

March 24, 2017
L-17-028

10 CFR 50.75

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT:

Beaver Valley Power Station, Unit Nos. 1 and 2

Docket No. 50-334, License No. DPR-66

Docket No. 50-412, License No. NPF-73

Davis-Besse Nuclear Power Station

Docket No. 50-346, License No. NPF-3

Perry Nuclear Power Plant

Docket No. 50-440, License No. NPF-58

Submittal of the Decommissioning Funding Status Reports for Beaver Valley Power Station, Unit Nos. 1 and 2, Davis-Besse Nuclear Power Station, and Perry Nuclear Power Plant

In accordance with 10 CFR 50.75, "Reporting and recordkeeping for decommissioning planning," paragraph (f)(1), FirstEnergy Nuclear Operating Company (FENOC) is submitting the decommissioning funding status reports for Beaver Valley Power Station, Unit Nos. 1 (BVPS-1) and 2 (BVPS-2); Davis-Besse Nuclear Power Station (DBNPS); and Perry Nuclear Power Plant (PNPP) for the year ending December 31, 2016. The reports are contained in Attachments 1 through 4, respectively.

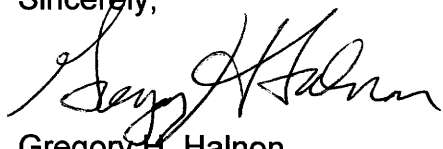
In accordance with 10 CFR 50.75(b) and 10 CFR 50.75(e), the estimated cost of decommissioning can be based on either the Nuclear Regulatory Commission (NRC) formula cost amount calculated in accordance with 10 CFR 50.75(c) or a site-specific decommissioning cost estimate. The BVPS-1 decommissioning cost estimate is based on the site-specific decommissioning cost estimate that was contained in letter dated March 31, 2015 (Accession No. ML15090A447). The site-specific cost estimate is based on a period of safe storage that is described in the estimate.

Beaver Valley Power Station, Unit Nos. 1 and 2
Davis-Besse Nuclear Power Station
Perry Nuclear Power Plant
L-17-028
Page 2

FENOC has not made a final determination on the decommissioning approach for any of the listed nuclear units. FENOC may select a different decommissioning option in the future for any of the listed nuclear units, recognizing that the chosen option must meet NRC requirements for decommissioning funding.

There are no regulatory commitments contained in this letter. If there are any questions, or if additional information is required, please contact Mr. Thomas A. Lentz, Manager – Fleet Licensing, at (330) 315-6810.

Sincerely,



Gregory H. Halnon
Vice President, Regulatory Affairs and Laboratory Services

Attachments:

1. Decommissioning Funding Status Report – Beaver Valley Power Station, Unit No. 1
2. Decommissioning Funding Status Report – Beaver Valley Power Station, Unit No. 2
3. Decommissioning Funding Status Report – Davis-Besse Nuclear Power Station
4. Decommissioning Funding Status Report – Perry Nuclear Power Plant

cc: NRC Region I Administrator
NRC Region III Administrator
NRC Resident Inspector (Beaver Valley)
NRC Resident Inspector (Davis-Besse)
NRC Resident Inspector (Perry)
NRC Project Manager (Beaver Valley)
NRC Project Manager (Davis-Besse)
NRC Project Manager (Perry)
Director BRP/DEP
Site BRP/DEP Representative
Utility Radiological Safety Board

Attachment 1

L-17-028

Decommissioning Funding Status Report – Beaver Valley Power Station, Unit No. 1
Page 1 of 6

This report reflects FirstEnergy Corp.'s consolidated share of ownership interest in Beaver Valley Power Station, Unit No. 1, as of December 31, 2016.

1. The minimum decommissioning fund estimate, pursuant to 10 CFR 50.75(c) (see Schedule 1):

FirstEnergy Nuclear Generation, LLC	\$481,892,880
-------------------------------------	---------------

2. The amount accumulated in external trust funds:

FirstEnergy Nuclear Generation, LLC	After Tax \$286,595,306
-------------------------------------	----------------------------

3. There are no longer any funds to be collected from the ratepayers.
4. The assumptions used regarding rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections:

Consolidated Ownership Interest in Unit	100%
"Real" Rate of Return through Dismantlement	2.00%
Year of License Termination	2036

5. There are no contracts upon which the owners/licensees are relying pursuant to 10 CFR 50.75(e)(1)(v).
6. There has been no modification to the current method of providing decommissioning funding assurance since the last submitted report.
7. There have been no material changes to the applicable trust agreement(s) since the last submitted report.
8. Mathematical rounding was performed during the development of the supporting calculations.

