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SUBJECT: Forwards license & amends, explaining filing requirements for  
 FERC project 2503, as requested in 990301 ltr. Future  
 operation of project not expected to change through current  
 license term.

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FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D. C. 20426

Project No. 2503--South Carolina  
Keowee-Toxaway Hydro Project  
Duke Power

OFFICE OF HYDROPOWER LICENSING

APR 6 1999

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Re: Docket Nos. 50-269, 50-270, and 50-287

Dear Mr. Wilson:

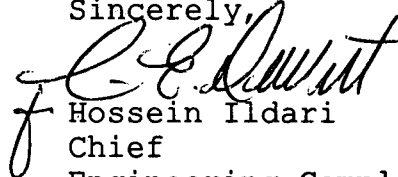
This refers to your letter of March 1, 1999, requesting information on the current status of the license for Keowee Dam and Hydro Station, FERC Project No. 2503, and any information regarding the future operation of the project.

The enclosed license for the project was issued in 1966 and expires in 2016. Changes to the project are reflected in amendments to the license. The amendments issued for the project are enclosed for your information. The license and amendments explain the filing requirements for the project during the license term. All filing requirements for the project are currently up-to-date.

The future operation of the project is not expected to change through its current license term. Any updated studies concerning the project will be addressed during relicensing.

If we can be of further assistance, please call Diane Murray at (202) 219-2682.

Sincerely,

  
Hossein Ildari  
Chief

Engineering Compliance Branch

Enclosures

1. License
2. Amendments

cc: Public Files

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Mr. Guel.  
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## DUKE POWER COMPANY, PROJECT NO. 2503

## FEDERAL POWER COMMISSION

36 F.P.C. 675; 1966 FPC LEXIS 263

September 26, 1966

CORE TERMS: licensee, license, reservoir, water, site, dam, feet, plant, elevation, recreational, estimated, notice, proposed project, designated, regulations, revised, sheet, mile, pool, recommended, construct, project area, pumped-storage, prescribe, river, steam, fish, recreation, wildlife, filling

## [\*1] ORDER ISSUING LICENSE (MAJOR)

Before Commissioners: Lee C. White, Chairman; L. J. O'Connor, Jr., Charles R. Ross, Carl E. Bagge and John A. Carver, Jr.

## OPINION:

On January 4, 1965, Duke Power Company (Applicant), filed an application seeking a license pursuant to Section 4(e) of the Federal Power Act for the development of the Keowee-Toxaway hydroelectric project (Project No. 2503), to be located on the Keowee, Little, Whitewater, Toxaway, Thompson and Horsepasture Rivers, all tributaries of the Savannah River. The project, which has an estimated cost of \$86,319,000, would impound the waters of these rivers in Oconee and Pickens Counties, South Carolina and in Transylvania County, North Carolina.

The Horsepasture, Toxaway, Thompson and Whitewater Rivers arise on the southerly slopes of the Blue Ridge Mountains in Jackson and Transylvania Counties, North Carolina and flow into northwestern South Carolina and join to form the Keowee River which unites with 12 Mile Creek to form the Seneca River which in turn joins with the Tugaloo River to form the Savannah River about 297 miles above the mouth of the Savannah River.

The project proposed by the Applicant would [\*2] consist of two hydroelectric developments, the Keowee Development and the Jocassee Development. The Keowee Development will consist of two dams impounding the waters of the Little and Keowee Rivers in Oconee and Pickens Counties, South Carolina. One dam and a series of saddle dikes would be built on the Little River near Newry, South Carolina, 2.7 miles from the mouth of the Little River and 347.3 miles from the mouth of the Savannah. This dam and associated saddle dikes would divert the entire flow of the Little River, except for some minor with-drawals, through a connecting canal into the Keowee Valley. A dam on the Keowee near Old Pickens would back up the waters of the Keowee and complete in impoundment. This dam would be located 351.5 miles from the mouth of the Savannah. The waters backed up by these two dams will be connected by a diversion canal located in a small saddle and will form a single reservoir impounding the flows of both the Keowee and Little Rivers. The powerhouse would be built at the dam

near Old Pickens and would contain two units rated at 70,000 kilowatts each.

The Jocassee Development will be located on the Keowee River at the head of Lack Keowee and [\*3] just below the confluence of the Whitewater and Toxaway Rivers. The Jocassee dam will be located about 366 miles upstream from the mouth of the Savannah. The reservoir formed by this dam would back up the Whitewater, Horsepasture, Thompson and Toxaway Rivers and would extend into Transylvania County, North Carolina. The powerhouse would be located at the dam and would contain one conventional unit rated at 160,000 kilowatts and three pumped-storage units rated at 150,000 kilowatts each.

Applicant will initially construct the Keowee development and will commence construction of certain Jocassee diversion works approximately one year after commencing construction on the Keowee development.

The Hartwell and Clark Hill dams constructed by the Corps of Engineers are located on the Savannah River downstream from the proposed project at river miles 305 and 239 respectively. The Trotters Shoals dam site proposed to be developed by the Corps is located between these two dams at river mile 276. Construction and operation of the Keowee-Toxaway project would affect the operation of these dams.

The Keowee and Little Rivers on which the project will be located are tributaries of the Savannah [\*4] River, a navigable water of the United States. See United States v. Twin City Power Co., 350 U.S. 222. Power produced from the project will be marketed to customers of the Applicant in North and South Carolina and will be marketed by other members of the CARVA Pool n1 serving in the two Carolinas and Virginia.

n1 The members of the CARVA Pool are: Duke Power Company, Carolina Power & Light Company, South Carolina Electric & Gas Company, and Virginia Electric and Power Company.

The United States Corps of Engineers recommended the development of a number of hydroelectric sites in the Savannah River Basin in its report to Congress in 1944 (House Document 657, 78th Congress, 2d Session). Included among the developments recommended by the Corps was one at the site of Applicant's proposed Keowee Development. The name given at that time to the Corps' proposed site was Newry-Old Pickens. The Corps' plans, like those of the Applicant, contemplated a reservoir with an elevation of 800 feet to be formed by two dams at this site, one on the Keowee River and one on the Little River with respective reservoirs connected by a canal. The Corps' proposal, however, provided [\*5] for maximum drawdowns and an installed capacity different from those now proposed by the Applicant. The studies of the Corps at that time did not contemplate any developments upstream from the Newry-old Pickens or Keowee site.

In 1963 the U.S Study Commission, Southeast River Basins, issued its report on the Savannah River Basin (Appendix 1, Report of U.S. Study Commission, Southeast River Basins). The Study Commission reviewed the Corps' 1944 report and recommended development of the Newry-Old Pickens (Keowee) site along the same lines as originally proposed by the Corps and as now proposed by the Applicant. In addition the Study Commission recommended the development upstream on the Keowee River of the Jocassee site. The dam site and powerhouse

location proposed by the Study Commission for the Jocassee site are similar to those now proposed by the Applicant. The upper reservoir elevation at Jocassee proposed by the Applicant, however, would be 10 feet higher than that proposed by the Study Commission for this site. In addition the Study Commission recognized pumped-storage operations at Jocassee using the Newry-Old Pickens reservoir as a lower pool as a potential advantage [\*6] of this development.

The Applicant's plans for the development of this stretch of the Savannah River Basin include not only the Keowee and Jocassee developments to which its present application relates but also contemplate the construction of future steam and pumped storage plants. Applicant expects Lake Keowee to furnish condenser cooling waters for up to 7000 mw of steam generated electric power, and as part of its application for the Keowee and Jocassee developments it is asking this Commission to approve the use of the Keowee reservoir for the generation of up to 3000 mw of steam electric power. This plant would be located near the Keowee River dam. A low level intake would be provided for this plant on the bottom of Keowee Lake; and after passing through the condensers, the water would be discharged through a canal into the Little River arm of Lake Keowee. Applicant currently is planning to construct at this site on Lake Keowee two nuclear fired steam units with a combined net peak capability of 1,644 mw. The estimated cost of these nuclear units is \$207,000,000. Contracts for these units have been let and Applicant's construction schedule calls for their commercial operation [\*7] by May 1971 and May 1972 respectively.

Applicant's plans for the future development of this waterway also contemplate the construction of pumped-storage units on the Horsepasture River. Such units would use the presently proposed upper Jocassee reservoir as a source for pumping water for any such pumped-storage developments. To date Applicant has made preliminary design studies for such a future pumpedstorage development with a peak capability of 2,300 mw. The total head would be 1,180 feet. This plant would be located on the Horsepasture River at a site called Bad Creek and would cost approximately \$136.8 million. Applicant estimates that such additional peaking power will be needed by approximately 1984.

By order dated May 12, 1966, the Commission set the subject application for hearing. Testimony and exhibits were filed by the Applicant and by the Commission Staff and a public hearing was held on August 16, 1966, before a Presiding Examiner of this Commission.

At this hearing Applicant's witnesses testified, among other things, as to the need for the power to be produced by the project, the alternative sources of power considered by the Applicant, the additional [\*8] economic power developments both thermal and hydro which the Applicant believes will be made possible by the construction of the Keowee-Toxaway project and finally as to the recreational program proposed by the Applicant at the project.

Staff witnesses, among other things, testified as to the future requirements for peaking power in the CARVA Pool service area; the estimated economic advantages of some 60 potential hydro projects in the CARVA Pool area, including the Keowee-Toxaway and Trotters Shoals projects; the safety and adequacy of the proposed project; the estimated costs of alternative sources of power for the Applicant; and as to the adequacy of the recreation program proposed by the Applicant.

It appears from the record made in this proceeding that the output from the Keowee-Toxaway Project will complement existing CARVA peaking capacity in supplying the peak demands of the CARVA Pool loads in the years in which the project is scheduled to be in service, and that the proposed project would develop the entire head available between elevation 660 feet, the water surface of the Hartwell Reservoir, and elevation 1,110 feet, the maximum water surface elevation of the upper [\*9] Jocassee Reservoir.

Witnesses for the Applicant compared the estimated fixed annual costs of the proposed project with similar estimated costs for an alternate fossil-fuel plant, an alternate pumped-storage plant, and an alternate gas turbine plant. In each case the estimated costs of the proposed project were the lower. A witness for the staff compared an estimated cost of the proposed project with the following alternatives: each of 60 potential hydro sites in the CARVA Pool area, a fossil-fuel plant, a pumped-storage project, a gas turbine plant, and a nuclear plant. In each case, the estimated costs of the proposed project were lower than any of the alternatives studied by the staff.

Applicant has filed a recreational plan pursuant to the Commission's Regulations which provides for 455 acres of access areas at the Keowee development and 265 acres of access areas at the Jocassee development. A witness for the staff, while noting a number of aspects of the recreational program which might require improvement and expansion to meet future needs, recommended approval of the Exhibit R filed by the Applicant.

On May 7, 1965 the Corps of Engineers submitted its comments on the subject [\*10] application and reported that the applicant's proposed project structures affecting navigation are satisfactory. The Corps recommended that any license issued should include provisions to insure that construction and operation of Applicant's project would not impair realization of the benefits associated with operation of the downstream Corps projects. The Corps also recommended that Applicant's project and the Corps projects be hydraulically coordinated in the interest of achieving maximum public benefits. By Articles 31, 32, 33, and 34 we are including license conditions to protect the interests of the United States in its projects.

The Department of Health, Education, and Welfare (HEW) in its comments filed on May 7, 1965 reported that the effects of the project on water supply and water pollution are not expected to be significant in that area of the project located in South Carolina, since the area is undeveloped and appears likely to continue that way. HEW further reported that the State of North Carolina has indicated that the proposed development in that State should be beneficial, and that there are no known pollution sources which would affect water supplies [\*11] or recreation.

The Secretary of the Interior in a letter, dated July 28, 1965, made the following recommendations with respect to the proposed project: (1) the project should be fully integrated, both hydraulically and electrically, with downstream Federal projects, (2) reservoir filling procedures should be agreed upon with Southeastern Power Administration and the Corps of Engineers, (3) conditions for the protection of fish and wildlife should be included in the license, (4) the license should require a detailed plan of development for free public utilization of project waters and adjacent project lands for recreation purposes

pursuant to Federal regulations as set forth in FPC Order No. 260-A, 29 FPC 777, (5) Applicant should be required to safeguard natural beauty values, (6) the National Park Service should be provided \$2,500 with which to conduct an archeological survey.

In a letter dated April 7, 1966, Interior indicated its support of the Applicant's proposed maximum drawdowns and reported that studies carried out by the Fish and Wildlife Service enabled it to conclude that the thermal effects of a 3000 mw nuclear plant at a site on Lake Keowee designated as "Site L" would [\*12] produce no detrimental effects upon the fishery resources within Lakes Jocassee or Keowee. However, the Department recommended that any license issued for the proposed project require Commission approval prior to the installation on the Keowee reservoir of thermal-electric plants additional to 3000 mw. It recommended two articles, for inclusion in any license issued, which would require (1) that construction of steam plants, other than the proposed 3000 mw plant at "Site L", be subject to the approval of the Commission based on Interior's recommendations, (2) that data from monitoring thermal effects of steam plant operations at "Site L" be furnished to Interior for its use in making recommendations on steam plants that may be proposed for construction in the future.

By a letter dated May 20, 1966, Interior reported that the recreational development plan proposed by the Applicant affords an adequate base for the development of the recreation potential of the project and recommended that conditions relating to future recreation development be included in any license issued for the project.

License conditions are contained herein to protect the interests of the Corps of Engineers [\*13] and the Department of the Interior. The reservoir filling agreement requested by Interior and the Corps is provided for by Article 31. By Article 32 Applicant is being required to enter into an operating agreement with the Corps and with the Interior Department for the protection of capability of the downstream Federal projects. Interior's request with respect to archeological exploration is met by Article 39 and Interior's concern for the protection of fish and wildlife is met by Articles 16 and 17 of Form L-11 which is being made a part of this license, infra, p. 687. Interior's request for license conditions to assure future recreation development at the project is provided for by Article 41.

Petitions to intervene in opposition to the application were filed by the Bi-State Power Committee n2, a group representing various REA cooperatives in the States of Georgia and North Carolina; by the Blue Ridge Electric Membership Corporation; by the Oconee Electric Membership Corporation; and by the Secretary of the Interior. Bi-State and the two aforesaid cooperatives were permitted to intervene in this proceeding (Interveners). The Secretary of the Interior, however, [\*14] withdrew his petition to intervene prior to any Commission action on his petition. Bi-State filed several pleadings in this proceeding in opposition to the application, all of which were adopted by the two intervening cooperatives.

n2 The petition was originally filed in the name of Tri-State Power Committee. An amendment to this petition filed on September 22, 1965, advised the Commission that the name of the intervener had been changed to Bi-State Power Committee.

