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**TVA PUMPED STORAGE HYDROPOWER**

**PROGRAMMATIC ENVIRONMENTAL IMPACT**

**STATEMENT**

**SCOPING REPORT**

**Prepared by:**  
TENNESSEE VALLEY AUTHORITY  
Knoxville, Tennessee

July 2023

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## Abbreviations and Acronyms

ADCNR-WFF	Alabama Department of Conservation and Natural Resources – Division of Wildlife and Freshwater Fisheries
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FR	Federal Register
GHG	Greenhouse Gas
IRP	Integrated Resource Plan
MW	Megawatts
NEPA	National Environmental Policy Act
NOI	Notice of Intent
PSH	Pumped Storage Hydropower
PEIS	Programmatic Environmental Impact Statement
ROD	Record of Decision
RPS	Raccoon Mountain Pumped Storage Plant
TVA	Tennessee Valley Authority

## **1.0 Introduction**

The Tennessee Valley Authority (TVA) is considering adding more pumped storage hydropower (PSH) within its service area through the construction of a new PSH facility and is evaluating potential project locations in Jackson County Alabama and/or expansion of the existing Raccoon Mountain PSH. TVA is initiating the preparation of a Programmatic Environmental Impact Statement (PEIS) pursuant to the National Environmental Policy Act (NEPA) to assess the environmental impacts associated with four scenarios (alternatives). The PEIS will identify and evaluate potential environmental, social, and economic impacts from the construction and operation of pumped storage facilities for each site, providing TVA the information and understanding of regulatory approvals/concurrences needed to move forward in planning and design to meet long duration power storage and, ultimately, carbon reduction goals.

The four alternatives for TVA's PSH PEIS include the following: Alternative A (No Action); Alternative B: Expansion of Raccoon Mountain Pumped Storage Plant (RPS) in Marion County, Tennessee; Alternative C: Construct New Facility Near Rorex Creek in Jackson County, Alabama; and Alternative D: Construct New Facility near Widows Creek in Jackson County, Alabama. Combined, the study areas for all three sites total about 10,700 acres. Ultimately, the PEIS will present existing conditions within each study area for relevant resources and an assessment of potential project-related impacts per currently proposed scenarios at each site. The resource evaluations will also serve the purpose of allowing the TVA project team to consider alternative designs and layouts with an understanding of relevant constraints from a resource and regulatory perspective. Combined, this information will allow TVA to make a decision regarding potential future plans at each of the three potential sites as well as information for the next phase of development at each site. The studies associated with the PEIS will enable TVA to avoid or minimize potential effects through project siting and design. Following site selection and additional design, TVA will prepare a tiered NEPA document analyzing the specific effects of the construction and operations of the proposed project, including proposed measures to minimize and mitigate for identified adverse effects.

This Scoping Report describes the internal and public scoping for relevant issues relating to these projects and outreach conducted by TVA to notify the public. The Scoping Report also documents the input submitted to TVA by the public and intergovernmental entities during the public scoping period.

## **1.1 Background**

PSH is a type of hydroelectric energy storage that consists of two water reservoirs at different elevations that can generate power as water moves down from the upper reservoir to the lower reservoir, passing through a turbine, during periods when energy is needed on the electrical grid. The system also requires power as it pumps water back into the upper reservoir during periods in which energy storage is needed. PSH is utilized for long-term storage to provide for reserves on the grid, use excess energy to store water in the higher reservoir when demand drops below the base load generation, and to support intermittent generation for renewable energy sources such as wind and solar. TVA is currently studying the potential addition of more PSH within its service area by building new PSH facilities or expanding the existing PSH at RPS.

A new facility near Rorex Creek or Widows Creek in Jackson County, Alabama would be similar in design to the existing RPS located in Chattanooga, Tennessee, with a new upper reservoir constructed on a mountaintop adjacent to an existing reservoir on the Tennessee River. Proposed new PSH plants would consist of water conveyance tunnels and an underground powerhouse

constructed by tunneling within the mountain. New PSH plants are sized for at least 1,600 megawatts (MWs) of generation for approximately 12 to 20 hours.

An expansion of the existing RPS would consist of constructing another underground powerhouse and another series of water conveyance tunnels to connect the existing upper reservoir with the existing Nickajack Reservoir along the Tennessee River. The new powerhouse would be capable of at least 800 MWs of generation in addition to the plant's current 1,600-MW generation capacity. Excavation of the upper reservoir to create additional storage capacity could be considered.

TVA is preparing a PEIS to evaluate potential PSH sites in Jackson County, Alabama and at the existing RPS in Marion County, Tennessee for potential construction or expansion of a PSH facility at one or more sites as the need for long-duration energy storage increases.

## **1.2 TVA's Objectives**

TVA is planning a substantial decarbonization effort with a goal of being carbon neutral by 2050. To meet these goals, long-duration storage (8 to 12 hours) will be needed to balance the daily energy cycle. This long-duration storage will enable additional generation from solar, new nuclear, wind, and other renewable energy projects.

Long duration energy storage, like pumped storage, supports nuclear generation and renewable energy generation by assisting with load balancing and allowing these technologies to run nearly full-time, which is important as these technologies are generally not conducive to following the demand curve and work best when running fully loaded. PSH is a reliable and proven technology. The addition of pumped storage hydropower facilities could also help TVA maintain grid stability and reliability in the future electrical grid with less dispatchable generation and greater minute-by-minute variability due to fluctuations in output from renewables such as solar and wind.

The purpose of this PEIS is to evaluate the potential for pumped storage facilities in two areas in Jackson County, Alabama, and an expansion of the existing facility at RPS and to consider potential environmental, social, and economic impacts from the construction and operation of pumped storage facilities at each site. Figure 1-1 shows the locations of the study sites for each action alternative. Following completion of the PEIS document and associated NEPA decision, one or more sites may be further evaluated, and transmission line siting performed. Following the completion of additional design and potential effects analysis, TVA will prepare a tiered NEPA document (Environmental Assessment or Environmental Impact Statement (EIS)) that describes additional site-specific effects of the proposed project and identifies proposed avoidance, mitigation, and resource enhancement measures to reduce potential effects. Preparation of the tiered document would follow the NEPA process.

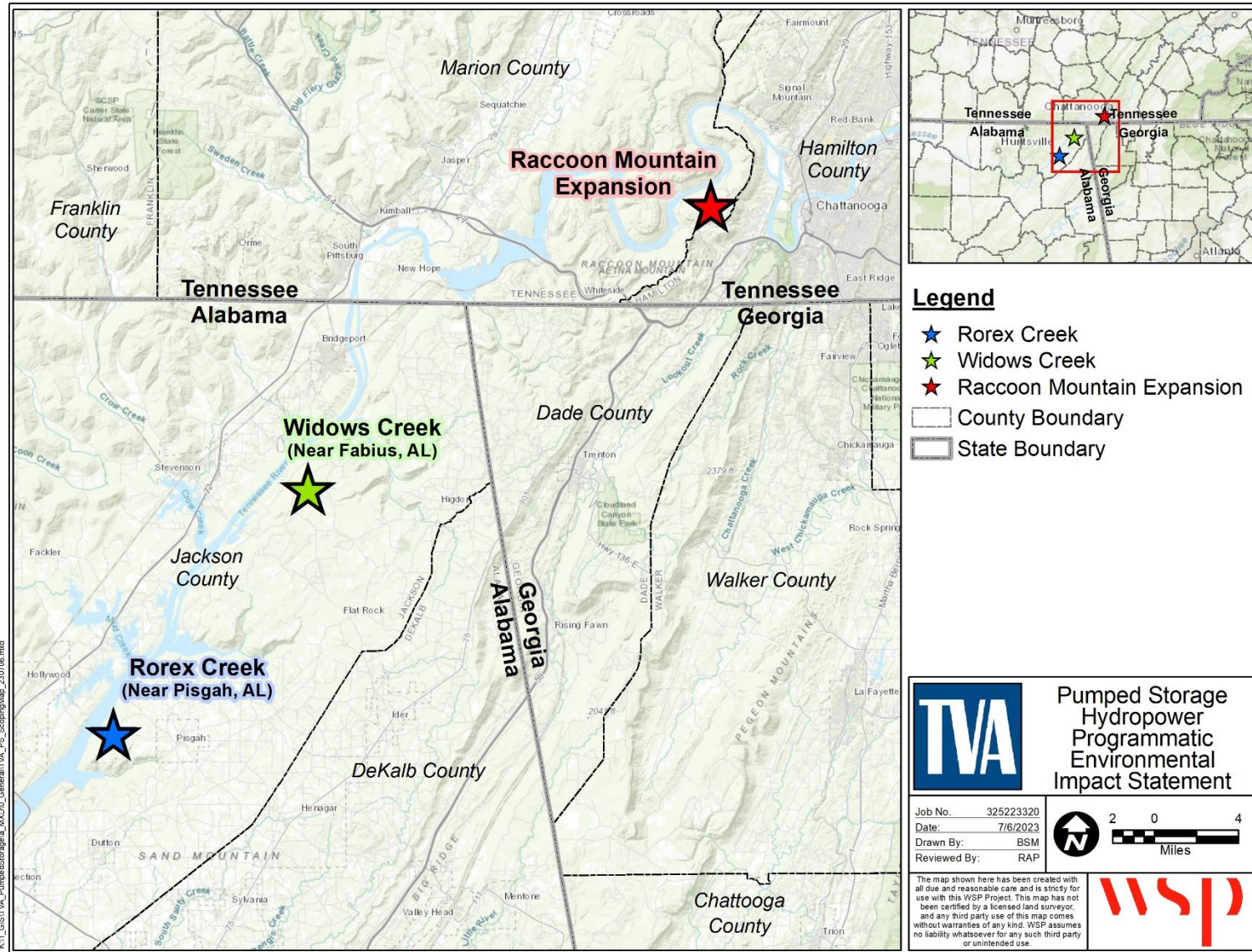


Figure 1-1. Location of the Raccoon Mountain, Widows Creek, and Rorex Study Areas

## **2.0 Proposed Alternatives**

TVA's PSH study began with the identification of over sixty potential sites in several states within the TVA service area. TVA performed a desktop feasibility screening that trimmed potential sites down to fifteen, and then the list was narrowed to three potential sites based on analyses of socioeconomics, geology, topography, and anticipated impacts.

The description and analyses of these alternative sites in the PEIS will inform decisionmakers, other agencies, and the public about the potential for environmental impacts associated with the proposed PSH facilities. During the scoping period, TVA solicited comments on whether there are other alternatives that should be assessed in the PEIS. TVA also requested information and analyses that may be relevant to the project.

As a result of internal review and scoping comments, TVA has proposed the following alternatives to be evaluated in the Draft PEIS.

### **2.1 Alternative A – No Action Alternative**

Under the No Action Alternative, TVA would not develop, operate, or maintain a new PSH facility or expand the Raccoon Mountain PSH facility. Existing conditions (land use, natural resources, visual resources, physical resources, and socioeconomics) in the study areas and in the vicinity would remain unchanged. TVA would continue to rely on other sources of generation described in the 2019 Integrated Resource Plan (IRP) (TVA 2019) to ensure an adequate energy supply and to meet its goals for increased renewable energy and low greenhouse gas (GHG)-emitting generation.

### **2.2 Alternative B – Expansion of Raccoon Mountain**

Under Action Alternative B, TVA would install a second underground powerhouse (800 MW) at TVA's existing RPS facility near Chattanooga, Tennessee. The second powerhouse would utilize water from the existing upper reservoir, drawing the pool down more deeply than the present operation for each cycle. This alternative could also include increasing the storage capacity of the upper reservoir through excavation within the existing reservoir footprint. The new plant facility would be sited on lands owned by TVA. The project study area for this alternative includes about 1,000 acres of TVA-owned land adjacent to the existing facility.

### **2.3 Alternative C – New Facility Near Rorex Creek**

Under Action Alternative C, TVA would construct a new pumped storage facility with a generation capacity of 1,600 MW at roughly Tennessee River Mile 388 in the area of Pisgah, AL, with Guntersville Reservoir serving as the lower pool. TVA will be investigating multiple alignments for the plant in the Pisgah, AL area. Currently, two primary configurations are being considered: Rorex Creek South and Rorex Creek Central. However, design of the upper reservoir and powerhouse location will continue to develop as information for the PEIS is collected. The Rorex Creek study area is located on about 4,826 acres that is primarily owned by private landowners with some TVA property on the mountainside and near the river.

### **2.4 Alternative D – New Facility Near Widows Creek**

Under Action Alternative D, TVA would construct a new pumped storage facility with a generation capacity of 1,600 MW at roughly Tennessee River Mile 408 in the area near Stevenson and

Fabius, AL, with Guntersville Reservoir serving as the lower pool. TVA will be investigating multiple alignments for the plant in the area. Currently, two primary configurations are being considered: Widows Creek South and Widows Creek North. However, the alignments of the upper reservoir and powerhouse location will continue to be developed as information for the PEIS is collected. The Widows Creek study area is located on about 4,874 acres that is primarily owned by private landowners with some TVA property on the mountainside and near the river.



### 3.0 Environmental Review Process

NEPA regulations require an early and open process for deciding what should be discussed in an EIS (i.e., the scope of the document). The NEPA review process is intended to help federal agencies make decisions that are based on an understanding of the action’s impacts. NEPA also requires that federal agencies provide opportunities for public involvement in the decision-making process.

As noted, TVA intends to prepare a PEIS, the most intensive level of NEPA review, to consider options for adding PSH facilities to TVA’s service area. During the development of the PEIS, the public, stakeholders, resource and permitting agencies, and other interested parties have two opportunities to provide input on the development of the environmental study. The first opportunity is the initial scoping process that follows the publication of the Notice of Intent (NOI). The second opportunity for public comment is at the publication of the Draft PEIS subsequent to the publication of the Notice of Availability.

After considering input from the public scoping period, TVA will develop and publish a Draft PEIS. The Draft PEIS will be available to the public for review and comment for 45 days. During the public comment period on the Draft PEIS, TVA will conduct at least one public meeting. Once the public, stakeholders, resource and permitting agencies, and other interested parties have reviewed the document, TVA will consider all comments, make revisions if necessary, and publish a Final PEIS. After a period of at least 30 days, TVA will make a final decision that is summarized in a Record of Decision (ROD).

