

## JHARKHAND URJA SANCHARAN NIGAM LIMITED (JUSNL)

### COST BENEFIT ANALYSIS

Cost Benefit analysis for 220kV D/C GOVINDPUR - JAINAMORE Transmission line of BOKARO district in Jharkhand state is estimated as per the guidelines of Govt. of India, issues with letter No7-69/2011-FC(Pt) dated :- 07.08.2018, and given below:-

**Table - A: Estimation of cost of forest diversion:-**

Sl.No	Parameters	Cost (Rs. Lac)
1	Ecosystem services losses due to proposed forest diversion (Economic value of loss of eco-system services due to proposed forest diversion has been taken as the "Net present Value (NPV)" of the forest land being diverted as prescribed by the Central Government. (MoEF& CC) NPV rates taken as <b>Rs. 9.39 Lacs. per Ha.</b> Under Class II of medium Density forest born by the project, works out to be Rs. <b>177.04</b> Lac. ( <b>18.854 × 9.39</b> )	177.04
2	Loss of animal husbandry productivity (Taken at 10% of NPV)	17.704
3	Cost of human resettlement (There is no human resettlement due to proposed forest diversion)	Nil
4	Loss of public facilities and administrative infrastructure (Road, Building, School, Dispensaries, Electrical lines, Railways etc. on forest land, which would require forest land if these facilities were diverted due to project (No public facilities and administrative infrastructure are involve)	Nil
5	Possession value of forest land diverted (Taken at 30% of NPV)	53.11
6	Cost of suffering to ousters (There are no ousters due to proposed forest diversion)	Nil
7	Habitat Fragmentation Cost (Taken at 50% of NPV)	88.52
8	Compensatory Afforestation and soil & moisture conservation cost (CA arrived at Rs. <b>2,50,000/-</b> per Ha. for <b>18.854 Ha</b> ) (Cost for double area)	94.27
9	<u>Project Cost:-</u> Fixed assets, inclusive of investment, Current assets Loans & advances. Other Expenditures like preoperative expenses, interests, interests during construction etc.	2403.09
<b>TOTAL:-</b>		<b>2833.73</b>

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**Table – B: Estimating Benefit of forest diversion:-**

Sl.No.	Parameters	Cost (Rs. Lac)
1	<p><u>Increase in productivity attributable to the specific project:-</u></p> <p>Power Flow = 80 MW (2×40)</p> <p>Load Factor = 60%</p> <p>Losses = 2.5%</p> <p>Average Value Added = Rs.6.00 per kwh</p> <p>Energy sent out per year = <math>80 \times 1000 \times 0.6 \times 8760 \times 0.975</math> kwh</p> <p>= <math>40.9968 \times 10^7</math> kwh</p> <p>Value added = <math>40.9968 \times 10^7 \times 6.00</math></p> <p>= Rs 245.9808 crore / year</p> <p>= ₹ 246 crore / year</p> <p>Value added for 50 years = <math>50 \times 246 = 12300</math> crore</p>	1230000.00
2	<p>Benefit to economy due to the specific project.</p> <p>The power will be transmitted through this line to the power deficit of Bokaro district. This project will provide sustained and incessant supply of power to this district which will be utilized by large commercial domestic and agriculture growth leading to increased output which in turn will lead to increase in GDP (Gross domestic product) of Jharkhand.</p>	YES
3	<p>No. of population benefited due to specific project.</p> <p>Assuming average 10 units consumption per day per household.</p> <p>Total <b>1.92 million households</b> can be provided electricity per year.</p>	NA
4	<p>Economic benefits due to of direct and indirect employment due to the project.</p> <p>During project stage, the project will provided employment to the <b>05</b> nos. of permanents and <b>200</b> temporary employments for a period of <b>18</b> months. (For permanent employment benefit of Rs.4.20 lacs / year per person and temporary employment Rs.0.96 lacs / year per person)</p>	319.50
5	<p>Economic benefits due to Compensatory Afforestation.</p> <p>(The NPV of the CA land considered as prescribed by the guidelines 7-69/2011-FC(Pt.) dated 01-08-2017)</p> <p>NPV rates taken as Class III Medium Density forest Rs. <b>8.03</b> lacs/Ha for <b>18.854</b> Ha.</p>	151.40
	<b>TOTAL:-</b>	<b>1230470.90</b>

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**Cost Benefit Ratio:-**

- i) Table - A: Estimation of Cost of forest diversion :- 2833.73 lacs
- ii) Table - B: Estimating Benefit of forest diversion :-1230470.90 lacs

Cost Benefit Ratio = 1: 1230470.90 lacs / 2833.73 lacs  
= 1: 434.22  
Say 1: 434

**The Cost Benefit Ratio of the Project is estimated at 1: 434**

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