FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426
December 27, 2004

OFFICE OF ENERGY PROJECTS

Project No. 2210-108 - Virginia
Smith Mountain Hydroelectric Project
Appalachian Power Company

Subject: Scoping Document 1 for Smith Mountain Hydroelectric Project (P-2210-108)

To the Party Addressed:

The Federal Energy Regulatory Commission (Commission) is currently reviewing a Pre-Application Document submitted by the Appalachian Power Company (Appalachian Power) for the relicensing of the Smith Mountain Hydroelectric Project (FERC No. 2210). The project is located on the headwaters of the Roanoke River in south central Virginia, within the counties of Bedford, Campbell, Franklin and Pittsylvania, and near the City of Roanoke, Virginia. Appalachian Power, licensee for the Smith Mountain Project, is using the Commission's Integrated Licensing Process and plans to file a final license application for the continued operation of the project on or before March 31, 2008.

Pursuant to the National Environmental Policy act (NEPA), the Commission staff intends to prepare an Environmental Assessment (EA), which will be used by the Commission to determine whether, and under what conditions, to issue a new license for the project. To support and assist our environmental review, we are beginning the public scoping process to ensure that all pertinent issues are identified and analyzed, and that the EA is thorough and balanced.

We invite your participation in the scoping process, and are circulating the attached Scoping Document 1 (SD1) to provide you with information on the Smith Mountain Project. We are also soliciting your comments and suggestions on our preliminary list of issues and alternatives to be addressed in the EA.

We will hold two scoping meetings to receive input on the scope of the EA. A daytime meeting will be held January 26, 2005, from 3:00 to 5:00 p.m. and continuing on January 27, 2005, starting at 9:00 a.m., at the First Baptist Church in Gretna, Virginia. An evening meeting will be held January 27, 2005, starting at 7:00 p.m., at the First Baptist Church in Gretna, Virginia. We invite all interested agencies, Indian tribes, non-governmental organization, and individuals to attend one or both of these meetings. We

will also hold a site visit at the project on January 26, 2005, starting at 9:00 a.m. Further information on our site visit and scoping meetings is available in the attached SD1.

If you do not want to receive future mailings for the Smith Mountain Hydroelectric Project, please send your request to be removed from the mailing list to: Magalie R. Salas, Secretary, Federal Energy Regulatory Commission, 888 First Street, N.E., Room 1A, Washington, DC 20426. All written requests to be removed from the mailing list must clearly identify the following on the first page: Smith Mountain Hydroelectric Project No. 2210-108.

Please review SD1 and, if you wish to provide comments, follow the instructions in section 5.0. If you have any questions about SD1, the scoping process, or how Commission staff will develop the EA for this project, please contact Allan Creamer at (202) 502-8365 or allan.creamer@ferc.gov. Additional information about the Commission's licensing process and the Smith Mountain Project may be obtained from our website, http://www.ferc.gov or Appalachian Power's website, http://www.smithmtn.com.

Enclosure: Scoping Document 1

Cc: Mailing List
Public Files

Project No. 2210-108

PUBLIC

SCOPING DOCUMENT 1

APPALACHIAN POWER COMPANY

SMITH MOUNTAIN HYDROELECTRIC PROJECT

PROJECT NO. 2210-108

Project No. 2210-108

SCOPING DOCUMENT 1
SMITH MOUNTAIN HYDROELECTRIC PROJECT

VIRGINIA

PROJECT NO. 2210-108

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
Washington, DC

December 2004

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1.0 INTRODUCTION

The Federal Energy Regulatory Commission (Commission or FERC), under the authority of the Federal Power Act (FPA),[1] may issue licenses for terms ranging from 30 to 50 years for the construction, operation, and maintenance of non-federal hydroelectric projects. On October 25, 2004, Appalachian Power Company (Appalachian Power), dba American Electric Power (AEP), using the Integrated Licensing Process, filed a Pre-Application Document (PAD) for a new license[2] for the Smith Mountain Hydroelectric Project (Project No. 2210-108). The Smith Mountain Project is located on the headwaters of the Roanoke River (or Staunton River), in Bedford, Campbell, Franklin and Pittsylvania counties, and near the City of Roanoke, Virginia (figure 1). No federal lands are occupied by the project works or otherwise located within the project boundary.

The existing Smith Mountain Project is a combination conventional hydroelectric and pump storage project that operates as a peaking/load-following facility. The project's two powerhouses contain a total of seven generating units, with a total installed capacity of 636 megawatts (MW) and an average annual generation of 512,588 megawatt-hours (MWh) for the 28-year period between 1975 and 2003. The average annual power utilized for the pumping process is 495,712 GWh. A detailed description of the project is provided in Section 3 of this scoping document.

The National Environmental Policy Act (NEPA) of 1969,[3] the Commission's regulations, and other applicable laws require that we independently evaluate the environmental effects of licensing the Smith Mountain Project, and to consider alternatives to Appalachian Power's proposed action. At this time, we intend to prepare a single environmental assessment (EA) for this project (i.e., no draft EA will be issued). The EA will describe and evaluate the probable effects, including any site-specific and cumulative effects, of the proposed action and alternatives.

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[1] 16 U.S.C. § 791(a) -825(r).

[2] The current license for the Smith Mountain Project was issued on April 25, 1960, and expires on March 31, 2010.

[3] Pub. L. 91-190. 42 U.S.C. § 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982.

Figure 1. Location of the Smith Mountain Project (P-2210), (Source: Appalachian Power Company, 2004).

Public access for the above information is available only through the Public Reference Room, or by e-mail at public.referenceroom@ferc.gov.

2.0 SCOPING

This Scoping Document 1 (SD1) is intended to advise all participants as to the proposed scope of the EA and to seek additional information pertinent to this analysis. This document contains a brief description of: (1) the scoping process and schedule for the development of the EA; (2) the proposed action and alternatives; (3) preliminary identification of environmental issues and proposed studies; (4) a request for comments and information; (5) a draft EA outline; and (6) a preliminary list of Comprehensive Plans with which the project recommended for licensing must be consistent.

