

March 31, 2020

NL-19-1125

Docket Nos.: 72-36 72-42 72-1039

ATTN: Document Control Desk  
Director, Division of Spent Fuel Management  
Office of Nuclear Material Safety and Safeguards  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555-0001

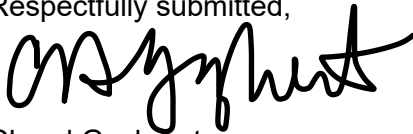
**Joseph M. Farley Nuclear Plant – Units 1 and 2  
Edwin I. Hatch Nuclear Plant – Units 1 and 2  
Vogtle Electric Generating Plant – Units 1 and 2  
Independent Spent Fuel Storage Installation  
ISFSI Decommissioning Funding Plan Triennial Update**

Ladies and Gentlemen:

In accordance with 10 CFR 72.30(b) and (c), Southern Nuclear Operating Company (SNC) hereby submits the enclosed Independent Spent Fuel Storage Installation (ISFSI) decommissioning funding plans for Joseph M. Farley Nuclear Plant (Farley) Units 1 and 2 (Docket 72-42), Edwin I. Hatch Nuclear Plant (Hatch) Units 1 and 2 (Docket 72-36), and Vogtle Electric Generating Plant (Vogtle) Units 1 and 2 (Docket 72-1039).

This letter contains no NRC commitments. If you have any questions or if additional information is needed, please contact Jamie Coleman at 205.992.6611.

Respectfully submitted,



Cheryl Gayheart  
Regulatory Affairs Director

efb/scm

Enclosures:

1. Farley ISFSI Decommissioning Funding Plan Triennial Update
2. Hatch ISFSI Decommissioning Funding Plan Triennial Update
3. Vogtle ISFSI Decommissioning Funding Plan Triennial Update

cc: NRC Director – Division of Spent Fuel Management  
NRC Region II Regional Administrator  
NRC NRR Project Manager – Farley, Hatch, and Vogtle  
NRC Senior Resident Inspector – Farley, Hatch, and Vogtle  
Alabama Power Company  
Georgia Power Company  
Oglethorpe Power Corporation  
Municipal Electric Authority of Georgia  
Dalton Utilities  
SNC Document Control R-Type: PP1.006

**Joseph M. Farley Nuclear Plant – Units 1 and 2  
Edwin I. Hatch Nuclear Plant – Units 1 and 2  
Vogtle Electric Generating Plant – Units 1 and 2  
Independent Spent Fuel Storage Installation  
ISFSI Decommissioning Funding Plan Triennial Update**

**Enclosure 1**

**Farley ISFSI Decommissioning Funding Plan Triennial Update**

## **Joseph M. Farley Nuclear Plant – Units 1 and 2 ISFSI Decommissioning Funding Plan Triennial Update**

### **Background and Introduction**

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011, with the rule becoming effective on December 17, 2012. Subpart 72.30, “Financial assurance and recordkeeping for decommissioning,” requires that Southern Nuclear Operating Company (SNC) submit for NRC review and approval a decommissioning funding plan that demonstrates reasonable assurance that funds will be available to decommission the Independent Spent Fuel Storage Installation (ISFSI).

In accordance with Subpart 72.30(b) and (c) of the rule, this enclosure provides the required triennial update, including a detailed cost estimate, with adjustments as necessary to account for changes in costs and site conditions. This enclosure also provides the key assumptions contained in the cost estimate, and the volume of onsite subsurface material containing residual radioactivity that will require remediation to meet the criteria for license termination.

### **Spent Fuel and ISFSI Management Strategy**

The operating licenses for the Farley Nuclear Plant (Farley) Units 1 & 2 are currently set to expire on June 25, 2037 and March 31, 2041 respectively. Approximately 5,520 spent fuel assemblies are currently projected to be generated as a result of plant operations through the license expiration date. The Farley ISFSI currently has 59 loaded casks on the pad and is licensed and operated in accordance with the general license provisions of 10 CFR 72.210.

Assuming that the plant operates to the end of its currently licensed life, the spent fuel pools are expected to contain a total of approximately 1,340 spent fuel assemblies after the final core offloads. To facilitate immediate dismantling or safe-storage operations, the spent fuel that cannot be transferred directly to the DOE from the pool is assumed to be packaged in dry storage casks for interim storage at the ISFSI. Transferring the spent fuel from the pool to the ISFSI will permit decontamination and dismantling of the spent fuel pool systems and allow termination of the Part 50 license using the DECON method described in NUREG-0586, Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities, Supplement 1.

Completion of the ISFSI decommissioning process is dependent upon the DOE’s ability to remove spent fuel from the site. DOE’s repository program assumes that spent fuel allocations will be accepted for disposal from the nation’s commercial nuclear plants, with limited exceptions, in the order (the “queue”) in which it was discharged from the reactor. The SNC spent fuel management plan for Farley assumes: 1) a 2032 start date for DOE initiating transfer of commercial spent fuel to a federal facility, and 2) completion of spent fuel receipt by year 2075. The completion date is based on DOE’s allocation/receipt schedules with the oldest fuel receiving the highest priority. The end date assumes a maximum rate of transfer of 3,000 metric tons of uranium/year.

At the conclusion of the spent fuel transfer process, the ISFSI will be promptly decommissioned (consistent with the DECON option) by removing and disposing of residual radioactivity and verifying that remaining materials satisfy NRC release criteria.

## **ISFSI Description**

The Farley ISFSI uses a Holtec International (Holtec) HI-STORM 100 dry storage system. The HI-STORM 100 is comprised of a multi-purpose canister (MPC) and storage overpack. The MPCs are assumed to be transferred directly to the DOE and not returned to the station. Some of the remaining overpacks are assumed to have residual radioactivity due to neutron-induced activation resulting from long-term storage of the spent fuel.

SNC's current spent fuel management plan for Farley spent fuel would result in 122 spent fuel storage casks (32 assemblies per cask) being placed on a storage pad at the site after all spent fuel has been removed from the spent fuel pool. This represents approximately 71% of the total spent fuel projected to be generated during the currently licensed operating period. The balance of the fuel assemblies is assumed to have been transferred directly to the DOE from the Farley spent fuel pools.

In addition to the spent fuel casks located on the ISFSI pad after shutdown there are projected to be additional casks used for Greater-than-Class-C (GTCC) storage. The storage overpacks used for the GTCC canisters (estimated quantity of 8) are not expected to have any interior contamination or residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning cost estimate.

## **Key Assumptions / Estimating Approach**

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on the unit operating until the end of its current license, (Unit 1 – June 25, 2037; Unit 2 – March 31, 2041), and the assumptions associated with DOE's spent fuel acceptance, as previously described.

The size of the ISFSI pad is sufficient to store the projected amount of spent fuel and is assumed to be 43,000 square feet in surface area.

