SUSQUEHANNA RIVER BASIN COMMISSION
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Surface Water Withdrawal Application
Susquehanna River (Conowingo Pool)
& Consumptive Use Application
Project Summary

SRBC Pending No.: 2025-088

This summary is only a portion of the application materials and is meant to provide general information about the proposed project.

Project Sponsor

Company Name:	Calpine Mid Merrit, LLC		
Address:	1055 Pikes Peak Road		
		State:	PA
City:	Delta	**Zip Code:**	19314
Contact Person:	JoAnn Edgar	**Title:**	EHS Specialist III
Telephone:	(717) 456-2446	**Fax:**	
Mobile:	(724) 681-8877	**Email:**	joann.edgar@calpine.com

Requested Surface Water Withdrawal Quantity

Projected Design Year:	2031
Existing Withdrawal Quantity:	19.01(mgd)
Requested Increase in Withdrawal Quantity:	0(mgd)
Maximum Instantaneous Withdrawal Rate:	13200(gpm)
Estimated Daily Operation:	24(hours/day)

Requested Consumptive Use Quantity - Yes

Existing Consumptive Use:	8.72(mgd)
Requested Increase in Consumptive Use:	-2.92(mgd)
Pre-Compact/Grandfathered CU:	0

Facility Location

State: PA
County: York
Municipality: Peach Bottom Township
Zip Code: 17314

Surface Water Withdrawal Source Information

Source Name: Susquehanna River (Conowingo Pool)
Source Type: streamN/A
Subbasin: Lower Susquehanna

SECTION 2.1 PROJECT FACILITY DESCRIPTION

A. Site/Facility Name
York Energy Center, Block 2 ("York 2").

B. Anticipated long-term owner and operator
Calpine Mid-Merit II, LLC is the anticipated long-term owner and operator of the facility.

C. Type of Facility
York 2 is a combined-cycle electricity generating power plant. York 2 primary electricity generating equipment includes: two combustion turbines (Units 5 and 6), two heat recovery steam generators, and one steam turbine (Unit 7). The primary fuel for both combustion turbines is natural gas. However, ultra-low sulfur liquid distillate is used as an alternate fuel when natural gas is either not available or economically unfavorable to use. Low nitrogen oxide combustors and selective catalytic reduction are used to minimize nitrogen oxide emissions.

D. Purpose of the withdrawal and the requested quantity of water to be withdrawn
Calpine Mid-Merit II, LLC will maintain the existing withdrawal amount of 19.01 million gallons per day (MGD) approved under Commission Docket No. 20060308 in 2006 and transferred to Calpine Mid-Merit, LLC in 2010. The York Energy Center which consists of two generating blocks, has one main intake pipe supported by one pumphouse with three pumps. The pumphouse is located along the Susquehanna River. York 2 will maintain control of the water withdrawal infrastructure and will supply water to York Energy Center, Block 1 ("York 1") under a shared services agreement. The total surface water withdrawal request remains the same to accommodate both York 1 and York 2 water needs. This docket modification application requests transfer of Docket No. 20060308 from Calpine Mid Merit, LLC to Calpine Mid-Merit II, LLC and adjustment of the consumptive use allotment for Calpine Mid-Merit II, LLC to 5.800 MGD for use at York 2 (with the remainder of the previously approved consumptive use allotment to be allocated to Calpine Mid Merit, LLC for use at York 1 via separate application).

E. Description of site activities
York 2 commenced operation on March 1, 2019 and has the capacity to generate a nominal 828 MW. The combined-cycle system York 2 consists of two combustion turbines with two heat recovery generators and one steam turbine. The surface water demands include process water, cooling tower makeup water, and fire protection.

Surface water is withdrawn via wedgewire screens[1] installed within the river and directed into the pumphouse wet-well onshore. From there, a series of transfer pumps (one, two or three depending on the water needs) convey the water through a buried supply pipe. The water for the York 2 cooling tower basin is diverted off the main intake line on the plant property. The main line continues to the York 1 process water treatment system and the York 1 cooling tower basin (cooling tower makeup water).

In order to minimize consumptive use of river water, a number of process flows are recycled from plant systems and combined with the river water intake flow prior to routing into the cooling tower basins.

During plant operation, the cooling towers have a continuous blowdown stream to control the build-up of solids and minerals in the cooling water. Blowdown from the York 1 and York 2 mechanical draft cooling towers are ultimately combined into a single buried pipe and discharged directly back to the river via a multi-port discharge diffusers (NPDES Outfall 001).

Under continuous operation at peak heat rate, the York 2 maximum average daily discharge rate would be approximately 3.305 MGD. The typical discharge rate has been approximately 1.44 MGD.

F. Provide the date operations began at the site or are anticipated to begin

The York 2 facility began operations on March 1, 2019 and the York 1 facility began operations on March 1, 2011. The complete operational separation of York 1 and York 2 is anticipated for late 2025.

G. For consumptive use applications, briefly describe how water is or will be consumptively used at the facility, indicate the requested quantity of water to be consumptively used, and the purpose of consumptive use.

The consumptive use of surface water at York 2 is associated with cooling tower evaporation and in-stream evaporation resulting from mechanical draft cooling tower blowdown. The evaporation rate is a function of heat rate and atmospheric conditions. The existing docket, applicable to both York 1 and York 2, approved a consumptive use allocation of 8.72 MGD. This docket modification is requesting a consumptive use allocation of 5.800 MGD for York 2. A separate consumptive use application will be filed for York 1.

[1] Wedge-wire screens are designed and operated to protect aquatic life.

H. Indicate the size (megawatts), fuel type, cooling method, and other water use processes (inlet cooling, etc.), as well as any consideration given to dry cooling.

York 2 has an approximate capacity of 828 MW. The primary fuel for both blocks is natural gas. However, ultra-low sulfur liquid distillate may be used as an alternate fuel when natural gas is either not available or economically unfavorable to use. The steam turbine utilizes a mechanical draft cooling tower for cooling. Other surface water uses include fire protection and process uses including demineralized and service water applications.

With York 2 being an existing facility, converting to dry cooling is not a consideration. York 2 was designed and permitted to utilize a wet cooling system and the current design is not compatible with dry cooling criteria.