

**DOCKET NO. D-2016-004-1**

**DELAWARE RIVER BASIN COMMISSION**

**Birdsboro Power, LLC**

**Consumptive Use**

**Birdsboro Borough and Exeter and Robeson Townships, Berks County, Pennsylvania**

**PROCEEDINGS**

This docket is issued in response to an Application submitted to the Delaware River Basin Commission (DRBC or Commission) by Skelly and Loy Engineering and Environmental Consultants, Inc. on behalf of Birdsboro Power, LLC (Birdsboro Power) on May 23, 2016 (Application) for a new energy generating facility and its associated consumptive use.

The Application was reviewed for approval under Section 3.8 of the *Delaware River Basin Compact*. The Berks County Planning Commission has been notified of pending action. A public hearing on this project was held by the DRBC on November 9, 2016.

**A. DESCRIPTION**

- 1. Purpose.** The purpose of this docket is to approve the applicant's proposed Birdsboro Power energy generating facility project and its consumptive water use. The project consists of the construction of a nominal 485 megawatt (MW) electric generation facility employing natural gas-fired combined-cycle (NGCC) combustion turbines; and appurtenant water and electric transmission lines. The new energy generating facility proposes to consumptively use up to 2.72 million gallons per day (mgd) of surface water to be provided by the Reading Area Water Authority (RAWA). The docket also constitutes a special use permit in accordance with section 6.3.4 of the Commission's *Flood Plain Regulations* (18 CFR 415.33).
- 2. Location.** The Birdsboro Power facility will be constructed at the former Armorcast steel foundry and machine company site located on Armorcast Road, adjacent to and just south of the Schuylkill River, in Birdsboro Borough, Berks County, Pennsylvania. The Schuylkill River near the project site is designated by the Pennsylvania Department of Environmental Protection (PADEP) as supporting Warm Water Fishes (WWF) and Migratory Fishes (MF).
- 3. Area Served.** The consumptive use of water detailed in this docket is only as a result of the Birdsboro Power NGCC electric generating facility located in Birdsboro Borough, Berks County, Pennsylvania, as delineated on the map entitled "Location Map" submitted with the application. Water for the facility will be supplied by RAWA and under emergency situations,

by the Birdsboro Municipal Authority (BMA). Wastewater from the facility will be conveyed to the BMA wastewater treatment plant.

**4. Physical features.**

**a. Design criteria.** The docket holder proposes to construct a new nominal 485 MW energy generation facility that will consumptively use up to 2.72 mgd of water. Water will be supplied through a 2-mile, 16-inch interconnection with the RAWA water distribution system and generated energy will be transmitted along a 4-mile long, 230-kilovolt (kV) electric transmission line.

**b. Facilities.** The power block of the new electric generation facility will consist of the following:

One (1) H class single shaft unit consisting of the following components:

- Combustion turbine generator (CT) equipped with low NO<sub>x</sub> combustion systems, inlet evaporative cooling, utilizing only natural gas as a fuel.
- Synchronous generator with auxiliary power system supplied static excitation system.
- Steam turbine (ST), two casing reheat, combined HP/IP with downward, side exhaust LP.
- Steam electric superheater.

One (1) three pressure, three drum heat recovery steam generator (HRSG). Includes selective catalytic reduction (SCR) for NO<sub>x</sub> control and an oxidation catalyst for CO reduction.

One (1) two-winding 230/23.5 kV generator step-up transformer.

One (1) multi-cell, wet, mechanical draft cooling tower and circulating water system.

The nominal rating of the facility is 485 MW. The anticipated average and maximum water demand to operate the facility is estimated to be 2.70 mgd and 3.07 mgd, respectively. Corresponding consumptive use will range from approximately 2.35 mgd to 2.72 mgd. The project does not propose a new surface or groundwater withdrawal. Make-up water for the cooling tower will be provided by RAWA. RAWA owns an existing surface water intake on the Lake Ontelaunee Reservoir from which it provides water supply to residential, commercial, and industrial users. RAWA will construct an interconnection to serve the Birdsboro Power facility.

