

Energy Concepts

INTEGRATED ENERGY CONCEPTS ENGINEERING P.C.

MAY/JUNE 2008

The leader in energy efficiency and energy conservation

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Ethanol vs. the Natural Resources

Everywhere you turn lately is another advertisement, or news blurb about ethanol. New ethanol plants are sprouting up around the country in a hurry; not only to benefit from the current Federal incentives, but to stay ahead of the curve and sell the next "green fuel". But what is the great interest in Ethanol? Is it really the answer to petroleum based gasoline?

The answer is a very controversial one and one which should be investigated individually to arrive at a conclusion.

Some constants are known however that may make it easier to arrive at certain conclusions. In 2006 the U.S. Department of Energy reported that the U.S. produced 4.86 billion gallons of

corn based ethanol in 2006, with a production cost of \$1.09 per gallon.

Now before everyone jumps up to go get some corn based ethanol, keep in mind that corn based ethanol has far less of an energy punch than petroleum based gasoline or diesel fuel. In fact one gallon of gasoline priced at the pump at \$3.03 in 2006 was equal to \$3.71 in energy equivalence of corn based ethanol. In essence, one gallon of corn based ethanol has only 82% of the energy of one gallon of gasoline.

So what is the benefit? That is the major question arising from the discussions surrounding ethanol production in the U.S. The theory is that the amount of energy it takes to produce and process

the corn utilizes so much petroleum based gas and diesel, that it starts to become cost prohibitive.

One acre of corn takes more fertilizer, more tractor usage to harvest, more storage space to hold, more freight, and on and on, until it can finally be processed into a usable fuel.

The upside are the emissions. Corn based ethanol when used as a gasoline supplement emits about 22% less greenhouse gas, according to the US Dept of energy.

Who knows where new technology will lead us in the future with respect to production of ethanol, if history serves us, it will only get better.

Wartburg Goes Cogen

Wartburg Nursing Home in Brooklyn, NY recently commissioned their cogeneration plant. Three 75 KW cogeneration units parallel with ConEdison to supplement the facility power usage. Heat is recovered off of the cogeneration units and used to produce domestic hot water for the residents, as well as for the

kitchen. In addition the recovered hot water is also used to supplement the boilers for building heat.

As part of the overall energy conservation project at Wartburg, three old low pressure steam boilers were replaced with new high efficiency hot water boilers and the steam system was converted

over to hot water. In fact, the new systems operate so efficiently, that during the last winter season, the boilers never came on while the cogeneration units were in operation.

Including NYSERDA funding the overall payback for the entire energy conservation

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Cogeneration Units

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Project has a payback of about 3 years. As electricity prices continue to rise, Wartburg has taken the steps necessary to help protect themselves from the volatile energy market..

Keyspan Energy is Now National

Keyspan Energy the natural gas utility supplying Long Island, Brooklyn, Staten Island, and parts of Queens was recently bought by National Grid earlier this year. Currently National Grid is promoting Cogeneration projects with thermal savings incentives as well as their existing cogen gas rate 4a, which has been historically the lowest gas rate for commercial and industrial users.

The Forecast

The outlook for energy can appear to be cloudy at times. With energy ever more present in the media, the minds of owners, investors, and facility operators; energy conservation should continue to be an ever more present driving force in new construction and renovations.

Current forecasts indicate gasoline will reach \$4.50 or higher per gallon by the end of the summer, and as crude oil continues to rise, currently bouncing around the record highs \$130 per barrel, energy conservation and curtailment should be one of the most important issues. While the outlook on energy paints a gloomy picture, the up-

side, is saving money through energy conservation is going to continue to be a vital and important part of everyday life.

As past history has shown us, electric, oil and gas prices will always continue to rise, its only the rate at which they rise that is the question. This makes it ever more important to pay close attention to energy consumption and performance of systems, ensuring that they are designed with operational costs in mind, as well as durability and application.

Its easy enough to oversize a boiler, or a chiller, just to be sure that it will work, but this may not

be the most energy efficient solution, and in the end may cost the owner a considerable amount more to operate.

While sustainability, efficiency, and green are the catchwords of the day, remember to keep in mind that best practices, maintenance, and knowledgeable operation are just as important in keeping efficient and sustainable systems operating in the curve.