BEAVER RIVER PROJECT DESCRIPTION

Erie Boulevard Hydropower, L.P.’s (Erie’s) Beaver River Project (FERC No. 2645) consists of eight hydroelectric developments along the Beaver River in Lewis and Herkimer Counties, New York.

The developments are operated in a coordinated manner as store-and-release facilities primarily to meet peak demand. Flows reaching the Project are controlled by releases from the Hudson River-Black River Regulating District’s (Hudson-Black) Stillwater Reservoir Project No. 6743, located approximately five miles upstream of the most upstream Beaver River Project development, Moshier.

The Project was constructed between 1903 and 1930. Four of the developments (Moshier, Eagle, Soft Maple and Taylorville) have extensive bypassed reaches. These range from about 3,850 feet at Eagle to over 11,700 feet at Moshier.

The eight hydropower dams and powerhouses that comprise Erie’s Beaver River Project are located in the Towns of Croghan and Watson in Lewis County and in the Town of Webb in Herkimer County, New York. Progressing downstream these are the Moshier (RM 29.9), Eagle (23.0), Soft Maple (RM 21.0), Effley (RM 16.9), Elmer (RM 16.2), Taylorville (RM 14.8), Belfort (RM 13.5) and High Falls (RM 11.0) developments.

Beaver River Project

Moshier Development

The Moshier Development consists of: (1) a 920-foot-long by 93-foot-high earth embankment dam containing a 200-foot-long concrete spillway topped with two-foot-high flashboards and a 53-foot-long non-overflow concrete abutment; (2) an impoundment which, at the normal maximum surface elevation of 1,641 feet National Geodetic Vertical Datum (NGVD), has a surface area of 340 acres, a gross storage capacity of 7,339 acre-feet, and a usable capacity of 4,463 acre-feet; (3) a 28-foot-wide by 51-foot-high concrete intake structure containing two 11-
foot-wide by 51-foot-high trashracks and two 10-foot-wide by 12-foot-high steel slide gates; (4) a 3,740-foot-long by 10-foot-diameter steel penstock connected to a 5,620-foot-long by 10-foot-diameter fiberglass reinforced plastic penstock for a total penstock length of 9,360 feet; (5) an excavated tailrace channel; (6) a 30-foot-diameter steel surge tank; (7) a penstock bifurcation downstream of the surge tank that divides into two 70-foot-long by 7-foot-diameter steel penstocks; (8) a 34-foot-wide by 70-foot-long concrete/masonry powerhouse containing two vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 4,000 kilowatts (kW), a hydraulic capacity of 330 cfs, and a design head of 196 feet; (9) a 36-inch-diameter minimum flow pipe and butterfly valve; (10) an 11-mile-long, 115-kV transmission line; and (11) appurtenant equipment.

Photo 1. Powerhouse and surge tank at Moshier Development.
Eagle Development

The Eagle Development consists of: (1) a 365-foot-long by 21-foot-high concrete gravity dam containing a 185-foot-long ogee spillway topped with 1-foot flashboards and an 85-foot-long, non-overflow concrete abutment; (2) an impoundment which, at the normal maximum surface elevation of 1,426.2 feet (NGVD), has a surface area of 138 acres, a gross storage capacity of 668 acre-feet, and a usable capacity of 123 acre-feet; (3) a 20-foot-wide gated log sluice; (4) a 50-foot-long headgate structure with four 9.5-foot-wide stop log slots and four 9.5-foot by 9.5-foot trashracks; (5) an 18-foot-wide by 16-foot-deep by 540-foot-long forebay canal; (6) a concrete intake structure containing three 10-foot-wide by 7-foot-high timber slide gates; (7) a 2,725-foot-long by 9-foot-diameter steel penstock; (8) a 63-foot-wide by 87-foot-long concrete/masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,350 kW (units 1 through 3) and 2,000 kW (unit 4), hydraulic capacities of 150 cfs (units 1 through 3) and 200 cfs (unit 4), and design
heads of 135 feet (units 1 through 3) and 125 feet (unit 4); (9) a 5-foot-wide aluminum slide gate that supplies minimum flow to the bypass; (10) a 300-foot-long tailrace channel; (11) a 160-foot-long, 115-kV transmission line; and (12) appurtenant equipment.

