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A Success Story (Jalandhar- Samba- Amargarh Transmission Project)

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***Abstract*—**The said transmission line project had been approved under system strengthening of northern region named as NRSS -XXIX, in particular to feed power to Kashmir valley which gets starved in the event of failure of existing system. It is being implemented under TBCB (Transmission business cum bidding) basis. Part of the project was complete 14months ahead of schedule. Effort has been made to explain how with strategic planning it was achieved.

I. History

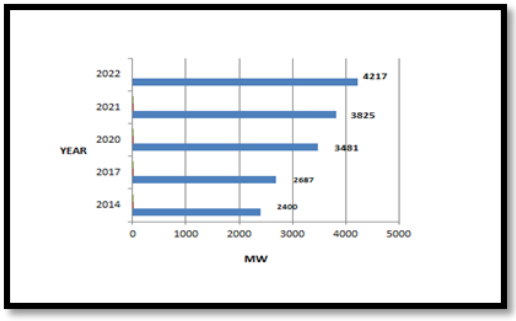
Under NRSS 29, scope of project covers construction of 400kv D/C transmission line from Jalandhar to Samba & Samba to Amargarh with 400/220 kv, 7x105mva transformers at Amargarh, distt. Baramulla, kashmir. This has been awarded to spgvl based on competitive bidding conducted by REC on behalf of MOP. Estimated cost of project apprx. Rs 20 Thousand Millions

II. Details of the Project are as Under

400 kv d/c Jalandhar to Samba---135 kms, element 1 --- completion by --- 34 months
400 kv d/c Samba to Amargarh -- 280 kms, element 2 – completion by --- 40 months
400/220 kv s/s at Amargarh (7x105mva) ---- element-2 ---- completion by --- 40 months
Transmission line can carry approximate 1200 mw of power from Jalandhar to Kashmir or vice versa.

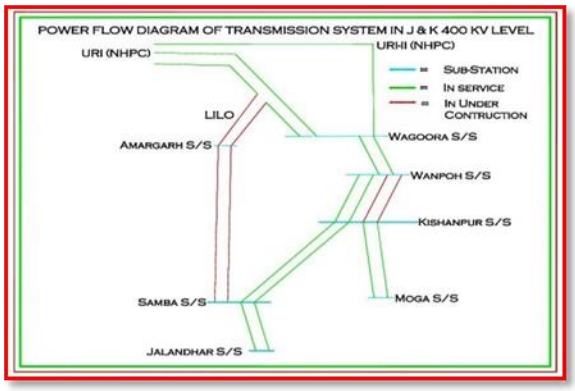
III. Basic Aim of Construction of this Project Is

*To create a parallel path to carry power for the valley.
*To control voltage profile of system on account of long distances.
*Existing system faces failures during hostile weather conditions & becomes un approachable to attend. This has been experienced in the past by power grid Corporation of India ltd. As of now is the bulk power carrier for valley.
Demand of J&K as forecast by CEA.



To tap Samba – Amargarh Tr. Line en route Rajouri distt. of the state, which also happens to face frequent failure due to non availability of strong power lines.

IV. Major Transmission Power Flow Diagram of J&K



Agreement was released in august 2014
Element 1 was to be completed within 34 months of agreement. However strong work force, management of spgvl decided to complete element by March 2016, 14 months of schedule.

V. Approach Adopted to Reduce Time

On account of article 370 in the state there are certain limitations of land acquisition.
Critical areas identification
In order to achieve the target, first of all activities were identified and subsequently critical activities were identified such as
Supply chain management
Supply of towers
Supply of conductors
Supply of e/w & opgw
Supply of insulators & hardware
Administrative
Land acquisition & forest clearances with all legal formalities as per prevailing laws of land.

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Release of payment to farmers

VI. Major River Crossings

Normally pile type foundations are preferred to cross river. Construction of piles is a cumbersome task due to limitation of construction period. So it was decided to go far open cast foundations at the bank of Beas River. Considering all factors towers of 105 meters were proposed to be constructed. This went on in parallel to other construction activities.

