2</sup> Results are in nominal dollars and do not take into account the time value of prepayments.

1           2) On average ratepayers only receive 35 to 40 cents in savings for every dollar of  
2           prepayment collected.

3           Both results are a function of ratepayers making prepayments but leaving the system  
4           before the savings in lower rates offset the prepayments. Much of the benefit of lower  
5           rates flows to those ratepayers who come on system after the Units come on line. In  
6           summary, the Proposal creates significant intergenerational inequities and should not be  
7           adopted.<sup>3</sup>

8  
9   **Q.   PLEASE EXPLAIN WHY THE COMPANY'S JUSTIFICATION FOR ITS CWIP**  
10 **PROPOSAL IS INSUFFICIENT.**

11 A.   The Company's projections in Exhibit APD RBM-1 show a period of potential stress on  
12       financial ratios. PIA Staff disagrees with the Company's assertion that the expected  
13       deterioration in financial ratios would most likely lead to a downgrade in credit rating  
14       and, in particular, the Company's remedy for mitigating this potential downgrade by  
15       collecting revenue from ratepayers prior to Vogtle 3 and 4 Units ("Units") providing  
16       service.

17  
18 **Q.   WHAT IS YOUR BASIS FOR DISAGREEING WITH THE COMPANY'S**  
19 **ASSERTION THAT DETERIORATION IN FINANCIAL RATIOS COULD LEAD**  
20 **TO A DOWNGRADE?**

---

<sup>3</sup> Model assumptions – 1) All ratepayers had the same time on the system (life). 2) Power consumption was the same for each ratepayer. Power consumption for each ratepayer was the same each year. Three simulations were run: 6 Year Life, 8 Year Life and 10 Year Life. The results of the simulations were averaged. The basis for 6, 8 and 10 year lives was information in "Domestic Migration Across Regions, Divisions, and States: 1995 to 2000". Census 2000 Special Reports. U.S. Census Bureau. August 2003.

1 A. I spoke with managers responsible for Georgia Power's credit rating at Moody's, Fitch  
2 and Standard & Poor's during November 2008 and reviewed the most recent rating  
3 agencies' analysis of Georgia Power's debt. The discussions focused on the agencies'  
4 credit rating process and how changes in credit rating are determined.

5

6 **Q. PLEASE SUMMARIZE YOUR DISCUSSIONS WITH THE CREDIT RATING**  
7 **AGENCIES.**

8 A. First and foremost, the credit rating agencies do not rely *solely* on financial ratios to  
9 determine a Company's credit rating. The agencies consider many factors in addition to  
10 financial ratios, including the utility's customer base, service area economic activity and  
11 the relationship with regulators. Therefore, deterioration in financial ratios by themselves  
12 may not necessarily lead to a downgrade.

13

14 Second the ratings are typically not subject to sudden drastic change. The credit rating  
15 agencies have a very deliberate process over a period of approximately 15 to 30 months  
16 for changing the rating. Credit rating agencies will look past temporary declines in  
17 financial ratios if there is evidence of a plan to restore the ratios. The utilities should be  
18 fully aware of this process. The credit rating agencies and utilities are in frequent  
19 communication and the utilities have ample opportunity to make the necessary  
20 adjustments to prevent a change in credit rating.

21

1 **Q. WHAT RECOMMENDATIONS DOES PIA STAFF MAKE BASED ON THIS**  
2 **INFORMATION?**

3 A. PIA Staff recommends the Commission require the Company to provide quarterly  
4 updates of financial projections through the first three calendar years of commercial  
5 operation of Vogtle Units 3 and 4 (currently 2020). These projections should include all  
6 three primary financial statements (income statement, balance sheet and cash flow  
7 statement) in General Accepted Accounting Principles ("GAAP") format similar to  
8 financial statements filed with the Securities and Exchange Commission (SEC") and  
9 should be filed within five business days following their 10-Q and 10-K filings with SEC.  
10 This will allow the Commission to monitor the Company's financial projections on a  
11 timely basis and consider this information in ratemaking proceedings. PIA Staff also  
12 recommends semi-annual meetings with the Company to discuss its financial projections  
13 and the status of the Company's credit rating.

14  
15 **Q. WHAT DO YOU MEAN WHEN YOU SAY "CONSIDER THIS INFORMATION**  
16 **IN RATEMAKING PROCEEDINGS"?**

17 A. PIA Staff recognizes the need for the Company to maintain sufficient financial  
18 performance in order to support credit rating on its debt. The very large capital  
19 construction program the Company is undertaking for environmental compliance and  
20 system growth, including the proposed expansion at Plant Vogtle, could place significant  
21 stress on the Company's financial ratios and place pressure on its credit rating.  
22 Alleviating this pressure may require additional revenues from ratepayers at a future

1 point in time. As Mr. Kollen and Mr. Baudino testify, while CWIP is not necessary at this  
2 point, the Commission has the ability to utilize it in the future if it does ever become  
3 necessary.

4  
5 **Q. ARE THERE OTHER WAYS TO ALLEVIATE THIS PRESSURE?**

6 A. The Commission certainly has other ways to increase cash flow without forcing  
7 ratepayers to pay for an asset that they are not using and may never use. For example, a  
8 source of additional revenues could be from paying down the balance of regulatory assets  
9 or accelerating recovery of assets currently providing service.