The water supply interconnection between RAWA and Birdsboro Power will be a 16-inch diameter pipe, which will run approximately 2.5 miles northwest from the Birdsboro Power facility along Route 724 through Robeson Township and Kenhorst Borough to RAWA's water distribution system. By agreement, the Birdsboro Power facility will also include an emergency water supply interconnection with the BMA. This interconnection will be used in an emergency only; it will not be used for normal operations.

Cooling tower blowdown, quench water, sanitary wastewater, and any water treatment reject water will be discharged to the BMA wastewater treatment plant located adjacent to the NGCC plant to the west. The NGCC Plant will discharge an average of approximately 0.35 mgd and a maximum of approximately 0.45 mgd of wastewater to the BMA wastewater treatment plant. The BMA sewage treatment facility was most recently approved by DRBC Docket No. D-1974-126 CP-3 on September 16, 2015. The PADEP issued its most recent NPDES Permit No. PA0021709 on July 28, 2010 for this treatment facility. A renewal application was received by the PADEP on February 2, 2015 and is currently pending approval. The treatment facility has adequate capacity to continue to receive wastewater from the project.

**c. Other.** The Birdsboro Power facility is located inside the 100-year regulatory flood plain and within the *flood fringe* according to DRBC's *Flood Plain Regulations* (18 CFR part 415). Prior to construction of the facilities, the project site land surface elevation will be raised 4 feet with compacted soil fill. The final grade will be at least 1 foot above the regulatory flood elevation to comply with the Commission's *Flood Plain Regulations*.

**d. Cost.** The overall cost of this project is estimated to be approximately \$399,000,000.

## **B. FINDINGS**

The docket holder submitted an Application for approval of a new Birdsboro Power energy generating facility. The project will include a consumptive water use of greater than 100,000 gallons per day (gpd). The project consists of the construction of a nominal 485 MW electric generation facility, employing NGCC combustion turbines. The new energy generating facility proposes to consumptively use up to 2.72 mgd of water to be provided by the RAWA.

### **Water Supply**

The project does not propose a new surface or groundwater withdrawal. Make-up water for the cooling tower will be provided by RAWA. RAWA owns an existing surface water intake on the Lake Ontelaunee Reservoir, from which it provides public water supply to residential, commercial, and industrial users in the City of Reading and surrounding areas. RAWA's surface water withdrawal is described in detail in DRBC Docket No. D-2000-059 CP-2, approved by the DRBC on May 11, 2011. The docket includes a surface water withdrawal allocation of 35 mgd (1,085 million gallons per month) provided that the water is available in the Lake Ontelaunee Reservoir. The estimated water demand of the Birdsboro Power facility is 2.70 mgd to 3.07 mgd.

The water supply interconnection between RAWA and Birdsboro Power will be a 16-inch diameter pipe, which will run approximately 2.5 miles northwest from the Birdsboro Power facility along Route 724 through Robeson Township and Kenhorst Borough to RAWA's water distribution system. The interconnection approved in this docket will be acknowledged and

incorporated into RAWA’s Area Served and list of interconnections in the next renewal of or modification to Docket No. D-2000-059 CP-2 (RAWA Surface Water Withdrawal and Interconnection Project) in the future.

By agreement, the Birdsboro Power facility will also include an emergency water supply interconnection with the BMA. This interconnection will be used in an emergency only; it will not be used for normal operations. The BMA does not have adequate capacity to supply the Birdsboro Power facility’s peak or average water demand, so any emergency use would be required to be short term/temporary and at reduced useage by Birdsboro Power.

