

I/13429/2021



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 में / To,

संलग्न सूची के अनुसार

As per list enclosed

विषय : पूर्व क्षेत्रीय विद्युत समिति (पारेषण योजना) की तीसरी बैठक की कार्यसूची।

Subject: 3rd meeting of Eastern Region Power Committee (Transmission Planning) (ERPCTP)- Agenda.

महोदय(Sir)/महोदया(Madam),

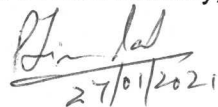
पूर्वी क्षेत्रीय विद्युत समिति (पारेषण योजना) (पूक्षेत्रिसपायो) की तीसरी बैठक 9 फरवरी, 2021 को अपरान्ह 02:00 बजे से वीडियो कॉन्फ्रेंसिंग द्वारा आयोजित की जायेगी। बैठक के लिए लिंक यथासमय साझा किया जाएगा। बैठक की कार्यसूची संलग्न है।

कृपया बैठक में सम्मिलित होने का कष्ट करें। सीटीयू और एसटीयू से यह भी अनुरोध है कि इस कार्यसूची में शामिल इंटर-स्टेट और इंट्रा-स्टेट के प्रस्तावों में अनुमानित निवेश और कार्यान्वयन की समय सीमा की सूचना अतिशीघ्र केन्द्रीय विद्युत प्राधिकरण को सूचित करें।

The 3rd meeting of Eastern Regional Power Committee (Transmission Planning) (ERPCTP) will be held on 9th February, 2021 at 02:00 pm through video conferencing. Link for the meeting will be shared in due course of time. Agenda for the meeting is enclosed.

Kindly make it convenient to attend the meeting. CTU and STUs are also requested to inform the tentative investment and time frame for implementation of ISTS and intra-state proposals covered in the Agenda, to CEA at the earliest.

भवदीय/Yours faithfully,


27/01/2021

(प्रदीप जिंदल/ Pardeep Jindal)
मुख्य अभियंता/ Chief Engineer

Copy for kind information to:

- 1) PPS to Chairperson/Member (PS), CEA

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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 (4 th 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 Sikkim, Sikkim. Tel. No. 03592-2022440 Fax No.03592-202927	6. Managing Director, West Bengal State Electricity Transmission Company Ltd, Vidyut Bhavan (8 th Floor), A-block, Salt Lake City, Kolkata-700091. Tel. No. 033-23370206
7. Superintending Engineer, Electricity Department C/O Secretary (GA) Andaman and Nicobar Administration, Secretariat, Port Blair (AN)	8. Chief Operating Officer, Central Transmission Utility (CTU), Power Grid Corporation of India "Saudamini" Plot No. 2, Sector-29, Gurugram-122001 Tel. No. 0124-2571816 Fax No.0124-2571932
9. Director (System Operations), POSOCO B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi-110016 Tel. No. 26852843 Fax No. 2626524525, 26536901	10. Chairman-cum-Managing Director, Damodar Valley Corporation DVC Towers, VIP Road, Kolkata-700054.
11. Chairman-cum-Managing Director NTPC Limited, NTPC Bhawan, SCOPE Complex, Institutional Area, Lodhi Road,New Delhi - 110003	12. Chairman-cum-Managing Director NHPC Limited, N.H.P.C. Office Complex, Sector-33, Faridabad - 121003 (Haryana)
13. Chairman, Solar Energy Corporation of India Limited, 1st Floor, D-3, A Wing, Prius Platinum Building, District Centre, Saket, New Delhi - 110017.	

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**Agenda for 3rd meeting of Eastern Region Power Committee
(Transmission Planning)**

1. Confirmation of the minutes of 2nd meeting of Eastern Region Power Committee (Transmission Planning) (ERPCTP).

1.1 The minutes of the 2nd meeting of Eastern Region Power Committee (Transmission Planning) (ERPCTP) held on 30th Sep, 2020 were circulated vide CEA letter No. CEA-PS-12-15/2/2018-PSPA-II Division-Part(1)/I/12622/2020 dated 14th Dec, 2020. No comments were received from the constituents.

