

Full Title of the Project:- Construction of 400 KV D/C Aligarh – Prithala Transmission Line as a part of Transmission Scheme for “Creation of New 400 kV Substations in Gurgaon area and Palwal area as a part of ISTS” by **Gurgaon Palwal Transmission Limited (GPTL)**.

Justification for locating the Project in Forest Area

The Government of India has identified the power sector as a key sector of focus to promote sustained industrial growth. It has embarked on an ambitious mission - “Power for all” backed by extensive reforms to make the power sector more attractive for private sector investment and participation. In this regard a Transmission Scheme for “Creation of New 400 kV Substations in Gurgaon area and Palwal area as a part of ISTS” consisting of establishment of transmission lines **i) 400 KV Aligarh-Prithala Transmission Line**, ii) 400 KV Prithala-Kadarpur Transmission Line, iii) 400 KV Kadarpur-Sohna Road Transmission Line iv) LILO of 400 KV Gurgaon-Manesar Transmission Line at Sohna Road, v) 400 KV Neemrana-Dhanonda Transmission Line has entrusted by PFCCCL (Power Finance Corporation). As per bidding procedure, PFCCCL has invited bids for selection of bidders for establishment of transmission in which “M/S Sterlite Grid 4 Limited” participated as bidder.

Subsequently, Power Finance corporation (PFC) through the process Competitive Bidding selected “M/S Sterlite Grid 4 Limited” as successful bidder for implementation of the above project through its shell company i.e. **“Gurgaon Palwal Transmission Limited”** on Build, Own Operate and Maintain (BOOM) Basis and consequently the Letter of Intent (LOI) was being issued.

Transmission Project is a Linear Projects and during survey work various possibilities were explored and all efforts have been made to minimise the Forest Patches. Accordingly the final route has been selected in such a way that the minimum forest area is required to construct the said transmission line. Further Transmission line projects are environmentally friendly and do not involve any disposal of solid effluents and hazardous substances in land, air and water. The constructional features of 400 kV Transmission line is such that it is not affecting the environment as it's not dividing the existing forest because of long spans between the towers (400 Mtrs). Layout of transmission line follows along the forest road / forest block boundary thus involving minimum tree felling and also allowing free movement of birds due to high towers heights 45–50 Mtrs. The ground clearance for lower most conductors is 9 Meters. The spacing between the phase conductors is 8-10 Mtrs as well. A very small space is required for the construction of tower foundations (20 X 20 Mtrs). The tower foundations are under the ground (3.5 Mtrs).

Power Sector has played a vital role in Socio-Economic development. The fast growth of industrial and agricultural sectors in the country is attributable to rapid development in Power supply position. Recognising the importance of Electricity for overall development of the country, Govt. of India has taken in interest in the development of Power sector.

As a part of the process, 400 kV D/C Aligarh – Prithala Transmission Line is proposed to be constructed by **“Gurgaon Palwal Transmission Limited”** to meet the electricity demand in the states of **Uttar Pradesh and Haryana**. The Proposed 400 kV D/C Aligarh – Prithala Transmission Line under this Scheme will initiate from 765/400 KV Substation of PGCIL at Khair (Aligarh,UP) and terminate in 400/220 KV Substation of GPTL at Prithala (Haryana).The Proposed 400 KV D/C Aligarh – Prithala Transmission Line is passing through the states of Uttar Pradesh and Haryana.



TRANSMISSION LINE DETAILS:-**400KV D/C Aligarh - Prithala Transmission Line:-**

| Sr. No. | Item | Details |
|---------|---|--|
| 1 | Total Length of Aligarh-Prithala Transmission Line | 29.79 Km |
| 2 | District details and forest division details through which line is passing | <ul style="list-style-type: none">• Aligarh District – Khair Range• Gautam Budh Nagar Forest Division – Sikandarabad (Kasna) Range |
| 3 | Area of the Reserve forest, Protected forest, DLC, Revenue Forest etc. through which line passes. | <ul style="list-style-type: none">• Aligarh Forest Division – 0.1564 Ha. (34 mtr.)• Gautam Budh Nagar Forest Division – 0.1472 Ha. (32 mtr.) |
| 4 | Total No. of Tower to be erected in total and affected tower in Forest. | Total towers: - 90 Nos. Affected Tower in the Division <ul style="list-style-type: none">• Aligarh Forest Division – NIL• Gautam Budh Nagar Forest Division– NIL |
| 5 | Total Line length affected due to forest (Stringing Stretch) | 8 KM |
| 6 | Height of Tower | 45-50 Mtrs |
| 7 | Maximum width of Right of Way for 400KV D/C Transmission Line | 46 Meters (For 400 KV Double Circuit) |
| 8 | Minimum Clearance allowed between conductors of transmission lines and Trees | For 400KV, 5.5 Meters. (As per the forest act, Table-27.2) |