Originally interveners asked the Commission to deny the application and pursuant to Section 7(b) of the Federal Power Act to recommend federal development of all remaining potential projects in the Savannah River Basin. Interveners later amended their petitions by omitting their request for federal development and by taking the position instead that the construction of the Keowee-Toxaway Project before the development of the Trotters Shoals site on the Savannah River would violate the plan for the comprehensive development of the Savannah River Basin adopted and approved by Congress in the Flood Control Act of 1944 (58 Stat. 887, 894).

On July 25, 1966, after the application had been set for hearing, interveners [\*15] filed a notice of withdrawal of their petitions to intervene in this proceeding. As a reason for their withdrawal they pointed out that various "key officials of the State of South Carolina" who had previously opposed the Trotters Shoals development, had recently elected, along with the Duke Power Company, to endorse federal development of that site and to work for Congressional authorization of Trotters Shoals this year. The interveners concluded in their notice of withdrawal that these developments remove the primary basis for their objection to the Keowee-Toxaway Project application.

Although interveners withdrew their request for federal development of the Keowee-Toxaway Project at an early stage in this proceeding, we have, nevertheless, examined the record on our own to determine whether there may be some reason why this project should be developed by the federal government. Our review of this record and our general knowledge of the Savannah River Basin reveals no reason to warrant a recommendation to Congress pursuant to Section 7(b) of the Federal Power Act that this project be developed by the federal government. In our judgment there are not any significant improvements [\*16] or benefits which might accrue as a result of federal development in addition to those proposed by the Applicant or otherwise provided for by this order. Accordingly, we are not recommending federal development of the site proposed for development by Applicant. Nor do we believe that either legally or factually there is any reason to defer the licensing of the Keowee-Toxaway Project until after the development of the Trotters Shoals site.

At the public hearing held on this application, a resident of Winston-Salem, North Carolina, Mr. Lawrence G. Pfefferkorn, objected to the issuance of any license to Duke Power Company for this project which did not contain a condition prohibiting Duke Power Company from opposing the development of various projects on the Yadkin River in North Carolina. However, the activity of a licensee in opposing the development of hydroelectric sites does not appear to be one which this Commission has been empowered to curtail except to the extent that such activity may be in violation of Section 10(h) of the Federal Power Act. That section proscribes, inter alia, combinations or agreements to limit the output of electrical energy. On the basis of the [\*17] statements made on this record, assuming their factual validity, it does not appear that the Duke Power Company's opposition to various projects on the Yadkin River has constituted a violation of Section 10(h). See *Eastern Railroad Conference v. Noerr*, 365 U.S. 127.

At the conclusion of the hearing the Applicant made a motion to waive the filing of briefs, the presentation of proposed findings, and oral argument and to omit the intermediate decision of the examiner. The Staff concurred in this



motion which was granted pursuant to Section 1.30(c) of the Commission's Rules of Practice and Procedure.

The Commission finds:

(1) The Applicant is a corporation organized under the laws of North Carolina and has submitted satisfactory evidence of compliance with all applicable state laws insofar as necessary to effectuate the purposes of the license for the proposed project.

(2) Public notice of the filing of the application has been given. Except for the petitions to intervene, hereinbefore discussed, no other petitions to intervene or formal protests have been filed and no conflicting application is before the Commission.

(3) The project will be located on [\*18] a tributary of a navigable water of the United States.

(4) Electric energy to be generated at the project will at times be transmitted into the states of North Carolina and Virginia and therefore the interests of interstate commerce will be affected by the proposed project.

(5) The power to be produced by the project is needed to meet the load growth in the service areas of the Applicant and of Applicant as a member of the CARVA Pool.

(6) The applicant has submitted satisfactory evidence of its financial ability to construct and operate the project.

(7) The estimated cost of developing the Keowee-Toxaway Project when compared with estimated costs to the Applicant of developing alternative sources of power appears reasonable.

(8) The use of the Keowee Reservoir at the site designated on Exhibit K (FPC No. 2503-4) as a source of condenser cooling waters for up to 3000 mw of steam generated electric power will produce no detrimental effects upon the fishery resources within Lake Keowee and such use is compatible with a comprehensive plan for improving and developing the subject waterway.

(9) Subject to the terms and conditions hereinafter imposed, the project will be best adapted [\*19] to a comprehensive plan for improving or developing a waterway or waterways for the use or benefit of interstate or foreign commerce, for the improvement and utilization of water power development, and for other beneficial public uses, including recreational purposes.

(10) The installed horsepower capacity of the project hereinafter authorized for the purpose of computing the capacity component of the administrative annual charge is 1,000,000 horsepower and the amount of annual charges based on such capacity to be paid under the license for the project, for the costs of administration of Part I of the Act is reasonable.

(11) The issuance of a license as hereinafter provided will not affect the development of any water resources for public purposes which should be undertaken by the United States.

(12) The exhibits designated and described in paragraph (B) following conform to the Commission's rules and regulations with respect to the project boundary, capacities of reservoirs, size of water passages, capacities of generating units, general design of structures and recreation development of the project and should be approved as part of this license. The Applicant should, [\*20] as hereinafter provided, supply revised exhibits for Commission approval.

The Commission orders:

(A) This license is hereby issued to the Duke Power Company of Charlotte, North Carolina (Licensee), under Section 4(e) of the Federal Power Act for a period of 50 years effective as of September 1, 1966, for the construction, operation and maintenance of Project No. 2503 located on the Keowee and Little Rivers, South Carolina and North Carolina subject to the terms and conditions of the Act and subject to such rules and regulations as the Commission has issued or prescribed under the provisions of the Act.

(B) Project No. 2503 consists of:

(i) all lands constituting the project area and enclosed by the project boundary or limits which are otherwise defined, and/or interest in such lands necessary or appropriate for the purposes of the project, whether such lands or interests therein are owned or held by the Licensee or by the United States -- such project area and project boundary being more specifically shown and described by certain Exhibits of the application for license which are designated as follows:

Exhibit J	FPC No. 2503	Title
Sheet 1	-2	"General Map and Profile"
Sheet 2	-3	"Transmission System Map"

[\*21]

Exhibit K	FPC No. 2503	Title
Sheet 1	-4	"Keowee Development, Project Area"
Sheet 2	-5	"Keowee Development, Project Area"
Sheet 3	-6	"Jocassee Development, Project Area"

Exhibit K is approved only to the extent that it shows the reservoir areas at pool elevations 800 feet and 1,110 feet for Lakes Keowee and Jocassee, respectively.

(ii) Projects which are described as follows:

Keowee Development -- (1) an earth-fill dam 150 feet high and 1,800 feet long on Little River 2.7 miles above its mouth; (2) an earth-fill dam 170 feet high and 3,500 feet long on Keowee River at river mile 351.5 above the mouth of the Savannah; (3) several saddle dikes; (4) two reservoirs having a total capacity of 911,000 acre-feet at full pond elevation 800 feet USGS, 388,000 acre-feet usable, connected by a canal diverting practically the entire flow of Little River into the Keowee Reservoir; (5) a concrete spillway 176 feet wide equipped with tainter gates with ogee crest at elevation 765 feet USGS located at Keowee Dam; (6) two concrete and steel penstocks at Keowee Dam; (7) an indoor type powerhouse containing two Francis type turbines each connected to a vertical generator [\*22] rated at 70,000 kw (140,000 kw total); (8) generator leads; (9) 13.8/230 kv step-up transformer; and (10) appurtenant facilities.

Jocassee Development -- (1) a rockfill dam with impervious core, 385 feet high and 1,750 feet long on Keowee River at river mile 366.5 above the mouth of the Savannah; (2) a reservoir with total capacity of 1,143,000 acre-feet at full pond elevation 1,110 feet USGS; (3) a concrete spillway 88 feet wide equipped with tainter gates having ogee crest at elevation 1,078 feet USGS; (4) an intake structure and two concrete and steel penstocks; (5) an outdoor type powerhouse containing initially, one conventional 160,000 kw vertical generating unit driven by a Francis type turbine and one vertical motor-generator and pump-turbine unit rated at 150,000 kw (310 mw total initial generating capacity) with provisions for two future similar motor-generator and pump-turbine units (610 mw total ultimate generating capacity); (6) the Keowee Reservoir, serving as a lower pool for the pumped-storage operation; (7) generator leads; (8) 13.8/230 kv step-up transformers; and (9) appurtenant facilities; the location, nature and character of which are more specifically [\*23] shown and described by the exhibits hereinbefore cited and by certain other exhibits which also formed part of the application for license and which are designated and described as follows:

Exhibit 1	FPC No. 2503	Showing Keowee-Texaway Project
Sheet 1	-17	Keowee Development Plan
Sheet 2	-18	Keowee Development Sections and Details
Sheet 3	-19	Jocassee Development Plan
Sheet 4	-20	Jocassee Development Sections
Sheet 5	-11	Keowee and Jocassee Developments One Line Diagrams, only insofar as they show the general layout of the project.

Exhibit M, entitled "General Description of Mechanical, Electrical, and Transmission Equipment", consisting of five typewritten pages, filed on January 4, 1965, and amended on September 2, 1965.

(iii) Recreational and public access areas which are designated and described as follows:

(1) Exhibit R (FPC No. 2503-25, 26, 27, 28)

(2) Eight drawings entitled "Proposed Recreational Plan, Sites No. 1 through 8, dated March 30,

(3) Five typewritten sheets entitled respectively:

(a) "Type and Number of Recreation Facilities (Revised -- March 30, 1966) Lake Keowee Access Areas, Lake Jocassee Access Areas."

(b) "Development [\*24] Costs -- Keowee-Jocassee Access Area (Revised March 30, 1966) Lake Keowee"

(c) "Development Costs -- Keowee-Jocassee Access Areas (Revised March 30, 1966) Lake Jocassee [and] Total Development Costs of Access Areas -- Keowee and Jocassee Lakes (Revised -- March 30, 1966)"

(d) "Initial Development Costs (Revised March 30, 1966) "

(e) "Keowee-Jocassee Access Areas (Revised March 30, 1966) Estimated Initial and Ultimate Use."

(4) Seven typewritten pages entitled "Exhibit R Recreational Use Plan", and dated August 16, 1965.

(iv) all other structures, fixtures, equipment or facilities used or useful in the maintenance and operation of the project and located on the project area, including such portable property as may be used or useful in connection with the project or any part thereof, whether located on or off the project area, if and to the extent that the inclusion of such property as part of the project is approved or acquiesced in by the Commission; also, all riparian or other rights, the use or possession of which is necessary or appropriate to the maintenance or operation of the project.

(C) This license is also subject to conditions set forth in Form L-11 (Revised September [\*25] 1, 1966) entitled "Terms and Conditions of License for Unconstructed Major Project Affecting The Interests of Interstate or Foreign Commerce," which terms and conditions designated as Articles 1 through 26 are attached hereto and made a part hereof, infra, p. 687; and subject to the following special conditions set forth herein as additional Articles:

Article 27. Licensee shall submit in accordance with the Commission's rules and regulations Exhibits J and L drawings showing final designs of the project works and the Licensee shall not begin construction of the project structures until the Commission has approved such exhibits. The stability of the fill-type dams and dikes shall be based on the properties of the materials of construction and shall conform to the design notes shown on the Exhibit L drawings (FPC Nos. 2503-18 and 20). The properties of the foundations for these dams and dikes should also be investigated and taken into consideration in the stability analyses.

Article 28. Licensee shall not initiate construction on Lake Keowee or Jocassee of any steam electric plant additional to the proposed 3000 mw plant at "Site L" (Exhibit K-FPC No. 2503-4) [\*26] without prior approval of the Federal Power Commission.

Article 29. The Licensee will establish and carry out adequate monitoring of the thermal effects of "Site L" plant operation and collection of climatological data necessary for the Commission to establish the thermal effects of any steam-electric plants and Licensee may propose for construction in addition to the "Site L" plant.

Article 30. The Licensee shall operate the project in such a manner as to not exceed the maximum drawdowns at the Keowee and Jocassee reservoirs as stated below:

1. Maximum Drawdown without Pumped-Storage:

Keowee, 22 feet (minimum elevation 778 feet).

Jocassee, 24 feet (minimum elevation 1086 feet).

2. Maximum Drawdown with Pumped-Storage:

Keowee, 25 feet (Minimum elevation 775 feet).

Jocassee, 30 feet (minimum elevation 1080 feet).

Article 31. The Licensee shall enter into a reservoir filling agreement with the authorized representative of the Chief of Engineers, Department of the Army, and of The Department of the Interior prior to initial filling of the reservoirs to insure either sufficient releases to the Federal Hartwell and Clark Hill projects consistent with the portion [\*27] of the watershed affected by Project No. 2503 or take other acceptable measures to assure the firm power capacity of the Hartwell and Clark Hill projects which would have been available in the absence of Project No. 2503. A copy of the agreement shall be filed with the Commission. If agreement cannot be reached within six months prior to the proposed initiation of filling of the reservoirs, the Commission will prescribe the reservoir filling schedule, after notice and opportunity for hearing upon a finding based on substantial evidence that such schedule is necessary and desirable and consistent with the provisions of the Act.

Article 32. The Licensee shall, prior to beginning of operation, enter into an agreement with an authorized representative of the Chief of Engineers, Department of the Army and of The Department of the Interior requiring that the project be operated in such a manner as to assure the capability of the downstream existing Federal Projects (Hartwell and Clark Hill) to meet power generating requirements as would have been available in the absence of Project No. 2503. Further, such agreement should recognize the requirements for releases from Clark Hill reservoir [\*28] for low flow control and other responsibilities in connection with operation of the Hartwell and Clark Hill reservoirs. A copy of the agreement should be filed with the Commission. If agreement cannot be reached within six months prior to the proposed date of operation of the project, the Commission will prescribe the method of operation, after notice and opportunity for hearing and upon a finding based on substantial evidence that such method is necessary and desirable and consistent with the provisions of the act.

Article 33. The Licensee shall operate the project reservoirs during flood periods so as not to cause peak discharges downstream greater than those which would have occurred in the absence of Project No. 2503 except due to acts of God.

Article 34. The Licensee shall furnish the authorized representative of the Chief of Engineers, Department of the Army such information as he may require, pertinent to the operation conditions at the project as may be necessary for forecasting flows downstream from the project.

Article 35. The Licensee shall commence construction of the project within one year from the effective date of the license and shall complete [\*29] the construction of all project works at the Keowee Development by May 31, 1971. All of the project works of the Jocassee Development except for the final two units shall be completed by December 31, 1974. The final two units at Jocassee will be installed by May 31, 1978.

Article 36. The Commission reserves the right to determine what additional transmission facilities, if any, shall be included in this license as part of the project.

Article 37. The Licensee shall file, within three years of the effective date of this license revised Exhibits F and K, in accordance with Commission rules and regulations, to describe and show the project boundary as proposed by the Licensee.