Some of the inner steel-liners of the HI-STORM concrete overpacks, 10 of the 122 total, are assumed to contain low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. The estimate is based upon the number of casks required for the final core off-load (i.e., 157 offloaded assemblies, 32 assemblies per cask) which results in 5 overpacks per unit. It is assumed that these are the final overpacks to be emptied of their spent fuel casks because the DOE plans to dispose of the oldest fuel first. These final 10 overpacks are assumed to be disposed of before sufficient time has elapsed for radioactive decay of the neutron activation products.

This analysis assumes that good radiological practices are employed, and there will be no residual contamination left on the concrete ISFSI pad or other facilities at the Farley ISFSI. Consequently, only verification surveys are assumed in the decommissioning estimate.

There is no expected subsurface material in the proximity of the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.

Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as RSMeans Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. The estimate includes labor and overhead for SNC oversight of the contractor, SNC security, and other site operating costs.

Low-level radioactive waste disposal costs are based on SNC's current cost of disposal at the EnergySolutions Clive, Utah disposal site.

Costs are reported in 2018 dollars.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.

The estimate is limited to costs necessary to terminate the ISFSI license and meet the §20.1402 criteria for unrestricted use. Disposition of released material and structures is outside the scope of the estimate.

In accordance with 10 CFR 72.30(c)(1)-(4), the following have been specifically considered in the decommissioning cost estimate:

- (1) Spills of radioactive material producing additional residual radioactivity in onsite subsurface material: There have been no spills at the Farley ISFSI.
- (2) Facility modifications: There have been no facility modifications in the past three years that affect the decommissioning cost estimate.
- (3) Changes in authorized possession limits: There are no changes in authorized possession limits that affect the decommissioning cost estimate.
- (4) Actual remediation costs that exceed the previous cost estimate: No actual remediation costs have been incurred; therefore, no actual remediation costs exceed the previous cost estimate.

All expenditures are conservatively assumed to be incurred in the year 2076, the year following all spent fuel removal.

### **Cost Estimate and Financial Assurance Certification**

The estimated cost to decommission the Farley ISFSI and release the facility for unrestricted use is provided in Table 2.

Adequate funds for decommissioning of the Farley ISFSI are assured by the same external sinking fund method used for the nuclear decommissioning trust (NDT) fund established for each unit in accordance with 10 CFR 50.75. The Farley NDTs are maintained and adjusted as necessary to ensure that the total amount of funds is sufficient to pay the ISFSI decommissioning costs.

Enclosure 1 to NL-19-1125  
Farley ISFSI Decommissioning Funding Plan Triennial Update

The Farley ISFSI decommissioning cost estimate is derived from a comprehensive site-specific decommissioning cost study prepared every three years. The scope of the decommissioning cost study includes decommissioning of the reactor facility to permit license termination, management of the spent fuel in accordance with 10 CFR 50.54(bb), and decommissioning the ISFSI following removal of the spent fuel. The estimated costs are adjusted to reflect current assumptions regarding the cost of energy, labor, burial cost, projected capacity, and schedule for removal of fuel from the site. Incorporation of the cost to decommission the ISFSI into the scope of the Farley decommissioning cost study, and its use for cost-of-service ratemaking, provide assurance that adequate funding will be available as required by 10 CFR 72.30.

Financial assurance that adequate funds are available to decommission the ISFSI may be summarized as follows:

- Site specific cost studies have historically included the cost to decommission the ISFSI as part of the scope of activities necessary to decommission the Part 50 facility and terminate the Part 50 specific license in accordance with 10 CFR 50.82, Termination of License.
- An external sinking fund was established in accordance with 10 CFR 50.75 for the original 40-year operating license period. Under the renewed license, these funds continue to accumulate interest for an additional 20 years.
- The most recent Farley decommissioning cost study update estimates the amount necessary for ISFSI decommissioning to be \$11,156,000 (2018\$) shared by both operating units. The estimates are included in Table 3.
- The amount allocated for ISFSI decommissioning is held in the same financial instrument as the reactor decommissioning funds required by 10 CFR 50.75. However, in accordance with 10 CFR 72.30(b), funds for decommissioning the ISFSI are provided and accounted for separate from the requirements of 10 CFR 50.75(b). As shown in Table 3, these funds are in excess of the amount required for decommissioning the Part 50 facility and provide adequate assurance that funding for decommissioning the ISFSI will be available upon expiration of the Part 50 operating licenses for Farley Units 1 and 2.

**Table 1**  
**Significant Quantities and Physical Dimensions**

Item	Area (ft <sup>2</sup> )	Notes
ISFSI Pad	43,000	No residual radioactivity

ISFSI Overpack (HI-STORM 100S Version B)

Item	Value	Notes
Overall Height (inches)	218.0	
Outside Diameter (inches)	132.0	Main cylindrical body of overpack
Inside Diameter (inches)	73.5	
Inner Liner Thickness (inches)	1.25	
Quantity (total)	130	Spent Fuel 122 + GTCC 8
Quantity (with residual radioactivity)	10	The number of overpacks used to store the last complete core offloads
Total Surface Area of Overpack Inner Liner with Residual Radioactivity (square feet)	3,167	
Low-Level Radioactive Waste (cubic feet)	50,626	
Low-Level Radioactive Waste (packaged density- lbs./cu.ft.)	53	

Other Potentially Impacted Items

Item	Value	Notes
Number of Overpacks used for GTCC storage	8	No residual radioactivity
Transfer Cask	1	No residual radioactivity



**Table 2**  
**ISFSI Decommissioning Costs<sup>1</sup> and Waste Volumes**

	(thousands, 2018 dollars)						Waste Volume (ft3)	Person-Hours		
	Removal	Packaging	Transport	Disposal	Other	Total		Contractor	Licensee	NRC
<b>Decommissioning Contractor</b>										
Planning (characterization, specs and procedures)	-	-	-	-	400	400	-		1,216	
Remediation (activated liner removal)	268	203	1,196	2,738	25	4,430	50,626	2,965	-	
License Termination (radiological surveys)	-	-	-	-	1,995	1,995	-	16,586	-	
<b>Subtotal</b>	<b>268</b>	<b>203</b>	<b>1,196</b>	<b>2,738</b>	<b>2,421</b>	<b>6,825</b>	<b>50,626</b>	<b>19,551</b>	<b>1,216</b>	
<b>Supporting Costs</b>										
NRC and NRC Contractor Fees and Costs					380	380				776
Insurance					179	179				
Property Tax					2	2				
Site Overheads					35	35				
ISFSI Operating Costs					53	53				
Corporate Overheads					174	174				
Security (Industrial)					977	977			17,780	
Farley Oversight Staff					298	298			3,761	
<b>Subtotal</b>					<b>2,098</b>	<b>2,098</b>			<b>21,541</b>	
<b>Total (w/o contingency)</b>	<b>268</b>	<b>203</b>	<b>1,196</b>	<b>2,738</b>	<b>4,519</b>	<b>8,923</b>	<b>50,626</b>	<b>19,551</b>	<b>22,757</b>	<b>776</b>
<b>Total (with 25% contingency)</b>						<b>11,156</b>				

Note 1: Costs are assumed to be incurred in year 2076.