Photo 3. Powerhouse at Eagle Development.

Soft Maple Development

The Soft Maple Development consists of: (1) five earth embankment dikes; (2) a 910-foot-long by 115-foot-high earth embankment diversion dam; (3) a 720-foot-long by 100-foot-high earth embankment terminal dam; (4) an impoundment which, at the normal maximum surface elevation of 1,289.9 feet (NGVD), has a surface area of 400 acres, a gross storage capacity of 2,678 acre-feet, and a usable capacity of 1,150 acre-feet; (5) a 144-foot-long concrete ogee spillway with 1.5-foot-high flashboards; (6) two 10-foot-wide aluminum sluice gates; (7) a 600-foot-long forebay; (8) an 81.5-foot-wide concrete intake structure containing three 26-foot-wide by 33.5-foot-high trashracks; (9) two 530-foot-long by 11.5-foot-diameter steel penstocks; (10) intake facilities for an additional penstock; (11) an 82-foot-wide by 50-foot-long
concrete/masonry powerhouse containing two identical vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 7,500 kW, a hydraulic capacity of 860 cfs, and a design head at 121.5 feet; (12) an excavated tailrace channel; (13) a 20-foot-long, 115-kV transmission line; and (14) appurtenant equipment.

Photo 4. Powerhouse at Soft Maple Development.

Effley Development

The Effley Development consists of: (1) a 647-foot-long by 30-foot-high concrete gravity dam containing a 430-foot-long by 30-foot-high concrete ogee spillway and a 188-foot-long non-overflow concrete abutment; (2) a gated 29-foot-long log chute; (3) an impoundment which, at the normal maximum surface elevation of 1,163 feet (NGVD), has a surface area of 340 acres, a gross storage capacity of 3,140 acre-feet, and a usable capacity of 1,420 acre-feet; (4) a 100-foot-long forebay; (5) a 38.5-foot-wide intake structure containing a 22-foot-wide by 22-foot-high trashrack and three 6-foot-wide by 8-foot-high timber slide gates; (6) a 36-foot-wide concrete intake structure containing a 20-foot-wide by 27-foot-high trashrack and an 11-foot by 11-foot
slide gate; (7) three 87-foot-long by 5-foot-diameter steel penstocks and one 148-foot-long by 8-foot-diameter steel penstock; (8) two concrete/masonry powerhouses, one that is 58-feet-wide by 53-feet-long containing three horizontal Francis turbines connected to direct-drive synchronous generators rated at 400 kW (units 1 and 2) and 560 kW (unit 3) with hydraulic capacities of 135 cfs (units 1 and 2) and 200 cfs (unit 3) and design heads of 55 feet (units 1 and 2) and 54 feet (unit 3) and the second that is 42.5-feet-wide by 44-feet-long containing a single vertical Francis turbine connected to a direct-drive synchronous generator rated at 1,600 kW, with a hydraulic capacity of 450 cfs and a design head of 52.6 feet; (9) excavated tailrace channels; (10) a 2.3-mile-long, 23-kV transmission line; and (11) appurtenant equipment.

Photo 5. Powerhouse at Effley Development.
Elmer Development

The Elmer Development consists of: (1) a 238-foot-long by 23-foot-high concrete gravity spillway; (2) a 25-foot-wide sluice gate with needle beams; (3) an impoundment which, at the normal maximum surface elevation of 1,108 feet (NGVD), has a surface area of 34 acres, a gross storage capacity of 345 acre-feet, and a usable capacity of 138 acre-feet; (4) a forebay; (5) a 39-foot-wide concrete intake structure containing two 16.5-foot-wide by 21.5-foot-high trashracks and four 6-foot-wide by 11-foot-high timber slide gates; (6) a 78-foot-wide by 34-foot-long concrete/masonry powerhouse containing two vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 750 kW, a hydraulic capacity of 290 cfs, and a design head of 37 feet; (7) an excavated tailrace channel; (8) a 2,270-foot-long, 23-kV transmission line; and (9) appurtenant equipment.
**Taylorville Development**