1.2 Members may confirm the minutes.

A. ToR 2(i) – QUARTERLY REVIEW AND STRENGTHNING OF INTER-REGIONAL TRANSMISSION SYSTEM

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. Quarterly Review of transmission line and substation

2.1 Following transmission lines have been commissioned in the Eastern Region during Q2 and Q3 of 2020-21:

State/ Sector	Executing Agency	Transmission Lines	Voltage Level (in KV)	Circuit Type	Length (Ckm)	Commissioning Month	Quarter
Central Sector	PGCIL	Rajarhat - Purnea line (Triple Snowbird) (Balance Portion)	400	D/C	420	July-20	Q2
	DVC	LILO of Parulia - Dtps at Durgapur steel TPS	220	D/C	14	Nov-20	Q3
Private Sector	NIL						
Bihar	BSPTCL	LILO of both Purnea (PG) - Begusarai at Khagaria (New)	220	D/C	14	Nov-20	Q3

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State/ Sector	Executing Agency	Transmissio n Lines	Voltage Level (in KV)	Circuit Type	Length (Ckm)	Commissioning Month	Quarter
Jharkhand	JUSNL	Daltonganj (PG)- Garhwa	220	D/C	183	Aug-20	Q2
	JUSNL	Godda - Dumka line	220	D/C	142	Aug-20	Q2
	JUSNL	Godda - Lalmatia	220	D/C	44	Aug-20	Q2
	JUSNL	Jasidih - Dumka	220	D/C	149	Aug-20	Q2
	JUSNL	Jasidih - Giridih line	220	D/C	154	Aug-20	Q2
Odisha	OPTCL	Bolangir (OPTCL) - Bolangir (PGCIL)	220	D/C	3	July-20	Q2
West Bengal	WBSETCL	Sagardighi TPS - Gokarna line	400	D/C	89	Oct-20	Q3
Sikkim	NIL						

2.2 Following substations/ICTs have been commissioned in the Eastern Region during Q2 and Q3 of 2020-21:

State/ Sector	Executi ng Agency	Substation/ ICTs	Voltage Ratio (kV/kV)	Transforma tion Capacity (MW/MVA)	Commiss- ioning Month	Quarter
Central Sector	PGCIL	Extan. at Maithon	400/220	500	July-20	Q2
	PGCIL	Extn. at Rourkela S/s (ICT-I)	400/220	315	Dec-20	Q3
Private Sector	NIL					
Bihar	BSPTCL	Mokarna S/s	220/132	420	Nov-20	Q3
Jharkhand	JUSNL	Garhwa	220/132	300	Aug-20	Q2
	JUSNL	Giridih S/S	220/132	300	Aug-20	Q2
	JUSNL	Godda GSS	220/132	300	Aug-20	Q2
	JUSNL	Jasidih S/S	220/132	300	Aug-20	Q2
Odisha	OPTCL	Joda S/S	220/132/33	160	July-20	Q2
	OPTCL	Kesinga (1st Auto T/F)	220/132	160	Sep-20	Q2

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	OPTCL	Kesinga (2nd Auto T/F)	220/132	160	Nov-20	Q3
	OPTCL	Govindpalli	220/132	40	Nov-20	Q3
West Bengal	NIL					
Sikkim	NIL					

2.3 Members may update/note.

3. Assessment of growth in generation capacity and demand in the region

3.1 The generation capacity plan of Eastern Region is as under:

State	Coal	Hydro	Solar	Gas	DG	2019-20	2021-22	2024-25
Bihar	660	0	0	0	0	660	1980	1980
Jharkhand	420	130	0	0	0	550	550	550
Odisha	1740	2142	0	0	0	3882	3882	3882
Sikkim	0	0	0	0	0	0	0	0
West Bengal	7545	1062	0	100	0	8607	8607	9267
Central Sector	19050	1005	0	0	0	20055	24145	28345
Private	7667	1599	0	0	0	9266	9122	9239
Total	37082	5938	0	100	0	43020	48286	53263

3.2 Further, the actual/anticipated demand of states in Eastern region are as under:

Peak Demand (in MW) according to 19th EPS				Actual	Anticipated
State	2019-20	2021-22	2024-25	Peak (2019-20)	Peak (2024-25)
Bihar	5,308	6,576	8,003	5,835	>8,003
DVC	3,129	3,598	4,439	3,014	4,439
Jharkhand*	3,332	3,755	4,385	1,396	4,385
Odisha	5,016	5,340	5,878	5,292	5,530
West Bengal*	9,919	10,528	11,624	9,263	11,043
Sikkim	154	170	197	115	197
Total	24,869	27,747	31,968	23,421	31,108

*Excluding DVC part

3.3 In the 2nd meeting of ERPCTP, BSPTCL and JUSNL stated that the anticipated peak demand for 2024-25 would be updated after discussion with their DISCOMS. However, revised figure have not yet been received.