VII. Other crossings

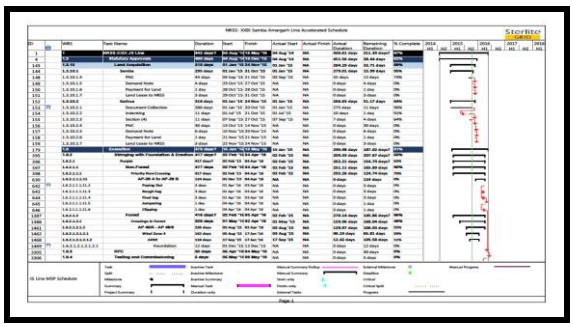
8 nos power line crossings of power grid lines
2 nos railway track crossings
2 nos NH crossings
2 nos SHW crossings
2 nos of 220 kv pstcl lines crossings
All proposals were submitted to all concerned authorities in the very beginning of the project and continued to pursue by dedicated teams.

VIII. Monitoring group

It started monitoring of each activity on day to day basis

IX. Weekly basis

Video & audio conferences for on spot decisions.Use of software tools --- prima Vera and ms projects. These tools provided criticality at each step for attention



X. Power Line Crossings

At one location of power grid 400 kv line and 2 locations of 220kv PSTCL line, there was difficulty in getting s/d on account of crops. Hence it was decided to do hot line crossing.

XI. NH Crossings

Cross border bus from Lahore to Delhi runs daily on NH1. Tr. Line crosses NH very close to Jalandhar s/s. Hence with proper coordination cum support of Punjab police, NH authorities & local administration it was planned in such a way that period of work does not obstruct passing of inter country bus. Slot allotted was 02 am to 08 am. Carrying huge quantum of work under amid monitoring was a gigantic task itself. Generators were used for proper lighting.

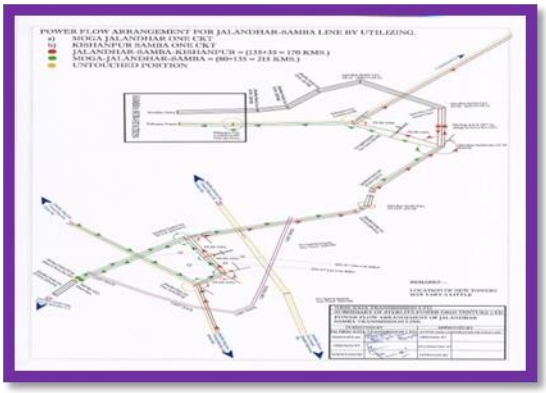
Finally line was made ready for charging on 31/03/2016 that is 14 months before schedule.

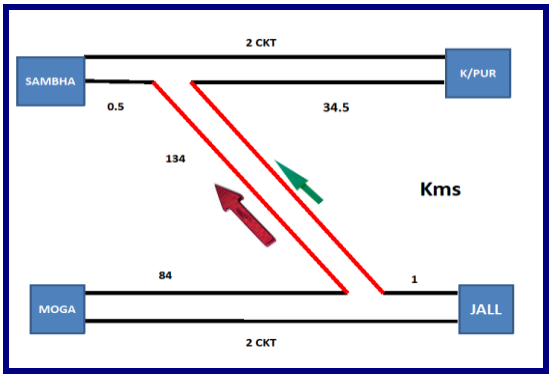
XII. 400kv Bay Commissioning

400kv bays at Jalandhar & Samba ends falls in the scope of power grid. Since line was ready 12 months ahead of schedule, bays had it had its own limitations of execution and equipment supply as per agreement. Hence after a lot of deliberations with power grid, scheme was submitted to CEA for approval so as to make it use for the nation.