9. Site-Specific Cost Analysis

10 CFR 50.75(e)(1)(i), states, in part, that:

A licensee that has prepaid funds based on a site-specific estimate under § 50.75(b)(1) of this section may take credit for projected earnings on the prepaid decommissioning trust funds, using up to a 2 percent annual real rate of return from the time of future funds' collection through the projected decommissioning period, provided that the site-specific estimate is based on a period of safe storage that is specifically described in the estimate.

In accordance with Regulatory Guide (RG) 1.159, Revision 2, a facility specific analysis may be used to demonstrate the adequacy of decommissioning funds, provided that:

NRC-required cost estimate for decommissioning costs, as defined in 10 CFR 50.2, is equal to or greater than the amount stated in the formulas in 10 CFR 50.75(c)(1) and (2).

Schedule 2 provides a FENOC analysis that provides cash flows based on the site-specific decommissioning cost estimate that includes the use of a safe storage period. The analysis is associated with the costs for the radiological decommissioning of the facility. The cash flow analysis assumes the yearly expenses are incurred at the beginning of year. A two percent yearly rate of return was assumed.

As a result of this analysis, FENOC has determined that there is reasonable assurance that adequate decommissioning funds will be available for the decommissioning process in compliance with NRC decommissioning funding assurance regulations.

10. References:

- A. *Decommissioning Cost Analysis for the Beaver Valley Power Station*, December 2014.

Schedule 1
FIRSTENERGY CORP.
Calculation of Minimum Financial Assurance Amount
December 31, 2016
BEAVER VALLEY POWER STATION, UNIT No. 1

Pennsylvania Regions

Labor (L) = Northeast
Energy (E) = National
Waste Burial (B) = Generic

For PWR Unit

	Adjustment Factor	Ratio	Escalation Factor ¹
L =	2.780	0.65	1.807
E =	1.870	0.13	0.243
B =	12.471	0.22	2.744

PWR Escalation Factor = 4.794

Base Amount for PWR between 1200 MWt and 3400 MWt = (\$75m + 0.0088P)
(P = power level in megawatts thermal = 2900)

(\$75 + 0.0088(2900)) million = \$100,520,000

Escalated Amount for unit ¹ =				
100,520,000	x	4.794	=	<u>\$481,892,880</u>

<u>Owner/Licensee</u>	<u>Ownership</u>	
FirstEnergy Nuclear Generation, LLC	100.00%	<u>\$481,892,880</u>

Note 1: Mathematical rounding was performed during the development of the supporting calculations

Schedule 2
Calculation of a Site-Specific Cash Flow Analysis
December 31, 2016
Beaver Valley Power Station, Unit No. 1

The site-specific cost estimate for the radiological decommissioning of the Beaver Valley Power Station, Unit No. 1 is \$711,726,383. The minimum decommissioning fund estimate, pursuant to 10 CFR 50.75(c) is \$481,892,880. Since RG 1.159 states that the site-specific cost should be equal to or greater than the cost calculated by 10 CFR 50.75(c), the RG is satisfied.

A two percent rate of return was used in the analysis. The analysis also assumes a period of safe storage. These inputs to the analysis are consistent with 10 CFR 50.75(e)(1). The analysis is based on 2016 dollars.

The analysis contains expenses based on the site-specific decommissioning cost estimate. The analysis conservatively assumes that expenses during a year are incurred at the beginning of year. Mathematical rounding was performed during the development of the supporting calculations.

Year	Beginning Balance	Deposits	Earnings	Withdrawal^{1,2}	Ending Balance
2017	286,595,306	-	5,731,906	-	292,327,212
2018	292,327,212	-	5,846,544	-	298,173,756
2019	298,173,756	-	5,963,475	-	304,137,231
2020	304,137,231	-	6,082,745	-	310,219,976
2021	310,219,976	-	6,204,400	-	316,424,376
2022	316,424,376	-	6,328,488	-	322,752,863
2023	322,752,863	-	6,455,057	-	329,207,920
2024	329,207,920	-	6,584,158	-	335,792,079
2025	335,792,079	-	6,715,842	-	342,507,920
2026	342,507,920	-	6,850,158	-	349,358,079
2027	349,358,079	-	6,987,162	-	356,345,240
2028	356,345,240	-	7,126,905	-	363,472,145
2029	363,472,145	-	7,269,443	-	370,741,588
2030	370,741,588	-	7,414,832	-	378,156,420
2031	378,156,420	-	7,563,128	-	385,719,548
2032	385,719,548	-	7,714,391	-	393,433,939
2033	393,433,939	-	7,868,679	-	401,302,618
2034	401,302,618	-	8,026,052	-	409,328,670
2035	409,328,670	-	8,186,573	-	417,515,244
2036	417,515,244	-	7,298,033	(52,613,575)	372,199,702
2037	372,199,702	-	6,363,388	(54,030,281)	324,532,809
2038	324,532,809	-	6,412,986	(3,883,529)	327,062,266
2039	327,062,266	-	6,463,575	(3,883,529)	329,642,312
2040	329,642,312	-	6,514,964	(3,894,093)	332,263,183