3.4 Members may update.

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4. Requirement for strengthening of Inter-regional transmission system

4.1 Considering various availability factors, under different scenarios for thermal, gas, hydro, Wind/Solar etc., generation and demand load factor for Eastern Region, the calculation of surplus-deficit, corresponding to following nine (09) scenarios have been made.

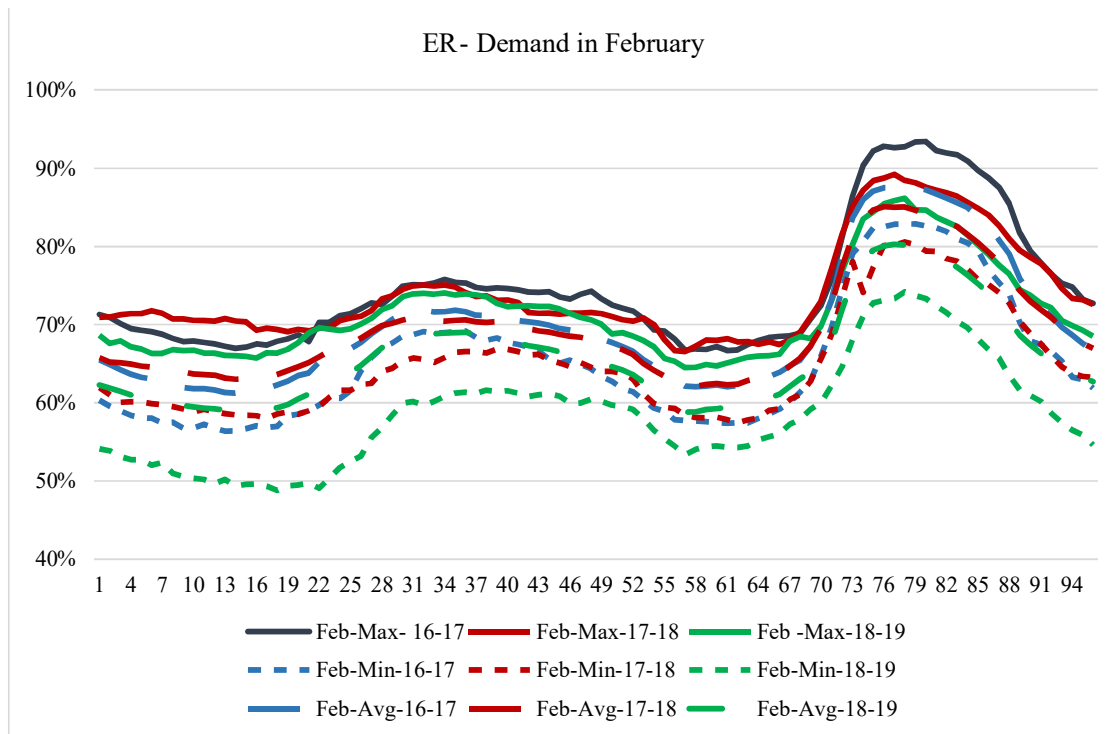
4.2 A total of 09 scenarios are considered as given below:

Scenario -1	Scenario -2	Scenario -3	Scenario -4	Scenario -5	Scenario -6	Scenario -7	Scenario -8	Scenario -9
February			June			August		
Noon	Evening Peak	Night off peak	Noon	Evening Peak	Night off peak	Noon	Evening Peak	Night off peak

