

**FEASIBILITY REPORT FOR ROUTE SELECTION OF
132 KV DOUBLE CIRCUIT TRANSMISSION LINE**

**FOR PROPOSED 126 MW WIND POWER PROJECT OF
WELSPUN RENEWABLES ENERGY PVT.LTD IN
DISTRICT PRATAPGARH, RAJASTHAN**



TABLE OF CONTENTS

PROJECT DESCRIPTION.....	3
SCOPE OF WORK	3
ROUTE SELECTION.....	4
ANALYSIS OF SURVEY.....	5
ANNEXURE – 1 (COMPARATIVE STATEMENT FOR THREE ALTERNATIVE ROUTES).....	6
CONCLUSION & RECOMMENDATION.....	6



PROJECT DESCRIPTION

M/s Welspun Renewables Energy Pvt. Ltd. having its registered office at Welspun House, 7th Floor, Kamala City, SB Marg, Lower Parel (West), Mumbai -400013.

M/s Welspun Renewables Energy Pvt. Ltd. is registered with M/s Rajasthan Renewable Energy Corporation vide registration no. 134/2004 dated 9.04.2012 under Policy 2004 for setting 126 MW Wind power Project at village Damotar, Kulmipura, Nakor, Tanda, Bori, Chokdi, Baveri Khera, Mahuri Khera, Narayan Khera, Amil Khera, Tila, Kura Tapra, Kundwa Khundi, Bilya Khundi & Bilhara, Tehsil Pratapgarh in Rajasthan.

The Project is located in Villages of Damotar, Kulmipura, Nakor, Tanda, Bori, Chokdi, Baveri Khera, Mahuri Khera, Narayan Khera, Amil Khera, Tila, Kura Tapra, Kundwa Khundi, Bilya Khundi & Bilhara, Tehsil Pratapgarh in Rajasthan..

The Project site is located around 180 kilometers away from the nearest city of Udaipur in Rajasthan, which also has an airport. The Project site is also located within 40 kilometers of distance from the broad gauge Railway line between Mandsaur in Madhya Pradesh and Chittorgarh in Rajasthan. The Project is also connected to the nearest National Highway (NH-113), which is very near from the Project location.

M/s Welspun Renewables Energy Private Limited is developing 126MW wind power project at Village- Damotar, District - Pratapgarh, Rajasthan. The 126 MW wind farm consisting of 40 numbers GE WTG (1.6 MW each) and 31 numbers GAMESA WTG (2 MW each).

The Wind generators generate power at 690V, the voltage is stepped up to 33kV by a step up transformer. The collection system has 6 (six) number clusters of approximate capacity of 20-25MW each depending upon physical layout feasibility. All collector system is pooled to 132/33kV pooling substation by 6 nos collectors (33kV Internal Lines). The pooling station is having two outgoing lines of 132kV and 33KV each. Both lines are connected to 132/33kV Pratapgarh Substation of RRVPNL by a double circuit line with each circuit charged at 132 & 33kV respectively

The grid connectivity is from RRVPNL Pratapgarh substation by 1 number 132kV bay and 1 no. 33kV bay. The transmission line from Pooling station to Pratapgarh GSS is constructed as 132kV double ckt on double ckt tower, considering future expansion possibility. 1st ckt of 132kV will evacuate maximum of 106MW through ACSS conductor (spare capacity of 30-40MW) and 2nd ckt of 33kV with evacuate maximum of 20MW through ACSR panther conductor. Accordingly the Pooling substation layout has been made to meet above criteria.

SCOPE OF WORK

Transmission Lines

- (i) 126 MW Welspun Pooling Substation at Dhalmu – RVPN 132 kV
Pratapgarh GSS 132kV D/C Transmission Line– 12 km.



Substations:

Extension of existing 132 KV Bus at Pratapgarh & 1 nos. 132 kV Bay & 1 no. of 33 kV Bay under deposit work basis.

