

The ORS continuously monitors the construction of V.C. Summer Nuclear Units 2 and 3 (Units). The Units, which are AP1000 plants, are evaluated on an ongoing basis for compliance with the approved budget and schedule. These monitoring activities are conducted through our ORS staff, led by Licensed Professional Engineer Anthony James;¹ Allyn Powell, Manager for Nuclear Programs;² and Certified Public Accountant Jay Jashinsky. We have also retained Gary Jones as our consultant to assist and advise the ORS.

Gary has over 45 years in the nuclear power industry, including 32 years with Sargent & Lundy (S&L) in Chicago, Illinois, where he served as owner and Senior Vice President for 16 years. He led the design and engineering on three major nuclear plants: LaSalle County (Commonwealth Edison); Marble Hill (Public Service Indiana); and Braidwood (Commonwealth Edison). In addition, Gary has provided engineering, design, and consulting services to over 50 nuclear power plants throughout the United States. He has extensive international project experience in Armenia, Canada, China, El Salvador, Finland, Hungary, Mexico, South Korea, and Ukraine. Gary also spent 2 ½ years with the International Atomic Energy Agency in Vienna, Austria. Gary is a Licensed Professional Engineer registered in Missouri and South Carolina.

As of this date,³ the following is an ORS assessment of the status of the Units.

In 2008, factors related to the federal and state regulatory and policy environment were favorable for construction of the Units. These factors included:

- An updated Nuclear Regulatory Commission (NRC) regulatory environment under 10 CFR 52, which allowed for issuance of a combined Construction and Operating License (COL) to both construct and operate a plant,
- A modular construction approach that allowed components to be fabricated in large sections, assembled at the construction site, and lifted into place using a crane or derrick,
- A design that would be certified by the NRC,
- Successful construction of similar AP1000 plants in China, with respect to both productivity and fabrication,
- The 2007 Base Load Review Act (BLRA) in South Carolina that allowed stability and eased financing concerns,
- A federal regulatory environment that was increasingly focused on reducing the amount of greenhouse-gas-emitting power generation,
- An expected Unit 2 substantial completion date of April 1, 2016, and
- An Engineering, Procurement and Construction (EPC) contract that was a product of collaboration between the designer and a builder.

Our *actual* experience has been that:

- The federal regulatory environment has not been as good as hoped —
 - The issuance of the combined COL was delayed 9 months until March 30, 2012,

¹ Anthony also has a Master's Degree in Earth and Environmental Resources Management from USC's School of the Environment.

² Allyn holds a Bachelor of Science degree in Physics from the University of South Carolina Honors College and a Master of Science in Physics from William and Mary, with an area of study in nuclear and particle physics. Allyn has professional experience coordinating the state budget process for the South Carolina House of Representatives, and she served as lead staff for the South Carolina Governor's Nuclear Advisory Council.

³ We expect SCE&G to be filing for approval of the executed amendment, dated October 27, 2015, to the contract. This assessment is not an evaluation of the amendment as it is still under consideration and subject to ORS' ongoing evaluation.

- NRC oversight during construction has required strict literal compliance with regard to the approved design. This strict interpretation has resulted in the need for License Amendment Requests (LARs),
- As the Units were the first plants to go through the Inspection, Testing, Analyses, and Acceptance Criteria (ITAAC) process, additional work has been required to define and refine the process, and
- Experience in China could not be capitalized on as much as anticipated; the NRC offered only limited credit for testing done there,
- Fabricators were unable to reliably meet schedule and quality requirements, which led to the reassignment and de-scoping of fabricators,
- The certified design was not as complete as originally thought. Constructability reviews were inadequate in many cases, thus leading to continuing design changes. Also, compliance issues with codes and standards came to fruition. Change requests caused design alterations and change orders,
- Construction productivity rates were lower than planned and lower than those experienced in China,
- The actual experience with the EPC contract has been that changes in ownership and amendments have led to a less favorable environment,
- Cumulative SCE&G rate increases have occurred under the BLRA totaling \$1,054,796,800 to cover the cost of capital associated with the construction,
- Five filings⁴ by SCE&G have occurred since its original Base Load Review Order, to delay construction schedules and/or to add to the budget. Budget additions total to date \$1.15 billion,⁵ SCE&G's share in 2007 dollars,
- The Unit 2 substantial completion date has been delayed from April 1, 2016 to August 31, 2019,
- The BLRA has provided a stable financial environment for construction, and an independent study concluded that it reduces capital costs,
- Subsequent Environmental Protection Agency rulings have placed a greater focus on the need for non-greenhouse-gas-emitting generation,
- Inflation and interest rates have been favorable during the construction, and
- Construction of the Units has created as many as 3,700 jobs, and it is forecasted that approximately 800 permanent jobs will be added when the Units begin generating electricity.

Challenges to the project remain in several key areas, such as:

- Managing the transition between EPC contract holders and integrating the new outside construction manager,
- Module construction, which continues to encounter constructability issues and runs behind schedule,
- Fabrication of some of the most complex structures in the plant has not yet begun,
- Productivity continues to be lower than needed to meet construction schedules,
- Mechanical, Electrical and Instrumentation & Controls installation, which is very complex, still lies ahead, and
- Federal regulatory compliance remains a challenge as—
 - More LARs are processed,
 - ITAAC (873/unit required; 20 on Unit 2 and 16 on Unit 3 submitted) closure remains an area of focus, and

⁴ One filing was withdrawn prior to conclusion.

⁵ By order of the South Carolina Supreme Court, \$438 million (2007 dollars) in contingency was removed from the original budget.

- The focus moves to operator training and operations-and-support staff readiness.

In conclusion:

- The BLRA methodology reduces costs per an independent study;
- Nuclear is a diverse and non-greenhouse-gas-emitting source of power;
- The project faces significant, but not insurmountable, challenges; and
- Unit 3 will need substantial improvement to meet the deadline for federal tax credits.

The BLRA, as it presently exists, remains an essential element to success. It provides a stable environment that ensures financing. Further, these Units will provide South Carolina with non-greenhouse-gas-emitting power and diversity in power supply, both of which are critical to the future of this State.