Agenda for 1st meeting of Eastern Region Power Committee (Transmission Planning)

1. Confirmation of the minutes of 2nd meeting of Eastern Region Standing Committee on Transmission (ERSCT).

1.1 The minutes of the 2nd meeting of Eastern Region Standing Committee on Transmission (ERSCT) held on 5th July 2019 at Siliguri, West Bengal were circulated vide CEA letter No. CEA-PS-12-15/2/2018-PSPA-II Division-Part (1) dated 23rd August, 2019.

1.2 For information of members.

2. Constitution of five "Regional Power Committees (Transmission Planning)" (RPCTPs)

2.1 Ministry of Power vide letter no. 15/3/2017-Trans dated 04.11.2019 (copy enclosed at **Annexure-I(a)**) has revised the existing five Regional Standing Committee on Transmission (RSCTs) by replacing the same with five new "Regional Power Committees (Transmission Planning) (RPCTPs)".

2.2 Eastern Regional Power Committee (Transmission Planning) (ERPCTP) has been constituted having following composition, with immediate effect:

1.	Member Power System , Central Electricity Authority, CEA	Chairperson
2.	Chief Operating Officer, Central Transmission Utility POWERGRID	Member
3.	Director(System Operation), Power System Operation Corporation Ltd.	Member
4.	Heads of State Transmission Utilities (STUs) of Bihar, Jharkhand, West Bengal, Odisha, Sikkim, UT of Andaman & Nicobar Islands #	Member
5.	Member Secretary of Eastern Regional Power Committee	Member
6.	CMD/ MD/ Chairman of NTPC, NHPC, SECI and DVC	Members
7.	Chief Engineer(from Power System Wing), Central Electricity Authority*	Member Secretary

 # STUs to coordinate with their respective Distribution Companies (DISCOMs).
** To be nominated by the Central Electricity Authority.*

2.3 Terms of Reference (TOR) of the Committee are to:

1) Carry out a quarterly review of the Transmission System in the region; assess the growth in generation capacity and the demand in various parts of the region; and draw up proposals for strengthening inter- Regional transmission system. The transmission planning is required to keep in mind the areas where

the generation is likely to grow and areas where load demand will grow so that the transmission system at any point of time is capable to meet the demand in every corner of the country and comply with the mandate under the Tariff Policy of developing transmission system ahead of the generation for ensuring smooth operation of the grid.

2) Assess the transmission system requirements in the near, medium and long term and draw up transmission schemes to meet these requirements. While doing this a perspective plan for the next 15-20 years may also be kept in mind and accordingly the requisite allowance/margin may be factored in the system during planning process.

3) Examine applications for connectivity and access and ensure that these are granted speedily, provided that the requisite fees/charges are paid.

4) Review the upstream and downstream network associated with transmission schemes.

5) Examine and evaluate the intra-state transmission proposals.

6) Review and facilitate the construction of the inter-regional grid strengthening schemes.

2.4 The RPCTPs shall take steps to ensure that the transmission capacity is capable of wheeling the electricity to different parts of the region and outside the region as per the demands of the market. They shall carry out the quarterly reviews and make recommendation for system strengthening and expansion keeping in mind the guidelines laid down by the Tariff Policy.

2.5 The RPCTPs will forward their review of the transmission systems and their recommendation for system expansion/ strengthening to the National Committee on Transmission (NCT) at the end of every quarter- by 15th July; 15th October; 15th January and 15th April. The NCT will examine the proposals and forward them to Government with their recommendations.

2.6 Further, MoP re-constituted NCT vide Office order dated 04.11.2019 (copy enclosed at **Annexure-I(b))**.

2.7 Accordingly, this is the 1st meeting of ERPCTP. Members may note.

3. Modification in construction of 220 kV D/C Barjora-Burdwan line of DVC

3.1 In the 2nd ERSCT meeting held on 5th July, 2019, representative of DVC stated that as per transmission system approved for 12th plan, there was a plan was to make a 220 kV D/C ring at lower valley viz. Jamshedpur – Gola – Mejia TPS – Barjora – Panagarh – Burdwan – Kharagpur – Mosabani with a view to provide reliable power supply (Mosabani & Jamshedpur to be connected through 400 kV D/C line). In that proposal, 220 kV Burdwan GIS substation was proposed to be fed from 220 kV Barjora substation (via Panagarh) and 220 kV Kharagpur substation. However,

the proposal could not be taken up due to postponement of other associated projects.

3.2 After deliberations, it was decided that the issue of modification in connectivity of 220 kV D/C Barjora – Burdwan line of DVC would be discussed in Joint study meeting. The recommendations of joint study would be put up before ERSCT in its next meeting for decision.

3.3 The Joint Study meeting was held on 18.09.2019 (Minutes of the meeting enclosed at **Annexure-II**). Representative of DVC informed that original proposal approved for 12th Plan was 220KV D/C ring i.e. Jamshedpur-Gola-MTPS- Barjora- Panagarh-Bardhaman- Kharagpur- Mosabani 1 No. of 400KV/220KV/132KV S/Stn and Mosabani S/Stns, 4 No's 220KV S/Stns at Gola, Kharagpur, Bardhaman and Panagarh. Due to certain constraints Sub-Stations of Mosabani, Gola, and Kharagpur S/Stns were dropped along with the connectivity. The only remaining S/Stns considered for construction were 220KV/132KV Bardhaman S/Stn in Phase-1 and 220KV/33KV Panagarh S/Stn in Phase 2. Since, the only source of power of 3 No's 220KV S/Stn i.e Barjora, Panagarh & Bardhaman would be a 220KV D/C Line from Mejia Thermal Power Stn, the connectivity considered during the approved 12th Plan i.e. Barjora- Panagarh – Bardhaman S/Stn had to be modified. DVC proposed to modify the 220kV Connectivity from 220kV D/C Barjora – Panagarh- Bardhaman to 220kV D/C Parulia (DVC) – Panagarh – Bardhaman. Approximate loadings at Burdwan, Barjora and Durgapur substations are 120MW, 180MW and 190MW respectively.

3.4 After deliberations, following were agreed in the Joint study meeting:

a) DVC would explore the option of connecting proposed 220kV Burdwan substation to 220kV Durgapur(DVC) Substation including terminating through cable.

b) DVC would explore the option of connecting with D/c LILO of Durgapur(DVC)-Parulia(DVC) 220kV D/c line at proposed Panagarh substation, which may be connected to proposed 220kV Burdwan substation.

3.5 Subsequently, DVC vide letter dated 15.11.2019 requested CEA for "in-principal" approval of modification of 220 kV D/C Barjora-Burdwan line of DVC. Also, DVC sent a letter dated 25.11.2019 enumerating the following points to keep the end point as 220KV Parulia S/s rather than 220KV Durgapur S/s and avoiding LILO of Durgapur- Parulia 220KV D/C Lines:

i. Presently due to paucity of funds, construction of 220 kV Pangarh S/Stn has been kept in hold.

ii. Major height restriction for Panagarh Air Base (funnel area marked in black) is applicable as the Durgapur substation is within 112 to 15 Km of Panagarh ILS.

iii. Durgapur substation is geographically located in between the corridor of Howrah-Kalka Railway & NH-2 (23.494434 N, 87.3661339 E) and is surrounded by an industrial belt, namely Export Promotion Industrial Park(EPIP). EPIP is one of the important and prestigious projects of the Asansol Durgapur Development Authority (ADDA) under Urban Development & Municipal Affairs Department of Govt. of West Bengal. It is a 148 acres park situated on NH-2 with availability of all infrastructures.

iv. It is therefore very difficult to get transmission line corridor penetrating the EPIP area towards northern side of NH-2. Moreover, beyond the EPIP area there are cluster of FOREST LAND shown in patches of Green which has to be avoided.

v. The line can also not be constructed in between NH-2 and river Damodar because of congested dwelling house. A GPS photo of Location of Durgapur S/Stn is attached for reference.

vi. Non-availability of space for construction of 2 number 220kV Bays at Durgapur S/Stn.

vii. A cluster of old 400kV/220Kv/132kV lines exist in the small corridors available in the above regions.

viii. The Route followed by 220kV Parulia-Durgapur existing line falls in the proximity of the Panagarh Airfield and any new construction required for the LIO has to be approved by the Air Force Authority. LILO points inside the ILS zone marked in Black may not be approved by Air Force authority and outside the ILS zone the LILO points come to near vicinity of Parulia S/Stn. Hence, terminating the D/C Lines at 220kV Parulia Bus will be a prudent solution rather than making even a single circuit LILO of 220 kV Durgapur-Parulia Line.

3.6 Thereafter, a meeting was held in CEA on 28.11.2019 **(MoM enclosed at Annexure-III)** wherein, during studies, it was observed that if DVC proposal of Parulia(DVC)-Burdwan is accepted, the 220 kV D/C line section of Durgapur(PG)-Parulia(DVC) gets overloaded under N-1 condition.

3.7 After further deliberations, it was agreed to propose following transmission works for "in-principle" approval from Member (PS), CEA:

i. Parulia (DVC)-Burdwan 220kV D/C line instead of the earlier approved Barjora(DVC)-Burdwan 220 kV D/C line – by DVC.

ii. Second 220 kV D/C line between Durgapur (PG) and Parulia (DVC) (approx.-1km) along with associated bays at both ends – by DVC

iii. Shifting of 400/220 kV, 315MVA ICT-1 from Durgapur-A section to Durgapur-B section in the space vacated by shifting of bus reactor (Shifting of 420kV, 125MVAr bus reactor-4 in Durgapur-B section is required to create space for shifting and installation of 400/220kV, 315MVA ICT-1) – by POWERGRID

3.8 Members may discuss (Please also refer to the next agenda point).

4. Durgapur (POWERGRID) – Parulia (DVC) 220kV D/c line.

4.1 In the 2nd ERSCT meeting POSOCO informed that Parulia (Durgapur) is a major load centre in DVC control area which was planned to be fed from internal generation of DVC embedded at 220kV and 132 kV level since inception. However, with decommissioning of DVC units (at Bokaro and CTPS) and low generation from internal plants particularly at Mejia and Waria, the load of Parulia and nearby area is practically met through importing large quantum of power from Durgapur substation of PG through 220kV Durgapur(PG)-Parulia(DVC) D/C. This resulted in very high loading of above line and even crossed the N-1 security limit. POSOCO suggested for reconductoring of 220kV Durgapur(PG)-Parulia(DVC) D/C line by DVC as one of the corrective measure. It was decided that the issue need to be discussed in Joint study meeting.

4.2 In Joint Study meeting held on 18.09.2019, DVC stated that after commissioning of 3rd 400/220kV ICT, one ICT is on one 400kV bus and remaining 2 ICTs are on the other Durgapur(PG) 400kV bus due to bus splitting. There is unbalanced loading of ICTs at Durgapur. One of these ICTs are very less loaded and sometimes there is reverse power flow.

4.3 It was agreed that reconductoring of 220kV Durgapur(PG)-Parulia(DVC) D/C line is not required. Further, the issue of unbalanced loading of ICTs at Durgapur S/s would be flagged to ERSCT for suitable direction.

4.4 Subsequently, a meeting with DVC was held at CEA on 29-11-2019, wherein the issues of relieving high loading on Purulia (DVC) – Durgapur (POWERGRID) 220kV D/c line and unbalanced loading on Durgapur ICTs were discussed. After detailed deliberations, transmission system mentioned above at items 3.7 (ii) and 3.7 (iii) were identified to address the issues.

4.5 Members may discuss.

5. Connectivity of newly constructed 220/132/33 kV (2x150+2x50) MVA Grid Substation Giridih of JUSNL through LILO of 220 kV Giridih (DVC)-Koderma (DVC) Transmission Line.

5.1 In the 2nd meeting of ERSCT, JUSNL proposed LILO of 220 kV Girirdih (DVC)-Koderma (DVC) Transmission Line at Giridih (JUSNL) as the 220 kV D/C Giridih-Jasidih Transmission line and 220 kV D/C Dumka(Madanpur)- Jasidih Transmission line are getting delayed.

5.2 The proposal was discussed in the Joint study meeting held on 18.09.2019 and after deliberations, it was agreed that additional load of 120-150 MW of JUSNL could be met with Maithon(PG) 400kV Substation and contingency criteria would be satisfied after commissioning of planned system. Accordingly, it was recommended that the LILO of 220 kV Giridih (DVC) - Koderma (DVC) Line at Giridih GSS (JUSNL) is not required.

5.3 Members may discuss.

6. Interim connectivity to generation projects in ER through LILO arrangement

6.1 In few cases generation projects were commissioned ahead of the anticipated commissioning of the associated transmission system. In such cases, generation projects were given temporary connectivity through loop-in & loop-out (LILO) of nearby transmission lines so as to enable them connect with the grid. The temporary connectivity through LILO was to be withdrawn after commissioning of the associated transmission system. Associated transmission system of some of such generation projects have been commissioned and their temporary connectivity through LILO has been disconnected; however, some generators are still connected through LILO arrangement. CERC in its order dated 07-102015 on Petition No.112/TT/13 and dated 28-09-2016 in Petition no. 30/MP/2014 has directed that the interim (LILO) arrangement has to be removed.

6.2 The progress of associated transmission system of IPPs in Eastern Region, which are connected through interim arrangement is summarized below:

Generation Project in ER connected through temporary LILO arrangement					
Sl. No.	**Generation Project**	**IC (MW)**	**Present Connectivity through LILO**	**Final Connectivity Arrangement**	**Anticipated Completion Schedule**
1	Gati Infrastructure Ltd. (Chuzachen HEP)	2x55	LILO of Rangpo - Gangtok 132kV S/c line *(granted in Nov'07)*	Chuzachen - Rangpo 132kV D/c (with Zebra conductor)	In the 2nd ERSCT, E&PD Sikkim informed that the line was completed and the line bays at Rangpo end would be ready by 15th July 2019. E&PD Sikkim may update the status.
2	Sneha Kinetic Power Projects Pvt. Ltd. (Dikchu HEP)	2x48	LILO of one circuit of Teesta-III – Rangpo 400kV D/c line at Dikchu *(granted in Dec'14 by CERC)*	Dikchu – Dikchu Pool 132kV D/c	The issue was discussed in a meeting held on 28.11.2019 at CEA, details of which are mentioned at para 2.3.
3	Shiga Energy Pvt. Ltd. (Tashiding HEP)	2x48.5	LILO of one circuit of Rangpo-New Melli 220kV D/c line at Tashiding through Tashiding-New Melli 220kV D/c	Tashiding – Legship Pool 220kV D/c line	The issue was discussed in a meeting held on 28.11.2019 at CEA wherein, POWERGRID stated that the retendering for packages including Legship Pool has been done and the same is expected to be

					awarded by January 2020 with completion schedule of 15 months.

6.3 A meeting was held in CEA on 28.11.2019 **(MoM enclosed at Annexure-IV)** wherein E&PD Sikkim proposed that final connectivity of Dikchu HEP may be revised as LILO of 132kV Dikchu pool - Singhik line at Dikchu. The proposal of Sikkim to modify immediate evacuation system of Dikchu HEP from Dikchu HEP – Dikchu Pool 132kV D/c line to LILO of one circuit of Dikchu Pool-Singhik 220kV D/c (Twin Moose) line (to be initially operated at 132kV) line (1.5 km LILO length) at Dikchu HEP and to take up the same under the on-going Comprehensive Scheme was discussed. In this regard, following action were agreed to:

a) BDD, POWERGRID will estimate savings in respect of DPR and actual length of 220 kV lines in Sikkim, under the Comprehensive Scheme.

b) POWERGRID and Power Department of Sikkim will jointly inspect the proposed LILO section at Dikchu HEP and submit their report by 10 Dec, 2019 to CEA.

c) The proposed modification in immediate evacuation of Dikchu HEP would be put up for decision to ERPC(TP) in its next meeting.

d) Based on the above, the decision regarding additional scope proposed by Sikkim under already on-going Comprehensive Scheme would be taken.

6.4 E&P Dept., Govt. of Sikkim may provide status update on above matters.

7. Status of downstream 220kV or 132kV network by STUs from the various commissioned and under-construction ISTS substations

7.1 Numbers of ISTS sub-stations have been commissioned and some are under construction for which the downstream system is being implemented by the STUs. Based on the information provided by the states, updated information on planned/under-construction downstream system is as follows:

A. <u>Existing substations:</u>

(a) Rajarhat 400/220kV S/s

i. Rajarhat (POWERGRID) – New Town AA3 220kV D/c – Commissioned

ii. Rajarhat (POWERGRID) – New Town AA2 220kV D/c – June'20

iii. Rajarhat (POWERGRID) – Barasat/Jeerat 220kV D/c – Dec'19

(b) Subashgram 400/220kV S/s

i. Subashgram (POWERGRID) – Baraipur 220kV D/c line – Mar'20

(c) Pandiabil 400/220kV S/s

i. Pratapsasan (OPTCL) – Pandiabil (POWERGRID) 220kV D/c – Dec'19

(d) Bolangir 400/220kV S/s

i. LILO of one ckt of Sadeipalli – Kesinga 220kV D/c at Bolangir – Oct'19

(e) Keonjhar 400/220kV S/s

i. Keonjhar (POWERGRID) – Turumunga (OPTCL) 220kV D/c – Jun '20

(f) Daltonganj 400/220/132kV S/s

i. Daltonganj (POWERGRID) – Latehar 220kV D/c – Dec'19

ii. Daltonganj (POWERGRID) – Garhwa 220kV D/c – Dec'19

iii. Daltonganj (POWERGRID) – Chatarpur 132kV D/c – Aug'21

(g) Chaibasa 400/220kV S/s

i. Chaibasa (POWERGRID) – Jadugoda (JUSNL) 220kV D/c – Nov'21

B. <u>Under Construction substations:</u>

(h) Sitamarhi 400/220/132kV S/s: expected by Jan 2021

i. Sitamarhi (New) – Motipur (BSPTCL) 220kV D/c line

ii. Sitamarhi (New) – Raxaul (New) 220kV D/c (Twin Moose) line

iii. Sitamarhi (New) – Runni Saidpur 132kV D/c line

iv. LILO of Benipatti – Pupri 132kV S/c at Sitamarhi (New)

(i) Saharsa 400/220/132kV S/s: expected by Mar 2021

i. Saharsa (New) - Khagaria 220kV D/c line

ii. Saharsa (New) - Begusarai 220kV D/c line

iii. Saharsa (New) - Saharsa 132kV D/c line formed by LILO of Saharsa - Banmankhi and Saharsa - Uda Kishanganj 132kV S/c lines

(j) Chandauti 400/220/132kV S/s: expected by Mar 2021

i. LILO of Gaya (POWERGRID) – Sonenagar 220kV D/c at Chandauti (New)

ii. LILO of Chandauti (BSPTCL) – Rafiganj 132kV S/c at Chandauti (New)

iii. LILO of Chandauti (BSPTCL) – Sonenagar 132kV S/c at Chandauti (New)

As per the information provided by the BSPTCL, the works under B. (h), (i) & (j) above would be completed from June 2020 to December 2020 progressively.

(k) Dhanbad 400/220kV S/s: expected by Oct 2020

i. LILO of 220 kV Tenughat - Govindpur D/c line at Jainamore and Dhanbad —Jan' 20

7.2 Members may update the status of the above.

8. Status of 400kV substations being implemented by STUs in ER under intra-state schemes

8.1 Following 400kV substations have been approved in the previous meetings under intra-state strengthening schemes in ER. Respective STUs are requested to update the expected commissioning schedule of the same:

(a) <u>Bihar (to be implemented by BSPTCL/BGCL)</u>

(i) Naubatpur GIS: 400/220/132/33kV, 2x500MVA + 2x160MVA + 2x80MVA – Jun'20

(ii) Bakhtiyarpur GIS: 400/220/132kV, 2x500MVA + 2x160MVA –Mar'21

(iii) Jakkanpur GIS: 400/220/132/33kV, 2x500MVA + 3x160MVA + 4x80MVA – Jun'20

(b) <u>Odisha (to be implemented by OPTCL)</u>

(i) Meramundali-B: 400/220kV, 2x500MVA – Mar'20

(ii) Narendrapur (New): 400/220kV, 2x500MVA – Dec'23

(iii) Khuntuni: 400/220kV, 2x500MVA – Dec'21

(iv) Bhadrak: 400/220kV, 2x500MVA – Dec'21

(v) Paradeep: 400/220kV, 2x500MVA – Jan'22

(vi) Begunia: 765/400kV, 2x1500MVA along with Angul-Begunia 765kV D/c line and LILO of Pandiabil – Narendrapur 400kV D/c line at Begunia – Searching for land

(vii) Narendrapur – Therubali – Jeypore 400kV D/c line along with 400kV
switching station at **Therubali** and 420kV, 1x125MVAr bus reactor – Dec'23

(c) <u>Jharkhand (to be implemented by JUSNL)</u>

(i) Jarsidih: 400/220kV, 2x500MVA

(ii) Chandil (New): 400/220kV, 2x500MVA

(iii) Koderma: 400/220kV, 2x500MVA

(iv) Mander: 400/220kV, 2x500MVA

(v) Dumka (New): 400/220kV, 2x500MVA

(vi) <u>West Bengal (to be implemented by WBSETCL)</u>

(i) Laxmikantpur GIS: 400/132kV, 2x315MVA

As per the information provided by the JUSNL, regulatory approval for the above projects is pending from JERC.

8.2 BSPTCL, OPTCL, JUSNL and WBSETCL may update the status on the above.

9. High voltage at Angul and Sundargarh (Jharsuguda) substations at 765kV level.

9.1 In the 2nd ERSCT meeting, POSOCO informed that after commissioning of 765kV Angul-Sundergarh ckt-3 and ckt-4, the bus voltages at Angul and Sundargarh substations is quite high even after keeping all the line and bus reactors in service. Angul – Sundargarh (Jharsuguda) ckt-1, 3, and 4 were kept out of service for about 1380 hrs. Accordingly, POSOCO proposed for installation of 765kV, 1x330MVAr bus reactor at Angul (POWERGRID) S/s.

9.2 In Joint Study meeting held on 18.09.2019, CTU(POWERGRID) stated that at present, 2x330 MVAR reactor installed at 765 kV level and 3x125MVAR reactors installed at 400 kV level at Angul substations. As per the study, 1 No of 330 MVAR reactor at 765 kV would control the voltage by 3-4kV.

9.3 Also, in the joint study meeting, CEA stated that in the 8th meeting of Coordination Forum under chairmanship of Chairperson, CERC, held on 22.04.2019, it was decided that a committee would be constituted to study reactive power compensation in the system at national level.

9.4 Members may discuss.

10. Low voltage problem in Jeerat, Subhasgram and Rajarhat areas.

10.1 In the 2nd ERSCT meeting, CTU(POWERGRID) informed that low voltages have been observed in recent months at 400kV levels in Jeerat, Subhasgram and Rajarhat substation. As per data published by ERLDC, it was observed that MW and MVAr demand of West Bengal in these areas has increased by 455MW and 238MVAr respectively on YoY basis without any additional reactive compensation at lower voltage level by state. This has further aggravated low voltage scenario during peak load conditions. The short circuit level at Subhasgram, Rajarhat, and Jeerat substations are about 15kA, 19.2kA, and 20.9kA respectively. Further, from the studies, it was observed that in case of TSC at Subhasgram S/s, the change in bus voltage at Subhasgram, Rajarhat, Jeerat substations with switching in of each bank of 125MVAr is about 5-6kV, 3-4kV, 2-3kV respectively. Similarly, with TSC at Rajarhat S/s, the change in bus voltage at Subhasgram, Rajarhat, Jeerat substations with switching in of each bank of 125MVAr would be about 3-4kV, 3-4kV, 2-3kV respectively. Accordingly, installation of (Thyristor Switched Capacitor-TSC) of adequate size (≥500MVAr) either at Subhasgram or Rajarhat substation would improve the voltage profile in the area.

10.2 In Joint Study meeting held on 18.09.2019, Representative of WBSETCL stated the following:

i. To get the proper voltage to the consumers, WBSETCL has planned to install numbers of capacitor banks at 33 kV level as given below:

- In first stage, 610 MVAR capacitor banks are expected to be commissioned by March 2020.

- In second stage, 40 MVAR capacitor bank has been planned to installed at Subhasgram (WBSETCL) sub-station during financial year 2020-21.
- For new substations, WBSETCL is planning to install 10 MVAR per 50 MVA active power (Capacity of 132/33 kV transformers), where requirement is felt through study and for number of such cases, work order already released.
- In recent OCC meeting, CESC has informed that CESC is planning to install 50 MVAR capacitor bank at 132 kV bus of Kasba EM substation of CESC.

ii. To reduce loading of Subhasgram-Subhasgram(PG) and Subhasgram(WBSETCL)-Lakshmikantapur connected 220 kV lines, Baruipur 220 kV substation was planned and is likely to be commissioned by July 2020.

iii. Gokarna- Sagardighi 400 kV D/C line is expected to be commissioned by March 2020.

iv. After the all the planned connectivity at Rajarhat (PG) substation, the voltage will improve further.

v. WBSETCL has already requested POWERGRID for expediting the 765 kV corridors of Ranchi(New)-Jeerat-Midnapur (with all downstream 400 kV connectivity) within scheduled time, which will result in huge boost up in bus voltage, even during different peak hours.

vi. With the above, it is seen in the study that voltage profile in the mentioned 3 buses will be well within IEGC specified band without addition of the TSC.

vii. In the context of high voltage scenario during winter off-peak hours, WBSETCL had planned following bus reactors in two stages in addition to existing Reactors:

- In first stage 125 MVAR, 400 kV Bus Reactor is in WIP stage and to be commissioned at Arambag 400 kV Substation by March 2020.
- In second stage 5 numbers of 125 MVAR, 400 kV Bus Reactors are planned at Bidhannagar, New PPSP, New Chanditala, Gokarna, Kharagpur 400 kV sub-stations (approved in 1st Standing Committee meeting of ER, this year). These would be commissioned by May 2021.