2.1 Purposes of Scoping

Scoping is the process used to identify issues, concerns, and opportunities associated with a proposed action. According to the NEPA, the process should be conducted early in the planning stage of the project. The purposes of the scoping process are as follows:

- invite federal, state and local resource agencies, Indian tribes, non-governmental organizations, and the public to identify significant environmental and socioeconomic issues related to the proposed project;
- determine the depth of analysis and significance of issues to be addressed in our EA;
- identify how the project would or would not contribute to cumulative effects in the project area;
- identify reasonable alternatives to the proposed action that should be evaluated in our EA;
- solicit, from participants, available information on the resources at issue, including existing information and study needs; and
- determine the resource areas and potential issues that do not require detailed analysis during review of the project.

2.2 Comments and Scoping Meetings

During the preparation of a Commission EA, there will be multiple opportunities for the public and resource agencies to comment on the scope and contents of the EA:

- during the public scoping process and study plan meetings, prior to the preparation of the EA, so that we can receive written comments regarding scope and content;
- in response to the Commission's ready for environmental analysis notice; and
- after issuance of the EA so that we can receive written comments on the contents of the EA.

In addition to written comments solicited by this SD1, we will hold two public scoping meetings in the vicinity of the project. A daytime meeting will focus on resource agency and other governmental and non-governmental entities' concerns, and an evening meeting will focus on receiving input from the public. We invite all interested agencies, Indian tribes, organizations, and individuals to attend one or both of the meetings to assist us in identifying the scope of environmental issues that should be analyzed in the EA. The times and locations of the meetings are as follows:

Daytime Scoping Meeting

Date and Time:	January 26, 2005, from 3:00 to 5:00 p.m., and continuing on January 27, 2005, starting at 9:00 a.m.
Location:	First Baptist Church, 502 South Main Street, Gretna, Virginia 24557
Phone:	(434) 656-2600

Evening Scoping Meeting

Date and Time:	January 27, 2005, starting at 7:00 p.m.
Location:	First Baptist Church, 502 South Main Street, Gretna, Virginia 24557

The scoping meetings will be recorded by a court reporter, and all statements (verbal and written) will become part of the Commission's public record for the project. Before each meeting, all individuals who attend, especially those who intend to make statements, will be asked to sign in and clearly identify themselves for the record. Individuals planning to provide prepared statements at the scoping meetings should limit

their comments to 5 to 7 minutes. Interested parties who choose not to speak or who are unable to attend the scoping meetings may provide written comments and information to the Commission as described in section 5.0. These meetings are posted on the Commission's calendar located on the internet at http://www.ferc.gov/EventCalendar/EventsList.aspx, along with other related information.

Meeting participants should come prepared to discuss their issues and/or concerns as they pertain to the Smith Mountain Project's relicensing. It is advised that participants review the PAD in preparation for the scoping meetings. A copy of the PAD is available for review at the Commission in the Public Reference Room or may be viewed on the commission's website (http://www.ferc.gov), using the "eLibrary" link. Enter the docket number, P-2210, to access the document. For assistance, contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free at 1-866-208-3676, or for TTY, (202) 502-8659. Copies of the PAD are also available from Appalachian Power by contacting Frank Simms at (540) 985-2875.

Appalachian Power and Commission staff will have a site visit of the project on January 26, 2005, starting at 9:00 a.m. All participants should meet at the First Baptist Church, located at 502 South Main Street in Gretna, Virginia. Participants should be prepared to provide their own transportation. Anyone with questions about the site visit (or for directions) should contact Frank Simms at the number provided above. Those individuals planning to participate should notify Mr. Simms of their intent, on or before January 19, 2005.

Following the scoping meetings and comment period, all issues raised will be reviewed and decisions made as to the level of analysis needed. If preliminary analysis indicates that any issues presented in this scoping document have little potential for causing significant effects, the issue(s) will be identified and the reasons for not providing a more detailed analysis will be given in the EA.

If we receive no substantive comments on SD1, then we will not prepare Scoping Document 2 (SD2). Otherwise, SD2 will be issued for informational use only by all participants or interested persons; no response will be required. The EA will address recommendations and input received during the scoping process.

3.0 PROPOSED ACTION AND ALTERNATIVES

In accordance with NEPA guidelines, our environmental analysis will consider the following alternatives, at a minimum: (1) the applicant's proposed action, (2) alternatives to the proposed action, and (3) no-action.

3.1 Appalachian Power's Proposed Action

Appalachian Power proposes to continue operating the Smith Mountain Project in a peaking/load-following mode and maintain the project with any proposed measures to protect and enhance the environment. At this time, there are no plans for construction, redevelopment, or additional generation units.

3.1.1 Smith Mountain Project Facilities

The facilities associated with the Smith Mountain Project are briefly described herein. For a more detailed description of the facilities, please refer to section 1 of the PAD.

Smith Mountain Development

The Smith Mountain development consists of: (1) a 816-foot-long, 235-foot-high concrete arch dam, with a crest elevation of 812.0 feet National Geodetic Vertical Datum (NGVD); (2) one ogee crest overflow spillway at each end of the dam, each 100 feet long with a crest elevation of 795.0 feet NGVD and having a hydraulic capacity of 25,000 cfs at a reservoir elevation of 812.0 feet; (3) a 20,600-acre impoundment (Smith Mountain Lake), with a total storage volume of 1,142,000 acre-feet, at the normal operating pool elevation of 795.0 feet NGVD; (4) five individual intakes attached to penstocks ranging from 20 to 26 feet in diameter; (5) trashracks in front of each intake, with 4¾-inch clear spacing between the bars; (6) a powerhouse at the foot of the dam with (a) two Francis-type, conventional turbines of 262,000 horsepower (hp) each, directly connected to two 174,000-kilowatt (kW) vertical shaft generators, (b) two Francis-type reversible pump turbines of 87,000 hp each, directly connected to two 66,000-kW vertical-shaft reversible motor-generators, and (c) one 137,400-hp Francis-type reversible pump turbine, directly connected to a 106,000-kW vertical-shaft reversible motor-generator; (7) a 600,000 KVA substation; (8) a double-circuit 138-kilovolt (kV) tie line to AEP's interconnected system; and (9) appurtenant facilities.