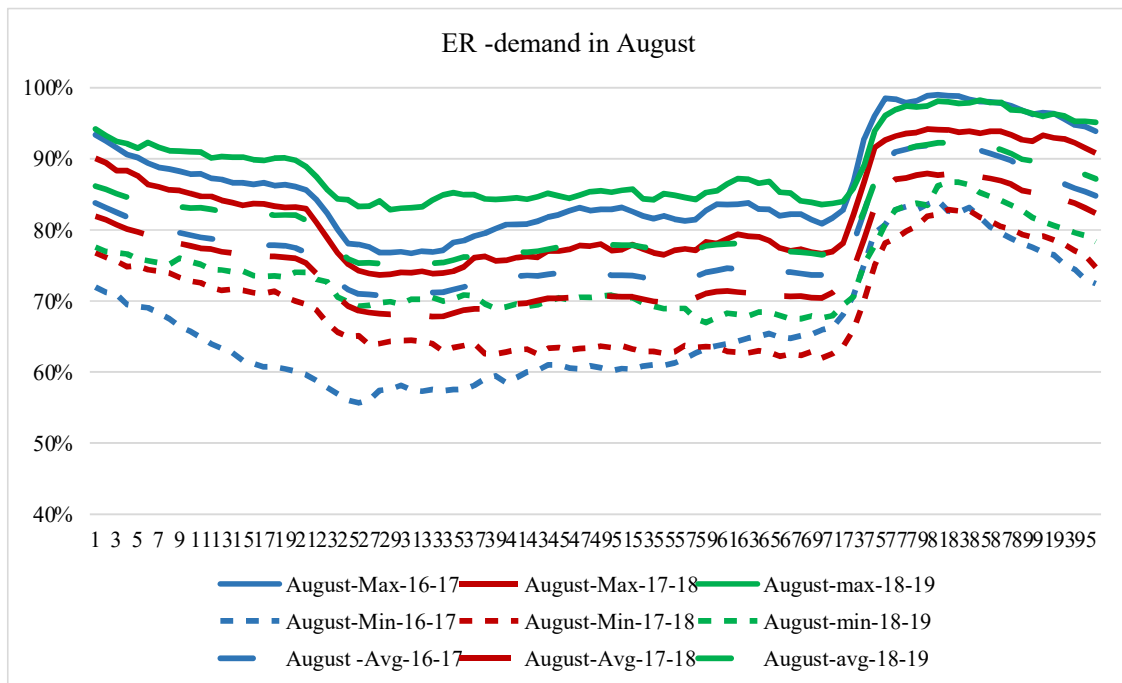
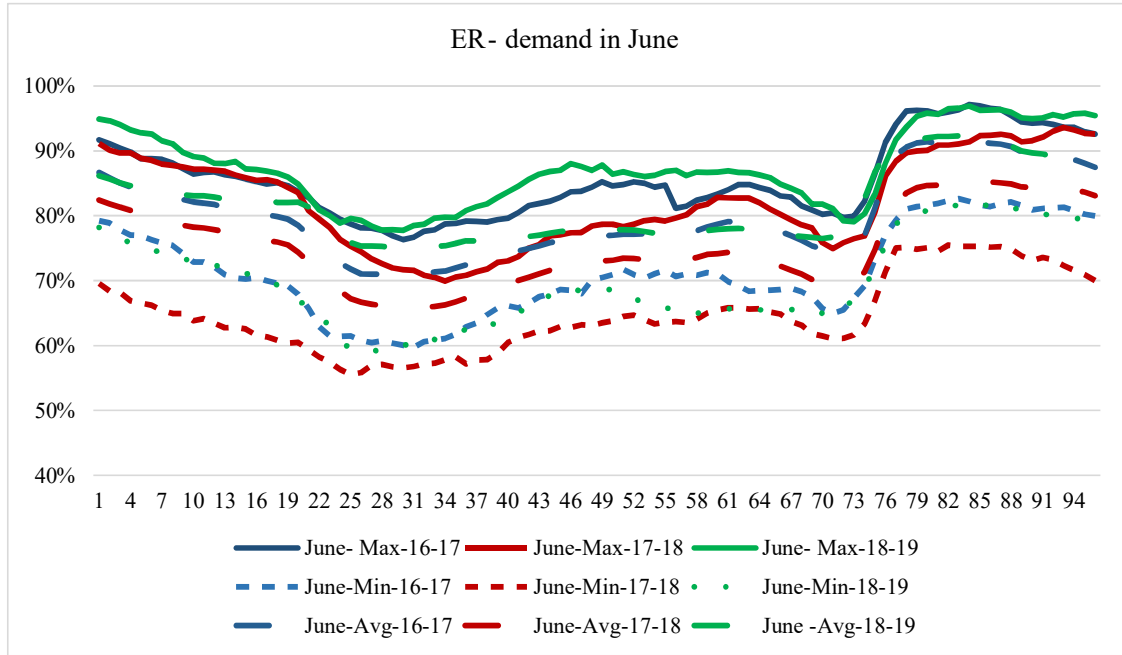
4.3 Demand Factor and Normalized Demand for the above 09 scenarios in ER is :

