

**Schoolfield Hydroelectric Project
(FERC No. 2411)**

FINAL

**Application for New License
Major Water Power Project 10 Megawatts
or Less**

**Exhibit H – Plans and Ability to Operate the
Project**

TABLE OF CONTENTS

| | | |
|----------|---|----------|
| 1 | INTRODUCTION | 1 |
| 2 | INFORMATION TO BE PROVIDED BY ALL APPLICANTS..... | 1 |
| 2.1 | Efficient and Reliable Electric Service..... | 1 |
| 2.1.1 | Increase Capacity or Generation Capacity..... | 1 |
| 2.1.2 | Coordination with Any Upstream or Downstream Water Resource Projects..... | 1 |
| 2.1.3 | Coordination of Operations with Electrical Systems..... | 1 |
| 2.2 | Applicants’ Short- and Long-Term Need for Electricity Generated by the Project..... | 2 |
| 2.2.1 | Reasonable Costs and Availability of Alternative Sources of Power..... | 2 |
| 2.2.2 | Increase in Fuel, Capital, and Other Costs to Replace the Power Generated by the Project..... | 2 |
| 2.2.3 | Effects of Alternative Sources of Power..... | 2 |
| 2.3 | Need and the Reasonable Cost and Availability of Alternative Sources of Power | 3 |
| 2.3.1 | Average Annual Cost of the Power Produced by the Project | 3 |
| 2.3.2 | Projected Resources Required to Meet Capacity and Energy Requirements | 3 |
| 2.3.3 | Total Annual Cost and Merits of Each Alternative Source of Power..... | 3 |
| 2.3.4 | Effect on Providers of Alternative Sources of Power..... | 3 |
| 2.4 | Applicant-Owned Industrial Facilities..... | 3 |
| 2.5 | Need for Power If the Applicant is a Tribe..... | 3 |
| 2.6 | Effect on Operations and Planning of the Applicants’ Transmission System of Receiving or not Receiving the License | 4 |
| 2.6.1 | Effects of the Redistribution of Power Flows on Line Loading | 4 |
| 2.6.2 | Advantages of the Applicants’ Transmission System | 4 |
| 2.6.3 | Single-Line Diagram..... | 4 |
| 2.7 | Modifications of Project Facilities or Operations..... | 4 |
| 2.8 | Conformance of the Modification with a Comprehensive Plan for the Waterway | 4 |
| 2.9 | Financial and Personnel Resources..... | 4 |
| 2.10 | Notification of the Project to Expand and Encompass Additional Lands | 5 |
| 2.11 | Electricity Consumption Efficiency Improvement Program | 5 |

Schoolfield Hydroelectric Project (FERC No. 2411)
EXHIBIT H – PLANS AND ABILITY TO OPERATE THE PROJECT

| | | |
|----------|--|----------|
| 2.11.1 | Customer Energy Efficiency Program | 5 |
| 2.11.2 | Compliance of Energy Conservation Programs with Regulatory Requirements | 5 |
| 2.12 | Names and Mailing Addresses of Affected Tribes | 5 |
| 3 | INFORMATION TO BE PROVIDED BY AN APPLICANT WHO IS AN EXISTING LICENSEE | 7 |
| 3.1 | Measures Taken or Planned to Ensure Safe Management, Operation, and Maintenance of the Project | 7 |
| 3.1.1 | Existing and Planned Operation of the Project during Flood Conditions | 7 |
| 3.1.2 | Warning Devices for Downstream Safety | 7 |
| 3.1.3 | Operational Changes that Might Affect the Emergency Action Plan..... | 7 |
| 3.1.4 | Existing and Planned Maintenance and Monitoring Programs and Monitoring Devices | 7 |
| 3.1.5 | Project Employee Safety and Public Safety Record | 7 |
| 3.2 | Current Operation of the Project..... | 8 |
| 3.3 | Project History and Upgrades to Operations and Maintenance Programs..... | 8 |
| 3.4 | Lost Generation Over the Previous Five Years | 8 |
| 3.5 | Record of Compliance with the Existing License Terms and Conditions | 8 |
| 3.6 | Licensee Actions Related to the Project that Affect the Public | 9 |
| 3.7 | Ownership and Operating Expense Reductions if the Project License was Transferred..... | 9 |
| 3.8 | Annual Fees for Use of Federal or Tribal Lands | 9 |

LIST OF TABLES

| | | |
|-----------------------|---|-----------|
| Table 2.3.1-1. | Analysis of the costs of producing Project power. | 6 |
| Table 3.4-1. | Unscheduled outages at the Project, 2018 through 2022..... | 10 |

1 INTRODUCTION

18 CFR §16.10(a) requires all applicants for a new license to provide certain information that pertains to an applicant's plans and ability to operate and maintain the Project. Such information required in 18 CFR §16.10(a) is provided in Section 2 of this exhibit. Furthermore, 18 CFR §16.10(b) requires information to be provided by an applicant who is an existing licensee. The required information in 18 CFR §16.10(b) is provided in Section 3 of this Exhibit.