10.3 Accordingly, after deliberations, it was agreed that the TSC may not be required. The status of the commissioning of the planned reactive compensation by WBSETCL and CESC and the corresponding voltage improvement at ISTS buses may be reviewed.

10.4 Members may discuss.

11. Reconductoring of Purnea – Malda section of Bongaigaon – Malda 400kV D/c line

11.1 In the 2nd ERSCT meeting, POSOCO informed that Bongaigaon – Malda 400kV line is an old line. It has been LILOed at Siliguri and Purnea. Purnea – Siliguri section has already been reconductored. Due to increased line loadings, POSOCO proposed to reconductor Purnea – Malda section with HTLS conductor.

11.2 In the Joint Study meeting held on 18.09.2019, it was observed that there was no constraint in Malda-Purnea 400kV line with N-1 & N-1-1 conditions.

11.3 After deliberations, it was agreed that the reconductoring of Purnea- Malda section of Bongaigaon- Malda 400 kV D/C line is not required.

11.4 Members may deliberate.

12. Establishment of 132/33 kV sub-station at Nabinagar

12.1 In the 2nd ERSCT meeting, representative of BSPTCL informed that one 132/33 kV, 3x50 MVA GSS has been planned at Nabinagar, Dist. Aurangabad with connectivity at 132 kV level as LILO of one circuit of 132kV Sonenagar – Rihand line under intra-state scheme.

12.2 It was suggested that instead of said LILO, new 132/33kV S/s at Nabinagar may be fed radially from Nabinagar-II generation project (line length: about 15km) as requisite transformation capacity is available in the 400/132kV, 2x200MVA ICTs at the generation switchyard.

12.3 In the Joint Study meeting held on 18.09.2019, it was decided that BSPTCL would explore feasibility of making LILO of 132 kV Sonenagar-Aurangabad line at Nabinagar and communicate to CEA.

12.4 Subsequently, a meeting was held in CEA on 17.10.2019 **(MoM enclosed at Annexure-V)** at CEA wherein representative of BSPTCL stated that 132 kV Sonenagar-Rihand S/C is usually open from Rihand(UP) end throughout the year (i.e. Nabinagar would be connected to Sonenagar S/s only). Therefore, LILO of 132 kV Sonenagar-Aurangabad S/C line at Nabinagar S/s was also proposed as a second source. Representative of CTU stated that LILO of both lines at Nabinagar S/s may cause differential loadings due to difference in line lengths of Sonenagar-Nabinagar lines (15 km Rihand LILO and 75 km Aurangabad LILO). Therefore, LILO of both lines is not necessary. Chief Engineer(PSPA-II), CEA suggested that both LILOs could be agreed with condition that only one LILO is operated at a time due to the issue of differential loading.

12.5 Accordingly following system was agreed:

(a) LILO of 132 kV Sonenagar–Rihand S/C transmission line (only one LILO to be operated at time) at Nabinagar (BSPTCL)- by STU

(b) LILO of 132 kV Sonenagar(New)– Aurangabad S/C transmission line (only one LILO to be operated at a time) at Nabinagar (BSPTCL)- by STU

12.6 Members may discuss.

13. Proposal for construction of 132/33 kV Grid sub-stations at Bhaga, Bhore, Barahchatti, Daudnagar, Barari and Murliganj in Bihar.

13.1 In the 2nd ERSCT meeting, BSPTCL informed that due to load growth, existing source GSS are far from proposed PSS, large length of 33kV feeder, maintenance issues, space constraint in the existing GSS for new PSS and segregation of agriculture feeders, 132/33kV Grid Sub-Stations are proposed under intra-state scheme of BSPTCL.

13.2 Accordingly, they proposed the connectivity of the six substations (Nabinagar, Barari, Daudnagar, Barachatti, Murliganj and Bhore). In the Joint Study meeting held on 18.09.2019, it was stated that there is change in connectivity of the above substations and one additional substation is also proposed. After deliberations, it was agreed that BSPTCL would submit detailed proposal with proper justification to CEA.

13.3 Subsequently, a meeting was held on 17.10.2019 at CEA **(MoM enclosed at Annexure-V)** wherein six substations (Nabinagar, Barari, Daudnagar, Barachatti, Murliganj and Bhore) along with additional one substation (Bagha) 132/33kV Grid Sub-Stations was discussed. After deliberations, it was agreed to take up take up proposal of seven GSS under intra-state strengthening scheme with following connectivities by BSPTCL to the forthcoming meeting of ERSCT:

Sl. No.	Name of GSS	Load (MW)	Voltage level	Connectivity	Type of conductor
1	Bagha (2*80 MVA)	35	132 kV	LILO of 132 kV Ramnagar – Dhanha S/C transmission line 132 kV Ramnagar – Raxaul (new) DCDS transmission line	Panther
2	Murliganj (2*80 MVA)	50	132kV	LILO of 132 kV Saharsa (ISTS) – Banmunkhi S/C transmission line 132 kV Murliganj - Uda Kishanganj transmission line DCDS	Panther
3	Barari (2*80 MVA)	40	132 kV	LILO of both circuits of 132 kV Sabour(New)– Sabour D/C transmission line	Panther
4	Daudnagar (2*80 MVA)	40	132 kV	LILO of 132 kV Sonenagar–Chandauti(New) S/C HTLS transmission line	HTLS

5	Bhore (2*80 MVA)	50	132 kV	D/c LILO of 132 kV Barhi-Rajgir/Nalanda D/C transmission line	Panther
6	Barachatti (2*80 MVA)	50	132 kV	D/c LILO of 132 kV Barhi-Rajgir/Nalanda D/C transmission line	Panther
				132 kV Chandauti (New) - Barachatti transmission line DCDS	
7	Nabinagar (2*80 MVA)	35	132 kV	LILO of 132 kV Sonenagar–Rihand S/C transmission line **(only one LILO to be operated at a time)**	Panther
				LILO of 132 kV Sonenagar(New)–Aurangabad S/C transmission line **(only one LILO to be operated at a time)**	

13.4 These S/s may be implemented commensurate with load growth in these areas.

13.5 Members may deliberate. Study results for this proposal are given at **Annexure-V**.

14. Replacement of existing Zebra conductor of Joda-JSPL 220kV line.

14.1 In 2nd ERSCT meeting wherein OPTCL proposed two (2) alternative LILO arrangements of interstate line for supplying power to JSW, under intra-state scheme. The LILO can be made either on Joda-JSPL-Jamsedpur line (including replacing the existing conductor with HTLS conductor from Joda Grid to JSPL) or in Joda-Ramchandrapur line.

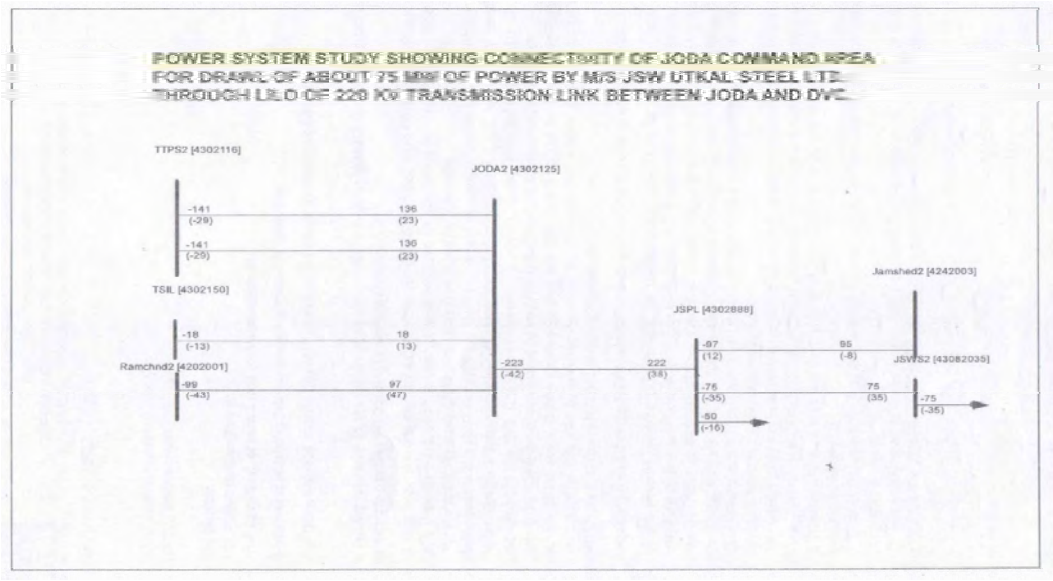
14.2 In the meeting following was agreed for implementation under intra-state scheme:

(i) JSPL switchyard - JSW Utkal 220 kV S/c line

(ii) Implementation of SPS (tripping of JSW load on tripping of Joda - JSPL line).

14.3 OPTCL has now informed that a joint inspection was done by a Committee comprised of officials from OPTCL, M/S JSPL and M/S JSW Utkal Steel Ltd. and two options were proposed for acceptance by M/S JSW Utkal Steel Ltd. The site feasibility study of the committee is attached with OPTCL's letter no. CGM(c)/OCC-47 / 2018 dated 26.11.2019. **(Annexure-VI)**

14.4 The system study has been conducted taking into consideration the drawl of 75 MW by M/S JSW Utkal Steel Ltd. The 220KV Joda-JSPL line is loaded to 222 MW. The SLD for the power flow scenario is attached. As it exceeds the thermal limit of 220 kV Zebra conductor, replacement with HTLS becomes a necessity.



14.5 Accordingly, Odisha proposed the following modified intra-state system to supply power to M/s JSW Utkal Steel Ltd.:

(i) JSPL switchyard-JSW Utkal 220 kV S/C line.

(ii) Replacement of existing Zebra conductor of Joda-JSPL switchyard station 220 kV S/C line with HTLS.

14.6 The above connectivities should be in accordance with relevant regulation including of OERC, CEA etc.

14.7 Members may discuss.

15. Advance intimation for alternate transmission system for Rammam-Ill (3X40MW) project

15.1 In the 2nd ERSCT meeting, representative of NTPC informed that Rammam-Ill (3X40 MW) hydro project is being constructed on river Rammam in Darjeeling district of West Bengal. MoU in this regard was signed between NTPC and WBSEB. TEC for the project was granted by CEA on 12th Sep 2006 and revalidated on 1st Aug 2013. 73% of power generated from the project has been allocated to WB and 12% to Sikkim by MoP on 31st Jan 2011, 15% of power is yet to be allocated.

15.2 As per terms and conditions of MoU, following transmission system was to be developed by WBSEB/WBSETCL.

(a) 132kV D/c Rammam III-New Jalpaiguri

(b) LILO of 132kV Rammam-II HEP- North Bengal University line at Rammam III.

15.3 In the meeting, it was suggested that NTPC and West Bengal may resolve the matter bilaterally.

15.4 NTPC and West Bengal may update on the matter.

16. Construction of 400/220/132 kV Chhapra GSS by BSPTCL

16.1 BSPTCL has informed (vide letter no. CE(P&E)-142/2019 dated 03.10.2019, copy enclosed at **Annexure-VII)** that to meet the growing power demand in and around Chhapra area and to remove system constraints in intra-state system, construction of a new 400/220/132 kV Grid Sub-station is necessary. They have submitted that:

(i) The main source of power in the region is 400 kV Muzzaffarpur (PG) s/s and approx. 900 MW is being drawn. This results in very low voltage profile in the entire region. BSPTCL has to impose load shedding at different GSSs to maintain voltage profile at 132 kV level. The proposed Chhapra substation will provide second source to 220 kV GSSs and 132 kV GSSs in the area.

(ii) 220 kV Digha S/s is geographically so located in densely populated area that no source for Digha (New) is feasible other than Amnour. Connectivity of upcoming 220 kV Digha (New) GSS at Patna is under-construction from Amnour GSS which is presently getting power from Muzzaffarpur (PG). Construction of new 400 kV GSS at Chhapra and its proposed connectivity to Amnour at 220 kV will facilitate stable & reliable source of power at Digha (New) also in Patna area through Amnour.The 400kV Chhapra S/s is proposed to be fed from Barh Thermal Power Station through LILO of Barh – Motihari 400kV (Quad) D/c ISTS line. As per the studies, a quantitative rise in voltage profile is observed at the sub-stations connected to 400/220/132 kV Chhapra (New) and significant power is being evacuated at 220 kV and 132 kV voltage levels.

16.2 The matter was discussed in a meeting held on 17.10.2019 at CEA and the proposed establishment of new 400/220/132 kV Chhapra S/s under intra-state scheme with following connectivity was recommended to ERPCTP:

a) 2x500 MVA, 400/220 kV ICT

b) 2x200 MVA, 220/132 kV ICT

c) LILO of 400 kV Barh (NTPC) - Motihari (DMTCL) D/C (Quad) transmission line (about 40 km)

d) 220 kV Chhapra (New) - Gopalganj DCDS (100 km)

e) 220 kV Chhapra(New) - Amnour DCDS (25 km)

f) 132 kV Chhapra(New) - Maharajganj DCDS (45 km)

g) 132 kV Chhapra(New) - Raghunathpur DCDS (80 km)

h) 2x125 MVAR bus reactors

16.3 Study results for this proposal are given at **Annexure-V**. Members may discuss.

17. Uprating of bay equipment at Kahalgaon switchyard matching with capacity of Kahalgaon-Patna 400kV (Quad) D/C line- by POWERGRID

17.1 NTPC Ltd. for its Barh (3x660MW) STPP generation project in Bihar, was granted connectivity for 1980 MW through LILO of Kahalgaon — Patna 400kV (Quad) D/C line at Barh. Further, NTPC Ltd. has submitted data as per requisite details for signing of connection agreement for connectivity of its Barh STPP (3x660MW) Stage-1 generation project.

17.2 POWERGRID informed (vide email dated 29.11.2019, copy enclosed at **Annexure-VIII)** that they have observed that the rating of terminal bay equipment at Patna (POWERGRID) substation is 3150A, while the same at Kahalgaon (NTPC) switchyard is 2000A, which is not commensurate with the rating of the Kahalgaon — Patna 400kV (Quad) D/c line.

17.3 In this regard, NTPC need to upgrade their switchyard matching with rating of the outgoing lines. POWERGRID to present copies of connectivity granted (i.e., copies of con-4, con-5 etc.)

17.4 Members may discuss.

18. Evacuation system of Buxar Thermal Power Station (2x660 MW)

18.1 BSPTCL has informed that following transmission system was agreed in 19th meeting of Standing Committee on Power System Planning of Eastern Region held on 01.09.2017 for evacuation of power from Buxar TPS under intra-state scheme:

(i) Buxar TPS – Naubatpur 400 kV D/C (with Twin Moose or equivalent HTLS conductor)
(ii) Buxar TPS – Dumraon (New) 220 kV D/C (Twin Moose)
(iii) Buxar TPS – Pusaulli (BSPTCL)220 kV D/C (Twin Moose)
(iv) Buxar TPS – Dehri 220 kV D/C
(v) 2*500 MVA, 400/220 kV ICT at Buxar generation switchyard
(vi) Provision of space for 3rd ICT.

18.2 Further, new 220/132 kV GSS Karamnasa (New) with following connectivity has been planned in the time frame 2017-22 (already approved):

(a) LILO of 220 kV S/C Pusauli (PG) – Sahupuri S/C transmission line.

(b) 220 kV Pusauli (BSPTCL) – Karamnasa (New) D/C transmission line.

18.3 There is no availability of corridors at Pusauli (BSPTCL) end. Owing to which, already approved, construction of 220 kV Buxar TPS – Pusauli (BSPTCL) D/C transmission line may face severe RoW (Right of Way) at Pusauli (BSPTCL) end. Further, almost 250 MW power is to be evacuated from Karmnasa (New) in down-stream through Mohania, Karamnasa (old), Bhabhua, Ramgarh, etc. As such, 220 kV Buxar TPS – Pusauli (BSPTCL) D/C transmission line may be terminated at 220/132/33 kV GSS Karamnasa (New) instead of terminating it at Pusauli (BSPCL). This will also provide an additional source for Karamnasa (New).

18.4 The matter was discussed in a meeting held on 17.10.2019 at CEA, wherein BSPTCL stated that the type of conductor for Buxar TPS – Dehri 220 kV D/C line is single zebra.

18.5 After deliberations, following modified scheme for evacuation of power from Buxar TPS (to be implemented as intra-state scheme) was proposed to be recommended to ERPCTP for approval:

(i) Buxar TPS – Naubatpur 400 kV D/C (Twin Moose)
(ii) Buxar TPS – Dumraon (New) 220 kV D/C (Twin Moose)
(iii) Buxar TPS – Karmnasa (New) 220 kV D/C (Twin Moose)
(iv) Buxar TPS – Dehri 220 kV D/C (Single Zebra)
(v) 2x500 MVA, 400/220 kV ICT at Buxar generation switchyard
(vi) Provision of space for 3rd 400/220kV, 500MVA ICT

18.6 Study results for this proposal are given at **Annexure-V.**

18.7 Members may discuss.

19. Modification in ISTS scheme namely – "Associated Transmission System for Nabinagar-II TPS (3x660MW)"

19.1 POWERGRID vide email dated 29.11.2019, copy enclosed at **Annexure-VIII** has informed that the subject scheme inter alia includes construction of Nabinagar-II – Patna 400kV D/c (Quad) line along with 80MVAr switchable line reactors in both circuits at Patna end. However, in view of space constraint at Patna S/s, one of the circuits was proposed to be terminated in existing 80MVAr bus reactor bay along with conversion of existing 80MVAr bus reactor as switchable line reactor. The originally identified switchable line reactor for that circuit was proposed to be installed as switchable line reactor in one circuit of Barh – Patna line. The matter was deliberated in a meeting held at CEA on 02-11-2017(copy enclosed at **Annexure-IX**), wherein the proposal was agreed in principle. In the said meeting, it was also decided to take up the matter for formalization in the SCM of ER. The scheme has already been implemented as agreed in the said meeting.

19.2 Members may concur.

20. Modification in ISTS scheme namely – "Eastern Region Strengthening Scheme-III (ERSS-III)

20.1 POWERGRID vide email email dated 29.11.2019, copy enclosed at **Annexure-VIII** has informed that the scheme inter alia includes construction of Sasaram – Daltonganj 400kV D/c line along with 400/220kV, 2x315MVA new substation at Daltonganj in Jharkhand. During approval of the scheme in erstwhile Standing Committee on Power System Planning in ER held on 08-11-2008 at Bhubaneswar, line reactors were not planned along with the said lines. However, in the DPR stage, 50MVAr line reactors in both circuits of Sasaram – Daltonganj 400kV D/c line at Daltonganj end was incorporated. The scheme has been implemented accordingly.

20.2 Member may approve installation of 50MVAr line reactors in both circuits of Sasaram – Daltonganj 400kV D/c line at Daltonganj end as part of ERSS-III scheme.

20.3 Members may concur.

21. Transmission system for power evacuation from Arun-3 (900MW) HEP, Nepal of M/s SAPDC

21.1 M/s SJVN Arun-3 Power Development Company Pvt. Ltd. (SAPDC) is establishing a 900MW HEP in Nepal. The power from the hydro project is proposed to be evacuated through Arun-3 – Dhalkebar (Nepal) – Muzaffarpur (POWERGRID) 400kV D/c (Quad) line. In the 4th meeting of JSC/JWG held on 13th - 14th Feb 2017, it was decided that Nepalese portion of the transmission system would be implemented by M/s SAPDC as per PDA. The Indian portion of the cross-border line may be built by an Indian entity.

21.2 In the 7th JWG/JSC meeting between India and Nepal held on 14th-15th Oct 2019, it was proposed to terminate the line on Indian side at under-construction Sitamarhi substation keeping the border crossing point as same due to Right of Way (RoW) constraints in transmission line corridor for termination of Dhalkebar – Muzaffarpur line (associated with Arun-III HEP) near Muzaffarpur end.

21.3 Studies have been carried out for the revised configuration considering Arun-III generation pooling at Dhalkebar and it is observed that the power flow on Dhalkebar – Muzaffarpur 400kV Twin line (existing) is about 380MW and that on Dhalkebar – Sitamarhi 400kV Quad line is about 820MW which is in the similar ratio as their thermal ratings (study results attached at **Annexure-X**). Additionally, there is a considerable reduction in line length of Indian portion by shifting the terminal point from Muzaffarpur to Sitamarhi. Accordingly, it is proposed that the Indian portion of transmission system of Arun-III may be modified as Dhalkebar (Nepal) – Sitamarhi (POWERGRID) 400kV D/c (Quad) line.

21.4 CTU to present the studies.

21.5 Members may discuss.

22. Upgradation of existing 220/132kV Sahupuri S/s to 400/220kV, 2x500MVA

22.1 In the 39th meeting of SCPSPNR held on 29th-30th May 2017 following transmission system (item-53 of minutes) was approved as intra-state scheme to be implemented by UPPTCL through LILO of Biharsharif (POWERGRID) – Varanasi (POWERGRID) 400kV D/c (Quad) line (ER-NR inter-regional line):

(i) Upgradation of existing 220/132kV (1x160+2x200) MVA, Sahupuri Substation to 2x500 MVA, 400/220 kV level

(ii) LILO of both circuits of Biharshariff-Varanasi PG (765) 400 kV D/C (Quad) lines at 400 kV Sahupuri (GIS) - 30 kms along with 50/63 MVAR line reactor at Sahupuri end.

(iii) Extension of 220 kV bus of 400/220kV Sahupuri Substation for interconnection with Sahupuri 220/132 kV substation with twin moose conductor.

(iv) 1X125 MVAR, 400 kV bus reactor at 400/220 Sahupuri.

22.2 Members may note.

23. Request for ISTS connectivity by Railways at Sasaram (Pasauli)

23.1 In the 2nd meeting of ERSCT, representative of DFCIL(Railways) stated that Railway has planned to construct transmission network in Mughalsarai – Howrah and Ludhiana – Sonnagar in Eastern Sector for Rail transportation and requested CEA for connectivity at identified locations for which POWERGRID has already confirmed space availability for line bays. CEA was earlier requested for resolving the issue of ISTS connectivity at Abdullapur, Meerut and Sasaram (Pasauli). Further, a meeting was held on 21.07.17 in CEA wherein ISTS connectivity at Abdullapur & Meerut was agreed, however, the issue of connectivity at Sasaram (Pasauli) is still awaited. This issue of Railway's ISTS connectivity was also discussed in 19th Standing Committee on Power System Planning of Eastern Region held on 01.09.17 and Special meeting held at Kolkata on 16.07.18. He requested for providing ISTS connectivity to Mughalsarai – Howrah and Ludhiana – Sonnagar routes.

23.2 Representative of ERPC, BSPTCL, OPTCL, DVC and West Bengal stated that the issues raised by them in the previous meetings, like underutilization of transmission assets, are yet to be resolved, therefore they raised objection for the ISTS connectivity to Railways in Mughalsarai – Howrah and Ludhiana – Sonnagar routes.

23.3 As the agenda was sent by Railways only a day before the meeting, it was decided that, the agenda would be placed in next meeting. In the meantime, Railways may send their response to the concerns raised by the States. Request from Railways is given at **Annexure-XI.**

23.4 Members may discuss.

24. Implementation of ToR of ERPC(TP) and NCT constituted by MoP vide letter dated: 04.11.2019.

24.1 Review the upstream and downstream network associated with transmission schemes (CTU to present).

24.2 Review and facilitate the construction of inter-regional grid strengthening schemes (CTU/PGCIL to present).

24.3 Examine the application for connectivity and access and ensure that these are granted speedily:

(i) Examine the application for connectivity and access in ISTS and ensure that these are granted speedily (CTU to present for LTA/MToA)

(ii) Examine the application for connectivity and access in Intra- State Transmission System and ensure that these are granted speedily (respective STU's to present for LTA/MToA).

(iii) Examine the application for access in ISTS and ensure that these are granted speedily (POSOCO to present for SToA).

24.4 Discussion on assessment of transmission system in near, medium and long term.

24.5 Review of Transmission System in the region; assess the growth in generation capacity and the demand in various parts of the region and draw up proposals for strengthening inter-regional transmission system.

24.6 Discussion on implementation of ToR of ERPC(TP); and ToR of NCT as relevant to transmission planning by ERPC(TP).

No.15/3/2017-Trans
Government of India
Ministry of Power
Shram Shakti Bhawan, Rafi Marg, New Delhi

Dated, the 4th November, 2019

OFFICE ORDER

Subject: Constitution of five "Regional Power Committees (Transmission Planning)" (RPCTPs) - reg.