**Water Availability Study**

Docket No. D-2000-059 CP-2 requires RAWA to provide a minimum conservation release equal to 28.8 cfs (based on an average of 0.15 cfs per square mile for the contributing drainage area) or the inflow to the Lake Ontelaunee Reservoir, whichever is less, when the reservoir level is less than 300 feet above mean sea level (MSL), which is consistent with the PADEP approval. Docket No. D-2000-059 CP-2 requires the RAWA Lake Ontelaunee Reservoir conservation releases shall be maintained as follows:

**TABLE B-1 DRBC Required Conservation Release**

<b>Reservoir Storage Elevation (NGVD)</b>	<b>Conservation Release</b>
> 302 feet above MSL	51 cfs
300-302 feet above MSL (and inflow to reservoir greater than 28.8 cfs)	36 cfs
< 300 feet above MSL	28.8 cfs (0.15 cfs/m) or equal to reservoir inflow

The docket holder’s consultant, Skelly and Loy Engineering and Environmental Consultants, Inc. (Skelly and Loy), submitted a report written by Entech Engineering, Inc. entitled “Water Availability Study, Proposed Birdsboro Power Electric Generating Plant”, dated July 12, 2016 (“Report”). The purpose of the Report was to determine if the Lake Ontelaunee Reservoir has sufficient capacity to allow RAWA to support its existing and foreseeable water supply demand in addition to supplying water to the proposed Birdsboro Power Facility. The Report considered RAWA’s current and projected water use, the required conservation release, watershed inputs, and the addition of the Birdsboro Power withdrawal, and modeled it using the historical 78-year synthetic hydrologic record for the watershed. The model indicates that there would be zero (0) days over the historical hydrologic record where the predicted stage of Lake Ontelaunee would equal or fall below 295 feet. The model also indicates that the reservoir stage never drops to the critical stage of 282 feet where the useable storage in the reservoir would be depleted. DRBC staff concurs with the conclusions of the report, that the Lake Ontelaunee Reservoir can sustainably supply RAWA’s existing and projected water demand and the water use of the proposed Birdsboro Power facility, while maintaining the conservation releases listed in Table B-1 above, over the historical hydrologic record including the drought of record.

On December 5, 2012, the DRBC approved Docket No. D-2012-023-1 for the Berks Hollow Energy Station. In the docket, the Berks Hollow Energy Station was approved to consumptively use up to 7.4 mgd of approximately 8.8 mgd of surface water that would also have been provided by the RAWA. By letter dated April 7, 2016, Dynegy Operating Company, now owner of the property on which the Berks Hollow facility was proposed, requested that Docket No. D-2012-023-1 be terminated by the DRBC because Dynegy Operating Company had determined that the project would not be constructed due to market conditions. The DRBC has since terminated Docket No. D-2012-023-1 and the use of the proposed 8.8 mgd of surface water from the RAWA by the Berks Hollow Energy Station approved in Docket No. D-2012-023-1 will not occur.

### **Water Supply Charges**

The docket holder estimates that the consumptive water use for the project, used for the purpose of cooling associated with power generation, is approximately 87% of the total water use. The DRBC definition of consumptive use is set forth in section 5.5.1 D of the *Administrative Manual – Part III – Basin Regulations – Water Supply Charges (WSC)* (18 CFR 420.1). Since the docket holder’s water allocation does not include a surface water withdrawal, the docket holder is not subject to water supply charges.

With regard to the water to be provided for the proposed project by RAWA from its surface water withdrawal, the City of Reading constructed and maintained the Lake Ontelaunee Reservoir prior to the establishment of the DRBC. RAWA is a municipal authority that is successor in interest to the City of Reading, as owner and operator of the Lake Ontelaunee Reservoir. Section 5.1.3 D, of the *DRBC Basin Regulations – Water Supply Charges* (18 CFR 420.23(d)) provides:

“Notwithstanding the provisions of A., B. and C., there shall be no charge for water made available from storage where: (1) The cost of the storage facility has or will be otherwise paid for by the user; (2) such storage controls a drainage area; and (3) The use does not exceed the yield of such storage without augmentation from other surface water of the basin.”

RAWA meets the conditions of section 5.1.3 D. and therefore is not required to pay water supply charges to the Commission for withdrawals from the Lake Ontelaunee Reservoir as: 1) the City of Reading and the successor agency, RAWA, has paid for and maintains the Lake Ontelaunee Reservoir storage facility; 2) the Lake Ontelaunee Reservoir storage facility controls a drainage area; and 3) RAWA’s use does not exceed the yield of the Lake Ontelaunee Reservoir storage facility without augmentation from other surface water of the basin.

