

# EASTERN REGIONAL POWER COMMITTEE

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## MINUTES OF 8<sup>TH</sup> MEETING OF STANDING COMMITTEE ON TRANSMISSION PLANNING FOR STATE SECTORS HELD ON 19.12.2019 (THURSDAY) AT 11:00 HOURS AT ERPC, KOLKATA

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

### 1. Confirmation of minutes of 7<sup>th</sup> SSCM of ERPC held on 01.07.2019.

The minutes of 7<sup>th</sup> SSCM were circulated vide letter dated 03.07.2019 to all the constituents and also uploaded in ERPC website.

No comments have been received till date.

Members may confirm the minutes.

### Deliberation in the meeting

*Members confirmed the minutes.*

### 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 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 <sup>#</sup>	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.

2.7 Accordingly, this is the 1<sup>st</sup> meeting of ERPCTP. Members may note.

### **Deliberation in the meeting**

*It was opined that Eastern Railways may be included as a member in the Committee.*

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

- 3.1 In the 2<sup>nd</sup> ERSCT meeting held on 5<sup>th</sup> 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. 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 12<sup>th</sup> 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. LIO points inside the ILS zone marked in Black may not be approved by Air Force authority and outside the ILS zone the LIO 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 LIO of 220 kV Durgapur-Parulia Line.

3.6 Thereafter, a meeting was held in CEA on 28.11.2019 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 DurgapurB 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).

#### **Deliberation in the meeting**

*DVC explained the scheme and informed that due to space constraint construction of bays at Parulia (DVC) is not possible for construction of second 220 kV D/C line between Durgapur (PG) and Parulia (DVC). In the meeting held in CEA on 28.11.2019 DVC agreed for second 220 kV D/C line between Durgapur (PG) and Parulia (DVC) to be bunched at both PGCIL and DVC end. DVC had already requested CEA for amendment in the minutes.*

DVC added that after commissioning of LILO of 220kV Parulia(DVC)-Waria at DSTPS, the loading on 220kV Durgapur (PG) and Parulia (DVC) D/c line would be reduced. The LILO would be completed by March 2020.

ERLDC informed that WBSETCL should place their action plan to reduce the flow on 220kV Waria-Bidhannagar D/c line.

WBSETCL informed that they are planning to install 3<sup>rd</sup> 400/220 kV ICT at 400kV Bidhannagar S/s to minimise the loading on 220kV Waria-Bidhannagar D/c line.

SSCM viewed that proposals in 3.7 ii & iii are needed to be deliberated in detail with proper simulation studies for different conditions.

SSCM decided that DVC will submit the study report and study case with details of Impact of

- LILO of 220 kV Parulia(DVC) – Waria D/C at DSTPS
- Shifting of 3<sup>rd</sup> ICT at 400/220 kV Durgapur (PG) from 400kV Bus-A to Bus-B by shifting the existing 125 Bus Reactor-4 at Bus-B
- 3<sup>rd</sup> ICT 315 MVA ICT at Bidhanagar (West Bengal)
- 2<sup>nd</sup> 220 kV Durgapur-Parulia D/C after commissioning (Bunched circuits.)

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

4.1 In the 2<sup>nd</sup> 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 3<sup>rd</sup> 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.

### **Deliberation in the meeting**

*The issue was covered in deliberation of item no. 3.*

**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 2<sup>nd</sup> meeting of ERSCT, JUSNL proposed LILO of 220 kV Giridih (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.

### **Deliberation in the meeting**

*JUSNL representative was not available in the meeting.*

*SSCM noted that LILO of 220 kV Giridih (DVC) - Koderma (DVC) Line at Giridih GSS (JUSNL) is not required.*

**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 07-10-2015 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 2 <sup>nd</sup> ERSCT, E&PD Sikkim informed that the line was completed and the line bays at Rangpo end would be ready by 15 <sup>th</sup> 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 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:

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

### **Deliberation in the meeting**

*Sikkim representative was not available in the meeting.*

## **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. Existing substations:**

**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. Under Construction substations:**

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.

**Deliberation in the meeting**

*Members updated the status as follows:*

**A. Existing substations:**

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'2021
- iii. Rajarhat (POWERGRID) – Barasat/Jeerat 220kV D/c – Feb'2021

b) **Subashgram 400/220kV S/s**

- i. Subashgram (POWERGRID) – Baraipur 220kV D/c line – Dec'2020

c) **Pandiabil 400/220kV S/s**

- i. Pratapsasan (OPTCL) – Pandiabil (POWERGRID) 220kV D/c – June'2020
- d) **Bolangir 400/220kV S/s**
  - i. LILO of one ckt of Sadeipalli – Kesinga 220kV D/c at Bolangir – Mar'2020
- e) **Keonjhar 400/220kV S/s**
  - i. Keonjhar (POWERGRID) – Turumunga (OPTCL) 220kV D/c – Mar '2021
- 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. Under Construction substations:**

- h) **Sitamarhi 400/220/132kV S/s: expected by June 2020**
  - 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 Sep 2020**
  - 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 June 2020**
  - 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)

*PGCIL informed that 400/220/132kV S/s at Sitamarhi, Saharsa and Chandauti are expected to be commissioned earlier as updated above w.r.t the planned schedule.*

*SSCM advised BSPTCL to expedite the construction of downstream network at Sitamarhi Saharsa and Chandauti S/s.*

**8. Status of 400kV substations being implemented by STUs in ER under intrastate 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) **Bihar (to be implemented by BSPTCL/BGCL)**

(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) **Odisha (to be implemented by OPTCL)**

(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) **Jharkhand (to be implemented by JUSNL)**

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. **West Bengal (to be implemented by WBSETCL)**

(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.