In supersession of this Ministry's Office Orders of even number, dated 13.4.2018, constituting five Regional Standing Committees on Transmission (RSCTs) viz. Eastern Regional Standing Committee on Transmission (ERSCT), Western Regional Standing Committee on Transmission (WRSCT), Northern Regional Standing Committee on Transmission (NRSCT), Southern Regional Standing Committee on Transmission (SRSCT) and North Eastern Regional Standing Committee on Transmission (NERSCT), the undersigned is directed to state that in the light of the fact that the present transmission system is in the nature of One Nation- One Grid and the whole system as National System has to transport power seamlessly from one corner of the country to another corner of the country in the form of one single market, it has been decided to revise the existing five RSCTs by replacing the same with five new "Regional Power Committees (Transmission Planning) (RPCTPs)" with the following composition, with immediate effect:

Eastern Regional Power Committee (Transmission Planning) (ERPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of Bihar, Jharkhand, West Bengal, Odisha, Sikkim, UT of Andaman & Nicobar Islands #	Member
5	Member Secretary of Eastern Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC, SECI and DVC	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

 # STUs to coordinate with their respective Distribution Companies (DISCOMs).
** To be nominated by the Central Electricity Authority.*

Western Regional Power Committee (Transmission Planning) (WRPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of Gujarat, Madhya Pradesh, Chhattisgarh, Maharashtra, Goa, UT of Daman & Diu, UT of Dadra & Nagar Haveli #	Member
5	Member Secretary of Western Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC and SECI	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

 # STUs to coordinate with their respective Distribution Companies (DISCOMs).
** To be nominated by the Central Electricity Authority.*

Northern Regional Power Committee (Transmission Planning) (NRPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of UT of Jammu & Kashmir, UT of Ladakh, Himachal Pradesh, Punjab, Haryana, Rajasthan, Delhi, Uttar Pradesh, Uttarakhand, UT of Chandigarh #	Member
5	Member Secretary of Northern Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC and SECI	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

 # STUs to coordinate with their respective Distribution Companies (DISCOMs).
** To be nominated by the Central Electricity Authority.*

Southern Regional Power Committee (Transmission Planning) (SRPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of Telangana, Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, UT of Puducherry, UT of Lakshadweep #	Member
5	Member Secretary of Southern Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC and SECI	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

 # STUs to coordinate with their respective Distribution Companies (DISCOMs).
** To be nominated by the Central Electricity Authority.*

North Eastern Regional Power Committee (Transmission Planning) (NERPCTP):

1	Member(Power System), Central Electricity Authority (CEA)	Chairperson
2	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
3	Director(System Operation), Power System Operation Corporation Ltd.	Member
4	Heads of State Transmission Utilities (STUs) of Assam, Meghalaya, Nagaland, Arunachal Pradesh, Tripura, Manipur, Mizoram #	Member
5	Member Secretary of North Eastern Regional Power Committee	Member
6	CMD/ MD/ Chairman of NTPC, NHPC, SECI and NEEPCO	Members
7	Chief Engineer(from Power System Wing), Central Electricity Authority *	Member Secretary

 # STUs to coordinate with their respective Distribution Companies (DISCOMs).
** To be nominated by the Central Electricity Authority.*

2. Terms of Reference (ToR) of the RPCTPs are to:

i. Carry out a quarterly review of the Transmission System in the region; assess the growth in generation capacity and the demand in various parts of the region; and draw up proposals for strengthening inter- Regional transmission system. The transmission planning is required to keep in mind the areas where the generation is likely to grow and areas where load demand will grow so that the transmission system at any point of time is capable to meet the demand in every corner of the country and comply with the mandate under the Tariff Policy of developing transmission system ahead of the generation for ensuring smooth operation of the grid.

ii. Assess the transmission system requirements in the near, medium and long term and draw up transmission schemes to meet these requirements. While doing this a perspective plan for the next 15-20 years may also be kept in mind and accordingly the requisite allowance/margin may be factored in the system during planning process.

iii. Examine applications for connectivity and access and ensure that these are granted speedily, provided that the requisite fees/charges are paid.

iv. Review the upstream and downstream network associated with transmission schemes.

v. Examine and evaluate the intra-state transmission proposals.

vi. Review and facilitate the construction of the inter-regional grid strengthening schemes.

3. The RPCTPs shall take steps to ensure that the transmission capacity is capable of wheeling the electricity to different parts of the region and outside the region as per the demands of the market. They shall carry out the quarterly reviews and make recommendation for system strengthening and expansion keeping in mind the guidelines laid down by the Tariff Policy.

4. The RPCTPs will forward their review of the transmission systems and their recommendation for system expansion/ strengthening to the National Committee on Transmission (NCT) at the end of every quarter- by 15th July; 15th October; 15th January and 15th April. The NCT will examine the proposals and forward them to Government with their recommendations.

5. This issues with the approval of the Hon'ble Minister of State (Independent Charge) for Power and New & Renewable Energy.

4/11/2019

(Bihari Lal)
Under Secretary to the Govt. of India
Telefax: 23325242
Email: transdesk-mop@nic.in

To

1. All members of the five RPCTPs.
2. Secretary, Ministry of New & Renewable Energy, Govt. of India.
3. Chairperson, CEA, New Delhi.
4. CMDs of all CPSUs under the Ministry of Power and Ministry of New and Renewable Energy, Govt. of India.
5. Heads of all autonomous bodies under the Ministry of Power, Govt. of India.
6. Finance/ Budget Section, Ministry of Power.
7. Power/ Energy Secretaries of all States/UTs.
8. Chief Executives of all State Transmission Utilities (STUs).

Copy to:

(i) PS to Hon'ble MoSP(IC)/ PPS to Secretary(Power)/ SS&FA/ AS(Trans)/ all Joint Secretaries/ EA/ Directors/ Dy. Secretaries, Ministry of Power.

(ii) Technical Director, NIC, M/o Power, for publishing this order on the website of M/o Power.

No. 15/3/2017- Trans
Government of India
Ministry of Power
Shram Shakti Bhawan, Rafi Marg, New Delhi

Dated, the 4th November, 2019

OFFICE ORDER

Subject: - Re-constitution of the "National Committee on Transmission" (NCT) - reg.

In supersession of this Ministry's Office Order of even number dated 13.4.2018, constituting the National Committee on Transmission (NCT), the undersigned is directed to state that the composition and terms of reference of existing NCT is amended as mentioned follows:

1	Chairperson, Central Electricity Authority (CEA)	Chairman
2	Member(Power System), CEA	Member
3	Member(Economic & Commercial), CEA	Member
4	Joint Secretary level officer looking after transmission in M/o New & Renewable Energy, Govt. of India @	Member
5	Director(Trans), M/o Power, Govt. of India	Member
6	Chief Operating Officer, Central Transmission Utility (POWERGRID)	Member
7	Advisor, NITI Aayog #	Member
8	Two experts from Power Sector *	Members
9	Chief Engineer (from Power System Wing), CEA #	Member Secretary

@ To be nominated by Secretary (MNRE).
# To be nominated by NITI Aayog/ CEA.
* To be nominated by the Ministry of Power, Govt. of India from time to time, for a maximum period of two years from the date of their nomination.

2. Revised Terms of Reference (ToR) of the Committee are to:

i. Evaluate the functioning of the National Grid on quarterly basis.
ii. Consider the review / recommendations of the RPCTP for system expansion/ strengthening of the transmission system to be presented before the NCT at the end of every quarter i.e. by 15th July, 15th October; 15th January and 15th April.
iii. CTU, as mandated under the Electricity Act, 2003, is to carry out periodic assessment of transmission requirement under ISTS. The CTU shall also make a comprehensive presentation before the National Committee every quarter for ensuring development of an efficient, co-ordinated and economical inter- State transmission system for smooth flow of electricity. CTU, in the process, may also take inputs from the markets to identify constraints and congestion in the transmission system
iv. After considering the recommendations of the CTU and the Regional Committees, the NCT shall assess the trend of growth in demand and generation in various regions; identify the constraints, if any, in the inter- State, inter- Region transfer system and propose construction of transmission lines, grid stations and other infrastructures in order to meet the requirements, which are likely to arise in the near term/ medium term, so that transmission does not constrain growth. The NCT will also draw up perspective plans, keeping the 10 to 15 years' time horizon in mind.

3. While making their recommendations, the NCT will keep the guidelines of the Tariff Policy in mind.

4. Since the NCT will be looking at the National Transmission System i.e. transmission across regions and across States, therefore, prior concurrence of Regional Power Committees

(Transmission Planning) (RPCTPs) will not be relevant. The views of the RPCTPs will be relevant for transmission issues within the region; but for transmission issues across region, the views of RPCTPs will be inadequate because they will not have a national perspective. However, for inter-regional transmission lines crossing across States and Regions, the RPCTP of the originating location of these lines and the RPCTP of the terminating locations shall be consulted by the NCT.

5. The recommendations of the NCT shall be placed before the Ministry of Power, Government of India for decision.

6. The Empowered Committee constituted vide this Ministry's Office Order of even number dated 13.4.2018 stands dissolved.

7. This issues with the approval of the Hon'ble Minister of State (Independent Charge) for Power and New & Renewable Energy.

4/11/2019.

(Bihari Lal)
Under Secretary to the Govt. of India
Telefax: 23325242
Email: transdesk-mop@nic.in

To

1. All members of NCT.
2. Secretary, Ministry of New & Renewable Energy, Govt. of India.
3. Chairperson, CEA, New Delhi.
4. CMDs of all CPSUs under the Ministry of Power, Govt. of India.
5. Heads of all autonomous bodies under the Ministry of Power, Govt. of India.
6. Finance/ Budget Section, Ministry of Power.
7. Power/ Energy Secretaries of all States/UTs.
8. Chief Executives of all State Power Transmission Utilities.

Copy to:

(i) PS to Hon'ble MoSP(IC)/ PPS to Secretary(Power)/ SS&FA/ AS(Trans)/ all Joint Secretaries/ EA/ Directors/ Dy. Secretaries, Ministry of Power.

(ii) Technical Director, NIC, M/o Power, for publishing this order on the website of M/o Power.

File No.CEA-PS-12-15/2/2018-PSPA-II Division-Part(1) 136

I/7771/2019

सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग -II
Power System Planning & Appraisal Division-II

सेवा मे / To,

संलग्न सूची के अनुसार
As per list enclosed

विषय /Subject: Minutes of Joint Study meeting on issues referred by Eastern Region Standing Committee on Transmission in its 2nd meeting.

महोदय(Sir),

Joint Study meeting on issues referred by Eastern Region Standing Committee on Transmission in its 2nd meeting was held on 18.09.2019 at Central Transmission Utility (CTU), Power Grid, Gurugram. Minutes of the meeting are enclosed here with.

भवदीय/Yours faithfully,

15.11.2019

(बी.एस.बैरवा / B.S.Bairwa)
निदेशक / Director

Copy for kind information to:
1) PPS to Member PS, CEA/PPS to CE (PSPA-II), CEA

सेवा भवन, आर. के. पुरम-I, नई दिल्ली-110066 टेलीफोन : 011-26198092 ईमेल: cea-pspa2@gov.in वेबसाइट: www.cea.nic.in
Sewa Bhawan, R.K Puram-I, New Delhi-110066 Telephone: 011-26198092 Email: cea-pspa2@gov.in Website: www.cea.nic.in

List of addressee:

1. Member Secretary, Eastern Regional Power Committee, 14, Golf Club Road, Tollygange, Kolkata-700033. Tel. No. 033-24235199 Fax No.033-24171358	2. Managing Director, Bihar State Power Transmission Company, Vidyut Bhavan (4th floor), Baily Road, Patna-800021. Tel. 0612-2504442 Fax No. 0612-2504557
3. Chairman-cum-Managing Director, Jharkhand Urja Sancharan Nigam Limited Engineering Building, H.E.C., Dhurwa, Ranchi-834004. Fax-0651-2400799	4. Chairman-cum-Managing Director, Orissa Power Transmission Corporation Ltd, Jan path, Bhubaneshwar-751022. Tel. No. 0674-2540098 Fax No.0674-2541904
5. Principal Chief Engineer cum Secretary, Power Department Government of SikkimP, Sikkim. Tel. No. 03592-2022440 Fax No.03592-202927	6. Managing Director, West Bengal State Electricity Transmission Company Ltd, Vidyut Bhavan (8th Floor), A-block, Salt Lake City, Kolkata-700091. Tel. No. 033-23370206
7. Chief Operating Officer, Central Transmission Utility (CTU), Power Grid Corporation of India "Saudamini" Plot No. 2, Sector-29, Gurugram-122001	8. Director (System Operations), POSOCO B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi-110016 Tel. No. 26852843 Fax No. 2626524525, 26536901
9. Chairman-cum-Managing Director, Damodar Valley Corporation DVC Towers, VIP Road, Kolkata-700054.	

Minutes of Joint Study meeting on issues referred by Eastern Region Standing Committee on Transmission in its 2nd meeting held on 18.09.2019 at CTU, Gurugram

1. Modification of construction of 220 kV D/C Barjora-Burdwan line of DVC

1.1 Representative of DVC informed that original proposal approved for 12th Plan was 220KV D/C ring i.e. Jamshedpur-Gola-MTPS- Barjora- Panagarh-Bardhaman- Kharagpur- Mosabani 1 No. of 400KV/220KV/132KV S/Stn and Mosabani S/Stns, 4 No's 220KV S/Stns at Gola, Kharagpur, Bardhaman and Panagarh. Due to certain constraints Sub-Stations of Mosabani, Gola, and Kharagpur S/Stns were dropped along with the connectivity. The only remaining S/Stns considered for construction were 220KV/132KV Bardhaman S/Stn in Phase -1 and 220KV/33KV Panagarh S/Stn in Phase 2. Since, the only source of power of 3 No's 220KV S/Stn i.e Barjora, Panagarh & Bardhaman would be a 220KV D/C Line from Mejia Thermal Power Stn, the connectivity considered during the approved 12th Plan i.e. Barjora- Panagarh – Bardhaman S/Stn had to be modified. DVC proposed to modify the 220KV Connectivity from 220KV D/C Barjora – Panagarh- Bardhaman to 220KV D/C Parulia – Panagarh – Bardhaman. Approximate loadings at Burdwan, Barjora and Durgapur substations are 120MW, 180MW and 190MW respectively.

1.2 Director (PSPA-II), CEA suggested that the proposed 220kV Burdwan substation may be connected to 220kV Durgapur(DVC) Substation to optimise the line length. Representative of DVC stated that there are constraints in RoW for the termination of the line at Durgapur(DVC) Substation due to surrounding industrial establishments and NH-2 is adjacent to the substation. Further, height restriction due to Panagarh Air Base is applicable as the Durgapur substation is within 12 to 15 Km of Panagarh ILS.

1.3 Further, it was suggested that both circuits of Durgapur (DVC)- Parulia(DVC) 200kV D/c line could be LILO at Panagarh substation. Later it could be connected to 220kV Burdwan substation. Alternatively, the option of terminating the 220kV Burdwan line through HV cable at Durgapur(DVC) may be explored. DVC stated that feasibility of Panagarh substation is doubtful. He stated that the option of the 220kV cable termination is costly, however DVC would explore this option.

1.4 Representative of POSOCO suggested that for enhanced reliability of supplying loads from Parulia (DV) to Burdwan and its downstream, it is suggested that high capacity HTLS conductor may be considered by DVC for constructing 220 kV Parulia DVC – Burdwan D/C line.

1.5 After deliberations, following were agreed:

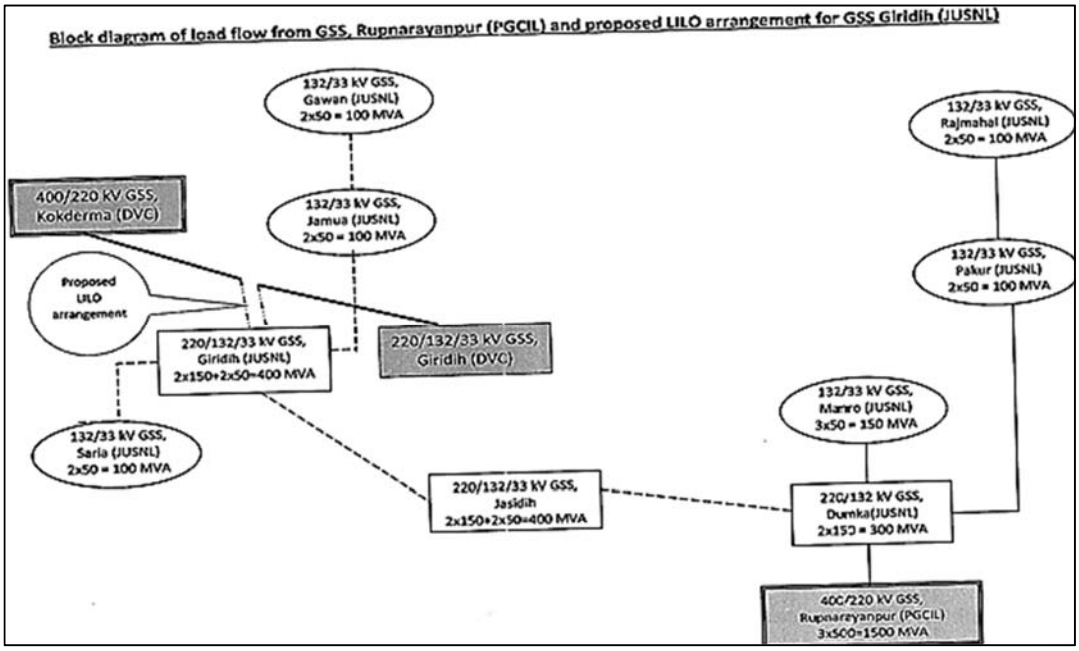
(i) DVC would explore the option of connecting proposed 220kV Burdwan substation to 220kV Durgapur(DVC) Substation including terminating through cable.

(ii) DVC would explore the option of connecting with D/c LILO of Durgapur(DVC)- Parulia(DVC) 220kV D/c line at proposed Panagarh substation, which may be connected to proposed 220kV Burdwan substation.

DVC will communicate their observations to CEA.

2. Connectivity of newly constructed 220/132/33 kV (2x150+2x50) MVA Grid Substation Giridih of JUSNL through LILO of 220 kV Giridih (DVC)-Koderma (DVC) Transmission Line.

2.1 In the 2nd meeting of ERSCT, JUSNL proposed LILO of 220 kV Girirdih (DVC)-Koderma (DVC) Transmission Line at Giridih (JUSNL) as the 220 kV D/C Giridih- Jasidih Transmission line and 220 kV D/C Dumka(Madanpur)- Jasidih Transmission line are getting delayed.



2.2 Representative of POSOCO stated that the proposed LILO of existing 220kV Koderma TPS – Giridih(DV) D/C at Giridih (JUSNL), may lead to overloading of 220kV Koderma TPS – Giridih(JUSNL) section. Further, even after commissioning of Dumka-Jasidih-Giridih 220kV D/C line, it is apprehended that due to lower impedance of 220kV Koderma-Giridih (J) path, this section may be overloaded.

2.3 Representative of DVC stated that Koderma(DVC)-Giridih(DVC) 220kV line is important line of DVC network, therefore instead of the proposed LILO, he suggested a direct line from Giridih(DVC) to Giridih(JUSNL).

2.4 Representative of CTU(POWERGRID) stated that the source of power for the above JUSNL network is Maithon(PG) 400kV Substation (2x500MVA 400/220kV ICT), where transformation capacity would be enhanced by commissioning of 500MVA transformer by May 2020. Present loading of ICTs at the Maithon Substation is around 650MW, therefore additional load of 120-150 MW load of JUSNL could be met with the existing arrangement and N-1 compliance would be done after the augmentation.

2.5 After deliberations, it was agreed that additional load of 120-150 MW of JUSNL could be met with Maithon(PG) 400kV Substation and contingency criteria would be satisfied after commissioning of planned system. Accordingly, it was recommended that the LILO of 220 kV Giridih (DVC) - Koderma (DVC) Line at Giridih GSS (JUSNL) is not required.

3. Operational Feedback

3.1 **Durgapur (POWERGRID) – Parulia (DVC) 220kV D/c line**

3.1.1 Director (PSPA-II), CEA informed that, in the 2nd ERSCT meeting POSOCO informed that Parulia (Durgapur) is a major load centre in DVC control area which was planned to be fed from internal generation of DVC embedded at 220kV and 132 kV level since inception. However, with decommissioning of DVC units (at Bokaro and CTPS) and low generation from internal plants particularly at Mejia and Waria, the load of Parulia and nearby area is practically met through importing large quantum of power from Durgapur substation of PG through 220kV Durgapur(PG)-Parulia(DVC) D/C. This resulted in very high loading of above line and even crossed the N-1 security limit. POSOCO suggested for reconductoring of 220kV Durgapur(PG)-Parulia(DVC) D/C line by DVC as one of the corrective measure.

3.1.2 Representative of DVC stated that after commissioning of 3rd 400/220kV ICT, one ICT is on one 400kV bus and remaining 2 ICTs are on the other Durgapur(PG) 400kV bus due to bus splitting. There is unbalanced loading of ICTs. One of these ICTs are very less loaded and some times there is reverse power flow. Also, the Power which is to be fed to WBSETCL is also flowing through DVC area which causes overloading of the 220 kV Durgapur(PG)- Parulia(DVC) D/C line. With the commissioning of 2 No. of ICTs at DSTPS, which is under process, the power deficit DVC area would be met from these and would reduce loading on 220 kV Durgapur(PG)-Parulia(DVC) D/C line.

3.1.3 After deliberations, it was agreed that reconductoring of 220kV Durgapur(PG)-Parulia(DVC) D/C line is not required. Further, the issue of unbalanced loading of ICTs at Durgapur S/s would be flagged to ERSCT for suitable direction.

3.2 **High voltage at Angul and Sundargarh (Jharsuguda) substations at 765kV level**

3.2.1 In the 2nd ERSCT meeting POSOCO informed that after commissioning of 765kV Angul-Sundergarh ckt-3 and ckt-4, the bus voltages at Angul and Sundargarh substations is quite high even after keeping all the line and bus reactors in service. Angul – Sundargarh (Jharsuguda) ckt-1, 3, and 4 were kept out of service for about 1380 hrs. in last year (ckt-4: 751hrs. 38min.; ckt-3: 521hrs. 28min.; ckt-1: 104hrs. 45min.). Accordingly, POSOCO proposed for installation of 765kV, 1x330MVAr bus reactor at Angul (POWERGRID) S/s.

3.2.2 Representative of POSOCO stated that during July 2019, 765kV Jharsuguda voltage remained above the IEGC specified upper limit for 11.48% of the time (82.66 hours) while in the month of August 2019, the voltage was outside the IEGC limit for 11.18% of the time (80.50 hours). At 765 kV Angul S/stn, these durations were 0.53% (3.82 hours) in both the months. This is despite keeping one of the 765kV Angul-Jharsuguda circuits open almost on round the clock basis. However, 765kV Dharamjaygarh-Jharsuguda Q/C being an inter-regional tie (between ER and WR), no circuit of this line was switched off. To avoid frequent switching operation of 765 kV lines, suitable reactors may be planned at Angul & Jharsuguda.

3.2.3 Representative of CTU(POWERGRID) stated that problem of high voltage at Angul & Sundargarh S/s is due to low power flow in the connecting lines. At present, 2x330 MVAR reactor installed at 765 kV level and 3x125MVAR reactors installed at 400 kV level at Angul substations. As per the study, 1 No of 330 MVAR reactor at 765 kV would control the voltage by 3-4kV. CTU had also sent a letter regarding high voltage issues across the country.

3.2.4 Director(PSPA-2), CEA stated that in the 8th meeting of coordination forum, for smooth and coordinated development of power system in the country held on 22.04.2019, it was decided that a committee would be constituted to study reactive power compensation in the system at national level.

3.2.5 Accordingly, it was agreed that the issue would be placed to ERSCT for direction.

4. Proposal for 132/33 kV sub-station at Nabinagar

4.1 Representative of BSPTCL informed that one 132/33 kV, 3x50 MVA GSS has been planned at Nabinagar, Dist. Aurangabad with connectivity at 132 kV level as LILO of one circuit of 132kV Sonenagar – Rihand line under intra-state scheme. In the 2nd ERSCT meeting, it was suggested that instead of said LILO, new 132/33kV S/s at Nabinagar may be feed radially from Nabinagar-II generation project (line length: about 15km) as requisite transformation capacity is available in the 400/132kV, 2x200MVA ICTs at the generation switchyard. There is no power flow in Rihand-Sonenagar 132kV line from 3-4 years and open from Rihand end.

4.2 Representative of NTPC stated that ICT losses are not accounted with the present metering arrangement, in case BSPTCL is connected with Nabinagar-II generation project.

4.3 Director (PSPA-II), CEA stated dual connectivity (both with CTU and STU) of generating stations is not desirable.

4.4 After deliberations, it was decided that BSPTCL would explore feasibility of making LILO of 132 kV Sonenagar-Aurangabad line at Nabinagar and communicate to CEA.

5. Low voltage problem in Jeerat, Subhasgram and Rajarhat areas

5.1 CTU(POWERGRID) informed that low voltages have been observed in recent months at 400kV levels in Jeerat, Subhasgram and Rajarhat substation. as per data published by ERLDC, it was observed that MW and MVAr demand of West Bengal in these areas has increased by 455MW and 238MVAr respectively YoY without any additional reactive compensation at lower voltage level by state. This has further aggravated low voltage scenario during peak load conditions. The short circuit level at Subhasgram, Rajarhat, and Jeerat substations are about 15kA, 19.2kA, and 20.9kA respectively. Further, from the studies, it was observed that in case of TSC at Subhasgram S/s, the change in bus voltage at Subhasgram, Rajarhat, Jeerat substations with switching in of each bank of 125MVAr is about 5-6kV, 3-4kV, 2-3kV respectively. Similarly, with TSC at Rajarhat S/s, the change in bus voltage at Subhasgram, Rajarhat, Jeerat substations with switching in of each bank of 125MVAr would be about 3-4kV, 3-4kV, 2-3kV respectively. Accordingly, installation of (Thyristor Switched Capacitor-TSC) of adequate size (≥500MVAr) either at Subhasgram or Rajarhat substation would improve the voltage profile in the area.

