

COST BENEFIT ANALYSIS

Project : Diversion of 208.807 Ha of forest land for construction of 400 KV D/C (QUAD) Transmission Line from JIGMELLING to ALIPURDUAR in the state of Assam.

- Total length of the Transmission Line passing through RF area (Under Haltugaon, Chirang & Kachugaon Forest Division) = **45.393 KM**
- Total forest area proposed for diversion = **208.807 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 (3 meter below each bundle of conductor as per MoEF guideline). Trees in the remaining area of the RoW will be looped/pruned as per site conditions during stringing of conductors. In areas where required ground clearance is available, trees will not be cut. 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 deposited by POWERGRID to Forest Department. In addition to this Net Present Value (NPV) will be paid against the value of timber, fuel wood etc. (total ecological value of the forest) 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.

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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 administrative infrastructure (roads, 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 for diversion.
5	Environmental losses: (soil erosion, effect on hydrological cycle, wildlife habitat, microclimate upsetting of ecological balance.	Environmental loss is quantified as follows: • Total RF area proposed for diversion (Haltugaon, Chirang & Kachugaon Forest Division) = 208.807 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= .5 Therefore, total environmental loss for a period of 50 years is worked out as = (126,74,000 × 0.5 × 208.807 Ha) = 1323209959
6	Suffering to oustees	Not applicable since there will be no displacement of people.
TOTAL LOSS (Against the proposed forest land diversion calculated for 50 years)		₹ 132,32,09,959/-

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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 Assam 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 up the economy of the State. Again directly the 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 per table below.
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 permanent 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.

Bhadrachari

Benefits of the project in Monetary Terms

Monetary return of the Project for 50 Years

a)	Maximum Capacity of the line loading	= 1500 MW = 1500000 KW
b)	Considering the average burden of the line	= 1370 MW = 1370000 KW
c)	Cost of Power (assume an average value)	= ₹ 1.2 per Kwh
d)	Monetary return of the Project for 50 (Fifty) years	= 1370,000 x 24 x 30 x 12 x 50 x 1.2 = Rs. 7102080,00000

Cost Benefit Ratio	=	Monetary return of the Project for 50 (Fifty) years
		Environmental loss for a period of 50 (Fifty) years
	=	Rs. 7102080,00000
		Rs. 132,32,09,959 = 536.73 : 1

COST BENEFIT RATIO OF THE PROJECT = 536.73 : 1

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