

**BERI PROJECT : KABBIGERE BIOMASS POWER PLANT
ANALYSIS OF OPERATION COST
MAY 2010 TO JUNE 2011 OPERATION**

a. The Kabbigere gasifier operation cost data for the period May 2010 to Jun2011 is as per Statement I enclosed. It is seen that 52% of the export cost is on biomass cost & 48 % is on labour. From the same statement, it is seen that the Specific Fuel Consumption (SFC) is 1.28kgs per kwh on generation & 2.03kgs per kwh on evacuation/export.

b. The biomass supply details to the power plant are as per Statement II. Of the 2485.686 tons biomass supplied to the plant since Nov 2006, 19% is supplied by the DCF SF Tumkur from the BERI plantations raised in non forest common lands, 1.84 % is supplied by the DCF T Tumkur from the BERI plantations raised in reserved forests, 7.5% by the HSAGPS from farmers of the locality out of farm forestry plantations raised from BERI seedlings & farmers own plantations, 21.69% by the KSFIC from KFD plantations, 1.62 % by Mysore Paper Mills from their plantations, 24% by BERI PMU from farmers of the locality out of farm forestry plantations raised from BERI seedlings & farmers own plantations, 7.75% by BERI PMU from local contractor, 0.12% from saw mill – cut ends /waste & 16.34% by the DCF SF Tumkur thro' contractor.

c. The cost of biomass paid to the various sources for delivery to plant site is as follows:

1. SF Dn Tumkur : Rs 0.95 per kg (capital cost on plantaion raising excluded)
2. T Dn Tumkur : Rs.1.06 per kg + Rs.0.95 per kg as royalty to the jurisdictional Village Forest Committee.
3. MPM : Rs. 3.00 per kg
4. KSFIC: Rs. 3.00 per kg which includes 20% VAT & FDT
5. HSGPAS & PMU thro farmers : at rates ranging from Rs.0.70 to Rs.1.40 per kg over a period of time.
6. PMU thro Contractor: Rs. 1.60 to Rs. 2.00 per kg
7. SawMill Waste : Rs 6.00 per kg
8. SF Dn Tumkur thro Contractor : Rs. 2.40 to Rs. 2.80 per kg.
(Eucalyptus @ Rs.2.40 & Prosopis @Rs.2.80 per kg)

d. For the period of the subject operation duration, 11.98% biomass was supplied by the SF Dn from BERI plantations raised on common lands, 27.79% by the KSFIC from KFD plantations, 13.27% by BERI PMU from locality farmers, 21.30% by BERI PMU thro Contractors & 44.12% by SF Dn thro Contractors. The biomass cost & hence generation cost went up since the supplies by the SF Dn from BERI plantations on common lands reduced & there were no supplies by the T Dn from BERI

plantations in reserved forests. KSFIC supplies which accounted for 27.79 % were overweighed with 20 % VAT & FDT which goes back to the government.

e. The second factor in the rise in generation cost is the unstable grid. This is reflected in the difference between the SFC on generation & export. Due to unstable grid, the generated power went into auxillary load or the gas was released / burnt by flaring. If the load shift mechanism proposed by BERI PMU to give 1.50 to 3.00 hours BERI bioelectricity to cluster villages, over & above BESCO supplies, during BESCO load shedding is implemented, the SFC on export will be closer to the SFC on generation, thus reducing the generation costs, as there will be a 37 – 25 % (parasitic load) = 12% savings in the SFC. (SFC on export may come to 1.72 kgs/kwh).

f. The Statement III indicates the details of staff engaged at the power plant. The remuneration given to staff at sl no 13 to 33 is taken in the calculation of generation costs. This staff is made to work in 12 hours shifts as transport / conveyance is not available to operate in three shifts of 8 hours. In addition to the remuneration shown against the staff, they are provided one meal/tea as this is not available locally. However, in the computation of labour costs in the Statement I, the labour costs are to be calculated & accounted / extrapolated in three shift basis. The labour cost will be higher than shown in the said statement. If overtime is to be paid to the labour, 50% of the wages given to them is to be given as OT for the 4 hours. We are instead giving them a meal & tea costing Rs 25/- each.

g. The basic parameter for reducing generation costs is to reduce the cost of biomass & ensuring 100% grid availability with the load shift mechanism. Capacity building in the O&M is also necessary to ensure better gas quality & the operation of engine at higher loads for long durations with minimal shutdowns, leading to high PLF, lowered SFC & higher generation /evacuation incomes.

h. The generation cost for the 500 kw plant, as indicated in the Detailed Project Report March 2004, is Rs 3.86 per kwh at the bus, at 68.5% PLF, with a SFC of 1.25 kgs/kwh . Our present generation cost of Rs 8.19 per kwh at the bus, on the 400 kw systems operated from May 2010 to June 2011, is 212 % higher, in a 7 years time over run & on a very low PLF of 10.12 % .The cost of biomass is taken as Rs 1.00 per kg in the DPR. Our average cost on biomass during the subject operation is Rs 2.12 per kg.

25-11-2011

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