

Mohawk Industries – Dal-Tile

Manufacturing

The Challenge

As one of the world's largest flooring manufacturers, Mohawk Industries, prides itself on designing and manufacturing innovative products that have reduced environmental and societal impacts. As one of its powerhouse brands, Dal-Tile leads the industry in design, product innovation and commitment to sustainable products and practices. Their commitment to a more sustainable future doesn't just target what they manufacture, but how.

Part of their process in producing floor tile is spray drying, which essentially uses hot air to turn liquid into a dry powder that is then pressed into tiles. When an opportunity to improve reliability and overall energy efficiency arose at Dal-Tile's spray dryer plant in Dickson, Tennessee, the company turned to E-Finity Distributed Generation, Capstone's distributor for the mid-Atlantic and Southeastern United States.

Beyond meeting goals for reduced energy costs, increased efficiency and reliability, the new, ultra-low emission, microturbine-based system was a natural fit for this Fortune 500 company's overall corporate sustainability initiatives.

The Solution

To meet the plant's sophisticated energy needs for both operations and manufacturing, E-Finity engineered the



Because of the success of this system, our new goal is to implement similar systems in any new facility construction in the future."

— Kyle Bartz, Director of Energy
Dal -Tile

Power Profile

Customer

Dal-Tile, Mohawk Industries

Location

Dickson, Tennessee

Commissioned

October, 2019

Fuel

High Pressure Natural Gas

Technologies

- 5 CI1000S Microturbines
- m-Tim PLC Controller

Capstone Green Energy Distributor

E-Finity Distributed Generation



**Smarter Energy
for a Cleaner Future**



Five C1000S microturbines are capable of providing up to 100% of the Dickson plant's electrical power requirements while also maintaining the minimum power import requirement of the local electrical utility.

system around five natural gas-fueled C1000 Signature Series microturbines. The 5 MW installation is not only capable of providing up to 100% of the plant's electrical power requirements but also maintaining the minimum power import requirement of the local electrical utility. The microturbines are the force behind the combined heat and power (CHP) system that uses natural gas to generate electricity. In this system, the waste heat generated by the microturbines is captured and redirected into the industrial drying process—a process that would otherwise require additional natural gas to operate. Now the new system uses one gas molecule twice, boosting efficiency and driving down operating costs significantly.

E-Finity's m-TIM Controller is programmed to authorize the microturbines to load follow and automatically adjust the amount of power generated to match the facility's load, achieving maximum energy efficiency and reducing the plant's overall emissions.

To improve reliability, the microturbines can operate in "island" mode, providing backup power to the facility's emergency loads. Therefore, in the event of a power grid disturbance, the facility can keep essential equipment operational. This is imperative for Dal-Tile since a power grid disturbance at their manufacturing facility will result in both product losses and damage to plant machinery.

The Results

The microturbine system installed at the Dickson facility is Capstone's single largest combined heat and power (CHP) installation to date, the first of its kind in the world. Since commissioning in the fall of 2019, the microturbines have provided the facility with more than 29,000 MWh of electricity and 370,000 MMBTU of recoverable exhaust energy. When

the exhaust heat is captured in the industrial drying process, the overall efficiency can reach 97%, providing substantial greenhouse gas emissions savings over traditional means of operation.

With a 9-year factory protection plan in place, Dal-Tile receives comprehensive service coverage including engine overhauls as well as all scheduled and unscheduled maintenance at a fixed cost for the entire term of the contract. E-Finity Customer Service Team provides power plant operations and uses its remote monitoring system to supervise, service and optimize turbine output resulting in peak performance.

Capstone C1000S Microturbine



A C1000S provides up to 1MW of electrical/thermal generation and can be paralleled to generate up to 10MW of clean-and-green power.