Article 38. The Licensee shall cooperate with the South Carolina Water Pollution Control Authority, and, for the periods and duration requested by that Authority in the interest of pollution abatement and other beneficial public uses, Licensee shall release from the Keowee Development a minimum daily average flow of up to 152 cfs or such lesser amount as may be specified by the Authority. The discharge of water from the Keowee Development shall include all water flowing from the development, [\*30] whether from leakage, spillage, generation, or otherwise. For purposes of checking compliance with this provision, the flows may be estimated from the operation of the turbines and from estimates of leakage checked by periodic actual measurements of discharge where pool conditions do not prevent such measurements.

Article 39. Licensee shall provide \$2,500 to the South Carolina Department of Archeology to finance an archeological survey at the site of the Keowee and Jocassee Reservoirs.

Article 40. For the purpose of reimbursing the United States for the costs of administration of Part I of the Act, the Licensee shall pay to the United States a reasonable annual charge effective as of September 1, 1966, as determined by the Commission in accordance with the provisions of its regulations, in effect from time to time. The authorized installed capacity for such purposes is 1,000,000 horsepower.

Article 41. The Licensee shall submit for Commission approval supplements to the Exhibit R (FPC No. 2503-25, 26, 27, 28) which shall include, but not to be limited to, the following planning information:

(1) Not later than 18 months prior to completion of reservoir filling and [\*31] preceding construction of any recreational facilities thereon, functional site development plans for the campsites, public access areas, and access service area at Jocassee Reservoir designated on Exhibit R, sheet 3, revised March 30, 1966, (FPC No. 2503-27) entitled "Keowee-Toxaway Project-Jocassee Development."

(2) Not later than one year prior to completion of each reservoir filling and preceding the construction of any recreational facilities thereon: (a) functional plans for any additionally needed recreational facilities or improvements such as: trails, natural swimming areas (beaches or swimming floats), boat docks, buffer zones around and within recreational areas, visitor centers, tailrace fishing access areas, access to islands, landscaping and tree planting, observation sites, shelters, and such safety features as markers, booms, signal beacons and navigation aids; (b) a construction schedule for all recreational facilities and improvements which shall include consideration in the initial construction period of any needed public use, health, and safety facilities; and (c) following a review and analysis of anticipated public use of

the project, a report on the [\*32] amount and location of any additional lands needed throughout the license period for recreational development and use. Said lands, if any, shall be included within the project boundary as delimited on final Exhibit K Maps.

Article 42. The Licensee shall include within the project boundary all public access and recreational development areas designated on Exhibit R (FPC Nos. 2503-25, 26, 27), except the game management area shown on 2503-27 above contour elevation 804 feet approximately and shall include all islands within the project boundary as delimited in Exhibit K maps to be filed with the Commission.

Article 43. The Licensee shall, during planning for the relocation of all roads, highways, or other public or private ways across or over any portions of the areas to be inundated by the Keowee and Jocassee reservoirs, keep the Commission informed of plans for boat passageways to insure full recreational utilization of project waters.

Article 44. The Licensee shall engage a board consisting of at least three qualified independent consultants for the purpose of reviewing the plans and specifications for the dams and dikes, including their foundations, and the board shall [\*33] submit a final report to the Commission approving the plans and specifications prior to initiation of construction of these structures. The board shall also make periodic inspections during construction and shall submit a final report to the Commission covering the construction of the dams and dikes upon their completion.

Article 45. The Licensee shall within six months of the date of issuance of this license submit for Commission approval a plan for clearing the reservoir area and upon approval the clearing shall be done to the satisfaction of the Commission's representative. The clearing plan shall be prepared following consultation with the Department of the Interior and the appropriate South and North Carolina conservation, health, and recreation agencies.

(D) The Licensee is hereby authorized to use Lake Keowee reservoir at a site designated as "Site L" on Exhibit K (FPC No. 2503-4) as a source for condenser-cooling waters for up to 3000 mw of steam-generated electric power.

(E) This order shall become final 30 days from the date of its issuance unless application for rehearing shall be filed as provided in Section 313(a) of the Act, and failure to file such an application [\*34] shall constitute acceptance of this license. In acknowledgment of the acceptance of this license, it shall be signed for the Licensee and returned to the Commission within 60 days from the date of issuance of this order.

FORM L-11 (SEPTEMBER 1, 1966)

TERMS AND CONDITIONS OF LICENSE FOR UNCONSTRUCTED MAJOR PROJECT AFFECTING THE INTERESTS OF INTERSTATE OR FOREIGN COMMERCE

Article 1. The entire project, as described in the order of the Commission, shall be subject to all the provisions, terms, and conditions of the license.

Article 2. No substantial change shall be made in the maps, plans, specifications, and statements described and designated as exhibits and approved by the Commission in its order as a part of the license until such change shall

have been approved by the Commission: Provided, however: That if the Licensee or the Commission deems it necessary or desirable that said approved exhibits, or any of them, be changed, there shall be submitted to the Commission for approval amended, supplemental, or additional exhibit or exhibits covering the proposed changes which, upon approval by the Commission, shall become a part of the license and shall supersede, [\*35] in whole or in part, such exhibit or exhibits theretofore made a part of the license as may be specified by the Commission.

Article 3. Said project works shall be constructed in substantial conformity with the approved exhibits referred to in Article 2 herein or as changed in accordance with the provisions of said article. Except when emergency shall require for the protection of navigation, life, health, or property, no substantial alteration or addition not in conformity with the approved plans shall be made to any dam or other project works under the license without the prior approval of the Commission; and any emergency alteration or addition so made shall thereafter be subject to such modification and change as the Commission may direct. Minor changes in the project works or divergence from such approved exhibits may be made if such changes will not result in decrease in efficiency, in material increase in cost, or in impairment of the general scheme of development; but any of such minor changes made without the prior approval of the Commission, which in its judgment have produced or will produce any of such results, shall be subject to such alteration as the Commission [\*36] may direct. Upon the completion of the project, or at such other time as the Commission may direct, the Licensee shall submit to the Commission for approval revised maps, plans, specifications, and statements insofar as necessary to show any divergence from or variations in the project area and project boundary as finally located or in the project works as actually constructed when compared with the area and boundary shown and the works described in the license or in the maps, plans, specifications, and statements approved by the Commission, together with a statement in writing setting forth the reasons which in the opinion of the Licensee necessitated or justified variations in or divergence from the approved maps, plans, specifications, and statements. Such revised maps, plans, specifications, and statements shall, if and when approved by the Commission, be made a part of the license under the provisions of Article 2 hereof.

Article 4. The construction, operation, and maintenance of the project and any work incident to additions or alterations shall be subject to the inspection and supervision of the Regional Engineer, Federal Power Commission, in the region wherein the project [\*37] is located, or of such other officer or agent as the Commission may designate, who shall be the authorized representative of the Commission for such purposes. The Licensee shall cooperate fully with said representative and shall furnish him a detailed program of inspection by the Licensee that will provide for an adequate and qualified inspection force for construction of the project. Construction of the project works or any feature thereof shall not be initiated until the program of inspection for the project works or any such feature thereof has been approved by said representative. The Licensee shall also furnish to said representative such further information as he may require concerning the construction, operation, and maintenance of the project, and of any alteration thereof, and shall notify him of the date upon which work will begin, as far in advance thereof as said representative may reasonably specify, and shall notify him promptly in writing of any suspension of work for a period of more than one



week, and of its resumption and completion. The Licensee shall allow him and other officers or employees of the United States, showing proper credentials, free and [\*38] unrestricted access to, through, and across the project lands and project works in the performance of their official duties. The licensee shall comply with such rules and regulations of general or special applicability as the Commission may from time to time prescribe for the protection of life, health, or property.

Article 5. The Licensee within two years from date of issuance of the license shall acquire title in fee or the right to use in perpetuity all lands, other than lands of the United States, necessary or appropriate for the construction, maintenance and operation of the project. The Licensee, its successors and assigns shall, during the period of the license, retain the possession of all project property covered by the license as issued or as later amended, including the project area, the project works, and all franchises, easements, water rights, and rights of occupancy and use; and none of such properties shall be voluntarily sold, leased, transferred, abandoned, or otherwise disposed of without the prior written approval of the Commission, except that the licensee may lease or otherwise dispose of interests in project lands or property without specific written [\*39] approval of the Commission pursuant to the then current regulations of the Commission. The provisions of this article are not intended to prevent the abandonment or the retirement from service of structures, equipment, or other project works in connection with replacements thereof when they become obsolete, inadequate, or inefficient for further service due to wear and tear; and mortgage or trust deed or judicial sales made thereunder, or tax sales, shall not be deemed voluntary transfers within the meaning of this article.

Article 6. In the event the project is taken over by the United States upon the termination of the license, as provided in Section 14 of the Act, or is transferred to a new licensee under the provisions of Section 15 of the Act, the Licensee, its successors and assigns will be responsible for and will make good any defect of title to or of right of occupancy and use in any of such project property which is necessary or appropriate or valuable and serviceable in the maintenance and operation of the project, and will pay and discharge, or will assume responsibility for payment and discharge, of all liens or incumbrances upon the project or project property created [\*40] by the Licensee or created or incurred after the issuance of the license: Provided, That the provisions of this article are not intended to require the Licensee, for the purpose of transferring the project to the United States or to a new Licensee, to acquire any different title to or right of occupancy and use in any of such project property than was necessary to acquire for its own purposes as Licensee.

Article 7. The actual legitimate original cost of the original project, and of any addition thereto or betterment thereof, shall be determined by the Commission in accordance with the Act and the Commission's rules and regulations thereunder.

Article 8. After the first 20 years of operation of the project under the license, six percent per annum shall be the specified rate of return on the net investment in the project for determining surplus earnings of the project for the establishment and maintenance of amortization reserves, pursuant to Section 10(d) of the Act; one-half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of six

percent per annum on the net investment, shall be set aside [\*41] in a project amortization reserve account as of the end of each fiscal year: Provided, that, if and to the extent that there is a deficiency of project earnings below six percent per annum for any fiscal year or years after the first 20 years of operation under the license, the amount of such deficiency shall be deducted from the amount of any surplus earnings accumulated thereafter until absorbed, and one-half of the remaining surplus earnings, if any thus cumulatively computed, shall be set aside in the project amortization reserve account; and the amounts thus established in the project amortization reserve account shall be maintained therein until further order of the Commission.

Article 9. For the purpose of determining the stage and flow of the stream or streams from which water is diverted for the operation of the project works, the amount of water held in and withdrawn from storage, and the effective head on the turbines, the Licensee shall install and thereafter maintain such gages and stream-gaging stations as the Commission may deem necessary and best adapted to the requirements; and shall provide for the required readings of such gages and for the adequate rating [\*42] of such stations. The Licensee shall also install and maintain standard meters adequate for the determination of the amount of electric energy generated by said project works. The number, character, and location of gages, meters, or other measuring devices, and the method of operation thereof, shall at all times be satisfactory to the Commission and may be altered from time to time if necessary to secure adequate determinations, but such alteration shall not be made except with the approval of the Commission or upon the specific direction of the Commission. The installation of gages, the ratings of said stream or streams, and the determination of the flow thereof, shall be under the supervision of, or in cooperation with, the District Engineer of the United States Geological Survey having charge of stream-gaging operations in the region of said project, and the Licensee shall advance to the United States Geological Survey the amount of funds estimated to be necessary for such supervision or cooperation for such periods as may be mutually agreed upon. The Licensee shall keep accurate and sufficient record of the foregoing determinations to the satisfaction of the Commission, and [\*43] shall make return of such records annually at such time and in such form as the Commission may prescribe.

Article 10. The Licensee shall install additional capacity or make other changes in the project as directed by the Commission, to the extent that it is economically sound and in the public interest to do so, after notice and opportunity for hearing.

Article 11. The Licensee shall, after notice and opportunity for hearing, coordinate the operation of the project, electrically and hydraulically, with such other projects or power systems and in such manner as the Commission may direct in the interest of power and other beneficial public uses of water resources, and on such conditions concerning the equitable sharing of benefits by the Licensee as the Commission may order.

Article 12. Whenever the Licensee is directly benefited by the construction work of another licensee, a permittee, or of the United States of a storage reservoir or other headwater improvement, the Licensee shall reimburse the owner of the headwater improvement for such part of the annual charges for interest, maintenance, and depreciation thereon as the Commission shall determine to be [\*44] equitable, and shall pay to the United States the cost of making such

determination as fixed by the Commission. For benefits provided by a storage reservoir or other headwater improvement of the United States the Licensee shall pay to the Commission the amounts for which it is billed from time to time for such headwater benefits and for the costs of making the determinations pursuant to the then current Commission Regulations under the Federal Power Act within 60 days from the date of rendition of a bill therefore and, upon failure to do so, shall thereafter be subject to the payment of the penalties specified in the then current Regulations. The Licensee shall have the right to pay such amounts under protest within the 60-day period and to reconsideration of the determination of the amounts billed or a hearing as provided by the then current Regulations under the Act.

Article 13. The United States specifically retains and safeguards the right to use water in such amount, to be determined by the Secretary of the Army, as may be necessary for the purposes of navigation on the navigable waterway affected; and the operations of the Licensee, so far as they affect the use, storage [\*45] and discharge from storage of waters affected by the license, shall at all times be controlled by such reasonable rules and regulations as the Secretary of the Army may prescribe in the interest of navigation, and as the Commission may prescribe for the protection of life, health, and property, and in the interest of the fullest practicable conservation and utilization of such waters for power purposes and for other beneficial public uses, including recreational purposes; and the Licensee shall release water from the project reservoir at such rate in cubic feet per second, or such volume in acre-feet per specified period of time, as the Secretary of the Army may prescribe in the interest of navigation, or as the Commission may prescribe for the other purposes hereinbefore mentioned

Article 14. On the application of any person, association, corporation, Federal agency, State or municipality, the Licensee shall, after notice and opportunity for hearing, permit such reasonable use of its reservoirs or other project properties, including works, lands and water rights, or parts thereof, as may be ordered by the Commission in the interest of comprehensive development of the waterway [\*46] or waterways involved and the conservation and utilization of water resources of the region, for water supply for the purpose of steam-electric, irrigation, industrial, municipal or similar uses. The Licensee shall receive reasonable compensation, at least full reimbursement for any damages or expenses which the joint use causes him to incur, for use of its reservoirs or other project properties or parts thereof for such purposes, any such compensation to be fixed by the Commission either by approval of an agreement between the Licensee and the party or parties benefiting or after notice and opportunity for hearing. Applications shall contain information in sufficient detail to afford a full understanding of the proposed use, including satisfactory evidence that the applicant possesses necessary water rights pursuant to applicable State law, or a showing of cause why such evidence cannot be concurrently submitted, and a statement as to the relationship of the proposed use to any State or municipal plans or orders which may have been adopted with respect to the use of such waters.

