



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

April 30, 2021

Mr. Joseph Donahue  
Vice President  
Nuclear Engineering  
Duke Energy  
526 South Church Street, EC-07H  
Charlotte, NC 28202

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION ANALYSIS OF DUKE ENERGY'S INITIAL AND UPDATED DECOMMISSIONING FUNDING PLANS FOR INDEPENDENT SPENT FUEL STORAGE INSTALLATIONS AT H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2, BRUNSWICK STEAM ELECTRIC PLANT, CATAWBA NUCLEAR STATION, MCGUIRE NUCLEAR STATION, AND OCONEE NUCLEAR STATION

Dear Mr. Donahue:

By letter dated December 13, 2012 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML12353A033), Duke Energy Carolinas, LLC (referred to as Duke Energy<sup>1</sup>) submitted an initial decommissioning funding plan (DFP) for the independent spent fuel storage installations (ISFSIs) at Brunswick Steam Electric Plant<sup>2</sup> (Brunswick), located in Southport, NC; McGuire Nuclear Station (McGuire), located in Huntersville, NC; H.B. Robinson Steam Electric Plant (Robinson), Unit 2, located in Hartsville, SC; Catawba Nuclear Station<sup>3</sup> (Catawba), located in York, SC; and Oconee Nuclear Station (Oconee), located in Seneca, SC; for U.S. Nuclear Regulatory Commission (NRC) staff review and approval.

The NRC staff reviewed the initial DFP and issued a request for additional information (RAI) by letter dated August 1, 2013 (ADAMS Accession No. ML13214A228). The purpose of the RAI was to obtain a breakdown of the decommissioning trust funds and associated funding levels for the ISFSIs. In addition, Duke Energy was requested to provide identification of any additional funding methods being used for ISFSI decommissioning funding. By letter dated September 30, 2013 (ADAMS Accession No. ML13275A203), Duke Energy responded to the NRC's RAI.

By letter dated March 30, 2015 (ADAMS Accession No. ML15089A394), Duke Energy Progress and Duke Energy Carolinas (hereinafter all referred to as Duke Energy) submitted an updated

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<sup>1</sup> Duke Energy is a parent company of operating commercial nuclear power reactors including Brunswick Steam Electric Plant, Units 1 and 2; McGuire Nuclear Station, Units 1 and 2; H.B. Robinson Steam Electric Plant, Unit 2; Catawba Nuclear Station, Units 1 and 2; Oconee Nuclear Station, Units 1, 2, and 3; and Shearon Harris Nuclear Power Plant, Unit 1.

<sup>2</sup> Brunswick Steam Electric Plant ISFSI is co-owned by Carolina Power & Light Company and North Carolina Eastern Municipal Power Agency (18.33 percent ownership). The co-owners certified the financial assurance for decommissioning reported in Duke Energy's 2012 DFP.

<sup>3</sup> Catawba Nuclear Station ISFSI is co-owned by North Carolina Electric Membership Corporation (30.754 percent ownership), North Carolina Municipal Power Agency No. I (37.5 percent ownership), and Piedmont Municipal Power Agency (12.5 percent ownership). The co-owners certified the financial assurance for decommissioning reported in Duke Energy's 2012 DFP.

DFP for the ISFSIs at Brunswick, McGuire, Robinson, Unit 2, Catawba, and Oconee, for NRC staff review and approval. By letter dated February 23, 2018 (ADAMS Accession No. ML18057A216), the NRC issued a RAI regarding Duke Energy's DFP update. By letter dated March 28, 2018 (ADAMS Accession No. ML18101A058), Duke Energy responded to the NRC staff's RAI.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR), Sections 72.30(b) and (c), and using NUREG-1757, Vol. 3, Rev. 1, "Consolidated Decommissioning Guidance," the NRC staff reviewed Entergy's initial and updated DFPs, including the initial and updated decommissioning cost estimates (DCEs) and the method of assuring funds for decommissioning.