During the initial public scoping period, TVA estimated that the Draft PEIS would be published in fall of 2024, the Final EIS would be published in spring of 2025, and a final decision could be made as early as summer of 2025.

### 3.1 Applicable Federal Laws and Executive Orders

This PEIS is being prepared by TVA in accordance with NEPA (42 United States Code §§ 4321 et seq.), regulations implementing NEPA promulgated by the Council on Environmental Quality (40 CFR Parts 1500 to 1508), and TVA NEPA regulations and procedures. For major federal actions with significant environmental impacts, NEPA requires that an EIS be prepared. This process must include public involvement and analysis of a reasonable range of alternatives.

In addition to agency and public input, the PEIS will also address specific requirements associated with a number of federal laws such as National Historic Preservation Act of 1966, Endangered Species Act of 1973, Clean Water Act of 1972, and Clean Air Act, and would satisfy the requirements of Executive Order (EO) 11988 (Floodplains Management), EO 11990 (Protection of Wetlands), EO 12898 (Environmental Justice), and EO 13112 as amended by EO 13751 (Invasive Species). A comprehensive list of relevant laws and EOs is provided in Table 3-1. The Draft PEIS will describe the regulatory setting for each resource in more detail.

**Table 3-1. Federal Laws and Executive Orders Relevant to the Proposed Action**

Environmental Resource Area	Law / Executive Order
Geology, Soils, and Prime Farmland	Farmland Protection Policy Act
Water Resources	Clean Water Act EO 11988 – Floodplain Management

Environmental Resource Area	Law / Executive Order
	EO 11990 – Protection of Wetlands Safe Drinking Water Act
Biological Resources	Bald and Golden Eagle Protection Act Endangered Species Act EO 13112 – Invasive Species EO 13186 – Responsibilities of Federal Agencies to Protect Migratory Birds Migratory Bird Treaty Act
Air Quality and GHG Emissions	Clean Air Act
Cultural Resources	National Historic Preservation Act Native American Graves Protection and Repatriation Act
Waste Management	Comprehensive Environmental Response, Compensation, and Liability Act Emergency Planning and Community Right-to-Know Act Solid Waste Disposal Act Toxic Substances Control Act
Public Health and Safety	Occupational Safety and Health Act
Environmental Justice	EO 12898 – Federal Actions to Address Environmental Justice in Minority and Low-Income Populations EO 14096 – Revitalizing Our Nation's Commitment to Environmental Justice for All

### 3.2 Public Outreach During the Scoping Period

Public scoping was initiated with the publication of the NOI to prepare a PEIS in the Federal Register (FR) on May 19, 2023 (Appendix A). The NOI initiated a 45-day public scoping period, which concluded on July 5, 2023. In addition to the NOI TVA published notices regarding this effort in *Chattanooga Times Free Press* newspaper that serves the Marion County, Tennessee area and in the *Jackson County Sentinel* newspaper that serves the Jackson County, Alabama area. TVA also issued a news release to media and posted the news release on the TVA website to solicit public input. Additionally, notifications were issued to state and federal agencies and interested stakeholders.

TVA held a virtual public scoping meeting on June 22, 2023. A total of 51 individuals, both members of the general public and representatives of a variety of organizations registered for the meeting. Among those registered, 34 attended the scoping meeting, 10 of which were not affiliated with TVA. Attendees included members of the general public, Southern Environmental Law Center, the Environmental Protection Agency, and other special interest groups. Questions raised at the public scoping meeting included concerns regarding land ownership, the economic impact of the project, potential impacts to the mountain bike trails located on Raccoon Mountain, availability of information, and the project timeline. Several questions were asked regarding how and when landowners will be notified if their land is under consideration for the project.

### 3.3 Summary of Scoping Feedback

TVA received 62 comments in conjunction with the scoping process. These comments were received via 35 email submissions from members of the public, one submission from the U.S. Environmental Protection Agency (EPA), one submission from the Alabama Department of Natural Resources, Division of Wildlife and Freshwater Fisheries (ADCNR-WFF), and one submission submitted on behalf of multiple organizations including Southern Environmental Law Center, Center for Biological Diversity, Sierra Club, Appalachian Voices, and Energy Alabama. Comment submissions were reviewed to identify specific issues of concern by each commenter and were grouped in general categories for identification and review. Issues raised by commenters included the following:

- 1) *Pro Pump Storage* – General support of the pumped storage option and comments that the project would be an asset to the community (6 comments).
- 2) *Economic Feasibility* – Concerns regarding the economic feasibility of the project (3 comments).
- 3) *Recreation and Tourism* – Concerns that expansion of the Raccoon Mountain facility could affect public use of the existing trail system (15 comments).
- 4) *Land Ownership* – Concern over land ownership and how and when owners will be notified if their land is under consideration for the project. Multiple commenters stated that they would not be interested in selling their land, as it has been family owned for generations and they wish to continue their livelihood (9 comments).
- 5) *Wildlife Habitat and Aquatic Resources* – Concerns regarding the potential for the project to negatively impact rivers, streams, and wetlands and result in the loss of wildlife and their habitats. Commenters stressed the need for thorough evaluation of ecological and aquatic impacts, raised specific concerns to be addressed in the analysis, and provided potential mitigative strategies (6 comments).
- 6) *Need for EIS* – Several commenters suggested that a PEIS is not an appropriate mechanism for studying the impacts associated with the PSH proposal and that a complete, site-specific EIS will need to be submitted for public review (3 comments).
- 7) *Land Use* – Concerns regarding impacts to the land (watershed, erosion, etc.) (3 comments).
- 8) *Update IRP* – TVA received comments stating that TVA must update its IRP before making any decision to invest in PSH (2 comments).
- 9) *Alternatives* – Comments noted that the description of the current alternatives should include information on the amount and source of the electricity that will be needed to pump water to the upper reservoir, and suggested consideration of the addition of floating solar arrays. Comments also suggested consideration of other long-duration energy storage and other alternatives to PSH, including iron-air, lithium batteries, use of abandoned coal mines, and new nuclear reactors (7 comments).
- 10) *GHG Emissions and Climate Change* – Comments recommended consideration of direct and cumulative GHG emissions associated with tree clearing, construction, and operation

of PSH facilities as well as the effects that climate change will have on operation of PSH resources and the proposed project areas. One comment also recommended that the PEIS identify best practices to reduce emissions during construction (3 comments).

- 11) *Project Monitoring* – Comment recommended that the PEIS describe a monitoring program designed to assess both impacts from the project and the effectiveness of proposed mitigation measures (1 comment).
- 12) *Geology and Groundwater* – Comment recommended using groundwater observation wells to explore the possibility of installing high volume extraction wells to use in conjunction with other water resources and suggested including results from the geotechnical investigation in the PEIS (1 comment).
- 13) *Permitting* – Comment noted that the PEIS should include the most recent information on all applicable federal and state permits, approvals, and authorizations (1 comment).
- 14) *Environmental Justice* – Comment recommended meaningful engagement with affected underserved and overburdened communities and provided resources that can be utilized when conducting environmental justice scoping efforts and analysis (1 comment).
- 15) *Tribal Coordination* – Comment recommended addressing tribal concerns in accordance with federal tribal trust responsibilities and reaching out to state tribes as part of tribal coordination (1 comment).

All comment submissions are included in Appendix B.

### **3.4 Issues to be Addressed**

Based on TVA's internal scoping and input gathered from the public scoping process, TVA anticipates the major issues to be addressed in this EIS include:

- *Project Alternatives*: The project alternatives section will describe the project facilities under consideration, the location of the alternative study sites, anticipated generation and storage capacity, and anticipated energy use during pumping operations. TVA will also evaluate potential alternatives including deployment of floating solar arrays on the upper reservoir, iron-air, lithium batteries, use of abandoned coal mines, and new nuclear reactors.<sup>1</sup>
- *Surface Water Resources* – TVA will describe the quality of surface water resources, including Nickajack and Guntersville reservoirs, and will analyze the extent to which each alternative would affect water quality directly or indirectly (i.e., through infiltration or runoff).
- *Groundwater Resources* – TVA will use geologic borings, soil tests, and groundwater well data obtained from studies conducted by TVA and additional publicly available information to describe existing groundwater conditions in the vicinity and will analyze the

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<sup>1</sup> Following a preliminary review of these alternatives, TVA will determine whether it is appropriate to fully analyze potential effects of each alternative, or describe why the alternatives are eliminated from further consideration.

extent to which each alternative would affect groundwater quality and the extent to which groundwater could be used to fill the upper reservoirs.

- *Biological Resources* (vegetation, wildlife, and aquatic life) – Community types within the project area will be described. Significant natural features, including rare species habitat, important wildlife habitat, or locally uncommon natural community types will be identified. TVA will evaluate the effect of each alternative on terrestrial and aquatic ecosystems.
- *Threatened and Endangered Species* – Presence of federally or state-listed plants and animals at the proposed study areas will be determined through site-specific biological field surveys. The effects of each project alternative on endangered, threatened, and rare species in need of management will be evaluated.
- *Floodplains and Wetlands* – Floodplains and wetlands within the proposed study areas will be identified through site-specific field surveys. The effects of each of the alternatives on jurisdictional waters and floodplains will be evaluated.
- *Geology and Soils* – Regional geology and soils at proposed study areas will be identified and any limitations related to construction and operation will be evaluated.
- *Land Use and Prime Farmland* – Land uses within the proposed study areas and within the vicinity (5-mile radius) will be identified. The impacts to land use associated with each of the alternatives will be evaluated. Impacts to prime farmland soils will be quantified.
- *Transportation* – The existing roadway network in the vicinity of the three study areas, including physical road characteristics (number of lanes, shoulders, and posted speed limits) and existing traffic characteristics, will be identified. The PEIS will analyze potential effects of construction traffic and spoils transport on local traffic patterns.
- *Recreational and Managed Areas* – Natural areas, parks, trails, and other managed areas within the vicinity of the alternatives (3-mile radius) will be identified and potential impacts associated with the proposed alternatives will be addressed.
- *Visual Resources* – The aesthetic setting of each study area will be described and an analysis of changes to scenic attractiveness and scenic integrity associated with each of the alternatives will be completed.
- *Cultural Resources* – TVA will characterize archaeological and historic resources within the Areas of Potential Effect. TVA also will discuss any known sites listed on the National Register of Historic Places. The potential effects of each alternative on historic and archaeological resources will be evaluated. Results of the analysis will be reviewed by the Tennessee and Alabama State Historic Preservation Officers and interested tribes. The PEIS will also describe TVA's consultation with state tribes as required under section 106.
- *Noise* – Baseline noise conditions will be characterized and noise emissions associated with the construction phase equipment use and truck traffic during operations will be assessed to determine the potential noise impact of each alternative on sensitive receptors.
- *Air Quality, Climate Change, and Greenhouse Gas Emissions* – Air quality considerations including attainment status and regional air quality information will be presented. Impacts to air quality from activities associated with construction and operation of each of the

alternatives will be evaluated. The impact of emissions from each of the alternatives on greenhouse gas emissions and climate change will be addressed.

- *Socioeconomics and Environmental Justice* – Demographic and local community characteristics associated with the proposed study areas will be evaluated. Special attention will be given to identification of potential low income and minority populations and communities to evaluate the potential for disproportionate adverse impacts in accordance with EO 12898 and EO 14096. Economic effects associated with the proposed alternatives will also be evaluated.
- *Solid and Hazardous Waste* – Current practices regarding hazardous materials/waste management at the study areas will be identified. In addition, TVA will identify impacts from any wastes that would be generated during construction activities, including those uncovered during site preparation or generated during the construction process, that would be subject to solid and hazardous waste rules and regulations of the states of Tennessee and Alabama. Operational measures (waste management practices) will be incorporated into the assessment of impacts.
- *Public Health and Safety* – Potential effects of each alternative on public health and safety will be evaluated. The evaluation will include potential effects of construction traffic along public roadways.
- *Navigation* – Water pumping and releases from the proposed project powerhouses have potential to influence water levels in the Tennessee River that could affect the commercial navigation industry. The PEIS will describe the anticipated effects of project operation on water levels in the river and will assess potential effects on river navigation in the context of the Tennessee River Waterway Management Plan.
- *Utilities* – Project construction has potential to disrupt utility services to local residents. Maps of existing utilities in the project-affected areas will be reviewed and the potential for construction traffic and construction activities to require planned outages, or inadvertently result in unplanned utility outages will be assessed.

The potential direct and indirect impacts of each resource will be assessed in the PEIS. Mitigative measures designed to minimize impacts, as appropriate, will be identified. In addition, the PEIS will include an analysis of the cumulative impacts of the preferred alternative. A cumulative impact analysis considers the potential impact to the environment that may result from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions (40 Code of Federal Regulations § 1508.7). The methodology for performing such analysis is set forth in Considering Cumulative Effects under NEPA (Council on Environmental Quality 1997).

## 4.0 References

Council on Environmental Quality. 1997. Environmental Justice Guidance under the National Environmental Policy Act, Executive Office of the President, Washington, DC. Available at: [https://www.epa.gov/sites/production/files/2015-02/documents/ej\\_guidance\\_nepa\\_ceq1297.pdf](https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf)

Tennessee Valley Authority. 2019. Integrated Resource Plan. Volume I – 2019 Final Resource Plan. Tennessee Valley Authority, Knoxville, TN. Retrieved from <https://www.tva.gov/Environment/Environmental-Stewardship/Integrated-Resource-Plan> (accessed July 7, 2023).

## **Appendix A**

### **Federal Register Notice**



May 24, 2023. Visit <https://www.tva.gov/NEPA> to obtain more information about the open house.

### EIS Preparation and Schedule

TVA will consider comments received during the scoping period and develop a scoping report which will be published at <https://www.tva.gov/NEPA>. The scoping report will summarize public and agency comments that were received and identify the projected schedule for completing the EIS process. Subsequently, following completion of the environmental analysis, TVA will post a Draft EIS for public review and comment on the project web page. TVA anticipates holding a public open house after releasing the Draft EIS. Open house details will be posted on TVA's website in conjunction with the Draft EIS. TVA expects to release the Draft EIS in 2024, a Final EIS in 2025, and a Record of Decision at least 30-days after the release of the Final EIS.