**Table 3 – Financial Assurance – Alabama Power Company**

		Unit 1	Unit 2
1	The NRC minimum decommissioning estimate, pursuant to 10 CFR 50.75(b) and (c) (Dec 2019\$)	\$485,355,509 <sup>1</sup>	\$485,355,509 <sup>1</sup>
2	Total amount accumulated in the trust fund at the end of 2019 (2019\$)	\$518,777,489	\$501,976,830
3	Assumptions regarding:		
	(a) Rates of escalation in decommissioning costs	4.5%	4.5%
	(b) Rates of earnings on decommissioning funds	7.0%	7.0%
	(c) Real rate of return	2.5%	2.5%
4	Projected NRC minimum requirements pursuant to 10 CFR 50.75(b) and (c) (U1 - year 2037, U2 - year 2041)	\$1,071,897,336	\$1,278,257,511
5	Projected ending fund balance (U1 – year 2037, U2 year 2041)	\$1,709,296,479	\$2,132,688,561
6	Surplus funds available for decommissioning the ISFSI (10 CFR 72.30), spent fuel management (10 CFR 50.54 (bb)) and site restoration for U1 in 2037 and Unit 2 in 2041. Row 5 minus Row 4.	\$637,399,143	\$854,431,050
7	ISFSI decommissioning cost study estimate (2018\$)	\$5,578,000	\$5,578,000
8	Projected ISFSI decommissioning cost estimate (U1 – year 2037, U2 – year 2041)	\$12,873,245	\$15,351,584

<sup>1</sup> Calculated using NUREG-1307, Rev. 17, for the burial factor, the Dec. 2019 BLS data for labor, and the Sept. 2019 BLS data for energy.

**Joseph M. Farley Nuclear Plant – Units 1 and 2  
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ISFSI Decommissioning Funding Plan Triennial Update**

**Enclosure 2**

**Hatch ISFSI Decommissioning Funding Plan Triennial Update**

## **Edwin I. Hatch Nuclear Plant – Units 1 and 2 ISFSI Decommissioning Funding Plan Triennial Update**

### **Background and Introduction**

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011, with the rule becoming effective on December 17, 2012. Subpart 72.30, “Financial assurance and recordkeeping for decommissioning,” requires that Southern Nuclear Operating Company (SNC) submit for NRC review and approval a decommissioning funding plan that demonstrates reasonable assurance that funds will be available to decommission the Independent Spent Fuel Storage Installation (ISFSI).

In accordance with Subpart 72.30(b) and (c) of the rule, this enclosure provides the required triennial update, including a detailed cost estimate, with adjustments as necessary to account for changes in costs and site conditions. This enclosure also provides the key assumptions contained in the cost estimate, and the volume of onsite subsurface material containing residual radioactivity that will require remediation to meet the criteria for license termination.

### **Spent Fuel and ISFSI Management Strategy**

The operating licenses for the Hatch Nuclear Plant (Hatch) Units 1 & 2 are currently set to expire on August 6, 2034 and June 13, 2038 respectively. Approximately 14,823 spent fuel assemblies are currently projected to be generated as a result of plant operations through the license expiration date. The Hatch ISFSI currently has 84 loaded casks on the pad and is licensed and operated in accordance with the general license provisions of 10 CFR 72.210.

Assuming that the plant operates to the end of its currently licensed life, the spent fuel pools are expected to contain a total of approximately 4,156 spent fuel assemblies after the final core offloads. To facilitate immediate dismantling or safe-storage operations, the spent fuel that cannot be transferred directly to the DOE from the pool is assumed to be packaged in dry storage casks for interim storage at the ISFSI. Transferring the spent fuel from the pool to the ISFSI will permit decontamination and dismantling of the spent fuel pool systems and allow termination of the Part 50 license using the DECON method described in NUREG-0586, Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities, Supplement 1.

Completion of the ISFSI decommissioning process is dependent upon the DOE’s ability to remove spent fuel from the site. DOE’s repository program assumes that spent fuel allocations will be accepted for disposal from the nation’s commercial nuclear plants, with limited exceptions, in the order (the “queue”) in which it was discharged from the reactor. The SNC spent fuel management plan for Hatch assumes: 1) a 2032 start date for DOE initiating transfer of commercial spent fuel to a federal facility, and 2) completion of spent fuel receipt by year 2074. The completion date is based on DOE’s allocation/receipt schedules with the oldest fuel receiving the highest priority. The end date assumes a maximum rate of transfer of 3,000 metric tons of uranium/year.

At the conclusion of the spent fuel transfer process, the ISFSI will be promptly decommissioned (consistent with the DECON option) by removing and disposing of residual radioactivity and verifying that remaining materials satisfy NRC release criteria.

## **ISFSI Description**

The Hatch ISFSI uses a Holtec International (Holtec) HI-STORM 100 dry storage system. The HI-STORM 100 is comprised of a multi-purpose canister (MPC) and storage overpack. The MPCs are assumed to be transferred directly to the DOE and not returned to the station. Some of the remaining overpacks are assumed to have residual radioactivity due to neutron-induced activation resulting from long-term storage of the spent fuel.

SNC's current spent fuel management plan for Hatch spent fuel would result in 138 spent fuel storage casks (68 assemblies per cask) and 39 spent fuel storage casks (52 assemblies per cask) being placed on a storage pad at the site after all spent fuel has been removed from the spent fuel pool. This represents approximately 77% of the total spent fuel projected to be generated during the currently licensed operating period. The balance of the fuel assemblies is assumed to have been transferred directly to the DOE from the Hatch spent fuel pools.

In addition to the spent fuel casks located on the ISFSI pad after shutdown there are projected to be additional casks used for Greater-than-Class-C (GTCC) storage. The storage overpacks used for the GTCC canisters (estimated quantity of 6) are not expected to have any interior contamination or residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning cost estimate.

## **Key Assumptions / Estimating Approach**

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on the unit operating until the end of its current license, (Unit 1 –August 6, 2034; Unit 2 – June 13, 2038), and the assumptions associated with DOE's spent fuel acceptance, as previously described.

The size of the ISFSI pad is sufficient to store the projected amount of spent fuel and is assumed to be 48,500 square feet in surface area.