Year	Beginning Balance	Deposits	Earnings	Withdrawal^{1,2}	Ending Balance
2041	332,263,183	-	6,567,593	(3,883,529)	334,947,247
2042	334,947,247	-	6,621,274	(3,883,529)	337,684,992
2043	337,684,992	-	6,682,305	(3,569,762)	340,797,535
2044	340,797,535	-	6,744,894	(3,552,858)	343,989,571
2045	343,989,571	-	6,808,924	(3,543,350)	347,255,145
2046	347,255,145	-	6,874,236	(3,543,350)	350,586,030
2047	350,586,030	-	6,940,854	(3,543,350)	353,983,534
2048	353,983,534	-	7,008,614	(3,552,858)	357,439,289
2049	357,439,289	-	7,077,919	(3,543,350)	360,973,857
2050	360,973,857	-	7,148,610	(3,543,350)	364,579,117
2051	364,579,117	-	7,220,715	(3,543,350)	368,256,482
2052	368,256,482	-	7,294,072	(3,552,858)	371,997,696
2053	371,997,696	-	7,369,087	(3,543,350)	375,823,433
2054	375,823,433	-	7,445,602	(3,543,350)	379,725,684
2055	379,725,684	-	7,523,647	(3,543,350)	383,705,981
2056	383,705,981	-	7,603,062	(3,552,858)	387,756,185
2057	387,756,185	-	7,684,257	(3,543,350)	391,897,091
2058	391,897,091	-	7,767,075	(3,543,350)	396,120,816
2059	396,120,816	-	7,851,549	(3,543,350)	400,429,015
2060	400,429,015	-	7,937,523	(3,552,858)	404,813,679
2061	404,813,679	-	8,025,407	(3,543,350)	409,295,736
2062	409,295,736	-	8,115,048	(3,543,350)	413,867,433
2063	413,867,433	-	8,206,482	(3,543,350)	418,530,564
2064	418,530,564	-	8,299,554	(3,552,858)	423,277,260
2065	423,277,260	-	8,394,678	(3,543,350)	428,128,588
2066	428,128,588	-	8,491,705	(3,543,350)	433,076,942
2067	433,076,942	-	8,590,672	(3,543,350)	438,124,264
2068	438,124,264	-	8,691,428	(3,552,858)	443,262,834
2069	443,262,834	-	8,794,390	(3,543,350)	448,513,873
2070	448,513,873	-	8,899,410	(3,543,350)	453,869,933
2071	453,869,933	-	9,006,532	(3,543,350)	459,333,115
2072	459,333,115	-	9,115,605	(3,552,858)	464,895,861
2073	464,895,861	-	9,227,050	(3,543,350)	470,579,561
2074	470,579,561	-	9,340,724	(3,543,350)	476,376,935
2075	476,376,935	-	9,456,672	(3,543,350)	482,290,257
2076	482,290,257	-	9,572,107	(3,684,915)	488,177,448
2077	488,177,448	-	9,690,062	(3,674,351)	494,193,159
2078	494,193,159	-	9,810,376	(3,674,351)	500,329,185
2079	500,329,185	-	9,933,097	(3,674,351)	506,587,931
2080	506,587,931	-	10,058,060	(3,684,915)	512,961,076

