POSTER ABSTRACT

PROCEDURE FOR ESTABLISHING THE DESIGN PARAMETERS FOR A CONTROLLED EXTRACTION CONDENSING TURBO ALTERNATOR

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Abstract

The intention of southern African sugar mills to harvest unburned cane to recover the energy in the brown leaf for the purpose of increased electricity generation, provides the opportunity for investment in power generation equipment.

Given that investment in power generation equipment is usually large and that power generation equipment typically has a long useful life of 20 years or more, and that it is integral with sugar factory operations, it is important that new power generation equipment is sized correctly.

This poster describes a sizing process for a new controlled extraction condensing turbo alternator which represents the optimum techno commercial solution.

There are several discrete steps described, which include:

- Define the overall growth philosophy in terms of corporate vision and energy strategy.
- Predict a long term future factory power station configuration in line with the overall vision.
- Identify a shorter term configuration which accommodates the long term view.
- Identify major modes of operation to determine typical duty points.
- Use the typical duty points to determine the required sizing of the various components of the new turbo alternator.
- Undertake iterative interaction with suppliers to confirm achievability of requirements and check extremes of operation against the turbo alternator’s ‘extraction map’.

Keywords: extraction condensing turbo alternator, sizing, steam cycle modelling, extraction map