*Authority:* 40 CFR 1501.9.

### Susan Jacks,

*General Manager, Environmental Resource Compliance.*

[FR Doc. 2023-10651 Filed 5-18-23; 8:45 am]

BILLING CODE 8120-08-P

## TENNESSEE VALLEY AUTHORITY

### Pumped Storage Hydro Programmatic Environmental Impact Statement

**AGENCY:** Tennessee Valley Authority.

**ACTION:** Notice of intent.

**SUMMARY:** The Tennessee Valley Authority (TVA) is conducting a study to evaluate increasing pumped storage hydropower (PSH) capacity within its power service area. To meet its obligations under the National Environmental Policy Act (NEPA), TVA is preparing a Programmatic Environmental Impact Statement (PEIS) to evaluate potential new PSH facilities at two locations in Jackson County, Alabama and expansion of the existing Raccoon Mountain PSH Plant in Marion County, Tennessee. Based on the findings of the PEIS, TVA may potentially select one or more sites as the need for long-duration energy storage increases. The PEIS will consider potential environmental and economic impacts from the construction and operation at each site.

**DATES:** To ensure consideration, comments on the scope and environmental issues must be postmarked, emailed, or submitted online no later than July 5, 2023. To facilitate the scoping process, TVA will hold a virtual public scoping meeting;

see <https://www.tva.gov/nepa> for more information on the meeting.

**ADDRESSES:** Written comments should be sent to Elizabeth Smith, NEPA Compliance Specialist, 400 West Summit Hill Dr., WT 11D, Knoxville, TN 37902-1499. Comments may also be submitted online at: <https://www.tva.gov/nepa> or by email at [pumpedstorageNEPA@tva.gov](mailto:pumpedstorageNEPA@tva.gov).

**FOR FURTHER INFORMATION CONTACT:** For general information about the NEPA process and/or general project information, please email [pumpedstorageNEPA@tva.gov](mailto:pumpedstorageNEPA@tva.gov), or NEPA Specialist, Elizabeth Smith, at (865) 632-3053.

**SUPPLEMENTARY INFORMATION:** This notice is provided in accordance with the Council on Environmental Quality's Regulations (40 CFR parts 1500 to 1508) and TVA's procedures for implementing the NEPA. TVA is an agency and instrumentality of the United States, established by an act of Congress in 1933, to foster the social and economic welfare of the people of the Tennessee Valley region and to promote the proper use and conservation of the region's natural resources. One component of this mission is the generation, transmission, and sale of reliable and affordable electric energy.

The analyses in a programmatic NEPA review are valuable in setting out the broad view of environmental impacts and benefits for a proposed decision such as a rulemaking, or establishing a policy, program, or plan. That programmatic NEPA review can then be relied upon when agencies make decisions based on the programmatic EIS, as well as decisions based on a subsequent (also known as tiered) NEPA review.

### Background

PSH is a type of hydroelectric energy storage that consists of two water reservoirs at different elevations in which water can be pumped to the higher elevation reservoir during periods in which energy storage is needed and then can be released during periods when energy is needed on the electrical grid. PSH is utilized for long term storage to provide for reserves on the grid, use excess energy to store water in the higher reservoir when demand drops below the base load generation, and to support intermittent generation for renewables such as wind and solar.

TVA is planning a substantial decarbonization effort and aspires to be carbon neutral by 2050. As part of these efforts, long-duration storage (8 to 12 hours) will be needed to balance the

daily energy cycle. This long-duration storage will enable additional generation from solar, new nuclear, and carbon capture technologies.

Long duration energy storage, like pumped storage, supports nuclear generation and carbon capture technologies by assisting with load balancing and allowing these technologies to run nearly full time, which is important as these technologies are generally not conducive to following the demand curve and work best when running fully loaded. PSH is a reliable and proven technology. The addition of pumped storage hydro facilities could also help TVA maintain grid stability and reliability in the future grid with less dispatchable generation and greater minute-by-minute variability due to fluctuations in output from renewables such as solar and wind.

### Project Purpose and Need

TVA is planning a substantial decarbonization effort with aspirations of being carbon neutral by 2050. To meet these goals, long-duration storage (8 to 12 hours) will be needed to balance the daily energy cycle. This long-duration storage will enable additional generation from solar, new nuclear, and carbon capture technologies.

Long duration energy storage, like pumped storage, supports nuclear generation and carbon capture technologies by assisting with load balancing and allowing these technologies to run nearly full time, which is important as these technologies are generally not conducive to following the demand curve and work best when running fully loaded. PSH is a reliable and proven technology. The addition of pumped storage hydro facilities could also help TVA maintain grid stability and reliability in the future grid with less dispatchable generation and greater minute-by-minute variability due to fluctuations in output from renewables such as solar and wind.

The purpose of this PEIS is to evaluate the potential for pumped storage facilities in two areas in Jackson County, Alabama, and an expansion of the existing facility at Raccoon Mountain and to consider potential environmental and economic impacts from the construction and operation of pumped storage facilities at each site. After the PEIS, one or more sites will be further evaluated, and transmission line siting performed. The impacts of that evaluation and transmission options for the preferred site(s) will be considered in a future supplement to this PEIS.

### Preliminary Proposed Action and Alternatives

TVA has initially identified four alternatives for evaluation in the PEIS associated with the proposed pumped storage hydro facilities. These include a No Action Alternative and three Action Alternatives. Under the No Action Alternative, TVA will evaluate and consider the impact of not including additional PSH in TVA's energy storage fleet. TVA will evaluate and consider each of the Action Alternatives to determine which site(s) are best suited for pumped storage. The Action Alternatives will include the expansion of the existing PSH facility at Raccoon Mountain, constructing a new facility near Pisgah, Alabama (Rorex Creek), and constructing a new facility near Fabius, Alabama (Widows Creek). Both new facilities would be located within Jackson County, Alabama.

The description and analysis of these alternatives in the PEIS will inform decision makers, other agencies, and the public about the potential for environmental impacts associated with the proposed PSH facilities. TVA solicits comment on whether there are other alternatives that should be assessed in the PEIS. TVA also requests information and analyses that may be relevant to the project.

### Anticipated Environmental Impacts

Public scoping is integral to the process for implementing NEPA and ensures that (1) issues are identified early and properly studied, (2) issues of little significance do not consume substantial time and effort, and (3) the analysis of identified issues is thorough and balanced. This PEIS will identify the purpose and need of the Action Alternatives and will contain descriptions of the existing environmental and socioeconomic resources within the area that could be affected by the proposed project. Evaluation of potential environmental impacts to these resources will include, but not be limited to, water resources, biological resources, cultural resources, natural areas and recreation, navigation, utilities, recreation, geology and groundwater, air quality and climate change, greenhouse gas emissions, land use and prime farmland, noise, public health and safety, socioeconomics and environmental justice, solid and hazardous waste and material, transportation, and visual resources. The PEIS will analyze measures that would avoid, minimize, or mitigate environmental effects.

The final range of issues to be addressed in the environmental review

will be determined, in part, from scoping comments received. TVA is particularly interested in public input on other reasonable alternatives that should be considered in the PEIS. The preliminary identification of reasonable alternatives and environmental issues in this notice is not meant to be exhaustive or final.

### Anticipated Permits and Other Authorizations

TVA anticipates consulting with the required authorities including, but not limited to: the Endangered Species Act; Bald and Golden Eagle Protection Act; Rare Species Protection and Conservation Act; National Historic Preservation Act; Clean Air Act; and Federal Clean Water Act.

TVA anticipates seeking required permits or authorizations as appropriate, from the following governmental entities: U.S. Army Corps of Engineers; U.S. Environmental Protection Agency; Alabama Department of Environment and Conservation; Tennessee Department of Environment and Conservation; U.S. Fish and Wildlife Service; Alabama State Historic Preservation Officer; Tennessee State Historic Preservation Officer; and Tribal Historic Preservation Officers. This is not an exhaustive list, other permits or authorizations may be sought as required or appropriate.

### Public Participation and Scoping Process

The public is invited to submit comments on the scope of the PEIS no later than the date identified in the **DATES** section of this notice. Federal, state, and local agencies and Native American Tribes are also invited to provide comments. Information about this project is available on the TVA web page at <https://www.tva.gov/nepa>, including a link to an online public comment page.

### SEIS Preparation and Schedule

Any comments received, including names and addresses, will become part of the administrative record and will be available for public inspection. After consideration of comments received during the scoping period, TVA will develop a scoping document that will summarize public and agency comments that were received and identify the schedule for completing the PEIS process.

Following analysis of the resources and issues, TVA will prepare a draft PEIS for public review and comment tentatively scheduled for late 2024/early 2025; the final PEIS and decision is tentatively scheduled for 2025. In

finalizing the PEIS and in making its final decision, TVA will consider the comments that it receives on the draft PEIS. A final determination on proceeding with the preferred alternative will be documented in a Record of Decision.

*Authority:* 40 CFR 1501.9.

**Susan Jacks,**

*General Manager, Environmental Resource Compliance.*

[FR Doc. 2023-10653 Filed 5-18-23; 8:45 am]

**BILLING CODE 8120-08-P**

## TENNESSEE VALLEY AUTHORITY

### Solar and Battery Programmatic Environmental Impact Statement

**AGENCY:** Tennessee Valley Authority.

**ACTION:** Notice of intent.

**SUMMARY:** TVA is working to build an energy system powered by cleaner, more flexible energy, and solar and storage will play a big role. TVA has an expansion target of 10,000 megawatts (MW) of solar by 2035. TVA has identified the need to respond more efficiently and effectively to the growing number of solar and battery projects that will be required to achieve TVA's overall decarbonization goals and aspirations. To meet its obligations under the National Environmental Policy Act (NEPA), TVA is preparing a Programmatic Environmental Impact Statement (PEIS) to develop new guidance and a bounding analysis that will further facilitate solar energy and battery energy storage development on TVA-owned and private lands within the TVA service area. TVA would consider this guidance, including recommended environmental practices and mitigation measures, in its decision-making processes.

**DATES:** To ensure consideration, comments on the scope, alternatives being considered, and environmental issues must be postmarked, emailed, or submitted online no later than June 20, 2023.

**ADDRESSES:** Written comments should be sent to Elizabeth Smith, NEPA Compliance Specialist, 400 West Summit Hill Dr., WT 11B, Knoxville, TN 37902-1499. Comments may also be submitted online at: <https://www.tva.gov/NEPA> or by email at [NEPA@tva.gov](mailto:NEPA@tva.gov).

**FOR FURTHER INFORMATION CONTACT:** For general information about the NEPA process and/or general project information, please contact Elizabeth Smith, NEPA Compliance Specialist,

## **Appendix B**

### **Comments Submitted During the Scoping Period**

**(May 19 through July 7, 2023)**

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#1]  
**Date:** Tuesday, May 30, 2023 11:50:05 AM

**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	William Lewis
City	Chattanooga
State	Tennessee
Organization	Rate Payer
Email	<a href="mailto:wslewis6593@gmail.com">wslewis6593@gmail.com</a>
Phone Number	(423) 883-2140

Please provide your comments by uploading a file or by entering them below. \*

A pump storage option is a great way to add generation to the TVA portfolio. Either expanding the existing Raccoon Mtn plant or a new plant in Alabama would be a good option (whichever is most economical).

The great thing about a pump storage plant is its ability to both use excess generation when demand is low and offset higher cost power when demand is high. Also the fast response time of a pump storage unit (in both pump mode and generate mode) would offer the balance authority greater flexibility than other types of generation.

Please note both Alabama Power and Dominion Power have plans to construct new pump storage plants in the southeast.

Pump storage is also a proven technology for large scale energy storage.

**From:** [Pete Rolston](#)  
**To:** [Smith, Elizabeth](#)  
**Subject:** adding new Pumped Storage facilities...?  
**Date:** Thursday, June 1, 2023 7:05:07 AM

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As a Westinghouse Rep. involved in the installation of the Step-up transformers in the cavern @ the Base of the Racoon Mtn facilities, have some appreciation for the advantages of pumped storage. As to the desirability of additional new pumped storage, am doubtful they would be economically feasible, in light of the new sources of energy production since then, notably solar, as well as changes in off-peak power usage. Will be interested in the final analysis

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** TVA Solar and Battery PEIS [#4]  
**Date:** Wednesday, June 7, 2023 2:17:30 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the "Report Phishing" button located on the Outlook Toolbar at the top of your screen.**

Name	Carey M. Cabe
City	Murphy
State	NC
Email	<a href="mailto:cmichaelcabe@gmail.com">cmichaelcabe@gmail.com</a>
Phone Number	(404) 409-3114

Please provide your comments by uploading a file or by entering them below. \*

Concerning the Alabama Storage Project, If there is any way You could shift the Site Location just Southeast of the Area You are looking at We have 6.801 Acres near Lake Wedowee in Randolph County Alabama that You may be interested in. It is in the Rual Area of Randolph County. A good shaped Lot with approx 272' of Road Frontage. I am retired, and available most any time. Thank's, C.M. Cabe

**From:** Joey Walden  
**To:** [Pumped Storage NEPA](#)  
**Subject:** Project and location  
**Date:** Thursday, June 8, 2023 2:24:17 PM

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This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the "Report Phishing" button located on the Outlook Toolbar at the top of your screen.

I would like to thank you for considering another pump storage facility. This will be a great asset to north Alabama and the valley.

I would like to say both the Pisgah and Fabius sites are excellent choices and would benefit the greater Jackson County area as a whole.

Thank you for your renewed interest in Jackson County.

Respectfully,

Joey Walden

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#2]  
**Date:** Saturday, June 10, 2023 8:23:20 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	William L Stiles
City	Scottsboro
State	AL
Organization	Retired TVA
Email	<a href="mailto:lstiles@scottsboro.org">lstiles@scottsboro.org</a>
Phone Number	(256) 599-1216

Please provide your comments by uploading a file or by entering them below. \*

I worked as an annual TVA Electrical Maintenance employee at Widows Creek , Bellefonte NP , and Sequoyah NP. During my TVA career. I've taken my family on several tours of the Raccoon Mountain Hydro pump Station, and they were amazed by the design and operation.