Article 15. In the construction or maintenance of the project works, the Licensee shall [\*47] place and maintain suitable structures and devices to reduce to a reasonable degree the liability of contact between its transmission lines and telegraph, telephone and other signal wires or power transmission lines constructed prior to its transmission lines and not owned by the Licensee,

and shall also place and maintain suitable structures and devices to reduce to a reasonable degree the liability of any structures of wires falling or obstructing traffic or endangering life. None of the provisions of this article are intended to relieve the Licensee from any responsibility or requirement which may be imposed by other lawful authority for avoiding or eliminating inductive interference.

Article 16. The Licensee shall, for the conservation and development of fish and wildlife resources, construct, maintain, and operate, or arrange for the construction, maintenance and operation of such facilities and comply with such reasonable modifications of the project structures and operation as may be ordered by the Commission upon its own motion or upon the recommendation of the Secretary of the Interior or the fish and wildlife agency or agencies of any State in which the project or [\*48] a part thereof is located, after notice and opportunity for hearing and upon findings based on substantial evidence that such facilities and modifications are necessary and desirable, reasonably consistent with the primary purpose of the project. and consistent with the provisions of the Act.

Article 17. Whenever the United States shall desire, in connection with the project, to construct fish and wildlife facilities or to improve the existing fish and wildlife facilities at its own expense, the Licensee shall permit the United States or its designated agency to use, free of cost, such of Licensee's lands and interest in lands, reservoirs, waterways and project works as may be reasonably required to complete such facilities or such improvements thereof. In addition, after notice and opportunity for hearing, the Licensee shall modify the project operation as may be prescribed by the Commission, reasonably consistent with the primary purpose of the project, in order to permit the maintenance and operation of the fish and wildlife facilities constructed or improved by the United States under the provisions of this article. This article shall not be interpreted to place any obligation [\*49] on the United States to construct or improve fish and wildlife facilities or to relieve the Licensee of any obligation under this license.

Article 18. The Licensee shall construct, maintain and operate or shall arrange for the construction, maintenance and operation of such recreational facilities including modifications thereto, such as access roads, wharves, launching ramps, beaches, picnic and camping areas, sanitary facilities and utilities, and shall comply with such reasonable modifications of the project structures and operations as may be prescribed hereafter by the Commission during the term of this license upon its own motion or upon the recommendation of the Secretary of the Interior or other interested Federal and State agencies, after notice and opportunity for hearing and upon findings based upon substantial evidence that such facilities and modifications are necessary and desirable, and reasonably consistent with the primary purpose of the project.

Article 19. So far as is consistent with proper operation of the project, the Licensee shall allow the public free access, to a reasonable extent, to project waters and adjacent project lands owned by the Licensee [\*50] for the purpose of full public utilization of such lands and waters for navigation and recreational purposes, including fishing and hunting, and shall allow to a reasonable extent for such purposes the construction of access roads, wharves, landings, and other facilities on its lands the occupancy of which may in appropriate circumstances be subject to payment of rent to the Licensee in a

reasonable amount: Provided, that the Licensee may reserve from public access, such portions of the project waters, adjacent lands, and project facilities as may be necessary for the protection of life, health, and property and Provided, further, that the Licensee's consent to the construction of access roads, wharves, landings, and other facilities shall not, without its express agreement, place upon the Licensee any obligation to construct or maintain such facilities. These facilities are in addition to the facilities that the Licensee may construct and maintain as required by the license.

Article 20. The Licensee shall be responsible for and shall take reasonable measures to prevent soil erosion on lands adjacent to the stream and to prevent stream siltation or pollution [\*51] resulting from construction, operation or maintenance of the project. The Commission upon request, or upon its own motion, may order the Licensee to construct and maintain such preventive works to accomplish these purposes and to revegetate exposed soil surface as the Commission may find to be necessary after notice and opportunity for hearing.

Article 21. There is reserved to the appropriate department or agency of the United States, or of the State or county involved, the right to take over maintain, and supervise the use of any project road as a public road.

Article 22. The Licensee shall clear and keep clear to an adequate width lands along open conduits, shall clear lands within the bottom and margin of reservoirs (except as may be otherwise specified in the license), and shall dispose of all temporary structures, unused timber, brush, refuse, or inflammable material resulting from the clearing of lands or from the maintenance or alteration of the project works. In addition, all trees along the margins of reservoirs which may die during operations of the project shall be removed. The clearing of the lands and the disposal of the material shall be done with due diligence [\*52] and to the satisfaction of the authorized representative of the Commission.

Article 23. If the Licensee shall cause or suffer essential project property to to be removed or destroyed or to become unfit for use, without adequate replacement, or shall abandon or discontinue good faith operation of the project for a period of three years, or refuse or neglect to comply with the terms of the license and the lawful orders of the Commission mailed to the record address of the Licensee or its agent, the Commission will deem it to be the intent of the Licensee to surrender the license, and not less than 90 days after public notice may in its discretion terminate the license.

Article 24. Upon abandonment of the project the Licensee shall remove all structures, equipment and power lines from the stream and restore said stream to a condition satisfactory to the Commission's authorized representative and shall fulfill such other obligations under the license as the Commission may prescribe.

Article 25. The right of the Licensee and of its transferees and successors to use or occupy waters, over which the United States has jurisdiction, under the license, for the purpose of maintaining [\*53] the project works or otherwise, shall absolutely cease at the end of the license period, unless Licensee has obtained a new license pursuant to the then existing laws and regulations or an annual license under the terms and conditions of this license.

Article 26. The terms and conditions expressly set forth in the license

shall not be construed as impairing any terms and conditions of the Federal Power Act which are not expressly set forth herein.

Duke Power Company

Project No. 2503-043

FEDERAL ENERGY REGULATORY COMMISSION - OFFICE DIRECTOR

81 F.E.R.C. P62,132; 1997 FERC LEXIS 2450

ORDER AMENDING LICENSE

November 14, 1997

CORE TERMS: license, duplication, designated, licensee, land use, requesting

OPINION:

[\*1]

On November 22, 1996, Duke Power Company, licensee for the Catawba-Wateree Project, filed a letter requesting the Commission to change a license article number because the present license has two articles designated as article 47. The licensee requests that we change one article 47, the one that is commonly referred to as the Commission's standard land use article, to article 49. This change would eliminate the duplication.

We believe that this amendment is needed to correct the discrepancy and avoid any future problems that may result from the duplication. The requested amendment should be approved.

The Director orders:

(A) The licensee's filing of November 22, 1996, requesting that we amend the project license to correct a duplication of license article numbers, is approved. Specifically, the Commission's standard land use article, presently designated in the project license as article 47, shall be designated as article 49.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of this order, pursuant to 18 C.F.R. § 385.713.

Kevin P. Madden

Acting Director

Office of Hydropower Licensing

Duke Power Company Duke Power, a division of Duke Energy  
Corporation

Project No. 2503-045

FEDERAL ENERGY REGULATORY COMMISSION - OFFICE DIRECTOR

80 F.E.R.C. P62,125; 1997 FERC LEXIS 1724

ORDER AMENDING LICENSE

August 11, 1997

OPINION:  
[\*1]

Duke Power Company has requested that its license n1 for the Keowee-Toxaway Hydroelectric Project, FERC No. 2503, be amended to reflect its new name Duke Power, a division of Duke Energy Corporation. The project is located on Keowee, Little, Whitewater, Toxaway, Thompson and Horsepasture Rivers, all tributaries of the Savannah River, in Oconee and Pickens, Counties, South Carolina and in Transylvania County, North Carolina.

-Footnotes-

n1 36 FPC 675 (1966).

-End Footnotes-

The Director orders:

(A) The license for the Keowee-Toxaway Hydroelectric Project is amended to change the licensee's name from Duke Power Company to Duke Power, a division of Duke Energy Corporation.

(B) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this order, pursuant to 18 C.F.R. § 385.713.

Kevin P. Madden

Acting Director

Office of Hydropower Licensing



Duke Power Company

Project No. 2503-040

FEDERAL ENERGY REGULATORY COMMISSION - OFFICE DIRECTOR

76 F.E.R.C. P62,248; 1996 FERC LEXIS 1796

ORDER AMENDING LICENSE

September 27, 1996

CORE TERMS: licensee, water, recreational, occupancy, conveyed, license, conveyance, environmental, scenic, convey, permission, shoreline, electric, proposed use, enhancement, conveying, reservoir, overhead, instrument of conveyance, proposed construction, right to require, lands conveyed, calendar year, public access, permitted use, land conveyed, transmission, accommodate, recreation, watercraft

OPINION:

[\*1]

On June 14, 1996, Duke Power Company, licensee for the Keowee-Toxaway Project, FERC No. 2503, located in Pickens County, South Carolina, requested that the Commission's standard land conveyance article be added to its project license. This land conveyance article has been included in Commission licenses issued since 1980 and has been included in other licenses upon the request of a licensee. The article allows the licensee to authorize certain uses of project lands and waters without prior Commission approval. The purpose of this article is to reduce some administrative burden on the licensee and the Commission by allowing the licensee to permit relatively minor uses of project property.

The article contains conditions designed to ensure that any authorized use or conveyance permitted under this article is consistent with the project license and the protection of the project's scenic, recreational, and other environmental values. Amending the subject license to include this article would update the license with more current Commission standards related to land use; therefore, the subject license should be amended to include this article.

The Director orders:

(A) The subject [\*2] license is amended to include the article found in paragraph (B) of this order. The new article will be added to the license as article 47 for Project No. 2503.

(B) Article 47. (a) In accordance with the provisions of this article, the Licensee shall have the authority to grant permission for certain types of use and occupancy of project lands and waters and to convey certain interests in project lands and waters for certain other types of use and occupancy, without

prior Commission approval. The Licensee may exercise the authority only if the proposed use and occupancy is consistent with the purposes of protecting and enhancing the scenic, recreational, and other environmental values of the project. For those purposes, the Licensee shall also have continuing responsibility to supervise and control the use and occupancies for which it grants permission, and to monitor the use of, ensure compliance with the covenants of the instrument of conveyance for, any interests that it has conveyed under this article. If a permitted use and occupancy violates any condition of this article or any other condition imposed by the Licensee for protection and enhancement of the project's scenic, recreational, [\*3] or other environmental values, or, if a covenant of a conveyance made under the authority of this article is violated, the Licensee shall take any lawful action necessary to correct the violation. For a permitted use or occupancy, that action includes, if necessary, cancelling the permission to use and occupy the project lands and waters and requiring the removal of any noncomplying structures and facilities.

(b) The type of use and occupancy of project lands and waters for which the Licensee may grant permission without prior Commission approval are: (1) landscape plantings; (2) non-commercial piers, landings, boat docks, or similar structures and facilities that can accommodate no more than 10 watercraft at a time where said facility is intended to serve single-family type dwellings; (3) embankments, bulkheads, retaining walls, or similar structures for erosion control to protect the existing shoreline (4) food plots and other wildlife enhancements. To the extent feasible and desirable to protect and enhance the project's scenic, recreational, and other environmental values, the Licensee shall require multiple use and occupancy of facilities for access to project lands or waters. [\*4] The Licensee shall also ensure, to the satisfaction of the Commission's authorized representative, that the uses and occupancies for which it grants permission are maintained in good repair and comply with applicable State and local health and safety requirements. Before granting permission for construction of bulkheads or retaining walls, the Licensee shall: (1) inspect the site of the proposed construction; (2) consider whether the planting of vegetation or the use of riprap would be adequate to control erosion at the site; and (3) determine that the proposed construction is needed and would not change the basic contour of the reservoir shoreline. To implement this paragraph (b), the Licensee may, among other things, establish a program for issuing permits for the specified types of use and occupancy of project lands and waters, which may be subject to the payment of a reasonable fee to cover the Licensee's costs of administering the permit program. The Commission reserves the right to require the Licensee to file a description of its standards, guidelines, and procedures for implementing this paragraph (b) and to require modification of those standards, guidelines, or procedures. [\*5]

(c) The Licensee may convey easements or rights-of-way across, or leases of, project lands for: (1) replacement, expansion, realignment, or maintenance of bridges or roads where all necessary State and Federal approvals have been obtained; (2) storm drains and water mains; (3) sewers that do not discharge into project waters; (4) minor access roads; (5) telephone, gas, and electric utility distribution lines; (6) non-project overhead electric transmission lines that do not require erection of support structures within the project boundary; (7) submarine, overhead, or underground major telephone distribution cables or major electric distribution lines (69 kV or less); and (8) water intake or pumping facilities that do not extract more than one million gallons per day

from a project reservoir. No later than January 31 of each year, the Licensee shall file three copies of a report briefly describing for each conveyance made under this paragraph (c) during the prior calendar year, the type of interest conveyed, the location of the lands subject to the conveyance, and the nature of the use for which the interest was conveyed.

(d) The Licensee may convey fee title to, easements or rights-of-way [\*6] across, or leases of project lands for: (1) construction of new bridges or roads for which all necessary State and Federal approvals have been obtained; (2) sewer or effluent lines that discharge into project waters, for which all necessary Federal and State water quality certificates or permits have been obtained; (3) other pipelines that cross project lands or waters but do not discharge into project waters; (4) nonproject overhead electric transmission lines that require erection of support structures within the project boundary, for which all necessary Federal and State approvals have been obtained; (5) private or public marinas that can accommodate no more than 10 watercraft at a time and are located at least one-half mile (measured over project waters) from any other private or public marina; (6) recreational development consistent with an approved Exhibit R or approved report on recreational resources of an Exhibit E; and (7) other uses, if: (i) the amount of land conveyed for a particular use is five acres or less; (ii) all of the land conveyed is located at least 75 feet, measured horizontally, from the edge of the project reservoir at normal maximum surface elevation; and [\*7] (iii) no more than 50 total acres of project lands for each project development are conveyed under this clause (d) (7) in any calendar year. At least 60 days before conveying any interest in project lands under this paragraph (d), the Licensee must submit a letter to the Director, Office of Hydropower Licensing, stating its intent to convey the interest and briefly describing the type of interest and location of the lands to be conveyed (a marked Exhibit G or K map may be used), the nature of the proposed use, the identity of any Federal or State agency official consulted, and any Federal or State approvals required for the proposed use. Unless the Director, within 45 days from the filing date, requires the Licensee to file an application for prior approval, the Licensee may convey the intended interest at the end of that period.

(e) The following additional conditions apply to any intended conveyance under paragraphs (c) or (d) of this article:

(1) Before conveying the interest, the Licensee shall consult with Federal and State fish and wildlife or recreation agencies, as appropriate, and the State Historic Preservation Officer. (2) Before conveying the interest, the Licensee shall [\*8] determine that the proposed use of the lands to be conveyed is not inconsistent with any approved Exhibit R or approved report on recreational resources of an Exhibit E; or, if the project does not have an approved Exhibit R or approved report on recreational resources, that the lands to be conveyed do not have recreational value.

