



April 1, 2024

***Electronically Filed***

Debbie-Anne A. Reese, Acting Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

Subject:       **Bad Creek Pumped Storage Project (P-2740-053)  
Response to Comments on the Initial Study Report**

Dear Secretary Reese:

Duke Energy Carolinas, LLC (Duke Energy or Licensee) is the Licensee, owner, and operator of the 1,400-megawatt (MW) Bad Creek Pumped Storage Project (FERC Project No. 2740) (Project), located in Oconee County, South Carolina, approximately eight miles north of Salem. The Bad Creek Reservoir (or upper reservoir) was formed from the damming of Bad Creek and West Bad Creek and serves as the Project's upper reservoir. Lake Jocassee serves as the lower reservoir and is licensed separately as part of Duke Energy's Keowee-Toxaway Hydroelectric Project (FERC Project No. 2503).

The existing license for the Project was issued on August 1, 1977, under the terms of an Original License issued by the Federal Energy Regulatory Commission (FERC or Commission), and the current 50-year operating license for the Project expires on July 31, 2027. Accordingly, Duke Energy is pursuing a new license for the Project pursuant to the Commission's Integrated Licensing Process (ILP), as described at 18 Code of Federal Regulations (CFR) Part 5.

In accordance with 18 CFR §5.11, on December 5, 2022, Duke Energy filed the Revised Study Plan (RSP) describing the studies the Licensee is proposing to conduct in support of relicensing the Project. The Commission approved the RSP with modifications on January 4, 2023, in its Study Plan Determination (SPD). In accordance with 18 CFR §5.15, Duke Energy filed the Initial Study Report (ISR) with the Commission on January 4, 2024. The ISR describes the Licensee's overall progress in implementing the study plan and schedule, summarizes available data, and describes variances from the study plan and schedule approved by the Commission. As required by the ILP rules, Duke Energy hosted the ISR meeting on January 17, 2024, within 15 days following submittal of the ISR. The ISR Meeting summary was filed on February 1, 2024. Stakeholder comments on the ISR Meeting summary, requests for modifications to the RSP, and proposals for new studies were due by March 4, 2024.

FERC staff, the South Carolina Department of Natural Resources (SCDNR), and Upstate Forever filed written comments by the deadline. Duke Energy appreciates the comments provided by relicensing stakeholders and has carefully considered its responses below. Duke Energy is hereby providing its responses to those comments relating to implementation of the RSP or recommendations for new

studies. Duke Energy has summarized the comments it received and provided its responses to those comments in Attachment 1.

SCDNR provided comments regarding bat and small whorled pogonia surveys that are not included in the RSP but will be implemented in support of U.S. Army Corps of Engineers (USACE) Section 404 permitting. The methodology for these surveys is still under development in collaboration with the USACE, SCDNR, U.S. Fish and Wildlife Service (USFWS), South Carolina Department of Health and Environmental Control, and the Wildlife & Botanical Resource Committee (RC); therefore, Duke Energy will consider these recommendations during study development. Duke Energy will also provide the final bat study plan and methodology to FERC staff as discussed during the ISR meeting.

Duke Energy notes that SCDNR and Upstate Forever provided recommended protection, mitigation, and enhancement (PM&E) measures in their comments. Duke Energy is not responding to such recommendations in this filing other than to note these recommendations will be considered during the development of the Bad Creek Relicensing Agreement and Draft License Application.

### **ISR Meeting Action Items and Status**

The status of each action item identified during the ISR Meeting is as follows:

- Duke Energy to submit updated GIS data depicting the expanded Project Boundary to FERC.  
*Status:* Requested data will be included in the Updated Study Report (USR).
- Duke Energy to provide updated GIS data depicting new spoil areas, the temporary Fisher Knob Road, and other updated GIS information to FERC and relicensing participants (via the SharePoint site):  
*Status:* Requested data will be included in the USR.
- Duke Energy and SCDNR to continue discussing SCDNR access to the Musterground Road recreation area during Bad Creek II construction, SCDNR's prescribed burn schedule for the Musterground area, and SCDNR management activities in the Musterground Road area.  
*Status:* Discussions between Duke Energy and SCDNR are ongoing.
- Duke Energy to evaluate a rock shelter near the Project (identified during the Cultural Resources Study) for use by bats as part of the 2024 proposed bat study.  
*Status:* Evaluation of the rock shelter will be included in the bat study plan and survey.
- Duke Energy to schedule a meeting with the Recreation and Visual Resources RC to discuss the Foothills Trail Conservancy's comments on the Foothills Trail Conditions Assessment.  
*Status:* Complete. The meeting was held on February 29, 2024.
- The Recreation and Visual Resources RC to discuss the potential use of Foothills Trail culverts by bats.