Some of the inner steel-liners of the HI-STORM concrete overpacks, 22 of the 177 total, are assumed to contain low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. The estimate is based upon the number of casks required for the final core off-load (i.e., 560 offloaded assemblies, 52 assemblies per cask) which results in 11 overpacks per unit. It is assumed that these are the final overpacks to be emptied of their spent fuel casks because the DOE plans to dispose of the oldest fuel first. These final 22 overpacks are assumed to be disposed of before sufficient time has elapsed for radioactive decay of the neutron activation products.

This analysis assumes that good radiological practices are employed, and there will be no residual contamination left on the concrete ISFSI pad or other facilities at the Hatch ISFSI. Consequently, only verification surveys are assumed in the decommissioning estimate.

There is no expected subsurface material in the proximity of the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.

Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as RSMeans Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. The estimate includes labor and overhead for SNC oversight of the contractor, SNC security, and other site operating costs.

Low-level radioactive waste disposal costs are based on SNC's current cost of disposal at the EnergySolutions Clive, Utah disposal site.

Costs are reported in 2018 dollars.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.

The estimate is limited to costs necessary to terminate the ISFSI license and meet the §20.1402 criteria for unrestricted use. Disposition of released material and structures is outside the scope of the estimate.

In accordance with 10 CFR 72.30(c)(1)-(4), the following have been specifically considered in the decommissioning cost estimate:

- (1) Spills of radioactive material producing additional residual radioactivity in onsite subsurface material: There have been no spills at the Hatch ISFSI.
- (2) Facility modifications: There have been no facility modifications in the past three years that affect the decommissioning cost estimate.
- (3) Changes in authorized possession limits: There are no changes in authorized possession limits that affect the decommissioning cost estimate.
- (4) Actual remediation costs that exceed the previous cost estimate: No actual remediation costs have been incurred; therefore, no actual remediation costs exceed the previous cost estimate.

All expenditures are conservatively assumed to be incurred in the year 2076, the year following all spent fuel removal.

### **Cost Estimate and Financial Assurance Certification**

The estimated cost to decommission the Hatch ISFSI and release the facility for unrestricted use is provided in Table 2.

Adequate funds for decommissioning of the Hatch ISFSI are assured by the same external sinking fund method used for the nuclear decommissioning trust (NDT) fund established for each unit in accordance with 10 CFR 50.75. The Hatch NDTs are maintained and adjusted as necessary to ensure that the total amount of funds is sufficient to pay the ISFSI decommissioning costs.

The Hatch ISFSI decommissioning cost estimate is derived from a comprehensive site-specific decommissioning cost study prepared every three years. The scope of the decommissioning cost study includes decommissioning of the reactor facility to permit license termination, management of the spent fuel in accordance with 10 CFR 50.54(bb), and decommissioning the ISFSI following

Enclosure 2 to NL-19-1125  
Hatch ISFSI Decommissioning Funding Plan Triennial Update

removal of the spent fuel. The estimated costs are adjusted to reflect current assumptions regarding the cost of energy, labor, burial cost, projected capacity, and schedule for removal of fuel from the site. Incorporation of the cost to decommission the ISFSI into the scope of the Hatch decommissioning cost study and its use for cost-of-service ratemaking, provides assurance that adequate funding will be available as required by 10 CFR 72.30.

Financial assurance that adequate funds are available to decommission the ISFSI may be summarized as follows:

- Site specific cost studies have historically included the cost to decommission the ISFSI as part of the scope of activities necessary to decommission the Part 50 facility and terminate the Part 50 specific license in accordance with 10 CFR 50.82, Termination of License.
- An external sinking fund was established in accordance with 10 CFR 50.75 for the original 40-year operating license period. Under the renewed license, these funds continue to accumulate interest for an additional 20 years.
- The most recent Hatch decommissioning cost study update estimates the amount necessary for ISFSI decommissioning to be \$17,191,000 (2018\$) shared by both operating units. The estimates are included in Tables 3-6.
- The amount allocated for ISFSI decommissioning is held in the same financial instrument as the reactor decommissioning funds required by 10 CFR 50.75. However, in accordance with 10 CFR 72.30(b), funds for decommissioning the ISFSI are provided and accounted for separate from the requirements of 10 CFR 50.75(b). As shown in Tables 3-6, these funds are in excess of the amount required for decommissioning the Part 50 facility and provide adequate assurance that funding for decommissioning the ISFSI will be available upon expiration of the Part 50 operating licenses for Hatch Units 1 and 2.

**Table 1**  
**Significant Quantities and Physical Dimensions**

Item	Area (ft <sup>2</sup> )	Residual Radioactivity
ISFSI Pad	48,500	No residual radioactivity

ISFSI Overpack (HI-STORM 100S Version B)

Item	Value	Notes (all dimensions are nominal)
Overall Height (inches)	229.0	
Outside Diameter (inches)	132.0	Main cylindrical body of overpack
Inside Diameter (inches)	73.5	
Inner Liner Thickness (inches)	1.25	
Quantity (total)	183	Spent Fuel 177 + GTCC 6
Quantity (with residual radioactivity)	22	The number of overpacks used to store the last complete core offloads
Total Surface Area of Overpack Inner Liner with Residual Radioactivity (square feet)	7,368	
Low-Level Radioactive Waste (cubic feet)	111,265	
Low-Level Radioactive Waste (packaged density- lbs./cu.ft.)	53	

Other Potentially Impacted Items

Item	Value	Notes
Number of Overpacks used for GTCC storage	6	No residual radioactivity
Transfer Cask	1	No residual radioactivity
Cask Transfer Facility	1	No residual radioactivity



**Table 2**  
**ISFSI Decommissioning Costs<sup>1</sup> and Waste Volumes**

	(thousands, 2018 dollars)						Waste Volume (ft3)	Person-Hours		
	Removal	Packaging	Transport	Disposal	Other	Total		Contractor	Licensee	NRC/ NRC Contractor
<b>Decommissioning Contractor</b>										
Planning (characterization, specs and procedures)					471	471			1,312	
Remediation (activated liner removal)	542	493	3,295	5,641	35	10,008	111,265	6,684		
License Termination (radiological surveys)					2,043	2,043		16,522		
<b>Subtotal</b>	<b>542</b>	<b>493</b>	<b>3,295</b>	<b>5,641</b>	<b>2,549</b>	<b>12,522</b>	<b>111,265</b>	<b>23,206</b>	<b>1,312</b>	
<b>Supporting Costs</b>										
NRC and NRC Contractor Fees and Costs					499	499				1,153
Insurance					87	87				
Property Tax					0	0				
Security (Industrial)					306	306			2,500	
Hatch Oversight Staff					339	339			1,896	
<b>Subtotal</b>					<b>1,231</b>	<b>1,231</b>			<b>4,396</b>	1,153
<b>Total (w/o contingency)</b>	<b>542</b>	<b>493</b>	<b>3,295</b>	<b>5,641</b>	<b>3,780</b>	<b>13,753</b>	<b>111,265</b>	<b>23,206</b>	<b>5,708</b>	<b>1,153</b>
<b>Total (with 25% contingency)</b>						<b>17,191</b>				

Note 1: Costs are assumed to be incurred in year 2075.