Demand Factor								
Scenario -1	Scenario -2	Scenario -3	Scenario -4	Scenario -5	Scenario -6	Scenario -7	Scenario -8	Scenario -9
0.68	0.9	0.55	0.78	0.95	0.66	0.75	0.97	0.7

4.4 Eastern Region Demand



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4.5 Anticipated Demand could be calculated for ER Region (as given below)

Normalized Demand= Peak Demand x Demand Factor

	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6	Sc-7	Sc-8	Sc-9
2019-20	16911	22382	13678	19398	23626	16414	18652	24123	17408
2021-22	18868	24972	15261	21643	26360	18313	20810	26915	19423
2024-25	21738	28771	17582	24935	30370	21099	23976	31009	22378

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4.6 Anticipated Installed Capacity:

Installed Capacity						
	Coal	Hydro	Solar	Gas	DG	Total
2019-20	37082	5938	0	100	0	43020
2021-22	41922	6034	0	100	0	48056
2024-25	45502	6771	0	100	0	52373

4.7 Availability Factor for the above 09 scenarios in ER is:

Availability Factor for 09 scenarios:									
Scenario	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6	Sc-7	Sc-8	Sc-9
Coal	0.7	0.8	0.6	0.7	0.8	0.6	0.7	0.8	0.6
Hydro	0.3	0.7	0.3	0.6	0.85	0.7	0.7	0.9	0.7
Solar	0.7	0	0	0.6	0	0	0.5	0	0
Gas	0	0.3	0	0	0.3	0	0	0.3	0
DG	0	0	0	0	0	0	0	0	0

4.8 Anticipated Generation Available:

	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6	Sc-7	Sc-8	Sc-9
2019-20	27739	33852	24031	29520	34743	26406	30114	35040	26406
2021-22	31156	37791	26963	32966	38697	29377	33569	38998	29377
2024-25	33883	41171	29333	35914	42187	32041	36591	42526	32041

4.9 Accordingly, ER surplus/deficit scenario for the period 2019 to 2025 is given:

	Sc-1	Sc-2	Sc-3	Sc-4	Sc-5	Sc-6	Sc-7	Sc-8	Sc-9
2019-20	10828	11470	10353	10122	11117	9992	11462	10917	8998
2021-22	12288	12819	11703	11323	12337	11064	12759	12084	9954
2024-25	12144	12400	11750	10979	11817	10942	12615	11517	9663

Note: In case of high RE generation during June and August in SR, WR & NR, the ER despatch may have to be brought down. Thus reducing the surplus.

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4.10 Max Surplus (No deficit is estimated upto 2024-25):

	Max Surplus
2019-20	11470
2021-22	12819
2024-25	12615

4.11 Details of inter-regional links with Eastern region are given below:

Corridor	Present	Expected by 2022	Expected by 2024-25
EAST-NORTH (ER-NR)			
Dehri-Sahupuri 220 kV S/c	130	130	130
Muzaffarpur-Gorakhpur 400 kV D/c (with Series Cap+TCSC)	2,000	2,000	2,000
Patna – Balia 400kV D/c (Quad)	1,600	1,600	1,600
Biharshariff – Balia 400kV D/c(Quad)	1,600	1,600	1,600
Barh – Balia 400kV D/c (Quad)	1,600	1,600	1,600
Gaya - Balia 765kV S/c	2,100	2,100	2,100
Sasaram-Allahabad/Varanasi 400kV D/C line (Sasaram HVDC back to back has been bypassed)	1,000	1,000	1,000
Sasaram - Fatehpur 765kV2x S/c	4,200	4,200	4,200
Barh-II-Gorakhpur 400kV D/c (Quad) line	1,600	1,600	1,600
Gaya-Varanasi 765 kV S/c line	2,100	2,100	2,100
LILO of Biswanath Chariali - Agra +/- 800 kV, 3000 MW HVDC Bi-pole at new pooling station in Alipurduar and addition of second 3000 MW module	3,000	3,000	3,000
Biharsharif-Varanasi 400kV D/c line (Quad)	1,600	1,600	1,600
Subtotal	22,530	22,530	22,530
EAST-WEST (ER-WR)			
Budhipadar-Korba 220 kV 3 ckts.	390	390	390
Rourkela-Raipur 400 kV D/c with series comp.+TCSC	1,400	1,400	1,400
Ranchi –Sipat 400 kV D/c with series comp.	1,200	1,200	1,200
Rourkela-Raipur 400 kV D/c (2 nd) with series comp.	1,400	1,400	1,400
Ranchi - Dharamjayagarh - WR Pooling Station 765kV S/c line	2,100	2,100	2,100
Ranchi - Dharamjayagarh 765kV 2nd S/c	2,100	2,100	2,100
Jharsuguda-Dharamjayagarh 765kV D/c line	4,200	4,200	4,200
Jharsuguda-Dharamjayagarh 765kV 2nd D/c line	4,200	4,200	4,200
Jharsuguda- Raipur 765kV D/c line	4,200	4,200	4,200
Subtotal	21,190	21,190	21,190
EAST- SOUTH (ER-SR)			

