# Executive Summary

The central question posed to Illinois Business Consulting (IBC) is as follows: what would be the economic impact of replacing 10% of the university’s coal intake with wood chips? After extensive research, analysis, and calculation it is the opinion of IBC that the cogeneration of energy with coal and wood chips is not economically feasible. The initiative has been deemed not economically feasible because wood chips are more expensive on the basis of energy content, transportation costs will increase due to biomass, and infrastructure modification expenses necessary for the operational changes are significant.

Coal and natural gas prices are presently at low levels and project to remain low into the foreseeable future as fracking techniques are honed and energy independence continues to be a central national endeavor. In a purely financial sense, natural gas and coal offer the most energy for the money. In order to achieve the same amount of energy output as coal, twice as many wood chips need to be burned. Abbott currently pays about $80 per ton of coal, including the disposal of the plant’s ash. Wood chips would only cost $53.66 per ton, according to a local supplier. But because the energy content of coal is significantly higher than that of woodchips, coal costs $5.16 per BTU and wood chips cost $5.89 per ton. The cost of transportation also increases when considering biomass fuel. Because of the aforementioned difference in energy efficiencies, at least twice as many trips must be made to procure wood chips enough to keep energy output levels consistent with current production.

In order to store and properly handle the wood chips, an infrastructure investment of $10,300,000 must be undertaken. A system composed of six storage silos and conveyor belts will cost approximately $8,300,000. Wear and tear costs and decreased useful lifetime are significant risks of co-firing using machinery designed for coal burning. Boiler modifications designed to limit the negative effects of wood chip co-firing will cost about $2,000,000 in total.

There are public funding options and biomass specific tax credits, however, the potential gains are not enough to overcome the increased expenses elsewhere in the operation. The university will not likely receive any biomass related tax credits unless it creates a power plant the runs on 100% biomass energy. IBC has identified three grants applicable to Abbott for a total potential value of $1,500,000. But, there is no guarantee that the university will awarded all, or any of the grants.

Less than 1% of over 3,000 power plants analyzed cogenerate with coal and woodchips due to increased expenses and restrictions placed on tax credits and public funding. When considering a financial project or investment, a determination is made about whether or not the projected future cash flows justify the initial investment. In the case of the biomass initiative presented by UIUC, the project is all investment and no return. “Going Green” via wood chips and coal cogeneration will result in extra initial and annual expenses, but it will not result in new revenues. IBC has calculated that the undertaking of the biomass initiative will result in an effective “Green Tax” of $3,475,000 over the next 5 years and is therefore not recommended.