

Hydropower Project License Summary

YADKIN AND PEE DEE RIVERS, NORTH CAROLINA

YADKIN-PEE DEE HYDROELECTRIC PROJECT (P-2206)



Tillery Dam

Photo Credit: Duke Energy

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Hydropower Reform Coalition

and

River Management Society

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YADKIN-PEE DEE HYDROELECTRIC PROJECT (P-2206)

DESCRIPTION:

The Yadkin-Pee Dee project is located on the Yadkin and Pee Dee Rivers in Anson, Montgomery, Richmond, and Stanly counties in North Carolina. The project consists of two developments: the Tillery Development (84 MW) and the Blewett Falls Development (24.6 MW).

The Yadkin River originates in the Blue Ridge Parkway in northwestern part of North Carolina and flows into the Pee Dee River at the confluence of Uwharrie River, eventually into the Atlantic Ocean at Winyah Bay in South Carolina.

A. SUMMARY

1. License application filed: March 7, 2013
2. License Issued: April 1, 2015
3. License expiration: March 31, 2055
4. Capacity: 108.6 MW
5. Waterway: Yadkin River and Pee Dee River
6. Counties: Anson, Montgomery, Richmond, and Stanly, North Carolina.
7. Licensee: Duke Energy Progress, Inc.
8. Licensee Contact:
 - Tami Styer
 - Phone: 704-382-0293
 - E-mail at Tami.Styer@duke-energy.com.
9. Project Website: <http://www.duke-energy.com/lakes/yadkin-peedee/yadkin-peedee-licensing.asp>
10. Settlement Agreement:
<http://elibrary.ferc.gov/idmws/common/OpenNat.asp?fileID=11407671>
11. Settlement Agreement Signed: July 30, 2007
12. Settlement Parties: Duke Energy (then Progress Energy); North Carolina DENR; North Carolina WRC; South Carolina DHEC; South Carolina DNR; Montgomery County, North Carolina; the Fairway Shores Homeowner's Association; the Pee Dee River Coalition; the Carolina Forest Association; Land Trust for Central North Carolina; The Nature Conservancy; Jordan Timberlands; and the Coastal Conservation League.
13. Project area: The Yadkin – Pee Dee Project is located in the Pee Dee River Basin, which drains a portion of the eastern slopes of the Blue Ridge Mountains and some of the Piedmont areas of central North Carolina. The Yadkin River, from its headwaters near Blowing Rock, North Carolina, flows 203 miles in an easterly direction then turns south across North Carolina's densely populated mid-section that includes the urban areas of Winston-Salem, Charlotte, Statesville, Lexington, and Salisbury. It flows through five reservoirs before it joins the Uwharrie River at the upper end of Lake Tillery to form the Pee Dee River. The Pee Dee River then flows through Lake Tillery and Blewett Falls Lake, and for another 230 miles to South Carolina's Winyah Bay and the Atlantic Ocean.
14. Project Facilities: The Yadkin-Pee Dee Project includes the following two developments:

- a. The Tillery development
 - 16-mile-long and 5,697-acre reservoir known as Lake Tillery
 - 2,752-foot-long Tillery Dam
 - 310-foot-long powerhouse intake
 - Powerhouse containing three 22 MW Francis turbines, one 18 MW fixed-blade propeller turbine for a total of 84 MW
 - no primary transmission lines associated with the development (Power from the Tillery development is sent to a sub-station, located in the vicinity of the powerhouse)

- b. Blewett Falls Development
 - 12-mile long and 2,866-acre reservoir known as Blewett Falls Lake
 - 3,488-foot-long dam
 - 300-foot-long powerhouse intake
 - Powerhouse containing three 3.2 MW and three 5 MW turbine for a total capacity of 24.6 MW
 - 1,750-foot-long bypassed reach on the Pee Dee River
 - no primary transmission lines associated with the development (Power from the Blewett Falls development is sent to a sub-station, located in the vicinity of the powerhouse)

B. IMPORTANT PROVISIONS AND REQUIREMENTS IN LICENSE

The license requires a number of measures to protect and enhance fish, wildlife, recreation, cultural, and aesthetic resources at the project.

1. Plans and Reports [Reference: License Article 401]

The license requires Duke Energy Progress to file the following plans for Commission along with documentation that the plans were prepared in consultation with North Carolina Wildlife Resources Commission (North Carolina WRC) and the South Carolina Department of Natural Resources (South Carolina DNR), and received approval from North Carolina DWQ, FWS, and NMFS, as appropriate.