10  
11 **Q. WHAT OTHER STEPS COULD THE COMMISSION TAKE TO IMPROVE THE**  
12 **COMPANY'S CREDIT RATING?**

13 A. The Company currently has an under recovered fuel balance of almost \$800 million. If  
14 that balance were paid down prior to 2011, the Company's ratios would improve and it  
15 would provide funds to purchase capital assets. It would also free up the Company to use  
16 more short term debt to finance Vogtle, as recommended by Mr. Kollen.

17  
18  
19 **Q. WHAT RECOMMENDATIONS DOES PIA STAFF HAVE REGARDING**  
20 **REVENUES COLLECTED FROM RATEPAYERS PRIOR TO AN ASSET**  
21 **BEING PLACED IN SERVICE?**

1 A. Ratepayers should not be the only source of additional support when the Company is  
2 under financial stress. The common equity shareholder should be required to provide  
3 additional support during the construction period if ratepayers are contributing additional  
4 revenue prior to the asset providing service. Approval of collection of revenue derived  
5 from an asset not in service should be contingent on the Company complying with certain  
6 conditions. These conditions ensure that additional support comes not solely from  
7 ratepayers but also from equity shareholders. The conditions would also limit the  
8 Company in paying out additional revenues collected from ratepayers directly to  
9 shareholders during the construction period.<sup>4</sup>

10  
11 **Q. PLEASE IDENTIFY THE CONDITIONS.**

12 A. The Company should be required to maintain an appropriate level of common equity in  
13 the capital structure and there should be limits on the cash withdrawals by the common  
14 stockholder during the construction period. PIA Staff suggests these conditions be  
15 worked out in a collaborative manner with the Company.

16  
17 The purpose of these conditions are not to micromanage the Company's common equity  
18 cash flows. Instead, these conditions merely ensure that if ratepayer prepayments are  
19 required to support the Company's credit rating that the common stockholder also  
20 contributes.

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<sup>4</sup> Under the Company's Proposal an additional \$ [REDACTED] of revenue would be collected during the period 2011 – 2016. During the same period total cash withdrawals by the common equity shareholder (Southern Co.) would increase by \$ [REDACTED]. Derived from the Company's data response Attachment STF-HPSC-3-6 Supplemental filed on October 17, 2008.

1

2 **Q. WHAT RECOMMENDATIONS DOES PIA STAFF HAVE REGARDING THE**  
3 **ACCOUNTING OF REVENUES COLLECTED FROM RATEPAYERS PRIOR**  
4 **TO AN ASSET BEING PLACED IN SERVICE?**

5 A. Providers of debt and equity capital require a return for use of their capital. The Company  
6 is allowed to earn a return on all dollars invested in capital projects during the  
7 construction period. It is only equitable that the ratepayers also earn a return on any  
8 revenues collected to finance the construction assets that will provide future service.

9

10 Therefore, ratepayers should earn a return on revenues collected prior to service. This  
11 return is above and beyond the savings in lower financing cost as a result of the Company  
12 carrying smaller project balances during the construction period. If the Commission  
13 decides to approve CWIP in rate base then Mr. Kollen's mirror CWIP proposal should be  
14 adopted.

15

16 **II. FINANCIAL RISK AND RISK MITIGATION**

17

18 **Q. DR. JACOBS IDENTIFIED A NUMBER OF SIGNIFICANT RISKS THAT**  
19 **COULD IMPACT THE PROJECT COST OR SCHEDULE. ARE THERE ANY**  
20 **ADDITIONAL SOURCES OF RISK?**

21 A. Yes. The construction phase of the project is the primary source of financial uncertainty.  
22 Nuclear plant construction is a complex, lengthy and expensive process under the best of

1           circumstances. The Company proposes to build the first, or one of the first, new nuclear  
2           plants in the United States in twenty-five years with a new safety system design. The  
3           Units will be fabricated with techniques that have not been used in nuclear construction  
4           in the United States. The supply chain and labor issues, as well as the untested regulatory  
5           process at the NRC, also present obstacles. These issues by themselves may not represent  
6           a significant source of cost overruns but collectively inject a great deal of uncertainty in  
7           the project.

8  
9   **Q.    WHAT IS THE LARGEST SOURCE OF RISK FOR THE VOGTLE 3 AND 4**  
10 **PROJECT?**

11 A.    No AP 1000 has ever been built and placed in commercial service. There is no direct  
12       evidence for Staff to confirm the reasonableness of the Company's in-service cost  
13       estimate of \$6.4 billion. With no direct experience there may be issues that have not been  
14       identified. The potential impact of the unidentified issues on in-service cost can not be  
15       accounted for or estimated. While there is contingency built into the estimate the  
16       adequacy of the contingency is unknown and, according to Dr. Jacobs, could be  
17       insufficient.

18  
19 **Q.    HAVE THERE BEEN STUDIES PERFORMED OF COST OVERRUNS ON**  
20 **MEGAPROJECTS SUCH AS VOGTLE UNITS 3 AND 4?**

21 A.    Yes. Rand Corporation published a study titled "Understanding The Outcomes of  
22       Megaprojects" in 1984. This study examined the sources of cost overruns and quantified

1 their impacts on 47 megaprojects. The projects were in one of five groups: Refineries,  
2 Process Plants, Minerals Extraction, Civil/Transport and Nuclear Plants. The average cost  
3 overrun for the entire study was 88 percent with cost overruns ranging from -3 percent to  
4 353 percent. For six nuclear projects the average cost overrun was 157 percent with cost  
5 overruns ranging from 63 percent to 241 percent. Alabama Power Company's Plant  
6 Farley was one of the projects in the nuclear group. The nuclear group had the largest  
7 cost overruns of the five groups.<sup>5</sup>

8  
9 **Q. WHAT CONCLUSIONS CAN BE DRAWN FROM THIS STUDY?**

10 A. This study suggests that megaprojects have an extensive history of cost overruns and that  
11 the Commission should proceed with an abundance of caution if it chooses to certify the  
12 Units.