Year	Beginning Balance	Deposits	Earnings	Withdrawal^{1,2}	Ending Balance
2081	512,961,076	-	10,185,735	(3,674,351)	519,472,460
2082	519,472,460	-	10,315,962	(3,674,351)	526,114,071
2083	526,114,071	-	10,448,794	(3,674,351)	532,888,515
2084	532,888,515	-	10,584,072	(3,684,915)	539,787,672
2085	539,787,672	-	10,722,266	(3,674,351)	546,835,587
2086	546,835,587	-	10,863,225	(3,674,351)	554,024,461
2087	554,024,461	-	11,007,002	(3,674,351)	561,357,113
2088	561,357,113	-	11,073,407	(7,686,767)	564,743,753
2089	564,743,753	-	10,349,453	(47,271,082)	527,822,124
2090	527,822,124	-	8,314,370	(112,103,616)	424,032,878
2091	424,032,878	-	6,168,859	(115,589,918)	314,611,819
2092	314,611,819	-	4,995,163	(64,853,664)	254,753,319
2093	254,753,319	-	4,127,839	(48,361,344)	210,519,814
2094	210,519,814	-	4,144,727	(3,283,462)	211,381,079
2095	211,381,079	-	3,765,634	(23,099,390)	192,047,323
2096	192,047,323	-	3,798,456	(2,124,531)	193,721,248
2097	193,721,248	-	3,871,953	(123,605)	197,469,595
				(711,726,383)	

Notes:

1. Reflects the SAFSTOR method described in Reference A.
2. Withdrawals assumed to be made at beginning of period

Attachment 2
L-17-028

Decommissioning Funding Status Report – Beaver Valley Power Station, Unit No. 2
Page 1 of 2

This report reflects FirstEnergy Corp.'s consolidated share of ownership interest in Beaver Valley Power Station, Unit No. 2, as of December 31, 2016.

1. The minimum decommissioning fund estimate, pursuant to 10 CFR 50.75(c) (see Schedule 1):

Ohio Edison Company	\$104,377,998
The Toledo Edison Company	87,993,640
FirstEnergy Nuclear Generation, LLC	<u>289,521,242</u>
FirstEnergy Consolidated	<u>\$481,892,880</u>

2. The amount accumulated in external trust funds:

	After-Tax
Ohio Edison Company	\$ 94,508,680
The Toledo Edison Company	92,776,208
FirstEnergy Nuclear Generation, LLC	<u>191,417,814</u>
FirstEnergy Consolidated	<u>\$378,702,702</u>

3. There are no longer any funds to be collected from the ratepayers.
4. The assumptions used regarding rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections:

Consolidated Ownership Interest in Unit	100%
"Real" Rate of Return through Dismantlement	2.00%
Year of License Termination	2047

5. There are no contracts upon which the owners/licensees are relying pursuant to 10 CFR 50.75(e)(1)(v).
6. There has been no modification to the current method of providing decommissioning funding assurance since the last submitted report.
7. There have been no material changes to the applicable trust agreement(s) since the last submitted report.
8. Mathematical rounding was performed during the development of the supporting calculations.

Schedule 1
FIRSTENERGY CORP.
Calculation of Minimum Financial Assurance Amount
December 31, 2016
BEAVER VALLEY POWER STATION, UNIT No. 2

Pennsylvania Regions

Labor (L) = Northeast
Energy (E) = National
Waste Burial (B) = Generic

For PWR Unit

	Adjustment Factor	Ratio	Escalation Factor ¹
L =	2.780	0.65	1.807
E =	1.870	0.13	0.243
B =	12.471	0.22	2.744

PWR Escalation Factor = 4.794

Base Amount for PWR between 1200 MWt and 3400 MWt = (\$75m + 0.0088P)
(P = power level in megawatts thermal = 2900)

(\$75 + 0.0088(2900)) million = \$100,520,000

Escalated Amount for unit ¹ =			
100,520,000	x	4.794	=
			<u>\$481,892,880</u>

<u>Owner/Licensee</u>	<u>Ownership</u>	
Ohio Edison Company ¹	21.66%	\$104,377,998
The Toledo Edison Company ¹	18.26%	\$87,993,640
FirstEnergy Nuclear Generation, LLC ¹	60.08%	\$289,521,242
Total FirstEnergy Consolidated ¹		<u>\$481,892,880</u>

Note 1: Mathematical rounding was performed during the development of the supporting calculations.

Attachment 3
L-17-028

Decommissioning Funding Status Report – Davis-Besse Nuclear Power Station
Page 1 of 2

This report reflects FirstEnergy Corp.'s consolidated share of ownership interest in Davis-Besse Nuclear Power Station as of December 31, 2016.

1. The minimum decommissioning fund estimate, pursuant to 10 CFR 50.75(c) (see Schedule 1):

FirstEnergy Nuclear Generation, LLC	\$467,414,486
-------------------------------------	---------------

2. The amount accumulated in external trust funds:

FirstEnergy Nuclear Generation, LLC	After-Tax \$552,423,474
-------------------------------------	----------------------------

3. There are no longer any funds to be collected from the ratepayers.
4. The assumptions used regarding rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections:

Consolidated Ownership Interest in Unit	100%
"Real" Rate of Return through Dismantlement	2.00%
Year of License Termination	2037

5. There are no contracts upon which the owners/licensees are relying pursuant to 10 CFR 50.75(e)(1)(v).
6. There has been no modification to the current method of providing decommissioning funding assurance since the last submitted report.
7. There have been no material changes to the applicable trust agreement(s) since the last submitted report.
8. Mathematical rounding was performed during the development of the supporting calculations.