The Smith Mountain development has a total installed capacity of 586 MW and a total hydraulic capacity of about 46,000 cubic feet per second (cfs). The combined

pumping capacity of the three reversible-pump units is 15,810 cfs. The Smith Mountain development generates an average of 453,241 MWh annually, while the average annual power utilized for generation is 495,712 MWh.

Roanoke Rapids Development

The Leesville development consists of: (1) a 980-foot-long, 94-foot-high concrete gravity dam, with a crest elevation of 615.67.0 feet NGVD; (2) a 224-foot-long gated spillway section, with (a) a crest elevation of 578.0 feet NGVD, (b) four Taintor gates measuring 50 feet wide by 35 feet high, and (c) a hydraulic capacity of 175,100 cfs at a reservoir elevation of 615.67 feet; (3) a 3,270-acre impoundment (Leesville Reservoir), with a total storage volume of 94,900 acre-feet, at the normal operating pool elevation of 613.0 feet NGVD; (4) a powerhouse integral with the dam containing two vertical propeller turbines of 32,000 hp each, directly connected to two 25,000-kW vertical-shaft generators; (6) trashracks in front of each intake, with 6½-inch clear spacing between the bars; (7) a 50,000 KVA; (8) a double-circuit 138-kilovolt (kV) tie line to AEP's interconnected system; and (9) appurtenant facilities.

The Leesville development has a total installed capacity of 50 MW and a total hydraulic capacity of about 9,000 cfs. The Leesville development generates an average of 59,347 MWh annually.

3.1.2 Current Project Operation

The Smith Mountain development is utilized as a peaking facility. During off-peak demand periods, water is pumped from the lower Leesville Reservoir for utilization during peak demand periods. The normal operating head for Smith Mountain is 185 feet and the mean flow through the development is 1,211 cfs. The estimated maximum drawdown rate for Smith Mountain Lake is 0.19 feet/hour.

The Leesville Reservoir represents the lower reservoir for the Smith Mountain Project. Fluctuation of the reservoir level is held between elevations 600.0 and 613.0 feet NGVD, and the average operating head is 70 feet. The Leesville Reservoir has an estimated maximum refill rate of 1.33 feet/hour, and an estimated maximum drawdown rate of 0.46 feet/hour.

The Smith Mountain Project is an integral part of the AEP system. As such, units for the project are brought on-line and taken off-line based on system needs identified from the AEP System Control Center. Actual project operations are dispatched from the

Hydro Operations Center located in Roanoke, Virginia. Operators man the hydro Operations Center 24 hours per day, seven days per week.

When generation is required on the AEP system, the units at the Smith Mountain development can be brought on-line within 10 minutes. In general, generation from the Smith Mountain development occurs during peak usage periods. During those times that peak generation is not required, the water that passed through the Smith Mountain development to the Leesville Reservoir is pumped back into Smith Mountain Lake to be utilized again for generating.

Under normal conditions, the Smith Mountain Lake is maintained at elevation 795.0 feet NGVD. When generation is required from the Smith Mountain development, flow passes through the development's units to the downstream Leesville Reservoir. The maximum volume of flow that can pass from Smith Mountain Lake to the Leesville Reservoir results in a lowering of the operating level for Smith Mountain Lake of about 2 feet. That same inflow into the Leesville Reservoir increases the operating level for Leesville from the minimum level of 600.0 feet NGVD to 613.0 feet NGVD.

Depending on the generation needs of the AEP system and project inflows, the levels on both lakes, as well as the number of units operating at any one time can vary. Those values referenced above indicate the extremes for both Smith Mountain Lake and Leesville Reservoir. Operation of the project is accomplished as to maintain elevation 795.0 feet NGVD as the target or adjusted water surface elevation in Smith Mountain Lake. If outflow from the Leesville development exceeds project inflow, the adjusted operating level in Smith Mountain Lake will decrease.

Under the conditions of the project's existing license, Appalachian Power is required to provide a minimum average weekly flow of 650 cfs downstream from the Leesville development. That flow is provided by auto-cycling the units at Leesville.

The existing minimum flow release pattern is to operate the two units at Leesville once every 2 hours for a period of 20 minutes. The flow released is dependent on the volume of water available at the project as well as project inflows. However, the flow released is to average no less than 650 cfs, as measured at the U.S. Geological Survey (USGS) gage located along the Roanoke River at Altavista, Virginia (USGS gage no. 02060500). If project inflows are higher than what can be controlled by the units at the Leesville development, flow is also passed through the spillway taintor gates. Under normal operating conditions, the tailwater elevation below the Leesville development is 531.5 feet NGVD prior to bringing the units on-line. Flow through the units typically results in the tailwater elevation increasing by slightly over 5 feet, to 536.9 feet NGVD.

During the spawning season for striped bass (in the spring), the minimum flow releases are increased. The flows released during the spring spawning season for striped bass can increase to an average daily flow not to exceed 2,000 cfs. This is the flow required by Article 34 of the existing project license, unless additional flows are required by the Virginia Department of Game and Inland Fisheries (VDGIF).

If inflows to the Smith Mountain Project are less than project outflows, the water level at Smith Mountain Lake drops. As the lake level decreases, generation continues with fluctuations still approaching 2 feet. Should the lake level approach 787.0 feet NGVD at any time, boating safety becomes a concern.

An amendment to Article 29 of the project license[4] allows Appalachian Power to modify the average minimum flow discharge under extreme low inflow conditions. The amendment is intended to ameliorate the concerns for boating safety on Smith Mountain Lake, while also providing adequate flows downstream of the Leesville development. Under low inflow conditions, the flows to be provided downstream of the Leesville development are determined through consultations between Appalachian Power, the appropriate agencies, and other stakeholder groups.