Birdsboro Power is not required to make up consumptive use for this project because it obtains its water from storage available in the Lake Ontelaunee Reservoir and if there is a Commission declared drought, any inflow to the reservoir from the watershed upstream of the Lake Ontelaunee Reservoir would be allowed to pass through the reservoir as part of the required conservation release.

### **Total Dissolved Solids in Wastewater**

As described in Section A.4.b. above, cooling tower blowdown, quench water, sanitary wastewater, and any water treatment reject water will be discharged to the BMA wastewater treatment plant (WWTP). Total dissolved solids (TDS) concentrations in effluent conveyed to the BMA WWTP from the Birdsboro Power Facility are expected to be 1,100 mg/l. The BMA DRBC docket contains an effluent limit of 1,000 mg/l. An evaluation of the expected effluent concentration at the BMA WWTP indicated that while the BMA would see an increase in discharge effluent concentration of TDS from their facility as a result of receiving wastewater from the Birdsboro Power facility, the BMA WWTP will continue to meet its effluent limit of 1,000 mg/l.

### **Natural Gas Fuel Source**

The Birdsboro Power facility will be supplied with natural gas fuel via an approximate 14-mile, 12- to 16-inch diameter natural gas supply pipeline which is proposed to be installed by DTE Midstream Appalachia, LLC (DTE). Natural gas will be supplied from the existing Texas Eastern Transmission pipeline in Rockland Township, Berks County, to which the Birdsboro Power Facility supply pipeline will be connected. The supply pipeline will be owned and operated by DTE. As the supply pipeline is a required component of the Birdsboro Power Facility, the project requires the review and approval from the DRBC. The proposed supply pipeline has been given DRBC pre-application No. D-2016-008-1 in anticipation of an application submittal. DTE is preparing to pre-file with the Federal Energy Regulatory Commission (FERC) for approval of the pipeline and is currently preparing an application for submittal to the DRBC. The Birdsboro Power Facility cannot operate without a natural gas fuel supply pipeline in place. The Birdsboro Power facility shall not connect to this supply pipeline until DTE secures approval from the DRBC in accordance with DECISION Condition C.I.i. Birdsboro Power, LLC proceeds with construction of the Birdsboro Power facility at its own risk in reliance on any pending approvals of the DTE pipeline.

### **Transmission Interconnection**

The Birdsboro Power facility will transmit generated power through a proposed 230-kV electric transmission line that will originate at the facility, which is to be located on the old Armorcast Steel Foundry site within the Borough of Birdsboro, Berks County, Pennsylvania. The proposed line will be approximately 4 miles long and will terminate at a new 230-kV ring bus station in Robeson Township, Berks County, Pennsylvania.

The electric transmission line route will originate at the Birdsboro Power facility in the Borough of Birdsboro and travel overhead in a westerly direction, turn northwest and traverse the Schuylkill River into Exeter Township. The line will then continue in a southwesterly direction along the Schuylkill River, until it traverses the Schuylkill into Robeson Township. The electric transmission line will then continue west, where it will cross into the State Route (S.R.) 724 right-of-way (ROW) and transition to an underground duct bank configuration. The route will continue underground following the S.R. 724 ROW in a westward direction until it turns north at Boonetown Road and terminates at the new 230-kV ring bus substation and ties into the existing power grid.

The overhead portions of the electric transmission line will require a 150-foot wide, permanent ROW that will be kept cleared of all non-compatible vegetation such as trees. The total estimated area of land disturbance along the 4-mile electric transmission line and at the ring bus station is approximately 8 acres. This disturbance includes the permanent conversion of approximately 0.04 acres of forested wetlands to palustrine emergent wetlands or palustrine scrub shrub wetlands in areas of the overhead ROW and 162 square feet of temporary wetland disturbance with 11 square feet of permanent wetland impacts in the underground duct bank portion of the electric transmission line. The electric transmission line will aerially cross seven streams. These streams include; the Schuylkill River, Hay Creek, Heisters Creek, and four unnamed tributaries to the Schuylkill River. The underground duct bank will cross one unnamed tributary to the Schuylkill River. Each stream is designated by the Pennsylvania Department of Environmental Protection as supporting Warm Water and Migratory Fishes (WWF, MF) with the exception of Hay Creek, which is designated as supporting Cold Water and Migratory Fishes (CWF, MF). The line will be comprised of approximately 29, 110-foot to 140-foot tall steel monopoles that will support three conductor lines. The 40-inch to 60-inch diameter monopoles will be placed on concrete pile foundations of similar diameter.