13  
14 **Q. DID YOU EXAMINE ANY OTHER STUDIES OF COST OVERRUNS ON  
15 MEGAPROJECTS?**

16 A. Yes. "Megaprojects and Risk: An Anatomy of Ambition" provided a detailed  
17 examination of megaprojects. The projects examined were primarily transport or  
18 infrastructure. One group of 15 large transportation projects had an average cost overrun  
19 of 92 percent with a range of 26 to 196 percent.<sup>6</sup> A larger study of 258 projects had  
20 average cost overruns of 28 percent. This study was made up of rail, roads and  
21 tunnels/bridge projects which had average cost overruns of 45 percent, 20 percent and 34

---

<sup>5</sup> Rand Corporation Study. "Understanding The Outcomes of Megaprojects". 1984. Page 32.

<sup>6</sup> Megaprojects and Risk: An Anatomy of Ambition. Bent Flyvbjerg. Cambridge University Press. 2003. Page 14.

1 percent, respectively.<sup>7</sup> A smaller study of four privately owned transport infrastructure  
2 projects had an average cost overrun of 34 percent with a range of 15 percent to 80  
3 percent. The authors also “examined cost data for several hundred other projects,  
4 including power plants, dams, water projects, oil and gas extraction projects, information  
5 technology systems, aerospace projects and weapons systems. The data show that other  
6 types of major projects are at least as, if not more, prone to cost overruns as are major  
7 transport infrastructure projects.”<sup>8</sup>

8  
9 While this study did not consider nuclear units exclusively it clearly shows the tendency  
10 of megaprojects to suffer significant cost overruns.

11  
12 **Q. IS THE COMPANY'S EXPERIENCE WITH HATCH AND VOGTLE**  
13 **RELEVANT TO THIS PROCEEDING?**

14 A. Yes, to some extent. Both plants were constructed many years ago with different designs.  
15 The state of engineering and construction technology was less developed. The regulatory  
16 environment was different and especially affected Vogtle construction. However, both  
17 plants had significant issues that resulted in relative high revenue requirements per kWh  
18 when they came on line.<sup>9</sup> Hatch had output problems in first years of operation and the  
19 cost overruns on Vogtle are well documented. To the Company's credit Hatch issues  
20 were eventually resolved and Vogtle performed well from commercial operation.

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<sup>7</sup> Megaprojects and Risk: An Anatomy of Ambition. Bent Flyvbjerg. Cambridge University Press. 2003. Pages 15 - 16.

<sup>8</sup> Megaprojects and Risk: An Anatomy of Ambition. Bent Flyvbjerg. Cambridge University Press. 2003. Page 20.

<sup>9</sup> Response to Data Request STF-TJN-1-3.

1           However, the Company's prior experience with nuclear construction for Hatch and  
2           Vogtle is an example of the risk of nuclear projects and the need for the Commission to  
3           proceed cautiously.

4  
5           **Q.    WHAT IS THE STATUS OF THE TWO NUCLEAR UNITS BEING**  
6           **CONSTRUCTED BY AREVA NP IN EUROPE?**

7           A.    Olkiluoto-3 in Finland "is two years behind schedule and said to be Eur1.5 billion over  
8           the contract amount of Eur3.2 billion. Besides a series of problems with concrete work,  
9           Areva had to refabricate several hot legs (piping) of the reactor when initial work did not  
10          conform with specifications. Areva has attributed the problems to general lack of  
11          experience after a long hiatus in nuclear power plant manufacture."

12  
13          "The Flamanville-3 project has had problems with civil construction and disputes with  
14          French nuclear safety authorities over the manufacture of primary system equipment. The  
15          Nuclear Safety Authority said in an information notice that if Areva cannot guarantee the  
16          quality of the parts made for the reactor's pressurizer, they will have to be refabricated."<sup>10</sup>

17  
18          **Q.    HOW RELAVANT IS THE CONSTRUCTION OF A DIFFERENT NUCLEAR**  
19          **TECHONLOGY BY A DIFFERENT CONTRACT TO VOGTLE 3 AND 4?**

20  

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<sup>10</sup> Platts. "Nuclear News Flashes". www.platts.com. October 27, 2008

1 A. The issues confronting Areva could be encounter by the Consortium. The Areva  
2 experience makes the point that current nuclear construction is difficult and problems can  
3 occur that result in delays and cost overruns.

4  
5 **Q. IN YOUR OPINION, DOES BEING THE FIRST TO CONSTRUCT LARGE AND**  
6 **COMPLEX FACILITIES RESULT IN MORE RISK?**

7 A. Yes. Comments made by Exxon's chairman and chief executive, Rex Tillerson illustrate  
8 how being first to construct a large, complex project may increase risk. Exxon is the  
9 largest oil company in the world and routinely undertakes very expensive, complex, high  
10 risk engineering projects. While these projects do not involve nuclear power plant  
11 construction they require overcoming similar obstacles.

12  
13 *"Being first in something is not necessarily the best position to be in," Mr. Tillerson says.*

14 *"You can be more profitable for your shareholders by coming in at a later stage."<sup>11</sup>*

15  
16 **Q. DO CAPITAL MARKETS VIEW NEW NUCLEAR PLANTS AS A RISKY**  
17 **FINANCIAL PROPOSITION?**

18 A. Yes. No private sector entity is investing in or proposing to invest in a new nuclear plant  
19 without direct or indirect support from the public.

