

**2021 ESCALATION ANALYSIS**  
**for the**  
**HATCH NUCLEAR PLANT**  
**DECOMMISSIONING COST STUDY**



*prepared for*

**SOUTHERN NUCLEAR OPERATING COMPANY**

*prepared by*

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**REVISION LOG**

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## DECOMMISSIONING COST ESCALATION STUDY

### **Purpose**

This report presents escalated costs for the estimates of the costs to decommission the Hatch Nuclear Plant (Hatch) for the selected decommissioning scenarios following the scheduled cessation of plant operations. The estimates, escalated to the year of expenditure dollars, are designed to provide the Southern Nuclear Operating Company (SNC) with the information to assess its current decommissioning liability, as it relates to Hatch.

### **Basis**

This escalation analysis is based upon the recent decommissioning cost analysis performed for Hatch.<sup>1</sup> Explanatory information from this report is provided below.

Operating licenses were issued for Hatch Unit 1 and Unit 2 in 1974 and 1978, respectively. SNC was granted License Renewals by the NRC for the Hatch reactors on January 15, 2002. Therefore, for the purposes of this study, the final shutdown dates (license expiration) are based on the current, 60-year operating life, with the permanent cessation of operations scheduled for August 6, 2034 and June 13, 2038 for Units 1 and 2, respectively.

The DECON decommissioning scenario was evaluated for the Hatch nuclear units. It assumes that the decommissioning of the Hatch site will be a coordinated effort between the two units. Both units will be promptly decommissioned upon the expiration of their operating licenses, i.e., in 2034 and 2038.

Spent fuel storage operations continue at the site until the transfer of the fuel to an appropriate disposal facility is complete, assumed to be in the year 2074.

The primary objectives of a Hatch decommissioning project would be to remove the facility from service, reduce residual radioactivity to levels permitting unrestricted release, restore the site, perform this work safely, and complete the work in a cost-effective manner. Consideration must be given to the cost of the decommissioning project, minimization of occupational radiation exposure, availability of low-level waste disposal facilities, availability of a high-level waste (spent fuel) repository or Department of Energy (DOE) interim storage facility, regulatory requirements, and

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<sup>1</sup> "Decommissioning Cost Study for the Hatch Nuclear Plant," Document S18-1791-001, Rev. 1, TLG Services, Inc., November 2021

public concerns. In addition, 10 CFR 50.82(a)(3) requires decommissioning to be completed within 60 years of permanent cessation of operations.

Under the DECON methodology, the facility is transitioned to a decommissioning project soon after final shutdown. Spent fuel is removed from the reactor and placed within the spent fuel pools, awaiting eventual transfer to the on-site dry fuel storage facility, or direct transfer to the U.S. Department of Energy. Plant systems are drained and de-energized to conform to the site project schedule. Contaminated materials are removed, packaged, shipped and disposed of offsite. Clean materials are surveyed for radioactive contamination and released as scrap metal or construction debris. Following the license termination survey and termination of the NRC licenses on the power plant (the dry fuel storage ISFSI will remain under the NRC license until all fuel is shipped to the DOE and the ISFSI decommissioned), all site structures are removed to three foot below grade elevation, and the subgrade voids backfilled with concrete rubble and structural fill. The site is finally graded to conform to the surrounding area, and native vegetation placed for erosion control.

An Independent Spent Fuel Storage Installation (ISFSI) has been constructed adjacent to the power block. The spent fuel will be relocated from the spent fuel pools in the fuel handling buildings to the ISFSI to await transfer to a DOE facility. Assuming the first fuel shipment date is in 2035, the decommissioning estimate assumes that the removal of spent fuel from the site could be completed by the end of year 2074.

The currently projected total costs (in thousands of 2021 dollars) to decommission the nuclear station, for the DECON scenario analyzed, are as follows:

Unit 1	\$1,005,947
Unit 2	\$1,026,400
Station Total	\$2,032,347

The costs include the monies anticipated to be spent for operating license termination (radiological remediation), interim spent fuel storage and site restoration activities. The costs are based on several key assumptions in areas of regulation, component characterization, high-level radioactive waste management, low-level radioactive waste disposal, performance uncertainties (contingency) and site remediation and restoration requirements.