5.2 Representative of WBSETCL stated the following:

i. To get the proper voltage to the consumers, WBSETCL has planned to install numbers of capacitor banks at 33 kV level as given below:

- In first stage, 610 MVAR capacitor banks are expected to be commisioned by March 2020.
- In second stage, 40 MVAR capacitor bank has been planned to installed at Subhasgram (WBSETCL) sub-station during financial year 2020-21.
- For new substations, WBSETCL is planning to install 10 MVAR per 50 MVA active power (Capacity of 132/33 kV transformers), where requirement is felt through study and for number of such cases, work order already released.
- In recent OCC meeting, CESC has informed that CESC is planning to install 50 MVAR capacitor bank at 132 kV bus of Kasba EM substation of CESC.

ii. To reduce loading of Subhasgram-Subhasgram(PG) and Subhasgram(WBSETCL)-Lakshmikantapur connected 220 kV lines, Baruipur 220 kV substation was planned and now in WIP stage, which is likely to be commissioned by July 2020.

iii. Gokarna- Sagardighi 400 kV D/C line is expected to be commissioned by March 2020.

iv. After the all the planned connectivity at Rajarhat (PG) substation, the voltage will improve further.

v. WBSETCL has already requested POWERGRID for expediting the 765 kV corridors of Ranchi(New)-Jeerat-Midnapur (with all downstream 400 kV connectivity) within scheduled time, which will result huge boost up in bus voltage, even during different peak hours.

vi. With the above, it is seen in the study that voltage profile in the mentioned 3 buses will be well within IEGC specified band without addition of the TSC.

vii. In the context of high voltage scenario during winter off-peak hours, WBSETCL had planned bus reactors in two stages in addition to existing Reactors.

- In first stage 125 MVAR, 400 kV Bus Reactor is in WIP stage and to be commissioned at Arambag 400 kV Substation by March 2020.
- In second stage 5 numbers of 125 MVAR, 400 kV Bus Reactors are planned at Bidhannagar, New PPSP, New Chanditala, Gokarna, Kharagpur 400 kV sub-stations (approved in 1st Standing Committee meeting of ER, this year). These would be commissioned by May 2021.

5.3 After deliberations, it was agreed that the TSC is not required after the above reactive compensation provided by WBSETCL.

6. 132kV substations at Bhore, Barahchatti, Daudnagar, Barari and Murliganj in Bihar

6.1 BSPTCL informed that due to load growth, existing source GSS are far from proposed PSS, large length of 33kV feeder, maintenance issues, space constraint in the existing GSS for new PSS and segregation of agriculture feeders, following 132/33kV Grid Sub-Stations are proposed under intra-state scheme of BSPTCL:

Sl. No.	Name of GSS	Load (MW)	Voltage level	Connectivity	Type of conductor
1	Barari (2*50 MVA)	40	132 kV	132 kV Sabour (New) - Barari transmission line DCDS	Panther
2	Daudnagar (2*50 MVA)	40	132 kV	LILO of 132 kV Sonenagar - Chandauti D/C	Panther

3	Barachatti (2*50 MVA)	50	132 kV	132 kV Chandauti (New) - Barachatti transmission line DCDS	Panther
				LILO of 132 kV Barhi - Rajgir S/C (L28)	
4	Murliganj (2*50 MVA)	50	132	132 kV Murliganj - Raghopur transmission line DCDS	Panther
				132 kV Murliganj - Uda Kishanganj transmission line DCDS	
5	Bhore (2*50 MVA)	50	132 kV	132 kV Gaya (BGCL) - Bhore transmission line DCDS	Panther
				LILO of 132 kV Barhi - Nalanda S/C (L29)	
				LILO of 132 kV Gaya (BGCL) - Bodhgaya S/C	

6.2 Director (PSPA-2), CEA stated that there is change in connectivity of the above substations and one additional substation is also proposed, which need to be studied in detail.

6.3 Representative of POSOCO stated that existing tie lines supplying BSPTCL should not get overloaded i.e. (n-1) security must be satisfied. Adequate switchable shunt capacitive compensation may be planned for every new 132/33 kV S/Stn so that no additional reactive power burden is imposed on the overlaying ISTS.

6.4 After deliberations, it was agreed that BSPTCL would submit detailed proposal with proper justification to CEA.

7. Reconductoring of Purnea – Malda section of Bongaigaon – Malda 400kV D/c line

7.1 In the 2nd ERSCT meeting, POSOCO informed that Bongaigaon – Malda 400kV line is an old line. It has been LILOed at Siliguri and Purnea. Purnea – Siliguri section has already been reconductored. Due to increased line loadings, POSOCO proposed to reconductor Purnea – Malda section with HTLS conductor.

7.2 Representative of POSOCO stated that re-conductoring of 400 kV Purnea – Malda line with twin HTLS conductor was suggested in view of multiple contingencies (i.e. 400 kV Purnea-Biharshariff D/C & 400 kV Patna-Kishanganj D/C) in the past 2 years at Purnea & Kishanganj S/S. Commissioning of 400 kV Purnea – Farakka and Purnea – Gokarno 400 kV lines (Triple Snowbird) by Dec-19 would relieve the existing 400 kV Purnea – Malda D/C line (Twin Moose) in present multiple contingency scenario.

7.3 From the load flow studies, it was observed that there was no constraint in Malda-Purnea 400kV line with N-1 & N-1-1 conditions and the line is very old.

7.4 After deliberations, it was agreed that the reconductoring of Purnea- Malda section of Bongaigaon- Malda 400 kv D/C line is not required.

8. Proposal for construction of 400/220/132 kV Chhapra GSS By BSPTCL

8.1 Representative of BSPTCL stated that there is load growth in Chhapra area and load on near by Muzaffarpur 400kV Substation is increasing rapidly, Therefore to reduce the load on Muzaffarpur 400kV Substation and to suppy load in Chhapra area, a 400/220/132 kV Chhapra GSS is proposed and its connectivity is given below:

Sl. No.	Name of GSS	Expected Load (MW)	Voltage level	Connectivity	Name of the lines	Length (km)	Tentative Line length to be constructed (km)	Type of conductors
1	**Chhapra (2*500 MVA and 2*160 MVA)**	**300 MW**	400	LILO of 400 kV Barh - Motihari (DMTCL) - Gorakhpur D/C transmission line	400 kV Barh - Chhapra (New) D/C T. Lines	190	20	**400 kV Quad Moose [between Barh & Motihari (DMTCL)] (240 km)**
					400 kV Motihari (DMTCL) - Chhapra (New) D/C T. Lines	190	20	
			220		220 kV Gopalganj - Chhapra (New) D/C T. Lines	100	100	**220 kV Single Zebra**
					220 kV Amnour - Chhapra (New) D/C T. Lines	25	25	**220 kv Twin Moose**
			132		132 kV Chhapra (New) - Raghunathpur D/C T. Lines	80	80	**132 kV Panther/ Single Moose**
					132 kV Chhapra (New) - Mahrajganj D/C T. Lines	45	45	
					132 kV Chhapra (New) -**Siwan**	60	60	

					D/C T. Lines			

8.2 Representative of CTU(POWERGRID) stated that a 400kV substation is normally planned to supply power to certain load. Therefore, he suggested to fully utilise the Muzaffarpur 400kV Substation before planning New 400kV Substation.

8.3 Director (PSPA-II), CEA stated that detailed proposal with justification and connectivity has to be submitted by BSPTCL for discussion.

8.4 After deliberations, it was agreed that BSPTCL would submit detailed proposal with proposer justification for the above to CEA.

Annexure-I

List of participants of Joint Study meeting on issues referred by Eastern Region Standing Committee on Transmission in its 2nd meeting held on 18.09.2019 at CTU, Gurugram

S.NO	NAME	DESIGNATION
	Central Electricity Authority (CEA)	
1	B S Bairwa	Director
2	U M Rao	Dy. Director
3	Suyash Ayush Verma	AD –I
4	Mayank Wadhwa	AD-II
	CTU (POWERGRID)	
1	Ashok Pal	CGM(CTU-PLG)
2	Laxmikant	DGM(CTU-PLG)
3	Manish Ranjan Keshari	Dy.Mang.(CTU-Plg)
4	Anupam Kumar	Dy.Mang.(CTU-Plg)
5	Dwaipayan Sen	Dy.Mang.(CTU-Plg)
6	Abhilesh Thalwar	Engineer(CTU-PLG)
	WBSETCL	
1	Shouvik Banerjee	SE(E),CPD
2	Subir Kr.Dan	Addl.CE.CPD
	BSPTCL	
1	H.R. Panday	Director (Proj.)
2	Abhishek Kumar	EEE(P&E)
3	Arvind Kumar	EEE(P&E)

4	Nidhi Bipul	AEE(P&E)
	JUSNL	
1	Ajit Kumar	DGM (C&RA)
2	Shailesh Prakash	DGM (Operation)
	DVC	
1	S.K. Bose	CE-1 (SPE)
2	Jayanta Dutta	DCE(SPE)
	NTPC	
1	Abhishek Khanna	Manager
	NLDC, POSOCO	
1	Sudheer Talluri	Manager
2	Priyam jain	Dy.Mang.

File No.CEA-PS-12-15/13/2018-PSPA-II Division 1

I/8313/2019

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग -II
Power System Planning & Appraisal Division-II

सेवामे/To

1. Member Secretary,
Eastern Regional Power Committee,
14, Golf Club Road, Tollygange,
Kolkata-700033.

2. Chairman-cum-Managing Director,
Damodar Valley Corporation(DVC),
DVC Towers, VIP Road,
Kolkata-700054.

3. COO(CTU-Plg),
Power Grid Corp. of India Ltd. (PGCIL),
"Saudamini", Plot No.2, Sector-29,
Gurgaon- 122 001, Haryana.

विषय/**Subject:** Minutes of Meeting on modification of construction of 220 kV D/C Barjora-Burdwan line of DVC.

माहोदय/Sir,

A follow-up meeting regarding modification of construction of 220 kV D/c Barjora-Burdwan line of DVC was held on **28.11.2019** at CEA, New Delhi. Minutes of meeting are enclosed herewith.

भवदीय/Yours faithfully,

2.12.2019
(बी.एस. बैरवा/ B.S.Bairwa)
निदेशक / Director

सेवा भवन, आर. के. पुरम-I, नई दिल्ली-110066 **टेलीफोन**: 011-26198092 **ईमेल**: cea-pspa2@gov.in वेबसाइट: www.cea.nic.in
Sewa Bhawan, R.K Puram-I, New Delhi-110066 **Telephone**: 011-26198092 **Email**: cea-pspa2@gov.in **Website**: www.cea.nic.in

Minutes of Meeting on modification of construction of 220kV D/C Barjora-Burdwan line of DVC held on 28.11.2019 at CEA, New Delhi.

List of participants is enclosed at **Annexure-I**.

Chief Engineer (PSPA-II), CEA welcomed the participants of the meeting. He requested Director(PSPA-II), CEA to initiate discussion. The discussions during the meeting are as under:

1. Director(PSPA-II), CEA informed that DVC's proposal for Parulia(DVC)- Burdwan 220kV D/C line instead of earlier approved Barjora(DVC)- Burdwan 220kV D/C line was discussed in the 2nd meeting of ERSCT held on 05.07.2019 and subsequently in Joint Study meeting held on 17.09.2019. During joint studies, following were agreed:
    i. DVC would explore the option of connecting proposed 220kV Burdwan substation to 220kV Durgapur(DVC) Substation including termination through cable, as Durgapur S/s is near to Burdwan S/s.
    ii. DVC would explore the option of connecting with D/c LILO of Durgapur(DVC) - Parulia(DVC) 220kV D/c line at proposed Panagarh substation, which may be connected to proposed 220kV Burdwan substation.
2. Subsequently, DVC vide letter dated 15.11.2019 requested CEA (copy at **Annexure-II**) for "in-principal" approval of modification of 220 kV D/C Barjora-Burdwan line of DVC. During the meeting DVC informed that there are practical difficulties / RoW issues for implementation of above proposals refereed by Joint studies. Also, DVC sent a letter dated 25.11.2019(Copy at **Annexure-III**) enumerateing the following points to keep the end point as 220KV Parulia S/s rather than 220KV Durgapur S/s and avoiding LILO of Durgapur- Parulia 220KV D/C Lines:
    i. Presently due to paucity of funds, construction of 220 kV Pangarh S/Stn has been kept in hold.
    ii. Major height restriction for Panagarh Air Base (funnel area marked in black) is applicable as the Durgapur substation is within 112 to 15 Km of Panagarh ILS.
    iii. Durgapur substation is geographically located in between the corridor of Howrah-Kalka Railway & NH-2 (23.494434 N, 87.3661339 E) and is surrounded by an industrial belt, namely Export Promotion Industrial Park(EPIP). EPIP is one of the important and prestigious projects of the Asansol Durgapur Development Authority (ADDA) under Urban

Development & Municipal Affairs Department of Govt. of West Bengal. It is a 148 acres park situated on NH-2 with availability of all infrastructures.

iv. It is therefore very difficult to get transmission line corridor penetrating the EPIP area towards northern side of NH-2. Moreover, beyond the EPIP area there are cluster of FOREST LAND shown in patches of Green which has to be avoided.

v. The line can also not be constructed in between NH-2 and river Damodar because of congested dwelling house. A GPS photo of Location of Durgapur S/Stn is attached for reference.

vi. Non-availability of space for construction of 2 number 220kV Bays at Durgapur S/Stn.

vii. A cluster of old 400kV/220Kv/132kV lines exist in the small corridors available in the above regions.

viii. The Route followed by 220kV Parulia-Durgapur existing line falls in the proximity of the Panagarh Airfield and any new construction required for the LIO has to be approved by the Air Force Authority. LILO points inside the ILS zone marked in Black may not be approved by Air Force authority and outside the ILS zone the LILO points come to near vicinity of Parulia S/Stn. Hence, terminating the D/C Lines at 220kV Parulia Bus will be a prudent solution rather than making even a single circuit LILO of 220 kV Durgapur-Parulia Line.

3. On enquiry, DVC informed that they have planned the Parulia (DVC)-Burdwan (DVC) 220kV D/c line with ACSR Zebra conductor with maximum operating temperature of 75°C. Accordingly, DVC was advised to take up future ACSR transmission lines with maximum operating temperature of atleast 85°C, to take care of future requirements and optimise RoW utilisation.

4. Considering the practical difficulties expressed by DVC and their request, construction of Parulia (DVC)-Burdwan 220 kV D/C line instead of the earlier approved Barjora(DVC)-Burdwan 220 kV D/C line by DVC was accepted.

5. Further, during studies, it was observed that if DVC proposal of Paruia(DVC)-Burdwan is accepted, the line section of Durgapur(PG)-Parulia(DVC) gets overloaded under N-1 condition. The study results are attached at **Annexure-IV.** As such, following was also agreed to contain these loading violations in such scenario:

(i) Second 220 kV D/C line between Durgapur (PG) and Parulia (DVC) (approx. 1km) along with associated bays at both ends – by DVC

(ii) Shifting of 400/220 kV, 315MVA ICT-1 from Durgapur-A section to Durgapur-B section, so that all the three 315MVA ICTs at Durgppur S/s are on one side – by POWERGRID.

6. Representative of CTU(POWERGRID) stated that shifting of 420kV, 125MVAr bus reactor-4 in Durgapur-B section is required to create space for 400/220kV, 315MVA ICT-1

7. Accordingly, it was agreed to propose following transmission works for "in-principle" approval from Member (PS), CEA:

   (i) Parulia (DVC)-Burdwan 220kV D/C line instead of the earlier approved Barjora(DVC)-Burdwan 220 kV D/C line – by DVC.

   (ii) Second 220 kV D/C line between Durgapur (PG) and Parulia (DVC) (approx.-1km) along with associated bays at both ends – by DVC

   (iii) Shifting of 400/220 kV, 315MVA ICT-1 from Durgapur-A section to Durgapur-B section in the space vacated by shifting of bus reactor (Shifting of 420kV, 125MVAr bus reactor-4 in Durgapur-B section is required to create space for shifting and installation of 400/220kV, 315MVA ICT-1) – by POWERGRID.

8. The above proposal would further be ratified in the forthcoming meeting of ERSCT/ERPC(TP).

Annexure-I

List of participants of Meeting on modification of construction of 220kV D/C Barjora-Burdwan line of DVC held on 28.11.2019 at CEA, New Delhi.

S.No.	Name(S/Shri)	Designation	Organization/Deptt.
1.	Pardeep Jindal	Chief Engineer (PSPA-II)	CEA
2.	B.S. Bairwa	Director	CEA
3.	U.M. Rao Bhogi	Dy. Director	CEA
4.	Suyash Ayush Verma	Asstt. Director-I	CEA
5.	Ashok Pal	CGM(CTU-PLG)	POWERGRID
6.	Laxmikant	DGM(CTU-Plg)	POWERGRID
7.	Manish Ranjan Keshari	Dy.Mang.(CTU-Plg)	POWERGRID
8.	Anupam Kumar	Dy.Mang.(CTU-Plg)	POWERGRID
9.	S.K. Bose	CE-1 (SPE)	DVC
10.	Jayanta Dutta	DCE(SPE)	DVC

दामोदर घाटी निगम : DAMODAR VALLEY CORPORATION
ऊर्जा मंत्रालय के तहत, भारत सरकार 1948)के अधिनियम सं. XIV द्वारा स्थापित(/Under
Ministry of Power, GoI (Established by Act No. XIV of 1948)
मुख्य अभियंता (एस.पी.ई.) का कार्यालय:OFFICE OF THE CHIEF ENGINEER(SPE)
9वीं मंजिल, डीवीसी टावर्स, कोलकाता 700054 -
9TH FLOOR, DVC TOWERS, KOLKATA - 700054

No. EDCON/SPE/ L-42/PRL-BNM/F34 Date: 15-11-2019

To
The Chief Engineer
PSPA – II
CEA
Sewa Bhawan,
R.K.Puram-1
New Delhi – 110066

Sub:- In principal Approval of Modification of construction of 220KV D/C Barjora – Burdwan Line of DVC.

Ref:- (i) Item 16 of Minutes of 2nd ERSCT Meeting held on 5.07.2019
(ii) Discussion on Joint Study Committee Meeting on 18.09.2019.

Dear Sir

Modification Proposed: - Change of origin of the said line from Barjora to 220KV Parulia DVC S/Stn.
Present Proposed Line :- 220KV D/C Parulia DVC – Bardhaman Line

Reference (i), discussion on the modification of construction of 220KV Barjora- Bardhaman D/C Line was carried out and it was concluded that a Joint Study Committee meeting would be held to discuss the issue.

Accordingly the joint study committee meeting was held on 18.09.2019 wherein detailed discussion took place and DVC placed their reasoning for shifting of the source of the Line from Barjora to Parulia along with the relevant Load Flows. CTU also requested to send the relevant PSSE files so that they could study the same and come to a conclusion. Accordingly all the PSSE files were forwarded to CTU and CEA vide e mail dated 30.9.2019.

You are kindly requested to look into the matter and provide an IN PRINCIPLE APPROVAL so that, the work of construction, which had already commenced and presently stalled could be taken up at a faster pace for completion of the Project.

Regards

S.K.Bose 15/11/19
Chief Engineer – I
SPE, DVC, Kolkata.

Copy To:-

(1) Member Secretary, ERPC, , Kolkata.

दामोदर घाटी निगम
DAMODAR VALLEY CORPORATION

EDCON/ED (SYM.)/G-III/548

Dt. 25.11.19

To
The Chief Engineer
PSPA – II
CEA
Sewa Bhawan,
R.K.Puram-1
New Delhi – 110066

Sub:- Modification of Construction of 220KV D/C Barjora – Bardhaman Line of DVC

Ref:- (i) Item 1 of Minutes of Joint Study Committee meeting held on 18.09.2019

Dear Sir

Attached, please find the observations of DVC towards the deliberations of the Joint Study Committee meeting held on 18.09.2019. Kindly note that keeping the source of the said line from 220KV Parulia S/Stn and subsequently constructing the 220KV Parulia – Panagarh - Bardhaman D/C Line would have a minimal resistance path i.r.o ROW as has been observed from the detailed survey of the Line.

Regards

S.K.Bose 25/11/19
Executive Director (System)
DVC, Kolkata.

Copy To:-

(1) Member Secretary, ERPC, DVC, Kolkata.

डीवीसी टावर्स, वीआईपी रोड, कोलकाता-700 054 दूरभाष: (033) 2355-7939, फैक्स: (033) 2355-4841
DVC Towers, VIP Road, Kolkata-700 054, Phone : (033) 2355-7939, Fax : (033) 2355-4841

MODIFICATION OF CONSTRUCTION OF 220KV D/C/ BARJORA – BARDHAMAN LINE OF DVC

After necessary deliberation in the Joint Study Committee Meeting held on 18.09.2019, the following inferred:-

(i) DVC would explore the option of connecting proposed 220KV Bardhaman Sub-Station to 220KV Durgapur (DVC) S/Stn including terminating through Cable.

(ii) DVC would explore the option of connecting with D/C LILO of Durgapur DVC – Parulia 220KV D/C Line at Proposed Panagarh S/Stn which may be connected to proposed Bardhaman S/Stn

The following points are presented on behalf of DVC to keep the end point as 220KV Parulia S/Stn rather than 220KV Durgapur S/Stn and avoiding LILO of Durgapur- Parulia 220KV D/C Lines.

(i) Presently due to paucity of funds, construction of 220KV Pangarh S/Stn has been kept in hold.

(ii) Major height restriction for Panagarh Air Base (FUNNEL AREA MARKED IN BLACK) is applicable as the Durgapur substation is within 12 to 15 Km of Panagarh ILS.

(iii) Durgapur substation is geographically located in between the corridor of Howrah – Kalka Railway & NH-2 [23.494434 N, 87.3661339 E] and is surrounded by an industrial belt, namely Export Promotion Industrial Park (EPIP). EPIP is one of the important and prestigious projects of the Asansol Durgapur Development Authority (ADDA) under Urban Development & Municipal Affairs Department of Govt. of West Bengal. It is a 148 acres park situated on NH-2 with availability of all infrastructures.

(iv) It is therefore very difficult to get transmission line corridor penetrating the EPIP area towards northern side of NH – 2. Moreover, beyond the EPIP area there are cluster of FOREST LAND shown in patches of Green which has to be avoided..

(v) The line can also not be constructed in between NH – 2 and river Damodar because of congested dwelling house. A GPS photo of Location of Durgapur S/Stn is attached for reference.

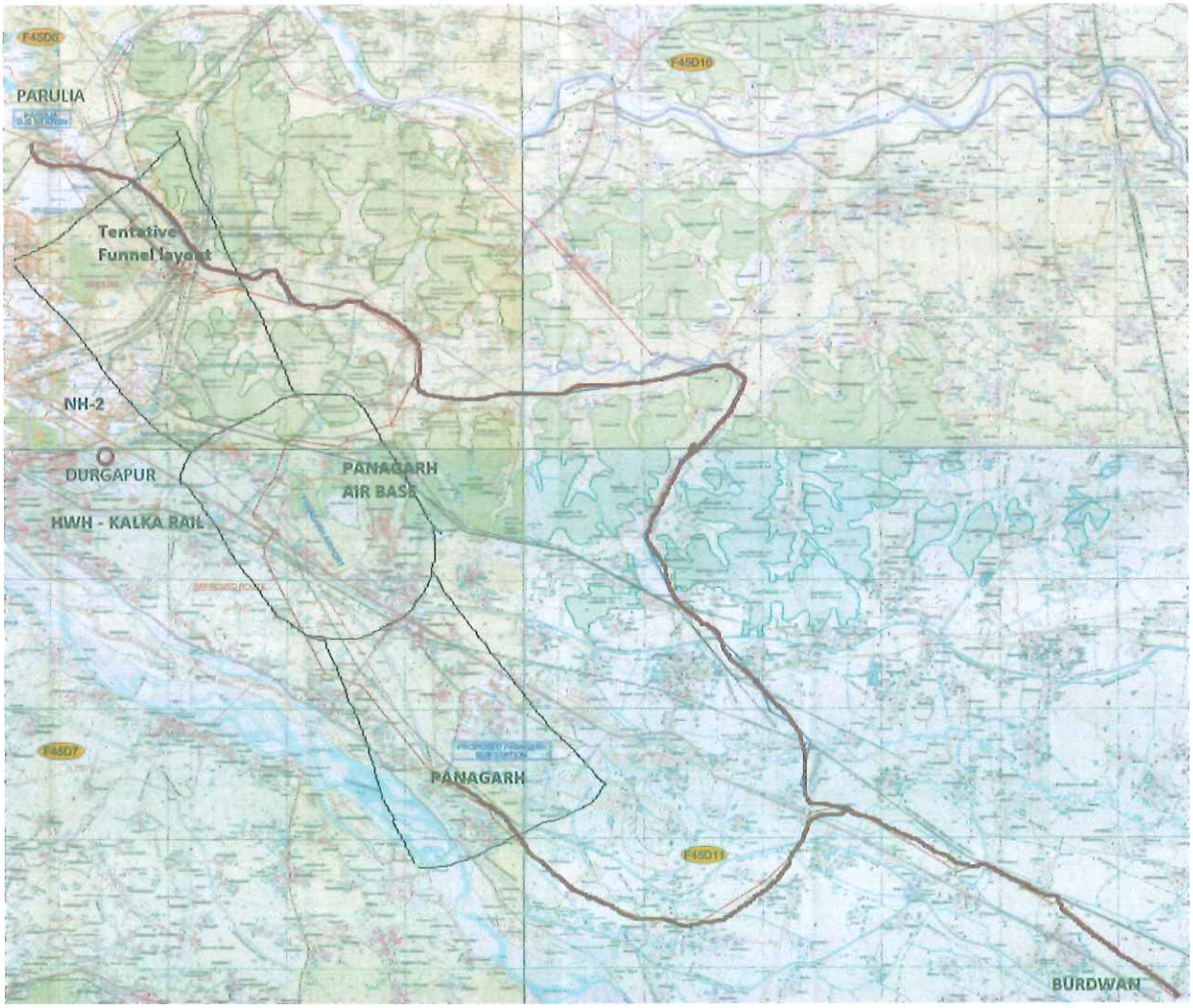
(vi) Non-availability of space for construction of 2 Numbers 220KV Bays at Durgapur S/Stn.