Schedule 1
FIRSTENERGY CORP.
Calculation of Minimum Financial Assurance Amount
December 31, 2016
DAVIS-BESSE NUCLEAR POWER STATION

Ohio Regions

Labor (L) = Midwest
Energy (E) = National
Waste Burial (B) = Generic

For PWR Unit

	Adjustment Factor	Ratio	Escalation Factor ¹
L =	2.610	0.65	1.697
E =	1.870	0.13	0.243
B =	12.471	0.22	2.744

PWR Escalation Factor = 4.684

Base Amount for PWR between 1200 MWt and 3400 MWt = (\$75m + 0.0088P)
(P = power level in megawatts thermal = 2817)

(\$75 + 0.0088(2817)) million = \$ 99,789,600

Escalated Amount for unit ¹ =			
99,789,600	x	4.684	=
			<u>\$467,414,486</u>

<u>Owner/Licensee</u>	<u>Ownership</u>	
FirstEnergy Nuclear Generation, LLC	100.00%	<u>\$467,414,486</u>

Note 1: Mathematical rounding was performed during the development of the supporting calculations.

Attachment 4
L-17-028

Decommissioning Funding Status Report – Perry Nuclear Power Plant
Page 1 of 3

This report reflects FirstEnergy Corp.'s consolidated share of ownership interest in Perry Nuclear Power Plant as of December 31, 2016.

1. The minimum decommissioning fund estimate, pursuant to 10 CFR 50.75(c) (see Schedule 1):

FirstEnergy Nuclear Generation, LLC	<u>\$651,915,000</u>
-------------------------------------	----------------------

2. The amount accumulated in external trust funds:

FirstEnergy Nuclear Generation, LLC	After-Tax <u>\$515,467,559</u>
-------------------------------------	-----------------------------------

3. There are no longer any funds to be collected from the ratepayers.
4. The assumptions used regarding rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections:

Consolidated Ownership Interest in Unit	100%
"Real" Rate of Return through Dismantlement	2.00%
Year of License Termination	2026

5. There are no contracts upon which the owners/licensees are relying pursuant to 10 CFR 50.75(e)(1)(v).
6. There has been no modification to the current method of providing decommissioning funding assurance since the last submitted report. However, adequate financial assurance using the prepayment method is now demonstrated using the NRC's minimum formula amount, rather than using a SAFSTOR analysis based upon a site specific estimate.
7. There have been no material changes to the applicable trust agreement(s) since the last submitted report, except that the funds formerly held by Ohio Edison Company under the terms of its trust agreement were transferred to the FirstEnergy Nuclear Generation, LLC trust and are now maintained under the terms of that trust agreement. The Ohio Edison Company trust agreement is no longer applicable to Perry. By order dated April 15, 2016, the NRC approved the direct transfer of the leased interests in the Perry Nuclear Power Plant, Unit 1, from the Ohio Edison Company to FirstEnergy Nuclear Generation, LLC (Accession No. ML16078A092).

Attachment 4
L-17-028

Decommissioning Funding Status Report – Perry Nuclear Power Plant
Page 2 of 3

8. Mathematical rounding was performed during the development of the supporting calculations.

Schedule 1
FIRSTENERGY CORP.
Calculation of Minimum Financial Assurance Amount
December 31, 2016
PERRY NUCLEAR POWER PLANT

Ohio Regions

Labor (L) = Midwest
Energy (E) = National
Waste Burial (B) = Generic

For BWR Unit

	Adjustment Factor	Ratio	Escalation Factor ¹
L =	2.610	0.65	1.697
E =	1.869	0.13	0.243
B =	13.132	0.22	2.889
BWR Escalation Factor =			4.829

Base Amount for BWR greater than 3400 MWt = \$135,000,000
(P = power level in megawatts thermal = 3758)

Escalated Amount for unit¹ =
135,000,000 x 4.829 = **\$651,915,000**

<u>Owner/Licensee</u>	<u>Ownership</u>	
FirstEnergy Nuclear Generation, LLC	100.00%	<u>\$651,915,000</u>

Note 1: Mathematical rounding was performed during the development of the supporting calculation