20

21

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<sup>11</sup> New York Times. "At Exxon, Making the Case for Oil". New York Times. November 16, 2008.

1 **Q. ARE THERE INVESTORS WHO VIEW NEW NUCLEAR PLANTS AS A RISKY**  
2 **FINANCIAL PROPOSITION?**

3 A. Yes. Noted investor Warren Buffett has expressed doubts about the economic viability of  
4 new nuclear construction. Mr. Buffett was discussed in the September 26, 2008 issue of  
5 Wall Street Journal as follows:<sup>12</sup>

6  
7 *Warren Buffett's decision to rescue Constellation Energy Group Inc. gives one of the*  
8 *nuclear power industry's biggest skeptics some important clout in deciding its future. Mr.*  
9 *Buffett, who has sizable investments in electric utilities and gas pipelines through*  
10 *Berkshire's energy firm, MidAmerican Energy Holding Co., has previously argued*  
11 *nuclear plants are too costly to build. MidAmerican chief executive Greg Abel .....*  
12 *acknowledged that construction costs still have to be right. Mr. Buffett may still decide*  
13 *costs are too high, which could send a shudder through the rest of the nuclear industry.*  
14 *Mr. Buffett's sudden emergence raises questions about whether nuclear development, in*  
15 *general, has viability, according to Paul Patterson, head of Glenrock Associates LLC in*  
16 *New York, a research firm. For Mr. Buffett, price has always been the major sticking*  
17 *point. His energy company, MidAmerican, formed a special unit last December to*  
18 *explore possible construction of a nuclear plant at a site in Idaho. That created a flurry*  
19 *of excitement as people in the industry believed that Mr. Buffett might finally throw his*  
20 *weight behind the technology. But MidAmerican pulled the plug seven weeks later, saying*  
21 *it was too costly. MidAmerican's Mr. Abel said last week nuclear plants "have to be*

---

<sup>12</sup> Wall Street Journal. "Buffett Could Reshape Nuclear Power Industry". Rebecca Smith. Sept 26, 2008.  
www.wsj.com

1 *priced such that they can bring power into the market at prices customers can afford."*

2 *He said the Idaho project didn't have the right balance of "cost and risk...so we just sort*  
3 *of put it on hold."*

4  
5 **Q. WHY IS MR. BUFFETT'S OPINION RELEVANT?**

6 A. Mr. Buffett has made sizeable investments in electric utilities and gas pipeline putting his  
7 own capital at risk. More importantly Mr. Buffett is an expert in business and financial  
8 risk assessment and capital allocation. Financial risk is the primary issue for the ratepayer  
9 with the Units so his opinion is relevant.

10  
11 **Q. HAVE THE BOND RATING AGENCIES EXPRESSED CONCERNS ABOUT**  
12 **THE RISK NUCLEAR CONSTRUCTION?**

13 A. Yes. Both Standard & Poor's and Moody's have issued reports highlighting the issues  
14 that could significantly impact nuclear construction.<sup>13</sup> Many of the issues in the reports  
15 have been discussed by Mr. Jacobs or in my testimony.

16  
17 **Q. HAS THE COMPANY ARTICULATED A POSITION AS TO WHETHER IT**  
18 **VIEWS CONSTRUCTION OF THE UNITS TO BE RISKY?**

19 A. No. However, the Company's position is that ratepayers should be held responsible for  
20 any cost overruns, provided the costs are deemed prudent. (Tr. 215) The Company

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<sup>13</sup> Standard & Poor's "Elevated Construction Cost Pose A High Hurdle For New U.S. Nuclear Power Plants".  
October 15, 2008. Moody's Special Comment: New Nuclear Generation in the United States. October 2007.

1 reinforced this position by clarifying that ratepayers would be responsible for all prudent  
2 cost even if the Units were completed but did not produce any power. (Tr. 269)

3  
4 **Q. COULD ISSUES SURROUNDING THE NUCLEAR SUPPLY CHAIN AND**  
5 **REACTIVATION OF THE SPECIALIZED LABOR FORCE RESULT IN**  
6 **DELAYS, REWORK AND INEFFICIENCIES WHICH COULD**  
7 **SIGNIFICANTLY INCREASE PROJECT COST?**

8 A. Yes. Individuals with significant experience and responsibility within the industry also  
9 recognize that these issues may represent obstacles to construction of initial nuclear  
10 plants. For example, Dan Pitts, senior vice president of Fluor's Nuclear Power business  
11 discussed the issue in a recent issue of Nuclear Power International.<sup>14</sup>

12  
13 *Q: A tight skilled workforce supply is also expected. Do you believe the industry is*  
14 *prepared for this?*

15 *A: (Pitts) No. There has been a lot of rhetoric and talk about the labor demand and short*  
16 *supply in the United States, but very little has really been done about it.*

17  
18 In an answer to another question Mr. Pitts had the following comments on nuclear labor  
19 and the NRC inspection process:

20 *"The biggest question with the nuclear island is labor.....but it is difficult to know*  
21 *today how much labor productivity can be obtained on the first nuclear islands, how*

---

<sup>14</sup> Nuclear Power International. "New Build Challenges from an EPC Perspective". Page 24. March 2008.