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Corridor	Present	Expected by 2022	Expected by 2024-25
Balimela-Upper Sileru 220kV S/c	130	130	130
Gazuwaka HVDC back-to-back	1,000	1,000	1,000
Talcher-Kolar HVDC bipole	2,000	2,000	2,000
Upgradation of Talcher-Kolar HVDC Bipole	500	500	500
Angul - Srikakulum 765 KV D/C line	4,200	4,200	4,200
Subtotal	7,830	7,830	7,830
EAST- NORTH EAST			
Birpara-Salakati 220kV D/c	260	260	350 (After HTLS reconductoring)
Malda/Siliguri - Bongaigaon 400 kV D/c	1,000	1,000	1,600 (After HTLS reconductoring)
Siliguri/Alipurduar - Bongaigaon 400 kV D/c (Quad) line	1,600	1,600	1,600
Subtotal	2,860	2,860	3,550
Total	54410	54410	55100

4.12 Total Transfer Capability for October 2020 as per system operator report:

National Load Despatch Centre			
Total Transfer Capability for October 2020			
Corridor	Total Transfer Capability (TTC)	Reliability Margin	Available Transfer Capability (ATC)
NR-ER	2000	200	1800
W3-ER	No limit is specified.		
SR-ER	No limit is specified.		
NER-ER	2350	45	2305
ER-NR	5250	300	4950
ER-W3	No limit is specified.		
ER-SR	5950	250	5700
ER-NER	1080	45	1035

4.13 As per operations feedback of POSOCO, no congestion was seen in the market for Q2 of 2020-21.

4.14 ER Import/export capacity/capability:

	Transmission Capacity (ER Export) (in MW)	Transmission Capacity (ER Import) (in MW)
June 2020 ATC*	11905+WR	4,355+SR+WR
By 2021-22	54,410	48,910

By 2024-25	55,100	49,600
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**No simultaneous Export or Import capability provided by NLDC.*

4.15 As there is sufficient inter-regional capacity to cater requirement of ER during surplus and deficit scenario, no additional links would be required by 2024-25.

4.16 Members may deliberate.

5. Review of Transmission system by system operator

5.1 The operational constrains faced by the system operator during Q2 of 2020-21 are given below:

Transmission line constraints

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
1.	400 kV Maithon B – RTPS line	During high generation at Raghunathpur TPS (both units in service) and low generation at MPL, the loading of 400 kV Maithon B-RTPS approaches its thermal limit as it provides a low impedance path being a short line (40 km) to Maithon which is a load centre.	<ul style="list-style-type: none"> • 400/220 kV interconnection of RTPS with 220kV network of DVC need to be planned and executed by DVC. • 400 kV Maithon B- RTPS and RTPS-Ranchi 3 are in same diameter. These circuits can be bypassed to reduce the loading on these circuits. However, it will require SPS at RTPS and DSTPS for N-1-1 contingency for 400 kV RTPS-Ranchi D/C outage. • Re-conductoring of the Twin-Moose line with Twin HTLS conductor • Another bypass is also available at Maithon B (RTPS and Mejia ckt 1 is in same dia) however, this will result in N-1 issue for 400 kV Maithon A-Mejia D/C. That’s why not advisable.
2.	220 kV Patna-Sipara T/C	There are three 220 kV lines between Patna (POWERGRID) and Sipara (BSPTCL) S/s. Major loads of Patna are fed from 220 kV Sipara substation. The length of the line is extremely short (less than 500 m). Further, Sipara is connected with Khagaul as well as to Fatuah at 220 kV level and is partly feeding these loads also. This is leading to higher loading of 220 kV Patna-Sipara T/C	<ol style="list-style-type: none"> 1. 220 kV Patna PG-Khagual 2 & 3 circuit has been commissioned which has reduced the loading to some extent on these ckts. 2. As these ckts are of very short length (only 400 meters (ckt 1&2) & 200 m (ckt-3 which is twin zebra))