Plan Name	Required by	Due Date
Aquatic Life Monitoring Plan	Water Quality Certification Condition No. 7	October 1, 2015
American Shad Population Monitoring Plan	US FWS Fishway Prescription Section 2.1, ¶ 7 and NMFS’ Fishway Prescription B.3	January 1, 2016
Hydraulic Model Study Plan	US FWS Fishway Prescription, Section 2.2, ¶ 11 and NMFS’ Fishway Prescription C.5	April 1, 2016
Fish Passage Operation, Monitoring, and Maintenance Plan, including Post Construction Evaluation	US FWS Fishway Prescription, Section 2.2 ¶ 15 and NMFS’ Fishway Prescription B.5 and B.6	October 1, 2019
Adult American Shad Movement Study Plan	US FWS Fishway Prescription, Section 2.2, ¶ 17 and NMFS’ Fishway Prescription B.3	October 1, 2019
Downstream Fishway Effectiveness Evaluation	US FWS Fishway Prescription, Section 2.3, ¶ 23 and NMFS’ Fishway Prescription B.3	October 1, 2019

Plan Name	Required by	Due Date
Methodology		
American Shad Outmigration Study Plan	US FWS Fishway Prescription, Section 2.3, ¶ 26 and NMFS’ Fishway Prescription B.3	October 1, 2019
American Eel Upstream Movement Study Plan	US FWS Fishway Prescription, Section 3.1, ¶ 30 and NMFS’ Fishway Prescription B.3	January 1, 2016
American Eel Annual Monitoring Plan	US FWS Fishway Prescription, Section 3.1, ¶ 36 and NMFS’ Fishway Prescription B.3	October 1, 2021
Downstream American Eel Passage Study Plan	US FWS Fishway Prescription, Section 3.2, ¶ 39 and NMFS’ Fishway Prescription B.3	April 1, 2020

Duke Energy is also required to file the following reports:

Description	Required by	Due Date
Annual Project Compliance Report	Water Quality Certification Condition No. 9	By March 15 of each year for the prior calendar year
Blewett Falls Lake Sediment Survey	Water Quality Certification Condition No. 9	April 1, 2020
Annual Diadromous Fish Restoration Progress Report	FWS Fishway Prescription ^a Section 6.4, ¶ 51 and 52	By May 31 of the year following the annual assessment
Comprehensive Diadromous Fish Assessment	FWS Fishway Prescription ^a Section 6.4, ¶ 53	By December 31, 2025

Note: NMFS’ fishway prescription does not specifically require the diadromous fish report and assessment, though these measures are a part of the Yadkin – Pee Dee River Diadromous Fish Passage Plan Agreement to which NMFS is a signatory.

2. Flows [Reference: License Article 403, Water Quality Certification Condition 9 and Comprehensive Settlement Agreement Sections 2.1.3.2 and 2.1.4.2]

The minimum flows below for the project below the Blewett Falls and Tillery Dam were agreed upon through the comprehensive settlement. The parties agreed to the following flow regime which was approved by FERC in its license.

Blewett Falls

Time Period	Flows in cfs (cubic feet per second)
February 1 – May 15	2,400 cfs
May 16 – May 31	1,800 cfs
June 1 – January 31	1,200 cfs

Tillery Development

The license requires Duke Energy to provide a continuous year-round minimum flow of 330 cfs. However, to enhance American shad spawning, Duke Energy must provide a minimum flow of 725 cfs for a period of eight continuous weeks commencing as early as March 15, but no later than March 22.

3. Fish Passage [Reference: Fish Passage Agreement]

Duke Energy, FWS, NMFS, North Carolina WRC, and South Carolina DNR signed a Fish Passage Plan Agreement on February 5, 2008 to resolve fish passage issues at the project. Under the agreement, Duke Energy will provide upstream and downstream passage for American shad and American eel at the project (Sections 1 and 2). In Phase I (after the license issuance in April 2015, Duke will design, construct, and operate a trap, sort, and truck (TST) facility at the Blewett Falls development to capture pre-spawn adult American shad and transport them to river reaches (Reaches 1 and 2) upstream of Blewett Falls Dam. Beginning five spawning seasons after license issuance, Duke Energy would trap and transport adult American shad to either Reach 1 or Reach 2. Duke Energy would also monitor the movement and reproduction of adult shad in Reach 1 and Reach 2. Duke Energy would operate the facility for a period not to exceed 10 weeks, from March 1 through May 31.