(vii) A cluster of Old 400KV/220KV/132KV Lines exist in the small corridors available in the above regions.

(viii) The Route followed by 220KV Parulia – Durgapur Existing Line falls in the proximity of the Panagarh Airfield and any new construction required for the LILO has to be approved by the Air force Authority. LILO points inside the ILS zone marked in Black may not be approved by Air force authority and outside the ILS zone the LILO points come to near vicinity of Parulia S/Stn. Hence terminating the D/C Lines at 220KV Parulia Bus will be a prudent solution rather than making a Single circuit LILO of 220KV Durgapur – Parulia Line.

A Mouza Map of the area is attached which gives a clear indication of the location of DurgapurS/Stn, Parulia S/Stn and Pangarh S/Stn.

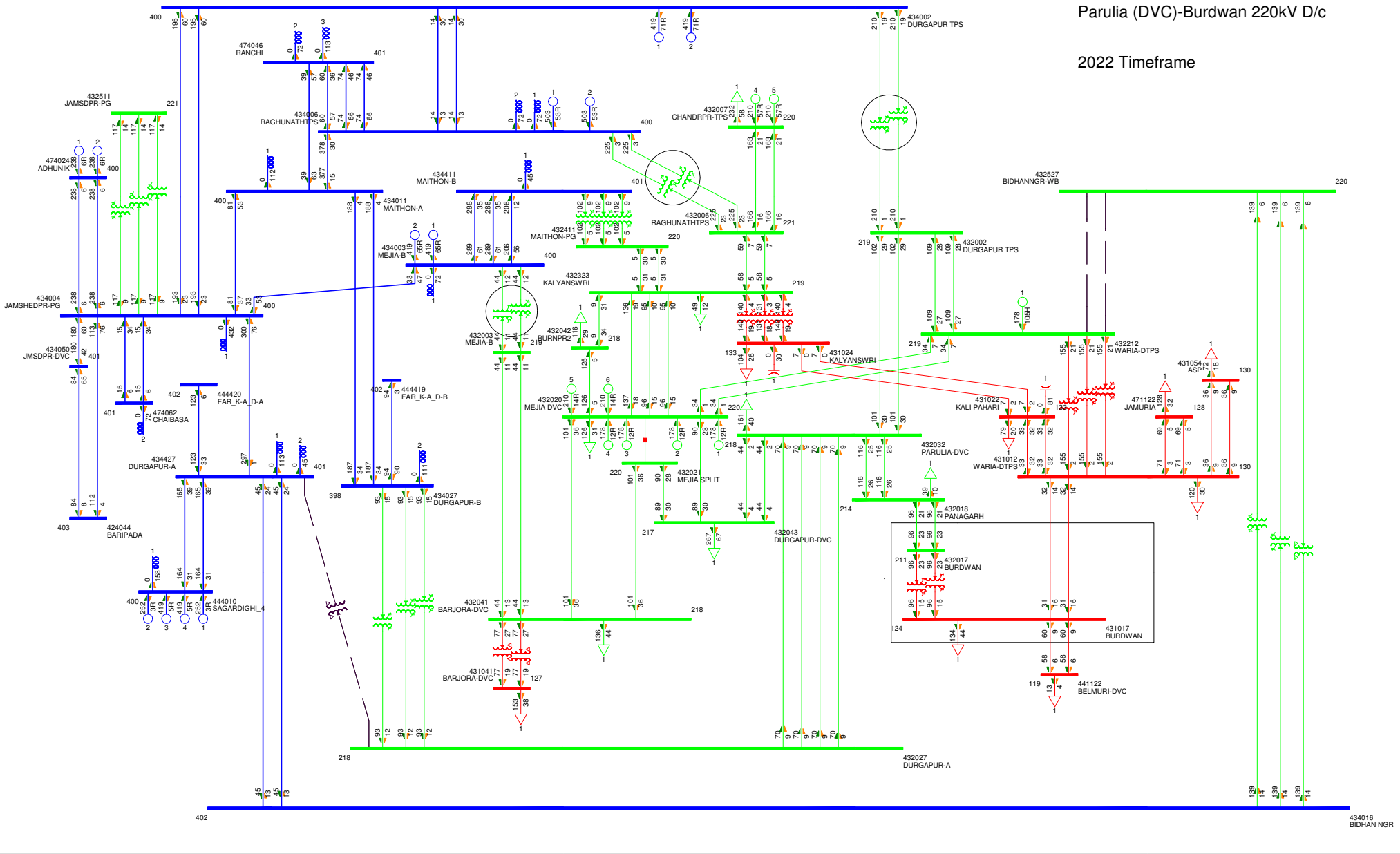
Thus with the above considerations, the Source of the 220KV Line was kept from 220KV Parulia S/Stn and the best suited path for constructing the 220KV Parulia – Bardhaman D/C Line (marked as red) is available with the minimal resistance path which has been observed during the detailed survey of the Line.



Google Maps Muchipara DVC S/STN

Imagery ©2019 Maxar Technologies, Imagery ©2019 CNES / Airbus, Maxar Technologies, Map data ©2019 200 m

DVC transmission system



File No.CEA-PS-12-15/5/2018-PSPA-II Division **28**

I/8314/2019

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग -II
Power System Planning & Appraisal Division-II

सेवामे/To

1. Member Secretary,
   Eastern Regional Power Committee,
   14, Golf Club Road, Tollygange,
   Kolkata-700033.

2. Principal Chief Engineer cum Secretary,
   Energy & Power Department,
   Government of Sikkim
   Gangtok, Sikkim.

3. COO(CTU-Plg),
   Power Grid Corp. of India Ltd. (PGCIL),
   "Saudamini", Plot No.2, Sector-29,
   Gurgaon- 122 001, Haryana.

विषय/**Subject:** Minutes of Meeting on transmission issues of Sikkim.

महोदय/Sir,

A meeting regarding the transmission issues of Sikkim was held on 28.11.2019 at CEA, New Delhi. Minutes of the meeting are enclosed herewith.

भवदीय/Yours faithfully,

2.12.2019

(बी.एस. बैरवा/ B.S.Bairwa)
निदेशक / Director

सेवा भवन, आर. के. पुरम-I, नई दिल्ली-110066 **टेलीफोन**: 011-26198092 **ईमेल**: cea-pspa2@gov.in वेबसाइट: www.cea.nic.in
Sewa Bhawan, R.K Puram-I, New Delhi-110066 **Telephone**: 011-26198092 **Email**: cea-pspa2@gov.in **Website**: www.cea.nic.in

Minutes of Meeting on transmission issues of Sikkim held on 28.11.2019 at CEA, New Delhi.

List of participants is enclosed at **Annexure-I**.

Chief Engineer (PSPA-II), CEA welcomed the participants of the meeting. The discussions during the meeting are as under;

1. **Comprehensive Scheme for Strengthening of Transmission and Distribution in Sikkim:** Representative of POWERGRID stated that the retendering for the package including 9 no. of substations has been done and the same is expected to be awarded by January 2020. The list of thesesubstation is given at **Annexure-II**. The completion schedule for Legship Pool and Dikchu Pool will be 15 months and for other seven substations will be 18 months from date of award. Therefore, no alternate arrangement is required.
2. **Status of Signing of Transmission Service Agreement (TSA) for ISTS**: Representative of Sikkim stated that they are ready to sign the TSA. It was agreed that POWERGRID will send the signed copy of TSA to Sikkim and get it signed.
3. **Power evacuation from Dikchu (96MW) HEP, Sikkim of SKPPPL**:

   (i) Representative of Sikkim stated that there is a possibility of saving of about 4.5km of 220 kV D/C line under the comprehensive scheme. Accordingly, they requested to incorporate LILO of one circuit of Dikchu Pool-Singhik 220kV D/c (Twin Moose) line (to be initially operated at 132kV) line (1.5 km LILO length) at Dikchu HEP under the ongoing comprehensive scheme.

   (ii) Representative of BDD, POWERGRID stated that they have submitted RCE regarding this comprehensive scheme to MoP. He stated that adding this LILO line in the scope may further delay completion of the line and approval of the RCE, as RCE would again need to be revised. On enquiry, it was also informed that Rangpo-Samardong-Dikchu pool and Dikchu pool-Singhik lines are facing RoW problems and may get delayed.

   (iii) The proposal of Sikkim to modify immediate evacuation system of Dikchu HEP from Dikchu HEP – Dikchu Pool 132kV D/c line to LILO of one circuit of Dikchu Pool-Singhik 220kV D/c (Twin Moose) line (to be initially operated at 132kV) line (1.5 km LILO length) at Dikchu HEP and to take up the same under the on-going Comprehensive Scheme was discussed. In this regard, following action were agreed to:

      a) BDD, POWERGRID will estimate savings in respect of DPR and actual length of 220 kV lines in Sikkim, under the Comprehensive Scheme.

      b) POWERGRID and Power Department of Sikkim will jointly inspect the proposed LILO section at Dikchu HEP and submit their report by 10 Dec, 2019 to CEA.

c) The proposed modification in immediate evacuation of Dikchu HEP would be put up for decision to ERPC(TP) in its next meeting.

d) Based on the above, the decision regarding additional scope proposed by Sikkim under already on-going Comprehensive Scheme would be taken.

Annexure-I

List of participants of Meeting on transmission issues of Sikkim held on 28.11.2019 at CEA, New Delhi.

S.No.	Name(S/Shri)	Designation	Organization/Deptt.
1.	Pardeep Jindal	Chief Engineer (PSPA-II)	CEA
2.	B.S. Bairwa	Director	CEA
3.	U.M. Rao Bhogi	Dy. Director	CEA
4.	Suyash Ayush Verma	Asstt. Director-I	CEA
5.	Ashok Pal	CGM(CTU-PLG)	POWERGRID
6.	Laxmikant	DGM(CTU-Plg)	POWERGRID
7.	Manish Ranjan Keshari	Dy.Mang.(CTU-Plg)	POWERGRID
8.	Anupam Kumar	Dy.Mang.(CTU-Plg)	POWERGRID
9.	S.K.Pal	Sr. GM(CMG)	POWERGRID
10.	Deepak Kumar	Dy.Mang.(BDD)	POWERGRID

Annexure-II

List of substations in Comprehensive Scheme in Sikkim which are being retendered

1) 132/66/11 kV Dikchu Pool
2) 220/132 kV Legship Pool
3) 66/11 kV Temi
4) 66/11 kV Makha
5) 66/11 kV Kumrek
6) 66/11 kV Rorathang
7) 66/11 kV Khamdong
8) 66/11 kV Namthang
9) Bay extn. at 66/11kV Mamring ss

सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग -II
Power System Planning & Appraisal Division-II

सेवामे/To

1. Managing Director,
   Bihar State Power Transmission Company,
   Vidyut Bhavan (4th floor), Baily Road,
   Patna-800021.
   Tel. 0612-2504442
   Fax No. 0612-2504557

2. COO(CTU-Plg),
   Power Grid Corp. of India Ltd.(PG-CIL),
   "Saudamini", Plot No.2, Sector-29,
   Gurgaon- 122 001, Haryana.

विषय/**Subject**: Minutes of meeting on BSPTCL intra-state transmission system proposals.

माहोदय/Sir,

A meeting regarding BSPTCL intra-state transmission system proposals was held on 17.10.2019 at CEA, New Delhi. The minutes of the meeting are enclosed herewith.

भवदीय/Yours faithfully,

28.11.2019
(बी.एस. बैरवा/ B.S.Bairwa)
निदेशक / Director

सेवा भवन, आर. के. पुरम-I, नई दिल्ली-110066 **टेलीफोन**: 011-26198092 **ईमेल**: cea-pspa2@gov.in वेबसाइट: www.cea.nic.in
Sewa Bhawan, R.K Puram-I, New Delhi-110066 **Telephone**: 011-26198092 **Email**: cea-pspa2@gov.in **Website**: www.cea.nic.in

Minutes of meeting on intra-state transmission system proposals of BSPTCL held on 17.10.2019 at CEA, New Delhi.

List of participants is enclosed at **Annexure-I**.

Chief Engineer (PSPA-II), CEA welcomed the participants of the meeting. He requested Director(PSPA-II), CEA to initiate discussion. The discussions during the meeting are as under:

1. Establishment of 400/220/132kV sub-station at Chhapra (400/220 kV 2x500 MVA & 220/132 kV 2x200 MVA)

1.1 Representative of BSPTCL stated that to meet the growing power demand in and around Chhapra area and to remove system constraints in intra-state system, construction of a new 400/220/132 kV Grid Sub-station is necessary. He submitted that:

(i) The main source of power in the region is 400 kV Muzzaffarpur (PG) s/s and approx. 900 MW is being drawn. This results in very low voltage profile in the entire region. BSPTCL has to impose load shedding at different GSSs to maintain voltage profile at 132 kV level. The proposed Chhapra substation will provide second source to 220 kV GSSs and 132 kV GSSs in the area.

(ii) 220 kV Digha S/s is geographically so located in densely populated area that no source for Digha (New) is feasible other than Amnour. Connectivity of upcoming 220 kV Digha (New) GSS at Patna is under-construction from Amnour GSS which is presently getting power from Muzzaffarpur (PG). Construction of new 400 kV GSS at Chhapra and its proposed connectivity to Amnour at 220 kV will facilitate stable & reliable source of power at Digha (New) also in Patna area through Amnour.The 400kV Chhapra S/s is proposed to be fed from Barh Thermal Power Station through LILO of Barh – Motihari 400kV (Quad) D/c ISTS line. As per the studies, a quantitative rise in voltage profile is observed at the sub-stations connected to 400/220/132 kV Chhapra (New) and significant power is being evacuated at 220 kV and 132 kV voltage level.

1.2 Accordingly, BSPTCL has proposed establishment of new 400/220/132 kV Chhapra S/s with following connectivity:

a) 2x500 MVA, 400/220 kV ICT

b) 2x200 MVA, 220/132 kV ICT

c) LILO of 400 kV Barh (NTPC) - Motihari (DMTCL) D/C (Quad) transmission line (about 40 km)

d) 220 kV Chhapra (New) - Gopalganj DCDS (100 km)

e) 220 kV Chhapra(New) - Amnour DCDS (25 km)

f) 132 kV Chhapra(New) - Siwan DCDS (60 km)

g) 132 kV Chhapra(New) - Maharajganj DCDS (45 km)

h) 132 kV Chhapra(New) - Raghunathpur DCDS (80 km)

i) 2x125 MVAR bus reactors

1.3 Chief Engineer(PSPA-II), CEA stated that Siwan S/s is already connected to Amnour by 132 kV D/C line and proposed connection of Maharajganj and Raghunathpur with Chhapra S/s would meet N-1 criteria and maintain voltage in those substations. Therefore the proposed 132 kV Chhapra(New)- Siwan D/C line may be dropped.

1.4 After deliberations, it was agreed to take up take up proposal of 400/220/132 kV Chhapra S/s (400/220 kV 2x500 MVA & 220/132 kV 2x200 MVA) as mentioned at para 1.2 excluding 132 kV Chhapra(New) - Siwan D/C line to the forthcoming meeting of ERSCT. Study results for this proposal are given at **Annexure-II**.

2. Proposal for construction of 132/33 kV Grid sub-stations

1.5 Representative of BSPTCL stated that as discussed in the 2nd meeting of ERSCT held on 05.07.2019 and Joint Study Meeting held on 18.09.2019, the details and clarifications of the proposed six substations (Nabinagar, Barari, Daudnagar, Barachatti, Murliganj and Bhore) along with additional one substation (Bagha) were submitted to CEA. Due to load growth, existing source GSS are far from proposed PSS, large length of 33kV feeder, maintenance issues, space constraint in the existing GSS for new PSS and segregation of agriculture feeders, following 132/33kV Grid Sub-Stations are proposed under intra-state scheme of BSPTCL:

Sl. No.	Name of GSS	Load (MW)	Voltage level	Connectivity	Type of conductor
1	Bagha (2*50 MVA)	35	132 kV	LILO of 132 kV Bettiah – Dhanha S/C transmission line 132 kV Ramnagar – Bagha DCDS transmission line	Panther
2	Murliganj (2*50 MVA)	50	132	132 kV Murliganj - Raghopur transmission line DCDS 132 kV Murliganj - Uda Kishanganj transmission line DCDS	Panther
3	Barari (2*50 MVA)	40	132 kV	LILO of 132 kV Sabour(New)– Sabour D/C transmission line LILO of 132 kV Kahalgaon–Sabour S/C transmission line	Panther
4	Daudnagar (2*50 MVA)	40	132 kV	LILO of 132 kV Sonenagar(New)–Aurangabad S/C transmission line LILO of 132 kV Sonenagar– Chandauti(New) S/C transmission line	Panther
5	Bhore (2*50 MVA)	50	132 kV	LILO of 132 kV Barhi-Rajgir/Nalanda S/C transmission	Panther

				line	
				132 kV Bhore - Khizirsarai transmission line DCDS	
6	Barachatti (2*50 MVA)	50	132 kV	132 kV Chandauti (New) - Barachatti transmission line DCDS	Panther
				LILO of 132 kV Barhi - Rajgir S/C (L28)	
7	Nabinagar (2*50 MVA)	35	132 kV	LILO of 132 kV Sonenagar–Rihand S/C transmission line	Panther
				LILO of 132 kV Sonenagar(New)–Aurangabad S/C transmission line	

1.6 Based on the geographical location of the Bagha and nearby substations, it was proposed that 132kV Dhanaha - Ramnagar S/C may be LILOed at Bagha S/s. Also, for providing strong source to the cluster of 132 kV S/s (Dhanaha, Bagha, Bettiah, Ramanagar and Narkatiaganj), Ramanagar S/s may be connected to Raxaul (new) S/s, which is currently under construction. This will also help in providing reliable power to Nepal from Ramnagar S/s.

1.7 Chief Engineer(PSPA-II), CEA stated that Murliganj S/s may be connected directly to Madhepura or Banmunkhi S/s, as they are nearer to Murliganj in comparison to Raghopur S/s and Uda Kishanganj S/s. The possibility of connecting Murliganj S/s with Saharsa S/s may be explored, as it is a strong source. Representative of BSPTCL stated that direct connectivity to Saharsa is difficult due to many power line crossings in the route to Saharsa S/s. Representative from BSPTCL stated that there is no space for additional bays at Madhepura and Banmunkhi,. Chief Engineer(PSPA-II), CEA suggested for LILO of 132 kV Saharsa-Banmunkhi S/C at Murliganj and dropping of the proposal for connection with Raghopur.

1.8 It was opined that LILO of 132 kV Sabour(New)– Sabour D/C transmission line at Barari S/s is sufficient, therefore proposal of LILO of 132 kV Kahalgaon–Sabour S/C line at Barari S/s may be dropped.

1.9 It was observed that LILO of Sonenagar- Chandauti S/C line at Daudnagar S/s is sufficient, as Daudnagar S/s would be connected from two different sources. It was further observed that the proposal of connecting Daudnagar S/s from Sonenagar S/s through different line lengths would create unbalanced loadings. Therefore it was suggested that proposal of LILO of 132 kV Sonenagar- Aurangabad S/C line at Daudnagar S/s may be dropped.

1.10 It was suggested that 132 kV Rajgir-Barhi D/C line may be D/c LILOed at both Bhore & Barchatti S/s. Chandauti S/s, which a strong source could be connected to either of them preferably Barchatti. This will make connectivity to Barachatti & Bhore S/s more reliable.

1.11 Representative of BSPTCL stated that 132 kV Sonenagar-Rihand S/C is usually open from Rihand(UP) end throughout the year (i.e. Nabinagar would be connected to Sonenagar S/s only). Therefore LILO of 132 kV Sonenagar-Aurangabad S/C line at Nabinagar S/s was proposed as a second source. Representative of CTU stated that LILO of both lines at Nabinagar S/s may cause differential loadings due to difference in line lengths of Sonenagar- Nabinagar line (15 km Rihand LILO and 75 km Aurangabad LILO). Therefore, both the proposed LILOs are not suggestible. Chief Engineer(PSPA-II), CEA suggested that both LILOs could be agreed with condition that only one LILO is operated at a time due to the issue of differential loading.

1.12 Keeping in view the load projections at new 132/33kV S/s, which is in the range of 35-50MW, it was suggested that BSPTCL may at least 2x80MVA ICTs at each of these S/s to meet 'n-1' reliability criteria.

1.13 After deliberations, it was agreed to take up take up proposal of seven GSS with following connectivities by BSPTCL to the forthcoming meeting of ERSCT:

Sl. No.	Name of GSS	Load (MW)	Voltage level	Connectivity	Type of conductor
1	Bagha (2*80 MVA)	35	132 kV	LILO of 132 kV Ramnagar – Dhanha S/C transmission line 132 kV Ramnagar – Raxaul (new) DCDS transmission line	Panther
2	Murliganj (2*80 MVA)	50	132kV	LILO of 132 kV Saharsa (ISTS) – Banmunkhi S/C transmission line 132 kV Murliganj - Uda Kishanganj transmission line DCDS	Panther
3	Barari (2*80 MVA)	40	132 kV	LILO of both circuits of 132 kV Sabour(New)– Sabour D/C transmission line	Panther
4	Daudnagar (2*80 MVA)	40	132 kV	LILO of 132 kV Sonenagar–Chandauti(New) S/C HTLS transmission line	HTLS
5	Bhore (2*80 MVA)	50	132 kV	D/c LILO of 132 kV Barhi-Rajgir/Nalanda D/C transmission line	Panther
6	Barachatti (2*80 MVA)	50	132 kV	D/c LILO of 132 kV Barhi-Rajgir/Nalanda D/C transmission line 132 kV Chandauti (New) - Barachatti transmission line DCDS	Panther
7	Nabinagar (2*80 MVA)	35	132 kV	LILO of 132 kV Sonenagar–Rihand S/C transmission line **(only one LILO to be operated at a time)** LILO of 132 kV Sonenagar(New)– Aurangabad S/C transmission line **(only one LILO to be operated at a time)**	Panther

Study results for this proposal are given at **Annexure-II**.

3. Evacuation system of Buxar Thermal Power Station (2x660 MW)

1.14 Representative of BSPTCL stated that following transmission system was agreed in 19th meeting of Standing Committee on Power System Planning of Eastern Region held on 01.09.2017 for evacuation of power from Buxar TPS :

- **(i)** Buxar TPS – Naubatpur 400 kV D/C (with Twin Moose or equivalent HTLS conductor)
- **(ii)** Buxar TPS – Dumraon (New) 220 kV D/C (Twin Moose)
- **(iii)** Buxar TPS – Pusaulli (BSPTCL)220 kV D/C (Twin Moose)
- **(iv)** Buxar TPS – Dehri 220 kV D/C
- **(v)** 2*500 MVA, 400/220 kV ICT at Buxar generation switchyard
- **(vi)** Provision of space for 3rd ICT.

1.15 Further, new 220/132 kV GSS Karamnasa (New) with following connectivity has been planned in the time frame 2017-22 (already approved):

(a) LILO of 220 kV S/C Pusauli (PG) – Sahupuri S/C transmission line.

(b) 220 kV Pusauli (BSPTCL) – Karamnasa (New) D/C transmission line.

1.16 There is nonavailability of corridors at Pusauli (BSPTCL) end. Owing to which, already approved, construction of 220 kV Buxar TPS – Pusauli (BSPTCL) D/C transmission line may face severe RoW (Right of Way) at Pusauli (BSPTCL) end. Further, almost 250 MW power is to be evacuated from Karmnasa (New) in down-stream through Mohania, Karamnasa (old), Bhabhua, Ramgarh, etc. As such, 220 kV Buxar TPS – Pusauli (BSPTCL) D/C transmission line may be terminated at 220/132/33 kV GSS Karamnasa (New) instead of terminating it at Pusauli (BSPCL). This will also provide an additional source for Karamnasa (New).

1.17 On the query of Chief Engineer(PSPA-II), CEA , representative of BSPTCL stated that the type of conductor for Buxar TPS – Dehri 220 kV D/C line is single zebra.

1.18 After deliberations, following modified scheme for evacuation of power from Buxar TPS is recommended to ERSCT:

- **(i)** Buxar TPS – Naubatpur 400 kV D/C (Twin Moose)
- **(ii)** Buxar TPS – Dumraon (New) 220 kV D/C (Twin Moose)
- **(iii)** Buxar TPS – Karmnasa (New) 220 kV D/C (Twin Moose)
- **(iv)** Buxar TPS – Dehri 220 kV D/C (Single Zebra)
- **(v)** 2x500 MVA, 400/220 kV ICT at Buxar generation switchyard
- **(vi)** Provision of space for 3rd 400/220kV, 500MVA ICT

Study results for this proposal are given at **Annexure-II**.