(3) The instrument of conveyance must include the following covenants running with the land: (i) the use of the lands conveyed shall not endanger health, create a nuisance, or otherwise be incompatible with overall project recreational use; (ii) the grantee shall take all reasonable precautions to ensure that the construction, operation, and maintenance of structures or facilities on the conveyed lands will occur in a manner that will protect the scenic, recreational, and environmental values of the project; and (iii) the grantee shall not unduly restrict public access to project waters.

(4) The Commission reserves the right to require the Licensee to take reasonable remedial action to correct any violation of the terms and conditions of this article, for the protection and enhancement of the project's scenic, recreational, and other environmental values. [\*9]

(f) The conveyance of an interest in project lands under this article does not in itself change the project boundaries. The project boundaries may be changed to exclude land conveyed under this article only upon approval of revised Exhibit G or K drawings (project boundary maps) reflecting exclusion of that land. Lands conveyed under this article will be excluded from the project only upon a determination that the lands are not necessary for project purposes, such as operation and maintenance, flowage, recreation, public access, protection of environmental resources, and shoreline control, including shoreline aesthetic values. Absent extraordinary circumstances, proposals to exclude lands conveyed under this article from the project shall be consolidated for consideration when revised Exhibit G or K drawings would be filed for approval for other purposes.

(g) The authority granted to the Licensee under this article shall not apply to any part of the public lands and reservations of the United States included within the project boundary.

(C) This order constitutes final agency action. Requests for rehearing by the Commission may be filed within 30 days of the date of issuance of this [\*10] order, pursuant to 18 CFR § 385.713.

J. Mark Robinson Director, Division of Licensing and Compliance

DUKE POWER COMPANY, PROJECT NOS. 2740 AND 2503

FEDERAL POWER COMMISSION

59 F.P.C. 1266; 1977 FPC LEXIS 265

August 1, 1977

CORE TERMS: licensee, license, reservoir, transmission, feet, transmission line, revised, proposed project, dam, wildlife, 525-kv, water, site, mile, right-of-way, switchyard, storage, drawing, plant, notice, issuance, trail, project area, filling, annual, pumped, upper, downstream, regulations, segment

[\*1] ORDER ISSUING LICENSE (MAJOR) FOR PROJECT NOS. 2740  
AND AMENDING LICENSE FOR PROJECT NO. 2503

Before Commissioners: Richard L. Dunham, Chairman; Don S. Smith and John H. Holloman III.

OPINION:

On February 4, 1974, Duke Power Company (Applicant) of Charlotte, North Carolina, filed an application n1 for license under Section 4(e) of the Federal Power Act (Act) n2 to construct, maintain, and operate a 1,000 MW pumped storage hydroelectric project. The proposed Bad Creek Pumped Storage Project (FPC Project No. 2740) would be located on Bad and West Bad Creeks in Oconee County, South Carolina, and would include a 318-acre upper reservoir created by dams across Bad and West Bad Creeks; utilization of existing Lake Jocassee, part of FPC Project No. 2503, as the lower reservoir; a tunnel to connect the two reservoirs; an underground powerhouse containing four 250 MW reversible pumping-generating units; and approximately 18 miles of 525-kV transmission line and 9.5 miles of 100-kV transmission line.

n1 The application was supplemented by filings on May 29, and December 26, 1974; and January 5 and March 29, 1976.

n2 16 U.S.C. § 797(e).

Applicant supplies electric power to 50 counties in the [\*2] Piedmont sections of North and South Carolina. Electric power generated from the proposed project would be used in Applicant's service area for public utility purposes and would be fed into its interconnected system for transmission across state lines. Therefore, the Bad Creek Pumped Storage Project would affect the interests of interstate commerce within the meaning of Section 23(b) of the Act.  
n3

n3 16 U.S.C. § 817; see *F.P.C. v. Union Electric Company*, 381 U.S. 90 (1965).

Public Notice

Public Notice of the filing of the application was given as required by the Act, with August 30, 1974, as the last date for filing protests or petitions to intervene. No protests, notices of intervention, or petitions to intervene were received.

The Commission staff prepared draft and final environmental impact statements covering the proposed Bad Creek Project. Notice of Availability of the DEIS was published in the Federal Register with November 14, 1975, as the last date for filing protests or petitions to intervene. None was received. Notice of availability of the FEIS was published in the Federal Register on March 14, 1977.

By letter dated June 3, 1974, [\*3] the Secretary of the Commission forwarded copies of Applicant's application for license to relevant Federal, State, and local agencies for comment. Comments on the application were received from nine Federal and six State and local agencies. Most of the concerns raised by these agencies were addressed in the draft and final environmental impact statements prepared by the Commission staff. Consequently, we need not restate those comments herein except to the extent that they are incident to certain matters we deem in need of further clarification.

#### Nature of the Applicant and Financial Ability

Applicants is a corporation organized under the laws of the State of North Carolina, having its office and principal place of business at Charlotte, North Carolina and authorized to do business in the State of North Carolina. Applicant is also domesticated and qualified to do business in South Carolina.

Applicant states in its Exhibit G that it would finance the proposed project from the treasury of the Company or funds obtained through the issuance of notes, bonds, debentures or common stock. Applicant's financial ability to construct, maintain and operate the project is also adequately [\*4] reflected in data in its FPC Form No. 1.

#### Compliance with State Law

Applicant states that there are no general laws of the State of South Carolina applicable to construction of the proposed project.

The Rules and Regulations of the South Carolina Department of Health and Environmental Control require a construction permit for the impoundment of one-tenth acre or more of water. Applicant would obtain such a permit prior to commencement of any construction.

Except for certain lands already held in fee by the Applicant, all lands within the proposed project area are owned in fee by Crescent Land and Timber Corporation, a wholly-owned subsidiary of the Applicant. Upon completion of construction of the proposed project, a field survey of the project boundary would be made and Crescent would convey the entire project area to Duke in fee. Thus, Applicant will have total ownership of the land and water rights that it proposes to use in the development of the Bad Creek Project, and it will be unnecessary to acquire land or water rights by purchase or condemnation proceedings.

#### Need for Power

Based on the Applicant's most recent load forecast for the period from 1977 [\*5] to 1985, peak loads in Applicant's system are predicted to increase annually at a decreasing rate, from a growth rate of 6.3 percent in 1978 to a growth rate of 5.3 percent in 1985; however, the total peak load is expected to grow by some 38 percent, from 9,523 megawatts in 1977 to 15,400 megawatts in 1985. Without the proposed Bad Creek Project on line, reserve margins in 1984 and 1985 are estimated at 24 percent. With the proposed project, they are forecast at 27.4 and 30.5 percent, respectively.

We realize that the Applicant's forecast 24 percent reserve margins without the proposed project are based on optimistic assumptions regarding its load management program and timely addition of 7,226 MW of scheduled nuclear capacity. Applicant's concern regarding reliance of these factors is justifiable, and we agree that the proposed project should be developed to insure a reliable power supply during periods of peak demand. For instance if one of the scheduled 1,153 MW nuclear units would not be available, Applicant's reserve margin in 1984 and 1985 would be reduced to 16 and 16.6 percent, respectively.

The additionally peaking capacity of the proposed project will also be of benefit [\*6] to the entire Virginia-Carolina (VACAR) Subregion of the Southern Electric Reliability Council (SERC) of which Applicant is a member. The 1976 SERC Reports (issued April 1, 1977) forecast a reserve margin of 19.6 percent for VACAR in the year 1984 without the peaking capacity of the Bad Creek Project. The corresponding reserve margin for 1985 is forecast to be 19.7 percent.

#### Economic Feasibility

The Applicant's electric system has been studied using existing generating capacity, planned retirements, and a generation expansion mix consisting of planned generating additions through 1985, together with either Bad Creek or an alternative source such as another pumped storage project, combustion turbines, or combined cycle or coal-fired peaking plants. The generating mix was operated by economical dispatch to meet system demand, with the Bad Creek Project, or an alternative, included to determine the overall effect on system production costs.

The proposed Bad Creek project would have an economic advantage over all thermal-electric generating alternatives studied. Staff studies show that annual operating costs of the most economical thermal plant alternative, a combustion [\*7] turbine, would be \$15,094,000 more per year than the proposed project.

Staff estimates (assuming escalation of costs to the midpoint of construction in 1980) that the capital cost of the Bad Creek Project is \$331,372,000, which is less than the other alternate pumped storage projects studied, except the Long Spur Ridge site, which has an estimated capital cost of \$3,347,000 less than Bad Creek. The annual cost of the proposed project is also less than the other alternate pumped storage projects except, again, the Long Spur Ridge site, which would have annual costs \$463,000 less than the Bad Creek Project.

The Long Spur Ridge site has the potential for a larger power installation

than is proposed for Bad Creek. However, if sized to meet the capacity needs of the 1985 load level, with provisions made for the ultimate capacity installation, it would have a higher capital investment than that reflected in the 1,000 MW comparative study undertaken. Therefore, we consider the Bad Creek site a better choice for immediate development. The Long Spur Ridge site will be available for consideration at such future time as the larger installed capacity is needed in the system.

#### Conservation [\*8] of Fuels

Pumped storage peaking capacity alters the loading of other generating units of the system in a manner which usually reduces the production costs of electrical energy and also reduces fuel consumption as compared to alternative forms of peaking capacity. Pumping energy is derived from the highly efficient base-load plants during off-peak hours when the system demand cannot absorb all of the base-load capacity. During peak-load periods, the pumped storage plants provide peaking capacity to displace the small inefficient fossil-fueled peaking units such as combustion turbines which would otherwise be required to operate.

The proposed Bad Creek Project would effect a saving of approximately 4,322 trillion Btu's of fossil fuels for Applicant's system in 1985 over the combustion-turbine alternative. This is equivalent to saving 690,000 barrels of oil in 1985. n4

n4 Energy and Policy Conservation Act of 1975, Public Law 94-163, 89 Stat. 871, 940 approved December 22, 1975 (Sec. 382).

#### Safety and Adequacy

The design features of the existing Jocassee Dam were analyzed at the time the Commission issued its order granting license for Keowee-Jocassee Pumped Storage [\*9] Project and have revealed no significant problems. Thus, further analysis of the existing lower reservoir structures is not necessary.

The Exhibit L drawings filed as part of the application for license have been examined and found to propose designs for safe and adequate project works if constructed in accordance with sound engineering principles. Certain revisions in plans have been made since the application was filed. Licensee has eliminated the originally planned surge tanks based on hydraulic transient studies, and the design of the dam has been changed due to the unavailability of certain material. Consequently, we have provided in Article 25 that the Licensee shall submit revised Exhibit L drawings for Commission approval prior to the commencement of construction. Article 25 requires further analysis of dam stability, hydraulic transient and governor stability. In addition, Article 25 requires submittal of plans, specifications, and a quality assurance program for each dam construction.

The upper reservoir structure is designed to withstand the catastrophic natural phenomena of a probable maximum flood and an earthquake having a ground acceleration of 0.10 gravity. [\*10] An emergency spillway in the upper reservoir would provide safety against overpumping in case of malfunction of the pumping trip-off devices. Transmission lines are designed to withstand high winds. The probability of flooding the powerhouse is very remote, but in the event of flooding, egress could be negotiated by one access tunnel and the



vertical bus shaft. The project should have minimal impact upon public health and safety due to its remote location and the Applicant's intention to fence the entire upper reservoir area to prohibit public use of the area.

Based on the foregoing, we conclude that the proposed project would be safe and adequate. We have provided in license Article 26 for the installation of instrumentation to monitor seepage, uplift and performance of project structures and reservoir slopes. Article 27 will require the Licensee to file an emergency action plan to be followed in the event or immediate threat of sudden water releases or actual dam failure. Additionally, Article 36 requires the Licensee to provide adequate safety measures in light of the hazardous conditions around outlet structures in Lake Jocassee.

The Commission staff will periodically [\*11] inspect the project during construction. Article 28 will require the Licensee to engage a board of qualified engineering consultants to review design and construction to assure that the project as designed will be safe and adequate. Licensee's construction inspection program will be subject to the approval of our authorized representative pursuant to Article 4. We are confident that the public interest will be well served by strict adherence to the spirit and letter of these license provisions to assure safe and adequate project works.

#### Transmission Facilities

A switchyard would be located adjacent to the above-ground transformer bank at the proposed project, from which a 1,600-foot-long section of overhead 525-kV transmission line would lead to the proposed location of a future 525-kV tie station. From this future tie station, a proposed 525-kV line approximately 18 miles long would be built along a new right-of-way to the existing Jocassee-Oconee 230-kV transmission line right-of-way, and would then parallel that existing right-of-way to the Oconee Nuclear Station.

Prior to constructing this 525-kV line, and for the purpose of supplying power during construction, a [\*12] 100-kV line would be built from the Jocassee Switchyard, paralleling the existing 230-kV line for 1.84 miles along a combined right-of-way totaling 338 feet in width, where it would then turn and follow a new 254-foot right-of-way for 7.67 miles into the Bad Creek site. Upon completion of project construction, this 100-kV line would serve as an emergency source of power to Bad Creek. Although these lines would be parallel within this segment, construction of the 100-kV line would precede the 525-kV line by about five years.

The first segment of transmission corridor from the Bad Creek tie station, containing the 100-kV line and then the added 525-kV line, would be on a new 254-foot wide right-of-way for 7.67 miles to a point adjacent to the existing Jocassee-Oconee 230-kV right-of-way. The 525-kV line would then follow new and existing rights-of-way, varying in combined widths from 320 feet to 445 feet, for 9.08 miles to the last 1.04-mile segment of 525-kV line which departs from the Jocassee-Oconee right-of-way on a new 200-foot wide right-of-way ending at the Oconee Nuclear Station.

The Applicant maintains that the 525-kV transmission line would not be a part of the Bad Creek [\*13] Project works since it is planned, at some future date, to connect the line to an incoming line from the west at a tie station to

be located at the Bad Creek Project site. Lines would be extended north and then east from the Oconee Nuclear Station and the Jocassee Pumped Storage Plant, thereby completing a transmission grid loop interconnecting Duke's system to the TVA and privately owned public utility systems. On this basis, the Applicant feels that the 525-kV line should be regarded as a part of its interconnected system and not as a primary transmission line subject to the Commission's licensing jurisdiction. The Applicant states that the generation output and pumping power requirements at Bad Creek could be transmitted at 230-kV and interconnected to the Applicant's transmission system at the Jocassee Pumped Storage Plant. However, for reasons of economy, environmental compatibility, and for interconnection with other important generating plants in its own system and with the systems of adjacent public utilities, the Applicant has elected to transmit Bad Creek power at 525-kV and to tie into its interconnected transmission system at the Oconee Nuclear Plant switchyard. [\*14]

A Commission staff study indicates that the 525-kV line will transmit only the power generated at the Bad Creek Project to the Applicant's interconnected system and the required pumping power from the interconnected system to the Bad Creek Project. Consequently, the line is required for the viability of the project and as such is a primary transmission line within the meaning of Section 3(11) of the Act n5 and should be licensed as a part of the Bad Creek Project, along with the generator leads and bus, the 20/525-kV step-up transformers, and appurtenant facilities to connect to the Oconee switchyard.

n5 16 U.S.C. § 796(11).