I believe the Hydro Pumped Storage System would be a great asset not only for TVA but for the people of Jackson County . Lots of people in Jackson County have lost faith in TVA because of the way Bellefonte NP was never completed. After Saying that property 1000 to 2000 acres of property maybe hard to obtain . Again I believe this project would be an asset for the people but also very Environmentally friendly ! Thank you, William L. Stiles



**From:** Kurt Lammon  
**To:** [Pumped Storage NEPA](#)  
**Subject:** Yes on new pumped storage facility  
**Date:** Thursday, June 15, 2023 4:00:59 AM

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Hi, I wanted to make my voice heard in support of the proposal to build a new pumped storage facility in northeast Alabama. This will be an important source of energy as we transition away from fossil fuels and which takes advantage of the region's topography.

Kurt Lammon  
675 Hill Pointe Ln, Chattanooga, TN 37405

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#3]  
**Date:** Tuesday, June 20, 2023 10:01:56 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Colton Hammontree
City	Flatrock
State	AL
Email	<a href="mailto:coltonhammontree1991@Gmail.com">coltonhammontree1991@Gmail.com</a>
Phone Number	(256) 508-5425

Please provide your comments by uploading a file or by entering them below. \*

To start off this land y'all are wanting to take was bought and payed for by my grate grandfather and now there is 3 different families that live on this family land along with horses and other animals. My grandfather and dad grew up here on the land and me and my brother has also and now my brother and I is both raising are kids on it. There is no way that y'all could ever pay us all enough to relocate into a spot with the views this place has on the bluff you can see everywhere and everything from here from all directions most people leave and go on vacation to see places and views like we have here I just hate that y'all are trying to take something that we have all worked hard to keep and my grate grandpa has payed for and passed down to us a place we all call home

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#4]  
**Date:** Wednesday, June 21, 2023 12:04:29 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Jonathan F Poole
City	Chattanooga
State	TN
Email	<a href="mailto:jfpoolio@gmail.com">jfpoolio@gmail.com</a>
Phone Number	(828) 230-3259

Please provide your comments by uploading a file or by entering them below. \*

Thank you for the trails on Raccoon Mountain. They are a huge asset to our community and region and much appreciated by those of us that use them.

I understand that the priority for the Raccoon Mountain facilities is power generation and storage and that trails may be disrupted as those power related priorities are met. This message is just to let you know how valuable the trails are and to ask for access to them to be retained over the long term even if routing needs to change or access is limited through development phases.

Thanks!

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**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#5]  
**Date:** Wednesday, June 21, 2023 12:11:36 PM

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Name	Foye Troute
City	SIGNAL MOUNTAIN
State	TN
Email	<a href="mailto:foyetroute@gmail.com">foyetroute@gmail.com</a>
Phone Number	(949) 413-6318

Please provide your comments by uploading a file or by entering them below. \*

Thank you for letting the mountain bike community of Chattanooga use, and continue to use, the trails at Raccoon Mountain. Those trails are a gem of the area and a huge tourist draw for riders all over the Southeast. This draws in more more for local business and the Chattanooga community as a whole. Hopefully we can continue to share this resource with TVA.

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#6]  
**Date:** Wednesday, June 21, 2023 12:11:58 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Brian E Kennedy
City	Signal Mountain
State	Tennessee
Email	<a href="mailto:bekennedy1966@gmail.com">bekennedy1966@gmail.com</a>
Phone Number	(614) 325-3648
Please provide your comments by uploading a file or by entering them below. *	I fully support any proposed TVA power generation expansion. All things being equal, in regard to the Raccoon Mountain facility, it would be great if it could be done with minimal impact to the existing mountain bike trail network. Thank you for the consideration!

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**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#7]  
**Date:** Wednesday, June 21, 2023 12:18:54 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Brenna Wells
City	Chattanooga
State	TN
Email	<a href="mailto:bwells13@gmail.com">bwells13@gmail.com</a>
Phone Number	(719) 322-4200

Please provide your comments by uploading a file or by entering them below. \*

My name is Brenna Wells and I am a local mountain biker. I understand there has been some discussion of expansion at raccoon mountain and this could possibly affect access to trails on the mountain. I would love to offer an alternate solution but I am not very familiar with this field. I just wanted to voice my love of these trails in hope that you would take into consideration what a special gem you have at raccoon mountain. I have mountain biked all over the country and these trails are really something special. They are by far the best trail system in the area and we have been so fortunate that you have opened up your land to this type of use. I hope you are able to find a solution that allows you to continue with your goals as a company that also keeps these trails intact and open for public use. I love these trails and hope to have many more years of enjoying them ahead. Thank you for your consideration!

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**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#8]  
**Date:** Wednesday, June 21, 2023 1:22:42 PM

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Name	Thomas Bechtold
City	Soddy Daisy
State	Tennessee
Organization	SORBA member
Email	<a href="mailto:thomas.bechtold@arcadis.com">thomas.bechtold@arcadis.com</a>
Phone Number	(423) 400-7806

Please provide your comments by uploading a file or by entering them below. \*

The mountain bike trail system at Raccoon Mtn has been very important to me and my recovery from a debilitating auto-immune disease. It has provided a place for me to enjoy the outdoors and motivate me to get back in shape, physically and mentally. I understand that power generation is very important to keep up with the population growth in our area, but please consider the great importance of the trail system to so many people and the economic impact that it has on our great city as well. Thank you for allowing these trails for so many years!

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#9]  
**Date:** Wednesday, June 21, 2023 2:33:52 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Cameron Brown
City	Chattanooga
State	Tennessee

Please provide your comments by uploading a file or by entering them below. \*

The trails on Raccoon Mountain are my favorite in the area. I ride there twice a week, some weeks as many as 4 times. They are a great place for my family and I to go to spend time recreating. There is such a diverse ecosystem on the mountain and it's different from Lookout and Signal mountain. Please keep these trail available for people to visit. As a mountain biker, this is the trail system that I recommend the most to people who ask about where to ride or want beta on the local trails in the Chattanooga area.

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**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#10]  
**Date:** Wednesday, June 21, 2023 3:01:39 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Dugald McMillan DMD
City	Chattanooga
State	TN
Email	<a href="mailto:mcmillaniv@gmail.com">mcmillaniv@gmail.com</a>
Phone Number	(256) 929-8015
Please provide your comments by uploading a file or by entering them below. *	Please continue to keep the raccoon mountain trails open for hikers and mountain bikers. I feel it's a great asset to our community! Thank you! Dugald McMillan, DMD

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#11]  
**Date:** Wednesday, June 21, 2023 3:03:00 PM

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Name	Noel Weichbrodt
City	Chattanooga
State	Tennessee
Email	<a href="mailto:noel@weichbrodt.org">noel@weichbrodt.org</a>
Phone Number	(432) 834-1745

Please provide your comments by uploading a file or by entering them below. \*

The trails at Raccoon Mountain are an amazing recreation asset to Chattanooga. Those trails are important to me and our community. I take mental health walks there, wildflower and mushroom hikes, as well as mountain bike rides, every month. My two kids learned how to mountain bike on Raccoon Mountain. Please keep them up, and even expand!

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#12]  
**Date:** Wednesday, June 21, 2023 3:58:12 PM

**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Matthew Sprinkle
City	Chattanooga
State	TN
Organization	SORBA
Email	<a href="mailto:mdouglassprinkle@gmail.com">mdouglassprinkle@gmail.com</a>
Phone Number	(404) 316-8984

Please provide your comments by uploading a file or by entering them below. \*

It is my understanding that the TVA is planning an expansion that could affect the trails at Raccoon Mountain.

Simply put, if the trails are to be affected, it will have a huge impact on the community of mountain bikers living in Chattanooga (I personally ride at Raccoon weekly), and for those that travel to the city for the purpose of mountain biking.

If the expansion is to happen, it would be great if TVA would allow SORBA to utilize its members to rebuild/re-route trails on the property. Considering the closure of trails could be a detriment to tourism for the city, would it also be possible to speak with the city about funding trails expansion/re-routing?

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#13]  
**Date:** Wednesday, June 21, 2023 4:35:27 PM

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Name	Doug Carlson
City	Chattanooga
State	TN
Organization	SORBA Chattanooga
Email	<a href="mailto:dee-cee@hotmail.com">dee-cee@hotmail.com</a>
Phone Number	(314) 283-9079
Please provide your comments by uploading a file or by entering them below. *	As you consider the PSH expansion options, my hope is that you keep the Raccoon Mt trails in mind. They are an incredible asset to the region and it would be real loss if there were significant impacts due to this expansion.
	Regards,
	Doug

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#14]  
**Date:** Wednesday, June 21, 2023 4:39:02 PM

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Name	Linden
City	Chattanooga
State	TN
Organization	SORBA
Email	<a href="mailto:taber.lindenrose@gmail.com">taber.lindenrose@gmail.com</a>
Phone Number	(404) 273-2616
Please provide your comments by uploading a file or by entering them below. *	Please consider the mountain biking trails in this decision.

Upload File #1



[d7ea83bd65d344d3817c832c000a6e1e.jpeg.jpg](#)

2.38 MB · JPG

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#15]  
**Date:** Wednesday, June 21, 2023 6:02:26 PM

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Name	Nicolas Gruber
City	Red Bank
State	TN
Organization	SORBA Chattanooga Member
Email	<a href="mailto:gruberns@gmail.com">gruberns@gmail.com</a>
Phone Number	(574) 849-3068

Please provide your comments by uploading a file or by entering them below. \*

Hi,  
I was informed of studies being conducted to possibly increase power generation on Raccoon Mountain. I have no objection, but wanted to write that me and my family and friends very much enjoy and appreciate the access to the trails on the mountain, and ask that any future changes take trail access into consideration. The mountain is a fantastic resource for both power generation and recreation and I hope it can continue to be there for myself and future generations. Thank you.

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#16]  
**Date:** Thursday, June 22, 2023 6:37:21 AM

**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Neil Ashton
City	Johnson City
State	TN
Organization	Sorba
Email	<a href="mailto:litespeeder.neil@gmail.com">litespeeder.neil@gmail.com</a>
Phone Number	(423) 483-6599

Please provide your comments by uploading a file or by entering them below. \*

I am writing in regard to expanding generating capacity at Racoon Mountain which is a tremendous asset to Chattanooga and the Cumberland Plateau area. While the need for more KW output is totally understandable, I would urge that the recreational uses at Racoon be maintained long term, and the mountain biking trails in particular. In addition to being an exceptional asset to to the Chattanooga community, the trail system at Racoon is nationally respected and contributes to tourism in the area. Thank you.

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#17]  
**Date:** Thursday, June 22, 2023 10:32:32 AM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Brian Hackathorne
City	Chattanooga
State	TN
Organization	SORBA
Email	<a href="mailto:bhackathorne@gmail.com">bhackathorne@gmail.com</a>
Phone Number	(423) 305-8738

Please provide your comments by uploading a file or by entering them below. *	Thank you to the TVA for allowing all residents to enjoy the trails up on Raccoon Mountain. My hope is for continued use of the existing trails and hopefully building it more trails in the future in concert with three TVA. My family uses these trails frequently. Thanks again.
---	--



**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#18]  
**Date:** Friday, June 23, 2023 4:08:18 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Luis Rodriguez
City	Signal Mountain
State	TN
Organization	SORBA
Email	<a href="mailto:luisrod@msn.com">luisrod@msn.com</a>
Phone Number	(423) 432-6009

Please provide your comments by uploading a file or by entering them below. \*

As an avid mountain biker, teacher, and mountain bike coach I visit the Raccoon Mountain trail system almost every day of the week. It's a world class system of trails that is well built and well maintained. We are fortunate to have such a natural resource so close to town. I particularly enjoy sharing it with my students after school. It is the most convenient and varied trail system in the region, for novices and experts alike. Losing such a natural attraction would be a terrible loss for mountain bikers and hikers alike in the region. Please take this into consideration as future plans are being drafted.

Thank you for your time and consideration,

Luis Rodriguez

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#19]  
**Date:** Saturday, July 1, 2023 8:23:29 AM

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Name	Toney Hammontree
City	Flat Rock
State	Aalabama
Email	<a href="mailto:hammontree@farmerstel.com">hammontree@farmerstel.com</a>
Phone Number	(256) 601-0490

Please provide your comments by uploading a file or by entering them below. \*

Pumped Hydro Storage can have a negative impact on the environment.

1. What are your plans for the protection of wildlife, homes, communities, flooding, ecosystems, etc...?
  2. What are your plans for the protection of the mountain area due to the erosion of mountain sides caving in often? Where we live we notice the mountainsides have eroded in the last 15-20 years. We are much closer to the bluff edge now than we were 20 years ago. It seems within time this would cave in and cause problems to the tunnels and the Pumped Hydro Storage.
  3. Instead of uprooting families from their homes that have been here for generations, wouldn't it be a better plan to go where no homes are located to keep people from having to up and leave the only home/land they have ever lived in?
  4. What about the old coal mines in Fabius? There are acres and acres over there and it could be much more cost-effective since you will not have to pay people for their land and homes.
-

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#20]  
**Date:** Saturday, July 1, 2023 8:50:30 AM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the "Report Phishing" button located on the Outlook Toolbar at the top of your screen.**

Name	Cynthia Hammontree
City	Flat Rock
State	AL
Email	<a href="mailto:hammontree@farmerstel.com">hammontree@farmerstel.com</a>
Phone Number	(256) 601-0465

Please provide your comments by uploading a file or by entering them below. \*

1. We could possibly be looking at lakes being drained by pipes that might fail. Lakes drain, and surface areas shrink, then, we have another huge problem. It would cause rivers to rise drastically in the valley, it could cause devastation to the people in the mountain area to land and homes, etc. Are the channels of the rivers going to be able to handle all the force of the water being drained? Our channels are not accustomed to carrying this much force.

2. Is it really that cost-effective? Pipes, turbines, concrete, paying for land and homes of the people, and so much more. It seems the cost to build and relocate people would now be cost-effective.

3. Wouldn't it be more efficient to build along the river? You would have access to the water and reuse the water along the way, as well. That would put us closer to our needs and be cheaper. (cost efficient)

4. What about the flow of energy? Will we really get to our "need" by building this?

It's not impossible for a Hydro Storage Pump in a valley or where no one is located, however, it is a daunting task building on a mountainside.

