

Assessment on the harnessing of the energy from the back pressure chamber of palm oil mill

ABSTRACT

Malaysia being the second largest palm oil producer produced bio mass as a by-product. Essentially the bio mass is used as energy resource in the palm industry to cater for power requirements through co-generation process. However part of the unused steam is let out to the atmosphere through the back pressure chamber. Most of the mills are in the position to generate more power and supply electricity to nearby residential areas. In some or in most of the cases the low pressure steam is let to atmosphere as the power produced is normally more than sufficient for use in the palm oil mill. The assessment on the feasibility of recovering the let out steam through a small turbine generator set is presented in this paper. Also the choice on the optimal valve size used in the expansion of the turbine is found to influence the power production. The estimation on the available energy through this is about 35% of the main plant used energy for the optimal valve sizing of 3 inch. A numerical design analysis on the back pressure chamber energy is developed and the computations on the energy are presented.

Keyword: Renewable power; Back pressure chamber; Cogeneration; Palm oil mill