It is true that when the transmission grid loop envisioned by the Applicant is completed at some point in time, the nature and function of the 525-kV transmission line may change. If and when this happens, the Applicant can file, for our consideration, an application for amendment of license requesting that the line be excluded from the Bad Creek Project license.

Exhibits J, K and M do not include as a part of the project the transmission facilities (nor the transmission line rights-of-way) found to be primary and thus a part of the project works subject [\*15] to licensing as determined herein. Article No. 42 will require the filing of revised Exhibits J, K and M.

#### Environmental Considerations

As stated above, a Final Environmental Impact Statement (FEIS) was prepared and issued by the Commission staff on March 14, 1977. Ten copies of the FEIS were mailed to the Council on Environmental Quality on the same date.

The environmental impacts associated with construction, operation, and maintenance of the project have been fully considered after reviewing the FEIS, n6 and all other materials in the record. A discussion of the more significant environmental impacts of this project, requiring special license conditions, follows below.

n6 See 18 CFR § 2.81.

#### 1) Aquatic Ecosystem

Turbidity and siltation caused by runoff from construction sites and other

land surface disturbances associated with construction activities could have an adverse impact on the aquatic ecosystems of the receiving waters. Licensee, by Articles 39 and 45, will be required to prevent or minimize these impacts on the aquatic ecosystem. In addition, Licensee will be required by Article 34 to continue its pre-construction water quality monitoring program [\*16] on a monthly basis to establish further baseline data. After construction, a five-year water quality monitoring program will be required.

Discharges from proposed sanitary facilities at the construction yard into the Whitewater River arm of Lake Jocassee could impact nutrient levels and biochemical oxygen demands. Article 35 will require that the Licensee consult and cooperate with appropriate agencies and comply with Federal, State, and local regulations in the construction, operation, and maintenance of sanitary facilities used during construction and operation of the project. Additionally, Article 37 will require the Licensee to provide measures for vector control.

On August 9, 1976, the South Carolina Department of Health and Environmental Control issued a water quality certificate for the proposed project pursuant to Section 401 of the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500). n7

n7 33 U.S.C. § 1341.

## 2) Fish Habitat

Construction and operation of the project would adversely affect the coldwater fish habitat in Lake Jocassee and trout migration, spawning, and rearing in Howard Creek. This matter was the subject of considerable concern [\*17] in the comments filed by the U.S. Department of the Interior, the South Carolina Wildlife and Marine Resources Department (SCWMRD), Trout Unlimited and others. Article 32 will require the Licensee to conduct studies to assess the effects of project operation on fishery resources. The Licensee is also required to prepare within one year of the issuance of the license a detailed plan to mitigate the adverse impacts of project operations on Lake Jocassee and stream fisheries. As a part of the mitigation plan to be filed, the Licensee will be required to include those items agreed to with SCWMRD. To mitigate project-induced fishery loss, Applicant, by letter dated January 10, 1977, agreed to and SCWMRD concurred to the following: (1) convey to SCWMRD certain lands it held in the Eastatoe Creek watershed; (2) provide for adequate sediment and erosion control; (3) restrict development around Lake Jocassee; and (4) restore damage to Howard Creek in a joint venture with SCWMRD.

## 3) Wildlife

The proposed project will result in the loss of about 505 acres of wildlife habitat, including 370 acres within the impoundment area. Wildlife inhabiting this area will be forced to migrate to [\*18] adjacent areas or perish. Detailed measures to mitigate or protect wildlife resources have not been provided. Accordingly, we will provide in Article 32 that a detailed wildlife mitigation plan be filed for our approval within one year of the issuance of the license. That plan will include, inter alia an implementation schedule, a description of the location and acreage of lands to be managed for wildlife, and a map showing areas that will be revegetated for wildlife purposes and the vegetation selected for planting.

#### 4) Rare or Endangered Species

Rare or endangered plant and animal species may be adversely affected during construction and maintenance of the project, including transmission line rights-of-way. A survey of vascular flora of the project area was conducted for the Applicant. The endangered plant species, Oconee Bells, was encountered along the proposed transmission line right-of-way and will require special attention. We will require in Article 38 that Applicant arrange for pre-construction surveys in areas not previously surveyed as well as procedures for protection and Commission notification in the event that rare or endangered plant species are encountered. [\*19] Identical measures are required for rare or endangered animal species.

#### 5) Archeological and Historical Resources

The South Carolina Department of Archives and History, by letter dated August 19, 1974, reported that no properties on or eligible for the National Register of Historic Places are in the area of the proposed project. An archeological survey of the project area did not identify any archeological resources in the area. The survey did not, however, include transmission line corridors, where additional reconnaissance is required. In Article 41 of this license, we will require the Licensee to conduct archeological surveys along the transmission corridors. Procedures to be followed in the event an archeological site is discovered are also provided therein.

#### 6) Transmission Facilities

The construction and maintenance of transmission line rights-of-way and facilities will result in environmental and aesthetic impacts. Applicant's original plans in its initial application were revised by a filing on March 29, 1976, but do not present detailed, comprehensive plans for transmission line construction and maintenance. Accordingly, we are requiring in Article 33 that [\*20] the Licensee, not later than one year prior to beginning construction of transmission facilities, file with the Commission a comprehensive plan to avoid or minimize damage to the environment and to protect and enhance the visual, cultural, and related natural resources values of areas that would be affected by the proposed transmission facilities.

#### 7) Roads

Construction of the Bad Creek Reservoir will require the relocation of 0.4 mile of secondary road. In addition, construction of project transmission facilities may affect State roads that are crossed. The U.S. Department of Transportation, Coast Guard, reported by letter dated August 30, 1974, that close coordination would be required between the Applicant and the South Carolina Highway Department in order to ensure that the relocation and new intersection with S.C. Route 171 complies with the State Secondary Road Plan standards. Article 40 requires the Licensee to consult with appropriate Federal, State, and local agencies regarding construction affecting roads.

#### 8) Recreation

Development of Bad Creek Reservoir would result in a loss of land and water resources now providing limited dispersed outdoor recreation opportunities

[\*21] in the proposed dam and reservoir Basin area. The water surface elevation of the upper reservoir would fluctuate rapidly on a daily basis. Therefore, Applicant intends to prohibit public use of project lands and waters as a safety precaution, and proposes to provide off-site recreation developments instead. A general recreational use plan (Exhibit R) has been submitted for a 31-mile hiking trail between the lower Whitewater Falls area and the Pinnacle Mountain area in Table Rock State Park on non-project lands owned by the Crescent Land and Timber Corporation.

At least three shelters and other features would be developed along the proposed hiking trail. The proposed trail would comprise a central link in the proposed Foothills Trail, which will ultimately join the Table Rock and Oconee State Park areas. The Applicant's portion of the trail would connect with several short segments to be developed by the U.S. Forest Service in the Whitewater River Unit of the Nantahala National Forest in North Carolina. The Foothills Trail would then extend southwest through the Keowee Unit of the Sumter National Forest to Stumphouse Mountain Tunnel Park, about 5 miles south of Oconee State [\*22] Park.

Applicant's Exhibit R reflecting this proposed recreational development is in substantial conformance with our Regulations and will be approved. It is, however, preliminary in nature and does not show the precise location of the trails. We have therefore provided in Article 31 that Licensee shall file, within two years, an amendment to its Exhibit R providing detailed maps, drawings, and data relating to the 31-mile long trail. The proposed recreational development should make a significant contribution to meeting recreational needs in the general project area.

#### Comprehensive Development

The proposed project would be an integral part of the larger Keowee-Toxaway Power Production Complex. On September 26, 1966, the Commission issued a license for the Keowee-Toxaway Project, FPC Project No. 2503, authorizing construction of the 157.5 MW Keowee conventional hydroelectric plant on Lake Keowee and the 612 MW Jocassee Pumped Storage plant which utilizes Lake Keowee as its lower reservoir. The Project No. 2503 license further authorized the use of the Lake Keowee as a source of condenser cooling water for up to 3,000 MW of steam-generated electric power. The 2,659 MW [\*23] Oconee Nuclear Plant has since been constructed on the shores of Lake Keowee. Utilizing Lake Jocassee as its lower reservoir, the proposed Bad Creek Pumped Storage Project would be another element in Applicant's overall scheme of development at Lakes Keowee and Jocassee.

There are no conflicting applications before the Commission, and the project would have no effect on a Government dam or any proposed development of water resources by the United States.

The U.S. Department of the Army, Corps of Engineers (Corps), by letter dated September 4, 1974, reported that the plans of project structures are satisfactory insofar as the interests of navigation are concerned. Although the Corps stated that the project would have no appreciable effect on flood control, it did recommend that the project be operated so as not to exceed downstream flood peaks which would have occurred in the absence of the project, and further that consultation with the Corps be required regarding reservoir filling and any modification of the existing operating agreement involving the Keowee-Jocassee

reservoir system and the Corps' downstream Hartwell and Clark Hill projects. Articles 43, 44, 46 and 47 should [\*24] satisfy the Corps' concerns.

As an integral part of the Keowee-Toxaway complex, we find that the proposed project, subject to the provisions of this order, will be best adapted to the comprehensive development of the waterways involved.

We have provided for the coordinated use of Lake Jocassee by these two projects in license Article 48 and 49, which will be included in the license for Project No. 2740 and also in the license for Project No. 2503 numbered, however, as Articles 47 and 48, respectively. Article 48 requires coordinated operation of the two projects, and Article 49 addresses negotiation of a compensation agreement in the event ownership of either or both projects is vested in different entities.

Reference is made in the application to the construction of additional pumped storage projects on Lake Jocassee and the utilization of Lake Keowee as a source of condenser cooling water for an additional 4,000 MW of steam generated electric power. The sites of any additional steam electric generating plants to be constructed at Lake Keowee, nuclear fueled or otherwise, or of any additional pumped storage sites to be developed at Lake Jocassee, are not known at this time. [\*25] Any future use of Lake Keowee as a source of cooling water, or of Lake Jocassee as the lower pool of a pumped storage project, would require Commission approval.

#### License Term

In accord with our general practice regarding the licensing of new-capacity projects, we will issue the license for Bad Creek Pumped Storage Project to remain in effect for a period of fifty years. The license shall be effective the first day of the month in which it is issued.

#### The Commission finds:

(1) The Bad Creek Pumped Storage Project, FPC No. 2740, as constituted under this license, affects the interests of interstate commerce within the meaning of Section 23(b) of the Act.

(2) The Applicant, Duke Power Company, a corporation organized under the laws of the State of North Carolina, is qualified to do business in the States of North Carolina and South Carolina and has submitted satisfactory evidence of compliance with the requirements of all applicable state laws insofar as necessary to effectuate the purposes of a license for the project.

(3) Public notice of the application for license has been given. No protests or petitions to intervene have been received by the Commission. [\*26]

(4) No conflicting application is before the Commission.

(5) The project will not affect a Government dam, nor will the issuance of a license therefore, as herein provided, affect the development of any water resources for public purposes that should be undertaken by the United States.

(6) Subject to the terms and conditions hereinafter imposed, the project is

best adapted to a comprehensive plan for improving or developing the waterways involved for the benefit of interstate or foreign commerce, for the improvement and utilization of water power development, and for other beneficial public uses, including recreational purposes.

(7) The installed horsepower capacity of the project hereinafter authorized for the purpose of computing the capacity component of the annual charge to be paid under the license for the cost of administration of Part I of the Federal Power Act is reasonable as hereinafter fixed and specified.

(8) The plans of project structures, insofar as the interests of navigation are concerned, have been approved by the U.S. Department of the Army, Corps of Engineers.

(9) A final environmental impact statement has been prepared in accordance with the National [\*27] Environmental Policy Act of 1969, 42 U.S.C. § 4321, et seq., after preparation and circulation of a draft environmental impact statement and receipt of comments thereon.

(10) The term of the license hereinafter authorized is reasonable.

(11) The following described transmission facilities are parts of the project within the meaning of Section 3(11) of the Act and should be included in the License for the project: the generator leads, the electrical bus housed in a vertical shaft about 520 feet high and 28 feet in diameter leading from the underground powerhouse to four above-ground 20/525-kV step-up transformers, a 100-kV transmission line extending about 9.5 miles from the Bad Creek switchyard to the Jocassee switchyard, and a 525-kV transmission line extending about 18 miles from the Bad Creek switchyard to the Oconee switchyard.

(12) The exhibits designated and described in paragraph (B) below substantially conform to the Commission's Rules and Regulations and should be approved to the extent that they depict the general location, description, and nature of the project.

(13) There is a demonstrated need for the project's power in Applicant's system.

(14) The proposed [\*28] project is superior to any alternative considered.

(15) The Applicant has demonstrated satisfactory evidence that it has the necessary financial capabilities to construct and operate the project.

(16) It is appropriate and in the public interest that the license for Project No. 2503 be amended to provide for coordinated operation with Project No. 2740.

The Commission orders:

(A) This license is hereby issued to Duke Power Company (Licensee) or Charlotte, North Carolina, under Section 4(e) of the Federal Power Act, for a term of fifty years commencing on the first day of the month in which this license is issued, for the construction, operation and maintenance of the Bad Creek Pumped Storage Project, FPC Project No. 2740, located on Bad and West Bad Creeks in Oconee County, South Carolina, affecting the interests of interstate

commerce, subject to the terms and conditions of the Act, which is incorporated herein by reference as a part of this license, and subject to such rules and regulations as the Commission has issued or prescribed under the provisions of the Act.