*Status:* Complete. RC members discussed this issue during the February 2024 RC meeting and determined most of the culverts are smaller than the minimum size SCDNR uses for recommending bat use evaluations.

- Duke Energy to provide raw water quality data to FERC.

*Status:* Requested data will be included in the USR.

- Duke Energy to identify a plan and timing to rerun the Environmental Justice analysis with updated census data.

*Status:* An updated Environmental Justice report will be submitted with the USR using updated census data. Additionally, Duke Energy will explore the need for environmental justice-related public outreach associated with the construction of Bad Creek II subsequent to the review of updated census data submitted with the USR.

- Duke Energy to include a table of spoil pile heights in the draft Visual Resources report.

*Status:* The information will be provided in the draft study report which is currently under development.

- Duke Energy to file a bat study plan with the USFWS and FERC targeting April 15, 2024.

*Status:* The USFWS's 2024 Range-wide Indiana Bat and Northern long-eared bat Guidelines is anticipated to be released at the end of March. The bat study plan will incorporate processes detailed in the 2024 guidance protocols.

## Closing

Duke Energy appreciates the detailed review of the ISR by relicensing process participants and looks forward to continuing to work with Commission staff, resource agencies, Indian Tribes, local governments, non-governmental organizations, and interested members of the public throughout the relicensing process. If there are questions regarding this filing, please contact me at [Alan.Stuart@duke-energy.com](mailto:Alan.Stuart@duke-energy.com) or via phone at 980-373-2079.

Sincerely,



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## ATTACHMENT 1 - BAD CREEK INITIAL STUDY REPORT STAKEHOLDER COMMENTS AND DUKE ENERGY RESPONSES

Comment	Duke Energy Response
<b><i>Federal Energy Regulatory Commission (letter dated March 1, 2024)</i></b>	
<p>Within 30 days of the date of this letter, describe:</p> <ol style="list-style-type: none"> <li>1) how many samples were collected versus not collected in the five streams mentioned above;</li> <li>2) the names and locations of the streams where sampling did not occur because of inclement weather;</li> <li>3) how these streams were determined to be fully functioning; and</li> <li>4) whether these sites will be sampled in the 2024 sampling season.</li> </ol>	<p>The purpose of the stream habitat quality surveys was to provide a physical assessment of the existing conditions of streams that have the potential to be impacted in spoil locations. The assessments were conducted by completing data forms describing the existing functional conditions of the streams- specifically, USEPA Rapid Bioassessment Protocol - Habitat Assessment for High Gradient Streams, and NC Stream Assessment Method forms. No sampling is conducted to complete these stream habitat evaluations. One data form for each method is completed per stream.</p> <ol style="list-style-type: none"> <li>1) As stated in the Impacts to Surface Waters and Associated Aquatic Fauna Draft Report (ISR Appendix B, Attachment 3), assessments were conducted at 10 stream locations, four (4) within the proposed spoil area alternative locations and six (6) at stream locations potentially crossed by the Fisher Knob temporary access road.</li> <li>2) The streams for which data forms were not completed include Stream 11 (spoil area J), Streams 13 and 14 (spoil area D), or 20 and 21 (spoil location B). <i>See Attachment 2 for spoil area locations as provided in the ISR.</i></li> <li>3) In July 2023, Duke Energy and HDR conducted a site visit to streams within two spoil locations with the South Carolina Department of Natural Resources (SCDNR). The locations visited were considered representative of stream and riparian conditions in most spoil areas and consisted of spoil areas B and D (which contain streams 13, 14, 20, and 21 mentioned above). As stated in the Stream Survey Approach Memo distributed to stakeholders on August 3, 2023, and filed with the ISR, the SCDNR and Duke Energy "agreed that the streams with spoil locations are generally high functioning with limited (if any) anthropogenically caused degradation" based on site visit observations.</li> <li>4) Duke Energy is not proposing to conduct assessments in 2024 since these features are similar to those evaluated in 2023 and will assume a fully functional existing condition rating to determine stream mitigation credits for avoidable impacts to these resources during the Clean Water Act permitting process.</li> </ol> <p>This information will also be included in the USR.</p>
<p>For the USR, conduct a broader literature review (including both peer reviewed and gray/agency literature) to ensure the best available scientific data is being used for each species of interest to derive accurate population growth rate estimates for the entrainment analysis.</p>	<p>Duke Energy will provide the requested information in the USR.</p>