**Table 3 – Financial Assurance - Georgia Power Company**  
(50.1% Ownership)

		Unit 1	Unit 2
1	The NRC minimum decommissioning estimate, pursuant to 10 CFR 50.75 (b) and (c) (Dec 2019\$)	\$324,296,651 <sup>1</sup>	\$324,296,651 <sup>1</sup>
2	Total amount accumulated in the trust fund at the end of 2019 (2019\$)	\$314,119,000 <sup>2</sup>	\$289,828,000 <sup>2</sup>
3	Assumptions regarding: (a) Rates of escalation in decommissioning costs (b) Rates of earnings on decommissioning funds (c) Real rate of return	2.79% 4.79% 2.00%	2.80% 4.80% 2.00%
4	Projected NRC minimum requirements pursuant to 10 CFR 50.75 (b) and (c) (U1 - year 2034, U2 - year 2038)	\$490,010,577	\$548,039,223
5	Projected ending fund balance (U1 – year 2034, U2 year 2038)	\$633,620,000	\$706,838,000
6	Surplus funds available for decommissioning the ISFSI (10 CFR 72.30), spent fuel management (10 CFR 50.54 (bb)) and site restoration for U1 in 2034 and Unit 2 in 2038. Row 5 minus Row 4.	\$143,609,423 <sup>2</sup>	\$158,798,777 <sup>2</sup>
7	ISFSI decommissioning cost study estimate (2018\$)	\$4,306,095	\$4,306,095
8	Projected ISFSI decommissioning cost estimate (U1 – year 2034, U2 – year 2038)	\$6,688,018	\$7,480,763

<sup>1</sup>Calculated using NUREG-1307, Rev. 17, for the burial factor, the Dec. 2019 BLS data for labor, and the Sept. 2019 BLS data for energy.

<sup>2</sup>In addition to the main decommissioning trust fund, which provides a surplus of funds to use for decommissioning the ISFSI, spent fuel management, and site restoration, Georgia Power holds supplemental trust fund accounts, funded through rates in accordance with Georgia PSC Orders, specifically for spent fuel management and decommissioning the ISFSI in the amount of \$9,782,660 for Unit 1 and \$20,364,360 for Unit 2.

**Table 4 – Financial Assurance - Oglethorpe Power Corporation**  
(30% Ownership)

		Unit 1	Unit 2
1	The NRC minimum decommissioning estimate, pursuant to 10 CFR 50.75 (b) and (c) (Dec 2019\$)	\$194,189,611 <sup>1</sup>	\$194,189,611 <sup>1</sup>
2	Total amount accumulated in the trust fund at the end of 2019 (2019\$)	\$176,882,446	\$139,060,932
3	Assumptions regarding: (a) Rates of escalation in decommissioning costs (b) Rates of earnings on decommissioning funds (c) Real rate of return	2.80% 5.00% 2.20%	2.80% 5.00% 2.20%
4	Projected NRC minimum requirements pursuant to 10 CFR 50.75 (b) and (c) (U1 - year 2034, U2 - year 2038)	\$293,847,982	\$328,167,200
5	Projected ending fund balance (U1 – year 2034, U2 year 2038)	\$367,725,901	\$351,400,049
6	Surplus funds available for decommissioning the ISFSI (10 CFR 72.30), spent fuel management (10 CFR 50.54 (bb)) and site restoration for U1 in 2034 and Unit 2 in 2038. Row 5 minus Row 4.	\$73,877,919	\$23,232,849
7	ISFSI decommissioning cost study estimate (2018\$)	\$2,578,500	\$2,578,500
8	Projected ISFSI decommissioning cost estimate (U1 – year 2034, U2 – year 2038)	\$4,011,040	\$4,479,499

<sup>1</sup>This amount is based on NUREG-1307, Rev. 17, for the burial factor, the December 2019 BLS data for labor, and the September 2019 BLS data for energy.

**Table 5 – Financial Assurance - Municipal Electric Authority of Georgia**  
(17.7% Ownership)

		Unit 1	Unit 2
1	The NRC minimum decommissioning estimate, pursuant to 10 CFR 50.75 (b) and (c) (Dec 2019\$)	\$114,571,871 <sup>1</sup>	\$114,571,871 <sup>1</sup>
2	Total amount accumulated in the trust fund at the end of 2019 (2019\$)	\$135,723,000	\$135,421,000
3	Assumptions regarding: (a) Rates of escalation in decommissioning costs (b) Rates of earnings on decommissioning funds (c) Real rate of return	2.25% 4.15% 1.90%	2.25% 4.15% 1.90%
4	Projected NRC minimum requirements pursuant to 10 CFR 50.75(b) and (c) (U1 - year 2034, U2 - year 2038)	\$165,934,230	\$183,160,342
5	Projected ending fund balance (U1 – year 2034, U2 year 2038)	\$241,099,000	\$279,953,000
6	Surplus funds available for decommissioning the ISFSI (10 CFR 72.30), spent fuel management (10 CFR 50.54 (bb)) and site restoration for U1 in 2034 and Unit 2 in 2038. Row 5 minus Row 4.	\$75,164,770	\$96,792,658
7	ISFSI decommissioning cost study estimate (2018\$)	\$1,521,315	\$1,521,315
8	Projected ISFSI decommissioning cost estimate (U1 – year 2034, U2 – year 2038)	\$2,258,401	\$2,492,852

<sup>1</sup>This amount is based on NUREG-1307, Rev. 17, for the burial factor, the December 2019 BLS data for labor, and the September 2019 BLS data for energy.

**Table 6 – Financial Assurance - Dalton Utilities**  
(2.2% Ownership)

		Unit 1	Unit 2
1	The NRC minimum decommissioning estimate, pursuant to 10 CFR 50.75 (b) and (c) (Dec 2019\$)	\$14,240,571 <sup>1</sup>	\$14,240,571 <sup>1</sup>
2	Total amount accumulated in the trust fund at the end of 2019 (2019\$)	\$20,624,312	\$20,779,540
3	Assumptions regarding: (a) Rates of escalation in decommissioning costs (b) Rates of earnings on decommissioning funds (c) Real rate of return	2.80% 2.02% (0.78%)	2.80% 2.02% (0.78%)
4	Projected NRC minimum requirements pursuant to 10 CFR 50.75(b) and (c) (U1 - year 2034, U2 - year 2038)	\$21,548,852	\$24,065,595
5	Projected ending fund balance (U1 – year 2034, U2 year 2038)	\$27,839,361	\$30,384,843
6	Surplus funds available for decommissioning the ISFSI (10 CFR 72.30), spent fuel management (10 CFR 50.54 (bb)) and site restoration for U1 in 2034 and Unit 2 in 2038. Row 5 minus Row 4.	\$6,290,509	\$6,319,248
7	ISFSI decommissioning cost study estimate (2018\$)	\$189,090	\$189,090
8	Projected ISFSI decommissioning cost estimate (U1 – year 2034, U2 – year 2038)	\$294,143	\$328,497

<sup>1</sup>This amount is based on NUREG-1307, Rev. 17, for the burial factor, the December 2019 BLS data for labor, and the September 2019 BLS data for energy.

