BMR Thermal, Inc.
COMBUSTION | HEAT RECOVERY | POLLUTION CONTROL

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BMR Thermal, offering effective environmental solutions for industry and power generation.

Current industrial, commercial and utility solutions for improving the quality of our air and environment involve the reduction of greenhouse gas emissions from processes that burn fossil fuels. There are a number of ways to tackle this problem including fuel switching, increased efficiency and post combustion reduction techniques.

BMR Thermal are involved with all of these methods through the companies and equipment we represent. Here are just a few examples of how our customers have reduced their environmental impact and in some cases, reduced costs for fuel, electricity, and feedwater chemicals in the process.

Twin Rivers Technologies

Twin Rivers Technologies, in Quincy, MA changed over from burning #6 fuel oil and a waste product from their process to burning clean Natural Gas in two boilers. Not only did this reduce their emission of NOx, CO and particulate matter, but the fuel change saved the company money due to the low price of Natural Gas. In addition, there are hidden cost benefits including no atomizing steam use, no need to heat the fuel or fuel storage tanks and nearly zero burner maintenance. We offer fuel conversions through **CECO CCA** Combustion to switch from heavy fuel oil to gas and/or to light #2 oil or environmentally friendly bio-fuel. The change over can involve a simple modification to the existing burner equipment or a full burner replacement including fuel trains and burner management systems. Often times, a burner modification or replacement will result in operation at lower excess air levels, and extended turndown to limit fuel consumption with the same steam or heat output.

GREIF
PACKAGING SUCCESS TOGETHER™

Grief Paper, in Fitchburg, MA added a new package boiler to more closely match the steam demand from their paper making process. With the addition of the boiler and having had experience with Ultra Low NOx (ULN) burner systems, the company decided to go with a standard low NOx burner and add a simple SCR system after the boiler. We provided, again through **CECO CCA**, an SCR system using urea as a reagent instead of ammonia. Although Ammonia

systems have been used for many years and optimized for operation and safety, the use of Urea eliminates the need for special handling and reporting of potentially dangerous stored ammonia. The plant is able to maintain NOx emissions at or below the previous level with the ULN burner and without the complicated controls and large HP fans required. The new boiler is also capable of turning down much farther than the previous system eliminating the wasteful need of venting steam and keeping within the emission limits throughout the operating range.

Part of the SCR installation includes the use of a new catalyst by **Umicore.** This dual function catalyst reduces NOx and CO in a single catalyst body at the same or better reduction rates than single function catalyst. A great additional benefit is the reduced draft losses allowing the system to run with lower fan horsepower. When used on Gas Turbine Exhaust either for combined or simple cycle, the reduced backpressure allows for increased generating capacity.

Westrock Paper, in Sheldon, VT were able to reduce emissions and increase production with the addition of a **CONDEX** condensing economizer from Combustion & Energy Systems. The plant operates multiple boilers, none of which included economizers, so the exhaust gas from the stack had a very high temperature. We installed a Condex condensing heat recovery system to take advantage of the wasted heat by preheating boiler feedwater in a standard economizer section and heating make up water in a second section before it went to the DA. The BTU savings allowed the user to reduce natural gas usage and run at a higher than ever before possible steaming rate allowing the paper machines to run faster. The BTU savings is a direct indication of greenhouse gas reductions as less fuel is burned and fewer emissions are released.

Vicinity Energy, the operators of the utility plant for Biogen in Cambridge, MA reduced steam losses and as a result reduced boiler steam output by installing **Fenix** hydrodynamic steam traps on the mud drum heating coils for their auxiliary boilers and the main steam line leaving the utility plant. The auxiliary boilers are critical to the Biogen facility as they must seamlessly maintain steam pressure and flow if the primary gas turbine HRSG should go down. To avoid the time consuming warm up of the auxiliary package boilers, they are kept at ready to steam temperatures using a steam coil in the mud drum. The original mechanical traps at the outlet of the coil would fail regularly allowing live steam to pass through into the condensate return system without giving up energy to the package boilers. This waste of energy is accompanied by higher than design pressure in the condensate return system potentially causing damaging water

hammer and condensate backups in any other appliance connected to the system. The traps have no moving parts and are expected to last the lifetime of the plant.

Proper air and flue gas control and isolation is critical to maintaining optimum conditions for combustion, at settings that result in the lowest emission rates. We have been providing replacement damper equipment as well as replacement fabric and metal expansion joints to help our customers maintain optimal control and limit gas leakage that could potentially cause harm or injury to operators. Companies including Verso Paper, MIT, Mass Municipal Wholesale Electric, Pioneer Plastics, ND Paper and Gorham Paper & Tissue improved their processes by using **Bachmann Industries** dampers and expansion joints.

These are a few examples of how we can help to reduce greenhouse gases and the environmental footprint for our customers in New England. For more information on these and other products from BMR Thermal, please see our website at www.bmrthermal.com or call me at (603) 929-0769.

CECO CCA

Combustion Systems and SCR Systems

COMBUSTION & ENERGY SYSTEMS LIMITED

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Duct burner Systems for Cogeneration

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