Also, have you really considered the scale of the challenges ahead due to the economic fall, seeing the "numbers to solutions" does not seem good, we could find ourselves in a lot of trouble with much of this.

---

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#22]  
**Date:** Monday, July 3, 2023 9:04:19 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Larrian Ballard Mason
City	Flat Rock
State	Al
Email	<a href="mailto:lmason974@gmail.com">lmason974@gmail.com</a>
Phone Number	(256) 599-7644

Please provide your comments by uploading a file or by entering them below. \*

I am one of the private land owners in the Fabius area. I am not interested in selling my land. I am the third generation to live on our farm. We have our family cemetery here and my father is buried here. Our community is a beautiful, peaceful area.

Again, I am the third generation to live on our farm. My mother lives here also. We are not interested in selling at all. I have been told that it doesn't matter, if TVA wants your land, they will just take it.

We have plans to do some light renovations to our house, concrete driveways and get ready for our forever and grandkids. We have gotten our kids graduated from college and just ready for the rest of our lives on our peaceful farm.

However, TVA wanting our land and possibly taking our land from us is something that no one should have to worry about.

---

**From:** [Larrian Mason](#)  
**To:** [Pumped Storage NEPA](#)  
**Subject:** Please don't take my land  
**Date:** Monday, July 3, 2023 9:13:06 PM

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Hello.

I am the third generation, to live on our farm. My mother lives behind me here also. Our 4th generation is currently working the farm. We are not interested in selling any part of our land.

We have gotten kids graduated from college, and are ready to settle in for the relaxing years of our family. Just looking to enjoy our peaceful, relaxing community.

Please look to put this somewhere else, we have worked all our lives to get to the spot we are at. And just when we get ready to enjoy it, we have the terror of TVA coming in and taking our land.

Larrian Mason  
sent from my iPhone

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#23]  
**Date:** Monday, July 3, 2023 10:05:23 PM

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Name	Lynnette samples
City	Dutton
State	Al
Organization	Private citizen
Email	<a href="mailto:lynnettesamples@yahoo.com">lynnettesamples@yahoo.com</a>
Phone Number	(256) 717-8656
Please provide your comments by uploading a file or by entering them below. *	I have land on the bluff on cr 14. I have heard y'all tried tto contact me. My husband name is Byron samples. We would like to hear from y'all. Thank you !

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#24]  
**Date:** Tuesday, July 4, 2023 8:11:16 AM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Landon
City	Dutton
State	Alabama
Email	<a href="mailto:truejdm@live.com">truejdm@live.com</a>
Phone Number	(256) 244-3482
Please provide your comments by uploading a file or by entering them below. *	<p>My opinion of the pumped storage plan is NO!</p> <p>I would much rather see Belefonte Nuclear Plant completed.</p> <p>The locations you have chosen for pumped storage are beautiful places and building there is going to destroy all it's beauty and destroy all the wildlife that lives there.</p> <p>If more energy is needed that badly, Belefonte is already been started in this area, might as well complete it. After all Belefonte is a good design for clean energy.</p>

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**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#25]  
**Date:** Tuesday, July 4, 2023 3:39:20 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Michael Rainwater
City	Stevenson
State	Alabama
Organization	N/A
Email	<a href="mailto:diverhunter498@gmail.com">diverhunter498@gmail.com</a>
Phone Number	(256) 558-6933

Please provide your comments by uploading a file or by entering them below. \*

Build it, our local economy could definitely use the shot in the arm during construction as well as the maintenance outages. This area largely depended on the spring and fall maintenance outages at Widows Creek Fossil, and have had Bellefonte dangled at the end of their noses for 4 decades. Please do something beneficial for this area, instead of taking jobs and dollars out of the communities in Jackson County.



**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#26]  
**Date:** Tuesday, July 4, 2023 7:11:19 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Deborah Ohge
City	Flat Rock
State	Alabama
Organization	None
Email	<a href="mailto:dborossy@gmail.com">dborossy@gmail.com</a>
Phone Number	(256) 687-9048
Please provide your comments by uploading a file or by entering them below. *	How large would the reservoir be if built above Widow's Creek? Would it eliminate AL Highway 14? Thanks.

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#27]  
**Date:** Tuesday, July 4, 2023 7:40:19 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Taylor
City	Gurley
State	Alabama
Organization	TVA
Email	<a href="mailto:tcx7@tva.gov">tcx7@tva.gov</a>
Phone Number	(205) 613-3410
Please provide your comments by uploading a file or by entering them below. *	Jackson County is the last natural, largely green areas in this part of our state. I think that if you made another reactor or turned on Bellefontaine, TVA would have plenty of power
	Best regards, Taylor.

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#28]  
**Date:** Wednesday, July 5, 2023 5:54:34 AM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Shane groves
City	Pisgah
State	Alabama
Email	<a href="mailto:shanea35765@gmail.com">shanea35765@gmail.com</a>
Phone Number	(256) 597-6776
Please provide your comments by uploading a file or by entering them below. *	Why has noone contacted our family we own the water fall on rorex creek and the hole at the bottom that no one has ever found the bottom to ?

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#29]  
**Date:** Wednesday, July 5, 2023 10:24:56 AM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	Emily Martin
City	Chattanooga
State	TN
Email	<a href="mailto:emartinblue@yahoo.com">emartinblue@yahoo.com</a>
Please provide your comments by uploading a file or by entering them below. *	Raccoon Mountain is a tourist destination for the Chattanooga area (especially for mountain biking). If the mountain bike trails would be impacted by the proposed expansion at Raccoon Mountain I would think there would be much opposition from the community. I don't know enough about the project to know whether the trails/recreation opportunities would be impacted but if they are then I would hope that TVA would reconsider the expansion. Thank you.

**From:** [Fobian, Todd](#)  
**To:** [nepa](#)  
**Cc:** [Marshall, Matthew](#); [Greene, Chris](#)  
**Subject:** Pumped Storage Hydro Programmatic Environmental Impact Statement  
**Date:** Wednesday, July 5, 2023 5:54:37 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the "Report Phishing" button located on the Outlook Toolbar at the top of your screen.**

Dear Tennessee Valley Authority (TVA),

The Alabama Department of Natural Resources, Division of Wildlife and Freshwater Fisheries (ADCNR-WFF) is the principal advocate for and steward of natural resources in Alabama (AL). Our agency is responsible for the protection, conservation and enhancement of wildlife and fisheries resources in AL pursuant to Ala. Code §9-2-2 and §9-11-80 (1975). The mission of the ADCNR-WFF is to manage, protect, conserve and enhance the wildlife and aquatic resources of AL for the sustainable benefit of the people of AL. ADCNR-WFF would like to ensure its interests and the public are represented in this review process. ADCNR-WFF was not aware of this project and thus has not had sufficient time to fully investigate the proposed alternatives or field plan development. Additional details regarding project design and boundaries would be useful in evaluating potential project impacts.

ADCNR-WFF recognizes the need to provide economic, reliable energy storage and seek intermittent renewable energy resources to meet the power needs as vital to Jackson and surrounding County customers; however, the loss of wildlife and their habitat must be minimized. The proposed reservoirs and releases for this project will negatively and permanently impact rivers, streams and wetlands. Moreover, downstream changes in the hydrology of the watershed will alter habitat, with likely negative impacts on natural resources. These effects greatly concern ADCNR-WFF. It is critical to the ecological integrity of the watershed to maintain acceptable environmental flows, water quality and to mitigate for the loss of state and federal trust resources. A complete Environmental Impact Study (EIS) will need to be conducted and submitted for public review to evaluate the needs, alternatives, impacts, and mitigation requirements of these projects. ADCNR-WFF will collaborate with TVA, and other resource agencies input, to develop and implement Aquatic and Wildlife Resource Monitoring Plans for this project. ADCNR-WFF recommends these plans be implemented at determined intervals through the project development and implementation process with standardized sampling protocols. The plans should include requirements for both pre and post resource surveys and monitoring to determine what species may be impacted. Special attention and focus should be given in planning to sport fish, state and federally protected species and Species of Greatest Conservation Need included in our AL Wildlife Action Plan 2015-2025.

ADCNR-WFF would appreciate additional opportunities and time to provide comments and recommendations on potential impacts to natural resources and state protected species associated with the Proposed Alternatives, including input on biological field plan development, field studies and preparation/review of a draft Environmental Impact Statement.

If you have any questions, please contact me at (334-353-7484) or [Todd.Fobian@dcnr.alabama.gov](mailto:Todd.Fobian@dcnr.alabama.gov).

Could you please add, Todd Fobian ([Todd.Fobian@dcnr.alabama.gov](mailto:Todd.Fobian@dcnr.alabama.gov)), Chris Greene ([Chris.Greene@dcnr.alabama.gov](mailto:Chris.Greene@dcnr.alabama.gov)), Matt Marshall ([Matthew.Marshall@dcnr.alabama.gov](mailto:Matthew.Marshall@dcnr.alabama.gov)) to the project document and meeting distribution list.

If the project will have impacts to state-owned lands and/or water bottoms, then ADCNR State Lands Division (334-242-3484) should be consulted as well.

Sincerely,

Todd Fobian  
Environmental Affairs Supervisor  
Alabama Wildlife and Freshwater Fisheries Division  
64 N. Union Street, Suite 551  
Montgomery, AL 36130  
Office: 334-353-7484  
Cell: 334-850-3798  
[Todd.Fobian@dcnr.alabama.gov](mailto:Todd.Fobian@dcnr.alabama.gov)

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#30]  
**Date:** Wednesday, July 5, 2023 6:50:42 PM

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**This is an EXTERNAL EMAIL from outside TVA. THINK BEFORE you CLICK links or OPEN attachments. If suspicious, please click the “Report Phishing” button located on the Outlook Toolbar at the top of your screen.**

Name	George L Starkey
City	Pisgah, AL
State	al
Organization	TVA/Retired
Email	<a href="mailto:glstarkey@msn.com">glstarkey@msn.com</a>
Phone Number	(256) 451-3918

Please provide your comments by uploading a file or by entering them below. \*

I was told by the TVA Engineer who did a survey in the 80's including core drillings and dye test, that TVA would never build a pumped storage at the Pisgah sight because it would never hold water. He said there is a subversive fault running through the purposed sight. The creek which runs thru the sight runs in a hole and disappears. He poured dye in it and it never resurfaced! Just wondering why TVA is spending more money on the Pisgah site doing rework? I worked 33 years in Power Production. When I retired I was the Operation Supervisor at Widows Creek Fossil Plant. Rework kills budgets!

**From:** [Brian Paddock](#)  
**To:** [Pumped Storage NEPA](#)  
**Subject:** Pumped Storage Hydro Programmatic Environmental Impact Statement.  
**Date:** Wednesday, July 5, 2023 10:17:10 PM  
**Attachments:** [Comments on PHS scoping 7-5-23.pdf](#)

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Comments attached in PDF.

--

Brian Paddock  
Landline 931-858-9806 (Preferred)  
Cell 931-510-7823



**BRIAN PADDOCK  
ATTORNEY AT LAW  
7094 Brittney Circle  
Baxter, Tennessee 38544  
bpaddock@twlakes.net  
(931) 858-9806 Voice (or fax by arrangement)  
Cell: 931-510-7823**

Ms. Elizabeth Smith  
NEPA Compliance Specialist  
Tennessee Valley Authority  
400 West Summit Hill Dr., WT 11D  
Knoxville, TN 37902-1499

Via email to [pumpedstorageNEPA@tva.gov](mailto:pumpedstorageNEPA@tva.gov)

**Re: Scoping Notice for Pumped Storage Hydro Programmatic Environmental Impact Statement.**

I served on the stakeholder advisory committee to the very first TVA Integrated Resource Plan (IRP). At that time the stakeholders recommended the construction of an additional Pumped Storage facility. My recollection is that this would increase the value of the Mid-western wind generated electricity which TVA was buy at that point. My personal view was that pumped storage near the delivery point of this electricity would be feasible due to the mountaintop removal mining which had occurred in the vicinity so that a lower pool and an upper pool system could be constructed relatively quickly, easily and inexpensively.

TVA made only one feint at such a pumped storage and when faced with local opposition it walked away. TVA never contacted the stakeholder committee members about this.

I agree with the comments made by the southern Environmental Law and its partners (SELC+). TVA's Pumped Hydro Storage (PHS) offering appears to be an end run designed to deliver PHS to the TVA Browns Ferry Nuclear Plants. This would be touted as storage of carbon free energy. Possibly such a project could be defended if the EIS suggested by the SELC+ comments.

However TVA is doing an unnecessary and unneeded Programmatic EIS so that it can avoid further genuine EIS by using a conclusory Environmental Assessment “tiered” off a programmatic EIS to slip thru PHS projects. As the SELC+ comments point out each PHS site and project requires a location focused environmental analysis following the statute and the Council on Environmental Policy regulations on EIS process and content.

It is necessary to delay the environmental evaluation of any PHS proposed project until the completion of the 2024 Integrated Resource Plan (IRP) because the 2019 IRP was so poorly handled.

I will not have confidence in the next IRP until it is demonstrated that TVA will recognize the urgency of ending all use of fossil fuels, including both coal and gas, as part of our region’s contribution to staying below the 1.5° C tipping point to avoid extreme and effectively endless climate disasters.

Past IRPs have artificially reduced the amount of solar and storage allowed in TVA’s plans. The Kingston DEIS misstated the cost and impacts of solar by looking at past bids and ignoring current market pricing, the Inflation Reduction Act and the Bipartisan Infrastructure Act.

Please don’t embarrass yourselves by vague references to carbon capture and storage as somehow justifying this hodgepodge of words about PHS. This is as lame as the pollinator garden dress up of the Cheatham County combustion turbine facility

TVA ignored the letter from EPA delineating how billions of dollars could be saved by using solar and storage to replace energy lost from closing coal burning plants. End user customers will be reminded of TVA’s bad decision making with each monthly bill that has a “fuel cost adjustment”.

Likewise TVA is regaining its reputation as a land grabbing bully as it demands 30 inch pipeline from Nashville to Kingston.