## **Deliberation in the meeting**

*Members updated the status as follows:*

- a) **Bihar (to be implemented by BSPTCL/BGCL)**
  - (i) **Naubatpur GIS:** 400/220/132/33kV, 2x500MVA + 2x160MVA + 2x80MVA – Nov'20
  - (ii) **Bakhtiyarpur GIS:** 400/220/132kV, 2x500MVA + 2x160MVA – June'21
  - (iii) **Jakkanpur GIS:** 400/220/132/33kV, 2x500MVA + 3x160MVA + 4x80MVA – July'20
- b) **Odisha (to be implemented by OPTCL)**
  - a. **Meramundali-B:** 400/220kV, 2x500MVA – Oct'20

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

- 9.1 In the 2<sup>nd</sup> ERSCT meeting, POSOCO informed that after commissioning of 765kV Angul-Sundargarh 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 8<sup>th</sup> 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.

## **Deliberation in the meeting**

*Members noted.*

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

- 10.1 In the 2<sup>nd</sup> 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 ( $\geq 500$ MVAR) 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 1<sup>st</sup> 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.

### **Deliberation in the meeting**

*WBSETCL informed that in addition to installation of 610 MVAR capacitor banks, 20 MVAR capacitor would be installed at Mahishpatha.*

*WBSETCL updated the following:*

- *50 MVAR capacitor bank at 132 kV bus of Kasipur had been installed by CESC.*
- *Baruipur 220 kV substation was planned and is likely to be commissioned by Dec 2020.*
- *125 MVAR, 400 kV Bus Reactor at Arambag 400 kV Substation has been commissioned*
- *In second stage 5 numbers of 125 MVAR, 400 kV Bus Reactors planned at Bidhannagar, New PPSP, New Chanditala, Gokarna, Kharagpur 400 kV sub-stations would be commissioned within a year.*

*WBSETCL added that they are expecting improvement in voltage profile after commissioning of 400kV Farakka-Gokhano-Sagardhigi, planned connectivity of Rajarhat (PG) and 765 kV connectivity of Ranchi(New)-Midnapur-Jeerat.*

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

- 11.1 In the 2<sup>nd</sup> 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 reconducted. 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.

### **Deliberation in the meeting**

*ERLDC viewed that except 400kV Malda-Purnea section, all other adjacent 400kV lines terminating at Kishanganj, New Purnea and Malda are strung with high capacity conductors. Further, considering the high risk of breakdown of high capacity corridors like*

*400kV Patna-Kishanganj D/C and New Purnea – Biharshariff 400kV D/C every monsoon, the weak link should be strengthened.*

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

- 12.1 In the 2<sup>nd</sup> 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 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.

### **Deliberation in the meeting**

*Bihar explained the scheme.*

*SSCM accepted for establishment of 132/33 kV Nabinagar S/s with above connectivity to meet the load demand.*

## **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 2<sup>nd</sup> 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 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	Panther
				132 kV Ramnagar – Raxaul (new) DCDS transmission line	
2	Murliganj (2*80 MVA)	50	132kV	LILO of 132 kV Saharsa (ISTS) – Banmunkhi S/C transmission line	Panther
				132 kV Murliganj - Uda Kishanganj transmission line DCDS	
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) LILO of 132 kV Sonenagar(New)–Aurangabad S/C transmission line (only one LILO to be operated at a time)	Panther

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

13.5 Members may deliberate.

#### **Deliberation in the meeting**

*Bihar explained the scheme.*

*SSCM accepted for implementation of above substations along with the connectivity to meet the load demand.*

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

14.1 In 2<sup>nd</sup> 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.

- 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.

OPTCL informed that they need power assistance of maximum 55 MW from 220kV Jamshedpur S/s, DVC to meet the load of JSPL during replacement work of the conductor of 220kV Joda-JSPL line.

*SSCM agreed for implementation of the SPS and decided to discuss the scheme of SPS in OCC meeting.*

- 15.1 In the 2nd ERSCT meeting, representative of NTPC informed that Rammam-III (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.

### **Deliberation in the meeting**

*WBSETCL informed that the above transmission system was decided in 2003. WBSETCL added that 132kV D/c Rammam III-New Jalpaiguri is not possible hence they are in process of connecting 132kV Rammam III to 132kV Kalingpong.*

*SSCM advised WBSETCL to resolve the issues with NTPC bilaterally.*

### **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) 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 Members may discuss.