1           *quickly craftsmen can be trained to perform work to nuclear standards, how quickly*  
2           *craftsmen in the field will be able to construct the nuclear island, how many welds will*  
3           *pass inspection the first time, and how consistent the NRC inspectors are going to be in*  
4           *their requirements.”*

5  
6           Michael J. Wallace, president of nuclear operator Constellation Generation Group,  
7           expressed similar concerns about the nuclear supply chain and labor force issues in a  
8           recent Wall Street Journal article.<sup>15</sup>

9  
10          *“Mr. Wallace said he has testified before Congress that “the lack of infrastructure*  
11          *support” in the U.S. could impede the return to nuclear power. In addition to his*  
12          *concerns about the supplier network, he said he worries about whether there are enough*  
13          *skilled workers to build the plants.”*

14  
15          In the same Wall Street Journal article NRC Chairman Dale Klein has expressed concern  
16          about the nuclear supply chain.

17  
18          *Noting that 1,350 American companies were members of the American Nuclear Society,*  
19          *the key professional association for the industry, in 1977. Today, there are only about*  
20          *700, and many of them are foreign owned. “This dramatic decline in the domestic supply*



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<sup>15</sup> Wall Street Journal. “Utilities Fret as Reactor Part Supplies Shrink”. Rebecca Smith. April 11, 2008. Page B1.  
www.wsj.com

1           *chain is clearly having an effect," said Mr. Klein. "The global supply chain is stretched, if*  
2           *not to the breaking point, at least to the tipping point."*

3  
4   **Q.   DO YOU HAVE ANY FURTHER SUPPORT FOR YOUR OPINION THAT THE**  
5           **FIRST OF A KIND NATURE OF THE CONSTRUCTION TECHNIQUES**  
6           **(MODULARIZATION AND ERECTION PROCEDURE) THE CONSORTIUM**  
7           **PLANS TO UTILIZE FOR THE UNITS REPRESENTS A SIGNIFICANT RISK?**

8   **A.**   Yes, I do. The Company's own Strategic Plan confirms that there could be inefficiencies  
9           and rework that would result in delays and/or cost overruns the first time a new and novel  
10          task or procedure is performed. The following excerpt from the Company's Strategic  
11          Plan dated December 2005 specifically identified modular construction as a significant  
12          source of risk for the project.

13  
14          
15          
16          
17          
18         <sup>16</sup>

19  
20   **Q.   HAVE YOU EXAMINED ANY STUDIES THAT IDENTIFY FIRST OF A KIND**  
21           **ISSUES AS A SOURCE OF COST OVERRUNS ON MEGAPROJECTS?**

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<sup>16</sup> Response to Data Request STF-HPSC-4-4. Item 13.

1 A. Yes. The previously referenced Rand Corporation study of megaprojects, including  
2 nuclear units, discusses how first of a kind projects can result in a great deal of risk and  
3 cost overruns.<sup>17</sup>

4  
5 *Technological innovation also plays a role in project outcomes. Doing something*  
6 *different – even slightly different – increase cost growth and schedule slippage and*  
7 *dramatically increase the probability of operation problems.*<sup>18</sup>

8  
9 *We recommend that the sponsors of megaprojects take the following steps to make their*  
10 *projects less risky: Question whether the introduction of proposed new technology,*  
11 *construction techniques, or design approaches is absolutely essential to the mission of*  
12 *the project. Sometimes innovation cannot be avoided in a megaproject, but it is prudent*  
13 *to investigate, following the sage dictum of always attempting to “make mistakes on a*  
14 *small scale and make money on a large scale.”*<sup>19</sup>

15  
16 *We define innovation simply and broadly as the inclusion of anything novel or*  
17 *commercially untried in the design, materials or construction of a project. We also*  
18 *include things done in the same manner as before but at a larger-than-ever scale.*  
19 *Innovation is closely related to cost growth in virtually all studies that have considered*

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<sup>17</sup> Rand Corporation Study. “Understanding The Outcomes of Megaprojects”. 1984.

<sup>18</sup> Rand Corporation Study. “Understanding The Outcomes of Megaprojects”. Page vi. 1984.

<sup>19</sup> Rand Corporation Study. “Understanding The Outcomes of Megaprojects”. Page vi. 1984.

1           *such relationships. Yet modest and subtle changes from current practice,.....can cause*  
2           *problems that lead to cost growth and schedule slippage.*<sup>20</sup>

3  
4           *The incorporation of new technology in a megaproject almost ensures that the project*  
5           *will make more mistakes than money. The use of new technology is the only factor that is*  
6           *associated with bad results in all three dimensions: cost growth, schedule slippage, and*  
7           *performance shortfalls.*<sup>21</sup>

8  
9           *Doing anything that has not been done commercially increases the risk of problems in a*  
10          *megaproject. Because the results of problems in a megaproject are so devastating, it is*  
11          *very difficult to justify taking the sorts of chances that would be routine on a small*  
12          *project. None of the above discussion should be interpreted as being "anti-innovation."*  
13          *Rather, megaprojects are simply inappropriate vehicles for experimentation.*<sup>22</sup>

14  
15   **Q.    ARE THE COMMENTS ABOVE A REASON NOT TO CERTIFY THE UNITS?**

16   **A.**    No. However the comments in the Rand study highlight the numerous issues with  
17            megaprojects that will also be confronted with Vogtle 3 & 4. The increased risk of  
18            constructing the Units should be taken into account in the certification order.

20  

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<sup>20</sup> Rand Corporation Study. "Understanding The Outcomes of Megaprojects". Page 25. 1984.

<sup>21</sup> Rand Corporation Study. "Understanding The Outcomes of Megaprojects". Page 62. 1984.

