DETAILED PROJECT REPORT AND JUSTIFICATION FOR LOCATING THE PROJECT IN FOREST LAND

(LILO of one ckt. of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem)

PROJECT BACKGROUND

The peak demand met by Goa during the year 2014-15 was 489 MW and as per the 18th EPS, the peak demand of 815 MW was expected by the end of 12th Plan (2016-17) and 1192 MW by the end of 13th plan (2021-22). At present demand of Goa is mainly catered through Mapusa 3x315 MVA, 400/220 kV substation, which gets feed from Kolhapur 400 kV substation through a 400 kV D/c line. Goa system is also connected with Maharashtra and Karnataka through 220 kV lines. To supply the projected power requirement of Goa with reliability, an additional 400 kV in feed to Goa was required. The matter was discussed in the 38thmeeting of Standing Committee on Power System Planning in Western Region, held on 17-07-2015 at New Delhi wherein the provision for a new 400kV S/s in Goa at Xeldem along with its interconnections with the Inter State Transmission System was agreed. Accordingly, following transmission system was discussed and approved in the 39th& 40th SCM of WR held on 30.11.2015 & 01.06.2016 respectively and 39th& 40th SCM of SR held on 28-29.12.2015 and 19.11.2016 respectively.

Additional 400kV feed to Goa

LILO of one ckt. of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem.

Xeldem – Mapusa400kV D/c (quad) line.

Establishment of 2x500MVA, 400/220kV substation at Xeldem

Xeldem- Xeldem (Existing) 220 kV HTLS D/C transmission Line

JUSTIFICATION

The construction of LILO of one ckt. of Narendra (existing) – Narendra (New) 400kV D/c quad line at Xeldem is an additional feed to Goa State to meet rising power deficit through present network system. Detail Survey reveals that the proposed line is passing through North Goa Forest Division and Bhagwan Mahaveer Wildlife Sanctuary of Wild life Division, North Goa. Although it has been ensured that the involved forest and wildlife area is minimum & unavoidable.

To optimize the forest and wildlife area involvement, we have carried out 3 possible alternate routes. Details & comparative statement of all 3 alternate routes are shown as below: -

Comparative Statement of three alternative routes			
Description	**Alternate Route 1 (Proposed Route)**	**Alternate Route 2**	**Alternate Route 3**
Bee Line Length	10.348 Km	10.348 Km	10.348 Km
Line Length	16.331 Km	11.895 Km	12.692 Km
Angle Points	16	13	18
Forest Length	7.99 Km	3.365 Km	4.315 Km
Wildlife Length	2.51 Km	7.922 Km	6.707 Km
Total Forest & WL Length	**10.50 Km**	**11.287 Km**	**11.022 Km**
Forest Area (Ha)	36.76 Ha	15.48 Ha	19.85 Ha
Wildlife & NP Area	11.54 Ha	36.44 Ha	30.85 Ha
Total Forest & WL Area	**48.30 Ha**	**51.92 Ha**	**50.70 Ha**
Density of Forest Area	Moderate Dense	High Dense	Moderate Dense

This transmission line would strengthen our Grid network in Western Network system. The construction of this line is challenging due to the presence of hilly terrain, dense vegetation, approachability issues along with other local issues. But as we are living with our core value of empowering humanity by addressing the toughest challenge of energy delivery.

The route alignment survey has been started from Xeldem S/s (Proposed), Sangod, District

South Goa. We have had a detailed study for three possible alternate routes and the observations after detailing are given as follows:-

- **Route-1** starts from Substation at Sangod, passing from Tamdi Surla till Karnataka Border and encounters Forest area of 7.99 Km(Notified Forest Area) and 2.51 Km of Bhagwan Mahavir Wild Life Sanctuary.
- **Route-2** encountered Reserved/Protected Forest 3.365 Km and an area of 7.922 Km of Bhagwan Mahavir Wildlife Sanctuary and National Park. It has also observed that the tree density in this route is high resulting more tree felling required during construction.
- **Route-3** intersects the more patches of Forest and Wildlife/ National Park area.

Hence after comparing all three routes it has clearly evolves that the Route-1 is more suitable in respect of Route-2 and Route-3. Additionally this route has fully avoided nearby National Park area. Tree density in Route-1 is also less comparing to Route-2 and Route-3. Considering all the negative impact in respect of Forest and Wildlife area, Route-1 has chosen for further diversion purpose and also ensure to made all necessary measures to reduce forest and wildlife damage due to this development project.

LEGAL FRAMEWORK

The Prior approval of the Government of India under Section 68 of the Electricity (Supply) Act, 2003 for the subject project has been obtained vide MoP's letter dated 15.06.2017. It is proposed to execute the transmission scheme as provision contained in the Indian Electricity Act, 2003 and the rules made there under and the Electricity (Supply) Act,1910 and 1948, in so far as these are applicable.

ENVIORNMENTAL RISK

Transmission line Projects are environment friendly and do not involve any disposal of solid effluents and hazardous substance in land, air and water. Moreover, forest area trees are felled below each conductor to facilitate stringing. On completion of construction only one strip is maintained for O & M purpose. Therefore, the actual loss of forest is restricted to some selected area only. However, as per the requirement of Forest (Conservation) Act, 1980 approval of Ministry of Environment & Forest, Govt. of India for diversion of forest land shall be taken before construction of line in forest area. Further, compensatory afforestation shall be done in double the degraded forest land to compensate the loss of vegetation, due to diversion of forest.