It is time for TVA to become a leader and a truth teller not a shill for the business-as-usual utilities and acting as if we are not in a climate crisis and it doesn’t matter if TVA continues to pump megatons of CO2 into the atmosphere.

If PHS is needed put near one of the eight solar farms you have found “feasible” and demonstrate the value of long term storage of renewable energy to time shift and strengthen the grid.

/s/ Brian Paddock  
Brian Paddock, Esq.  
TBR No. 006968

**From:** [Wufoo](#)  
**To:** [nepa](#)  
**Subject:** Pumped Storage Hydro PEIS [#32]  
**Date:** Wednesday, July 5, 2023 11:15:36 PM

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Name	Amanda Garcia
City	Nashville
State	Tennessee
Organization	Southern Environmental Law Center
Email	<a href="mailto:agarcia@selctn.org">agarcia@selctn.org</a>
Phone Number	(615) 921-9470

Please provide your comments by uploading a file or by entering them below. \*

Dear Ms. Smith,

Earlier this evening at approximately 6:06 pm CT I submitted via email to [pumpedstorageNEPA@tva.gov](mailto:pumpedstorageNEPA@tva.gov) and the online form the attached comments of Southern Environmental Law Center, Appalachian Voices, Energy Alabama, Sierra Club and Center for Biological Diversity on TVA’s scoping notice for a pumped storage hydro programmatic environmental impact statement. However, neither the email nor the online form provided confirmation of receipt, so I am sending the comments again in an abundance of caution.

Amanda Garcia (she/her/hers)  
Senior Attorney and Director, Tennessee Office  
[agarcia@selctn.org](mailto:agarcia@selctn.org)

Southern Environmental Law Center  
1033 Demonbreun Street, Suite 205  
Nashville, TN 37203

Office (615) 921-9470

[southernenvironment.org](http://southernenvironment.org)

Upload File #1



[20230705\\_conservation\\_groups\\_comments\\_on\\_scoping\\_for\\_pumped\\_hydro\\_peis.pdf](#)  
532.20 KB · PDF

July 5, 2023

Via email to [pumpedstorageNEPA@tva.gov](mailto:pumpedstorageNEPA@tva.gov)

Ms. Elizabeth Smith  
NEPA Compliance Specialist  
Tennessee Valley Authority  
400 West Summit Hill Dr., WT 11D  
Knoxville, TN 37902-1499

**Re: Scoping Notice for Pumped Storage Hydro Programmatic Environmental Impact Statement**

Dear Ms. Smith:

Southern Environmental Law Center, Appalachian Voices, Sierra Club, Energy Alabama, and Center for Biological Diversity (Conservation Groups) write in response to the scoping notice for TVA's proposed pumped storage hydro (PSH) programmatic environmental impact statement (PEIS). Long-duration storage can help support a much-needed transition to a zero-greenhouse gas (GHG) TVA system in line with TVA's and the federal government's GHG reduction goals. To accomplish these goals, the environmental impacts associated with a range of alternatives, including PSH, must be disclosed and analyzed under NEPA. In the comments that follow, we make the following points regarding the appropriate scope and format of environmental review for any long-duration storage proposal:

- TVA must update its integrated resource plan (IRP), or long-range energy plan, before making any decision to invest in PSH. The 2019 IRP did not recommend adding PSH capacity. Given advances in other long-duration storage technologies as well as the passage of federal climate legislation, it is not clear that PSH will be a necessary or least-cost option in the upcoming 2024 IRP.
- Because site-specific environmental impacts are likely to predominate, a programmatic EIS is not an appropriate mechanism for studying the impacts associated with a PSH proposal. For example, each PSH site is likely to have distinct impacts on environmental justice communities, cultural resources, including indigenous cultural resources, and wildlife, including threatened and endangered species. In no circumstances should TVA employ a bounding analysis in a PEIS based on either a hypothetical PSH or on bounds set in relation to the three proposed sites. A bounding analysis will obscure site-specific impacts and prevent the affected communities, including environmental justice communities, tribes, and landowners, from meaningfully participating in TVA's decision-making process.
- TVA must consider non-PSH alternatives, including different types of long-duration storage, such as iron-air and lithium batteries, and compare those alternatives' impacts to

the impacts associated with each PSH site. TVA must also analyze a closed loop PSH since it is recognized as the least environmentally damaging pumped storage technology.

- TVA must consider greenhouse gas emissions associated with PSH, including cumulative impacts such as facilitating the construction and operation of new fossil resources, such as gas plants, which will require carbon capture and sequestration. TVA must also disclose the impacts that climate change will have on operation of any PSH resource.

Thank you for the opportunity to comment on the scoping notice for this proposal.

Sincerely,

Amanda Garcia  
Southern Environmental Law Center  
1033 Demonbreun Street, St. 205  
Nashville, TN 37203  
[agarcia@selctn.org](mailto:agarcia@selctn.org)

Gabriela Sarri-Tobar  
Center for Biological Diversity  
1411 K St. NW, Suite 1300  
Washington, DC 20005  
[gsarritobar@biologicaldiversity.org](mailto:gsarritobar@biologicaldiversity.org)

Amy Kelly  
Sierra Club  
PO Box 113  
Powell, TN 37849  
[amy.kelly@sierraclub.org](mailto:amy.kelly@sierraclub.org)

Bri Knisley  
Appalachian Voices  
589 West King Street  
Boone, NC 28607  
[brianna@appvoices.org](mailto:brianna@appvoices.org)

Daniel Tait  
Energy Alabama  
PO Box 1381  
Huntsville, AL 35807  
[dtait@energyalabama.org](mailto:dtait@energyalabama.org)

# CONSERVATION GROUPS' COMMENTS ON TVA'S SCOPING NOTICE FOR PUMPED STORAGE HYDRO PEIS

## Background

### I. Pumped storage hydropower generally

Pumped storage hydropower systems (PSH) use water pumped from a water source to a storage reservoir at a higher elevation which is released to power hydro turbines.<sup>1</sup> These systems pump water when electricity demand and wholesale electricity prices are low and release the water to generate electricity when demand and prices are high. They are essentially water storage batteries with the ability to provide long-duration energy storage functionality (8 hours or more). Currently, the U.S. has 23 gigawatts of PSH with most of the facilities built between 1960 and 1990 and no new large PSH projects constructed in the U.S. since the 1990s.<sup>2</sup> There are two basic types of pumped storage systems.<sup>3</sup> Open-Loop is defined by DOE as, "Continuously connected to a naturally flowing water feature." All PSH projects in the U.S. are open-loop systems. Closed-Loop is defined by DOE as, "Not continuously connected to a naturally flowing water feature."

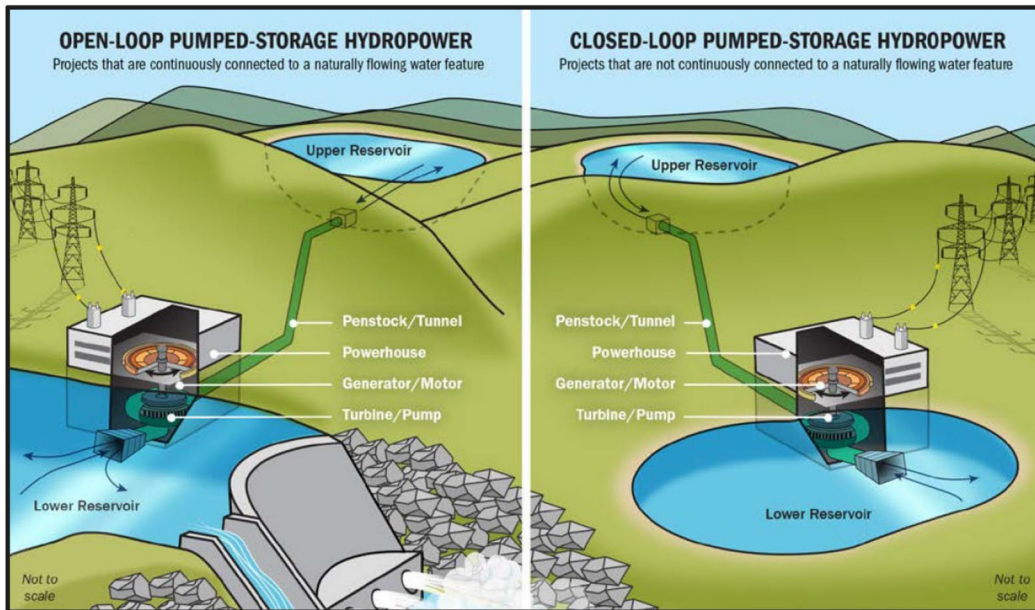


Figure ES-1. Generic comparison of open-loop and closed-loop PSH projects. (Source: DOE 2019)

<sup>1</sup> *Hydropower explained*, U.S. ENERGY INFO. ADMIN., <https://www.eia.gov/energyexplained/hydropower/> (last visited July 5, 2023).

<sup>2</sup> DEP'T OF ENERGY, NREL/TP-6A20-81277, CLOSED-LOOP PUMPED STORAGE HYDROPOWER RESOURCE ASSESSMENT FOR THE UNITED STATES: FINAL REPORT ON HYDROWIRES PROJECT D1: IMPROVING HYDROPOWER AND PSH REPRESENTATION IN CAPACITY EXPANSION MODELS at iii (May 2022), <https://www.nrel.gov/docs/fy22osti/81277.pdf>.

<sup>3</sup> DEP'T OF ENERGY, PNNL-29157, A COMPARISON OF THE ENVIRONMENTAL EFFECTS OF OPEN-LOOP AND CLOSED-LOOP PUMPED STORAGE HYDROPOWER at viii-ix (April 2020), <https://www.energy.gov/sites/prod/files/2020/04/f73/comparison-of-environmental-effects-open-loop-closed-loop-psh-1.pdf>.

The Department of Energy has found that “Overall, the environmental effects of closed-loop PSH projects are generally lower (i.e., more localized and of shorter duration) than those of open-loop PSH projects because they: (1) are located “off-stream,” potentially minimizing aquatic and terrestrial impacts, and; (2) often have greater siting flexibility than open-loop PSH projects.”<sup>4</sup> The Department of Energy further has found that “Closed-loop projects with above-ground reservoirs typically have lower impacts on surface water quality than open-loop projects because they do not have regular (only initial and periodic) withdrawals from naturally flowing water bodies and have no discharges to those water bodies.”<sup>5</sup> By design, large hydropower projects dramatically alter the local landscape and rivers they are built on. These dams and reservoirs can reduce river flows, raise water temperature, increase water evaporation, degrade water quality, and cause sediment to build up.<sup>6</sup> They can also displace local communities in the areas around reservoirs.

## II. TVA’s proposed alternatives

TVA has proposed four alternatives:

- (1) No action – no additional PSH
- (2) Expansion of Raccoon Mountain – +800 MW
  - Second underground powerhouse, separate from existing facility
  - Would be tunneled into the mountain, similar to the existing facility, and would use water from the existing reservoir
  - May choose to expand the reservoir to add capacity
  - New facility would be on lands currently owned/operated by TVA
- (3) New facility in Jackson County, Alabama, near Rorex Creek – 1,600 MW
  - Near Pisgah, AL
  - Guntersville Reservoir serving as the lower pool
  - Investigation of multiple alignments and considering 2 primary configurations (Rorex Creek South and Rorex Creek Central) to see if these alignments and the design phase will allow them to adjust design needs for geology needs and social impacts
  - Located primarily on property owned by private landowners with some property being owned by TVA
- 4) New facility in Jackson County, Alabama near Widows Creek – 1,600 MW
  - Near Stevenson and Fabius, AL
  - Guntersville serving as the lower pool
  - Considering 4,874 acres and 2 primary configurations (Widows Creek South and Widows Creek North)
  - Located primarily on property owned by private landowners with some property being owned by TVA

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<sup>4</sup> *Id.* at 3.3

<sup>5</sup> *Id.* at 3.8-3.9

<sup>6</sup> Lindsay Fendt, *Why aren’t we looking at more hydropower?*, MASS. INST. OF TECH. CLIMATE PORTAL (Mar. 2, 2021), <https://climate.mit.edu/ask-mit/why-arent-we-looking-more-hydropower>.



All three of TVA’s action alternatives appear to be open-loop PSH. TVA is proposing to spend \$2 billion to \$4 billion on PSH.<sup>7</sup> TVA’s primary justification for this investment is that it “supports nuclear generation and carbon capture technologies by assisting with load balancing and allowing these technologies to run nearly full time.”<sup>8</sup> Secondly, TVA states that PSH “could” help TVA address “minute-by-minute variability due to fluctuations in output from renewables such as solar and wind.”<sup>9</sup>

TVA anticipates completing the NEPA process and selecting a PSH site in 2025 and will decide whether to move the project forward in 2025-26.<sup>10</sup> Construction will then take 6-8 years to complete.<sup>11</sup>

## Scoping Comments

### I. TVA must update its integrated resource plan (IRP), or long-range energy plan, before making any decision to invest in PSH.

TVA must update its integrated resource plan (IRP), or long-range energy plan, before making any decision to invest in PSH. Although TVA included PSH as a selectable resource in the 2019 IRP, the model did not select it and TVA did not recommend adding any PSH capacity.<sup>12</sup> Further, TVA’s 2019 IRP is badly out-of-date. Neither the 2019 IRP nor the modeling exercise on which it is based reflect TVA’s climate commitments, coal retirement plans, major climate legislation, and significant changes in the energy market. Among other things, the 2019 IRP does **not**:

- incorporate and model TVA’s own commitment to an 80 percent greenhouse gas (“GHG”) emissions reduction by 2035 from 2005 levels and to achieving net-zero emissions by 2050;<sup>13</sup>
- incorporate and model TVA’s obligation to comply with federal decarbonization targets, including decarbonizing the electric grid by 2035, as set forth in a series of executive orders;
- anticipate or find a need for additional coal retirements (beyond Paradise 3 and Bull Run) earlier than 2032 (although the model was permitted to select earlier retirements if found to be cost effective);

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<sup>7</sup> TVA, PUMPED STORAGE HYDRO STUDY: PROJECT OVERVIEW 5 (Feb. 2023), <https://tva-azr-eastus-cdn-ep-tvawcm-prd.azureedge.net/cdn-tvawcma/docs/default-source/environment/environmental-stewardship/pumped-storage-project-overview.pdf>.