<sup>22</sup> Rand Corporation Study. "Understanding The Outcomes of Megaprojects". Page 63. 1984.

1 **Q. HOW MIGHT CONSTRAINED SUPPLY CHAIN AND FIRST OF A KIND**  
2 **ISSUES DIRECTLY IMPACT THE CONSTRUCTION OF VOGTLE?**

3 A. There is the potential for the first two or three AP 1000s to be constructed  
4 *simultaneously*. The Consortium's resources could be spread out on multiple nuclear  
5 projects and this could stress the supply chain, material cost and labor availability. The  
6 additional cost would likely be reflected in indexes to some extent. The Consortium's  
7 construction management process would be tested with just one nuclear project due to  
8 lack of recent construction experience in the United States. The logistics of managing two  
9 or three would compound the challenge.

10

11 **Q. WHAT ADDITIONAL COMMENTS DO YOU HAVE ABOUT THE RISK OF**  
12 **THE PROJECT?**

13 A. All of the factors discussed above increase the probability of cost overruns. Minor cost  
14 overruns do not impair the Unit's economic benefits in a material manner. However, the  
15 collective impact of all the factors significantly increases the probability of very  
16 significant cost overruns which would burden ratepayers with significant rate increases  
17 and negate corresponding economic benefit.

18

19 **Q. WHO ARE THE PRIMARY PARTIES THAT HAVE THE LARGEST**  
20 **FINANCIAL INTEREST IN THE UNITS?**

21 A. The Consortium, Company and ratepayers.

22

1 **Q. WHICH PARTY OR PARTIES HAS THE MOST KNOWLEDGE OF NUCLEAR**  
2 **CONSTRUCTION AND ITS ASSOCIATED RISK?**

3 A. Most likely the Consortium followed by the Company. The ratepayer has the least  
4 knowledge.

5  
6 **Q. WHICH PARTY HAS THE MOST FINANCIAL EXPOSURE, ESPECIALLY IN**  
7 **A HIGH COST OVERRUN SCENARIO?**

8 A. The ratepayer by far. The Consortium's maximum liability is capped. This cap is  
9 significantly below the ratepayers' exposure toward the end of the project. The Company  
10 has zero financial exposure except for imprudently incurred costs.

11  
12 **Q. WHAT CONCLUSIONS CAN YOU INFER FROM THE RELATIVE**  
13 **RELATIONSHIP BETWEEN NUCLEAR CONSTRUCTION KNOWLEDGE**  
14 **AND FINANCIAL EXPOSURE?**

15 A. The parties with the most knowledge have the least exposure. This would indicate the  
16 project is risky and the Commission should approve the financial conditions  
17 recommended by other PIA Staff witnesses in this proceeding.

18  
19 **Q. PLEASE DESCRIBE WHY THE UNITS MAY BE ECONOMICAL FOR THE**  
20 **OTHER CO-OWNERS BUT NOT FOR THE COMPANY'S RATEPAYERS.**

21 A. The co-owners pay no income tax, have a higher proportion of debt in their capital  
22 structure and have an effective lower cost of equity because their customers are the

1 shareholders. These factors significantly lower the cost to finance the Units and result in  
2 a lower project cost. Financing cost represents \$1.9 billion or 30 percent of total project  
3 cost of \$6.4 billion in the Company's Application. Therefore, lower financing cost could  
4 significantly improve the economics of the project for the co-owners relative to the  
5 Company's ratepayers. These improved economics could decrease the financial risk for  
6 the co-owners.

7  
8 **Q. PLEASE DESCRIBE HOW THE ECONOMIC BENEFIT OF NUCLEAR UNITS**  
9 **IS DISTRIBUTED OVER THE SERVICE LIFE.**

10 A. Ratepayers that are on the system only during the first few years that the nuclear units are  
11 in service would be provided no benefit. Nuclear unit total revenue requirement is  
12 relatively high in the initial years as the high capital cost of the units more than offsets  
13 their low operating cost. However, the total revenue requirement of nuclear units remains  
14 relatively stable over the service life as the revenue requirement on capital cost decreases  
15 but is offset by increasing operating cost. It is the ratepayers who take service from the  
16 Units during the middle and end of their service life who benefit. This benefit is the result  
17 of increasing costs of alternative generation such as natural gas fired relative to the stable  
18 revenue requirement of the nuclear units.

19  
20 **Q. PLEASE DESCRIBE THE NATURE OF THE CERTIFICATION STATUE IN**  
21 **TERMS OF COST RECOVERY FROM THE RATEPAYERS?**

1 A. The Company effectively has a "cost plus" contract with ratepayers. In the absence of  
2 imprudence or other circumstances described in the statute, the Company recovers all  
3 direct construction cost and earns a return during the construction period and during the  
4 service life of the Units.

5

6 **Q. WHAT ARE THE REQUIREMENTS OF THE STATUTE REGARDING**  
7 **PRUDENTLY INCURRED COST IF THE COMMISSION DECIDES TO HALT**  
8 **CONSTRUCTION?**

9 A. In the absence of imprudence or other circumstances described in the statute, the  
10 Company is allowed full recovery of all costs incurred up to the point the project is  
11 stopped. If the Company has appropriately spent the money, they are entitled to recovery  
12 regardless of the reason the Commission stops the project.