2 INFORMATION TO BE PROVIDED BY ALL APPLICANTS

2.1 Efficient and Reliable Electric Service

2.1.1 Increase Capacity or Generation Capacity

As discussed in Exhibit A, the Co-Licensees have no current plans to increase capacity of the Project. The Co-Licensees expect to maintain the high degree of process and controls to maintain the efficient use of the water supply to maximize the generation output and provide a reliable and environmentally sound source of generation. An evaluation of existing facilities shows that it is neither practical nor economical to increase capacity at this time. The Co-Licensees periodically reevaluate their hydroelectric generating facilities to assess life-extension and upgrade alternatives. If an economically feasible capacity expansion alternative is identified, the Co-Licensees will pursue a license amendment to increase capacity, as appropriate.

2.1.2 Coordination with Any Upstream or Downstream Water Resource Projects

As discussed in Exhibit E, Section 3.2.2, *Hydropower*, there is only one other hydropower project on the main stem of the Dan River – the City of Danville's Pinnacles Project (FERC No. 10896), located far upriver of the Project. Although the Pinnacle Project is licensed as a peaking facility, such flows attenuate near the VA-NC border. Inflow to the Project is more influenced by the peaking operations of the City of Martinsville Hydroelectric Project, a hydroelectric facility not regulated by FERC, located on the Smith River, and the U.S. Army Corps of Engineers (USACE) Philpott Project, which is also a peaking facility on the Smith River. The Co-Licensees do not coordinate directly with the USACE or City of Martinsville, but rather rely on existing streamflow gages to plan Project operations.

2.1.3 Coordination of Operations with Electrical Systems

The Co-Licensee, the City of Danville, is a fully integrated electric utility and sells electricity to City residents, businesses, and industries as well as parts of the surrounding county. The Project is interconnected with the City's transmission and distribution system as well as regional transmission systems. Agreements with American Electric Power (AEP), the regional transmission operator, stipulate that Project power must be used by the City of Danville, and the relay switches on the interconnected system do not allow for Project power to reverse to AEP. The Co-Licensee, Eagle Creek Schoolfield, is an independent power producer and does not provide electric service to any customers.

2.2 Applicants’ Short- and Long-Term Need for Electricity Generated by the Project

2.2.1 Reasonable Costs and Availability of Alternative Sources of Power

Alternative sources of power could be obtained by increasing the amount of power the City of Danville purchases for its customers. Power could also be supplied through the construction of new power plants. If a new license for the Project is not granted, the services that the Project provides to the City of Danville and the surrounding community would need to be provided by other sources. In the short term, the equivalent amount of power could be provided from American Municipal Power, the current supplier of wholesale electricity to the City of Danville, through additional purchases. The City of Danville currently purchases wholesale power from American Municipal Power to meet its peak demand; however due to fluctuations in pricing at the regional market level the exact cost is difficult to quantify.

2.2.2 Increase in Fuel, Capital, and Other Costs to Replace the Power Generated by the Project

Costs of replacing services produced by the Project would be passed to the consumer. This relates to reduced efficiency of other projects because they would need to modify operations to meet daily demand. Resulting loss in efficiencies caused by varying thermal plant generation would increase fuel usage (in addition to increased emissions) and, therefore, cause additional rate increases to the customer base.

2.2.3 Effects of Alternative Sources of Power

Effects on the Applicants’ Customers

The primary purpose of the Project is to supply energy to the residents, businesses, and industries of the City of Danville and the surrounding community. As a hydropower facility, the Project provides an important source of renewable electricity. Alternative sources of power, many of which would most likely be sourced by fossil fuel generation such as coal, gas-fired, and diesel generation, may need to adjust their production levels, which would reduce their overall efficiency. Energy production costs, environmental costs, and construction costs would be higher than the existing utilization of hydropower used by the Project. Decommissioning of the Project’s generating facilities or the removal of the Project could result in increased costs to the consumer.

