



Where good health begins.

Littleton Regional Healthcare Takes the Lead in Going Green

Littleton Regional Healthcare is considered a leader in “Going Green” and they keep on making improvements to continue to be the leader in Northern New Hampshire and maybe in all of New England. Consider the massive recycling program that was put in place in 2002. In 2013, LRH recycled 98,530 pounds of waste and 3,403 pounds of hazardous waste. As of October 1, 2013, our total weight for recycled items is over one million pounds since instituting the program. LRH has recycled paper, cardboard, all metals, bottles, plastics, batteries, fluorescents, cooking grease, ink cartridges, clinical devices, and computer parts. Our financial savings has been approximately \$200,000 since 2002, and the environmental impact is remarkable with a savings of 40 acres of landfill.

In 2011, the construction of a 63,000 square foot medical office building was built efficiently using a geothermal heating and cooling system. A Geothermal HVAC (heating, ventilating, and air conditioning) system takes advantage of subterranean temperatures to provide heating in the winter and cooling in the summer. And as if that is not enough, a new Biomass Plant was built on the LRH campus. After 15 months of planning and construction of this \$2.8 million plant LRH turned the switch to “on” for the new Biomass Plant in January of 2014. LRH anticipate savings of \$400,000 annually in fuel costs with a return on investment in just 5.4 years.

So, if you are passing by Littleton Regional Healthcare you may think that you see “smoke” coming from the biomass plant stack. This could not be further from the truth. What a passerby will see coming from the stack is actually steam vapor. During the summer and warmer temperatures a passerby will not even see a steam plume. Recent testing required by the State of New Hampshire Department of Environmental Services to determine filterable particulate emissions and combustion efficiency was conducted. Both boilers revealed the average combustion efficiency to be at 99.99%. The biomass plant uses a highly efficient electrostatic precipitator (ESP) to remove more than 99 percent of particulate matter from the flue gas stream. The particulate matter, or fly ash, is negatively charged prior to entering the precipitator. Inside the unit, collection plates which are positively charged attract and retain the fly ash which is collected into barrels at the bottom of the unit. The ash is then recycled by local farmers to help boost production on crops. The pot ash produced by wood generation is similar to lime.

The biomass plant at LRH burns a hardwood bole chip. The chips are fed to the boiler via screw augers and conveyor belts. The temperatures inside the wood boiler will reach over 1500 degrees. The wood chips are supplied by AB Logging in Lancaster which helps our local economy by employing community members who specialize in the forestry business. On a typical winter day we will burn 12 tons of wood chips at a cost of about 1/3 of what we used to spend in fuel oil. This translates to 84 tons per week or about 2 ½ trailer loads of wood weekly. Summer usage is expected to be about ½ or 42 tons per week. Today LRH burns a mere 20 gallons of fuel oil daily vs. 1200 burned daily before the Biomass Plant, which is a significant cost savings to LRH.

The emissions produced by the biomass plant are not greater than those from our fuel oil system. In fact, burning wood chips will produce significantly less emission of sulfur compounds that contribute to acid rain.

As if fuel savings isn't enough, LRH is the first in NH as well as the Nation to contract for the sale of thermal RECs (renewable energy credits). "NH's Renewable Portfolio Standard (RPS) is the first in the nation with a comprehensive thermal provision that recognizes heat from biomass," according to Charlie Niebling, of Innovative Natural Resource Solutions LLC. According to Innovation Natural Resource Solutions, Inc., New Hampshire is a leader in supporting renewable thermal energy. Over one third of the energy used in NH is for the generation of heat; that is to heat buildings, domestic hot water, or used in manufacturing. Renewable energy is now used to meet this demand for thermal energy and is eligible for significant financial support.

LRH's annual thermal output is calculated to allow 6000 Thermal Renewable Energy Credits to be sold. The amount of revenue these credits generate may actually shorten the current payback timeline of 5.4 years.

Henri Wante, Director of Engineering and Facilities, and Dick Blanchard, Biomass Plant Manager has been asked to serve on the NH Biomass Wood Energy Council. They along with the LRH leadership have worked hard over the past three or four years to seek alternative energy solutions. Their diligence has paid off.

Warren West, CEO is pleased to see the project come to fruition and to see the long term benefits to LRH. "Not only will we save a significant amount of resources on heating costs, but we will also be environmentally friendly. We are producing "clean" air. We are helping local farmers who use the ash produced from the plant to produce environmentally safe produce that Northern New Hampshire residents will enjoy for many years to come. Our heating plant is a revenue producer through the Thermal Renewable Energy Credit program. This new addition to our physical plant has exceeded our expectations."