Comment	Duke Energy Response
Provide a map of the waterbodies listed in Table 4-2 with their surface water classifications in the USR. Include the corresponding georeferenced datasets (GIS shapefiles) that show these features.	Duke Energy will provide the requested information in the USR.
With the USR submission, provide un-summarized raw data of all water quality data in electronic format (e.g., Microsoft Excel spreadsheet, or delimited text file), and include all associated metadata.	Duke Energy will provide the requested information in the USR.
Replace Figures 6.1 through 6.7 with higher resolution images in the USR.	The final Summary of Existing Water Quality and Standards Report was filed with ILP Progress Report in September 2023 and incorporated stakeholder feedback. Figures 6-1 through 6-7 of this report are water quality figures taken directly from Abernathy et al. 1994 to support general water quality descriptions in Howard Creek, a tributary to Lake Jocassee. Figure 6-1 is a map showing historical monitoring locations and Figures 6-2 through 6-7 are simple color point graphs from Abernathy et al. (1994) showing compiled data over five years from individual historical study reports (work performed by Clemson University). Duke Energy included these graphs to show general trends from previous studies and while the figure quality is indicative of a report from the early 1990s, Duke Energy believes the information is clearly conveyed and no changes to these figures are necessary to support the main findings of the relicensing study task.
Incorporate computer-edited representative photographs into the Foothills Trail Carrying Capacity evaluation because it is a widely used and accepted method and would show the recreation resource committee members conditions at potential use levels, such as the number of people per viewscape, to help determine how much use is acceptable.	Duke Energy recognizes the use of computer simulated photos for evaluating crowding, conflict, and visitor preferences related to carrying capacities within public lands as appropriate in many recreational settings. However, the Foothills trail corridor managed by Duke Energy lacks strong anchor sites where measures of people per viewshed or people at one time would be appropriate at this time. Duke Energy is relying on measures and estimates of use distribution and related facilities (campsites, trailheads, etc.) along the trail corridor and review of natural resource impacts at camping locations to provide carrying capacity guidance. Estimates of facility utilization, encounters (solitude), and camping capacity along the corridor will be reviewed and integrated with trail condition assessment and survey response data.
<b><i>South Carolina Department of Natural Resources (letter dated February 28, 2024)</i></b>	
Duke Energy should provide additional protective measures to prevent the unlawful take of a state endangered species including the known occurrence of the state-endangered American peregrine falcon less than two miles from the Project's proposed transmission ROW expansion project.	This comment identifies a potential protection, mitigation, and enhancement (PM&E) measure. Duke Energy will consider recommended PM&E measures during development of the Bad Creek Relicensing Agreement (BCRA) and the Draft License Application.
Duke Energy should provide additional protective measures to prevent impacts to migrating birds from artificial lighting during the construction and operation of Bad Creek II.	This comment identifies a potential PM&E measure. Duke Energy will consider recommended PM&E measures during development of the BCRA and the Draft License Application.



Comment	Duke Energy Response
<p>Duke Energy should expand the scope of the 2021 bat survey to evaluate the presence of bat species and their utilization of habitat by conducting acoustic monitoring and mist net surveys in the expanded transmission line corridor and temporary Fisher Knob access road.</p>	<p>Duke Energy is in the process of developing a bat study plan to support the development of spoil areas, construction of the temporary Fisher Knob access road, construction of the new Bad Creek II transmission line, and improvements to existing transmission tower access roads. Survey findings will be used for Endangered Species Act compliance as part of the USACE Section 404 permitting process but will also inform the FERC licensing process. Study methodology is being developed in consultation with the USFWS and SCDNR.</p>
<p>Survey the rock shelter identified during the Cultural Resources survey during the bat survey.</p>	<p>Duke Energy to evaluate the referenced rock shelter near the Project for use by bats as part of the proposed 2024 bat study.</p>
<p>Conduct a visual survey to determine bat usage of the powerhouse access tunnel.</p>	<p>The Powerhouse Access Tunnel was inspected on March 4, 2024, and found to not offer suitable habitat for bat roosting or hibernacula. The tunnel is artificially illuminated, generally loud due to vehicle and equipment operation, and warmer and dryer than typically preferred by bats. No evidence of bat usage of the tunnel was identified; no further evaluation is warranted.</p>
<p>Bat surveys should be timed surveys conducted during appropriate time windows. Bat surveys be conducted from November 15 to March 15 (December or January are preferred for the increased likelihood of detection) and May 1 to July 31 (June or July are preferred). The SCDNR requests a survey plan be provided to SCDNR for review prior to the bat survey being conducted.</p>	<p>Duke Energy will continue to work with SCDNR and the USFWS to refine the bat study methodology.</p>
<p>Impacts related to the closure of Musterground Road for the proposed seven-year construction period were not adequately accounted for in the Recreation Study Plan.</p>	<p>Duke Energy agrees that evaluating the effects of eliminating public access to the Musterground Road through the Bad Creek site during the entire construction period was not identified as a possibility during development of the RSP. However, the Recreational Use and Needs (RUN) Study did capture vehicular use of the Musterground Road access through use of traffic counters; these data can be used to inform potential effects of limiting public access to Musterground Road. Duke Energy does not believe additional data collection efforts are necessary to assess the potential effects of limiting public access to Musterground Road during construction of Bad Creek II. However, Duke Energy welcomes SCDNR's input on potential PM&amp;E measures to address such effects.</p>
<p>SCDNR's ability to manage prescribed burns at the property should be assessed.</p>	<p>Duke Energy fully recognizes SCDNR's need to access its lands for management activities including prescribed burns. As Duke Energy stated during the ISR Meeting and subsequent meetings, Duke Energy will accommodate SCDNR access to Musterground Road during Bad Creek II construction.</p>
<p>SCDNR requests additional measures to mitigate for impacts to public access associated with the closure of Musterground Road.</p>	<p>This comment identifies a potential PM&amp;E measure. Duke Energy will consider recommended PM&amp;E measures during development of the BCRA and the Draft License Application.</p>



