



AVANT-GARDE ENGINEERS AND CONSULTANTS (P) LTD.

No. 68A, PORUR KUNDRATHUR HIGH ROAD, PORUR, CHENNAI - 600 116. INDIA

TEL : 91-44-24827843, 24828532, 24828717, 18, 19, 20 FAX : 91-44-24828531

E-mail : avantgarde@vsnl.com

Web Site : <http://www.avantgarde-india.com>


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NOTE ON TG LOADING

The cogeneration plant at M/s. Triveni Engineering & Industries Limited, Deoband has been designed with a 120 TPH bagasse fired boiler with an extraction condensing TG of 22 MW nominal capacity. During the cane crushing period, the boiler supplies 115 TPH of steam to turbogenerator. The controlled extraction from the turbine supplies 67.55 TPH of process steam to the sugar mill and there are also additional extractions for meeting the steam requirements of deaerator and high pressure feed water heaters. The balance of 24.464 TPH steam comes to the condenser and gets condensed. However, during the offseason period, the boiler should generate 87 TPH and the entire steam is fed to the turbogenerator and there will be no steam extraction for the process. The steam quantity of 70.25 TPH comes to the condenser from the turbine under this off-season operation.

As the turbine is designed for the season as well as off-season operation, with and without extractions, there is no large variation of steam flow to the surface condenser of the turbine. As the sugar mill operation is fluctuating, resulting in a variation in the process steam drawl, the turbine controlled extraction will act immediately and supply either reduced steam quantity or increased steam quantity for the process. Under such operating conditions, depending on the extraction steam drawl, momentarily there will be increased / decreased steam flow to the condenser. Such variation in the extraction quantity drawl and the resulting flow variations to the condenser always results in some minor variations in the power output of the turbine. As the turbine is also designed for a condition called valve wide open condition, wherein the control valve can admit about 3 to 5% more than the MCR turbine flow and as the boiler capacity is 120 TPH, but with a normal season generation of 115 TPH, it is likely that the steam generation in the boiler could have been higher, which the turbine would have taken with a little more opening of the control valve, resulting in higher power generation.

Because of the variations discussed in the extraction quantities and the condenser flows and the fact that the turbine is designed for valve wide open condition, it is possible that at some point of time, the generation could be higher than the nominally predicted power generation.


(S. BALASUBRAMANIAN)
Director

Cogeneration	Biomass Power Plants Mini Hydro Electric Plants Renewable Energy	IPP / CPP		
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