

SHAREW

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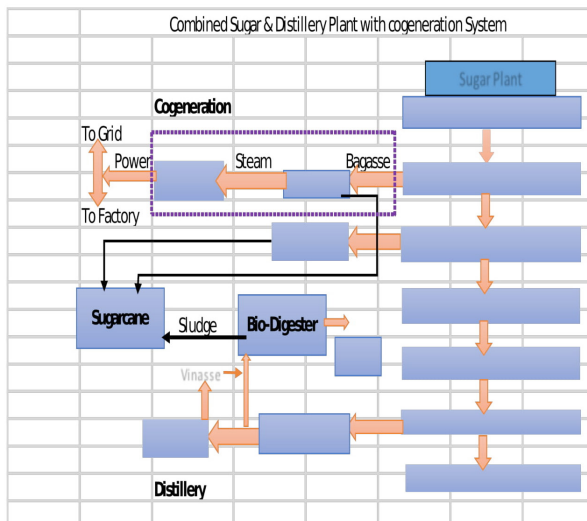
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OPTIMAL DESIGN OF AN EFFICIENT, ECONOMICAL, AND SUSTAINIABLE ENERGY INTEGRATION IN ETHIOPIAN SUGAR INDUSTRY

Conception optimale d'une intégration énergétique efficace, économique et durable dans l'industrie sucrière éthiopienne



The combined sugar and ethanol production process from sugar cane is practical economical activities in Ethiopia, mainly due to its high efficiency and competitiveness. The sector is a pragmatic application for energy integration strategies because of the high number of hot and cold streams involved. Production of high value-added refined sugar/special sugars, dehydrated ethanol for transport and power use and green electricity are constrained by a host of factors from existing conditions. The aim of this study is to optimize the cogenerated energy systems of the cane factory and distillery by a holistic energy systems analysis to maximize the production of sugar and alcohol. Actual parameters of factories will be used to calculate the energy efficiency of each components parts of the system as well as social, economic and environmental benefits. Moreover, utilization of wastes from distillery such as, vinasses through methanation process would provide co-product manufacturing opportunity for additional energy demand and the remains solid/sludge/ used as fertilizer to the cane farm combined with the boiler ash and filter cake.