Pursuant to 10 CFR 72.30(b), each holder of, or applicant for, a license under Part 72 must submit for NRC review and approval a DFP containing information on how reasonable assurance will be provided that funds will be available to decommission its ISFSIs. The DFP must contain a detailed DCE, in an amount reflecting: (1) the cost of an independent contractor to perform all decommissioning activities, (2) an adequate contingency factor, and (3) the cost of meeting the 10 CFR 20.1402 unrestricted use criteria (or the cost of meeting the 10 CFR 20.1403 restricted use criteria, provided the licensee can demonstrate its ability to meet these criteria). The licensee's DFP must also identify and justify using the key assumptions contained in the DCE. Further, the DFP must describe the method of assuring funds for ISFSI decommissioning, including means for adjusting cost estimates and associated funding levels periodically over the life of the ISFSI. Additionally, the DFP must specify the volume of onsite subsurface material containing residual radioactivity that will require remediation to meet the criteria for license termination, and contain a certification that financial assurance for ISFSI decommissioning has been provided in the amount of the DCE.

The NRC staff reviewed and analyzed the information submitted by Duke Energy in its Initial DFP on how reasonable assurance will be provided that funds will be available to decommission the ISFSIs, including the amount of the DCE and the method of assuring funds for decommissioning.

In its initial DFPs, Duke Energy estimated that the total costs to decommission the ISFSIs at Robinson, Unit 2, Brunswick, Catawba, McGuire, and Oconee for unrestricted use is \$4,908K (in thousands), \$2,881K, \$4,751K, \$5,257K, and \$9,381K, respectively, in 2012 dollars. Based on its analysis of Duke Energy's Initial DFPs, the NRC staff finds that the submitted DCEs are based on reasonable costs of a third-party contractor, include an adequate contingency factor, and are based on reasonable and documented assumptions. Therefore, the NRC finds that the DCEs adequately estimate the cost, at this time, to carry out required ISFSI decommissioning activities prior to license termination, and that the DCEs are acceptable.

For its initial DFP, Duke Energy relied on designated funds in each reactor facility's decommissioning trust as financial assurance for ISFSI decommissioning, as authorized by 10 CFR 72.30(e). Specifically, Duke Energy relied on external sinking funds in the form of a trust as financial assurance for its ISFSI decommissioning, a method authorized by 10 CFR 50.75(e)(1)(ii) and 10 CFR 72.30(e)(5). The NRC staff finds that the aggregate dollar amount of the Duke Energy's financial instruments provide adequate financial assurance to cover its DCEs, and therefore, that these financial instruments are acceptable.

Based on its review, the NRC staff finds that the initial DFPs contain the information required by 10 CFR 72.30(b) and that Duke Energy has provided reasonable assurance that funds will be

available to decommission the ISFSIs at Robinson, Unit 2, Brunswick, Catawba, McGuire, and Oconee.

Pursuant to 10 CFR 72.30(c), at the time of license renewal and at intervals not to exceed 3 years, the initial DFP required to be submitted by 10 CFR 72.30(b) must be resubmitted with adjustments as necessary to account for changes in costs and the extent of contamination in an updated DFP. The updated DFP must update the information submitted with the original or prior approved plan. In addition, the updated DFP must also specifically consider the effect of the following events on decommissioning costs, as required by 10 CFR 72.30(c)(1)-(4): (1) spills of radioactive material producing additional residual radioactivity in onsite subsurface material, (2) facility modifications, (3) changes in authorized possession limits, and (4) actual remediation costs that exceed the previous cost estimate.

In its updated 2015 DFPs, Duke Energy estimates that the total costs to decommission the ISFSIs at Robinson, Brunswick, Catawba, McGuire, and Oconee for unrestricted use is \$5,968K, \$9,578K, \$8,854K, \$10,090K and \$11,764K, respectively, in 2014 dollars. In its March 28, 2018, response to the NRC staff's request for additional information, dated February 23, 2018, Duke Energy provided a narrative for each of the requirements in 10 CFR 72.30(c)(1)-(4).