In Phase II, Duke Energy would provide volitional upstream passage at Blewett Falls Dam (Phase 2) by 2025. Duke Energy would maintain the TST facility for the duration of the license to provide a means of capturing and moving fish to the river reaches upstream of Tillery Dam.

Duke Energy will also provide downstream American shad passage at the Blewett Falls development concurrent with construction of the Phase 1 upstream passage facilities at Blewett Falls Dam to be operational by 2019. Duke Energy will operate the downstream passage facility from September through December, and would conduct an outmigration study during the first 3 years of operation.

To facilitate the effective placement of an upstream eel passage facility, Duke Energy will monitor American eel movement in the Pee Dee River downstream from Blewett Falls Dam until 2018. Following this monitoring effort, Duke Energy will design, construct, and operate an upstream eel lift at Blewett Falls Dam. Duke Energy will begin operating the facility by 2020, and operate the facility from March 15 through June 15 each year.

The FWS and NMFS both used their authorities under Section 18 of the Federal Power Act to prescribe fishway for the project. However, after the Fish Passage Agreement, FWS and NMFS revised their prescriptions in December 2007 and February 2008 respectively based on the agreement.

4. Recreational Flow [Reference: License Article 406 and Comprehensive Settlement Agreement Section 2.1.4.3]

Per the settlement, Duke Energy will release an additional 1,750 acre-feet of water per year above and beyond the required minimum flows below the Tillery Development. This may be increased to 1,950 acre-feet per year if releases for recreation purposes are made for at least four days within the period of May 16 to May 31 or September 1 to September 15.

The license requires Duke Energy to file a Recreation Flow Release Plan for the Tillery Reach of the Pee Dee River by April 1, 2016 that will determine how to allocate the 1,750 acre-feet or the 1,950 acre-feet of water from Lake Tillery for boating and angling during the

recreation season (May 15 through September 15) from Tillery Dam to Highway 109 Access Area. The Plan shall be prepared in consultation with NC DENR and NC WRC.

5. Water Quality [Reference: Water Quality Certification Condition No. 7]

The Water Quality Certification issued by the NC DENR requires Duke Energy to conduct post-licensing monitoring of aquatic life below Tillery Dam. Per the requirement, Duke Energy will conduct biological monitoring to aquatic macrobenthos using methodology approved by the NDCWQ. The monitoring shall be conducted during July or August each sampling event shall be conducted during the same three week window during July or August to reduce variability.

The settlement which was agreed upon in 2007 before the license was issued in 2015 required Duke Energy to meet Dissolved Oxygen standards by December 2011. If dissolved oxygen levels are less than the applicable water quality standard after those improvements, Progress Energy Carolinas, Inc. shall propose additional measures to NCDWQ in order to meet that standard. Such measures, as agreed upon in writing by NCDWQ, shall be implemented by Progress Energy Carolinas, Inc. at an agreed-upon schedule

6. Stream Protection Measures [Reference: Comprehensive Settlement Agreement Section 2.5]

Per the settlement agreement, by April 1, 2020 Duke Energy will donate to State of North Carolina various tracts of land it owns along the Pee Dee River below Blewett Falls Dam on both the east and west river banks extending from the Dam to below the Hwy 74 bridge and including lands adjacent to the highly valued river shoals located below Hwy 74. These lands, which include Gabbro Slopes and other valuable riparian and wetland complexes, will have a total acreage of approximately 1600 acres.

By April 1, 2020, Duke Energy will also donate the North Carolina lands it presently owns along the eastern bank of the Pee Dee River extending downstream from the Hwy 731 bridge for four miles (approximately 300 acres).

7. Sediment [Reference: Comprehensive Settlement Agreement Section 2.6]

After five years from license issuance, Duke Energy will conduct a sediment survey in Blewett Falls Lake and a grave recruitment survey in the Blewett Falls tailwater. If results indicate that there is still no significant problem related to gravel recruitment, then Duke Energy will conduct another survey after an additional 10 years

C. MAP

There are two convenient ways to become familiar with this project on the Hydropower Reform Coalition website, www.hydroreform.org.

- Go directly to the project page <http://www.hydroreform.org/projects/yadkin-pee-dee-p-2206>
- To understand the geographical context of the project, visit the *On Your River* section of the site. This link (<http://www.hydroreform.org/on-your-river/South>) will take you to the section for rivers in the South. Zoom in towards South Central North Carolina. The Yadkin-Pee Dee project is the marker south of the Uwharrie National Forest just north of Rockingham, NC.