### **Flood Plain Regulations**

The Birdsboro Power facility will be constructed on the former Armorcast steel foundry and machine company property located on Armorcast Road, adjacent to and just south of the Schuylkill River, in Birdsboro Borough, Berks County, Pennsylvania. The portion of the property on which the Birdsboro Power Facility will be located is within the flood fringe of the Schuylkill River flood hazard area (the area inundated by the 100-year flood outside of the floodway). The ground surface elevation of the project site will be raised approximately 4 feet with compacted soil in an approximate 13-acre pad on which the Birdsboro Power Facility will be constructed. The Commission's *Flood Plain Regulations* provide at section 6.3.4 B.4. (18 CFR 415.33(b)(4)) that industrial structures elevated so that the first floor, including basement, is above or flood proofed to the Flood Protection Elevation (1 foot above the 100-year flood elevation) are permissible by special permit. The pad on which the Birdsboro Power facility will be located will have a finished grade of 164 feet above MSL which is more than one foot above the floodplain elevation.

Section 6.3.4 of the Commission's Floodplain Regulations (18 CFR 415.33) allows certain uses, including the construction of utility transmission lines within the floodway and flood fringe when authorized by special permit. The water, sewer, and natural gas fuel utilities serving the Birdsboro Power facility will be located below grade and as such, will be protected from damage as a result flood fringe inundation. Twelve of the Birdsboro Power electric transmission line monopoles will be located in the flood fringe of the Schuylkill River and seven of these monopoles are proposed to be located in the floodway of the Schuylkill River. The monopoles will be made of steel and will be anchored with concrete piles, which will prevent damage from flood inundation. Because the diameter of a monopole (40 to 60 inches) within the floodway is small, the potential impact on flood elevation is deemed to be negligible and is not expected to exacerbate flooding. This docket constitutes a special permit in accordance with section 6.3.4 of the Commission's *Flood Plain Regulations* (18 CFR 415.33) for the Birdsboro

Power facility and associated appurtenances within the flood fringe and floodway subject to DECISION Condition C.I.g. in this docket.

The project does not conflict with the Comprehensive Plan and is designed to prevent substantial adverse impact on the water resources related environment, while sustaining the current and future water uses and development of the water resources of the Basin.

### **C. DECISION**

I. Effective on the approval date for Docket No. D-2016-004-1 below, the project and appurtenant facilities as described in the Section A. “Physical features” of this docket are approved pursuant to Section 3.8 of the *Compact*, subject to the following conditions:

a. Docket approval is subject to all conditions, requirements, and limitations imposed by the PADEP and United States Army Corps of Engineers, , unless they are less stringent than the Commission’s. Upon application to the permitting agency, the docket holder shall provide to the DRBC the Chapter 105 Water Obstruction and Encroachment Permit Application and all supporting materials.

b. The facility and operational records shall be available at all times for inspection by the DRBC.

c. Nothing herein shall be construed to exempt the docket holder from obtaining all necessary permits and/or approvals from other State, Federal or local government agencies having jurisdiction over this project.

d. Sound practices of excavation, backfill and reseedling shall be followed to minimize erosion and deposition of sediment in streams.

e. The docket holder shall submit final project plans and specifications related to the site layout, transmission interconnection, and the non-contact cooling system, to be approved by the Executive Director, to demonstrate consistency with this approval prior to initiation of construction of those systems.

f. Within 10 days of the date that construction of the project has started, the docket holder shall notify the DRBC of the starting date and scheduled completion date.

g. The Birdsboro Power facility shall be elevated on fill or floodproofed up to at least one foot above the flood protection elevation (1 foot above the 100-year flood elevation at the site). No structure, fill, spoil, waste, or storage of equipment, chemicals, or products is permitted in the floodway.

