TECHNICAL, ECONOMIC AND ENVIRONMENTAL ANALYSIS OF A WOOD RESIDUES BASED COGENERATION SYSTEM IN A WOOD INDUSTRY IN AMAZON

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ABSTRACT: The disposal of the high amount of wood residues produced by wood industries is indeed an environmental problem to be solved. On the other hand, when such industries are located in isolated regions, where the energy supply is not enough, there is the possibility of the use of these residues for electricity generation, supplying not only the wood industry but also selling the electricity surplus to the local grid.
In Brazilian Amazon, where most of the energy supply is from old and inefficient diesel generators, this proposal has the additional positive aspect of replacing high pollutant engines. According to recent evaluations from CENBIO [1] [2], diesel consumption in Amazon to generate electricity was 980 million litters in 1997, corresponding to the emissions of 750 million tones of carbon, among other pollutant emissions (0.35 litters of diesel oil per kWh, 0.732 kg of C/litter of diesel oil). This paper presents the technical, economic and environmental analysis of wood residues based cogeneration, in the study case realized by CENBIO and Winrock Foundation for a plywood industry in Amazon. The chosen industry has an international certification for wood products, with a production of 4,000 m 3 tones per month of plywood.
Key words: biomass, electricity, cogeneration