

## COST BENEFIT ANALYSIS

**Project:** Diversion of 27.842 Ha of forest land for construction of 765 kV D/C transmission Line from Warora (M.S.) to Parli (M.S.) under Pandarkawda, Yavatmal, Pusad and Hingoli Forest divisions in the state of Maharashtra.

Total length of the transmission line passing through Zudpi Jungle & RF area is 4.156 Km


- a. Pandarkawda Forest Division = 2.600 Km
- b. Yavatmal Forest Division = 0.491 Km
- c. Pusad Forest Division = 0.896 Km
- d. Hingoli Forest Division = 0.169 Km

Total forest area proposed for diversion is 27.846 Ha

- a. Pandarkawda Forest Division = 17.418 Ha
- b. Yavatmal Forest Division = 3.293 Ha
- c. Pusad Forest Division = 6.004 Ha
- d. Hingoli Forest Division = 1.131 Ha

### Parameters for evaluation of loss of Forests (as per Form VI-b of MoEF Handbook)

S.N.	Parameters	Roads, Tr Lines & Railway lines
1.	Loss of value of timber, fuel wood and minor forest produce on an annual basis, including loss of man-hours per annum of people who derived livelihood and wages from the harvest of these commodities	Loss of value of timber is negligible since there will be minimum felling of trees for construction of transmission line in hilly terrain where enough ground clearance is available. Moreover, the minimum no of trees required to be felled will be in possession of the State Forest Deptt. For which the operational cost/timber extraction cost will be beared by PPTL. In addition to this Net Present Value (NPV) will be paid against the value of timber, fuel wood etc of the proposed land for diversion. Since construction of transmission line doesn't deprive people from earning of livelihood in forest area, hence loss of man-hours of people is also not applicable. Overall, it is assumed that there will be negligible loss of value of timber, fuel wood, minor forest produce etc due to construction of the transmission line in over the forest area.
2.	Loss of animal husbandry productivity, including loss of fodder	Not applicable. Productivity of livestock will not be affected due to construction of the transmission line
3.	Cost of human resettlement	Since there is no displacement of people due to the project hence there would be no cost of human resettlement
4.	Loss of public facilities and for administrative infrastructure (roads, diversion, Building, schools, dispensaries, electric lines, Railways etc) on forest land, or which would require forest land if these facilities were diverted due to project	Not applicable, since these facilities are not available inside the proposed forest area
5.	Environmental losses: (soil erosion, effect on hydrological cycle, wildlife habitat, microclimate upsetting of ecological balance	Environmental losses is quantified as follows Total RF & Zudfi Jungle area proposed for diversion (under Pandarkawda, Yavatmal, Pusad and Hingoli forest division) = 27.846 Ha Environmental value of one hectare of fully stocked forest (density 1.0) for a period of 50 years is= 126.74 lakhs Considering density of the proposed RF & Zudfi Jungle =0.8 Therefore, total environmental loss for a period of 50 years is worked out as =126.74 Lakhs x 0.8 x 27.846 Ha = 2823.361 Lakhs
6.	Suffering to oustees	Not applicable since there will be no displacement of people.
	TOTAL LOSS (Calculated for 50 years)	Rs 2823.361 Lakhs

  
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**Parameters for evaluation of loss of Forests (as per Form VI-c)**

S.N.	Parameters	Roads, Tr. Lines & Railway Lines
1.	Increase in productivity attributable to the specific project	The project will enable availability of electricity in abundance by which the people Of Maharashtra will be directly benefited. This will accelerate industrialization in the state and the same will directly generate maximum employment opportunities in these areas and boosting project will have the potential for Temporary employment generation for local peoples of Appx. 10 lakhs man-days for a period of 3 years. The direct monetary return of the project is calculated as below the table
2.	Benefits to economy	
3.	No. of population benefited	
4.	Employment potential	
5.	Cost of Acquisition of facility on non-forest land wherever feasible	No land acquisition takes place due to the project
6.	Loss of (a) agriculture & (b) animal husbandry production due to diversion of forest land	There will be no negative impact on agriculture and animal husbandry production due to the project.
7.	Cost of rehabilitating the displaced persons as different form compensatory amounts given for displacement	There will be no project displaced persons requiring rehabilitation.
8.	Cost of supply of free fuel wood to workers residing in or near forest area during the period of construction	Not applicable.

**Benefits of the project in Monetary Terms**

**Monetary return of the Project for 50 Years**

1. PROJECT COST	850.00 Cr. Approx
2. BENEFITS FROM PROJECT	
a. Capacity of line (Power Transfer Capacity) (2200 MW per circuit of 765 kV TL)	4400 MW
b. Load Factor	80%
c. Line Loss	2.5%
d. Line Availability	97.5%
e. Average cost of energy transfer per unit	Rs. 0.2 per KWH
f. KWH per year	4400X1000X0.80X24X365X0.975 = 30064320000 KWH/Year
g. Transmission charges/Cost of supply per year	= 0.20X30064320000 = Rs. 601,28,64,000
h. Transmission Charges against power transfer in 50 Years	= Rs. 30064,32,00,000
Net Benefit from Transmission system in 50 years	= Rs. 30064.32 Cr


The benefit from these transmission lines is more than 600.00 Cr per year to the nation or Rs. 601.28 Cr in fifty years it flows of power is continued through this transmission system whereas the cost of project including the compensation against forest area involved, interest during construction and other misc. expenditure is Rs. 850.00 Cr which is very less in compared to profit from the transmission line project.

$$\text{Cost Benefit Ratio} = \frac{\text{Monetary return of the Project for 50 (Fifty) years}}{\text{Environmental loss for a period of 50 (Fifty) years}}$$

$$= \text{Rs. } 30064.32 \text{ Cr} / \text{Rs. } 325.16 \text{ Cr}$$

$$= 92.46$$

$$\text{COST BENEFIT RATIO} = 92.46:1$$

  
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