Lean, Energy & Environment (LE2) Assessment for Hoosier Magnetics, Inc.

Client
Hoosier Magnetics manufactures hard ferrite powders. These powders are responsible for improving our quality of life in many ways. Ferrites are important raw materials for electric motors, separators, magnetos, starters, sensors, anti-lock braking systems, toys, novelties, weather stripping, pumps, refrigerators, security systems, signage, clocks, computers, copiers, health devices, encoders, automotive sealants/adhesives and other devices worldwide. New applications continue to be discovered.

Opportunity Areas
Hoosier manufactures strontium hexaferrite (SHF), a brown magnetic powder used for commercial, industrial, and military applications. SHF is formed by combining strontium carbonate and iron oxide in a rotary kiln operated at very high temperatures (2,400 degrees Fahrenheit). After the SHF clinker is formed from this chemical reaction, it is necessary to cool the clinker to 350 degrees Fahrenheit before further processing. This is an energy intensive process.

Objectives
Identify energy and environmental impact reduction opportunities within Hoosier Magnetics Ogdensburg, NY plant. Apply innovative or underutilized technologies to achieve measureable reductions in one or more of these areas.

Work Performed
The project team evaluated the current manufacturing process as well as alternative processes for cooling the clinker while reducing energy consumption. An air-cooled fluidized bed system was identified as a viable replacement for the existing water-cooled clinker cooling system.

Results
Depending upon the particular configuration chosen, implementation of the fluidized bed system will potentially result in a calculated:

- Reduction in annual energy consumption by 372,000 kWh with an electricity cost savings of $50,410/year
- Reduction in natural gas consumption of 200,350 therms/year with a cost savings of $118,562/year
- Reduction in use of water of 63 million gallons/year
- Payback period of 10 months or less based on estimated equipment costs of $267K

This project was funded in part by a grant from the New York State Energy Research and Development Authority (NYSERDA).

Photo and client info from http://www.hoosiermagneticsinc.com/