



COMBINED HEAT AND POWER

Agricultural Industry

Macon Municipal Energy Center

OWNER

Macon Municipal Utilities/Northeastern Missouri Grain

LOCATION

Macon, Missouri, USA

PRODUCT

Mars® 100 (11.3 MWe) Gas Turbine

CUSTOMER VALUE

Sustainable Energy Production

In 2002, Macon Municipal Utilities approached Northeastern Missouri Grain (NEMO), an 40 million gallon per year ethanol production facility, with the idea of implementing combined heat and power (CHP) for the economic, efficiency, and operational benefits it would provide. At the heart of the system is a Mars 100 gas turbine generator set designed to provide highly reliable electrical power and steam.

The CHP plant produces 11 MW of electricity for Missouri Power Utilities and 23,100 Kg/hour (50,100 pph) of saturated steam for process by NEMO. If the grid experiences a power outage, the CHP system can provide full backup power to the plant. With 72.8% operating efficiency the CHP system requires approximately 25% less fuel than typical on-site thermal generation and purchased electricity. The CHP system reduces carbon dioxide emissions by an estimated 29,100 tons per year, which is equivalent to removing the annual emissions from 4,965 cars or planting 7,945 acres of forest.

This project received an Energy Star award from the United States Environmental Protection Agency (EPA) in 2007 for reducing air pollution and greenhouse gas emissions.

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