Annexure-1

List of participants of meeting on BSPTCL intra-state transmission system proposals held on 17.10.2019 at CEA, New Delhi

S.NO	NAME	DESIGNATION
	Central Electricity Authority (CEA)	
1	Pardeep Jindal	Chief Engineer (PSPA-II)
2	B S Bairwa	Director
3	U M Rao	Dy. Director
4	Suyash Ayush Verma	AD -I
	CTU (POWERGRID)	
1	Laxmikant	DGM(CTU-PLG)
2	Manish Ranjan Keshari	Dy.Mang.(CTU-Plg)
3	Anupam Kumar	Dy.Mang.(CTU-Plg)
	BSPTCL	
1	H.R. Panday	Director (Proj.)
2	Bhaskar Sharma	Advisor (Tech.)
3	Ravi S. Prasad	ESE(P&E)
4	Abhishek Kumar	EEE(P&E)

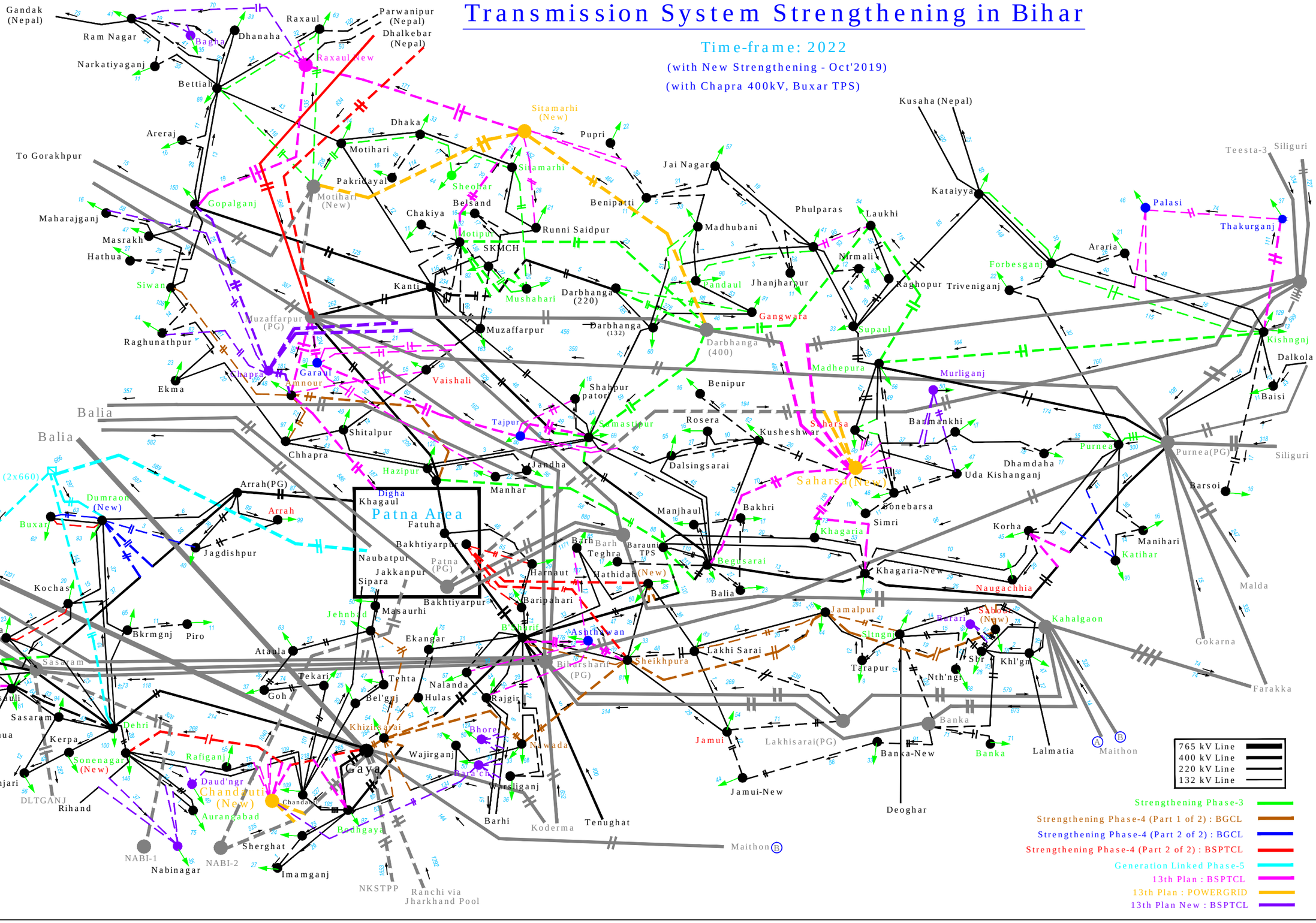
Annexure-II

Transmission System Strengthening in Bihar

Time-frame: 2022

(with New Strengthening - Oct'2019)

(with Chapra 400kV, Buxar TPS)



ଓଡ଼ିଶା ବିଦ୍ୟୁତ ଶକ୍ତି ସଂଚାରଣ ନିଗମ ଲିଃ.
ODISHA POWER TRANSMISSION CORPORATION LIMITED
(A Government of Odisha Undertaking)
Regd.Office: Janpath: Bhubaneswar
CORPORATE IDENTITY NUMBER (CIN) U40102OR2004GC007553
Tel- 0674-2546352: Fax- 0674-2547261, E Mail: cgm.con@optcl.co.in

No.: CGM(C)/ OCC-47 / 2018 788(2) Date: 26.11.2019

From

Chief General Manager (Const.),
OPTCL, Bhubaneswar.

To

The Director,
CEA,PSPA-II Division(Part-II),
New Delhi,Govt. of India.E mail : cea-pspa2@gov.in

Sub: ***Replacement of existing Zebra conductor to Joda-JSPL 220kv line.***

Ref.: Your Office L.No.134 dated 23.10.2019 addressed to Director (Commercial),GRIDCO Ltd.

Sir,

In inviting reference to the subject cited above, Odisha is going to place the following points for consideration in the next Standing Committee Meeting.

- A joint inspection was done by a Committee comprised of officials from OPTCL, M/s JSPL and M/s JSW Utkal Steel Ltd. and two options were proposed for acceptance by M/s JSW Utkal Steel Ltd. ***The site feasibility study of the committee is attached for reference.***
- Subsequently M/s JSW Utkal steel has given his consent agreeing to option 1 as mentioned in the letter. Option 1 proposes M/s JSW Utkal Steel Ltd. to construct a bay from 220KV switching substation of M/s JSPL & to replace the existing zebra conductor from Joda GSS to M/s JSPL S/s with HTLS. ***The letter of acceptance by M/s JSW Utkal Steel Ltd. is attached for reference.***
- In view of the above, Odisha agrees regarding M/s JSW Utkal Steel Ltd. to draw power from the switchyard of M/s JSPL by constructing a bay & to replace the existing zebra conductor with HTLS(from Joda GSS to M/s JSPL switching substation).

Regarding the LILO of the 220KV Joda-Ramchandrapur line, Odisha's views are as follows:

- Odisha doesnot want to LILO the 220 kV Joda-Ramchandrapur line, as this is an important interstate tie line. Odisha receives power to the tune of 100 MW from Ramachandrapur end. The representative of POSOCO also mentioned in clause 13.7 of the minutes of the CEA Standing Committte meeting that the performance standards are not being maintained for the LILOs of Generating plants and Bulk consumers,therefore these LILOs are not recommended. This will also adversely affect the power scenario at Joda.
- The **system study has been conducted** taking into consideration the drawl of 75 MW by M/s JSW Utkal Steel Ltd. The 220KV Joda-JSPL line is loaded to 222 MW. The SLD for the power flow scenario is attached. As it exceeds the thermal limit of 220 kV Zebra conductor, replcement with HTLS becomes a necessity.
- In view of the above,the following may be included as the agenda item for the next Standing Committee meeting.
- "Power supply to be extended to M/s JSW Utkal Steel Ltd. by constructing a bay from M/s JSPL 220KV S/s. The 220kv line from Joda GSS to M/s JSPL S/s will be reinforced with HTLS conductor."

Yours faithfully

26/11/2019
Chief General Manager (Const.)

Enclo.: As above.

Cc : Member Secretary,ERPC,Kolkata-700033.E mail : mserpc-power@nic.in

I/7303/2019

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग -II
Power System Planning & Appraisal Division-II

To

The Director (Commercial),
GRIDCO Ltd.,
Janpath, Bhubneshwar-751022.

Subject : Replacement of existing conductor to HTLS in Joda-JSPL 220 kV Line – request for corrigendum to the minutes of 2nd meeting of ERSCT.

Ref : GRIDCO Ltd letter No. Sr.GM(PP)-15/2018/3545(3) dated 29.08.2019.

Sir,

This has reference to your letter referred above, requesting following corrigendum to the minutes of 2nd meeting of Eastern Region Standing Committee on Transmission (ERSCT) on the issue of " LILO in Odisha portion of ISTS line for connecting M/s JSW Utkal Steel Ltd.":

Deletion of para 13.4.

"13.4 It was observed from studies that the load on the Joda-JSPL 220 kV line section would be around 180 MW and therefore re-conductoring with HTLS is not required for Joda-JSPL 220 kV Line"

Addition of new para under 13.10.

"13.10(iii) As the line loading of Joda-JSPL section exceeds the allowable limit, therefore the above section may be upgraded with HTLS conductor."

2. In this regard, it is to mention that the audio recording of the deliberations in 2nd meeting of ERSCT has been re-checked and it was found that the minutes under the Item-13 are as per the deliberations held in the meeting. Therefore, corrigendum to the Minutes is not required.

3. However, if OPTCL / GRIDCO planning to enhance the reliability of the supply to JSPL & JSW, LILO of Joda (OPTCL)- Ramchandrapur (DVC) 220kV line at JSPL may also be considered in addition to the system already agreed in the 2nd meeting o ERSCT. This additional proposal may be studied and can be placed in the forthcoming meeting of ERSCT.

Yours faithfully,

23.10.2019
(B.S. Bairwa)
Director

सेवा भवन, आर. के. पुरम-I, नई दिल्ली-110066 टेलीफोन : 011-26198092 ईमेल: cea-pspa2@gov.in वेबसाइट: www.cea.nic.in
Sewa Bhawan, R.K Puram I, New Delhi-110066 Telephone: 011-26198092 Email: cea-pspa2@gov.in Website: www.cea.nic.in

Site Feasibility Study for 220 Kv Power Supply Connectivity to M/S JSW Utkal Steel Ltd Joda

Members visited the site on 18th October 2019

OPTCL	M/S JSWUSL	M/S JSPL
1. Sri S.Sengupta	Sri Biraja Kinkar Das	Sri Sunil Patnaik
Sr.GM (O&M),	DGM-E&A	GM-E&I

2. Sri S.P.Das, GM- EHT-Const Circle, Jajpur Road,
3. Sri R.N.Panda, GM,EHT(O&M) Circle, Jajpur Road
4. Sri S.S.Behera, DGM, EHT (O&M) Division, Joda

The committee has visited JSPL Pellet Plant Switching station at joda on 18th October 2019 and Joda Jamsedpur line from LILO point to JSPL Plant.

The following observations are noticed during the joint visit.

(a) This is in reference to CEA MOM & OPTCL advise, JSW has conducted a feasibility study in coordination with ABB to construct an outgoing hybrid feeder bay inside JSPL switchyard by extending the main bus in rectangular manner and transfer bus through cable.

The committee has examined the proposal and found during maintenance of main bus section, the hybrid bay will be feed through the bus coupler breaker jointly with the transformer-3 of JSPL, which is technically not acceptable, hence committee has rejected the proposal.

(b) The committee has proposed as **proposal-1** to construct a new 220kV AIS feeder bay adjacent to transformer-III bay of JSPL to extend 220kV power supply to JSW grinding unit at Joda, which is at a distance of 1.2 km approximately from JSPL plant. However due to inadequate space inside JSPL campus, the committee has proposéd M/S JSWUSL to purchase required land adjacent to the boundary of M/S JSPL and implement the followings:-

- ✓ Construction of 220 KV AIS feeder bay
- ✓ One number feeder bay space for future expansion if any
- ✓ 4mts peripheral road around the new switchyard
- ✓ Erection of bay kiosk for existing 220kV incoming bay, outgoing bay, bus coupler bay at JSPL switchyard and JSWUSL feeder bay for automation system
- ✓ Independent control room with all necessary facilities & separate approach road

In this mode M/S JSWUSL has to provide land in the name of OPTCL before execution of the work. M/S JSWUSL has to construct one 220kV feeder bay with SAS, boundary wall of the new area, peripheral road, control room & separate approach road with main gate, security shed etc and other related infrastructure.

The existing control room of JSPL is not adequate for installation of new CR panel of JSWUSL and also there is no independent approach road to JSPL control room from public road. Hence JSWUSL has also to undertake the modification work for conversion of loop in, loop out and Bus coupler bay to SAS with control from new control room in coordination with JSPL and OPTCL and hand over the entire system to OPTCL for operation. In this case M/s JSPL has to hand over the land relating to the existing Switchyard in the name of OPTCL and M/s JSWUSL shall facilitate M/s JSPL in this regard.

c) The committee has also visited Tower Loc No-11 & 12 of 220kV Joda-Jamsedpur Line, which is nearer to JSW proposed site. The committee is also in opinion **as 2nd Proposal** that in case, JSW is having difficulty to acquire the land adjacent to JSPL switchyard boundary, a new switching station as per the OPTCL norms. having five 220 kv bays (four nos. feeder bays and one no. bus-coupler bay) can be constructed inside JSWUSL Land in their proposed grinding unit site, by terminating the LILO line in between tower no-11 & 12 by erecting a dead end tower instead of present JSPL Switching station. From the new switching station, JSW will avail the power supply through one 220kV feeder bay and M/S JSPL will also avail the power supply by constructing one new 220kV feeder bay, dead end tower and using existing line beyond Loc No-12.

The new switching station will be named as OPTCL Switching station and M/s JSWUSL has to hand over the required land in the name of OPTCL before start of any construction work. The existing switching station at JSPL will be renamed as JSPL Substation. The construction cost of one 220kV feeder bay inside new switching station for extending power supply to M/S JSPL and dead end tower will be borne by M/S JSPL. All other expenditure will be borne by M/S JSWUSL.

Further for steady power supply in 220kV Joda-Jamsedpur S/C Line with LILO portion, it is proposed to upgrade the existing conductor from Joda to new switching station/existing Sub-station to HTLS, considering 75 MW drawl by JSWUSL and existing load of JSPL and drawl by DVC.The HTLS conversion will be applicable for both the proposals & the cost for up gradation to be borne by M/S JSWUSL.

JSWUSL
B. k. Das.

JSPL S. Krpattnaik

OPTCL
1) (Sudipta Sengupta)
2) (SAKTI PR. DAS)
3) RABINARAYAN PANDA
4) S. S. Behera

JSW Utkal Steel Limited

3867
21.11.19

No. JSW/U/O/2019/266

Date- 20th November 2019

To

The CGM-O&M

OPTCL, Bhubaneswar

Sub: - JSWUSL Joda Unit 220 KV Power Supply

Ref: - TB-SO-PSI-27/2017/1870 dtd. 05.11.2019

Dear Sir,

This is in reference to the joint visit to JSPL Switchyard Joda Plant and joint inspection report, JSW agrees to go ahead with Option-1 to draw 220 KV power supply by constructing a 220 KV AIS bay adjacent to transformer-III bay of JSPL for the grinding unit. We are in the process of acquiring the land adjacent to JSPL boundary through IDCO. JSWUSL are also agreeing to all the conditions put by OPTCL in option no-1

You are requested to approve and release 75 MW power in the name of JSWUSL by which project activities can be started.

Thanking you

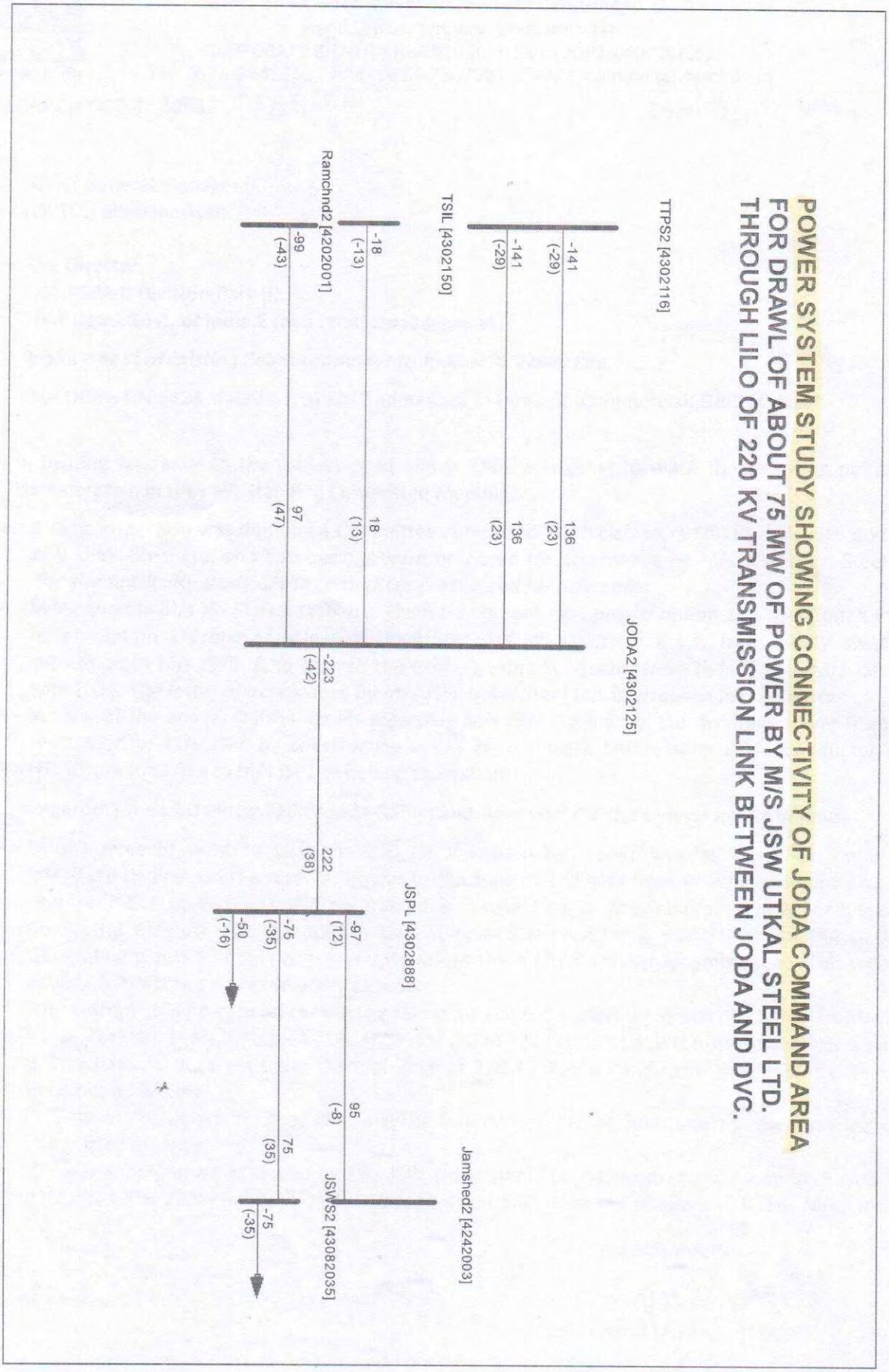
Your Faithfully

B.K.Das

Head-E&A

CC to: - Director (Operation) OPTCL – For kind information please.

20/11


POWER SYSTEM STUDY SHOWING CONNECTIVITY OF JODA COMMAND AREA
FOR DRAWL OF ABOUT 75 MW OF POWER BY M/S JSW UTKAL STEEL LTD.
THROUGH LILO OF 220 KV TRANSMISSION LINK BETWEEN JODA AND DVC.
TTPS2 [4302116]
JODA2 [4302125]
TSIL [4302150]
Ramchnd2 [4202001]
JSPL [4302888]
Jamshed2 [4242003]
JSWS2 [43082035]
-141
(-29)
136
(23)
-141
(-29)
136
(23)
-18
(-13)
18
(13)
-99
(-43)
97
(47)
-223
(-42)
222
(38)
-97
(12)
95
(-8)
-75
(-35)
75
(35)
-50
(-16)
-75
(-35)

Bihar State Power Transmission Company Ltd., Patna
A subsidiary company of Bihar State Power (Holding) Company Ltd., Patna
CIN-U40102BR2012SGC018889
[SAVE ENERGY FOR BENEFIT OF SELF AND NATION]
Head Office, VidyutBhawan, Bailey Road, Patna -800021

Letter No/ _____/ BSPTCL, Patna Dated _____
CE(P&E)-142/2019

From,
H R Panday
Director (Projects), BSPTCL

To,
Sri B S Bairwa
Director- PSPA II,
Central Electricity Authority,
Sewa Bhawan, R K Puram,
New Delhi-110066.

Sri Ashok Pal
GM CTU-Planning,
PGCIL, Plot no. 2, Saudamin,
Near Iffco Chowk,
Sector 29, Gurugram,
Haryana-122001.

Sub.:- Submission of Justifications of the proposals and modification by BSPTCL.

Ref:- 1) Letter No. CEA-PS-12-15/2/2018- PSPA-II/I/5643/2019.
2) Letter No. CEA-PS-12-15/2/2018- PSPA-II/I/6758/2019.
3) Mails on dated 28.08.2019 and 13.09.2019.

Sir,

Please refer to this office letter under reference regarding the proposals for construction of various grid Sub-stations and associated transmission lines. The details are furnished below:

1. **Proposal for construction of 400/220/132 kV Sub-station at Chhapra (400/220 kV 2*500 MVA & 220/132 kV 2*200 MVA).**

It has been felt necessary to construct a new 400/220/132 kV Grid Sub-Station in and around Chhapra area to meet the growing demand of power and to remove system constraints.

The connectivities of the proposed 400/220/132 kV Chhapra are as follows:

i) LILO of 400 kV Barh – Motihari (DMTCL) D/C transmission line
ii) 200 kV Chhapra (New) – Goplaganj DCDS
iii) 200 kV Chhapra (New) – Amnour DCDS
iv) 132 kV Chhapra (New) – Siwan DCDS
v) 132 kV Chhapra (New) – Mahrajganj DCDS
vi) 132 kV Chhapra (New) – Raghunathpur DCDS

The opinion of PGCIL/CTU regarding construction of aforesaid *LILO of 400 kV Barh – Motihari (DMTCL) D/C transmission line* may please be obtained.

2. **Proposal for construction of 132/33 kV Grid Sub-stations:**

As discussed during the 2nd meeting of Eastern Region Standing Committee on Transmission held on 05.07.2019 and Joint Study Meeting held on 18.09.2019, the details and clarifications of all the following seven 132/33 kV GSSs are enclosed herewith:

a. **Bagha:** *LILO of 132 kV Bettiah – Dhanha S/C transmission line*
2nd source: 132 kV Ramnagar – Bagha DCDS
b. **Murliganj:** *132 kV Uda Kishanganj – Murliganj DCDS*
2nd source: 132 kV Raghopur – Murliganj DCDS
c. **Bhore:** *132 kV Gaya (BGCL) – Bhore DCDS*
2nd source: LILO of 132 kV Barhi – Rajgir (L28) S/C
d. **Barahchatti:** *132 kV Chandauti (New) – Barahchatti DCDS*
2nd source: LILO of 132 kV Barhi – Nalanda/Rajgir (L29) S/C
e. **Daudnagar:** *LILO of 132 kV Chandauti (New) – Sonenagar S/C transmission line*
2nd source: LILO of 132 Sonengar (New) – Aurangabad S/C

KD

f. **Barari:** *LILO of both circuits of 132 kV Sabour (New) - Sabour D/C*
2nd source: LILO of 132 kV Kahalgaon - Barari S/C

g. **Nabinagar:** *LILO of 132 kV Sonenagar - Rihand S/C transmission line*
2nd source: LILO of 132 kV Sonenagar (New) – Aurangabad S/C

3. **Modifications in evacuation plan of Buxar Thermal Plant Station (2x660 MW).**

Evacuation plan of upcoming 2*660 MW Buxar TPS was approved in 19th Standing Committee Meeting of CEA.

Some modification in evacuation plan of Buxar TPS are required as per present scenario of transmission network. The clarification regarding proposed modifications is enclosed herewith for review and kind consideration.

400 kV:

- Buxar TPS – Naubatpur (BGCL) 400 kV D/C (Twin Moose): No modification

220 kV:

a. Buxar TPS – Dumraon (New) (BGCL) 220 kV D/C (Twin Moose): No modification
b. Buxar TPS – Karmnasa (New) 220 kV D/C (Twin Moose): **Modified**
c. Buxar TPS – Dehri 220 kV D/C : No modification
d. 2*500 MVA, 400/220 kV ICT at Buxar generation switchyard & space for 3rd ICT may be kept.: No modification

As discussed, it is further requested to kindly communicate a date before upcoming Standing Committee Meeting for BSPTCL officials to visit and discuss the justifications of the proposals at the earliest.

Enc.: As above.

Yours faithfully,

Sd/-
(H R Panday)
Director (Projects), BSPTCL

Memo No.: 889 **,Patna** **Dated:** 03/10/19

Copy to **OSD to MD. BSPTCL/ Advisor(Tech.), BSPTCL/ Director (Operations), BSPTCL/ Member Secretary, ERPC, 14 Golf Club Road, Tollygunge, Kolkata-700033** for information.

08/10/19

(H R Panday)
Director (Projects), BSPTCL

North Bihar

1. 132/33 kV Bagha (District-Paschim Champaran).
2. 132/33 kV Murliganj (District-Madhepura).

South Bihar

1. 132/33 kV Barari (District-Bhagalpur).
2. 132/33 kV Daudnagar (District-Aurangabad).
3. 132/33 kV Bhore (District-Gaya).
4. 132/33 kV Barahchatti (District-Sherghati).
5. 132/33 kV Nabinagar (District-Aurangabad).

A. 132/33 kV Bagha (District-West Champaran)

1. **Grid Voltage level** - 132/33 kV
2. **Transformation capacity** - 2*50 MVA

- **Following parameters has been tentatively considered during load flow:-**
  1. Load on Bagha GSS is 35 MW.
  2. Connectivity at 132 level :-
     i) LILO of 132 kV Bettiah – Dhanha S/C transmission line:
        a. 132 kV Bettiah – Bagha transmission line: 56 km
        b. 132 kV Dhanaha – Bagha transmission line: 50 km
     ii) 132 kV Ramnagar – Bagha DCDS transmission line: 33 km

- **Type of Conductor & Tower :-**
  Conductor – ACSR Panther & Tower – DCDS.