**Joseph M. Farley Nuclear Plant – Units 1 and 2  
Edwin I. Hatch Nuclear Plant – Units 1 and 2  
Vogtle Electric Generating Plant – Units 1 and 2  
Independent Spent Fuel Storage Installation  
ISFSI Decommissioning Funding Plan Triennial Update**

**Enclosure 3**

**Vogtle ISFSI Decommissioning Funding Plan Triennial Update**

## **Vogtle Electric Generating Plant – Units 1 and 2 ISFSI Decommissioning Funding Plan Triennial Update**

### **Background and Introduction**

The Nuclear Regulatory Commission (NRC) issued its final rule on Decommissioning Planning on June 17, 2011, with the rule becoming effective on December 17, 2012. Subpart 72.30, “Financial assurance and recordkeeping for decommissioning,” requires that Southern Nuclear Operating Company (SNC) submit for NRC review and approval a decommissioning funding plan that demonstrates reasonable assurance that funds will be available to decommission the Independent Spent Fuel Storage Installation (ISFSI).

In accordance with Subpart 72.30(b) and (c) of the rule, this enclosure provides the required triennial update, including a detailed cost estimate, with adjustments as necessary to account for changes in costs and site conditions. This enclosure also provides the key assumptions contained in the cost estimate, and the volume of onsite subsurface material containing residual radioactivity that will require remediation to meet the criteria for license termination.

### **Spent Fuel and ISFSI Management Strategy**

The operating licenses for the Vogtle Electric Generating Plant (Vogtle) Units 1 & 2 are currently set to expire on January 16, 2047 and February 9, 2049 respectively. Approximately 7,156 spent fuel assemblies are currently projected to be generated as a result of plant operations through the license expiration date. The Vogtle ISFSI currently has 34 loaded casks on the pad and is licensed and operated in accordance with the general license provisions of 10 CFR 72.210.

Assuming that the plant operates to the end of its currently licensed life, the spent fuel pools are expected to contain a total of approximately 2,409 spent fuel assemblies after the final core offloads. To facilitate immediate dismantling or safe-storage operations, the spent fuel that cannot be transferred directly to the DOE from the pool is assumed to be packaged in dry storage casks for interim storage at the ISFSI. Transferring the spent fuel from the pool to the ISFSI will permit decontamination and dismantling of the spent fuel pool systems and allow termination of the Part 50 license using the DECON method described in NUREG-0586, Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities, Supplement 1.

Completion of the ISFSI decommissioning process is dependent upon the DOE’s ability to remove spent fuel from the site. DOE’s repository program assumes that spent fuel allocations will be accepted for disposal from the nation’s commercial nuclear plants, with limited exceptions, in the order (the “queue”) in which it was discharged from the reactor. The SNC spent fuel management plan for Hatch assumes: 1) a 2032 start date for DOE initiating transfer of commercial spent fuel to a federal facility, and 2) completion of spent fuel receipt by year 2078. The completion date is based on DOE’s allocation/receipt schedules with the oldest fuel receiving the highest priority. The end date assumes a maximum rate of transfer of 3,000 metric tons of uranium/year.

At the conclusion of the spent fuel transfer process, the ISFSI will be promptly decommissioned (consistent with the DECON option) by removing and disposing of residual radioactivity and verifying that remaining materials satisfy NRC release criteria.

## **ISFSI Description**

The Vogtle ISFSI uses a Holtec International (Holtec) HI-STORM 100 dry storage system. The HI-STORM 100 is comprised of a multi-purpose canister (MPC) and storage overpack. The MPCs are assumed to be transferred directly to the DOE and not returned to the station. Some of the remaining overpacks are assumed to have residual radioactivity due to neutron-induced activation resulting from long-term storage of the spent fuel.

SNC's current spent fuel management plan for Vogtle spent fuel would result in 93 spent fuel storage casks (32 assemblies per cask) and 78 spent fuel storage casks (24 assemblies per cask) being placed on a storage pad at the site after all spent fuel has been removed from the spent fuel pool. This represents approximately 67% of the total spent fuel projected to be generated during the currently licensed operating period. The balance of the fuel assemblies is assumed to have been transferred directly to the DOE from the Vogtle spent fuel pools.

In addition to the spent fuel casks located on the ISFSI pad after shutdown there are projected to be additional casks used for Greater-than-Class-C (GTCC) storage. The storage overpacks used for the GTCC canisters (estimated quantity of 10) are not expected to have any interior contamination or residual activation and can be reused or disposed of by conventional means after a final status survey.

Table 1 provides the significant quantities and physical dimensions used as the basis in developing the ISFSI decommissioning cost estimate.

## **Key Assumptions / Estimating Approach**

The decommissioning estimate is based on the configuration of the ISFSI expected after all spent fuel and GTCC material has been removed from the site. The configuration of the ISFSI is based on the unit operating until the end of its current license, (Unit 1 – January 16, 2047; Unit 2 – February 9, 2049), and the assumptions associated with DOE's spent fuel acceptance, as previously described.

The size of the ISFSI pad is sufficient to store the projected amount of spent fuel and is assumed to be 57,000 square feet in surface area.

Some of the inner steel-liners of the HI-STORM concrete overpacks, 18 of the 171 total, are assumed to contain low levels of neutron-induced residual radioactivity that would necessitate remediation at the time of decommissioning. The estimate is based upon the number of casks required for the final core off-load (i.e., 193 offloaded assemblies, 24 assemblies per cask) which results in 9 overpacks per unit. It is assumed that these are the final overpacks to be emptied of their spent fuel casks because the DOE plans to dispose of the oldest fuel first. These final 18 overpacks are assumed to be disposed of before sufficient time has elapsed for radioactive decay of the neutron activation products.

This analysis assumes that good radiological practices are employed, and there will be no residual contamination left on the concrete ISFSI pad or other facilities at the Hatch ISFSI. Consequently, only verification surveys are assumed in the decommissioning estimate.

There is no expected subsurface material in the proximity of the ISFSI containing residual radioactivity that will require remediation to meet the criteria for license termination.



Decommissioning is assumed to be performed by an independent contractor. As such, essentially all labor, equipment, and material costs are based on national averages, i.e., costs from national publications such as RSMeans Building Construction Cost Data (adjusted for regional variations), and laboratory service costs are based on vendor price lists. The estimate includes labor and overhead for SNC oversight of the contractor, SNC security, and other site operating costs.

