

BRIEF NARRATIVE OF THE SCHEME

FOR

TRANSMISSION SYSTEM FOR TRANSFER OF POWER FROM GENERATION PROJECTS IN SIKKIM TO NR/WR(PART-B) IN STATE OF SIKKIM

I. PREAMBLE

- 1.1 There is poor ratio of thermal & hydel power generation mix in India in general, and in Eastern India in particular. Government of India has placed due importance on harnessing hydroelectric power potential available in India, especially North-Eastern Region, not only to meet up peak demand, but also due to diminishing coal reserve.
- 1.2 Various Private Independent Power Producers have been entrusted with the different Hydro Projects in Sikkim in the Teesta and Rangit Basin with commissioning target of HEPs ranging from 2012 to 2015. List of few of the major projects are :
 - i) Teesta III Hydro Project – 1200 MW being developed by M/S Teesta Urja Limited
 - ii) Teesta VI Hydro project – 500 MW being developed by M/S Lanco
 - iii) Chujachen Hydro project – 96 MW being developed by M/S Gati Infrastructure
 - iv) Rangit IV Hydro project – 96 MW being developed by M/S Jal Power
 - v) Jorethang Loop Hydro project – 96 MW being developed by M/S Danse Energy
 - vi) Rongni Chu Hydro project – 96 MW being developed by M/S Madhya Bharat Power
- 1.3 Power Grid Corporation of India Ltd, in short POWERGRID, the Central Transmission Utility, thus has mandate to plan and take up the job of constructing suitable transmission lines and Sub-stations for evacuation of power generation from these Hydro Projects in Sikkim to the Power shortage states of the country through the National Powergrid. POWERGRID has planned to construct the following Sub-stations and Transmission lines for pooling of the Power generated in the Hydro Projects of Sikkim :
 - a) 400/220/132 KV , 105X15 MW, 100X3 MW GIS Sub-station at Rangpo
 - b) 220 KV Switching Sub-station (GIS) at New Melli
 - c) LILO of 400 KV Teesta-III-Kishangang line at Rangpo S/S-22.5km(21km D/C & 1.5 km M/C)
 - d) LILO of 400KV Teesta –V-New Siliguri line at Rangpo S/S -1.5 km M/c & 4.343km D/C
 - e) Rangpo-New Melli 220KV D/C line - 22 km(20km D/C & 1.5 km M/C, 2 ckt. of 220kv line and 2 ckt. of 132kv line i.e a portion of LILO of Gangtok –Rangit 132kv S/C line at Rangpo)
 - f) LILO of Gangtok-Rangit 132KV S/c Line at Rangpo S/S, 3km and termination of Gangtok-Rangpo/Chujachen 132kv line at Rangpo-1km, Termination of Gangtok – Rangpo/Chujachen and Melli-Rangpo/Chujachen 132kv line at Rangpo -0.5km, and termination of Gangtok-Rangpo/Chujachen & Melli-Rangpo/Chujachen 132kv line at Rangpo multi-circuit portion-1km (Gangtok –Rangpo/Chujachen & Melli-Rangpo/Chujachen 132kv lines are to be constructed under part-A through LILO of Gangtok-Melli 132 kv S/C line upto Rangpo)

2. DESCRIPTION OF PROJECT

2.1 The proposed 400 KV/220KV/132KV transmission lines constituting :

- i) 220 KV Double circuit interconnection of the two GIS sub-stations
- ii) Interconnection of Rangpo GIS with two major 400 KV Double Circuit lines namely TeesaV-New Siliguri Twin Moose line and TeestaIII-Kisanganj quad moose line
- iii) Interconnection of Rangpo GIS with 132 KV Double circuit line namely Termination of Melli-Rangpo/Chujacen and Gangtok-Rangpo/Chujachen at Rangpo and LILO of Rangit – Gangtok line at Rangpo

The transmission system shall enable evacuation of total generation of hydro electric power of Teesta and Rangit basin in Sikkim to major grid sub-station at Siliguri and Karandighi for further transmission of power to respective beneficiary states.