13

14 **Q. HOW COULD THE COMPANY'S SCHEDULE OF PAYMENTS AFFECT THE**  
15 **COMMISSION'S DECISION TO HALT CONSTRUCTION OF THE UNITS?**

16 A. Significant expenditures for the project occur in the first few months after certification  
17 and the bulk of costs are incurred within the first few years. Therefore, the Commission  
18 would be facing a great deal of sunk cost if it were to halt construction even in the earlier  
19 years of the project.

20

21 **Q. PLEASE DESCRIBE WHY THE PROJECT WILL BE DIFFICULT TO STOP**  
22 **EVEN IF SIGNIFICANT COST OVERRUNS OCCUR.**

1 A. It is important for the Commission to understand that once the project is certified it will  
2 be very difficult to halt the project for cost overruns. The analysis performed to decide  
3 whether to go forward or abandon only considers the additional cost to complete the  
4 Units. If the additional cost to complete is less than the original certified amount, then the  
5 most likely decision will be to continue. This situation occurred with Vogtle Units 1 and  
6 2. This is a very critical reason to proceed with an abundance of caution.

7

8 **Q. PLEASE DESCRIBE THE NATURE OF THE EPC CONTRACT IN TERMS OF**  
9 **ITS IMPACT ON COST RECOVERY FROM THE RATEPAYERS.**

10 A. The Commission should understand that the vast majority (approximately **REDACTED**  
11 percent) of the certified cost of \$6.4 billion is not fixed and could be subject to significant  
12 fluctuation. The Consortium's use of indexes does provide protection to the ratepayers.  
13 However, a great deal of the Consortium's costs will be picked up by the indexes and this  
14 will influence index behavior to some extent. More importantly, if a significant number  
15 of nuclear units begin construction while Vogtle is being constructed the collective  
16 impact of nuclear units on construction costs could have significant impact on the indexes  
17 and exert upward pressure on Vogtle 3 and 4 certified cost.

18

19 **Q. ARE THERE OTHER ASPECTS OF THE EPC AGREEMENT THAT AFFECT**  
20 **COST RECOVERY FROM THE RATEPAYERS?**

21 A. Yes. There are provisions in the Agreement which allow the Consortium to pass on  
22 additional cost above what would be calculated using the indexes and the right to issue

1 change orders. These clauses act as safety valves for the Consortium if costs begin to  
2 significantly escalate beyond change in the indexes or changes in the project are required.  
3 While these are reasonable commercial terms for the Consortium it could turn the  
4 Agreement into a modified "pass through" contract from ratepayers' perspective.

5  
6 There are significant thresholds the Consortium must meet to exercise these clauses. But  
7 the existence of such clauses is evidence that a knowledgeable party has identified cost  
8 overruns as a risk and has negotiated language to address the issue.

9  
10 **Q. HOW ARE DELAYS ADDRESSED IN THE EPC AGREEMENT AND WHAT IS**  
11 **THE IMPACT ON RATEPAYERS?**

12 A. Delays are probably the most likely source of cost overruns. There is a provision in the  
13 EPC Agreement for the Consortium to pay liquidated damages for certain delays.  
14 However, the amount of the liquidated damages is very small in comparison to the  
15 financing charges that will most likely be accrued on the Company's construction balance  
16 in the event of delay. Therefore, while these liquidated damages may provide an  
17 incentive for the Consortium to finish the project in a timely manner they would not  
18 provide the ratepayers with a meaningful offset for the financing charges.

19

1 In addition, the liquidated damages are small relative to the profit the Consortium would  
2 earn on the project assuming historical profit margins.<sup>23</sup> It would take many [REDACTED] of  
3 delays before the liquidated damages would offset profits

4  
5  
6 **Q. GIVEN THESE RISKS AND THE RISKS DESCRIBED BY OTHER PIA STAFF**  
7 **WITNESSES ON RATEPAYERS AND GIVEN THAT THE COMPANY HAS**  
8 **BETTER NUCLEAR CONSTRUCTION KNOWLEDGE THAN RATEPAYERS,**  
9 **DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE FINANCIAL**  
10 **PROTECTIONS FOR THE RATEPAYER?**

11 A. Yes. There is great deal of uncertainty about the final in-service cost. This uncertainty is  
12 the result of the project's many significant risk issues identified by PIA Staff. Given the  
13 uncertainty of the final in-service cost, financial protections for ratepayers are absolutely  
14 mandatory if the Commission chooses to certify the Units. Without financial protections  
15 the benefits of the Units could be significantly reduced or eliminated by excessive in-  
16 service cost.

17  
18 In his testimony, Mr. Kollen describes a simple proposal to better align the interests of  
19 the Company with the interests of the ratepayers. This proposal provides incentives to  
20 the Company to control the costs of the project. If the final project costs are below a  
21 band around the original certified cost, the Company will earn a higher return on equity

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<sup>23</sup> Based on a review of Shaw Group Inc. most recent 10-K.

1 on the plant over its life. Similarly, if the final project costs are above the band, the  
2 Company will earn a lower return on equity on the plant over its life.

3  
4 **Q. WHY IS IT APPROPRIATE TO ADJUST THE PROFIT ON THE UNITS BASED**  
5 **ON PERFORMANCE?**

6 A. Typically, Company projects are quite straight forward and the potential for going over or  
7 under budget is limited. The Company's addition of three 800 MW natural gas fired  
8 combine cycle units at Plant McDonough is a good example. The Company will more  
9 than likely come in close to the initial certified cost. Construction of transmission and  
10 distribution infrastructure is also an example of project with relatively low risk. However,  
11 nuclear construction is very complex and the first time nature of many aspects of Vogtle  
12 3 and 4 could result in significant cost overruns borne solely by the ratepayers. While the  
13 ratepayer is the one that bears the risks, the Company is in a far better position to  
14 influence and manage the costs of project. Therefore, it is appropriate to create a  
15 mechanism that helps align the Company's interests with those of the ratepayers.