Neither Smith Mountain Lake, nor Leesville Reservoir was designed with flood control capabilities. Nonetheless, under emergency situations declared by the appropriate authorities, Appalachian Power modifies project operations in an attempt to assist with flood control in the basin. The operations of the Smith Mountain Project are coordinated with the U.S. Army Corps of Engineers (Corps), under an operating agreement between the Corps and Appalachian Power. During high flow periods, the Leesville development is operated so as to attempt to limit flood flows at the Town of Altavista, Virginia to 20,000 cfs, as measured at the USGS gage in Altavista. During periods when inflows exceed the hydraulic capacity of the units for the Smith Mountain development, the lake level increases above elevation 795.0 feet NGVD and flow passes over the overflow spillways. Similarly, when flows into Leesville Reservoir exceed the hydraulic capacity of the units at the Leesville development, flow is controlled through the taintor gates at the spillway.

Headwater elevations for Smith Mountain Lake and Leesville Reservoir, tailwater elevations below each dam, generation from the units, and taintor gate openings are monitored continuously at AEP's System Control Center and Hydro Operations Center. Appalachian Power also monitors (a) numerous USGS gages that provide inflow

[4] Amendment issued by the Commission on May 19, 2000.

information for the project, and (b) a system of rain gauges located throughout the drainage basin for the Smith Mountain Project.

3.1.3 Proposed Project Operation and Facilities

The Smith Mountain Project consists of two existing developments. Appalachian Power has no plans or proposals to change, or otherwise modify, project operations and/or facilities at this time.

3.2 Staff's Modification of the Proposed Action

We will consider and assess all alternative recommendations for operational or facility modifications, as well as protection, mitigation, and enhancement measures identified by us (Commission staff), the agencies, Indian tribes, other governmental and non-governmental organizations, and the general public. To the extent that modifications would reduce the power production of the proposed project, we will evaluate costs and contributions to airborne pollution related to generation of replacement power by fossil fuel stations.

3.3 No Action

Under the no-action alternative, the Smith Mountain Project would continue to operate as required by the current project license (i.e., there would be no change to the existing environment). No new environmental protection, mitigation, or enhancement measures would be implemented. We use this alternative to establish baseline environmental conditions for comparison with other alternatives.

3.4 Alternatives Considered But Eliminated from Detailed Study

At present, we propose to eliminate the following alternatives from detailed study in the EA.

3.4.1 Federal Government Takeover

In accordance with § 16.14 of the Commission's regulations, a federal department or agency may file a recommendation that the United States exercise its right to take over a hydroelectric power project with a license that is subject to Sections 14 and 15 of the FPA.[5] We do not consider federal takeover to be a reasonable alternative. Federal

[5] 16 U.S.C. §§ 791(a)-825(r).

takeover of the project would require congressional approval. While that fact alone would not preclude further consideration of this alternative, there is currently no evidence showing that federal takeover should be recommended to Congress. No party has suggested that federal takeover would be appropriate and no federal agency has expressed interest in operating the project.

3.4.2 Nonpower License

A non-power license is a temporary license the Commission would terminate whenever it determines that another governmental agency is authorized and willing to assume regulatory authority and supervision over the lands and facilities covered by the non-power license. At this time, no governmental agency has suggested a willingness or ability to take over the project. No party has sought a non-power license, and we have no basis for concluding that the Smith Mountain Project should no longer be used to produce power. Thus, we do not consider a non-power license a reasonable alternative to relicensing the project.

3.4.3 Project Decommissioning

Project decommissioning could be accomplished with or without dam removal. Either alternative would require denying the relicense application and surrender or termination of the existing license with appropriate conditions. There would be significant costs involved with decommissioning the project and/or removing any project facilities. The project provides a viable, safe, and clean renewable source of power to the region. With decommissioning, the project would no longer be authorized to generate power (about 512,588 MWh annually).

No party has suggested project decommissioning would be appropriate in this case, and we have no basis for recommending it. Thus, we do not consider project decommissioning a reasonable alternative to relicensing the project with appropriate environmental enhancement measures.

4.0 SCOPE OF CUMULATIVE ANALYSIS AND RESOURCE ISSUES

4.1 Cumulative Effects

According to the Council on Environmental Quality's regulations for implementing NEPA (Section 1508.7), an action may cause cumulative effects if its effects overlap in space and/or time with the effects of other past, present and reasonably foreseeable future actions, regardless of what agency or person undertakes such other

actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time, including hydropower and other land and water development activities.

4.1.1 Resources That Could Be Cumulatively Affected

We have reviewed he information provided in the PAD and relevant agency comments. Based on our review and preliminary analysis, we have not, at this time, identified any resources that would be cumulatively affected by the proposed continued operation and maintenance of the Smith Mountain Project.

4.1.2 Geographic Scope

Our geographic scope of analysis for cumulatively affected resources is defined by the physical limits or boundaries of: (1) the proposed action's effect on the resources; and (2) contributing effects from other hydropower and non-hydropower activities within the Roanoke River Basin. Because the proposed action would affect the resources differently, the geographic scope for each resource may vary. We have not yet identified the geographic scope for our environmental analysis, and are currently seeking comments on this topic.

4.1.3 Temporal Scope

The temporal scope of our cumulative effects analysis in the EA will include a discussion of past, present, and future actions and their effects on each resource that could be cumulatively affected. Based on the potential term of a new license, the temporal scope will look 30-50 years into the future, concentrating on the effect to the resources from reasonably foreseeable future actions. The historical discussion will, by necessity, be limited to the amount of available information for each resource. The quality and quantity of information, however, diminishes as we analyze resources further away in time from the present.

4.2 Resource Issues

In this section, we present a preliminary list of environmental issues to be addressed in the EA. We have identified these issues, which are listed by resource area, by reviewing the PAD and the Commission's record for the Smith Mountain Project.[6]

[6] In this section, we summarize the issues outlined in the applicant's PAD and any other issues that we have identified, according to resource area. For a detailed explanation of many of the issues, please refer to section 3 of the PAD.

