Análisis energético, exergético y económico de un sistema de cogeneración: Caso para una planta azucarera de San Pablo [

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text (article)

Analítica

Due to many advantages that cogeneration systems present, they have become a technology widely used for energy generation. In these processes, the efficiency is relatively high and the emissions of greenhouse gases are low.In this paper a technical and economic study of a cogeneration system for a sugar plant in São Paulo is carried out. For this propose the 1st and 2nd laws of thermodynamics are applied for the technical analysis. The cost of the electrical energy and steam produced are determined in the economic analysis. In the sizing of the plant, four gas turbines are analyzed that are in thermal parity with the process. The results show that the plant has a production capacity of 148MW of electricity and 147MW of steam. On the one hand the energy analysis reveals that the efficiency of the plant is 67%, while the exergetic analysis shows that this efficiency is 56%. The results of the economic analysis indicate that the prices of electricity and steam produced are 0.105 and 0.068 US $ / kWh, respectively
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