- **Benefits :-**
  1. 132/33 kV Ramnagar GSS offloaded by 24 MW.
  2. Improve the Power reliability & Quality power will be available.
  3. Provide second source to 132/33 kV GSS Ramnagar.

- **Remarks:-**
  1. LILO of 132 kV Bettiah – Dhanha S/C transmission line will be the primary source for GSS Bagha because power is being drawn from 132/33 kV GSS Bettiah which will be connected to 220/132/33 kV GSS Raxaul (New).
  2. 132 kV Ramnagar – Bagha DCDS transmission line will be the 2nd source, as it is the nearest Sub-station from Bagha (approx. 33 km). The next possible source is LILO of 132 kV Raxaul (New) – Bettiah D/C transmission line which is about 100 km from Bagha GSS (proposed).

B. 132/33 kV Murliganj (District-Madhepura)

1. **Grid Voltage level** - 132/33 kV
2. **Transformation capacity** - 2*50 MVA

- **Following parameters has been tentatively considered during load flow:-**
  1. Load on Murliganj GSS is 50 MW.
  2. Connectivity at 132 level :-
     i) 132 kV Uda Kishanganj – Murliganj DCDS transmission line: 50 km
     ii) 132 kV Raghopur – Murliganj DCDS transmission line: 60 km

- **Type of Conductor & Tower :-**
  Conductor – ACSR Panther & Tower – DCDS.

- **Benefits :-**
  1. 132/33 kV GSS Madhepura & Uda-Kishanganj are offloaded by 25 MW (approx.).
  2. Improve the Power reliability & Quality power will be available.
  3. Provide second source to 132/33 kV Raghopur GSS.

- **Remarks:-**
  1. 132 kV Uda Kishanganj – Murliganj DCDS transmission line will be the primary source, as Uda Kishanganj will be connected to a stronger proposed source 400/220/132 kV GSS Saharasa (New).
  2. 132 kV Raghopur-Murliganj DCDS transmission line will be the 2nd source for 132/33 kV GSS Murliganj because power is being drawn from GSS Raghopur which is connected to 220/132/33 kV GSS Laukahi.

C. 132/33 kV Barari (District-Bhagalpur)

1. **Grid Voltage level** - 132/33 kV
2. **Transformation capacity** - 2*50 MVA

- **Following parameters has been tentatively considered during load flow:-**
  1. Load on Barari GSS is 40 MW.
  2. Connectivity at 132 level :-
     i) LILO of 132 kV Sabour(New)– Sabour D/C transmission line:
        a. 132 kV Sabour(New)– Barari DCDS transmission line: 30 km
        b. 132 kV Sabour –Barari DCDS transmission line: 20 km
     ii) LILO of 132 kV Kahalgaon–Sabour S/C transmission line:
        a. 132 kV Kahalgaon–Barari DCDS transmission line: 30 km
        b. 132 kV Sabour –Barari DCDS transmission line: 30 km

- **Type of Conductor & Tower :-**
  Conductor – ACSR Panther & Tower – DCDS.

- **Benefits :-**
  1. 132/33 kV Sabour GSS offloaded by 30 MW.
  2. Improve the Power reliability & Quality power will be available.

- **Remarks:-**
  1. LILO of 132 kV Sabour(New)– Sabour D/C transmission line will be the primary source for 132/33 kV GSS Barari.
  2. LILO of 132 kV Kahalgaon–Sabour S/C transmission line will be the 2nd source, as this is the only line crossing in the near vicinity of the proposed 132/33 kV GSS Barari.

     It is being proposed as an additional source because there could be possibility of tower collapsing due to flood prone area which may affects LILO point & consequently complete power failure of the proposed GSS.

D. 132/33 kV Daudnagar (District-Aurangabad)

1. **Grid Voltage level** - 132/33 kV
2. **Transformation capacity** - 2*50 MVA

- **Following parameters has been tentatively considered during load flow:-**
  1. Load on Daudnagar GSS is 40 MW.
  2. Connectivity at 132 level :-
     i) LILO of 132 kV Sonenagar(New)– Aurangabad S/C transmission line:
        a. 132 kV Sonenagar(New)–Daudnagar DCDS transmission line: 58 km
        b. 132 kV Aurangabad– Daudnagar DCDS transmission line: 58 km
     ii) LILO of 132 kV Sonenagar– Chandauti(New) S/C transmission line:
        a. 132 kV Sonenagar–Daudnagar DCDS transmission line: 69km
        b. 132 kV Chandauti(New)– Daudnagar DCDS transmission line: 69 km

- **Type of Conductor & Tower :-**
  Conductor – ACSR Panther & HTLS & Tower – DCDS.

- **Benefits :-**
  1. 132/33 kV GSS Aurangabad, Goh & Rafiganj are offloaded by 24 MW.
  2. Improve the Power reliability & Quality power will be available.

- **Remarks:-**
  1. LILO of 132 kV Sonenagar– Chandauti(New) S/C transmission line will be the primary source for 132/33 kV GSS Daudnagar because GSS Chandauti(New) is a proposed stronger source at 400/220/132 kV.
  2. LILO of 132 kV Sonenagar(New)– Aurangabad S/C transmission line will be the 2nd source, as it is the only possible line in the near vicinity from proposed GSS Daudnagar at 48 km.

     It is being proposed as an additional source because there could be possibility of tower collapsing which may affects LILO point & consequently complete power failure of the proposed GSS.

E. 132/33 kV Bhore (District-Gaya)

1. **Grid Voltage level** - 132/33 kV
2. **Transformation capacity** - 2*50 MVA

- **Following parameters has been tentatively considered during load flow:-**
  1. Load on Bhore GSS is 50 MW.
  2. Connectivity at 132 level :-
     i) 132 kV Gaya(BGCL)-Bodhgaya D/C transmission line: 28 km
     ii) LILO of 132 kV Barhi-Rajgir/Nalanda S/C transmission line:
     a. 132 kV Barhi– Bhore DCSS transmission line: 65 km
     b. 132 kV Rajgir– Bhore DCSS transmission line: 65 km

- **Type of Conductor & Tower :-**
  Conductor – ACSR Panther & Tower – DCDS.

- **Benefits :-**
  1. 132/33 kV GSS Bodhgaya offloaded by 30 MW.
  2. Improve the Power reliability & Quality power will be available.

- **Remarks:-**
  1. 132 kV Gaya (BGCL)-Bodhgaya D/C transmission line will be the primary source for 132/33 kV GSS Bhore because power is being drawn from 220/132 kV GSS Gaya (BGCL) which is connected to 765/400/220 kV Gaya (PG).
  2. LILO of 132 kV Barhi-Rajgir/Nalanda S/C transmission line will be the 2nd source, as it is the nearest line from proposed GSS Bhore (only 0.5 km).
     It is being proposed as an additional source because there could be possibility of tower collapsing which may affects LILO point & consequently complete power failure of the proposed GSS.

F. 132/33 kV Barachatti (District-Sherghati)

1. **Grid Voltage level** - 132/33 kV
2. **Transformation capacity** - 2*50 MVA

- **Following parameters has been tentatively considered during load flow:-**
  1. Load on Barachatti GSS is 50 MW.
  2. Connectivity at 132 level :-
     i) 132 kV Chandauti(New)– Barachatti DCDS transmission line: 35 km
     ii) LILO of 132 kV Barhi-Rajgir S/C transmission line:
        a. 132 kV Rajgir– Barachatti DCDS transmission line: 66 km
        b. 132 kV Barhi– Barachatti DCDS transmission line: 66 km

- **Type of Conductor & Tower :-**
  Conductor – ACSR Panther & Tower – DCDS.

- **Benefits :-**
  1. 132/33 kV Bodhgaya GSS offloaded by 25 MW.
  2. Improve the Power reliability & Quality power will be available.

- **Remarks:-**
  1. 132 kV Chandauti(New)– Barachatti DCDS transmission line will be the primary source for GSS Barachatti because GSS Chandauti(New) is a stronger proposed source at 400/220/132 kV.
  2. LILO of 132 kV Barhi-Rajgir S/C transmission line will be the 2nd source, as it the nearest line from Sub-station Barachatti (only 05km).

G. 132/33 kV Nabinagar (District-Aurangabad)

1. **Grid Voltage level** - 132/33 kV
2. **Transformation capacity** - 2*50 MVA

- **Following parameters has been tentatively considered during load flow:-**
  1. Load on Nabinagar GSS is 35 MW.
  2. Connectivity at 132 level :
     i) LILO of 132 kV Sonenagar–Rihand S/C transmission line:
        a. 132 kV Sonenagar– Nabinagar DCSS transmission line: 15 km
        b. 132 kV Rihand– Nabinagar DCSS transmission line: 126 km
     ii) LILO of 132 kV Sonenagar(New)– Aurangabad S/C transmission line:
        a. 132 kV Sonenagar(New)– Nabinagar DCSS transmission line: 75 km
        b. 132 kV Aurangabad–Nabinagar DCSS transmission line: 75 km

- **Type of Conductor & Tower :-**
  Conductor – ACSR Panther & Tower – DCSS.

- **Benefits :-**
  1. The area is at remote end of the State. Feeder lengths are larger due to which there is frequent power failure and maintenance issue is increasing.
  2. Improve the Power reliability & Quality power will be available.

- **Remarks:-**
  1. LILO of 132 kV Sonenagar–Rihand S/C transmission line will be the 2nd source, as it the nearest line from proposed GSS Nabinagar (only 06km). It will be open from Rihand side.

     It is to noted that CEA, in its follow up meeting of 1st ERSCT, has proposed the connectivity of 132/33 kV Nabinagar GSS with Nabinagar NPGCL through 132 kV D/C NPGCL (Nabinagar) – Nabinagar transmission line. NPGCL, Nabinagar had deliberated that they will explore the feasibility and commercial issues related with the proposed connectivity.
  2. LILO of 132 kV Sonenagar (New)– Aurangabad will be the primary source for GSS Nabinagar because power is being drawn from a strong source 220/132/33 kV GSS Sonenagar(New).

1. BUXAR THERMAL POWER STATION (2*660 MW)

Overview

- Planning for evacuation of power from Buxar TPS has accorded in 19th SCM of Eastern Region held on 01.09.2017 at Kolkata.
- In the MoM of the above meeting, connectivity of Buxar TPS was deliberated both at 400 kV and 220 kV Voltage Levels.

Connectivities:

1**. 400 kV:**

- Buxar TPS – Naubatpur 400 kV D/C (with Twin Moose or equivalent HTLS conductor)

2. **220 kV:**

a. Buxar TPS – Dumraon (New) 220 kv D/C (Twin Moose)
b. Buxar TPS – Pusaulli (BSPTCL)220 kv D/C (Twin Moose)
c. Buxar TPS – Dehri 220 kv D/C
d. 2*500 MVA, 400/220 kV ICT at Buxar generation switchyard & space for 3rd ICT may be kept.

Modification

In 13th Plan, the proposal for construction of new 220/132 kV GSS Karamnasa (New) has been planned. The connectivities of Karamnasa (New) are as follows:

- LILO of 220 kV S/C Pusauli (PG) – Sahupuri S/C transmission line.
- 220 kV Pusauli (BSPTCL) – Karamnasa (New) D/C transmission line.

Moreover, there is unavailability of corridors at Pusauli (BSPTCL) end. Owing to which, already approved, construction of 220 kV Buxar TPS – Pusauli (BSPTCL) D/C transmission line is will face severe RoW (Right of Way) at Pusauli (BSPTCL) end.

Almost 250 MW power is to be evacuated from Karmnasa (New) in down-stream through Mohania, Karamnasa (old), Bhabhua, Ramgarh, etc .

As such, 220 kV Buxar TPS – Pusauli (BSPTCL) D/C transmission line may be terminated at 220/132/33 kV GSS Karamnasa (New) instead of terminating it at Pusauli (BSPCL). This will also provide an additional source for Karamnasa (New).

Modified Connectivities:

. 400 kV:

- Buxar TPS – Naubatpur (BGCL) 400 kV D/C (Twin Moose)

2. **220 kV:**

a. Buxar TPS – Dumraon (New) (BGCL) 220 kV D/C (Twin Moose)
b. Buxar TPS – Karmnasa (New) 220 kV D/C (Twin Moose)
c. Buxar TPS – Dehri 220 kV D/C
d. 2*500 MVA, 400/220 kV ICT at Buxar generation switchyard & space for 3rd ICT may be kept.

A. 400/220/132 kV Chhapra (District-Saran)

1. **Grid Voltage level** - 400/220/132 kV
2. **Transformation capacity** - 2*500 MVA + 2*200 MVA

- **Following parameters has been tentatively considered during load flow:-**
  1. Load on Chhapra (New) GSS :
     - At 220 kV : 300 MW (Gopalganj and Amnour)
     - At 132 kV : 250 MW

  2. Connectivity :-

     i) LILO of 400 kV Barh – Motihari (DMTCL) D/C transmission line:
     a. 400 kV Barh – Chhapra (New) DCDS : 190 km
     b. 400 kV Motihari (DMTCL) – Chhapra (New) DCDS : 110 km

     ii) 200 kV Chhapra (New) – Goplaganj DCDS : 90 km
     iii) 200 kV Chhapra (New) – Amnour DCDS : 25 km
     iv) 132 kV Chhapra (New) – Siwan DCDS : 80 km
     v) 132 kV Chhapra (New) – Mahrajganj DCDS : 60 km
     vi) 132 kV Chhapra (New) – Raghunathpur DCDS : 45 km

- **Type of Conductor & Tower :-**

  400 kV: Conductor – Quad Moose & Tower – DCDS.
  220 kV: Conductor(Chhapra New-Gopalganj) – Single Zebra & Tower – DCDS.
  220 kV: Conductor(Chhapra New-Amnour) – Twin Moose & Tower – DCDS.
  132 kV: Conductor – Single Moose & Tower – DCDS.

- **Benefits :-**
  1. About 150 MW load growth due to proposed PSSs (33/11 kV Sub-stations) is going to be imposed under various schemes.
  2. Provide second source to 220 kV GSSs and 132 kV GSSs.
  3. Improve the Power reliability & Quality power will be available.

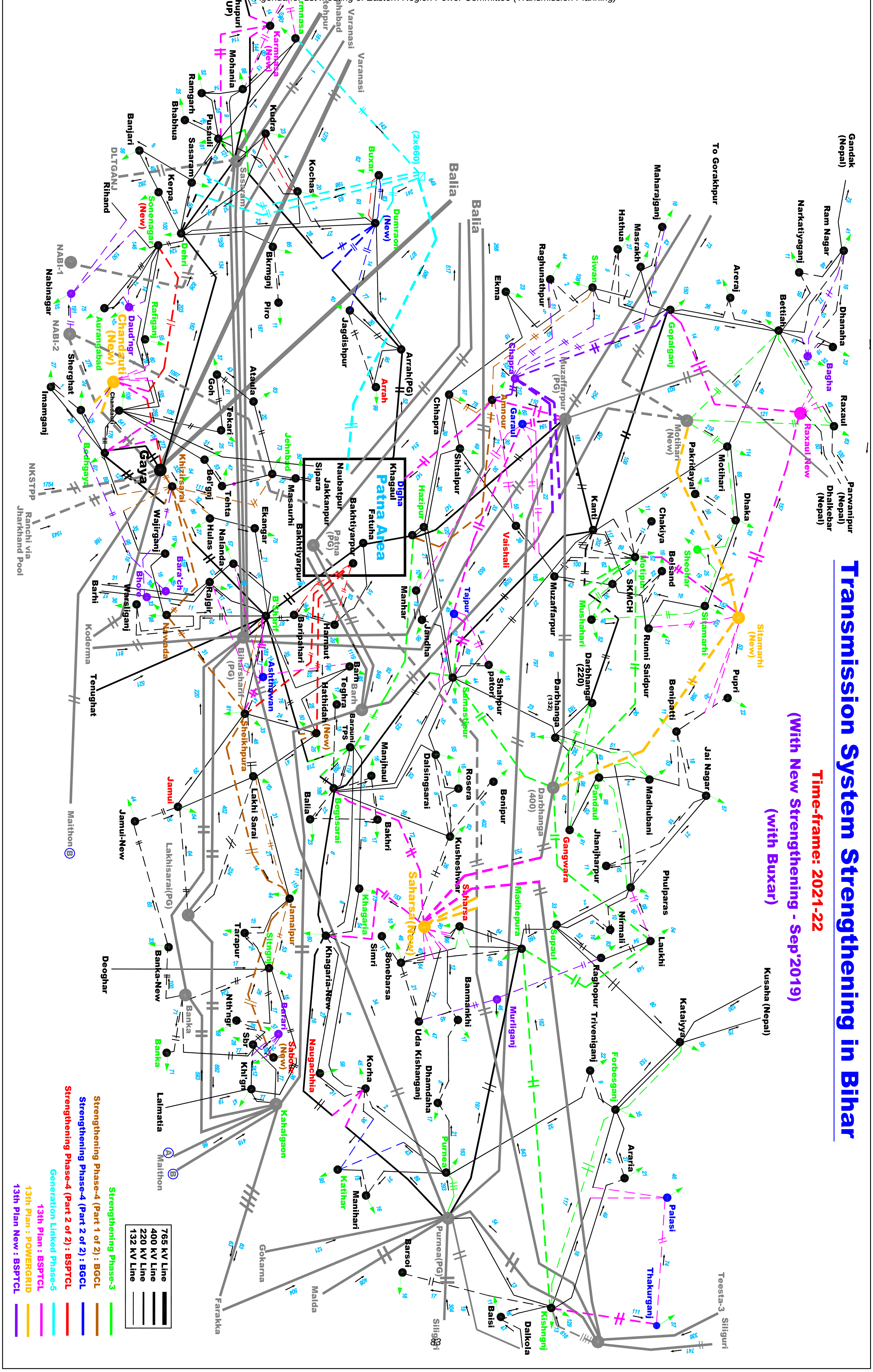
- **Remarks:-**
  1. Presently, total demand of district: Saran is 150 MW and expected demand of the district is about 300 MW at 132 kV voltage level due to load growth and proposed PSSs under various schemes.
  2. Load in the region is continuously increasing; however, the main source of 400 kV in the region is only Muxaffarpur (PG). More than 900 MW is being drawn from Muzaffarpur (PG) mostly in radial mode due to which voltage profile is very low in the entire region. BSPTCL has to impose load shedding at different GSSs to maintain voltage profile at 132 kV level.

     Connectivity of upcoming 220 kV Digha (New) GSS at Patna is under-construction from Amnour GSS which is getting power from Muz (PG) via Hajipur (New). Construction of new 400 kV GSS at Chhapra and its connectivity to Amnour at 220 kV will facilitate stable & reliable source of power at Digha (New) at Patna. Also, 220 kV Digha is geographically so located in densely populated area that no source for Digha (New) is available other than Amnour.

3. Capacitor bank is being installed in 132/33 kV Siwan GSS, owing to which only 1.5 to 2 kV voltage rise is observed at 132 kV voltage level.
4. Moreover, N-1 criteria is violated at ICTs at Muzaffarpur (PG), 220 kV Muzaffarpur (PG)-Hajipur D/C transmission line and 220 kV Amnour -Hajipur D/C transmission line.

   In case of outage of 220 kV Amnour-Hajipur transmission line, 400/220/132 kV Chhapra GSS will cater the load of dist. Saran.
5. The 400 kV source for Chhapra (New) is Barh Thermal Power Station. It is to be noted that on being connected to power station, voltage regulation will be better at Chhapra (New).
6. In the joint study, a quantitative rise in voltage profile is observed at the Sub-stations connected to 400/220/132 kV Chhapra (New). Also, significant power is being evacuated at 220 kV and 132 kV voltage level.

Hence, to cater the load demand of the area new 400/220/132 kV GSS Chhapra is required at the load center.


Transmission System Strengthening in Bihar
Time-frame: 2021-22
(With New Strengthening - Sep'2019)
(with Buxar)
Patna Area
765 kV Line
400 kV Line
220 kV Line
132 kV Line
Strengthening Phase-3
Strengthening Phase-4 (Part 1 of 2) : BGCL
Strengthening Phase-4 (Part 2 of 2) : BGCL
Strengthening Phase-4 (Part 2 of 2) : BSPTCL
Generation Linked Phase-5
13th Plan : BSPTCL
13th Plan : POWERGRID
13th Plan New : BSPTCL
Gandak (Nepal)
Ram Nagar
Narkatiyaganj
Bettiah
Dhanaha
Bagha
Raxaul
Raxaul New
Parwanipur (Nepal)
Dhalkebar (Nepal)
Motihari
Dhaka
Pakridayal
Chakiya
Sheohar
Sitamarhi
Sitamarhi (New)
Pupri
Benipatti
Jai Nagar
Madhubani
Phulparas
Laukhi
Nirmali
Kusaha (Nepal)
Katiyya
Raghopur
Triveniganj
Forbesganj
Araria
Palasi
Thakurganj
Kishnganj
Dalkola
Baisi
Teesta-3
Siliguri
Purnea(PG)
Purnea
Barsoi
Malda
Farakka
Gokarna
Katihar
Manihari
Korha
Naugachhia
Kahalgaon
Lalmatia
Maithon
Banka
Deoghar
Sultanganj
Jamalpur
Tarapur
Lakhisarai(PG)
Lakhi Sarai
Jamui
Jamui-New
Sheikhpura
Biharsharif (PG)
Biharsharif
Nawada
Rajgir
Warsliganj
Barhi
Koderma
Tenughat
Maithon
Gaya
Bodhgaya
Sherghat
Imamganj
Aurangabad
Daud'ngr
Chandauti (New)
Nabinagar
NABI-1
NABI-2
NKSTPP
Ranchi via Jharkhand Pool
Sonenagar (New)
Dehri
Rihand
DLTGANJ
Banjari
Kerpa
Sasaram
Bhabhua
Ramgarh
Pusauli
Mohania
Sahupuri (UP)
Karmnasa
Karmnasa (New)
Allahabad Fatehpur
Varanasi
Kudra
Kochas
Buxar
Dumraon (New)
Bikramganj
Piro
Jagdishpur
Arrah(PG)
Arrah
Balia
Ataula
Goh
Tekari
Jehanabad
Ekangar
Hulas
Nalanda
Tenta
Masaurhi
Sipara
Naubatpur
Jakkanpur
Patna (PG)
Khagaul
Digha
Fatuha
Bakhtiyarpur
Baripahari
Harnaut
Hathidah (New)
Barh
Teghra
Barauni TPS
Begusarai
Balia
Bakhri
Khagaria
Khagaria-New
Manihari
Dalsingsarai
Samastipur
Shahpur patori
Jandaha
Manhar
Hajipur
Vaishali
Tajpur
Muzaffarpur
Muzaffarpur (PG)
Chapra
Amnour
Garaul
Shitalpur
Ekma
Raghunathpur
Siwan
Hathua
Masrakh
Maharajganj
Gopalganj
Areraj
Motihari (New)
To Gorakhpur
Kanti
SKMCH
Motipur
Belsand
Mushahari
Runni Saidpur
Darbhanga (220)
Darbhanga (132)
Darbhanga (400)
Pandaul
Jhanjharpur
Gangwara
Benipur
Rosera
Kusheshwar
Saharsa
Saharsa (New)
Madhepura
Supaul
Sonebarsa
Simri
Banmankhi
Murliganj
Uda Kishanganj
Dhamdaha
Rafiganj
Khizrsarai
Wajirganj
Bara'ch
Bhore
Asthawan
Banka-New
Nth'ngr
Sbr
Sabour (New)
Barari
Khl'gn

Subject: **Agenda from CTUfor the 1st ERPC-TP Meeting**

To: "bs.bairwa@nic.in" <bs.bairwa@nic.in>;
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Date: 11/29/19 04:33 PM

From: Anupam Kumar {Anupam Kumar} <i.anupamk@powergridindia.com>

Agenda for 3rd ERSCT-CTU.docx (21kB) Nepal Transmission_2021-22_With Strengthening_Muzz... (358kB)
Nepal Transmission_2021-22_With Strengthening_Sita... (355kB)

Sir,

Please find attached agenda points from CTU for the 1st ERPC-TP Meeting proposed to be held on 20-12-19.

अनुपम कुमार
उप प्रबंधक (सी0टी0यू0-प्लानिंग)
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Agenda for 3rd meeting of ERSCT / 1st meeting of ERPC-TP

1. Modification in ISTS scheme namely – "Associated Transmission System for Nabinagar-II TPS (3x660MW)"

1.1 The subject scheme inter alia includes construction of Nabinagar-II – Patna 400kV D/c (Quad) line along with 80MVAr switchable line reactors in both circuits at Patna end. However, in view of space constraint at Patna S/s, one of the circuits was proposed to be terminated in existing 80MVAr bus reactor bay along with conversion of existing 80MVAr bus reactor as switchable line reactor. The originally identified switchable line reactor for that circuit was proposed to be installed as switchable line reactor in one circuit of Barh – Patna line. The matter was deliberated in a meeting held at CEA on 02-11-2017, wherein the proposal was agreed in principle. In the said meeting it was also decided to take up the matter for formalisation in the SCM of ER. The scheme has already been implemented as agreed in the said meeting.