This list is not intended to be exhaustive or final, but contains those issues raised to date that could have substantial effects. After scoping is completed, we will review this list and determine the appropriate level of analysis needed to address each issue in the EA.

4.2.1 Geology and Soils

- Effects of continued project operation on shoreline erosion in Smith Mountain and Leesville Lakes, including the islands, as well as erosion along the Roanoke River downstream from the Leesville dam.

4.2.2 Water Resources

- Project compliance with state water quality standards.
- Effects of project operations (lake level management) on dissolved oxygen levels and overall water quality in Smith Mountain and Leesville Lakes, as well as upstream of Smith Mountain and downstream from Leesville dam.
- Effects of any construction activities on water quality in the project area.
- Assess the need for water quality monitoring at the Smith Mountain Project.
- Water allocation and the effect of project operations on existing and any proposed future water withdrawals by other sources in the project area and along the Staunton/Roanoke River.
- Effects of continued project operation on drought management in the Roanoke River Basin.
- Effects of continued project operation on flood control in the Roanoke River Basin.

4.2.3 Aquatic and Fisheries Resources

- Effects of (low) dissolved oxygen on aquatic resources in the project reservoirs and in the Roanoke River downstream from Leesville dam.
- Effects of lake level management on fish populations and other aquatic organisms that inhabit the drawdown zones in Smith Mountain and Leesville Lakes.

- Effects of any construction activities on fishery resources in the Smith Mountain Project area.

- Effects of existing project operations and minimum flows on aquatic habitat and populations of fish and other aquatic organisms in the Roanoke River from Leesville dam to the Town of Brookneal, Virginia.

- Effects of any flow fluctuations caused by auto-cycling of units at Leesville dam on aquatic resources (habitat and organisms) in the Roanoke River downstream from Leesville dam, and a description of any potential benefits associated with implementing ramping rates, providing continuous releases, or increasing minimum flows.

- Effects of project operations on fish entrainment and impingement, and the effect of entrainment and turbine-induced mortality on lake fisheries.

- Effects of any potential environmental enhancement measures (e.g., upstream and downstream fish passage facilities) at the project to improve fish movement for diadromous fish (e.g., striped bass, American shad/herring, and American eel) in, and/or through, the project area.

- Effects of current and alternative project operations at the Smith Mountain Project on fish movement (e.g., striped bass, shad/herring, and American eel) and aquatic habitat in the Roanoke River downstream from Leesville dam, and the overall fish restoration efforts in the Roanoke River Basin.

- Effects of continued project operations on any proposed or federally listed threatened and endangered species or critical habitat, including the Roanoke logperch (*Percina rex*).

4.2.4 Terrestrial Resources

- Effects of continued project operations, including erosion, on riparian and aquatic vegetation, and any associated wildlife, around Smith Mountain and Leesville Lakes, along the islands within the lakes, and along the Roanoke River downstream from the Leesville dam.

- Effects of continued project operation on vegetation and wildlife associated with constructing new recreation and other facilities along the shorelines of

Smith Mountain Lake and Leesville Reservoir.

4.2.5 Recreation Resources

- Adequacy of existing public access (e.g., angler access to shorelines, hiking, wildlife observation, boating, etc.) and recreational facilities in the project boundary to meet current and future (over the term of a new license) recreational demand.

- Effects of continued project operation on boating opportunities and recreational use within Smith Mountain Lake and Leesville Reservoir.

- Effects of continued project operation and minimum flow releases on recreational activities downstream from Leesville dam.

- Effectiveness of the existing public safety programs (e.g., shoal markers, buoy and navigation system, etc.) in maintaining a safe recreational environment in the project area.

4.2.6 Land Use and Aesthetics

- Effectiveness of the shoreline management plan (SMP) filed with the Commission on September 2, 2003, and its component parts, in protecting and/or improving management of in-water development, sensitive habitat areas, and shoreline erosion on Smith Mountain Lake and Leesville Reservoir.

- Effectiveness of the September 2, 2003, SMP in creating a buffer between incompatible uses, to establish or maintain compatibility between and among the various land and water uses in the vicinity of the Smith Mountain Project, and to provide for the protection of natural and cultural resources.

- Adequacy of the existing program and review process for determining and preventing any adverse aesthetic affect on permitted shoreline uses.

- Effects of continued project operation or changes in project operation/facilities on aesthetic resources within the project area.

- Effects of any proposed operational changes and other environmental enhancement measures (e.g., recreation facilities, fish passage facilities, etc.) on aesthetic resources within the project boundary.

4.2.7 Archaeological and Historic Resources

- Effects of continued project operation, including changes in project operation or facilities, on historic properties and archaeological resources.

4.2.8 Developmental Resources

- Effects of potential operational changes on the project energy and capacity benefits and the funding of various environmental enhancement measures on the cost of project power.

4.3 Proposed Protection and Enhancement Measures

Appalachian Power has currently not proposed any measures to protect and enhance environmental resources that may be affected by the project. Depending upon findings of studies completed by Appalachian Power and the recommendations of stakeholders, Appalachian Power will consider, and may propose certain measures to enhance environmental resources affected by the project as part of the proposed action.

There is presently an abundance of information and data available to characterize the existing environment and evaluate the resource effects of continued operation of the Smith Mountain Project. However, Appalachian Power has identified the following potential studies and other information needs, which may be appropriate for the Smith Mountain Project. These potential studies may be modified and/or other studies may be added to this list, based on comments provided to the Commission from resource agencies and other stakeholders. Appalachian Power proposes to:

Geology and Soils

- Study the loss of shoreline both upstream and downstream utilizing available mapping, soils information, and by performing field reconnaissance.

- Develop bathymetric maps of the bottom contours of Smith Mountain and Leesville Lakes. This information would be used to (a) produce storage-volume curves for the lakes, (b) identify any loss of volume due to sediment load, and (c) identify locations where sediment may be accumulating.