The following table reflects the percentage of each cost component relative to the total costs to decommission Hatch:

<b>Escalation Category</b>	<b>Unit 1</b>		<b>Unit 2</b>	
	<b>Costs (Thousands of 2021\$)</b>	<b>% of Total Cost</b>	<b>Costs (Thousands of 2021\$)</b>	<b>% of Total Cost</b>
Labor	600,670	59.7	597,379	58.2
Equipment & Material	135,987	13.5	150,945	14.7
Energy	4,028	0.4	4,053	0.4
LLRW Disposal	150,531	15.0	172,895	16.8
Other Items	114,732	11.4	101,128	9.9

The site-specific cost estimate was prepared by TLG Services, Inc. (TLG) in year-end 2021 (i.e., nominal) dollars. Because the actual decommissioning will not occur for many years and may continue for decades, the nominal-dollar estimates must be escalated into the year of expenditure if a Net Present Value for each unit of the decommissioning estimate is required. That is, we must determine the dollar value of each year's expenditure at the time it is expected to be incurred. Those escalated dollars then provide the basis for financial planning and asset management. Because many of the decommissioning activities occur long in the future, small fluctuations in escalation on the cost side, and investment earnings on the trust balance side, have a substantial impact on the resources required over the long periods of time associated with most decommissioning scenarios.

### **Methodology**

In this analysis, TLG reviewed each of the five escalation cost components separately to determine the rate by which each component was expected to escalate annually. The following narrative describes the methodology used to escalate the schedules of decommissioning expenditures.

Having developed estimates of the cost to decommission Hatch using the DECON scenario, the mathematics to transform those costs to the year in which they will actually be incurred is relatively straightforward. The key to the analysis is selecting the appropriate forecasting indices for each of the major cost components. For that, TLG has relied upon NRC publications and the industry-wide recognized expertise of IHS-Markit.

In support of calculating the minimum funding assurance, the NRC divides its reference costs for decommissioning into categories of labor, energy, and Low Level

Radioactive Waste (LLRW) disposal. To provide guidance to operators and regulators and promote uniformity, the NRC periodically revises NUREG-1307, "Report on Waste Burial Charges." NUREG-1307 is helpful in that it identifies the appropriate indices that should be used to escalate the labor and energy cost components and provides historical changes in low level radioactive waste disposal costs.

TLG also allocates its costs for decommissioning into categories, with the NRC's labor category further subdivided into "labor," "equipment and materials," and an "other" category for miscellaneous fees, taxes and other unique or one-time expenditures.

Consistent with standards defined in the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC), Topic 410-20,<sup>[2]</sup> TLG develops future cash flows by escalating four of the cost categories (labor, equipment and materials, energy and other) with indices provided by IHS-Markit of Lexington, MA. IHS-Markit is a privately held company which acquired Global Insight in 2008. The combined company includes well-known businesses such as Cambridge Energy Research Associates (CERA), Jane's Information Group, and IHS Herold; it also includes the former companies known as DRI (Data Resources, Inc.) and WEFA (Wharton Econometric Forecasting Associates).

IHS-Markit has no direct index for escalation of low level radioactive waste disposal costs. The inflation index used for radioactive waste burial costs is the IHS-Markit Consumer Price Index, All Items, All Urban with an additional 1% per year to account for the historical difference between low-level waste disposal rates reported in NRC NUREG-1307 documents and inflation rates reported by the Bureau of Labor Statistics (CPI).

Since the timeframe of decommissioning typically exceeds that of the published indices, for years beyond the published index, the inflation factor is determined using a "moving-average" method, averaging the most recent 25 years of indices to determine the future year index. This is a well-accepted methodology for determining longer-term projections and one that has been reviewed and deemed appropriate by IHS-Markit as well.

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<sup>2</sup> Accounting Standards Codification, Topic 410-20, Financial Accounting Standards Board, July 2009.

ASC 410-20-55-14 states: "It is expected that uncertainties about the amount and timing of future cash flows can be accommodated by using the expected present value technique and therefore will not prevent the determination of a reasonable estimate of fair value."

**Approach**

The base year (2021) costs for the DECON scenario were extracted from Reference 1, Tables 3.1 and 3.2. For both units, plus the station total, this requires the escalation of three separate cash flows (Tables 1 through 3).

The cost elements in Tables 1 through 3 are assigned to one of three subcategories: “License Termination,” “Spent Fuel Management,” and “Site Restoration.” The subcategory “License Termination” is used to accumulate costs that are consistent with “decommissioning” as defined by the NRC in its financial assurance regulations (i.e., 10 CFR §50.75). The cost reported for this subcategory is generally sufficient to terminate the plant’s operating license, recognizing that there may be some additional cost impact from spent fuel management.

The “Spent Fuel Management” subcategory contains costs associated with the containerization and transfer of spent fuel from the pool to an appropriate disposal facility or to the ISFSI for interim storage, and the transfer of the multipurpose canisters from the ISFSI. Costs are also included for the operations of the pool and management of the ISFSI until such time that the transfer of all fuel from this facility to an off-site location is complete.

“Site Restoration” is used to capture costs associated with the dismantling and demolition of buildings and facilities demonstrated to be free from contamination. This includes structures never exposed to radioactive materials, as well as those facilities that have been decontaminated to appropriate levels. Structures are removed to a depth of three feet and backfilled to conform to local grade.