The total forest area involved in the route of the above said 400 KV D/C Aligarh-Prithala transmission line is **0.3036 Ha** and this route is most optimal & feasible route which involves minimal use of forest land that provides the best construction & maintenance facilities, besides being cost effective. A comparison of three alternative routes has been illustrated.

As it can be seen from SOI Toposheet, all the three alternatives routes have been clearly marked out in different colours.

- Alternative **Route- I** (proposed route), involves total length of 29.79 km, out of which only 66 mtr. Protected forest length involved. The route I also have less number of Power line Xing, Railway Xing, No Industrial areas, No densely habitats area. This route is passing through Plain area. During survey it was found out that this route involves less (ROW) right of way prone areas with respect to construction activities. No old monuments/ archaeological places/temples/ wild life sanctuary and future developments are there.
- Alternative **Route- II** involves total length of 30.323 km, out of which only 68 mtr. forest length involved. This route is also passing through protected forests areas and involves more forest area affected, more power line crossings and contains more no. of towers.
- Similarly Alternative **Route- III** involves total length of 30.79 km, out of which only 155mtr. forest length involved. This route is also passing through protected forests areas and involves more forest area affected, more power line crossings and contains more no. of towers.

Summarising the factors above in favour of selecting Route- I as follows:

- Involvement of Forest stretches in **Route-I** is minimum as compared to Route II & route III as line length and forest area involved is minimum un Route-I.
- Right of way (ROW) and other related problems are much less in **Route-I** as compared to route II & route III.
- Construction as well O &M problems would be much less in **Route-I** as compared to route II & III.

Thus, the obvious choice for the most optimum route found to be Route-I , when compared with the other two routes (Route II & Route III).



**Route Comparison Statement for all three Routes for
400 kV D/C Aligarh-Prithala Transmission Line**

| SL No | Description | Alternate I (Proposed) | Alternate-II | Alternate-III |
|-------|--|--------------------------|--------------------------|--------------------------|
| 1 | BEE Line Length (KM) | 28..065KM | 28..065KM | 28..065KM |
| 2 | Route Length (KM) | 29.79 KM | 30.323 KM | 30.79KM |
| 3 | No. of Angle Points | 10 | 11 | 13 |
| 4 | Reserved/Protected/Revenue Forest Area(Ha) | 0.3036 | 0.315 | 0.715 |
| 5 | Wild Life Sanctuaries / National Parks | NIL | NIL | NIL |
| 6 | Endangered species if any | NIL | NIL | NIL |
| 7 | River Crossing (Major) | NIL | NIL | NIL |
| 8 | Express Highway | 1No.(Yamuna Express way) | 1No.(Yamuna Express way) | 1No.(Yamuna Express way) |
| 9 | State Highway | 1No. | 1No. | 1No. |
| 10 | Railway Crossing | NIL | NIL | NIL |
| 11 | Major Power Line Crossings | | | |
| a | 132kv lines | 1No. | 2 No. | 2 No. |
| b | 220 kV LINE | NIL | NIL | NIL |
| c | 400 KV line | NIL | NIL | NIL |
| d | 765 kv line | NIL | NIL | NIL |
| 12 | Places of Archeological Importance | NIL | NIL | NIL |
| 13 | Terrain condition | Plain Terrain | Plain Terrain | Plain Terrain |
| 14 | Places of historical / cultural / religious / tourist importance | NIL | NIL | NIL |
| 15 | Line Pass through any Town/ City | NO | NO | NO |
| 16 | Line Pass through any Defence establishments | NO | NO | NO |

Results & Conclusions:-

Referring to comparative statement for alternative routes and angle point summary, all the three routes are positioned on either side of BEE line. After initial inspection of physical maps updated with satellite images and walk over survey, all three corridors were explored for the best & optimum route alignment. Special attention has been given to the existing EHV lines, Protected forest, Reserved forest, river crossings, railway crossings, national highways, minimum route length and habitation. After detailed analysis, **Alternate 1 has been observed as most viable route for route alignment. Construction as well as operation & maintenance problems would be much less in Route-1.**