- Conduct a field review of existing erosion conditions along the Roanoke River from the Leesville dam to a point approximately 5 miles downstream.

Water Resources

- Monitor dissolved oxygen levels and water temperature upstream and downstream of the Smith Mountain and Leesville dams during the summer months in either 2005 or 2006.

- Use data collected during relicensing, in combination with data collected by the Smith Mountain Lake Association, the Virginia Department of Environmental Quality, and the VDGIF to assess the effects of project operations on the Smith Mountain and Leesville Lakes, as well as the Roanoke River downstream from the Leesville dam.

- Evaluate industrial and municipal water supply needs downstream from the Smith Mountain Project, using existing data and collecting information from the major users.

- Determine the safe yield of water from the Smith Mountain Project as part of any water allocation and/or flow release study.

- Assess water level management (fluctuations) within the Smith Mountain and Leesville Lakes, as part of a minimum flow evaluation for the Roanoke River downstream from Leesville.

- Obtain and evaluate information regarding best management practices within the watershed for the Smith Mountain Project.

- Investigate the potential effects of project operations on the operation of the downstream Kerr Project as part of a minimum flow study for the Roanoke River downstream from the Leesville dam.

- Investigate various minimum flow discharge protocols for the Smith Mountain Project as part of a minimum flow study, which will include, at a minimum, continuous flow releases and auto-cycling releases.

- Develop a drought management plan for operating the Smith Mountain Project during flow inflow periods, using hydraulic models.

- Assess potential effects, relative to inundation and velocities, to downstream areas associated with flood flows.

- Consult with the U.S. Corps of Engineers regarding the need for modifications to the existing Flood Operations Agreement between Appalachian and the Corps.

Fish and Aquatic Resources

- Conduct an instream flow study (i.e., Demonstration Flow Assessment) to evaluate the potential effects of alternative flow discharges on aquatic habitat and recreation upstream of – and downstream from – the Smith Mountain and Leesville dams (the study of the Roanoke River would be from Leesville dam downstream to the Town of Brookneal, Virginia).

- Study the potential for fish entrainment and/or impingement of fish at the Smith Mountain and Leesville developments using table-top methods.

- Evaluate migration of various fish species, using existing information and review of any existing river management plans.

- Assess the effects of water level fluctuations of reservoir fisheries, as part of a minimum flow study for the Roanoke River.

- Describe the movement patterns of various diadromous fish species in the Roanoke River Basin, and evaluate the potential for fish passage at (and through) the Smith Mountain Project to further fishery restoration efforts in the basin.

Wetlands, Riparian, and Littoral Habitat

- Update existing information with data provided by TLAC as part of its monitoring of exotic vegetation along Smith Mountain Lake.

- Conduct a field survey of aquatic vegetation for Leesville Lake.

Rare, Threatened, and Endangered Species

- Conduct a field survey of the Roanoke River, from Leesville dam downstream to the Town of Brookneal, Virginia, to determine the presence and distribution of the Roanoke log perch and any suitable habitat in the river.

Recreation and Land Use

- Use existing information from recreation evaluations to determine the adequacy of public access for anglers.

- Update existing studies and FERC Form 80 data to assess the adequacy of existing boat access facilities at Smith Mountain and Leesville Lakes, and evaluate future recreational use and need for additional boat access facilities.

- Use existing data to determine future recreational use for Smith Mountain and Leesville Lakes.

- Obtain information regarding ownership of the islands in Smith Mountain and Leesville Lakes and perform a field survey of the conditions o the islands.

- Study debris removal and prevention needs, utilizing available data on the amount and type of material removed over the years. The study would consider the current methods for removing materials from the surfaces of the lakes as well as investigate the types of materials removed and the need to continue such activities.

Cultural Resources

- Continue consulting with the Virginia Department of Historic Resources and the Virginia Council on Indians regarding the development of a Programmatic Agreement that addresses the protection of historic and Native American resources affected by the project.

5.0 INFORMATION REQUESTED

We are asking federal, state, and local resource agencies, Indian tribes, other governmental and non-governmental organizations, and individuals to forward to the Commission any information that will assist us in conducting an accurate and thorough analysis of the project-specific and cumulative effects of the Smith Mountain Project. The types of information requested include, but are not limited to:

- information, quantitative data, or professional opinions that may help define the geographic and temporal scope of the analysis (both site-specific and cumulative effects), and that helps identify significant environmental issues;

- identification of, and information from, any other EA, Environmental Impact Statement, or similar environmental study (previous, on-going, or planned) relevant to the proposed relicensing of the Smith Mountain Project;

- existing information and any data that would help to describe the past and present actions and effects of the project and other developmental activities on environmental and socio-economic resources;

- information that would help characterize the existing environmental conditions and habitats;

- the identification of any federal, state, or local resource plans, and any future project proposals in the affected resource area (e.g., proposals to construct or operate water treatment facilities, recreation areas, water diversions, timber harvest activities, or fish management programs, along with any implementation schedules;

- documentation that the proposed project would or would not contribute to cumulative adverse or beneficial effects on any resources. Documentation can include, but need not be limited to, how the project would interact with other projects in the area and other developmental activities; study results; resource management policies; and reports from federal state, and local agencies; and

- documentation showing why any resources should be excluded from further study or consideration.

The requested information, comments on the PAD and SD1, and study requests should be submitted in writing to the Commission no later than March 1, 2005. All written filings must clearly identify "Smith Mountain Hydroelectric Project No. 2210-108" on the first page. All information, comments, and study requests should be sent to:

Magalie R. Salas, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E., Room 1A
Washington, DC 20426

All filings sent to the Secretary of the Commission should contain an original and eight copies. Failure to file an original and eight copies may result in appropriate staff not receiving the benefit of your comments in a timely manner. Scoping comments and study requests may be filed electronically via the Internet in lieu of paper. See 18 CFR 385.2001(a)(1)(iii) and the instructions on the Commission's web site (http://www.ferc.gov) under the "e-Filing" link. For assistance, please contact FERC Online Support at FERCOnlineSupport@ferc.gov or toll free at 1-866-208-3676, or for TTY, (202) 502-8659. The Commission strongly encourages electronic filings.