Decommissioning costs were divided into the five escalation categories, for which future rate of inflation factors were established. The five categories are:

<i>Labor</i>	Wages, fringes and benefits for craft, salaries and benefits for professional workers, clerical, administrative, service, contract workers, as well as for certain trades
<i>Equipment &amp; Material</i>	Heavy equipment, specialty tooling, spent fuel canisters and shield overpacks, waste packaging, small tools, construction materials, consumables, rental equipment and temporary construction facilities
<i>Energy</i>	Electrical power purchases (as a large industrial customer) to support site operations



<i>LLRW Disposal</i>	Costs for the processing of low-level radioactive waste as well as for the controlled disposal of material that cannot be recovered (released for unrestricted use)
<i>Other</i>	Site operating costs (not already accounted for), for example, taxes, fees, and costs for specialized services and project support activities (may include unspecified contributions from labor, equipment and materials, and transportation), and payments for one-time disposal services (e.g., GTCC)

### **Escalation**

The following escalation indices were established for each of the five cost categories. The escalation indices for Labor, Equipment and Material, Energy and Other were provided by IHS-Markit Company via their DataInsight-Web online service. The indices used show the last update as 3 September 2021. IHS-Markit does not provide historical or projections for disposal costs of radioactive waste. As such, a TLG-developed LLRW Disposal/Recycling index was used in this escalation analysis. This index is a combination of historical information through 2021 from NRC publications for disposal site rates and projections using the Consumer Price Index, All Items, All Urban information provided by IHS-Markit as discussed previously.

Forecast data for labor, equipment/ materials, energy, and general inflation were available through 2046. In order to extrapolate beyond the available IHS-Markit data, TLG calculated a 25-year moving average inflation factor to extend the IHS-Markit indices through 2075, the latest end point of the Hatch decommissioning cash flows.

### **Index Selection**

The following table identifies the IHS-Markit forecast data sets used for the four cost categories (exclusive of LLRW disposal). Consistent with the NRC's guidance, TLG escalates the labor component of its decommissioning cost estimates using an Employment Cost Index (ECI) and the energy cost component with a Producer Price Index (PPI).

Use of the Consumer Price Index (CPI) for general services, site operating costs and one-time expenditures is consistent with the intent of the index (the measure of the average change in prices over time of goods and services).

<b>IHS-Markit Forecast Database</b>	<b>TLG Cost Category</b>
ECI Total Compensation (ECIPCTNS)	Labor Expenditures Inflation
Producer Price Index, Machinery & Equipment (WPIP11)	Equipment/Material Expenditures Inflation
Producer Price Index, Fuels and Related Products and Power (WPIP05)	Energy Expenditures Inflation
Consumer Price Index, Services (CUSASNS)	Other Items Expenditures Inflation
TLG-Developed LLRW Disposal Price Index [Historical data based upon NRC published data; forecast data based upon the Consumer Price Index, All Items, All Urban (CPI) plus 1% additional to reflect above-inflation increases observed relative to the NRC data]	LLRW Disposal / Recycling

### *Labor*

The decommissioning process is labor intensive, with labor representing more than half of the total cost. The estimates for Hatch include the cost of the craft labor performing field activities, the field supervision and support services, project management, administration, security, and costs for specialty contractors. The Employment Cost Index (ECI) is a quarterly measure of changes in labor costs. It is one of the principal economic indicators used by the Federal Reserve Bank. The index shows changes in wages and salaries and benefit costs, as well as changes in total compensation. The ECIPCTNS index, provided by IHS-Markit, is a yearly estimate of change in the cost of labor, defined as compensation per employee hour worked. The self-employed, owners-managers, and unpaid family workers are excluded from coverage. The ECI is designed as a fixed-weight index at the occupational level, thus eliminating the effects of employment shifts among occupations. Both components of compensation, wages/salaries, and benefits, are covered.

In addition to TLG's judgment, IHS-Markit has confirmed that the selected index is appropriate to use in determining the rate at which the labor costs will escalate over time.

*Equipment and Material*

Equipment and material costs in the decommissioning estimates include small tools and consumables as well as the heavy construction equipment involved in the dismantling, demolition and movement of materials around the site. The Producer Price Indexes (PPI) measures monthly average changes in selling prices received by domestic producers for their output. Most of the information used in the PPI is obtained by sampling of industries in the mining and manufacturing sectors of the economy. The indexes reflect price trends for a constant set of goods and services representing the total output of an industry.

In addition to TLG's judgment, IHS-Markit has confirmed that the selected index is appropriate to use in determining the rate at which the equipment and material costs will escalate over time.

*Energy*

Energy costs in the decommissioning estimate include only direct energy purchases, primarily electric power and fuel oil for heating. TLG uses a broad based power escalation index, the Producers Price Index for Fuels and Related Products and Power (WPIP05). While the WPIP05 index has some volatility (since it tracks in part the price of oil), the cost of energy in the decommissioning estimates is a small percentage and therefore has little effect on the overall escalation rate for decommissioning cost.