Comment	Duke Energy Response
<p>Conduct an additional survey for the presence of small whorled pogonia mid-May through early July prior to any ground disturbing activities take place. Report additional incidental observations of plants identified in the SC State Wildlife Action Plan as priority species to SCDNR.</p>	<p>Duke Energy will conduct presence/absence field surveys for small whorled pogonia during this species optimal survey window (mid-May to early July) along the Fisher Knob Access Road corridor and will report additional incidental observations of plants identified in the SC State Wildlife Action Plan during 2024 field surveys.</p>
<p><b><i>Upstate Forever (letter dated March 1, 2024)</i></b></p>	
<p>Insufficient detail on potential spoil areas was made available for stakeholders to further assess the spoil locations and potential impacts to resources at those sites. Duke Energy has stated some spoils would be used for stream restoration, revetment, and other maintenance, but off-site material disposal for excavated materials should be the only consideration and other disposal methods or uses considered only after proper justification.</p>	<p>Duke Energy acknowledges the number and location of spoils areas has been revised since development of the RSP. However, all spoil disposal sites that would affect waters or other sensitive resources will be evaluated in conjunction with the USACE permitting as well as development of the proposed Biological Assessment in consultation with the USFWS. These evaluations will include an assessment of the effects of alternative disposal locations. Based on present evaluations, due to the quantity of materials for disposal, Duke Energy does not believe that off-site disposal is a practical, environmentally protective, or cost-effective alternative, but such alternatives will be evaluated in association with the USACE permitting.</p>
<p>The Visual Resources Study lighting evaluation should evaluate effects including but not limited to bird migration, aquatic species behavior, and noise disturbances.</p>	<p>The FERC-approved Visual Resources study plan does not include an evaluation of lighting effects on bird migration, aquatic species behavior, and noise disturbance. As Upstate Forever notes in its comments, potential lighting effects that may attract fish to the existing inlet/outlet portal when Jocassee Lake levels fall below 1099 ft msl are already addressed. These measures are included in the Fishery Resources Work Plan (2017-2027) between SCDNR and Duke Energy.</p>
<p>The Visual Resources Study lighting evaluation should conduct these evaluations based on International Dark Sky standards</p>	<p>The FERC-approved Visual Resources study plan does not specify evaluations should be based on "International Dark Sky standards" and Duke Energy has been unable to locate such standards. Regardless, the study report will provide a high-level overview of International Dark Sky concepts, identify potential sources of additional lighting associated with the construction and operation of Bad Creek II, and discuss potential PM&amp;E measures that could address lighting impacts.</p>
<p>Enabling the Foothills Trail to continue to grow to meet additional demand should be paramount in this licensing as should increasing options for meaningful recreation experiences on adjoining lands.</p>	<p>This comment identifies a potential PM&amp;E measure. Duke Energy will consider recommended PM&amp;E measures during development of the BCRA and the Draft License Application.</p>
<p>Duke Energy should:</p> <ol style="list-style-type: none"> <li>1. Designate the Project through the International Dark Sky Places conservation program</li> <li>2. Grant Conservation easements on lands owned by Duke Energy, including the 6,700-ac tract surrounding the Project, which would protect the Foothills Trail corridor and allow for additional recreation opportunities</li> </ol>	<p>These comments identify potential PM&amp;E measures. Duke Energy will consider recommended PM&amp;E measures during development of the BCRA and the Draft License Application.</p>



Comment	Duke Energy Response
3. Donate land to be included in the Foothills Trail system, or to State resource agencies for various purposes 4. Expand the Foothills Trail system to connect with other trail systems 5. Endow the Foothills Trail Conservancy for ongoing management and maintenance of the Foothills Trail system 6. Provide funding to the Oconee County Conservation Bank for land conservation near the Project boundary  Develop a land management plan that supports recreation activities	



## ATTACHMENT 2 - POTENTIAL SPOIL AREA LOCATIONS

