Case Study: Steel Mill Waste Heat to Electricity

Primary Energy

Project: North Lake Energy, LLC

Developer: Primary Energy

Customer: ArcelorMittal

Location: East Chicago, Indiana

Capacity: 90 MW electric

Commercial Operation: May 1996

Industry: Steel

Other Potential Applications: Carbon Black, Petroleum refining, Chemical

Project Description

ArcelorMittal has historically produced a significant portion of their electricity requirements using onsite Waste Heat to Power resources including byproduct fuels. Primary Energy worked with ArcelorMittal to identify an opportunity to more efficiently utilize byproduct fuel from ArcelorMittal's principle blast furnace (No. 7), and use it to produce up to 90 MW of emission-free electricity. Primary Energy built and owns the project while ArcelorMittal delivers steam from the existing blast furnace gas recovery boilers.

Operational Benefits

- Increased reliability of the electric energy supply for ArcelorMittal's plant operations
- Uses an onsite waste fuel that had principally been flared as waste heat

Economic Benefits

- Supplies more than 20% of ArcelorMittal's electricity requirements
- Substantially reduced energy costs compared to purchased power alternatives

Environmental Benefits

- Produces up to 90 MW of emission-free electricity
- Produces 215,000 fewer tons of carbon dioxide when compared to other plants using separate heat and power sources.
- The United States Environmental Protection Agency recognized North Lake Energy's 2007 operations for high environmental efficiency

The Heat is Power Association is the trade association of the Waste Heat to Power industry. Representing businesses across the United States, the not for-profit association is committed to educating decision makers and the public about the characteristics of waste heat as a resource for emission-free electricity generation, and the development of waste heat as an American economic driver and boost to U.S. global competitiveness. The Heat is Power Association promotes the efficient use of American-generated power through industrial Waste Heat to Power processes. To learn more, visit www.heatispower.org