



# LIPTEN™

A Quarterly report from the "Hands On" EPC Energy Solutions Company

*advantage*

1<sup>st</sup> Quarter, 2012

## Pending EPA Legislation Will Further Limit Emissions: Do You Have a Compliance Expert?

Pending legislation imposes more stringent limitations relating to emission of HCL, PM, CO, Hg, and dioxin/furan. Most boilers that fire natural gas fuel (which is inherently low in these emissions) will meet pending emissions limitations (with newly required annual testing). Converting coal fuel and liquid fuel boilers to natural gas may be cheaper than extensive flue gas scrubbing equipment which may be required to achieve MACT compliance. Lipten pioneered the vertical fired boiler conversion concept and we are widely considered as experts in such boiler conversion.

Also, the EPA has traditionally limited emissions based on input; pounds of pollution per unit of fuel burned. The result was that the more fuel a boiler source burned, the more it was allowed to pollute. Under the proposed changes, by limiting emissions per unit of output the new MACT (Maximum Achievable Control Technology) standards provide incentives for improving energy efficiency. Helping clients optimize the efficiency of their energy centers while reducing their environmental footprint and maintaining a competitive advantage through prudent energy practices are Lipten's primary drives.

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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.



## HISTORIC QUOTES

"Give me six hours to cut down a tree and I will spend the first four hours sharpening the axe."

-Abraham Lincoln  
(regarding preparation)

"He who devotes sixteen hours a day to hard study may become at sixty as wise as he thought himself at twenty."

-Mary Wilson Little

"The difference between a successful person and others is not a lack of strength, not a lack of knowledge, but rather in a lack of will."

-Vince Lombardi

"Quality is not an act, it is a habit."

-Aristotle

# LIPTEN CONTROLS CORNER

## Fuel Savings Through Better Boiler Control



Dan Tavernit,  
Controls Manager

Many of the boiler systems in operation today, utilize a Single Point Positioning (Jackshaft) philosophy for supplying its burner with the fuel and air required for combustion. This strategy employs a single motorized drive that is mechanically linked to both the fuel and combustion air supplies. Since the Fuel versus Air relationship is not linear through the firing range, typically, adjustment screws on the fuel valve connection attempt to compensate for this non-linear relationship.

The mechanical linkage used to connect the fuel supply to the combustion air supply suffers from hysteresis, is often prone to slippage and is dependent upon settings of the adjustment screws. Also, having both supplies linked together makes it very difficult to provide the burner with the precise levels of fuel and air required for efficient combustion. This means of control is outdated and inefficient, causing users that employ this method to waste thousands of dollars annually.

On the other hand, Parallel Positioning and Full Metering control systems are extremely effective and efficient alternatives. Two motorized drives (one dedicated to adjusting the fuel supply and one dedicated to adjusting the combustion air supply) replace the mechanical linkages used in Single Point Positioning systems. The ability to control each supply independently provides the burner with a very efficient fuel-air mix.

Lipten has developed an off-the-shelf solution designed specifically for replacing outdated and inefficient control systems. The CombustionPac line of combustion control products includes Parallel Positioning and Full Metering control options. Both incorporate a UL and FM approved Burner Management System, a PLC based Combustion Control System and a large color touchscreen Operator Interface; all contained within one compact NEMA rated enclosure.

CombustionPac's ability to connect to existing Safety Interlock devices and 4-20mA Control Instrumentation provides a seamless integration. A long list of standard features, including, Dual Fuel Capability, Oxygen Trim, VFD and FGR Programming, Thermal Shock Protection, built in Ethernet communications and customization options make it the most flexible off-the-shelf combustion control product on the market. Contact Lipten today to speak with one of our experienced Controls Technicians, and learn how we can help maximize your systems' efficiency.

## Steamin' Hot NEWS

Lipten is expanding our international presence. Lipten has recently signed contracts and memorandums of understanding with new partners in Europe and the Middle East to provide equipment, engineering and construction services. We anticipate over 20% growth in our international business in 2012.

Lipten Spotlight On . . .

Payam Bahadorani, Mechanical Engineer



Payam Bahadorani,  
Mechanical Engineer

Payam Bahadorani is a highly educated Lipten engineer with a Bachelor's degree and Master's degree in Mechanical Engineering. His engineering focus and passion is thermodynamics analysis. Payam's expertise is steam cycle analysis and systems integration including sizing and specification of boilers, heat exchangers, condensate systems, water treatment systems and ancillary Energy Center systems. Payam's comprehensive approach to systems integration coupled with his attention to sub-system detail is crucial to many Lipten design efforts. His major project accomplishments include:

- Redlines of drawings throughout value engineering/field engineering process for a 3.5 MW renewable energy system; ensuring specification compliance and as-built drawings accuracy.
- Systems integration engineering for a new Central Utility Plant designed for 75,000 lbs/hr of steam and 200 Ton chilled water.
- Nuclear energy related design engineering for thermochemical production of hydrogen involving the Cu-Cl cycle and electrolysis.