1.2 Members may approve the decision taken in the meeting held at CEA on 02-11-2017.

2. Modification in ISTS scheme namely – "Eastern Region Strengthening Scheme-III (ERSS-III)

2.1 The scheme inter alia includes construction of Sasaram – Daltonganj 400kV D/c line along with 400/220kV, 2x315MVA new substation at Daltonganj in Jharkhand. During approval of the scheme in erstwhile Standing Committee on Power System Planning in ER held on 08-11-2008 at Bhubaneswar, line reactors were not planned along with the said lines. However, in the DPR stage, 50MVAr line reactors in both circuits of Sasaram – Daltonganj 400kV D/c line at Daltonganj end was incorporated. The scheme has been implemented accordingly.

2.2 Member may approve installation of 50MVAr line reactors in both circuits of Sasaram – Daltonganj 400kV D/c line at Daltonganj end as part of ERSS-III scheme.

3. Uprating of bay equipment at Kahalgaon switchyard matching with capacity of Kahalgaon – Patna 400kV (Quad) D/c line

3.1 CTU has granted 1980MW connectivity to NTPC Ltd. for its Barh (3x660MW) STPP generation project in Bihar through LILO of Kahalgaon – Patna 400kV (Quad) D/c line at Barh. Subsequently, NTPC Ltd. has submitted data as per requisite details for signing of connection agreement for connectivity of its Barh STPP (3x660MW) generation project. Upon scrutiny, it has been observed by CTU that the rating of terminal bay equipment at Patna (POWERGRID) substation is 3150A, while the same at Kahalgaon (NTPC) switchyard is 2000A, which is not commensurate with the rating of the Kahalgaon – Patna 400kV (Quad) D/c line. The matter has already been informed to CEA vide letter dated 27-11-2019.

3.2 Members may discuss.

4. Transmission system for power evacuation from Arun-3 (900MW) HEP, Nepal of M/s SAPDC

4.1 M/s SJVN Arun-3 Power Development Company Pvt. Ltd. (SAPDC) is establishing a 900MW HEP in Nepal. The power from the hydro project is proposed to be evacuated through Arun-3 – Dhalkebar (Nepal) – Muzaffarpur (POWERGRID) 400kV D/c (Quad) line. In the 4th meeting of JSC/JWG held on 13th - 14th Feb 2017, it was decided that Nepalese portion of the transmission system would be implemented by M/s SAPDC as per PDA. The Indian portion of the cross-border line may be built by an Indian entity.

4.2 In the 7th JWG/JSC meeting between India and Nepal held on 14th-15th Oct 2019, it was proposed to terminate the line on Indian side at under-construction Sitamarhi substation keeping the border crossing point as same due to Right of Way (RoW) constraints in transmission line corridor for termination of Dhalkebar – Muzaffarpur line (associated with Arun-III HEP) near Muzaffarpur end.

4.3 Studies have been carried out for the revised configuration considering Arun-III generation pooling at Dhalkebar and it is observed that the power flow on Dhalkebar – Muzaffarpur 400kV Twin line is about 380MW and Dhalkebar – Sitamarhi 400kV Quad line is about 820MW which is in the similar ratio as their thermal ratings (study results attached at Annexure ___). Additionally, there is a considerable reduction in line length of Indian portion by shifting the terminal point from Muzaffarpur to Sitamarhi. Accordingly, it is proposed that the Indian portion of transmission system of Arun-III may be modified as Dhalkebar (Nepal) – Sitamarhi (POWERGRID) 400kV D/c (Quad) line.

4.4 Members may discuss.

सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-II
Power System Planning & Appraisal Division-II

No: 69/1/PSPA-II/2017/ 1567-1568 Dated: 01 .12.2017

To

1. Managing Director,
Bihar State Power Transmission
Company Ltd(BSPTCL),
Vidyut Bhavan, Baily Road,
Patna-800021.

2. COO (CTU),
PGCIL,
Saudamini, Plot No. 2, Sector-29,
Gurgaon-122001.

Subject: Minutes of Meeting regarding installation of an additional (3rd) 400/220kV, 500MVA ICT and installation of 2nd 400/220kV, 500 MVA ICT without replacing 400/220kV, 315 MVA ICT at Patna (POWERGRID)S/s .

Sir,

Minutes of Meeting regarding installation of an additional (3rd) 400/220kV, 500MVA ICT and installation of 2nd 400/220kV, 500 MVA ICT without replacing 400/220kV, 315 MVA ICT at Patna (POWERGRID)S/s held on 02.11.2017 at CEA is enclosed herewith.

Yours faithfully,

1/12/2017

(Rishika Sharan)
Director(PSPA-II)

Minutes of Meeting regarding installation of an additional (3rd) 400/220kV, 500MVA ICT and installation of 2nd 400/220kV, 500 MVA ICT without replacing 400/220kV, 315 MVA ICT at Patna (POWERGRID)S/s held on 02.11.2017 at CEA

1. List of participants is enclosed at **Annexure-I**.
2. Chief Engineer, CEA welcomed the participants and stated that to cater to the growing power demand of Patna and surrounding areas one additional 400/220kV, 500MVA ICT (3rd) at Patna (POWERGRID) substation was agreed in the 19th Standing Committee Meeting on Power System Planning of ER (SCMPSPER) held on 01st September, 2017. In view of space constraint, following modifications in existing system were also agreed in the meeting:
   - Shifting of one of the existing 420kV, 125MVAr bus reactors at Patna and installation of the same in one of the circuit of Barh-Patna 400kV D/c lines as switchable line reactor, which can be used as bus reactor in case of outage of line.
   - Space created by shifting of bus reactor would be utilised for placement of 3rd 500MVA ICT.
3. Director (PSPA-II) informed that BSPTCL, vide their letter dated 30.10.2017 (copy at Annexure 2), have requested for installation of 2nd 500 MVA, 400/220V ICT without replacing 315 MVA ICT at Patna (POWERGRID) S/s as it would be difficult to meet the demand with one 500MVA ICT. (during the period of replacement).
4. Director, BSPTCL stated the following :
   i. At present the power demand of state capital is being met through the 400/220 kV Patna (POWERGRID) S/s with transformation capacity of 815MVA [1X500 MVA, 400/220kV + 1X315 MVA, 400/220kV (to be replaced with 500MVA]. To cater to the growing demand of state capital, three new substations of 400/220kV intra-state substations (with 2x500 MVA ICTs) at Naubatpur, Bakhtiyarpur and Jakkanpur (earlier Bihta, Gaighat and Fatuha respectively) have been planned. However, implementation of these new intra-state substations is delayed.
   ii. Further, he stated that loading of Patna (POWERGRID) S/s is very critical. At present, the average load on ICTs is about 550MW and the peak load is about 650MW, which may increase to 820MW in the coming year and the N-1 reliability criteria is not fulfilled.

iii. He added that as per the approved scheme for augmentation of transformer capacity (under on-going ERSS-XII scheme) at Patna, 400/220 kV sub-station (PG), one 315MVA Patna ICT-I has already been replaced by 500MVA and the 2nd 315MVA ICT-II is in the process of replacement He informed that the 2nd 500MVA ICT-II has been dispatched and is in transit and POWERGRID have planned to commission the same in December, 2017.

iv. In the last standing committee meeting of Eastern Region held on 01-09-2017, one additional 400/220kV, 500MVA ICT (3rd) at Patna (POWERGRID) substation was agreed. It was also agreed that due to space constraints, existing 420kV, 125MVAr bus reactors at Patna needs to be shifted and installed in one of the circuit of Barh-Patna 400kV D/c lines as switchable line reactor. The space created by shifting of bus reactor would be utilised for placement of 3rd 500MVA ICT.

v. However, he added that, if 2nd ICT is installed prior to 3rd ICT, only one ICT of 500MVA would be available to cater the power demand and the outage of this ICT during this transition period may lead to a blackout condition.

vi. He further added that, it is understood that POWERGRID has been advised by MoP, GoI to take up the installation and commissioning of 3rd ICT at Patna substation (POWERGRID) on high priority.

vii. In view the above, he requested that in place of augmenting the existing 2nd 315MVA ICT, the 2nd 500MVA ICT in transit may be planned for installation and commissioning as 3rd ICT. Thereafter 315MVA ICT-II may be planned for replacement with 500MVA capacity in next phase. The 125 MVAR bus reactor bay would be used as 400kV bay for the ICT,and space has to be identified for 220kV ICT bay.

5. Representative of CTU stated that space for 220kV bay of ICT is available at Patna substation. He added that procurement of 3rd 500MVA ICT as a separate project would take considerable time. Keeping in view the urgent requirement of 3rd ICT, it is proposed that the above mentioned works along with installation of 3rd 400/220kV, 500MVA ICT at Patna may be implemented as part of any on-going strengthening scheme of POWERGRID in ER like ERSS-XII.

6. CTU further stated that Nabinagar-II – Patna 400kV D/c line (with Quad moose ACSR conductor) 80MVAr switchable line reactor in both circuits at Patna has been approved as a part of Nabinagar-II Transmission System. However due to space constraints at Patna S/s, one of the circuits is being terminated in the existing 80MVAr bus reactor bay by converting the bus reactor into switchable line reactor. Out of the 2 no. 80MVAr line reactors being procured in Nabinagar-II Transmission System, one would be utilized as switchable line reactor at Patna end in the 2nd circuit of Nabinagar-II – Patna 400kV D/c line and the other is proposed to be utilized as switchable line reactor in one of the circuits of Barh – Patna 400kV D/c lines.
7. Chief Engineer, CEA stated that 2nd 80MVAr reactor being procured for Nabinagar-II Transmission System could be utilized in any other location in Eastern Region where severe over voltage problem exists.
8. Representative of CTU stated that Patna S/s is having high voltage problem and this reactor would help in controlling the over voltage.
9. Chief Engineer, CEA enquired about provision of NGR for the line reactor in the Patna-Barh line.
10. Representative of CTU informed that NGR is not required as the Patna – Barh 400kV D/c line is short line and NGR would be required up to a line length of 200kM.
11. Chief Engineer, CEA further enquired about effects of having 125 MVAR line reactor in one circuit and 80MVAR in other circuit of the Patna-Barh 400kV D/c line.
12. Representative of CTU replied that both the reactor would be working as a bus reactor in case of line outage.
13. Chief Engineer, CEA also enquired about the effects of having 125 MVAR line reactor without NGR in one circuit and 80MVAR with NGR in other circuit of the Patna-Barh 400kV D/c line.
14. Representative of CTU replied that there would not be any problem.
15. Chief Engineer, CEA stated that in principle approval may be given for the installation of 2nd 80MVAr reactor being procured for Nabinagar-II Transmission System proposed to be utilized as switchable line reactor in one of the circuits of Barh-Ptna 400kV D/c lines. The matter could be formalized in the forthcoming SCM of ER.
16. In view of the above, the following was agreed:

i. In place of replacing the existing 2nd 400/220kV, 315MVA ICT at Patna (POWERGRID) S/s, the 2nd 400/220kV, 500MVA ICT in transit may be planned for installation and commissioning as 3rd ICT. With this the transformation capacity of Patna S/s would be 1315MVA [400/220kV, 2x500 MVA+ 400/220kV, 1x315 MVA (to be replaced with 500MVA].

ii. Shifting of one 125MVAr bus reactor at Patna S/s to one of the circuits of Barh – Patna 400kV lines at Patna end for installation as switchable line reactor. The space, created by shifting of 400kV, 125MVAR bus reactor would be utilised for placement of 2nd 400/220kV 500MVA ICT. The 400kV bay of 400kV, 125 MVAR bus reactor would be used as 400kV bay for the ICT and the space available at Patna S/s would be used for 220kV ICT bay.

iii. The 3rd 400/220kV 500MVA ICT would be utilized for replacement of existing 400/220kV, 315MVA ICT.

iv. As POWERGRID has been advised by MoP, GoI to take up the installation and commissioning of 3rd ICT at Patna substation (PG) on high priority, POWERGRID may take up the matter with MoP for approval to install 3rd ICT at Patna by POWERGRID.

v. In-principle approval for installation of 420kV, 1x80MVAr reactor (procured for Nabinagar-II – Patna 400kV D/c line under Nabinagar-II Transmission System Scheme) at Patna end of one circuit of Barh-Patna 400kV D/c lines as switchable line reactor, which can be used as bus reactor in case of outage of line.

Annexure-I

List of participants of Meeting regarding space constraint for installation of an additional (3rd) 400/220kV, 500MVA ICT at Patna (POWERGRID) S/s held on 02.11.2017 at CEA

Sl. No.	Name	Designation	Organization	Mobile No.	Email ID
1.	S. K. Ray Mohapatra	Chief Engineer	CEA	9818527857	skrmohapatra@rediffmail.com
2.	Rishika Sharan	Director	CEA	9968021299	rishika_sh@yahoo.com
3.	U M Rao	Dy. Director	CEA	8800641444	umarao236@gmail.com
4.	Bhaskar Sharma	Director (Proj.)	BSPTCL	977149600	bhaskarma2407@gmail.com
5.	Ashok Pal	GM (CTU-Plg)	POWERGRID	9910378105	ashok@powergridindia.com
6.	Abhay Kumar	DGM (Engg.-S/s)	POWERGRID	9650777049	abhaykumar@powergridindia.com
7.	Manish Ranjan Keshari	Sr. Engr (CTU-Plg)	POWERGRID	8826094864	manish.keshari@powergridindia.com

Annexure-II

Bihar State Power Transmission Company Ltd., Patna
A subsidiary company of Bihar State Power (Holding) Company Ltd., Patna.
CIN-U40102BR2012SGC018889
[SAVE ENERGY FOR BENEFIT OF SELF AND NATION]
Head Office, Vidyut Bhawan, Bailey Road, Patna -800021

Letter No C.E. (P&E) 04/2017/ 105 /BSPTCL, Patna Dated 30-10-17

From,

Bhaskar Sharma
Director (Projects), BSPTCL.

To,

The Executive Director,
POWERGRID , ER-1
Shastri Nagar, Bailey Road, Patna.

Sub.:- Installation and commissioning of 400/220 KV, 500MVA ICT-3 at Patna (PG), prior to augmentation of 400/220 KV , 315MVA ICT-2 with 500MVA ICT - Reg.

Sir,

Under the approved scheme of transformer capacity augmentation work in ERSS-XII, at Patna Sub-station (PG) 400/220KV, 315 MVA existing ICT-I has been augmented by 500MVA ICT and the 315 MVA ICT-II is in the process of augmentation. It is learnt that 2nd 500MVA ICT has been dispatched and in transit and POWERGRID have planned to commission the same in December, 2017.

During discussion with POWERGRID, it has been emphasized that in view of fast growing demand of power supply in and around capital city of Patna, installation of 3rd ICT of 500MVA capacity at Patna substation (PG) has become most essential & urgent.

In the last standing committee meeting of Eastern Region held on 1st September,17 and subsequently in TCC/ERPC meeting held on 13th & 14th September 17, the issue was discussed and deliberated and it was agreed.

Further, in the intervening period of augmentation work of 315MVA ICT-II, if taken up prior to ICT-III, only one ICT of 500MVA will be available to cater the power demand and the possibility of occurrence of any fault in this ICT during this period cannot be ruled out. This situation may lead to sort of a blackout condition.

Further it is understood that POWERGRID has been advised by MoP, GoI to take up the installation and commissioning of ICT-III at Patna substation (PG) on high priority.

Keeping in view the above, it is requested that in place of augmenting the existing 315MVA ICT-II, the 500MVA ICT in transit may be planned for installation and commissioning as ICT-III. Thereafter 315MVA ICT-II may be planned for augmentation with 500MVA capacity.

Yours faithfully,
Sd/-
(Bhaskar Sharma)
Director (Projects)

Memo No 105 /BSPTCL, Patna Dated 30-10-17

SPEED POST

Copy forwarded to Director (Operation), M/s Power Grid Company of India Limited, Saudamini, Plot No.2, Sector 29, Near IFFCO Chowk, Gurgaon (Haryana) – 122001 for kind information.

Sd/-
(Bhaskar Sharma)
Director (Projects)

P.T.O.

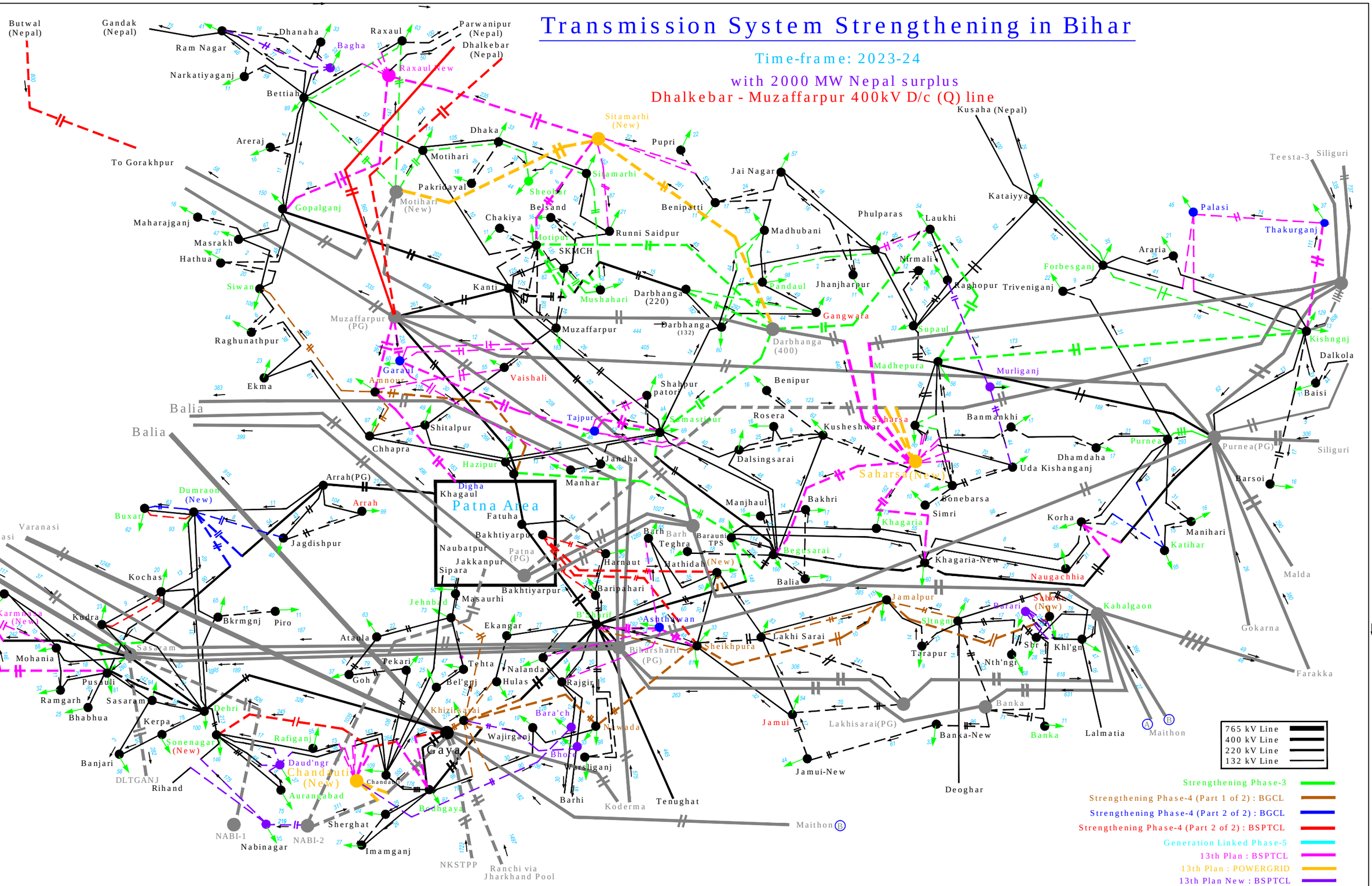
Annexure-X

Transmission System Strengthening in Bihar

Time-frame: 2023-24

with 2000 MW Nepal surplus

Dhalkebar - Muzaffarpur 400kV D/c (Q) line

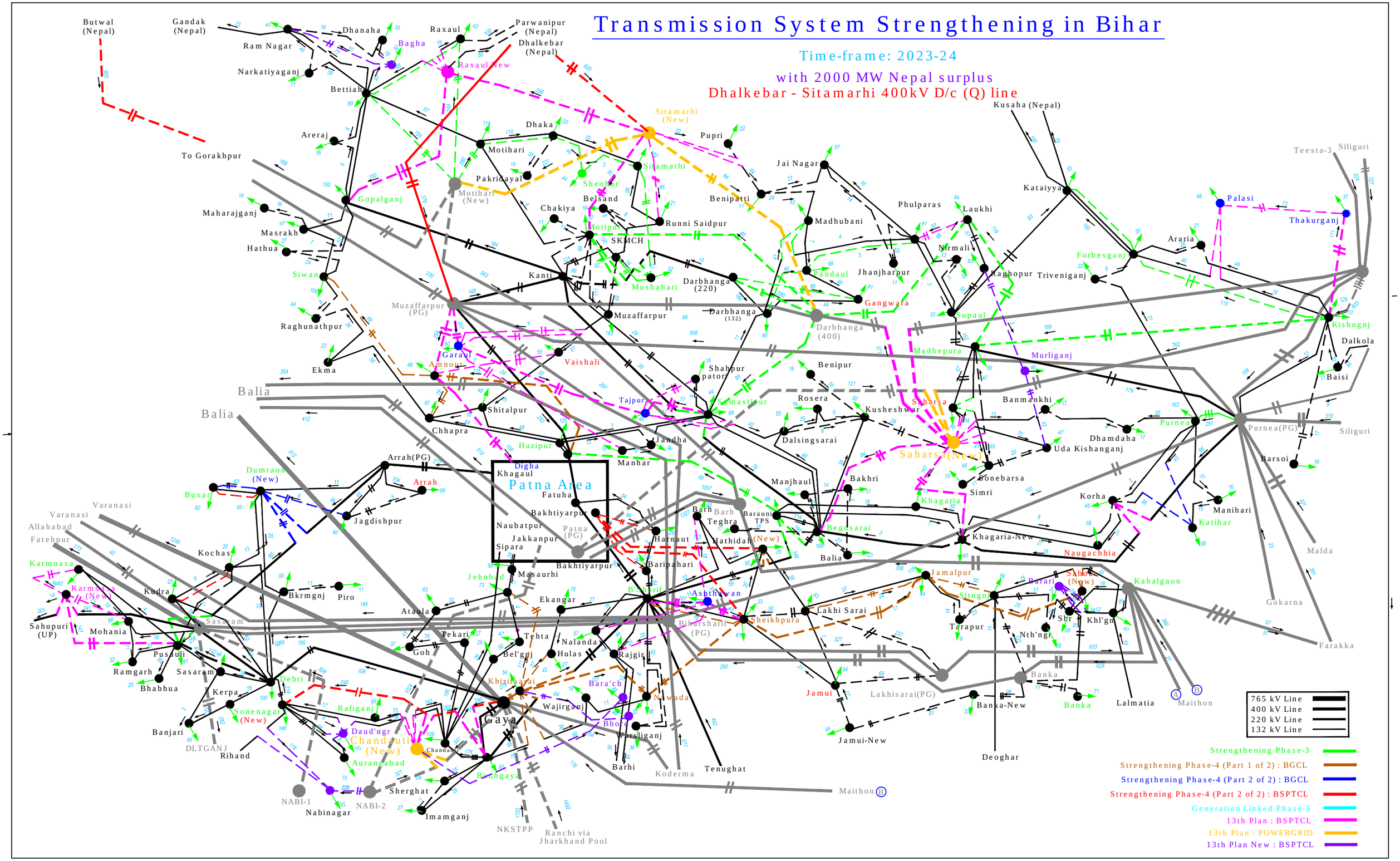


Transmission System Strengthening in Bihar

Time-frame: 2023-24

with 2000 MW Nepal surplus

Dhalkebar - Sitamarhi 400kV D/c (Q) line



GOVERNMENT OF INDIA (भारत सरकार)
MINISTRY OF RAILWAYS (रेल मंत्रालय)
RAILWAY BOARD (रेलवे बोर्ड)

No. 2012/Elect (G)/150/1Pt-II

New Delhi, Dated: 03.07.2019

Chairman,
Central Electricity Authority,
New Delhi

Sub: Request for ISTS connectivity at Sasaram (Pasauli)

Ref: (i) Railway Board's letter of even no. dated 18.07.18 (Copy enclosed)
(ii) CEA letter no. CEA-PS-12-15/2/2018-PSPA-II Division-Part (1)24.06.19

Railway has planned to construct transmission network from Mughalsarai- Howrah and Ludhiana- Sonnagar in Eastern Sector for Rail transportation and requested CEA for connectivity at identified locations for which PGCIL has already confirmed feasibility.

CEA was earlier requested for resolving the issue of ISTS connectivity at Abdullapur, Meerut and Sasaram (Pasauli). Further, a meeting held on 21.07.17 in CEA where ISTS connectivity at Abdullapur & Meerut was agreed, however, the issue of Sasaram (Pasauli) is still awaited. This issue of Railway ISTS connectivity was also listed in additional agenda of 19th Standing committee on Power System Planning of Eastern Region held on 01.09.17 and Special meeting by ERPC held at Kolkata on 16.07.18.

Vide letter under ref. (i) above, CEA was earlier communicated in this regard for resolving the issue and requesting to take decision in favour of Railways.

Vide CEA's letter under ref. (ii) above, 2nd meeting of Eastern Region Standing Committee of Transmission (ERSCT) is scheduled on 05.07.19 at Siliguri, West Bengal.

Therefore, CEA is requested to incorporate an additional agenda as "ISTS connectivity at Sasaram (Pasauli)" and resolve the issue so that project is executed in smooth manner.

03/07/19
(मेजर शोभित गुप्ता)
निदेशक विद्युत अभियांत्रिकी (बिजली आपूर्ति)

Copy to: MD/DFCCIL : For kind information please.

C:\Users\Rail\Dropbox\TrD Correspondence\Transmission line\Tr. Line Letter.docx

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