(B) The Bad Creek Pumped Storage Project, FPC Project No. 2740, consists of:

(i) all lands constituting [\*29] the project area and enclosed by the project boundary or the licensee's interests in such lands, the limits of which are otherwise defined, the use and occupancy of which are necessary for the purposes of the project; such project area and project boundary being shown and described by certain exhibits which form part of the application for license which are designated as follows:

Exhibit	FPC Drawing No.	Entitled
J Sheet 1	2740-1 (as revised 3-29-76)	Area Map
J Sheet 2	2740-2 (as revised 3-29-76)	General Map and profile
K Sheet 1	2740-4 (as revised 1-05-76)	General Plan
K Sheet 2	2740-5	Topography
K Sheet 3	2740-6	Topography
K Sheet 4	2740-7	Topography
K Sheet 5	2740-8	Topography

(ii) project works consisting of: (1) a 318-acre upper reservoir with a storage capacity of 33,323 acre-feet, of which 30,228 acre-feet is usable storage capacity between minimum elevation 2,150 feet m.s.l. and full pool elevation of 2,310 feet m.s.l.; (2) a rockfill impervious core dam with crest elevation at 2,315 feet m.s.l. about 2,600 feet long and 355 feet high across Bad Creek; (3) a rockfill impervious core dam with crest elevation at 2,315 feet m.s.l. about 900 feet long and 170 [\*30] feet high across West Bad Creek; (4) a saddle dike with crest elevation at 2,313 feet m.s.l. about 900 feet long and 84 feet high across a natural depression on the eastern rim of the reservoir; (5) an ungated water intake structure in the upper reservoir; (6) a concrete-lined main shaft and power tunnel, 4,720 feet long and 29 feet in diameter, connecting by means of a manifold structure to 4 concrete, steel-lined penstocks about 300 feet long and varying from 9 to 14.5 feet in diameter; (7) an underground powerhouse containing four 250,000 kW reversible pumping-generating units, total capacity 1,000,000 kW; (8) 4 concrete-lined draft tube tunnels about 280 feet long and 14.5 feet in diameter, connecting by means of a manifold structure to two concrete-lined tailrace tunnels about 900 feet long and 26.5 feet in diameter; (9) an intake/outlet structure equipped with five 15-foot by 25-foot steel lift gates located in the existing Lake Jocassee which will serve as the lower reservoir; (10) transmission facilities consisting of (a) the generator leads, (b) the electrical bus housed in a vertical shaft about 520 feet high and 28 feet in diameter leading from the underground powerhouse [\*31] to (c) four above ground 20/525-kV step-up transformers, (d) a 100-kV transmission line extending about 9.5 miles from the Bad Creek switchyard to the Jocassee switchyard, (e) a 525-kV transmission line extending about 18 miles from the Bad Creek switchyard to the Oconee switchyard; and (11) appurtenant facilities -- the location, nature and character of which are more specifically shown and described by the exhibits hereinbefore cited and by certain other exhibits which also form part of the application for license and which are designated and described as follows:



Exhibit	FPC Drawing No.	Entitled
L Sheet 1	2740-9 (as revised 3-29-76)	General Plan
L Sheet 2	2740-10 (as revised 1-5-76)	Sections and Details
L Sheet 3	2740-11 (as revised 3-29-76)	Sections and Details
L Sheet 4	2740-12 (as revised 3-29-76)	Sections and details

Exhibit M -- consisting of five printed pages entitled "General Description of Mechanical, Electrical, and Transmission Equipment" with filing dates as follows:

Pages 1, 3, 4 filed 3/29/76

Page 2 filed 1/5/76

Page 5 filed 2/4/74

Exhibit R -- as filed February 4, 1974, and amended January 5, 1976, and March 29, 1976, consisting of: [\*32]

(1) Five pages of text, titled "Exhibit R -- Recreation Plan"; and

(2) one drawing entitled "Exhibit R, Sheet 1" -- FPC No. 2740-14, filed May 31, 1974.

(iii) all of the structures, fixtures, equipment, or facilities used or useful in the maintenance and operation of the project and located on the project area, and such property as may be used or useful in connection with the project or any part thereof, whether located on or off the project area, if and to the extent that the inclusion of such property as part of the project is approved or acquiesced in by the Commission; together with all riparian or other rights, the use or possession of which is necessary or appropriate in the maintenance or operation of the project.

(C) The exhibits designated and described in Paragraph (B) above are approved only to the extent that they depict the general location, description, and nature of the project.

(D) This license is also subject to the following terms and conditions set forth in Form L-11 (Revised October 1975, 54 FPC 1864) entitled "Terms and Conditions of License for Unconstructed Major Project Affecting the Interests of Interstate or Foreign Commerce," which terms and conditions, [\*33] designated as Articles 1 through 23, are attached hereto and made a part hereof, and subject to the following special conditions set forth herein as additional articles:

Article 24. The Licensee shall commence construction of the project within two years from the effective date of the license and shall thereafter in good faith and with due diligence prosecute such construction and shall complete construction of such project works within 9 years from the issuance date of this license.

Article 25. The Licensee shall submit for Commission approval prior to the start of construction revised Exhibit "L" drawings showing the final design of the project works. In support of the design shown on the Exhibit L drawings, Licensee shall submit soils test data, stability analyses, hydraulic transient

and governing stability studies; and shall file with the Commission's Regional Engineer and Chief, Bureau of Power, one copy each of reduced size contract drawings and specifications and quality assurance plan for earth dam construction as soon as available. The Chief, Bureau of Power, may require appropriate changes in the plans and specifications so as to assure a safe and adequate [\*34] project.

Article 26. The Licensee shall install appropriate instrumentations and other devices to monitor seepage, uplift, and performance of the project structures and reservoir slopes. A plan of instrumentation and a schedule for recording instrument readings shall be filed with the Chief, Bureau of Power prior to the initial filling of the upper reservoir. The Licensee shall furnish periodically to the Chief, Bureau of Power, as may be requested, a report and analysis of instrument readings.

Article 27. Licensee shall file with the Commission, implement, and modify when appropriate, an emergency action plan designed to provide an early warning to upstream and/or downstream inhabitants and property owners if there should be an impending or actual sudden release of water caused by an accident to, or failure of, project structures. Such plan, to be submitted prior to initial filling of the project reservoir(s), shall include, but not be limited to, instructions to be provided on a continuing basis to operators and attendants for actions they are to take in the event of an emergency; detailed and documented plans for notifying law enforcement agents, appropriate Federal, [\*35] State, and local agencies, operators of water-related facilities, and those residents and owners of properties that could be endangered; actions that would be taken to reduce the inflow to the reservoir, if such is possible, by limiting the outflow from upstream dams or control structures; and actions to reduce downstream flows by controlling the outflow from dams located on tributaries to the stream on which the project is located. Licensee shall also submit a summary of the study used as a basis for determining the areas that may be affected by such emergency occurrence, including criteria and assumptions used. Licensee shall monitor any changes in upstream or downstream conditions which may influence possible flows or affect areas susceptible to damage, and shall promptly make and file with the Commission appropriate changes in such emergency action plan.

Article 28. The Licensee shall retain a Board of three or more qualified, independent engineering consultants to review the design, specifications, and construction of the project for safety and adequacy. The names and qualifications of the Board members shall be submitted to Chief, Bureau of Power, for approval. Among [\*36] other things, the Board shall assess the geology of the project site and surroundings; the design, specifications and construction of the dikes, dam, powerhouse, electrical and mechanical equipment involved in water control, and emergency power supply; instrumentation; the filling schedule for the upper reservoir and plans for surveillance during the initial filling; the construction inspection program; and construction procedures and progress. The Licensee shall submit to the Commission copies of the Board's report on each meeting. Reports reviewing each portion of the project shall be submitted prior to or simultaneously with the submission of the corresponding Exhibit L final design drawings. The Licensee shall also submit a final report of the Board upon completion of the project. The final report shall contain a statement indicating the Board's satisfaction with the construction, safety, and adequacy of the project structures.

Article 29. The Licensee shall pay the United States the following annual charge, effective as of the first day of the month in which this license is issued:

(a) For the purpose of reimbursing the United States for the cost of administration [\*37] of Part I of the Act, a reasonable annual charge as determined by the Commission in accordance with the provisions of its Regulations, in effect from time to time. The authorized installed capacity for such purposes is 1,333,000 horsepower.

Article 30. Pursuant to Section 10(d) of the Act, after the first 20 years of operation of the project under the license, the rate as computed below shall be the specified rate of return on the net investment in the project for determining surplus earnings of the project for the establishment and maintenance of amortization reserves. One-half of the project surplus earnings, if any, accumulated after the first 20 years of operation under the license, in excess of the specified rate of return per annum on the net investment, shall be set aside in a project amortization reserve account as of the end of each fiscal year: Provided, that, if and to the extent that there is a deficiency of project earnings below the specified rate of return per annum for any fiscal year or years after the first 20 years of operation under the license, the amount of any surplus earnings accumulated thereafter until absorbed, and one-half of the remaining surplus [\*38] earnings, if any, thus cumulatively computed, shall be set aside in the project amortization reserve account; and the amounts thus established in the project amortization reserve account shall be maintained until further order of the Commission.

The annual specified reasonable rate of return shall be the sum of the weighted cost components of long-term debt, preferred stock, and the cost of common equity, as defined herein. The weighted cost component for each element of the reasonable rate of return is the product of its capital ratios and cost rate. The current capital ratios for each of the above elements of the rate of return shall be calculated annually based on an average of 13 monthly balances of amounts properly includable in the Licensee's long-term debt and proprietary capital accounts as listed in the Commission's Uniform System of Accounts. The cost rates for such ratios shall be the weighted average cost of long-term debt and preferred stock for the year, and the cost of common equity shall be the interest rate on 10-year government bonds (reported as the Treasury Department's 10-year constant maturity series) computed on the monthly average for the year in question [\*39] plus four percentage points (400 basis points).

Article 31. The Licensee shall, within two years from the date of this order, file for Commission approval an amendment to Exhibit R which shall include:

(a) Maps, drawings, and related data on the 31-mile central segment of the Foothills Trails to be developed by the Applicant, to indicate: (1) the specific locations of the proposed trail route and public shelters; (2) detailed plans for parking at highway access points; (3) provisions for hikers to cross streams along the trail; (4) evidence of consultation with the U.S. Forest Service of the Department of Agriculture, and the South Carolina Department of Parks, Recreation and Tourism in determining the route of Applicant's segment of the Foothills Trails; and

(b) A management plan for the Applicant's proposed trail segment and related facilities, including programs for solid waste disposal, annual clearing of the trail route, periodic trash removal, and placement of appropriate signs and other markers along the Applicant's trail and at major access points.

(c) Licensee shall, during the term of the license, consult and cooperate with the appropriate Federal, State, and local [\*40] agencies in developing and maintaining a hiking trail; and Provided, further, that, should it be necessary and in the public interest to relocate or permanently close a significant segment of the trail, Licensee shall advise the Commission of the location of the affected area, and the reasons for taking such action.

Article 32. Licensee shall, within one year from the date of issuance of the license, file a revised Exhibit S for Commission approval, prepared pursuant to Section 4.41 of the Commission's Rules and Regulations. In addition to the information contained in the Exhibit S filed with the Commission as part of the license application for Project No. 2740, the revised Exhibit S shall include the following:

(a) A detailed wildlife mitigation plan, as appropriate, to avoid or to mitigate adverse impacts on wildlife, including an implementation schedule and a description of locations and acreages of lands to be managed for wildlife. Licensee shall also include a map of the project area showing those areas that will be revegetated for wildlife purposes, and the vegetation selected for planting;

(b) An outline of the studies to be conducted to assess the effect of [\*41] project operation; (1) on entrainment and any resultant mortality of fish; (2) on the coldwater fish habitat in Lake Jocassee; and (3) on trout migration, spawning, and rearing in impacted streams. These studies shall be initiated at the beginning of project operation and the results shall be filed with the Commission three years after commencement of project operation; and

(c) A detailed mitigation plan with proposed measures to be taken by the Licensee to mitigate the adverse impacts of project operations on Lake Jocassee and stream fisheries. Such plan shall include, but not be limited to, those measures agreed upon between the Licensee and South Carolina Wildlife and Marine Resources Department as set forth by Licensee in its letter dated January 10, 1977, to the Secretary, Federal Power Commission.

Article 33. The Licensee shall prepare a comprehensive plan to avoid or minimize damage to the environment and to protect and enhance the visual, cultural and related natural resource values of areas that would be affected by the proposed transmission facilities. The Licensee shall, not later than one year prior to beginning construction of the transmission facilities, file [\*42] with the Commission its comprehensive plan which shall include, but not be limited to, detailed design, construction, and maintenance specifications of the proposed transmission facilities, specifications and information on access roads, major linear topographic features affected, tower types, conductors, visual design characteristics, coloring and texture, average number of structures per mile over the entire length, or as appropriate, and schedules, cost estimates, and other pertinent data as needed. The plan shall show how the existing rights-of-way are to be utilized, shall include such data as widths, lengths, and acreages, and information on possible future use of the

rights-of-way for additional transmission facilities. The plan shall consider Commission Order No. 414, issued November 27, 1970 (44 FPC 1491, 35 F.R. 18585), other recognized engineering and landscape design methods, and shall be prepared after consultation and in cooperation with the South Carolina State Land Resources Commission, and any other appropriate Federal, State, or local agencies having an interest in the proposed action. The Commission reserves the right, after notice and the opportunity for hearing, [\*43] to prescribe any charges in the plan as the public interest may warrant.

Article 34. For the purpose of assessing the impact of construction and operation on water quality and the aquatic environment, the Licensee shall, in cooperation with the South Carolina Wildlife and Marine Resources Department, the South Carolina Department of Health and Environmental Control, and the Fish and Wildlife Service of the U.S. Department of the Interior:

(a) Continue its pre-construction water quality studies in the Howard Creek basin and the monitoring in Lake Jocassee until the project becomes operational. Samples shall be taken on a monthly basis and shall include, but not be limited to, measurements of dissolved oxygen, temperature, pH, specific conductance, turbidity (or suspended solids), inorganic and total phosphorus and nitrogen, total hardness, alkalinity, total and fecal coliforms, BOD, and streamflow;

(b) Conduct a post-operational water quality monitoring study in Howard Creek basin and Lake Jocassee for a period of five years from the commencement date of project operation using the same sampling frequently and parameters as stated in (a) above; and

(c) File with the Commission [\*44] annual study reports and, within one year following conclusion of the overall study, file a final report containing the results and conclusions, together with the recommendations for any further studies or proposed changes in the operation of the project deemed necessary to protect and enhance the aquatic environment and related resources.

The Commission reserves the right, after notice and opportunity for hearing, to require additional studies and require such reasonable changes in the project and its operation as may be found necessary or appropriate to maintain or improve the aquatic environment.

Article 35. Licensee shall consult and cooperate with the U.S. Environmental Protection Agency, local and county health department, and the South Carolina Department of Health and Environmental Control in complying with Federal, State and local regulations in the construction, operation, and maintenance of sanitary facilities used during construction of the project facilities, and for sanitary waste disposal during operation.

Article 36. The Licensee shall, to the satisfaction of the Commission's authorized representative, install and operate signs, lights, sirens, or other [\*45] devices at the project outlet structure in Lake Jocassee to warn the public of significant fluctuations in flows from the project.

Article 37. Licensee shall consult with the South Carolina Department of Health and Environmental Control, and local and county health departments, and provide for measures to control vectors at the project.

Article 38. Licensee, in coordination with the South Carolina Wildlife and

Marine Resources Department and the U.S. Fish and Wildlife Service of the Department of the Interior, shall arrange for a preconstruction survey of endangered and threatened plant and animal species in areas to be disturbed and not previously surveyed. If endangered or threatened species are found, the Licensee shall implement appropriate measures to protect the associated habitat and the individual specimens. A proposal of any protective measures to be undertaken shall be filed with the Commission 30 days prior to any disturbances in areas not previously surveyed.