Register online at http://www.ferc.gov/esubscribenow.htm to be notified via email of new filings and issuances related to this or other pending projects. For assistance, please contact FERC Online Support.

Interveners – those on the Commission's service list for this proceeding – are reminded that if they file comments with the Commission, they must also serve a copy of their filing on each person whose name appears on the official service list. The current service list is presented in section 9.0. However, the list is periodically updated. The official service list can be obtained on the Commission's web site (http://www.ferc.gov), scroll down to Documents and Filing, right click on service list, or call the Office of the Secretary, Dockets Branch at (202) 502-8715. In addition, if any party files comments or documents with the Commission relating to the merits of an issue that may affect the responsibilities of a particular resource agency, they must also serve a copy of the document on the resource agency.

Any questions concerning the scoping meetings, site visit, or how to file written comments with the Commission should be directed to Allan Creamer at (202) 502-8365 or allan.creamer@ferc.gov. Additional information about the Commission's licensing process and the Smith Mountain Project may be obtained from the Commission's website, www.ferc.gov, or Appalachian Power's website, www.smithmtn.com.

6.0 EA PREPARATION SCHEDULE

At this time, we do not anticipate the need for preparing a draft EA. We will prepare a "single EA" for this project, which will be sent to all persons and entities on the Commission's service and mailing lists for the Smith Mountain Project. The EA will include our recommendations for operating procedures, as well as environmental protection and enhancement measures that should be part of any license issued by the Commission. All recipients (and stakeholders) will then have 45 days to review the EA and file written comments with the Commission. All comments on the EA, filed with the Commission, will be considered in any Commission order rendering a decision on a new license for the project.[7]

The major milestones, including those for preparing the EA, are as follows:

[7] Should substantive comments requiring reanalysis be received on the EA, we would consider preparing a subsequent EA.

Major Milestone	Target Date
Scoping Meetings	January 2005
License Application Filed	March 2008
Issue Ready for Environmental Analysis Notice	May 2008
Deadline for Filing Comments, Recommendations and Agency Terms and Conditions/Prescriptions	July 2008
Single EA Issued	November 2008
Deadline for Filing Modified Agency Recommendations	March 2009
Ready for Commission Decision on the Application	May 2009

A copy of Appalachian Power's process plan, which has a complete list of relicensing milestones for the Smith Mountain Project, is attached as Appendix A to this SD1.

7.0 DRAFT EA OUTLINE

The preliminary outline for the Smith Mountain Project EA is as follows:

SUMMARY

I. APPLICATION

II. PURPOSE OF ACTION AND NEED FOR ACTION
- A. Purpose of Action
- B. Need for Power

III. PROPOSED ACTION AND ALTERNATIVES
- A. Applicant's Proposed Action
  - 1. Project Facilities and Operation
  - 2. Proposed Protection, Mitigation, and Enhancement Measures
- B. Proposed Action with Additional Staff-recommended Measures
- C. No-action
- D. Alternatives Considered but Eliminated from Detailed Study

IV. CONSULTATION AND COMPLIANCE
- A. Consultation
  1. Scoping
  2. Interventions
  3. Comments on the Application

XII. LIST OF PREPARERS

APPENDICES (if necessary)

8.0 CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2) of the FPA requires the Commission to consider the extent to which a project is consistent with federal and state comprehensive plans for improving, developing, and conserving waterways affected by a project. We have identified the following comprehensive plans as being potentially relevant to relicensing the Smith Mountain Project:

Virginia

Forest Service. 1985. Jefferson National Forest land and resources management plan. Department of Agriculture, Roanoke, Virginia. October 1985. 231 pp. and appendices.

Virginia Commission of Outdoor Recreation. 1973. Staunton River, a scenic river report to the Governor and General Assembly. Richmond, Virginia. December 1973.

Virginia Department of Conservation and Economic Development, Division of Parks and Recreation. 1984. Virginia Outdoors Plan. Richmond, Virginia. January 1984. 196 pp. and appendices.[8]

Virginia Department of Conservation and Historic Resources. Undated. Virginia's scenic rivers. Richmond, Virginia. 12 pp.

Virginia State Water Control Board. 1986. Minimum instream flow study – final report. Annandale, Virginia. February 1986. 333 pp. and appendices.

[8] We understand that the 1984 Virginia Outdoors Plan has been revised. The reference for the revised plan is "*Virginia Department of Conservation and Recreation. 2002. Virginia Outdoors Plan. Richmond, Virginia.*" However, the 2002 Virginia Outdoors Plan has not yet been officially filed as a comprehensive plan with the Commission. We encourage the Commonwealth of Virginia to file this plan as a comprehensive plan.

United States

Fish and Wildlife Service. Canadian Wildlife Service. 1986. North American Waterfowl Management Plan. Department of the Interior. Environment Canada. May 1986. 19pp.

Fish and Wildlife Service. Undated. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C. 11pp.

National Marine Fisheries Service. 2000. Fishery management Report No. 36 of the Atlantic States Marine Fisheries Commission. Interstate Fishery management Plan for American eel (*Anguilla rostrata*). Prepared by the American Eel Plan Development Team. April 2000. 78 pp.

National Park Service. 1982. The nationwide rivers inventory. Department of the Interior, Washington, D.C. January 1982. 432 pp.

In addition to the aforementioned qualifying comprehensive plans, other resource management plans that are considered pertinent to the relicensing of the Smith Mountain Project include:

State Water Control Board. 2003. Water Quality Management Planning Regulation (9 VAC 25-720-80), Roanoke River Basin, 2003. State Water Control Board. Richmond, Virginia.

State Water Control Board. 1988. Roanoke Basin Water Supply Plan – Planning Bulletin 339. State Water Control Board, Richmond, Virginia.