<sup>8</sup> Pumped Storage Hydro Programmatic Environmental Impact Statement, 88 Fed. Reg. 32269 (May 19, 2023).

<sup>9</sup> *Id.*

<sup>10</sup> TVA, PUMPED STORAGE HYDRO STUDY: PROJECT OVERVIEW 7 (Feb. 2023), <https://tva-azr-eastus-cdn-ep-tvawcm-prd.azureedge.net/cdn-tvawcma/docs/default-source/environment/environmental-stewardship/pumped-storage-project-overview.pdf>.

<sup>11</sup> *Id.* at 8.

<sup>12</sup> TVA, 2019 Integrated Resource Plan, Vol. I – Final Resource Plan, 5-10 (2019); *Id.* at 7-4 (“Storage additions range from 0 to 5,300 MW depending on strategic focus. Most storage additions are utility-scale batteries, with mechanical selected in some instances”); *Id.* at 9-3.

<sup>13</sup> See TVA, TVA STRATEGIC INTENT AND GUIDING PRINCIPLES 22 (May 2021), <https://tva-azr-eastus-cdn-ep-tvawcm-prd.azureedge.net/cdn-tvawcma/docs/default-source/about-tva/board-of-directors/may-6-2021/strategic-plan-documentc67079e2-d479-4f3d-a13b-1fa6fd714cde.pdf>.



- commit TVA to evaluate additional coal retirements beyond 2,200 MW, which it exceeded by deciding to retire the Cumberland Fossil Plant by 2026;
- ground-truth its modeling assumptions through an all-resources Request for Proposals;
- incorporate incentives from two recent groundbreaking pieces of legislation: the Infrastructure Investment and Jobs Act (“IIJA”) and the Inflation Reduction Act (“IRA”), which are both expected to lower transmission, wind, solar, and storage investment costs;<sup>14</sup>
- reflect the effect of recent price volatility, supply chain challenges, and winter reliability challenges; or
- consider resources that require new high voltage DC transmission (HVDC), including wind located in the Southwest Power Pool, Midcontinent Independent System Operator, and Electric Reliability Council of Texas territories.

Without an up-to-date IRP, TVA has no basis to conclude that its massive investment in PSH contributes to a portfolio that achieves the lowest system cost.

The proposed timing of this PEIS overlaps significantly with the preparation of the 2024 IRP and its accompanying EIS.<sup>15</sup> Given advances in long-duration battery technology (see below) as well as the passage of federal climate legislation, it is not clear that PSH will be a necessary or least-cost option in the upcoming 2024 IRP. New or expanded PSH should not be considered an existing resource in the 2024 IRP but instead should be considered a potential capacity addition that must compete with other resources, including blended portfolios that include wind, solar, energy efficiency, battery storage of various durations, and demand response.

The same statutory, regulatory, legislative and market forces that render the 2019 IRP itself defunct would also make it arbitrary for TVA to tier to or rely on the EIS for the 2019 IRP to support this PEIS. The EIS for the 2019 IRP did not disclose or evaluate alternatives that take into account TVA’s or the federal government’s GHG targets, coal retirements beyond the addition of 2,200 MW that TVA has already exceeded, the IRA and IIJA, or any of the other factors discussed in this section.<sup>16</sup> Far from providing a “general discussion” of these matters, as is required in order to tier from a broader NEPA document,<sup>17</sup> the EIS for the 2019 IRP mentions none of them. Thus, the environmental analysis in that document cannot justify TVA “concentrating solely on the issues specific” to the proposed PSH alternatives within this PEIS.<sup>18</sup>

## **II. A programmatic EIS is not appropriate for evaluating PSH.**

TVA has proposed to prepare a PEIS to evaluate PSH alternatives. TVA’s own implementing regulations identify “[n]ew large water resource development and water control projects such as construction and operation of new dams or navigation locks,” as “normally”

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<sup>14</sup> Jon Taberero et al., Synapse Energy Economics, Inc., *A Clean Energy Portfolio is Still the Best Option for TVA: Synapse Response to TVA’s Environmental Impact Statement and Concentric’s Appendix Q* at 1-2 (Jan. 6, 2023).

<sup>15</sup> Integrated Resource Plan and Environmental Impact Statement, 88 Fed. Reg. 32265 (May 19, 2023).

<sup>16</sup> TVA, 2019 Integrated Resource Plan, Vol. II – Final Environmental Policy Statement (2019).

<sup>17</sup> 40 C.F.R. § 1508.1(ff).

<sup>18</sup> *Id.*

requiring an EIS.<sup>19</sup> This makes sense, because for a large water resource development like a PSH site-specific impacts are likely to predominate and require the scrutiny provided by a site-specific EIS.

A PEIS, on the other hand, is not an appropriate format for disclosing and analyzing the environmental impacts associated with PSH. TVA has proposed PSH at three very distinct geographic locations on different waterbodies that would disrupt and potentially displace different environmental justice communities, cultural resources (including distinct indigenous cultural resources), and wildlife, including different threatened and endangered species, among others. Each project would also result in impacts to a distinct forested area that would be inundated by a new pumped storage facility. These site-specific impacts require full disclosure and analysis in a manner that places affected communities on notice and allows them to participate meaningfully in TVA's decision-making process, including proposing site-specific avoidance and mitigation strategies.

In the past, TVA has misused "bounding analysis" in ways that disempower locally-affected communities, like the community affected by coal ash transport and disposal in South Memphis.<sup>20</sup> In no circumstances should TVA employ a bounding analysis in a PEIS based on either a hypothetical PSH or on bounds set in relation to the three proposed sites. A bounding analysis will obscure site-specific impacts and prevent the affected communities, including environmental justice communities, tribes, and landowners, from meaningfully participating in TVA's decision-making process. Bounding analyses are rarely used and are not explicitly approved of by NEPA's implementing regulations.<sup>21</sup> A "bounding analysis should not be used where more accurate and detailed assessment is possible and would better serve the purposes of NEPA."<sup>22</sup> That is manifestly the case here.

TVA states that it intends to prepare a "supplement" to the PEIS once it has selected a site and evaluated transmission options.<sup>23</sup> TVA's NEPA implementing regulations do not expressly require TVA to circulate any such supplement for public comment.<sup>24</sup> Thus, TVA may be planning not to disclose the site it has selected until after any opportunity for public comment from the affected communities has passed.<sup>25</sup> To the extent that TVA pursues a PEIS, which it should not, TVA must commit to publishing and accepting public comment on a site-specific environmental impact statement once it has selected a site and a proposed transmission route.

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<sup>19</sup> 18 C.F.R. § 1318.400(a).

<sup>20</sup> Darryl Fears, *The TVA is dumping a mountain of coal ash in Black south Memphis*, THE WASHINGTON POST (Aug. 19, 2022), <https://www.washingtonpost.com/climate-environment/2022/08/19/tennessee-valley-authority-memphis-coal/>.

<sup>21</sup> *Oak Ridge Env't Peace All. v. Perry*, 412 F. Supp. 3d 786, 855 (E.D. Tenn. 2019), appeal dismissed, No. 19-6332, 2021 WL 2102583 (6th Cir. Jan. 14, 2021).

<sup>22</sup> *Id.* at 856 (internal quotation marks omitted).

<sup>23</sup> Pumped Storage Hydro Programmatic Environmental Impact Statement, 88 Fed. Reg. at 32269.

<sup>24</sup> 18 C.F.R. § 1318.406.

<sup>25</sup> *California v. Block*, 690 F.2d 753, 761 (9th Cir. 1982) ("The critical inquiry in considering the adequacy of an EIS prepared for a large scale, multi-step project is not whether the project's site-specific impact should be evaluated in detail, but when such detailed evaluation should occur."); *id.* at 763 ("[T]he promise of site-specific EIS's [sic] in the future is meaningless if later analysis cannot consider wilderness preservation as an alternative to development.").

### III. TVA must consider a broader range of alternatives, including long-duration batteries and closed-loop PSH.

TVA should evaluate a broader range of long-duration energy storage alternatives. For example, TVA should include consideration of long duration battery storage, including multiple duration lithium-ion batteries and the emerging iron-air technology, as alternatives to building a new pumped storage facility. Form Energy is currently building a factory in West Virginia to manufacture iron-air batteries that would use reversible rusting to store electricity for up to 100 hours, “at system costs competitive with legacy power plants.”<sup>26</sup> Form Energy already has some contracts to provide iron-air batteries to utilities, including a contract to provide Georgia Power with a 15 MW, 100 hour (1,500 MWhs in total), project that could be operational by 2026.<sup>27</sup>

With utilities in our region already contracting for this technology to be deployed as early as 2026, like Georgia Power, long duration battery storage could be a commercially available alternative in the same time frame as, or even earlier than, scoping and permitting a new pumped storage facility.

Batteries offer superior flexibility and other reliability services compared to even the most flexible conventional resources. While TVA’s Raccoon Mountain Pumped-Storage plant can absorb generation, it lacks batteries’ flexibility in almost all other regards. TVA data reveal that when pumping it can only charge at a full load of 1,640 MW, with no ability to absorb generation at a lower rate, and when generating it can only produce between 1,100 MW and 1,696 MW.<sup>28</sup> It also requires up to an hour to switch between generating and pumping and vice versa. In contrast, a battery can charge or discharge at any rate between -100% and 100%, and almost immediately switch between those modes.

TVA should also include a closed-loop PSH alternative since it is recognized as the least environmentally damaging pumped storage technology. The TVA webpage hosting the PEIS includes a description suggesting that a new pumped storage facility would be an “add-on” project by constructing a new upper reservoir on, “a mountaintop adjacent to an existing reservoir on the Tennessee River.”<sup>29</sup> An “add-on” project could minimize initial construction impacts by constructing one new reservoir instead of two. However, a literature review from DOE suggests that operational impacts of an add-on open-loop project are still likely higher than for a closed-loop project since the lower reservoir is still continuously connected to, and may affect, a naturally flowing water feature.<sup>30</sup>

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<sup>26</sup> *Battery Technology: Multi-day storage, the pathway to a clean, reliable and secure grid*, FORM ENERGY (last visited July 5, 2023), <https://formenergy.com/technology/battery-technology/>.

<sup>27</sup> Julian Spector, *Form Energy closes its biggest deal yet for long-duration energy storage*, CANARY MEDIA (June 15, 2023), <https://www.canarymedia.com/articles/long-duration-energy-storage/form-energy-closes-its-biggest-deal-yet-for-long-duration-energy-storage>.

<sup>28</sup> TVA, *Flexibility Study\_readonly.xlsx* (Excel Workbook), Flexible Unit Char[acteristics] (Worksheet) & Start costs (Worksheet) (2019) (a data file from TVA’s 2019 IRP).

<sup>29</sup> TVA, *Pumped Storage Hydro Programmatic Impact Statement*, <https://www.tva.com/environment/environmental-stewardship/environmental-reviews/nepa-detail/pumped-storage-hydro-programmatic-environmental-impact-statement> (last accessed July 5, 2023).

<sup>30</sup> DEP’T OF ENERGY, PNNL-29157, *A COMPARISON OF THE ENVIRONMENTAL EFFECTS OF OPEN-LOOP AND CLOSED-LOOP PUMPED STORAGE HYDROPOWER* at 3.3 (April 2020),

TVA should also evaluate other types of long-duration storage, such as compressed air energy storage and kinetic energy storage, as well as the potential to manage TVA's existing dams for storage.

Including a broader range of alternatives will require TVA to redefine the no-action alternative and purpose and need. Currently, TVA describes the no-action alternative as “not including additional PSH in TVA’s energy storage fleet.”<sup>31</sup> The no-action alternative should be rephrased as “not including additional long-duration energy storage in TVA’s fleet,” in order to be inclusive of other long-duration storage alternatives. The purpose and need statement should similarly be rephrased to be inclusive of other types of long-duration energy storage.

#### **IV. TVA must disclose and analyze climate-related impacts of PSH, including direct and cumulative GHG emissions as well as potential impacts of climate change on operations of PSH.**

TVA states that PSH would allow fossil generation with carbon capture to “run nearly full time,” suggesting that TVA anticipates relying on carbon capture and sequestration (CCS) as a large component of its long-term generation portfolio. Relying on fossil generation with CCS as baseload power is unlikely to be a least-cost option in any future scenario. Further, any PSH will not come online until roughly 2032 at the earliest, years after TVA has proposed to start operating nearly 6,000 MW of new gas plants that will exacerbate the climate crisis unabated until/if CCS is installed and operates effectively. TVA must account for these GHG emissions in its analysis of cumulative impacts associated with PSH.

TVA should also clarify whether it in fact plans to install CCS at its new proposed gas plants. In its environmental reviews for those gas plants, TVA has so far refused to incorporate the cost of CCS and PSH into its overall cost estimates for new gas plant investments. Further, TVA fails to consider the climate and air quality impacts associated with prolonging the lifespan of the proposed gas plants to make CCS remotely cost-effective or scalable.

TVA must also disclose direct GHG emissions associated with PSH. Hydropower reservoirs can release considerable methane emissions as vegetation decomposes in flooded areas.<sup>32</sup> While the GHG emissions of PSH projects have not been studied compared to conventional hydropower or between open-loop and closed-loop systems, emissions profiles could be similar depending on the amount of vegetation decomposing in the reservoirs.<sup>33</sup> EPA is

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<https://www.energy.gov/sites/prod/files/2020/04/f73/comparison-of-environmental-effects-open-loop-closed-loop-psh-1.pdf>.

<sup>31</sup> Pumped Storage Hydro Programmatic Environmental Impact Statement, 88 FR at 32270.