Effects on Operating and Load Characteristics

The co-Licensee, the City of Danville, is a fully integrated electrical utility and, as such, maintains a separate transmission and distribution system. Purchases of alternative sources of power from the larger grid would be transmitted throughout the City of Danville’s utility service territory. The co-Licensee, Eagle Creek Schoolfield, is an independent power producer and, as such, does not maintain a separate transmission system that could be affected by replacement or alternative power sources.

Effects on the Communities Served

The loss of the license for the Project through a takeover by the federal government or through the decommissioning of the Project would result in a loss of electrical generation to the City of Danville and adjoining communities. In 2021, the Project contributed approximately \$10,000 in state and local taxes. The governmental entities affected by this loss in revenue would ultimately have to seek a reduction in expenses or an increase in other sources of revenue.

2.3 Need and the Reasonable Cost and Availability of Alternative Sources of Power

2.3.1 Average Annual Cost of the Power Produced by the Project

The average annual cost of the power produced by the Project includes capital costs, operating costs, and costs associated with Project relicensing, including the PM&E measures. As described in Exhibit A, the Co-Licensees have performed an analysis of the costs of producing Project power. The total average annual cost of power produced by the Project is approximately \$434,025 based on an operational average generation of 15,220,362 kWh of energy ([Table 2.3.1-1](#)).

2.3.2 Projected Resources Required to Meet Capacity and Energy Requirements

The Project serves a role in the regional energy market by providing an estimated 15,220,362 kWh of generation annually. The Project and other electric generating facilities owned and operated by the Co-Licensees and their affiliates are non-regulated Qualifying Facilities or Exempt Wholesale Generators. Power generated by the Project is used within the City of Danville.

2.3.3 Total Annual Cost and Merits of Each Alternative Source of Power

The Co-Licensees do not have alternative sources of power that could be provided should a license not be granted. As such, alternative sources of power to compensate for any potential losses should this Project not be licensed would need to be purchased from the open market.

2.3.4 Effect on Providers of Alternative Sources of Power

The Co-Licensees do not propose to change how the Project is currently operated; therefore, there is no effect on providers of alternative sources of power.

2.4 Applicant-Owned Industrial Facilities

Not applicable; the Co-Licensees do not own or operate any industrial facilities; however, Project power is supplied to City of Danville customers which includes residential, commercial, and industrial users.

2.5 Need for Power If the Applicant is a Tribe

The Co Licensees are not an Indian tribe(s) applying for a project on a tribal reservation; therefore, this section is not applicable.

2.6 Effect on Operations and Planning of the Applicants' Transmission System of Receiving or not Receiving the License

2.6.1 Effects of the Redistribution of Power Flows on Line Loading

The co-Licensee, City of Danville, is a municipal power producer that does maintain a separate transmission system that could be affected by power flow redistribution. Agreements with AEP, the regional transmission operator, stipulate that Project power must be used by the City of Danville, and the relay switches on the interconnected system do not allow for Project power to reverse to AEP. The Co-Licensee, Eagle Creek Schoolfield, is an independent power producer and, as such, does not maintain a separate transmission system that could be affected by power flow redistribution.

2.6.2 Advantages of the Applicants' Transmission System

The Co-Licensee, the City of Danville, is a fully integrated electric utility and maintains its own transmission and distribution system to provide electricity to its customers. The Co-Licensee, Eagle Creek Schoolfield, is an independent power producer and, as such, does not maintain a separate transmission system.

2.6.3 Single-Line Diagram

A single-line diagram for the Project will provided in the Final License Application, filed separately as Critical Energy/Electric Infrastructure Information (CEII).

2.7 Modifications of Project Facilities or Operations

The Co-Licensees have no plans to modify the existing generation facilities at the Project, and they do not propose to modify existing Project operations.

2.8 Conformance of the Modification with a Comprehensive Plan for the Waterway

The Project will be operated under the terms and conditions of a license issued by the Commission, which will be based on the Commission's determination of the license terms and conditions that are best suited to comprehensive development of the waterway. The environmental impacts of the Project in the context of the Dan River are addressed in Exhibit E, along with the Project's consistency with comprehensive plans for the waterway. See Section 13 of Exhibit E for a discussion regarding the Project consistency with FERC's list of comprehensive plans for Virginia.

2.9 Financial and Personnel Resources

The Co-Licensees have the financial resources to maintain and operate the Project. Funding required for implementation of the proposed environmental enhancements could come from a variety of sources, depending on the amount necessary.

The Project has a full complement of operations personnel who perform all necessary day-to-day functions related to Project operations and maintenance. On-site staff are fully qualified to handle

all aspects of Project operation and maintenance. The Project is fully equipped to allow staff to perform all routine maintenance functions. All personnel receive training commensurate with their responsibilities in an ongoing effort to improve their ability to operate the Project in the safest and most efficient manner possible.