2.2 Geographic area of the Scheme in Sikkim :

1	400/220/132 KV , 105X15 MW, 100X3 MW GIS Sub-station at Rangpo	Name of Village – Samardong, Block- Karek, Distt. – South Sikkim
2	220 KV GIS Sub-station at New Melli	Name of Village – Poklok, Block- Denchung, Distt. – South Sikkim
3	LILO of both circuits of 400 KV D/C Teesta-III-Kishangang quad moose line at Rangpo S/S 22.5 km (21 km D/C & 1.5 km M/C)	Route description : Ben- Dentam-Temi- Pabong- Palak-Burul- Kalej Khola – Samardong
4	LILO of 400KV Teesta –V-New Siliguri line at Rangpo S/S -1.5 km M/c & 4.343 km D/C	Route description : Tingling – Burul - Kalej Khola – Samardong
5	Rangpo-New Melli 220KV D/C line - 22 km (20km D/C & 1.5 km M/C, 2 cts of 220kv line and 2 cts. of 132kv line i.e a portion of LILO of Gangtok – Rangit 132kv S/C line at Rangpo)	Route description : Dong RF – Sorokpani – Maniram - Suiram - Phong - Tingling – Burul - Kalej khola – Samardong
6	LILO of Gangtok-Rangit 132KV S/c Line at Rangpo S/S, 3km	Route Description : Burul - Kalejkhola – Samardong
7	Termination of Gangtok- Rangpo/ Chujachen 132kv line at Rangpo-1km, Termination of Gangtok – Rangpo/Chuzachen and Melli-Rangpo/Chuzachen 132kv line at Rangpo -0.5km, and termination of Gangtok-Rangpo/Chujachen & Melli-Rangpo/Chuzachen 132kv line at Rangpo multi-circuit portion-1km (Gangtok –Rangpo/Chuzachen & Melli-Rangpo/Chuzachen 132kv lines are to be constructed under part-A through LILO of Gangtok-Melli 132 kv S/C line upto Rangpo)	Samardong

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- 2.3 The enclosed map plotted on traced Survey of India Toposheet of 1:50000 scale (1cm=0.5 km) shows the route alignment of transmission line proposed under the scheme. In addition for the transmission line traverses in Sikkim State, the route is plotted on original SOI Topo sheet of 1:25000 scale (1cm=0.25 km).

3. ACCRUAL OF BENEFIT OF THE SCHEME

There will be a increase in overall generation capacity and a better mix of hydro thermal generation for stability of grid thereby helping to boost in development of industries and agriculture beside relief to domestic consumers in the entire country. The increase in installed capacity of Electric Power shall help to achieve GDP growth. Sikkim state will have their free quota of energy generated as per present practice which will make the state power surplus/self reliant on its energy demand in addition to inflow of revenue from sale of excess power.

4. DESCRIPTION OF THE ROUTE

The terrain encountered for all the lines 100 % hills. The MSL of the tower locations vary from 350 mtr to 2200 mtr. The corridor for 400 KV/220 KV/132 KV line in this area is very limited considering the treacherous terrain and involvement of forest could not altogether be avoided. The route has been so aligned to avoid Wildlife areas and to pass through bare minimum forest area. Thus to obtain a suitable corridor for laying of the line way leave through forest is necessary.

5. CONCLUSION

The Hydro-electric Projects being developed by the various Independent Power Producers as mentioned above having their Power Houses and associated GIS Switchyards at different area in Sikkim. These Power Stations have targets of commissioning from 2012 to 2015. Power Grid Corporation of India Ltd (a Govt. of India Enterprise), the Central Transmission Utility, has to make its transmission system ready for evacuation of power matching with target of commissioning of Generating units.

As all the relevant environmental and forest clearances have been accorded to various Hydro Projects, clearance may also be accorded for diversion of minimum forest land for laying of transmission line for evacuation of generation of various HEPs without any hindrance.