Low-level radioactive waste disposal costs are based on SNC's current cost of disposal at the EnergySolutions Clive, Utah disposal site.

Costs are reported in 2018 dollars.

Contingency has been added at an overall rate of 25%. This is consistent with the contingency evaluation criteria referenced by the NRC in NUREG-1757.

The estimate is limited to costs necessary to terminate the ISFSI license and meet the §20.1402 criteria for unrestricted use. Disposition of released material and structures is outside the scope of the estimate.

In accordance with 10 CFR 72.30(c)(1)-(4), the following have been specifically considered in the decommissioning cost estimate:

- (1) Spills of radioactive material producing additional residual radioactivity in onsite subsurface material: There have been no spills at the Vogtle ISFSI.
- (2) Facility modifications: There have been no facility modifications in the past three years that affect the decommissioning cost estimate.
- (3) Changes in authorized possession limits: There are no changes in authorized possession limits that affect the decommissioning cost estimate.
- (4) Actual remediation costs that exceed the previous cost estimate: No actual remediation costs have been incurred; therefore, no actual remediation costs exceed the previous cost estimate.

All expenditures are conservatively assumed to be incurred in the year 2079, the year following all spent fuel removal.

### **Cost Estimate and Financial Assurance Certification**

The estimated cost to decommission the Vogtle ISFSI and release the facility for unrestricted use is provided in Table 2.

Adequate funds for decommissioning of the Vogtle ISFSI are assured by the same external sinking fund method used for the nuclear decommissioning trust (NDT) fund established for each unit in accordance with 10 CFR 50.75. The Vogtle NDTs are maintained and adjusted as necessary to ensure that the total amount of funds is sufficient to pay the ISFSI decommissioning costs.

The Vogtle ISFSI decommissioning cost estimate is derived from a comprehensive site-specific decommissioning cost study prepared every three years. The scope of the decommissioning cost

study includes decommissioning of the reactor facility to permit license termination, management of the spent fuel in accordance with 10 CFR 50.54(bb), and decommissioning the ISFSI following removal of the spent fuel. The estimated costs are adjusted to reflect current assumptions regarding the cost of energy, labor, burial cost, projected capacity, and schedule for removal of fuel from the site. Incorporation of the cost to decommission the ISFSI into the scope of the Vogtle decommissioning cost study and its use for cost-of-service ratemaking, provides assurance that adequate funding will be available as required by 10 CFR 72.30.

Financial assurance that adequate funds are available to decommission the ISFSI may be summarized as follows:

- Site specific cost studies have historically included the cost to decommission the ISFSI as part of the scope of activities necessary to decommission the Part 50 facility and terminate the Part 50 specific license in accordance with 10 CFR 50.82, Termination of License.
- An external sinking fund was established in accordance with 10 CFR 50.75 for the original 40-year operating license period. Under the renewed license, these funds continue to accumulate interest for an additional 20 years.
- The most recent Vogtle decommissioning cost study update estimates the amount necessary for ISFSI decommissioning to be \$14,948,000 (2018\$) shared by both operating units. The estimates are included in Tables 3-6.
- The amount allocated for ISFSI decommissioning is held in the same financial instrument as the reactor decommissioning funds required by 10 CFR 50.75. However, in accordance with 10 CFR 72.30(b), funds for decommissioning the ISFSI are provided and accounted for separate from the requirements of 10 CFR 50.75(b). As shown in Tables 3-6, these funds are in excess of the amount required for decommissioning the Part 50 facility and provide adequate assurance that funding for decommissioning the ISFSI will be available upon expiration of the Part 50 operating licenses for Vogtle Units 1 and 2.

**Table 1**  
**Significant Quantities and Physical Dimensions**

Item	Area (ft <sup>2</sup> )	Residual Radioactivity
ISFSI Pad	57,000	No residual radioactivity

ISFSI Overpack (HI-STORM 100S Version B)

Item	Value	Notes
Overall Height (inches)	218	
Outside Diameter (inches)	132	Main cylindrical body of overpack
Inside Diameter (inches)	73.5	
Inner Liner Thickness (inches)	1.25	
Quantity (total)	181	Spent Fuel 171 + GTCC 10
Quantity (with residual radioactivity)	18	The number of overpacks used to store the last complete core offloads
Total Surface Area of Overpack Inner Liner with Residual Radioactivity (square feet)	5,700	
Low-Level Radioactive Waste (cubic feet)	90,527	
Low-Level Radioactive Waste (packaged density- lbs./cu.ft.)	54	

Other Potentially Impacted Items

Item	Value	Notes
Number of Overpacks used for GTCC storage	10	No residual radioactivity
Transfer Cask	1	No residual radioactivity
Cask Transfer Facility	1	No residual radioactivity

**Table 2**  
**ISFSI Decommissioning Costs<sup>1</sup> and Waste Volumes**

	(thousands, 2015 dollars)						Waste Volume (ft <sup>3</sup> )	Person-Hours		
	Removal	Packaging	Transport	Disposal	Other	Total		Contractor	Licensee	NRC/ NRC Contractor
<b>Decommissioning Contractor</b>										
Planning (characterization, specs and procedures)					473	473			1,312	
Remediation (activated liner removal)	487	370	2,632	4,557	25	8,071	90,527	5,333		
License Termination (radiological surveys)					2,157	2,157		17,580		
<b>Subtotal</b>	<b>487</b>	<b>370</b>	<b>2,632</b>	<b>4,557</b>	<b>2,655</b>	<b>10,701</b>	<b>90,527</b>	<b>22,913</b>	<b>1,312</b>	
<b>Supporting Costs</b>										
NRC and NRC Contractor Fees and Costs					494	494				1,153
Insurance					87	87				
NRC ISFSI Fees					38	38				
Security (Industrial)					469	469			9,733	
Vogtle Oversight Staff					170	170			1,912	
<b>Subtotal</b>					<b>1,257</b>	<b>1,257</b>			<b>3,824</b>	<b>1,153</b>
<b>Total (w/o contingency)</b>	<b>487</b>	<b>370</b>	<b>2,632</b>	<b>4,557</b>	<b>3,912</b>	<b>4,890</b>	<b>90,527</b>	<b>22,913</b>	<b>12,957</b>	<b>1,153</b>
<b>Total (with 25% contingency)</b>						<b>14,948</b>				

Note 1: Costs are assumed to be incurred in year 2079.