16  
17 Also, the Company is in a better position than ratepayers to assess what the costs of the  
18 Units will be. This condition provides the Company with a greater incentive on the front  
19 end to thoroughly vet its cost estimate for the Units. In sum, the intent of this condition is  
20 to create an incentive for the Company to provide the best estimate of the cost of the units  
21 when seeking certification, and then after certification, to keep the costs as close as  
22 possible to this cost estimate.

1

2 **Q. WOULD THESE INCENTIVES LIMIT THE AMOUNT OF THE FINAL**  
3 **INSERVICE COST, PLACE IN RATE BASE?**

4 A. No. The incentives place no limit on the direct construction cost or the return accrued on  
5 project balances unless imprudently incurred. Any delays resulting in additional  
6 financing cost would not be limited by the incentives. If the project experiences  
7 significant cost overruns all prudently incurred cost would be placed in rate base. The  
8 Company's "cost plus" recovery mechanism would not be impaired under the incentives.

9

10 **Q. WOULD THESE INCENTIVES IMPACT THE COMPANY'S ABILITY TO**  
11 **RECOVER THE OPERATING COST, INCLUDING DEPRECIATION, OF THE**  
12 **UNITS?**

13 A. No. The incentives, whether positive or negative, would not impact the Company's  
14 ability to recover the operating cost of the Units.

15

16 **Q. WOULD THESE INCENTIVES IMPACT THE COMPANY'S BONDHOLDERS?**

17 A. No. Bondholders would fully recover capital invested (return on capital) and interest  
18 payments (return of capital). Bondholders are made whole at all times.

19

20 **Q. WOULD THESE INCENTIVES IMPACT THE COMPANY'S**  
21 **SHAREHOLDERS?**

1 A. Only the Company's common stock shareholder would potentially be affected, either by  
2 earning a higher or a lower profit. The common stockholder would fully recover all  
3 invested capital (return of capital) regardless of the final certified cost placed in rate base.  
4 The common stock shareholder would not suffer a loss on investment even if their profit  
5 is reduced. Their profit would be positive under all circumstances.

6

7 **Q. DOES THAT CONCLUDE YOUR TESTIMONY?**

8 A. Yes.

## **PUBLIC DISCLOSURE**

### **Appendix TJN-1**

#### Summary of Educational and Professional Experience of Tom J. Newsome

Mr. Newsome received a Bachelor of Chemical Engineering with certificates in Pulp & Paper and Polymers from the Georgia Institute of Technology in June 1986. In 1994, Mr. Newsome passed both required examinations and received a professional engineering license (PE) from the State of North Carolina. Mr. Newsome received a Master of Science in Business Economics and a Master of Science in Finance from Georgia State University in August 1996 and June 1997, respectively. Mr. Newsome is the recipient of the George J. Malanos Graduate Award for Academic Excellence for completing the finance program with a 4.0 grade-point average. In 2003, Mr. Newsome received Chartered Financial Analyst (CFA) designation from the CFA Institute after successfully completing three six-hour examinations on security analysis and portfolio management.

After graduation from Georgia Tech, Mr. Newsome worked as plant/process engineer for Shaw Industries, a carpet manufacturer. In April 1988, Mr. Newsome joined Weatherly, Inc., engineering and construction firm specializing in fertilizer plants, as a process engineer. Mr. Newsome's primary responsibilities were process design and plant start-ups, including start-ups in Korea and India. Mr. Newsome joined Midrex Direct Reduction Corp., an applied research, engineering and construction firm with proprietary iron ore processing plant technology in March 1993 as a process engineer. Mr. Newsome duties were similar to those at Weatherly, including assisting in the start-up of the world's largest Direct Reduction Iron plant in India.

Following graduation from graduate school at Georgia State, Mr. Newsome joined Georgia Gulf Corporation in 1997 as a corporate development analyst. While at Georgia Gulf, Mr. Newsome performed financial analysis and modeling for natural gas purchasing/hedging program, developed a "make-or-buy" model for methanol business, performed financial modeling for an acquisition, and calculated and summarized the financial performance of prior capital investments. In 1999, Mr. Newsome joined FMV Opinions, Inc. as a business valuation analyst and valued private companies for gift and estate tax, transactional and management planning purposes.

Mr. Newsome joined the Georgia Public Service Commission ("Commission") in January 2005 as a Financial Analyst/Economist. Mr. Newsome was promoted to Director of Utility Finance in 2008. Mr. Newsome has testified before the Commission in two Dockets. In Docket 22403, Mr. Newsome addressed Georgia Power Co.'s natural gas hedging program and in Docket 24506 testified on the application of AFUDC accounting for calculating financing cost of capital projects. Mr. Newsome's primary responsibility, prior to presenting testimony in this docket, has been performing analyses of the parties' cost of equity capital positions in Dockets 18638 (Atlanta Gas Light Company 2004/2005 Rate Case), 19758 (Savannah Electric and Power Company 2004 Rate Case), 20298 (Atmos Energy Corporation - Georgia Division 2005 Rate Case), 25060 (Georgia Power Co. 2007 Rate Case) and 27163 (Atmos Energy Corporation - Georgia Division 2008

**PUBLIC DISCLOSURE**

Rate Case) and developing the Advisory PIA Staff's cost of equity recommendation to the Commission.