LIPTEN™
A Quarterly report from the "Hands On" EPC Energy Solutions Company
advantage
4th Quarter, 2012

Combined Heat and Power (CHP)

Combined heat and power (CHP), also known as cogeneration, is an efficient, clean, and reliable approach to generating power and thermal energy from a single fuel source. According to the United States Department of Energy, more than two thirds of the fuel used to generate power in the U.S. is lost as heat. By installing a CHP system designed to meet the thermal and electrical base loads of a facility, CHP can greatly increase the facility's operational efficiency and decrease energy costs. At the same time, CHP reduces the emission of greenhouse gases, which contribute to global climate change.[1]

In a typical electric power generation plant, input fuel is used to create electricity while excess thermal energy (in the form of steam) is wasted in the process. Many facilities, both commercial and industrial, require a substantial amount of thermal energy for heating, cooling and other low temperature processes. By locating an electric generation plant on-site at a facility that has a significant demand for thermal energy, steam that is typically wasted can be used by the host. Each CHP plant reduces their host's energy costs and reduces emissions as compared to buying power off of the grid and producing steam with boilers. (Continued)

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Lipten Company is an Engineering, Procurement and Construction (EPC) firm that specializes in Central Energy Plant (CEP) General Contracting. Lipten also has a controls group that provides traditional and custom control solutions.

We provide steam generation, power generation, chilled water systems, compressed air systems, water treatment systems, controls and related Energy Center equipment and services. Our level of support can vary from an advisory role to complete turn-key facility construction. Services include: design, engineering, drafting (CAD), equipment specifications, procurement, installation, construction management, site audits, start-up, operator training and maintenance.

LIPTEN™ ENERGY SOLUTIONS

HISTORIC QUOTES

"One machine can do the work of fifty ordinary men. No machine can do the work of one extraordinary man."
-Elbert Hubbard

"Do you realize if it weren't for Edison we'd be watching TV by candlelight?"
-Al Boliska

"Success is simple. Do what's right, the right way, at the right time."
-Arnold H. Glasow

"I don't know the key to success, but the key to failure is trying to please everybody."
-Bill Cosby

Steamin' Hot NEWS

- Power-Gen® is December 11-13 in in Orlando Florida. Lipten will be there.
- Vote: November 6, 2012
- Lipten is growing! We expanded to an office building adjacent to the headquarters in Metro Detroit. The additional 12,000 SF building will provide more office space for our growing engineering team.
- Lipten makes history with a unique CHP efficiency project. See the article to the right for more details.

Combined Heat and Power (CHP) (Continued)

According to the United States Department of Energy: [1]

- Current CHP projects in the U.S. provide a level of CO2 reduction that is the equivalent of removing more than 45 million cars from the road.
- The average efficiency of fossil-fueled power plants in the United States is 33 percent and has remained virtually unchanged for four decades. By using waste heat recovery technology to capture a significant proportion of this wasted heat, CHP systems typically achieve total system efficiencies of 60 to 80 percent for producing electricity and thermal energy.
- Meeting 20% of U.S. electricity needs with CHP by 2030 would result in:
  - 848 million metric tons of avoided CO2 emissions
  - $234 billion of investment in CHP technologies
  - 936,000 jobs created

Lipten was recently awarded an engineering, procurement and construction contract for efficiency upgrades at a 63MW cogeneration facility. The project involves installing a new condensing economizer to recover flue gas heat at the outlet of an existing Once Through Steam Generator (OTSG). The OTSG generates steam utilizing the exhaust gas from a 38 MW GE Frame 6B gas turbine. The cogeneration facility is owned and operated by Primary Energy Recycling Corporation (TSX: PRI). The CHP facility supplies 100% of the thermal energy needs and a significant portion of the electrical energy needs of Primary Energy's host portside steel mill.

"This may be the first application in the world to utilize both a steam generator and condensing economizer on 38 MW GE Frame 6B Gas Turbine," said James Spencer, president and CEO of Lipten, "Lipten's experience with custom engineering of energy systems will be extremely valuable in the success of this important project." John Ingraham, Proposal Development Manager at Lipten Company, added, "The heat recovery from this project will offset up to 70,000 lbs/hr of steam generation. This means less fuel is used for steam generation equating to significantly reduced operating costs and lower emissions. This project represents an excellent example of Lipten's core focus of creating value for our customers and helping them deliver on their commitments to shareholders."

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[1]http://www.epa.gov/chp/index.html

Lipten Spotlight On . . .
Chad Whitehead, Controls Designer

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Controls Designer

Chad is a Lipten Controls Designer whose expertise includes: CAD, PLC and HMI programming, control system troubleshooting and on-site start-up. Chad works within Lipten's controls division to deliver custom Energy Center controls solutions. Chad's major professional accomplishments include design and start-up of Energy Center control systems at Ford, Hormel Foods, The University of Nebraska, Kraft, SAIC and many other large industrial facilities. Chad has been a valued member of the Lipten team for seven years.

Chad is an avid outdoorsman and enjoys hunting, fishing and camping. He also enjoys working on, modifying and racing his Supercharged '91 Ford Mustang GT.