XIII. Contingent Plan

Where in it was proposed to use Moga – Jalandhar one ckt & making it as Moga – Samba --- 215 kms and Jalandhar—Kishenpur -- 175 kms. This would make system more strength for the time being till completion of bays.





New towers

For flow of power, 2 new towers at Jalandhar end & one new tower at samba end were required. Hence all termination and sequence matching was done prior to submission of scheme to appropriate level.

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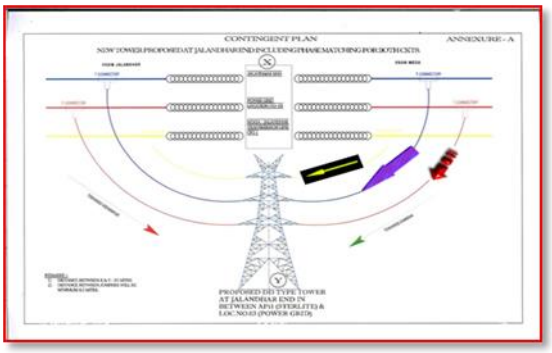
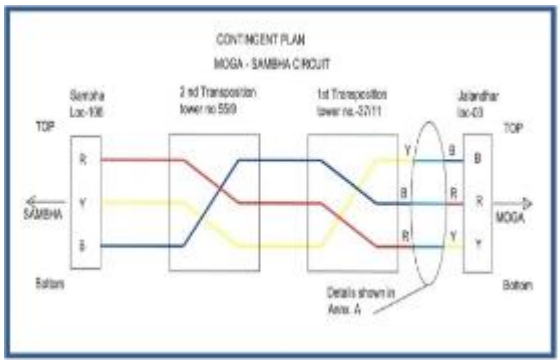
To match sequence, transposition of conductors was planned at Jalandhar end new towers. Due care for clearance was taken to avoid flash over.





Scheme was reviewed thoroughly by CEA ,CTU, POSOCO, NRLDC etc. Finally agreement was signed with power grid to make it successful. Sterlite owned the total responsibility of any problem arising. New plcc panels were procured from ABB so as to match with existing system of power grid and minimise S/d time. Relay settings were given by power grid.

Finally teams were placed at respective locations with responsibility chart.

Guide lines were circulated to all.

XIV. Communication

Control room was created at Jammu, for monitoring and instructions if any problem arising.

XV. Use of Whatsapp

Group was created for fast instruction / progress and communication to all concerned instantly.

XVI. Charging

All pre s/d activities were completed with all type spare contingencies at site.

Approval was obtained from Nrldc/ Posoco and well defined coordinated with power grid

Moga – samba ckt was charged with in 36 hrs of s/d.

Jalandhar – Kishenpur was charged with in 72 hrs of s/d.

Job was completed on 23/06/2016.

Commissioning of element 1 added a glorious cap in transmission sector of India and boon for j&k state to draw power as required.

XVII. Future

The Story continuous as work of Samba – Amargarh is in fast pace of working wherein Heli-crane is being used for the purpose of materialistic support.

Author expresses thanks to all team for providing support during execution of the project.

Acknowledgement

Authors express sincere thanks to management of power Grid Corporation of India for extending full support during execution of contingent plan.

Bibliography

D/C – Double circuit.

Samba & Amargarh are important places in Jammu & Kashmir state

Jalandhar and Moga are industrial cities of Punjab state

NRSS 29 – NORTHERN SYSTEM STREGTHENING SCHEME 29

OPGW – Optical grownd wire

NHAI – National highway authority of India

E/W -- Earth wire

PSTC – Punjab state transmission corporation ltd

CTU – Central transmission utility

CEA – Central electricity authority

POSOCO --- Power system operation and controlling organisation

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NRLDC – Northern region load despatch centre
SPGVL – Sterlite power grid ventures ltd.
REC –Rural Electrification Corporation
MOP – Ministry of power, Govt. of India
SHW – State Highway

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