ROUTE SELECTION

Environmental impact of transmission line projects are not far reaching and are mostly localized to ROW. However, transmission line project has some affects on natural and socio-culture resources. These impacts can be minimized by careful route selection. To minimize these possible impact WREPL at the system planning stage itself try to avoid ecological sensitive areas like forest. Wherever such infringements are substantial, different alternative options are considered to select most viable route alignment. For further optimization of route modern survey techniques/tools like GIS, GPS aerial photography are also applied. Introduction of GIS and GPS in route selection result in access to updated/latest information, through satellite images and further optimization of route having minimal environmental impact. Moreover, availability of various details, constraints like topographical and geotechnical details, forest and environmental details etc. help in planning the effective mitigative measures including engineering variations depending upon the site situation/location. The route/ site selection criteria followed by WREPL is detailed below:

Criteria Set forth before Route Selection of Transmission Line

For selection of optimum route, the following points are taken into consideration:

1. The route of the proposed transmission lines does not involve any human rehabilitation.
2. Any monument of cultural or historical importance is not affected by the route of the transmission line.
3. The proposed route of transmission line does not create any threat to the survival of any community with special reference to Tribal Community.
4. The proposed route of transmission line does not affect any public utility services like playgrounds, schools, other establishments etc.
5. The line route does not pass through any sanctuaries, National Park etc.
6. The line route does not infringe with area of natural resources.

In order to achieve this, WREPL undertakes route selection for individual transmission lines in close consultation with representatives from the STU, Power Ministry, Local Bodies and the Department of Revenue. WREPL has always considered the above-mentioned factors during site selection, with minor alterations often added to avoid environmentally sensitive areas and settlements at execution stage.

- A. As a rule, alignments are generally cited 10-15 km away from major towns, whenever possible, to account for future urban expansion **Exhibit-1**.
- B. Similarly, forests are avoided to the extent possible, and when it is not possible, a route is selected in consultation with the local Divisional Forest Officer, that causes minimum involvement to existing forest resources.



- C. Alignments are selected to avoid wetlands and unstable areas for both financial and environmental reasons.

In addition, care is also taken to avoid National parks and sanctuaries and any other forest area rich in wild life.

Keeping above in mind the routes of line under this transmission System has been so aligned that it takes care of above factors. As such different alternatives were studied with the help of Govt. published data like Forest atlas, Survey of India topo maps etc. to arrive at most optimum route which can be taken up for detailed survey using GIS/GPS and assessment of environmental & social impacts for their proper management.

Similarly the TOR for detailed survey using modern tool like GIS/GPS also contained parameters to avoid/reduce environmental impact while deciding the final route alignment.

The major objectives for detailed survey are summarized below:

1. The alignment of transmission line is most economical from the point of view of construction and maintenance.
2. Routing of transmission line protected the reserved forest area or areas having large trees completely.
3. The number of angle point kept as minimum possible.
4. Crossing of power line shall and alignment kept at a minimum distance of 300 meters from power lines to avoid induction problems on the lower voltage lines.
5. All alignment are easily accessible both in dry and rainy seasons to enable maintenance throughout the year.
6. Angle point selected such that shifting of the point within 100 m radius is possible at the time of construction of the line.
7. The line routing avoids large habitation densely populated areas to the extent possible.

ANALYSIS OF SURVEY

1. Considering the above procedure detailed survey were conducted for Alternative 1, Alternative 2 & Alternative 3.
2. Details of the proposed Routes are summarized in **ANNEXURE - 1**.



ANNEXURE – 1 (COMPARATIVE STATEMENT FOR THREE ALTERNATIVE ROUTES)

132KV D/C WELSPUN TO PRATAPGARH GSS ROUTE SURVEY

DESCRIPTION	ALTERNATIVE-1	ALTERNATIVE-2	ALTERNATIVE-3
Color In Map	RED	BLUE	CYAN
BEE-Line	8.116 KMS.	8.116 KMS.	8.116 KMS.
Total Length	8.72 KMS.	9.39 KMS.	11.53 KMS.
No. of Angle Point	7 nos.	9 nos.	21 nos.
Total Forest Length (KM)	5.46 KMs	4.51 KMs	0.895 KMs
Wild Life Sanctuaries/National Distance From Buffer	NIL	NIL	NIL
River Crossing	NIL	NIL	NIL
National Highway	NIL	NIL	NIL
State Highway	NIL	NIL	NIL
Railway Crossing	NIL	NIL	NIL
Major Power LINE			
132 KV	1	1	0
220KV	NIL	NIL	NIL
400KV	NIL	NIL	NIL
MAJOR CANAL	NIL	NIL	NIL
Communication Line Crossing	NIL	NIL	NIL
Recommendation	LOW	MEDIUM	HIGH



CONCLUSION & RECOMMENDATION

1. Considering the minimum forest area involved, less population density, avoiding human & animal habitats. Even though number of Power crossings are high, and length of the transmission line is also 30 - 40% more.
2. At Present any attempt to change the angle of deviation of Transmission Towers falling in particular patch of Forest will result in failure of power line crossing and hence making laying of Transmission line unfeasible.
3. Alternative 3 was found to be most suitable Route of the proposed 132 kV double circuit Transmission Line.