Franklin County Board of Supervisors. April 4, 1995. Inventing Franklin County's Future: 1995 Comprehensive Plan.

Resource Planners, Inc. September 30, 1993. County of Bedford Master Recreational Plan.

Campbell County Board of Supervisors. February 3, 2003. Campbell County Comprehensive Plan 2003-2018.

9.0 SERVICE LIST AND MAILING LIST

Service List for the Smith Mountain Hydroelectric Project, No. 2210-108

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APPENDIX A PROCESS PLAN AND SCHEDULE

Below is the schedule for the Smith Mountain pre- and post-application activity.

APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
ILP - PROCESS PLAN

RESPONSIBLE ENTITY	LICENSE APPLICATION PRE-FILING SCHEDULE MILESTONES	DATE	REGULATION
APCO	Commence consultations with participants and public	11/13/2002	5.1(d)
APCO	Begin PAD preparation	11/13/2002	5.6
APCO	Request for Section 106 consultation authorization	7/10/2003	5.5(e)
FERC	Designation as non-federal representative for Section 106 consultation	11/4/2003	5.5(e)
APCO	File NOI and PAD	11/1/2004	5.5,5.6
APCO	Issue public notice of NOI and PAD	11/1/2004	5.3(d)(2)
FERC	Tribal Consultation	12/1/2004	5.7
FERC	Notice of Commencement of Proceeding and Issue of Scoping Document No. 1 (SD1)	12/31/2004	5.8
FERC	Site Visit and Scoping Meetings	1/26 & 1/27/2005	5.8(d)
Participants	Comments on PAD/SD1, and information gathering and study requests	3/1/2005	5.9(a)(b)
FERC	Scoping Document No. 2 (SD2) issued (If necessary)	4/15/2005	5.1
APCO	Proposed study plan filed	4/15/2005	5.11
APCO w/participants	Proposed study plan initial meeting	5/15/2005	5.11
Participants	Comments on proposed study plan	7/14/2005	5.12
APCO	File revised study plan	8/13/2005	5.13(a)
Participants	Comments on revised study plan	8/28/2005	5.13(b)
FERC	Study plan determination issued	9/12/2005	5.13(c)
Federal agencies w/ mandatory condition authority	Filing of study dispute notice	10/2/2005	5.14(a)
Dispute Resolut on Panel	Dispute resolution panel convened	10/22/2005	5.14(d)
APCO	Comments and information regarding dispute filed	10/27/2005	5.14(i)
Dispute Resolution Panel	Findings of panel filed	11/21/2005	5.14(k)
FERC	Study dispute determination issued	12/11/2005	5.14(l)
APCO	Conduct studies and gather information - first season	2005 & 2006	5.15
APCO	Initial study report	9/12/2006	5.15(c)(1)
APCO	Initial study report meeting	9/27/2006	5.15(c)(2)
APCO	Meeting summary & study plan modifications (If necessary)	10/12/2006	5.15(c)(3)
Participants	Comments on meeting summary	11/11/2006	5.15(c)(4)
APCO	Response to meeting summary comments	12/11/2006	5.15(c)(5)
FERC	Disagreement resolution & revisions ot study plan	1/10/2007	5.15(c)(6)
APCO	Conduct studies and gather information (if needed)	2007	5.15
APCO	Updated study report & Notice of Intent to file a Draft License Application (if so selected)	9/12/2007	5.15(f)
APCO	Updated study report meeting	9/27/2007	5.15(f)
APCO	Updated study report meeting summary	10/12/2007	5.15(f)
APCO	File Preliminary Licensing Proposal or Draft License Application	11/2/2007	5.16(a)(b)
APCO	File application for 401 Certification from VDEQ	11/2/2007	5.22
Participants	Comments on meeting summary	11/11/2007	5.15(f)
APCO	Response to meeting summary comments	12/11/2007	5.15(f)
FERC	Disagreement resolution	1/10/2008	5.15(f)
FERC/Participants	Comments on Preliminary Licensing Proposal or Draft License Application	1/31/2008	5.16(e)
APCO	File Application for New License	3/31/2008	5.17(a)

APPALACHIAN POWER COMPANY
SMITH MOUNTAIN PROJECT NO. 2210
ILP - PROCESS PLAN

RESPONSIBLE ENTITY	LICENSE APPLICATION POST-FILING SCHEDULE MILESTONES	DATE	REGULATION
APCO	Notice of filing of application in local newspapers	4/14/2008	5.17(d)(2)
FERC	Notice of filing of application by the Commission	4/14/2008	5.19(a)
FERC	Determination on outstanding Additional Study Requests & notification of application deficiencies	4/30/2008	5.19(d),5.20(a)
FERC	Notice of application accepted and ready for environmental analysis	5/30/2008	5.22
Participants	Comments, protests, interventions, recommendations, and preliminary terms and conditions or fishway prescriptions filed	7/29/2008	5.23(a)
APCO & Participants	Reply comments due	9/12/2008	5.23(a)
VDEQ	401 Certification Issued	11/2/2008	5.23(b)(2)
FERC	EA issued for comment if draft NEPA document not required	11/26/2008	5.24(a)
APCO & Participants	Comments on EA due	1/9/2009	5.24(c)
APCO & Participants	Modified mandatory prescriptions or terms and conditions filed	3/11/2009	5.24(d)
USFWS	ESA consultations and biological opinion	4/10/2009	N/A
FERC	License issued (Single EA)	5/10/2009	FPA

The following schedule will be followed if Commission staff determine that a draft and final environmental document is necessary:

FERC	Draft EA or EIS issued for comment	1/25/2009	5.25(a)
APCO & Participants	Comments on Draft EA or EIS due	3/11/2009	5.25(c)
APCO & Participants	Modified mandatory prescriptions or terms and conditions filed	5/10/2009	5.25(d)
USFWS	ESA consultations and biological opinion	7/24/2009	N/A
FERC	Final environmental document issued	8/8/2009	5.25(e)
FERC	License issued	10/7/2009	FPA