In addition to TLG's judgment, IHS-Markit has confirmed that the selected index is appropriate to use in determining the rate at which energy costs will escalate over time.

*Low-Level Radioactive Waste Disposal*

The inflation index used for radioactive waste burial costs is the IHS-Markit Consumer Price Index, All Items, All Urban with an additional 1% per year to account for differences (past 20 years) between low-level waste disposal rates reported in NRC NUREG-1307 documents and general inflation rate (CPI) reported by the Bureau of Labor Statistics.

*Other*

"Other" costs in the decommissioning estimates include such items as licensing fees, taxes, special services (for example, a fee for the geologic disposal of Greater-than-Class C waste), as well as labor-intensive activities such as radiological surveys that include costs for off-site analytical services. Because the "Other" costs contain this variety of cost components, TLG uses the Consumer Price Index, Services to project future expenditures. The CUSASNS index measures changes in the prices of services. It is therefore more representative of the cost elements included in the

decommissioning estimates. Accordingly, the use of the CUSASNS index for “Other” costs reflects more accurately the cost components with the “Other” category than the use of the “Labor” escalation factor as a proxy.

In addition to TLG’s judgment, IHS-Markit has confirmed that the selected index is appropriate to use in determining the rate at which the “other” costs will escalate over time.

## **Results**

With the proper escalation indices identified, TLG escalated the cost per year for the five escalation categories using the IHS-Markit index corresponding to that year and escalation category. Tables 1 through 3 provide escalated schedules of annual expenditures for the DECON scenario for each Hatch unit individually, plus a combined total of both units. The schedules detail each of the five cost categories through to the end of the decommissioning period (*i.e.*, 2075) for Total Costs, as well as the three cost categories of License Termination, Spent Fuel Management, and Site Restoration.

No discounting of the escalated dollars was performed.

Using the escalated cash flows for each unit, TLG determined the single-value yearly escalation rate which yielded the same sum of escalated dollars for each of the three tables. The rate, referred to as a composite average annual escalation rate, is tabulated for the three decommissioning cost cash flows as follows:

Unit 1	2.684%
Unit 2	2.676%
Station Total	2.680%

In a similar fashion, the composite average annual escalation rates for each of the five escalation categories can be developed. The following table details the composite annual average rates for the DECON decommissioning scenario.

	<b>Composite Average Annual Rate (%)</b>		
<b>Escalation Category</b>	<b>Unit 1</b>	<b>Unit 2</b>	<b>Station</b>
Labor	2.791	2.782	2.786
Equipment/ & Material	1.189	1.203	1.197
Energy	1.842	1.843	1.845
LLRW Disposal	3.275	3.280	3.278
Other Items	2.833	2.822	2.828

Similarly, the composite average annual escalation rates for the three cost categories identified in the decommissioning cost estimate can also be developed. The values for the DECON decommissioning scenario are provided in the following table.

	<b>Composite Average Annual Rate (%)</b>		
<b>Escalation Category</b>	<b>Unit 1</b>	<b>Unit 2</b>	<b>Station</b>
License Termination	2.776	2.771	2.773
Spent Fuel Management	2.618	2.592	2.605
Site Restoration	2.353	2.281	2.312

Hatch Nuclear Plant  
2021 Escalation Analysis

ESCALATION ANALYSIS OF CASHFLOWS

Source Documentation:	Decommissioning Cost Analysis for the Hatch Nuclear Plant
Source Document Number:	S18-1791-001 Rev. 1
	Tables 3.1a, 3.1b, 3.1c and 3.1d
Unit Identification	Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 1
Estimate basis year:	2021
Decommissioning Scenario:	DECON
Operating Lifetime	Decommissioning After 60 Year Operation

Single Value Escalation % by Major Cost Categories			
Single value escalations: Cost Category	Single-value Yearly Escal.	Total Costs	
		2021 \$	Escalated \$
Total Costs	2.684%	1,005,947	1,797,403
License Termination Costs	2.776%	754,579	1,230,544
Spent Fuel Management Costs	2.618%	200,092	469,031
Site Restoration Costs	2.353%	51,276	97,833
Labor Costs	2.791%	600,670	1,108,925
Equipment & Material Costs	1.189%	135,987	172,790
Energy Costs	1.842%	4,028	5,420
LLRW Disposal Costs	3.275%	150,531	268,217
Other Costs	2.833%	114,732	242,051

Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 1 DECON Cash Flows by Category - Decommissioning After 60 Year Operation Total Costs - Thousands of Year of Expenditure Dollars							
Year	Labor	Equipment & Materials	Energy	LLRW Disposal	Other	Yearly Totals	
2034	45,401	3,051	350	24	18,193	67,019	
2035	117,073	11,401	1,237	1,408	30,415	161,534	
2036	120,438	32,490	950	90,782	15,453	260,113	
2037	116,699	31,203	832	85,028	15,244	249,006	
2038	97,036	19,707	701	20,269	10,351	148,064	
2039	99,636	19,966	713	20,942	10,630	151,887	
2040	48,659	7,517	251	28,799	20,793	106,019	
2041	17,002	330	0	12	1,734	19,078	
2042	17,458	334	0	12	1,781	19,585	
2043	17,926	339	0	13	1,828	20,106	
2044	41,683	1,620	103	36	2,189	45,631	
2045	39,581	8,849	132	16	3,764	52,342	
2046	31,112	11,012	107	0	4,289	46,520	
2047	14,610	4,001	34	0	2,210	20,855	
2048	6,857	463	0	0	1,261	8,581	
2049	7,075	563	0	0	1,293	8,931	
2050	7,171	380	0	0	1,330	8,881	
2051	7,520	673	0	0	1,367	9,560	
2052	7,539	292	0	0	1,409	9,240	
2053	7,779	394	0	0	1,444	9,617	
2054	8,156	699	0	0	1,484	10,339	
2055	8,152	303	0	0	1,525	9,980	
2056	8,453	410	0	0	1,571	10,434	
2057	8,837	726	0	0	1,610	11,173	
2058	8,830	315	0	0	1,654	10,799	
2059	9,320	745	0	0	1,699	11,764	
2060	9,402	431	0	0	1,750	11,583	
2061	9,830	764	0	0	1,793	12,387	
2062	9,893	442	0	0	1,843	12,178	
2063	10,091	336	0	0	1,893	12,320	
2064	10,679	793	0	0	1,950	13,422	
2065	10,940	803	0	0	1,998	13,741	
2066	11,009	465	0	0	2,053	13,527	
2067	11,542	824	0	0	2,110	14,476	
2068	11,568	357	0	0	2,174	14,099	
2069	11,933	483	0	0	2,228	14,644	
2070	12,595	977	0	0	2,289	15,861	
2071	12,590	495	0	0	2,352	15,437	
2072	14,124	2,129	0	0	2,424	18,677	
2073	12,919	0	0	0	2,484	15,403	
2074	14,679	3,043	0	0	33,398	51,120	
2075	15,128	2,665	10	20,876	22,791	61,470	
Totals	1,108,925	172,790	5,420	268,217	242,051	1,797,403	

Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 1 DECON Cash Flows by Category - Decommissioning After 60 Year Operation License Termination Costs - Thousands of Year of Expenditure Dollars							
Year	Labor	Equipment & Materials	Energy	LLRW Disposal	Other	Yearly Totals	
2034	44,952	2,734	350	24	11,076	59,136	
2035	115,514	10,124	1,237	1,408	18,923	147,206	
2036	117,128	26,929	950	90,782	13,477	249,266	
2037	113,200	24,830	832	85,028	13,221	237,111	
2038	93,480	11,932	701	20,269	8,274	134,656	
2039	95,984	12,088	713	20,942	8,496	138,223	
2040	41,631	6,715	251	28,799	20,350	97,746	
2041	9,180	265	0	12	1,469	10,926	
2042	9,426	269	0	12	1,509	11,216	
2043	9,679	272	0	13	1,549	11,513	
2044	34,333	1,323	103	36	1,901	37,696	
2045	15,544	613	54	16	916	17,143	
2046	219	0	0	0	467	686	
2047	70	0	0	0	149	219	
2048	0	0	0	0	0	0	
2049	0	0	0	0	0	0	
2050	0	0	0	0	0	0	
2051	0	0	0	0	0	0	
2052	0	0	0	0	0	0	
2053	0	0	0	0	0	0	
2054	0	0	0	0	0	0	
2055	0	0	0	0	0	0	
2056	0	0	0	0	0	0	
2057	0	0	0	0	0	0	
2058	0	0	0	0	0	0	
2059	0	0	0	0	0	0	
2060	0	0	0	0	0	0	
2061	0	0	0	0	0	0	
2062	0	0	0	0	0	0	
2063	0	0	0	0	0	0	
2064	0	0	0	0	0	0	
2065	0	0	0	0	0	0	
2066	0	0	0	0	0	0	
2067	0	0	0	0	0	0	
2068	0	0	0	0	0	0	
2069	0	0	0	0	0	0	
2070	0	0	0	0	0	0	
2071	0	0	0	0	0	0	
2072	0	0	0	0	0	0	
2073	0	0	0	0	0	0	
2074	509	1,117	0	0	30,895	32,521	
2075	3,329	699	7	20,876	20,369	45,280	
Totals	704,178	99,910	5,198	268,217	153,041	1,230,544	

Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 1 DECON Cash Flows by Category - Decommissioning After 60 Year Operation Spent Fuel Management Costs - Thousands of Year of Expenditure Dollars							
Year	Labor	Equipment & Materials	Energy	LLRW Disposal	Other	Yearly Totals	
2034	132	317	0	0	7,117	7,566	
2035	538	1,276	0	0	11,493	13,307	
2036	2,355	5,509	0	0	1,976	9,840	
2037	2,741	6,326	0	0	2,023	11,090	
2038	3,413	7,771	0	0	2,078	13,262	
2039	3,504	7,873	0	0	2,134	13,511	
2040	6,834	793	0	0	444	8,071	
2041	7,822	65	0	0	265	8,152	
2042	8,032	66	0	0	272	8,370	
2043	8,247	67	0	0	279	8,593	
2044	7,349	297	0	0	287	7,933	
2045	6,302	443	79	0	600	7,424	
2046	6,456	417	107	0	723	7,703	
2047	6,765	681	34	0	1,075	8,555	
2048	6,857	463	0	0	1,261	8,581	
2049	7,075	563	0	0	1,293	8,931	
2050	7,171	380	0	0	1,330	8,881	
2051	7,520	673	0	0	1,367	9,560	
2052	7,539	292	0	0	1,409	9,240	
2053	7,779	394	0	0	1,444	9,617	
2054	8,156	699	0	0	1,484	10,339	
2055	8,152	303	0	0	1,525	9,980	
2056	8,453	410	0	0	1,571	10,434	
2057	8,837	726	0	0	1,610	11,173	
2058	8,830	315	0	0	1,654	10,799	
2059	9,320	745	0	0	1,699	11,764	
2060	9,402	431	0	0	1,750	11,583	
2061	9,830	764	0	0	1,793	12,387	
2062	9,893	442	0	0	1,843	12,178	
2063	10,091	336	0	0	1,893	12,320	
2064	10,679	793	0	0	1,950	13,422	
2065	10,940	803	0	0	1,998	13,741	
2066	11,009	465	0	0	2,053	13,527	
2067	11,542	824	0	0	2,110	14,476	
2068	11,568	357	0	0	2,174	14,099	
2069	11,933	483	0	0	2,228	14,644	
2070	12,595	977	0	0	2,289	15,861	
2071	12,590	495	0	0	2,352	15,437	
2072	14,124	2,129	0	0	2,424	18,677	
2073	12,919	0	0	0	2,484	15,403	
2074	14,170	1,927	0	0	2,503	18,600	
2075	0	0	0	0	0	0	
Totals	339,464	49,090	220	0	80,257	469,031	

Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 1 DECON Cash Flows by Category - Decommissioning After 60 Year Operation Site Restoration Costs - Year of Expenditure Dollars						
Year	Labor	Equipment & Materials	Energy	LLRW Disposal	Other	Yearly Totals
2034	317	0	0	0	0	317
2035	1,021	0	0	0	0	1,021
2036	956	52	0	0	0	1,008
2037	757	47	0	0	0	804
2038	144	5	0	0	0	149
2039	147	5	0	0	0	152
2040	194	9	0	0	0	203
2041	0	0	0	0	0	0
2042	0	0	0	0	0	0
2043	0	0	0	0	0	0
2044	0	0	0	0	0	0
2045	17,735	7,793	0	0	2,249	27,777
2046	24,436	10,595	0	0	3,099	38,130
2047	7,775	3,320	0	0	987	12,082
2048	0	0	0	0	0	0
2049	0	0	0	0	0	0
2050	0	0	0	0	0	0
2051	0	0	0	0	0	0
2052	0	0	0	0	0	0
2053	0	0	0	0	0	0
2054	0	0	0	0	0	0
2055	0	0	0	0	0	0
2056	0	0	0	0	0	0
2057	0	0	0	0	0	0
2058	0	0	0	0	0	0
2059	0	0	0	0	0	0
2060	0	0	0	0	0	0
2061	0	0	0	0	0	0
2062	0	0	0	0	0	0
2063	0	0	0	0	0	0
2064	0	0	0	0	0	0
2065	0	0	0	0	0	0
2066	0	0	0	0	0	0
2067	0	0	0	0	0	0
2068	0	0	0	0	0	0
2069	0	0	0	0	0	0
2070	0	0	0	0	0	0
2071	0	0	0	0	0	0
2072	0	0	0	0	0	0
2073	0	0	0	0	0	0
2074	0	0	0	0	0	0
2075	11,799	1,966	3	0	2,422	16,190
Totals	65,281	23,792	3	0	8,757	97,833

Hatch Nuclear Plant  
2021 Escalation Analysis

ESCALATION ANALYSIS OF CASHFLOWS

Source Documentation:	Decommissioning Cost Analysis for the Hatch Nuclear Plant
Souce Document Number:	S18-1791-001 Rev. 1
	Tables 3.2a, 3.2b, 3.2c and 3.2d
Unit Identification	Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 2
Estimate basis year:	2021
Decommissioning Scenario:	DECON
Operating Lifetime	Decommissioning After 60 Year Operation

