BURNS McDONNELL

PROJECT PROFILE / **COAL TO NATURAL GAS REPOWER**

INCREASING CAPACITY AND EFFICIENCY TO OVERCOME A POWER DEFICIT

After years of maintaining two infrequently used coal-fired plants, Cooperative Energy sought a way to increase capacity in a cost-effective way. With a heat recovery repower approach to reuse as much equipment and infrastructure as possible, the resulting combined-cycle plant will add almost 350 megawatts of generation to a single unit — becoming the most efficient coal-to-gas repower project in North America.

A COOPERATIVE TO NEARLY TRIPLE UNIT GENERATION CAPACITY WITH A HEAT RECOVERY REPOWER APPROACH

The combination of facility and equipment reuse with an advanced-class natural gas combustion turbine is leading the country in efficiency.

Facing an upcoming power deficit within the Midcontinent Independent System Operator (MISO) market it serves, Cooperative Energy needed to add generation at its Morrow plant. Rather than build a new generation plant, Cooperative Energy turned to our team to evaluate all possible options, including repowering one of its two coal-fired plants.

Though the marketability and usage of the two 200-megawatt (MW) coal plants was in steady decline, Cooperative Energy was still staffing and maintaining both to retain the assets and the potential power to the grid. Due to this ongoing maintenance and care, coupled with the capital cost benefits of reusing its steam generator, Cooperative Energy chose a heat recovery repower to a natural gas combined-cycle plant.

While repowering has become an increasingly popular topic amid an industry movement to decommission and retire coal-fired facilities, a heat recovery repower is unique and valuable in that it adds a natural gas combustion turbine within the existing infrastructure. We are providing detailed design, engineering services, construction management and startup services to demolish the coal boiler, dispatch the coal yard, erect a heat recovery steam generator, and install and connect one of the most advanced natural gas combustion turbines on the market.

During this process, we are partnering closely with Cooperative Energy's on-site staff, who are assisting with demolition, equipment installations and other updates to accommodate the new combustion turbine. The staff will also help with startup of the new plant and take over its operation when complete. This hands-on approach by the cooperative's active, on-site staff will provide employment during the transition while maintaining and growing the employees' already deep knowledge of the facility.

Demolition is anticipated to conclude in the summer of 2020, with the unit firing in summer 2022 and going commercial by March 2023. When complete, the combined-cycle plant — with its advanced-class combustion turbine technology and reuse of its existing steam turbine — will be able to generate 550 MW, becoming the most efficient coal-to-gas heat recovery repower project in North America.

PROJECT STATS

CLIENT
Cooperative Energy

LOCATION
Purvis, Mississippi

ANTICIPATED COMMERCIAL COMPLETION
March 2023

350
INCREASE (MW) IN UNIT GENERATION OUTPUT

1
400-MW ADVANCED-CLASS GAS TURBINE

3X
MORE UNIT GENERATION CAPACITY

15295-CNG-0320