#### **Deliberation in the meeting**

*SSCM accepted for establishment of new 400/220/132 kV Chhapra S/s under intra-state scheme with the above proposed connectivity to remove the system constraints in intra-state system and to meet the growing power demand in Chhapra area.*

#### **17. Upgrading 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,) 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.

#### **Deliberation in the meeting**

*Representative from NTPC was not available in the meeting.*

#### **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 – Pusauli (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 3<sup>rd</sup> ICT.
- 18.2 Further, new 220/132 kV GSS Karmnasa (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) – Karmnasa (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 downstream through Mohania, Karmnasa (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 Karmnasa (New) instead of terminating it at Pusauli (BSPCL). This will also provide an additional source for Karmnasa (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 3<sup>rd</sup> 400/220kV, 500MVA ICT
- 18.6 Members may discuss.

### **Deliberation in the meeting**

*SSCM accepted the proposed modified scheme for evacuation of power from Buxar TPS.*

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

- 19.1 POWERGRID vide email dated 29.11.2019, 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, 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.

### **Deliberation in the meeting**

*SSCM agreed for termination of one circuit of Nabinagar-II – Patna 400kV D/c (Quad) line in existing 80MVAR bus reactor bay along with the conversion of existing 80MVAR bus reactor as switchable line reactor.*

### **20. Modification in ISTS scheme namely – “Eastern Region Strengthening Scheme-III (ERSS-III)”**

20.1 POWERGRID vide email dated 29.11.2019, 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.

### **Deliberation in the meeting**

*SSCM in principle agreed for installation of 50MVAR line reactors in both circuits of Sasaram – Daltonganj 400kV D/c line at Daltonganj end.*

### **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. 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.

### **Deliberation in the meeting**

*Members noted.*

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

- 22.1 In the 39<sup>th</sup> meeting of SCPSPNR held on 29<sup>th</sup>-30<sup>th</sup> 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 Biharsharif-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.

### **Deliberation in the meeting**

*Members noted.*

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

- 23.1 In the 2<sup>nd</sup> 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 19<sup>th</sup> 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.
- 23.4 Members may discuss.

#### **Deliberation in the meeting**

*It was informed that no response has been received from railways regarding the concerns raised by the states.*

#### **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).

### **Deliberation in the meeting**

*It was opined that the PoC charges to be paid by the constituents may also be studied for the future projects by CEA and POSOCO. The details may be shared with the constituents for better understanding.*

## **25. Additional agenda by BSPTCL**

1. The following scheme modifications and second source connectivity have been proposed by BSPTCL:

Sl. No.	Scheme Approved in 13 <sup>th</sup> Plan	Modifications	Reasons
1	132 kV Bakhtiyarpur (400 kV GSS) – Baripahari DCDS	LILO of 132 kV Baripahari - Harnaut S/C transmission line at Bakhtiyarpur (400 kV GSS).	Constraints of corridor and space at existing GSS.
2	132 kV Dumraon (New) – Jagdispur DCDS	LILO of 132 kV Ara (BSPTCL) – Jagdispur D/C transmission line at Dumraon (New).	Constraints of corridor and space at existing GSS.

### **Deliberation in the meeting**

*BSPTCL explained the modifications in the scheme along with the constraints being faced by them.*

*SSCM agreed for the above modifications in the scheme.*

## **2. New proposals:**

- a. **2<sup>nd</sup> Source to Barsoi:** Barsoi GSS is getting power through 132kV Kishanganj (New) – Barsoi DCSS. For 2<sup>nd</sup> source to GSS Barsoi, following connectivity is being proposed:  
*132 KV Manihari-Barsoi DCSS tr. Line*
- b. **2<sup>nd</sup> Source to Piro:** 132/33 kV GSS Piro is getting power through only source i.e., 132 kV Bikramganj – Piro DCDS. For 2<sup>nd</sup> source to GSS Barsoi, following connectivity is being proposed:  
*132 kV Dumraon (New) – Piro DCDS*

### **Deliberation in the meeting**

*SSCM agreed for the above proposal to improve the reliability.*

Meeting ended with vote of thanks to the chair.

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**Participants in 8<sup>th</sup> STANDING COMMITTEE ON TRANSMISSION PLANNING FOR STATE SECTORS (SSCM) Meeting of ERPC**

Venue: ERPC Conference Hall, Kolkata

Time: 11:00 hrs

Date: 19.12.2019 (Thursday)

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"Coming together is a beginning, staying together is progress, and working together is success." –Henry Ford

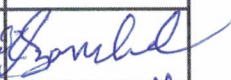




Participants in 8<sup>th</sup> STANDING COMMITTEE ON TRANSMISSION PLANNING FOR STATE SECTORS  
(SSCM) Meeting of ERPC

Venue: ERPC Conference Hall, Kolkata

Time: 11:00 hrs

Date: 19.12.2019 (Thursday)

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