**Table 3 – Financial Assurance - Georgia Power Company**  
 (45.7% Ownership)

		Unit 1	Unit 2
1	The NRC minimum decommissioning estimate, pursuant to 10 CFR 50.75 (b) and (c) (Dec 2019\$)	\$234,256,529 <sup>1</sup>	\$234,256,529 <sup>1</sup>
2	Total amount accumulated in the trust fund at the end of 2019 (2019\$)	\$157,182,000 <sup>2</sup>	\$173,052,000 <sup>2</sup>
3	Assumptions regarding:		
	(a) Rates of escalation in decommissioning costs	2.69%	2.70%
	(b) Rates of earnings on decommissioning funds	4.69%	4.70%
	(c) Real rate of return	2.00%	2.00%
4	Projected NRC minimum requirements pursuant to 10 CFR 50.75 (b) and (c) (U1 - year 2047, U2 - year 2049)	\$492,583,672	\$520,960,759
5	Projected ending fund balance (U1 – year 2047, U2 year 2049)	\$569,441,000	\$686,202,000
6	Surplus funds available for decommissioning the ISFSI (10 CFR 72.30), spent fuel management (10 CFR 50.54 (bb)) and site restoration for U1 in 2047 and Unit 2 in 2049. Row 5 minus Row 4.	\$76,857,328 <sup>2</sup>	\$165,241,241 <sup>2</sup>
7	ISFSI decommissioning cost study estimate (2018\$)	\$3,415,618	\$3,415,618
8	Projected ISFSI decommissioning cost estimate (U1 – year 2047, U2 – year 2049)	\$7,375,403	\$7,801,050

<sup>1</sup>Calculated using NUREG-1307, Rev. 17, for the burial factor, the Dec. 2019 BLS data for labor, and the Sept. 2019 BLS data for energy.

<sup>2</sup>In addition to the main decommissioning trust fund, which provides a surplus of funds to use for decommissioning the ISFSI, spent fuel management, and site restoration, Georgia Power holds supplemental trust fund accounts, funded through rates in accordance with Georgia PSC Orders, specifically for spent fuel management and decommissioning the ISFSI in the amount of \$19,864,492 for Unit 1 and \$29,509,689 for Unit 2.

**Table 4 – Financial Assurance - Oglethorpe Power Corporation**  
 (30% Ownership)

		Unit 1	Unit 2
1	The NRC minimum decommissioning estimate, pursuant to 10 CFR 50.75 (b) and (c) (Dec 2019\$)	\$153,778,903 <sup>1</sup>	\$153,778,903 <sup>1</sup>
2	Total amount accumulated in the trust fund at the end of 2019 (2019\$)	\$103,192,374	\$93,474,746
3	Assumptions regarding:		
	(a) Rates of escalation in decommissioning costs	2.70%	2.70%
	(b) Rates of earnings on decommissioning funds	5.00%	5.00%
	(c) Real rate of return	2.30%	2.30%
4	Projected NRC minimum requirements pursuant to 10 CFR 50.75 (b) and (c) (U1 - year 2047, U2 - year 2049)	\$324,241,932	\$341,987,369
5	Projected ending fund balance (U1 – year 2047, U2 year 2049)	\$404,527,430	\$403,992,467
6	Surplus funds available for decommissioning the ISFSI (10 CFR 72.30), spent fuel management (10 CFR 50.54 (bb)) and site restoration for U1 in 2047 and Unit 2 in 2049. Row 5 minus Row 4.	\$80,285,498	\$62,005,098
7	ISFSI decommissioning cost study estimate (2018\$)	\$2,242,200	\$2,242,200
8	Projected ISFSI decommissioning cost estimate (U1 – year 2047, U2 – year 2049)	\$4,855,313	\$5,121,039

<sup>1</sup>This amount is based on NUREG-1307, Rev. 17, for the burial factor, the December 2019 BLS data for labor, and the September 2019 BLS data for energy.

**Table 5 – Financial Assurance - Municipal Electric Authority of Georgia**  
 (22.7% Ownership)

		Unit 1	Unit 2
1	The NRC minimum decommissioning estimate, pursuant to 10 CFR 50.75 (b) and (c) (Dec 2019\$)	\$116,359,370 <sup>1</sup>	\$116,359,370 <sup>1</sup>
2	Total amount accumulated in the trust fund at the end of 2019 (2019\$)	\$135,953,000	\$130,969,000
3	Assumptions regarding:		
	(a) Rates of escalation in decommissioning costs	2.25%	2.25%
	(b) Rates of earnings on decommissioning funds	4.15%	4.15%
	(c) Real rate of return	1.90%	1.90%
4	Projected NRC minimum requirements pursuant to 10 CFR 50.75 (b) and (c) (U1 - year 2047, U2 - year 2049)	\$232,310,902	\$244,071,642
5	Projected ending fund balance (U1 – year 2047, U2 year 2049)	\$397,640,000	\$434,215,000
6	Surplus funds available for decommissioning the ISFSI (10 CFR 72.30), spent fuel management (10 CFR 50.54 (bb)) and site restoration for U1 in 2047 and Unit 2 in 2049. Row 5 minus Row 4.	\$165,329,098	\$190,143,358
7	ISFSI decommissioning cost study estimate (2018\$)	\$1,696,598	\$1,696,598
8	Projected ISFSI decommissioning cost estimate (U1 – year 2047, U2 – year 2049)	\$3,471,931	\$3,647,697

<sup>1</sup>This amount is based on NUREG-1307, Rev. 17, for the burial factor, the December 2019 BLS data for labor, and the September 2019 BLS data for energy.

**Table 6 – Financial Assurance – Dalton Utilities**  
(1.6% Ownership)

		Unit 1	Unit 2
1	The NRC minimum decommissioning estimate, pursuant to 10 CFR 50.75 (b) and (c) (Dec 2019\$)	\$8,201,541 <sup>1</sup>	\$8,201,541 <sup>1</sup>
2	Total amount accumulated in the trust fund at the end of 2019 (2019\$)	\$11,147,831	\$10,665,124
3	Assumptions regarding:		
	(a) Rates of escalation in decommissioning costs	2.70%	2.70%
	(b) Rates of earnings on decommissioning funds	2.02%	2.02%
	(c) Real rate of return	(0.68%)	(0.68%)
4	Projected NRC minimum requirements pursuant to 10 CFR 50.75 (b) and (c) (U1 - year 2047, U2 - year 2049)	\$17,292,903	\$18,239,326
5	Projected ending fund balance (U1 – year 2047, U2 year 2049)	\$19,515,483	\$19,432,357
6	Surplus funds available for decommissioning the ISFSI (10 CFR 72.30), spent fuel management (10 CFR 50.54 (bb)) and site restoration for U1 in 2047 and Unit 2 in 2049. Row 5 minus Row 4.	\$2,222,580	\$1,193,031
7	ISFSI decommissioning cost study estimate (2018\$)	\$119,584	\$119,584
8	Projected ISFSI decommissioning cost estimate (U1 – year 2047, U2 – year 2049)	\$258,950	\$273,122

<sup>1</sup>This amount is based on NUREG-1307, Rev. 17, for the burial factor, the December 2019 BLS data for labor, and the September 2019 BLS data for energy.