<sup>32</sup> Mira Rojanasakul and Max Bearak, *Is It a Lake, or a Battery? A New Kind of Hydropower Is Spreading Fast*, THE NEW YORK TIMES (May 2, 2023), <https://www.nytimes.com/interactive/2023/05/02/climate/hydroelectric-power-energy.html>

<sup>33</sup> DEP’T OF ENERGY, PNNL-29157, A COMPARISON OF THE ENVIRONMENTAL EFFECTS OF OPEN-LOOP AND CLOSED-LOOP PUMPED STORAGE HYDROPOWER (April 2020), <https://www.energy.gov/sites/prod/files/2020/04/f73/comparison-of-environmental-effects-open-loop-closed-loop-psh-1.pdf>.

currently in the process of studying GHG emissions by reservoir.<sup>34</sup> We are also aware of TVA's participation in a study with Oak Ridge National Laboratory to better quantify GHG emissions from hydropower reservoirs. TVA must disclose and analyze the results of these studies in its environmental review for PSH.<sup>35</sup>

Finally, TVA must disclose and analyze the effects of climate change on its PSH operations, including drought, flooding, tornadoes, extreme heat and cold, and other severe weather. For example, TVA should discuss the potential risk associated with PSH as a single point of failure, in contrast to more distributed battery storage systems. TVA recently entered into a memorandum of understanding with the Department of Energy in which the two agencies committed to, among other things, work together on:

Climate Change Adaptation. The Participants intend to continue ongoing efforts to best forecast impacts of climate change on river operations so that river operating policies can adapt to provide for optimal operations.<sup>36</sup>

TVA must disclose and analyze how climate change will impact operations on Nickajack and Guntersville Reservoirs, and how climate change will affect the proposed PSH.

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<sup>34</sup> EPA, RESEARCH ON EMISSIONS FROM U.S. RESERVOIRS (Aug. 30, 2022), <https://www.epa.gov/air-research/research-emissions-us-reservoirs>.

<sup>35</sup> OAK RIDGE NAT'L LAB'Y, *Researchers aim to better quantify greenhouse gas emissions from hydropower reservoirs* (June 10, 2022), <https://www.ornl.gov/news/researchers-aim-better-quantify-greenhouse-gas-emissions-hydropower-reservoirs>

<sup>36</sup> TVA & DEP'T OF ENERGY, MEMORANDUM OF UNDERSTANDING ON HYDROPOWER TECHNOLOGY DEVELOPMENT 3 (Jan. 5, 2023) <https://www.energy.gov/sites/default/files/2023-03/tva-wpto-hydropower-mou-2023.pdf>.



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
REGION 4  
SAM NUNN ATLANTA FEDERAL CENTER  
61 FORSYTH STREET, SW  
ATLANTA, GEORGIA 30303-8960

July 7, 2023

Elizabeth Smith  
NEPA Compliance Specialist  
400 West Summit Hill Dr., WT 11D  
Knoxville, TN 37902-1499

Re: EPA comments on Notice of Intent for the Pumped Storage Hydro Programmatic Environmental Impact Statement (PEIS), Jackson County and Marion County, Alabama.

Dear Ms. Smith:


The U.S. Environmental Protection Agency (EPA) has reviewed the referenced Notice of Intent (NOI), consistent with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), the Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and the EPA's authority under Section 309 of the Clean Air Act.

The Tennessee Valley Authority (TVA) is conducting a study to evaluate increasing pumped storage hydropower (PSH) capacity within its power service to assist with the decarbonization effort. The purpose of the proposed project is to evaluate the potential for pumped storage facilities in Alabama (AL). TVA has identified the four proposed alternatives: (1) No Action Alternative, (2) expansion of the existing PSH facility at Raccoon Mountain, (3) constructing a new facility near Pisgah, AL (Rorex Creek), and (4) new facility near Fabius, AL (Widows Creek). Both new facilities would be located within Jackson County, AL.

The EPA is supportive of integrating technologies that improve reliability in the electric power grid and help integrate variable renewable generation. Based on the EPA's review of the NOI and attendance at the scoping meeting, we have provided comments on; climate change and adaptation, project monitoring, project construction and operations, air quality, environmental justice, water resources, vegetation and wildlife impacts, geology, soils, permitting, and tribal that should be considered as the environmental analysis for the PEIS is developed.

We appreciate the opportunity to provide scoping comments on the Pumped Storage NOI. If you would like to discuss these comments, please contact Maria R. Clark of the NEPA Section at 404-562-9513, or at [clark.maria@epa.gov](mailto:clark.maria@epa.gov).

Sincerely,

**Kajumba,  
Ntale**  Digitally signed by  
Kajumba, Ntale  
Date: 2023.07.07  
16:58:04 -04'00'

Ntale Kajumba  
NEPA Section Manager



**EPA Scoping Comments on the Notice of Intent  
for the Pumped Storage Hydro Programmatic Environmental Impact Statement  
Jackson County and Marion County, Alabama.**

### **Climate Change and Adaptation**

The EPA recommends that the project include a discussion of reasonably foreseeable effects that changes in the climate may have on the proposed project and the project areas, including its long-term infrastructure. This could help inform the development of measures to improve the resilience of the proposed project. If projected changes could notably exacerbate the environmental impacts of the project, the EPA recommends these impacts also be considered as part of the NEPA analysis.

The EPA recommends including the following studies, and we encourage TVA to consider appropriate measures to compensate, and minimize environmental impacts:

- The proposed project(s) may induce development and population growth around the project site; therefore, the EPA recommends analyzing past, present, and future projects surrounded the area.
- It is well recognized that forests offer important ecosystem services, including carbon sequestration. The EIS should include a comprehensive analysis of:
  1. The approximated amount of carbon dioxide (CO<sub>2</sub>) storage from any hardwood forested areas targeted to be cleared. The analysis should include the present carbon storage and estimate the future carbon storage for the No Action Alternative, and consequently, estimate the carbon sink lost with the proposed alternative. Also, include an estimate of the carbon released back into the atmosphere once the targeted forest is cleared. Further, the project should include mitigation measures to compensate and mitigate such impacts. Please see the CUFR Tree Carbon Calculator resource to help estimate GHG benefits for existing trees or to forecast future benefits: <https://www.fs.usda.gov/ccrc/tool/cufr-tree-carbon-calculator-ctcc>
  2. Studies indicate substantial releases of methane occurs from reservoirs. “*Estimating carbon dioxide (CO<sub>2</sub>) and methane (CH<sub>4</sub>) emission rates from reservoirs is important for regional and national greenhouse gas inventories*<sup>1</sup>.” Greenhouse gases, carbon dioxide and methane are produced through the natural decomposition of organic matter in nearly all aquatic ecosystems, including reservoirs. Since reservoirs are not natural systems, greenhouse gases emanating from them are considered to have an anthropogenic, or human-made, origin. The EPA is obligated to report the nation’s anthropogenic greenhouse gas inventory under the United Nations Framework Convention on Climate Change, an international treaty ratified by the U.S. Congress in 1992<sup>2</sup>. The PEIS should include information regarding the reservoir and its impacts from GHG emissions and climate change.

### **Project monitoring**

The EPA recommends that the PEIS describe a monitoring program designed to assess both impacts from the project and the effectiveness of the proposed mitigation measures for the impacts. The project should also indicate how the program would use an effective feedback mechanism to assure that environmental objectives would be met throughout the project lifespan.

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<sup>1</sup> [https://cfpub.epa.gov/si/si\\_public\\_record\\_Report.cfm?dirEntryId=350501&Lab=NRMRL](https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=350501&Lab=NRMRL)

<sup>2</sup> <https://www.epa.gov/air-research/research-emissions-us-reservoirs#learnmore>

## Project Construction and Operations

The EPA recommends including plans to provide passages for local wildlife that may be impacted by the project specially structures such as penstocks that could be attached/flushed to the ground instead of buried.

The EPA recommends including the amount of electricity needed to pump the water back up from the lower reservoir to the upper reservoir, where the power would come and the provider. Additionally, the EPA suggests considering the addition of floating solar arrays to mitigate evaporation and to avoid the use of other nonrenewable energy resources. *“With turbine pumping station connected with a solar farm (land-based or floating), solar output can be injected to the grid and used for pumping to store water (depending on the configuration of a given plant, only “excess” solar that cannot be absorbed by the grid and would be curtailed is used for pumping or solar plant can be dedicated exclusively for pumping)<sup>3</sup>.”*

## Air Quality

The EPA recommends the environmental document identify best practices that reduce emissions during construction, such as diesel controls, clean fuels (ultra-low sulfur diesel), electrification, and construction practices for on-road and off-road equipment. This could include implementation of technologies such as diesel particulate filters or diesel oxidation catalysts. It could also include use of cleaner equipment, such as diesel engines meeting EPA’s Tier 4 emission standards, which require reductions in air pollution to minimize localized impacts to nearby communities. Further detailed information on a broad range of cost-effective technologies and practices that improve operational efficiency and reduce emissions can be found through EPA's Natural Gas STAR Program. Please see the following EPA websites for additional information:

- <https://www.epa.gov/dera/reducing-diesel-emissions-construction-and-agriculture>
- <https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-control-emissions-air-pollution-nonroad-diesel>

## Water Resources

The EPA has reviewed other pumped storage projects and identified that the alteration of streamflow or natural flow regime causes ecological impacts. These ecological impacts vary in magnitude, frequency, duration, rate, geology, climate, vegetation cover, etc., and therefore need to be carefully evaluated. The EPA recommends that the alternatives analysis include potential scenarios for the construction of reservoirs, filling of reservoirs, diversion of flow, and ongoing operations. Additionally, the currently proposed sites should include an analysis of how blasting and earth-moving for the proposed construction could affect downstream aquatic resources. Jurisdictional impacts should include loss of upstream tributaries due to the impoundment and potential impacts to flow duration downstream due to water loss from impounded water.

Please note that State water quality standards (WQS) include designated uses, criteria to protect those uses, and an antidegradation policy (Clean Water Act Section 303(c); 40 CFR § 131). Please see the

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<sup>3</sup> [https://assets-global.website-files.com/5f749e4b9399c80b5e421384/61432192836f8d346bc2928e\\_IFPSH%20-%20Innovative%20PSH%20Configurations%20%26%20Uses\\_%2015%20Sept.pdf](https://assets-global.website-files.com/5f749e4b9399c80b5e421384/61432192836f8d346bc2928e_IFPSH%20-%20Innovative%20PSH%20Configurations%20%26%20Uses_%2015%20Sept.pdf)



following link for more information: [https://www.epa.gov/sites/default/files/2014-12/documents/alwqs\\_chapter335611.pdf](https://www.epa.gov/sites/default/files/2014-12/documents/alwqs_chapter335611.pdf)

### **Vegetation and Wildlife impacts**

To protect the quality and connectivity of available habitat, the EPA recommends that the TVA consider the following recommendations.

- Describe the current quality of habitat on and near the proposed project area;
- Identify known wildlife corridors, migration routes, and areas of seasonal wildlife congregation;
- Identify known areas of fish use near the in-water components of the project and any potential impact to those species associated with project construction or operation;
- Evaluate the cumulative alteration and fragmentation of habitat caused by roads, land use (particularly the installation of the proposed penstock and reservoir), management activities and human activity; and
- Consider potential impacts to vegetation resources associated with trampling and removal during construction of the reservoir, penstock, access roads and workspaces, transmission line, and maintenance of the project.
- Continue to coordinate with U.S. Fish and Wildlife Service and, as appropriate, with the Alabama Department of Environmental Management to reduce risks to species and protect biota and habitat during and after the project implementation. The PEIS should include any relevant information developed following coordination with these agencies, particularly outcomes of consultations with the agencies and recommended measures to protect species of concern.

### **Geology and Soils**

The EPA recommends using groundwater observation wells to explore the possibility of installing high volume extraction wells to use in conjunction with other water resources to fill the upper reservoir. Furthermore, the high-volume extraction wells could be used when dry conditions are deemed unsuitable to withdraw water from rivers. Also, consider water withdrawals from a variety of resources, the timing, and the amount of water as to mitigate drastic impacts from a single resource, especially for the initial fill.

The EPA understands that in-depth geotechnical surveys will be conducted in phases. Consequently, geological issues, such as high-in-situ stresses, might be encountered. The EPA suggests including in the PEIS detailed information and data, including the results from geotechnical investigations conducted during each phase.

### **Permitting**

The PEIS should include the most recent information on all applicable federal and state permits, approvals, and authorizations, including recommended measures to take to protect human health and the environment. Such information will assist agency decision-makers and the public in evaluating the risks and mitigation related to the project.

### **Environmental Justice**

The EPA recommends meaningful engagement with affected underserved and overburdened communities to identify and address the adverse conditions they experience and ensure they do not face additional disproportionate burdens under the proposed action. This would be consistent with Executive

Order 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, which affirms the national policy to advance environmental justice for all and defines environmental justice as “the just treatment and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other Federal activities that affect human health and the environment so that people are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards including those related to climate change, noise, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers.” (Section 2(b)(i)). Notably, section 3(a) provides analytic direction that should be incorporated within the scope of the environmental analysis.

In addition to the new executive order, the PEIS should ensure consistency with the Executive Order 12898 of February 11, 1994, *Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations* by identifying and mitigating disproportionate impacts on communities with EJ concerns. In accordance with the Executive Order, the EPA recommends that the environmental document identify and address any disproportionate impacts on minority and low-income populations.

- When conducting the EJ analysis, utilize resources such as the Environmental Justice Interagency Working Group report *Promising Practices for EJ Methodologies in NEPA Reviews*, dated March 2016, which provides guiding principles agencies can consider in identifying disproportionately high and adverse impacts on minority and low-income populations and appropriately engage in meaningful, targeted, community outreach, analyze and minimize community impacts, and advance environmental justice through NEPA implementation.. EJ analysis of the Proposed Action should also be completed in accordance with Executive Order 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, published April 21, 2023.
- The EPA strongly encourages the use of EJScreen (<https://www.epa.gov/ejscreen>), the EPA's nationally consistent EJ screening and mapping tool, when conducting EJ scoping efforts. The tool provides information on environmental and socioeconomic indicators as well as pollution sources, health disparities, critical service gaps, and climate change data. The tool can help identify potential community vulnerabilities by calculating EJ Indexes and displaying other environmental and socioeconomic information in color-coded maps and standard data reports.

## **Tribal**

The EPA understands that tribal consultation has been initiated. We recommend addressing tribal concerns in accordance with federal tribal trust responsibilities. Additionally, we recommend reaching out to state tribes as part of your tribal actions. Below is a link to U.S. Department of Housing and Urban Development Tribal Directory Assessment Tool to assist with coordination.

<https://egis.hud.gov/TDAT/>