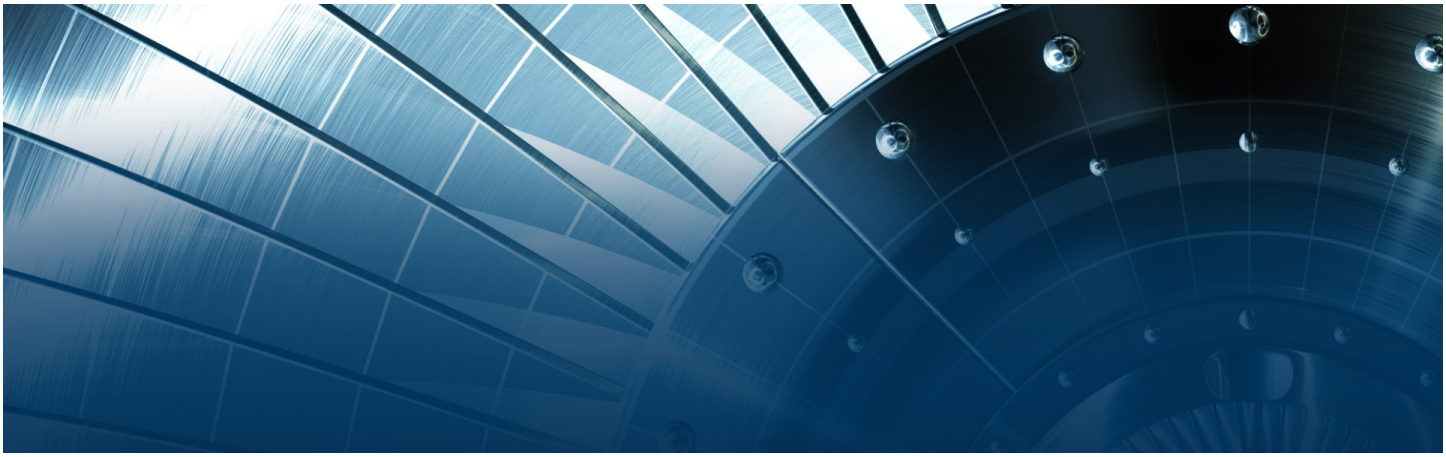
BURNS McDONNELL

CASE STUDY

Generate Reliable and Clean Power With an Integrated EPC Solution

Competitive Power Ventures set its sights on a dual-fuel, 680-megawatt combined-cycle generation facility in New York's Hudson Valley. Through a joint venture, we used integrated EPC services to construct a final project capable of providing 600,000 homes with electricity.



Challenge

Competitive Power Ventures (CPV), a leading independent power producer, was in search of adding capacity and reliability to the New York Independent System Operator (NYISO) to replace retiring generation in the Hudson Valley region. After evaluating potential generation options, CPV selected a 680-megawatt (MW) combined-cycle facility design to service the area's more than 600,000 residential homes with efficient, reliable and clean power — while reducing carbon emissions to help meet the state's 80 percent reduction goal by 2050.

Solution

CPV contracted a joint venture with Burns & McDonnell, Skanska USA Civil Northeast and ECCO III Enterprises for engineer-procure-construct (EPC) services on the combined-cycle CPV Valley Energy Center in Wawayanda, New York.

Project Stats

Client
Competitive Power Ventures LLC

Location
Wawayanda, New York

Commercial Operation
May 2018

600K
HOMES CAPABLE OF BEING SUPPLIED WITH RELIABLE POWER

500K
TONS (ESTIMATED) OF ANNUAL CARBON EMISSIONS REDUCTION

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SIEMENS SGT6-5000F COMBUSTION TURBINE GENERATORS

Maintaining close collaboration with CPV and all parties, our team provided engineering, procurement, construction, and commissioning and startup services for the dual-fuel plant. CPV Valley Energy Center incorporates two Siemens SGT6-5000F combustion turbine generators matched with two supplementary-fired heat recovery generators (HRSGs) with kettle-boiler type rotor air coolers. The design also features three SGen6-1000A generators, one Siemens SST6-5000-KN side exhaust condensing steam turbine generator and a 36-cell induced draft air-cooled condenser.

To deliver reliability and maximize efficiency, each combustion turbine is designed to be capable of operating at full load in a pseudo simple-cycle mode, in which steam from the corresponding HRSG bypasses the steam turbine and is bypassed to the condenser. Through the commissioning process, our team utilized the facility's backup supply of ultra-low-sulfur diesel (ULSD) fuel for startup while a pipeline was completed to deliver the plant's primary fuel source, natural gas. This dual-fuel flexibility increases CPV Valley Energy Center's availability during cold weather peak demands, when gas supplies may be curtailed to industrial customers.

The teams also incorporated design features to reduce the facility's impact on the environment, including the use of reclaimed water from a nearby wastewater treatment plant as a source of make-up water for power production.

The design allows process water, cooling water, boiler blowdown and wastes produced on-site to be discharged back to the wastewater treatment plant for re-treatment and reuse.

Result

CPV Valley Energy Center reached commercial operation in May 2018, enhancing the region's electric system. The facility is forecasted to lower carbon emissions by an estimated 500,000 tons each year, according to the Brattle Group.

About Burns & McDonnell

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