h. Within 30 days of completion of construction of the approved project, the docket holder is to submit to the attention of the Project Review Section of DRBC a Construction Completion Statement (“Statement”) signed by the docket holder’s professional engineer for the

project. The Statement must (a) either confirm that construction has been completed in a manner consistent with any and all DRBC-approved plans or explain how the as-built project deviates from such plans; (b) report the project's final construction cost as such cost is defined by the project review fee schedule in effect at the time application was made; and (c) indicate the date on which the project was (or is to be) placed in operation. In the event that the final project cost exceeds the estimated cost used by the applicant to calculate the DRBC project review fee, the statement must also include (d) the amount of any outstanding balance owed for DRBC review. Such outstanding balance will equal the difference between the fee paid to the Commission and the fee calculated on the basis of the project's final cost, using the formula and definition of "project cost" set forth in the DRBC's project review fee schedule in effect at the time application was made.

i. The Birdsboro Power Facility shall not connect to the DTE Midstream Appalachia, LLC natural gas supply pipeline that is the subject of pre-application No. D-2016-008-1 until DTE secures the approval it seeks from the DRBC. The docket holder shall notify the DRBC of changes to its fuel supply or to DTE's proposal for a supply pipeline. Birdsboro Power, LLC proceeds with construction of the Birdsboro Power facility at its own risk in reliance on any pending approvals of the DTE pipeline.

j. The docket holder shall maintain records of its daily water use and corresponding consumptive use and report this data annually to the Commission by January 31.

k. This approval of the construction related to the facilities described in this docket shall expire three years from the approval date below (December 14, 2016) unless prior thereto the docket holder has commenced operation of the subject project or has expended substantial funds (in relation to the cost of the project) in reliance upon this docket approval.

l. During any month, the docket holder's water use from the Reading Area Water Authority shall not exceed 95.17 million gallons.

m. Water supply from the Birdsboro Municipal Authority interconnection shall be used only in emergency situations when the required water supply from the Reading Area Water Authority is not available. The docket holder shall notify the DRBC in writing prior to utilization of this supply and shall provide to the DRBC the reason for its use, an estimate of the period of use, and steps that will be taken to restore the water supply from the Reading Area Water Authority.

n. Except as expressly provided herein with respect to water supply charges pursuant to 18 CFR 420.1, nothing in this docket approval shall be construed as limiting the authority of DRBC to apply duly adopted charges or fees to this project.

o. The issuance of this docket approval shall not create any private or proprietary rights in the waters of the Basin, and the Commission reserves the right to amend, suspend or rescind the docket for cause, in order to ensure proper control, use and management of the water resources of the Basin.

p. Unless an extension is requested and approved by the Commission in advance, in accordance with paragraph 11 of the Commission's Project Review Fee schedule (Resolution No. 2009-2), the docket holder is responsible for timely submittal of a docket renewal application on the appropriate DRBC application form at least 12 months in advance of the docket expiration date set forth below. The docket holder will be subject to late charges in the event of untimely submittal of its renewal application, whether or not DRBC issues a reminder notice in advance of the deadline or the docket holder receives such notice. In the event that a timely and complete application for renewal has been submitted and the DRBC is unable, through no fault of the docket holder, to reissue the docket before the expiration date below (or the later date established by an extension that has been timely requested and approved), the terms and conditions of the current docket will remain fully effective and enforceable against the docket holder pending the grant or denial of the application for docket approval.

q. The Executive Director may modify or suspend this approval or any condition thereof, or require mitigating measures pending additional review, if in the Executive Director's judgment such modification or suspension is required to protect the water resources of the Basin.

r. Any person who objects to a docket decision by the Commission may request a hearing in accordance with Article 6 of the Rules of Practice and Procedure. In accordance with Section 15.1(p) of the *Delaware River Basin Compact*, cases and controversies arising under the *Compact* are reviewable in the United States district courts.

**BY THE COMMISSION**

**DATE APPROVED: December 14, 2016**

**EXPIRATION DATE: December 14, 2026**