The Taylorville Development consists of: (1) a 1,003-foot-long by 23-foot-high concrete gravity dam; (2) an impoundment which, at the normal maximum surface elevation of 1,076.6 feet (NGVD), has a surface area of 170 acres, a gross storage capacity of 1,091 acre-feet, and a usable capacity of 406 acre-feet; (3) a 33-foot-wide concrete intake structure containing a 25-foot-wide by 20-foot-high trashrack and three 5.5-foot-wide by 13-foot-high timber slide gates; (4) a 2,725-foot-long by 9.5-foot-diameter steel penstock; (5) an 18-foot-diameter surge tank located about 40 feet upstream of the powerhouse; (6) a 93-foot-wide by 62.5-foot-long concrete/masonry powerhouse containing four horizontal Francis turbines connected to direct-drive synchronous generators, with rated capacities of 1,100 kW (units 1 and 2), 1,372 kW (unit 3), and 1,200 kW (unit 4), each with a hydraulic capacity of 180 cfs, and a design head of 96.6 feet; (7) an excavated tailrace channel; (8) two 7.5-foot-wide aluminum slide gates for minimum flows; (9) a 400-foot-long, 23-kV transmission line; and (10) appurtenant equipment.

![Photo 7. Powerhouse and surge tank at Taylorville Development.](image)
Belfort Development

The Belfort Development consists of: (1) a 206-foot-long by 17-foot-high concrete gravity dam with a 161-foot-long concrete ogee spillway equipped with 2-foot-high flashboards; (2) an impoundment which, at the normal maximum surface elevation of 966 feet (NGVD), has a surface area of 50 acres, a gross storage capacity of 120 acre-feet, and a usable capacity of 73 acre-feet; (3) a 120-foot-long forebay; (4) a 62-foot-wide concrete intake structure containing one 12-foot-wide by 17-foot-high trashrack, one 12-foot-wide by 23-foot-high trashrack, and two 11-foot by 11-foot timber slide gates; (5) one 52-foot-long by 7-foot-diameter steel penstock and one 52-foot-long by 7.5-foot-diameter steel penstock and penstock bifurcation; (6) a 78-foot-wide by 39-foot-long concrete/masonry powerhouse containing three horizontal Francis turbines connected to direct-drive synchronous generators, with a rated capacity of 400 kW (unit 1), 640 kW (unit 2), and 1,000 kW (unit 3), with hydraulic capacities of 200 cfs (units 1 and 2) and 310 cfs (unit 3), each with a design head of 48 feet; (7) a 400-foot-long tailrace channel; (8) a 3,540-foot-long, 23-kV transmission line; and (9) appurtenant equipment.
High Falls Development

The High Falls Development consists of: (1) a 1,233-foot-long, 50-foot-high concrete gravity dam containing a 470-foot-long non-overflow concrete gravity section and a 650-foot-long concrete ogee spillway; (2) an impoundment which, at the normal maximum surface elevation of 915 feet (NGVD), has a surface area of 145 acres, a gross storage capacity of 1,058 acre-feet, and a usable capacity of 135 acre-feet; (3) a 64 foot-wide by 29-foot-high concrete intake structure containing four 12-foot-wide by 20.5-foot-high trashracks and four steel slide gates; (4) a 49-foot-wide log sluice that has been sealed; (5) a 605-foot-long by 12-foot-diameter riveted steel penstock; (6) a 34-foot-wide by 99-foot-long concrete/masonry powerhouse containing three vertical Francis turbines connected to direct-drive synchronous generators, each with a rated capacity of 1,600 kW, a hydraulic capacity of 300 cfs, and a design head of 100 feet; (7) a spare turbine bay for future expansion; (8) a 3.7-mile-long, 23 kV transmission line; and (9) appurtenant equipment.
Photo 10. Powerhouse and dam at High Falls Development.
LOCATION OF BEAVER RIVER PROJECT DAMS AND OTHER BEAVER RIVER DAMS
EAGLE DEVELOPMENT
EFFLEY DEVELOPMENT
TAYLORVILLE DEVELOPMENT

Taylorville Powerhouse

Taylorville Dam
BELFORT DEVELOPMENT

Belfort Powerhouse

Belfort Dam
ATTACHMENT B

QUESTION 6:

FEBRUARY 5, 1995 BEAVER RIVER PROJECT SETTLEMENT OFFER

AUGUST 2, 1996 ORDER ISSUING NEW LICENSE (P-2645)

AUGUST 24, 1995 WATER QUALITY CERTIFICATION