EFFECTS OF DECREASED ENERGY CONSUMPTION ON GREENHOUSE GAS EMISSIONS

Combined Heat and Power (CHP) Systems

In general, a CHP system is one that uses a single energy input to generate, in sequence, both heat (usually steam) and electricity. The most common systems in the forest products industry take high pressure steam from a boiler, pass it through a steam turbine where electricity is generated as the steam pressure is reduced, and then send the lower pressure steam to mill processes.

In a conventional fossil fuel-fired power plant, steam is generated and passed through turbines to produce electricity but the remaining heat energy in the low pressure steam is lost. Figure E3 illustrates the efficiency benefits of CHP systems. In a typical pulp and paper mill, all of the electricity and steam produced by the CHP unit would be consumed by the mill, but this is not always the case, and there are many examples of companies sending CHP-derived electricity to the grid.

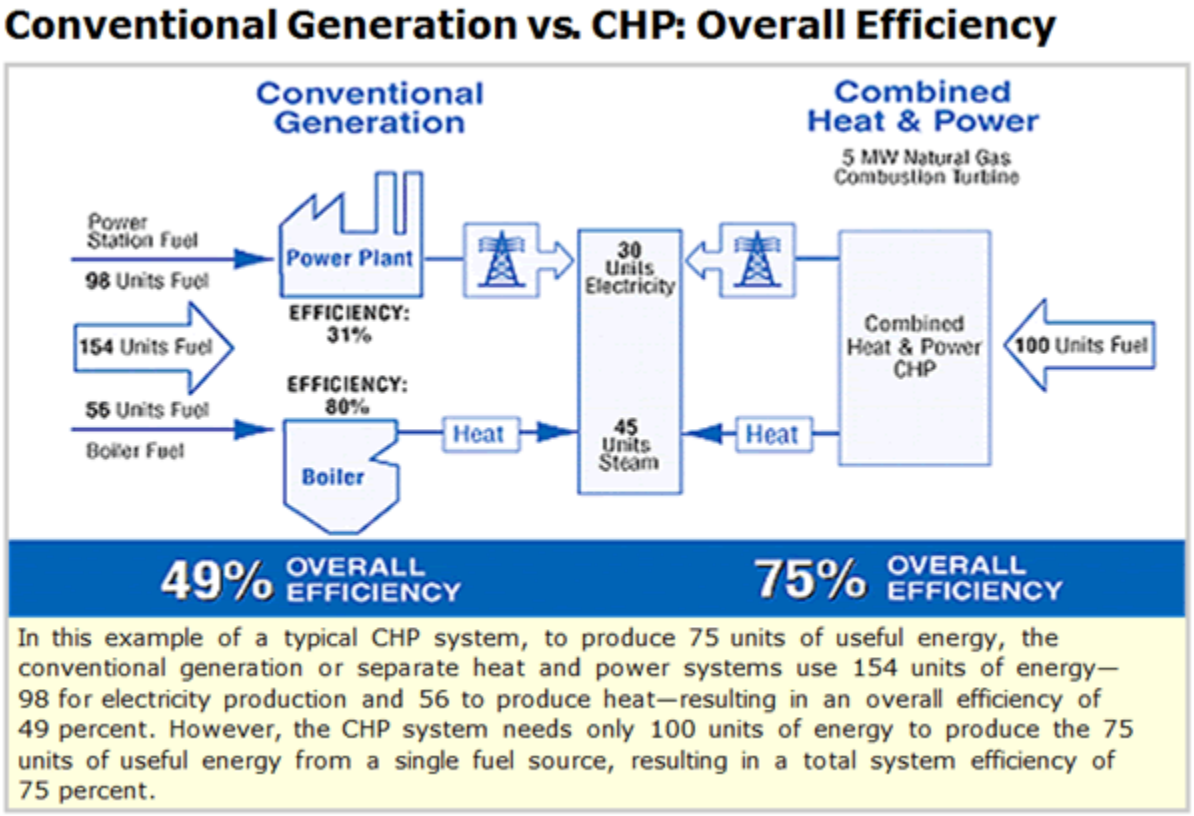

Figure E3. Efficiency of Conventional Energy Generation vs. CHP Energy Generation (Source: http://www.epa.gov/chp/)

CHP systems are rare at wood products mills as the boilers are much smaller than pulp and paper boilers.