2.10 Notification of the Project to Expand and Encompass Additional Lands

The Co-Licensees currently have no plans to expand the Project to encompass additional lands; therefore, any such notification is not applicable.

2.11 Electricity Consumption Efficiency Improvement Program

2.11.1 Customer Energy Efficiency Program

The co-Licensee, the City of Danville, is a fully integrated electric utility, and all power generated at the Project is used by the City of Danville for its electric customers. The Co-Licensees strive routinely to minimize station electrical usage to improve plant performance. The City of Danville, as a co-Licensee, operates its own electric department serving the residents, businesses, and industries of the City of Danville and surrounding area. The Project is one of three direct sources of renewable energy owned by the City of Danville. The others are the 10.7-MW Pinnacles Hydroelectric Project and the 10.0-MW Irish Road Solar Project. In addition, the City of Danville has access to power from, but does not own, the Ringgold Solar Project 12-MW, and Kentuck Solar Project 6-MW.

2.11.2 Compliance of Energy Conservation Programs with Regulatory Requirements

Eagle Creek Schoolfield is an independent power producer. The co-Licensee, the City of Danville, offers residential, commercial, and industrial energy efficiency rebate programs.

2.12 Names and Mailing Addresses of Affected Tribes

There are no Indian Tribes with land that will be affected by the Project. Refer to Section 2(v) of the Initial Statement for a list of Tribes potentially affected by the Project.

Schoolfield Hydroelectric Project (FERC No. 2411)
EXHIBIT H – PLANS AND ABILITY TO OPERATE THE PROJECT

Table 2.3.1-1. Analysis of the costs of producing Project power.

| Cost Descriptions | Capital Cost (2022 \$) | Annual Cost (2022 \$) | Levelized Cost (\$) ¹ |
|---|-------------------------------|------------------------------|---|
| Annual operations and maintenance | \$0 | \$187,000 | \$187,000 |
| Annual insurance, taxes, and administrative costs | \$0 | \$202,000 | \$202,000 |
| Cost of relicensing | \$364,000 | \$0 | \$30,525 |
| Protection, Mitigation, and/or Enhancement Measures | \$0 | \$15,000 | \$15,000 |
| Total | \$364,000 | \$403,500 | \$434,025 |

¹ Based on 40-year license term and 8% interest rate.

3 INFORMATION TO BE PROVIDED BY AN APPLICANT WHO IS AN EXISTING LICENSEE

3.1 Measures Taken or Planned to Ensure Safe Management, Operation, and Maintenance of the Project

3.1.1 Existing and Planned Operation of the Project during Flood Conditions

As a significant hazard potential facility, the Project is subject to Emergency Action Plan (EAP) requirements under Part 12-C of the Commission's regulations. The Project's EAP outlines specific monitoring, response, and communications actions by the Co-Licensees' operations staff and emergency response authorities under various potential emergency levels. The EAP is maintained and tested annually in compliance with the Commission's regulations and EAP guidelines.

3.1.2 Warning Devices for Downstream Safety

The Project dam is considered a significant hazard potential structure and has a Dam Safety Surveillance and Monitoring Plan (DSSMP). There are warning lights and sirens around the Project dam and powerhouse as well as warning signage upstream and downstream of the Project facilities to warn the public of potentially hazardous conditions. The generating equipment and dam facilities are monitored from the powerhouse and remotely via a mobile application that interfaces with the Programmable Logic Controller installed on the generating and control equipment.

3.1.3 Operational Changes that Might Affect the Emergency Action Plan

There are no proposed changes either to the Project operations or facilities that would affect the existing EAP.

3.1.4 Existing and Planned Maintenance and Monitoring Programs and Monitoring Devices

Over the previous license term, the Co-Licensees have deployed staff gauges to monitor water levels and other conditions at the Project. Headpond elevation is monitored manually daily. In addition to the instrumentation, the Project is subject to regular visual inspections as part of the Project's DSSMP and the Co-Licensee's overall dam safety program. Additional information regarding dam safety and monitoring devices is classified as CEII and is on file with the Commission.

3.1.5 Project Employee Safety and Public Safety Record

The Co-Licensees manage the Project consistent with their long-standing commitment to employee safety. This commitment begins with compliance with applicable local, state, and federal regulations regarding the safe operation of industrial and electrical facilities. Because the Co-Licensees operate the Project's generation facilities, this commitment is implemented primarily through a rigorous safety program. Detailed inspection and maintenance programs

ensure employee and contractor safety relative to operating equipment and facilities. The safety program involves employee and contractor training sessions, as well as making safety information available to employees.