Article 39. Licensee, in cooperation and consultation with the South Carolina Wildlife and Marine Resources Department and the U.S. Fish and Wildlife Service of the Department of the Interior, [\*46] shall: assess the desirability and feasibility of: (a) providing storm-flow augmentation through the stream diversion structure in the Bad Creek Dam to facilitate sediment removal in Howard Creek following construction; (b) providing flow to Howard Creek from the Bad Creek augmentation system, and determine the minimum flows to be maintained through use of the augmentation system in the Bad Creek Dam. This analysis shall include such seepage as may occur through project dams. Licensee shall file, within one year after the project becomes operational, the results of these evaluations, proposals, and schedules for the implementation of flow augmentation to Howard Creek.

Article 40. The Licensee shall consult and cooperate with appropriate Federal State, and local agencies, including the South Carolina State Highway Department, in determining construction procedures and final realignment of a 0.4-mile section of Highway S-171, in the construction of transmission lines where they cross state roads and highways, and in the construction of access road(s) that connect to Highway S-171. Efforts shall be made to protect visual resources and to minimize erosion and the deposition of [\*47] silt into Howard Creek from the construction of roads.

Article 41. The Licensee shall conduct, or cause to be conducted, archeological surveys along the transmission line corridor. The report of these archeological surveys shall be filed with the Commission and the State Historic Preservation Officer. If archeological sites are discovered, they shall be evaluated for possible inclusion in the National Register of Historic Places prior to selecting the final location of project facilities. All reasonable efforts shall be made to avoid impacting significant sites, but where this is impossible such sites shall be salvaged after consultation with the State Historic Preservation Officer, and the Atlanta Regional Office of the National Park Service's Interagency Archeological Services Division.

Article 42. The Licensee shall file within two years of the date of issuance of this license a revised Exhibit F and, for Commission approval, revised Exhibits J, K, and M to reflect the transmission facilities found to be primary transmission facilities by this order as a part of the licensed project works under this license. The project boundary on Exhibit K shall be drawn to include [\*48] within the project boundary both the 100-kV Jocassee-Bad Creek transmission line right-of-way and the 525-kV Oconee-Bad Creek transmission line right-of-way.

Article 43. The Licensee shall enter into a reservoir filling agreement with the authorized representative of the Chief of Engineers, Department of the Army prior to initial filling of the reservoir to insure either sufficient releases

to the downstream Federal Hartwell and Clark Hill projects consistent with the portion of the watershed affected by Project No. 2740 or take other acceptable measures to assure the firm power capacity of the Hartwell and Clark Hill projects which would have been available in the absence of Project No. 2740. A copy of the agreement shall be filed with the Commission. If agreement cannot be reached within six months prior to the proposed initiation of filling of the reservoir, the Commission will prescribe the reservoir filling schedule, after notice and opportunity for hearing and upon a finding based on substantial evidence that such schedule is necessary and desirable and consistent with the provisions of the Act.

Article 44. The Licensee shall consult with the authorized representative [\*49] of the Chief of Engineers, Department of the Army, for the purpose of determining whether the operating agreement reached under the auspices of Article No. 32 of the FPC license for Keowee-Toxaway Project No. 2503 requires modification as a result of construction of Bad Creek Pumped Storage Project No. 2740. If such a modification to the agreement is required, a copy of the agreement shall be filed with the Commission. If agreement cannot be reached within six months prior to the proposed date of operation of the project, the Commission will prescribe the method of operation, after notice and opportunity for hearing and upon a finding based on substantial evidence that such method is necessary and desirable and consistent with the provisions of the Act.

Article 45. Licensee shall, prior to the start of construction, supplement its erosion and sediment pollution control plan which was submitted to the Commission by letter dated August 21, 1976. The supplement to the plan shall be prepared after consultation and in cooperation with the South Carolina Department of Health and Environmental Control, State Land Resources Commission, and any other appropriate Federal, State and [\*50] local agencies; shall include the suspended solids limit to be maintained for effluent from proposed settlement traps and sediment control structures emptying into Howard Creek and other waters in the project area; shall include all erosion and sediment control measures described in the application, but not included in the previously filed plan; shall include a schedule and description of methods by which the entire plan will be implemented and supervised to ensure adequate and continual protection of the environment; and shall include any other plans, proposals, and recommendations for protecting the aquatic environment.

Article 46. The Licensee shall operate the project reservoir during flood periods so as not to cause peak discharges downstream greater than those which would have occurred in the absence of Project No. 2740.

Article 47. The Licensee shall furnish the authorized representative of the Chief of Engineers, Department of the Army such information on the operation of the Bad Creek Project as he may need for forecasting flows downstream from the project.

Article 48. Licensee is authorized to use the reservoir of Project No. 2503 in the operation of Project [\*51] No. 2740 and shall coordinate the operation of the project with that of Project No. 2503.

Article 49. In the event that the ownership or control of Project No. 2503 and Project No. 2740 becomes vested in different entities, either through transfer of license, surrender of license, issuance of license to another

Licensee, Federal takeover, or any other reason, the separate owners or Licensees of the projects shall negotiate an agreement to be submitted to the Commission for its approval, providing for compensation, if any, to be paid by the Licensee or owner of Project No. 2740 to the Licensee or owner of Project No. 2503, for the former's use of Jocassee reservoir. If such an agreement cannot be reached, the Commission reserves the right to establish such compensation, after notice and opportunity for hearing.

(E) The license for the Keowee-Toxaway Project (FPC Project No. 2503) is hereby amended by the addition of Article Nos. 47 and 48 thereto, to be identical to Article Nos. 48 and 49 of the license for Project No. 2740.

(F) This order shall become final 30 days from the date of its issuance unless application for rehearing shall be filed as provided in Section 313(a) [\*52] of the Act, and failure to file such an application shall constitute acceptance of this license and license amendment. In acknowledgment of the acceptance of this license and license amendment it shall be signed for the Licensee and returned to the Commission within 60 days from the date of issuance of this order.



DUKE POWER COMPANY, PROJECT NO. 2503

FEDERAL POWER COMMISSION

51 F.P.C. 1009; 1974 FPC LEXIS 1050

March 12, 1974

CORE TERMS: license, feet, generator, transformer, elevation, reservoir, concrete, rating, consisting, feet high, acre-feet, annual, mouth, mile, dam, eliminated, Federal Power Act, order issued, feet wide, constructed, appurtenant, typewritten, horsepower, regulations, powerhouse, earth-fill, installed, connected, nameplate, equipped

[\*1] ORDER APPROVING REVISED EXHIBIT M AND AMENDING  
LICENSE

Before Commissioners: John N. Nassikas, Chairman; Albert B. Brooke, Jr., Rush Moody, Jr., William L. Springer and Don S. Smith.

OPINION:

Duke Power Company, Licensee for partially constructed Keowee-Toxaway Project No. 2503 located on the Keowee, Little, Whitewater, Toxaway, Thompson, and Horsepasture Rivers in Oconee and Pickens Counties, South Carolina and Transylvania County, North Carolina, filed with the Commission on March 17, 1972, an application for approval of revised Exhibit M for the project reflecting a description of mechanical, electrical, and transmission equipment as constructed at the Keowee Development and as contemplated at the Jacassee Development, both in Project No. 2503.

The changes in equipment are primarily at Keowee Development, with an increase in generator nameplate ratings from 70,000 kw to 78,750 kw and a decrease in kv rating of the step-up transformer from 13.8/230 kv to 13.2/230 kv; at Jocassee Development, an increase in generator nameplate ratings from 152,500 kw to 153,000 kw and an increase in kv rating of the step-up transformers from 13.8/230 kv to 14.4/230 kv is reflected. The total capacity of [\*2] the project is thereby increased from 750,000 kw to 769,500 kw.

The Commission finds:

(1) Exhibit M, filed March 17, 1972, consisting of four typewritten pages conforms to the Commission's Rules and Regulations and should be approved and made a part of the license for Project No. 2503.

(2) Exhibit M, as presently filed and approved consisting of Page 1, filed January 4, 1965, amended September 2, 1965, and approved September 26, 1966 (36 FPC 675); and Pages 2, 3, and 4 filed December 29, 1967, and approved February 12, 1968 (39 FPC 154), should be eliminated from the license for the project.

(3) The authorized capacity to be installed in the project for the purpose of

computing the capacity component of the administrative annual charge is hereunder increased to 1,026,000 horsepower, and the amount of annual charges to be paid under the license for the costs of administration of Part I of the Federal Power Act, based on such capacity, as hereinafter provided, is reasonable.

(4) It is consistent with the Federal Power Act and in the public interest to amend the license for Project No. 2503 as hereinafter provided.

The Commission orders:

(A) Exhibit M, consisting [\*3] of four typewritten pages filed March 17, 1972, is approved and made a part of the license for Project No. 2503.

(B) Exhibit M, as described in finding (2) above, is eliminated from the license for Project No. 2503.

(C) License Article 40 is amended to read as follows:

Article 40. For the purpose of reimbursing the United States for the costs of administration of Part I of the Act, the Licensee shall pay to the United States a reasonable annual charge effective as of January 1, 1972, as determined by the Commission in accordance with the provisions of its regulations, in effect from time to time. The authorized installed capacity for such purposes is 1,026,000 horsepower.

(D) Paragraph (B) (ii) of the Commission's order issued September 26, 1966, the second paragraph of which was amended by Commission order issued February 12, 1968, is amended to read as follows:

Keowee Development -- (1) an earth-fill dam 150 feet high and 1,800 feet long on Little River 2.7 miles above its mouth; (2) an earth-fill dam 170 feet high and 3,500 feet long on Keowee River at river mile 351.5 above the mouth of the Savannah; (3) several saddle dikes; (4) two reservoirs having a total capacity [\*4] of 911,000 acre-feet at full pond elevation 800 feet USGS, 388,000 acre-feet usable, connected by a canal diverting practically the entire flow of Little River into the Keowee Reservoir; (5) a concrete spillway 176 feet wide equipped with tainter gates with ogee crest at elevation 765 feet USGS located at Keowee Dam; (6) two concrete and steel penstocks at Keowee Dam; (7) an indoor type powerhouse containing two Francis type turbines each connected to a vertical generator rated at 78,750 kw (157,500 kw total); (8) generator leads; (9) 13.2/230 kv step-up transformer; and (10) appurtenant facilities.

Jocassee Development -- (1) a rockfill dam with impervious core, 385 feet high and 1,750 feet long on Keowee River at river mile 366.5 above the mouth of the Savannah; (2) a reservoir with total capacity of 1,143,000 acre-feet at full pond elevation 1,110 feet USGS; (3) a concrete spillway 88 feet wide equipped with tainter gates having ogee crest at elevation 1,078 feet USGS; (4) an intake structure and two concrete and steel penstocks; (5) an outdoor type powerhouse containing four vertical motor-generator and pump-turbine units rated at 153,000 kw (612,000 kw total); (6) the Keowee [\*5] Reservoir, serving as a lower pool for the pumped-storage operation; (7) generator leads; (8) 14.4/230 kv step-up transformers; and (9) appurtenant facilities; the location, nature and character of which are more specifically shown and described by the exhibits hereinbefore cited and by certain other exhibits which also formed part of the application

for license and which are designated and described as follows:

DUKE POWER COMPANY, PROJECT NO. 2503

FEDERAL POWER COMMISSION

39 F.P.C. 154; 1968 FPC LEXIS 140

February 12, 1968

CORE TERMS: license, motor-generator, pump-turbine, generating, licensee, feet, pumped-storage, conventional, elevation, issuance, concrete, pumped, rated

[\*1] ORDER AMENDING LICENSE

Before Commissioners: Lee C. White, Chairman; L. J. O'Connor, Jr., Charles R. Ross, Carl E. Bagge and John A. Carver, Jr.

OPINION:

Duke Power Company, licensee for the Keowee-Toxaway Project, filed an application on December 29, 1967, requesting Commission authorization to substitute a pumped storage unit for the one conventional unit at the Jocassee development. The Company filed supplemental material on January 10, 1968, in the form of Exhibits H, M, N and O.

The license for the project authorizes the Jocassee development as having one 150 my motor-generator and pump-turbine unit and one 160 my conventional generating unit by December 31, 1974 with an installation of two additional similar motor-generator pump-turbine units by May 31, 1978 which would result in an ultimate installed capacity of 610 mw. According to the licensee, bids received from prospective suppliers of the generating units indicate that a small reduction in project costs would result if all four units were the same pumped storage type and size. The units would be rated at 152.5 mw each. Licensee expects that the operation of four pumped-storage units will produce smaller fluctuation in the levels of the Lake Keowee and Jocassee through a weekly pumping cycle thus enhancing recreation, fish and wildlife values.

The Commission finds:

(1) Public notice of the application has been given. No protests or petitions to intervene have been received.

(2) It is appropriate for the purposes of the Federal Power Act and consistent with the public interest to amend the license for Project No. 2503 as hereinafter provided.

The Commission orders:

(A) Paragraph (B) (ii) of the order issued September 26, 1966, 36 FPC 675, is amended so that the second paragraph thereunder, entitled "Jocassee Development", reads:

Jocassee Development. -- (1) a rockfill dam with impervious core, 385 feet high and 1,750 feet long on Keowee River at river mile 366.5 above the mouth of the Savannah; (2) a reservoir with total capacity of 1,143,000 acre-feet at full pond elevation 1,110 feet USGS; (3) a concrete spillway 88 feet wide equipped with tainter gates having ogee crest at elevation 1,078 feet USGS; (4) an intake structure and two concrete and steel penstocks; (5) an outdoor type powerhouse containing, initially, two vertical motor-generator and pump-turbine [\*3] units rated at 152,500 kw (305 mw total initial generating capacity) with provisions of two future similar motor-generator and pump-turbine units (610 mw total ultimate generating capacity); (6) the Keowee Reservoir, serving as a lower pool for the pumped-storage operation; (7) generator leads; (8) 13.8/230 kv step-up transformers; and (9) appurtenant facilities; the location nature and character of which are more specifically shown and described by the exhibits hereinbefore cited and by certain other exhibits which also formed part of the application for license and which are designated and described as follows:

(B) Pages 2, 3, 4 and 5 of Exhibit M filed January 4, 1965, and amended on September 2, 1965, are deleted from the license for the project.

(C) Exhibit M, pages 2, 3 and 4, revised January 8, 1968, and filed January 10, 1968, are approved and made part of the license for the project.

(D) This order shall become final 30 days from the date of its issuance unless application for rehearing shall be filed as provided in Section 313(a) of the Act, and failure to file such an application shall constitute acceptance of this order, in acknowledgment of the acceptance of this order, [\*4] it shall be signed for the licensee and returned to the Commission within 60 days from the date of issuance of this order.