Based on its review of Duke Energy's submittal, the NRC staff finds that the updated DCEs: (1) are based on reasonable costs of a third-party contractor, (2) include an adequate contingency factor, (3) reflect the cost of meeting the 10 CFR 20.1402 criteria for unrestricted use, and (4) are based on reasonable and documented assumptions. Therefore, the NRC staff finds that the 2015 updated DCEs adequately estimate the cost, at this time, to carry out required ISFSI decommissioning activities prior to license termination, and that the updated DCEs are acceptable.

In its 2015 updated DFPs, Duke Energy relied on external sinking funds in the form of a trust as financial assurance for its ISFSI decommissioning, a method authorized by 10 CFR 50.75(e)(1)(ii) and 10 CFR 72.30(e)(5). This method is allowed for the ISFSIs at Robinson, Brunswick, Catawba, McGuire, and Oconee because Duke Energy holds a power reactor license under 10 CFR Part 50. The NRC staff reviewed Duke Energy's 2015 financial assurance method and finds that the financial instruments discussed in the 2015 DCEs provide adequate financial assurance to cover its updated DFP. Therefore, the NRC staff finds that these financial instruments are acceptable.

The NRC staff reviewed the initial and updated DFPs submitted by Duke Energy, including the updated DCEs and the method of assuring funds for decommissioning, in accordance with 10 CFR 72.30(b) and (c) and NUREG-1757, Vol. 3, Rev. 1, "Consolidated Decommissioning Guidance." Based on its review, the NRC staff finds that the initial and updated DFPs contain the information required by 10 CFR 72.30(b) and (c) and, that Duke Energy has provided reasonable assurance that funds will be available to decommission the ISFSIs at Robinson, Brunswick, Catawba, McGuire, and Oconee. Therefore, the NRC staff finds that the DCEs adequately estimated the cost, at this time, to carry out required ISFSI decommissioning activities prior to license termination, and that the DCEs are reasonable.

In addition to the NRC staff's review of the aforementioned initial and updated DFPs, the NRC staff completed an environmental review. The NRC staff published a summary of the results of the environmental review in the *Federal Register* on April 30, 2021, for the ISFSIs at Robinson, Unit 2, Brunswick, Catawba, McGuire, and Oconee, respectively. The environmental

assessments and findings of no significant impact for Robinson, Unit 2, Brunswick, Catawba, McGuire, and Oconee ISFSIs are available in <https://www.regulations.gov> under the Docket ID: NRC-2021-0056. The NRC staff determined that there was no environmental impact from the NRC staff's review and approval of Duke Energy's initial and updated DFPs.

If you have any questions regarding this matter, please contact me at (301) 415-5722 or [John.McKirgan@nrc.gov](mailto:John.McKirgan@nrc.gov).

Sincerely,

John B. McKirgan, Chief  
Storage and Transportation Licensing Branch  
Division of Fuel Management  
Office of Nuclear Material Safety  
and Safeguards

Docket Nos.: 72-06, 72-38, 72-03,  
72-60, 72-45, 72-04, 72-40  
License Nos.: SFGL-41, SFGL-11,  
SNM-2502, SFGL-26, SFGL-31,  
SNM-2503, SFGL-06  
EPID Nos.: L-2017-FPR-0018,  
L-2017-FPR-0041, L-2017-FPR-0030,  
L-2017-FPR-0001, L-2017-FPR-0014,  
L-2017-FPR-0048, L-2017-FPR-0003

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 RidsNrrPMCatawba Resource  
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 RidsNrrPMRobinson Resource

**ADAMS Accession Number: ML21078A497**

**\* concurrence via email**

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DATE	3/18/2021	3/22/2021	3/26/2021	4/30/2021

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