The Co-Licensees place a high priority on public safety at the Project and maintain public safety measures (lighting, signage, markers, fencing, etc.) consistent with plans filed with the FERC's Regional Office. In accordance with 18 CFR 12.10, the Co-Licensees file public safety incident reports with the Commission.

3.2 Current Operation of the Project

Project operation is described in Exhibit A.

3.3 Project History and Upgrades to Operations and Maintenance Programs

The dam, powerhouse, and fish passage facilities at the Project were originally constructed between 1902 and 1904. In the late 1800s, just prior to this period, Danville's enterprising citizens founded the Riverside Cotton Mills (DHS, nd). By the early 1900s, the Project was being constructed. The Riverside Cotton Mills in Danville became the largest textile mill in the southern United States. As a result, a small village called Schoolfield emerged to support the burgeoning mills. The Village of Schoolfield is located just south of the Project dam and was subsequently annexed by the City of Danville in 1951 (DHS, nd). Adjacent to the village is the Schoolfield Mill, which began operating in 1904 when the hydroelectric project was complete and able to provide power to the mill. In 2006, the mill closed. Prior to the issuance of the existing license, the licensee at the time renovated the generation equipment in 1990 and 1991, replacing all the original equipment.

Since owning and operating the Project, the Licensees have ensured its continued reliable and safe operation. The Licensees will continue to strive to deliver the same level of reliable and safe operation through the term of any new license.

3.4 Lost Generation Over the Previous Five Years

To maximize energy production from the facility, the Co-Licensees have a consistent record of addressing outages immediately and implementing preventive measures. During the five-year period of 2018 through 2022, there have been 14 unscheduled outages. [Table 3.4-1](#) presents a summary of the unscheduled outages at the Project from 2018 through 2022.

3.5 Record of Compliance with the Existing License Terms and Conditions

The Project has been, and continues to be, in compliance with the terms and conditions of the current license. Over the term of the current license, the Project has been subject to FERC's standard operational and environmental inspections. Any compliance-related issues found during the inspections have been promptly addressed by the Co-Licensees.

3.6 Licensee Actions Related to the Project that Affect the Public

The Project provides direct renewable electricity to the customers of the City of Danville and surrounding communities. This alone significantly affects the general public by providing a low-cost and renewable-energy source to the Co-Licensees' customers and offsetting outside purchases of wholesale electricity.

3.7 Ownership and Operating Expense Reductions if the Project License was Transferred

If the Project license were transferred to another entity, the Co-Licensees' cost of operating and maintaining the Project (see Exhibit A) would be eliminated.

3.8 Annual Fees for Use of Federal or Tribal Lands

The Co-Licensees do not pay annual charges for Federal or Native American tribal reservation lands because the Project does not occupy any such lands.

Schoolfield Hydroelectric Project (FERC No. 2411)
EXHIBIT H – PLANS AND ABILITY TO OPERATE THE PROJECT

Table 3.4-1. Unscheduled outages at the Project, 2018 through 2022.

| Date | Time Off hh:mm) | Time On (hh:mm) | Outage Duration (hrs:min) | Description |
|-------------|----------------------------|----------------------------|--|-------------------------|
| 2/9/2018 | 22:45 | 0:00 | 1:15 | Power Outage |
| 2/10/2018 | 0:00 | 5:15 | 5:15 | Power Outage |
| 4/15/2018 | 18:00 | 19:05 | 1:05 | Utility Trip |
| 7/6/2018 | 18:40 | 21:20 | 2:40 | Utility Trip |
| 8/1/2018 | 20:00 | 21:30 | 1:30 | Power Outage |
| 5/29/2019 | 19:00 | 21:00 | 2:00 | Power Outage |
| 1/16/2020 | 10:45 | 16:45 | 6:00 | Power Outage |
| 3/19/2020 | 8:30 | 12:40 | 4:10 | Utility Trip |
| 5/2/2020 | 8:30 | 12:30 | 4:00 | Utility Trip |
| 7/10/2020 | 20:30 | 22:30 | 2:00 | Power Outage |
| 9/26/2020 | 15:15 | 20:30 | 5:15 | Power Outage |
| 6/28/2021 | 8:30 | 9:15 | 0:45 | Turbines #4,5, & 6 Trip |
| 8/30/2021 | 20:00 | 22:15 | 2:15 | Power Outage |
| 1/3/2022 | 9:00 | 13:00 | 4:00 | Power Outage |