Single Value Escalation % by Major Cost Categories			
Single value escalations:			
Cost Category	Single-value Yearly Escal.	Total Costs 2021 \$      Escalated \$	
Total Costs	2.676%	1,026,400	1,960,213
License Termination Costs	2.771%	784,727	1,406,149
Spent Fuel Management Costs	2.592%	171,439	424,949
Site Restoration Costs	2.281%	70,234	129,121
Labor Costs	2.782%	597,379	1,174,986
Equipment & Material Costs	1.203%	160,945	199,008
Energy Costs	1.843%	4,053	5,825
LLRW Disposal Costs	3.280%	172,895	345,824
Other Costs	2.822%	101,128	234,571

Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 2 DECON Cash Flows by Category - Decommissioning After 60 Year Operation Total Costs - Thousands of Year of Expenditure Dollars							
Year	Labor	Equipment & Materials	Energy	LLRW Disposal	Other		Yearly Totals
2038	60,506	4,730	517	37	13,312		79,102
2039	119,634	15,323	1,428	7,803	15,850		160,038
2040	137,245	36,803	922	122,400	18,336		315,706
2041	135,040	31,517	865	90,978	16,128		274,528
2042	128,570	21,671	751	29,227	11,702		191,921
2043	130,229	21,761	746	32,784	13,873		199,393
2044	84,447	10,814	313	41,703	25,699		162,976
2045	43,414	13,020	132	16	5,420		62,002
2046	35,336	16,636	107	0	6,737		58,816
2047	15,954	5,763	34	0	2,989		24,740
2048	6,857	463	0	0	1,261		8,581
2049	7,075	563	0	0	1,293		8,931
2050	7,171	380	0	0	1,330		8,881
2051	7,520	673	0	0	1,367		9,560
2052	7,539	292	0	0	1,409		9,240
2053	7,779	394	0	0	1,444		9,617
2054	8,156	699	0	0	1,484		10,339
2055	8,152	303	0	0	1,525		9,980
2056	8,453	410	0	0	1,571		10,434
2057	8,837	726	0	0	1,610		11,173
2058	8,830	315	0	0	1,654		10,799
2059	9,320	745	0	0	1,699		11,764
2060	9,402	431	0	0	1,750		11,583
2061	9,830	764	0	0	1,793		12,387
2062	9,893	442	0	0	1,843		12,178
2063	10,091	336	0	0	1,893		12,320
2064	10,679	793	0	0	1,950		13,422
2065	10,940	803	0	0	1,998		13,741
2066	11,009	465	0	0	2,053		13,527
2067	11,542	824	0	0	2,110		14,476
2068	11,568	357	0	0	2,174		14,099
2069	11,933	483	0	0	2,228		14,644
2070	12,595	977	0	0	2,289		15,861
2071	12,590	495	0	0	2,352		15,437
2072	14,124	2,129	0	0	2,424		18,677
2073	12,919	0	0	0	2,484		15,403
2074	14,679	3,043	0	0	34,745		52,467
2075	15,128	2,665	10	20,876	22,791		61,470
Totals	1,174,986	199,008	5,825	345,824	234,570		1,960,213

Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 2 DECON Cash Flows by Category - Decommissioning After 60 Year Operation License Termination Costs - Thousands of Year of Expenditure Dollars							
Year	Labor	Equipment & Materials	Energy	LLRW Disposal	Other		Yearly Totals
2038	59,361	2,582	517	37	11,853		74,350
2039	117,411	11,555	1,428	7,803	13,460		151,657
2040	133,316	31,074	922	122,400	16,139		303,851
2041	131,256	25,348	865	90,978	13,878		262,325
2042	125,123	14,734	751	29,227	9,391		179,226
2043	126,296	14,820	746	32,784	11,609		186,255
2044	75,621	7,819	313	41,703	25,412		150,868
2045	16,219	648	54	16	795		17,732
2046	92	0	0	0	467		559
2047	29	0	0	0	149		178
2048	0	0	0	0	0		0
2049	0	0	0	0	0		0
2050	0	0	0	0	0		0
2051	0	0	0	0	0		0
2052	0	0	0	0	0		0
2053	0	0	0	0	0		0
2054	0	0	0	0	0		0
2055	0	0	0	0	0		0
2056	0	0	0	0	0		0
2057	0	0	0	0	0		0
2058	0	0	0	0	0		0
2059	0	0	0	0	0		0
2060	0	0	0	0	0		0
2061	0	0	0	0	0		0
2062	0	0	0	0	0		0
2063	0	0	0	0	0		0
2064	0	0	0	0	0		0
2065	0	0	0	0	0		0
2066	0	0	0	0	0		0
2067	0	0	0	0	0		0
2068	0	0	0	0	0		0
2069	0	0	0	0	0		0
2070	0	0	0	0	0		0
2071	0	0	0	0	0		0
2072	0	0	0	0	0		0
2073	0	0	0	0	0		0
2074	509	1,117	0	0	32,242		33,868
2075	3,329	699	7	20,876	20,369		45,280
Totals	788,562	110,396	5,603	345,824	155,764		1,406,149

Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 2 DECON Cash Flows by Category - Decommissioning After 60 Year Operation Spent Fuel Management Costs - Thousands of Year of Expenditure Dollars							
Year	Labor	Equipment & Materials	Energy	LLRW Disposal	Other		Yearly Totals
2038	944	2,149	0	0	1,459		4,552
2039	1,676	3,765	0	0	2,390		7,831
2040	2,548	5,649	0	0	2,197		10,394
2041	2,795	6,114	0	0	2,250		11,159
2042	3,211	6,930	0	0	2,311		12,452
2043	3,381	6,725	0	0	2,264		12,370
2044	5,623	945	0	0	287		6,855
2045	6,302	443	79	0	600		7,424
2046	6,456	417	107	0	723		7,703
2047	6,765	681	34	0	1,075		8,555
2048	6,857	463	0	0	1,261		8,581
2049	7,075	563	0	0	1,293		8,931
2050	7,171	380	0	0	1,330		8,881
2051	7,520	673	0	0	1,367		9,560
2052	7,539	292	0	0	1,409		9,240
2053	7,779	394	0	0	1,444		9,617
2054	8,156	699	0	0	1,484		10,339
2055	8,152	303	0	0	1,525		9,980
2056	8,453	410	0	0	1,571		10,434
2057	8,837	726	0	0	1,610		11,173
2058	8,830	315	0	0	1,654		10,799
2059	9,320	745	0	0	1,699		11,764
2060	9,402	431	0	0	1,750		11,583
2061	9,830	764	0	0	1,793		12,387
2062	9,893	442	0	0	1,843		12,178
2063	10,091	336	0	0	1,893		12,320
2064	10,679	793	0	0	1,950		13,422
2065	10,940	803	0	0	1,998		13,741
2066	11,009	465	0	0	2,053		13,527
2067	11,542	824	0	0	2,110		14,476
2068	11,568	357	0	0	2,174		14,099
2069	11,933	483	0	0	2,228		14,644
2070	12,595	977	0	0	2,289		15,861
2071	12,590	495	0	0	2,352		15,437
2072	14,124	2,129	0	0	2,424		18,677
2073	12,919	0	0	0	2,484		15,403
2074	14,170	1,927	0	0	2,503		18,600
2075	0	0	0	0	0		0
Totals	308,675	51,007	220	0	65,047		424,949

Financial Escalation Analysis-2021 Update-Hatch Nuclear Plant - Unit 2 DECON Cash Flows by Category - Decommissioning After 60 Year Operation Site Restoration Costs - Year of Expenditure Dollars							
Year	Labor	Equipment & Materials	Energy	LLRW Disposal	Other		Yearly Totals
2038	201	0	0	0	0		201
2039	548	4	0	0	0		552
2040	1,381	80	0	0	0		1,461
2041	989	55	0	0	0		1,044
2042	236	8	0	0	0		244
2043	552	216	0	0	0		768
2044	3,203	2,049	0	0	0		5,252
2045	20,893	11,929	0	0	4,025		36,847
2046	28,788	16,219	0	0	5,547		50,554
2047	9,160	5,082	0	0	1,766		16,008
2048	0	0	0	0	0		0
2049	0	0	0	0	0		0
2050	0	0	0	0	0		0
2051	0	0	0	0	0		0
2052	0	0	0	0	0		0
2053	0	0	0	0	0		0
2054	0	0	0	0	0		0
2055	0	0	0	0	0		0
2056	0	0	0	0	0		0
2057	0	0	0	0	0		0
2058	0	0	0	0	0		0
2059	0	0	0	0	0		0
2060	0	0	0	0	0		0
2061	0	0	0	0	0		0
2062	0	0	0	0	0		0
2063	0	0	0	0	0		0
2064	0	0	0	0	0		0
2065	0	0	0	0	0		0
2066	0	0	0	0	0		0
2067	0	0	0	0	0		0
2068	0	0	0	0	0		0
2069	0	0	0	0	0		0
2070	0	0	0	0	0		0
2071	0	0	0	0	0		0
2072	0	0	0	0	0		0
2073	0	0	0	0	0		0
2074	0	0	0	0	0		0
2075	11,799	1,966	3	0	2,422		16,190
Totals	77,750	37,608	3	0	13,760		129,121

Table 2  
DECON Unit 2  
Decommissioning After 60 Year Operation