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
		and violation of N-1 security criteria constraint for most of the time.	<p>Ckt-1 and 2 are recommended for uprating by reconductoring with HTLS conductor.</p> <p>3. BSPTCL has informed that they have planned 400/220 kV Naubatpur, 400/220 kV Bakhtiyarpur, 400/220 kV Jakkanpur to ensure higher reliability by providing more in-feeds to the loads presently catered by Patna alone.</p> <p>Discussion in 2nd ERPCTP : 220 kV Patna-Sipara 1 & 2 HTLS conversion was approved during the meeting (completion by BSPTCL by Jan/Feb 2021).</p>
3.	220 kV Durgapur (PG) – Parulia (DVC) D/C	Parulia (Durgapur) is a major load center in DVC control area. Due to decommissioning of DVC units (at Bokaro-B 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 220 kV Durgapur(PG)-Parulia(DVC) D/C. This resulted in very high loading of above line and even crossed the N-1 security limit. In addition, it is observed from studies as well as established through trial operation that these loading further increase with 400 kV bus split operation of Durgapur (PG) and third 400/220 kV ICT operation at Durgapur which has already been taken into service from June 2019.	<p>1. Reconductoring of 220 kV Durgapur(PG)-Parulia(DVC) D/C line with high capacity HTLS conductor or second 220 kV Durgapur(PG)-Parulia(DVC) D/C to be commissioned.</p> <p>2. Improve generation at Waria and Mejia.</p> <p>3. Planning and connecting the existing 400 kV generating stations of DVC at suitable locations of the 220 kV STU network by constructing 400/220 kV substation at existing Mejia-B and DSTPS power stations.</p> <p>As per 1st ERPC (Transmission Planning) decision:</p> <p>1. Shifting of 400/220 kV, 315MVA ICT-1 from Durgapur-A section to Durgapur-B section has been agreed.</p> <p>2. Reconductoring of 220 kV Durgapur(PG)-Parulia D/C line with high capacity HTLS conductor or second</p>

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Sl. No.	Transmission Element	Description of Constraints	Remedial Action
			<p>220 kV Durgapur-Parulia D/C has been proposed.</p> <p>3. Till implementation of the above measures Durgapur (PG) 400kV bus sections are being operated in integrated mode.</p> <p>4. WBSETCL to expedite the 315 MVA 3rd ICT at Bidhan Nagar substation</p> <p>2nd ERPCTP Discussion:</p> <ul style="list-style-type: none"> • DVC to expedite the work on LILO of 220 kV Parulia(D)-Waria D/C at DSTPS and commissioning of 400/220 kV ICTs at DSTPS and commissioning of the second 220 kV Durgapur-Parulia D/C. • WBSETCL informed that Bidhannagar ICT will be commissioned by Dec 2021. • WBSETCL had expressed concern on enhancement of fault level at Bidhannagar 220kV and as the network changes are being done independently by both users (DVC/WBSETCL) near to boundary of inter-state system) the same should not cause additional operational issues. CEA informed that a separate meeting with all involved parties for thorough study of this pocket will be convened.
4.	220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C	<p>High loading of 220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C is observed due to</p> <ol style="list-style-type: none"> 1. Less generation at CTPS 2. Low/ NIL generation at Bokaro-B 3. Less generation at Koderma <p>With commissioning of 3rd Maithon ICT of 500 MVA. Loading has further increased on these circuits due to low impedance path and</p>	Included at agenda item no 7.

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Sl. No.	Transmission Element	Description of Constraints	Remedial Action
		nearness to load centre.	
5.	220 kV Rajarhat-Newtown D/C and 220 kV Subhasgram-EMSS D/C	These lines are not N-1 compliant. In this qtr, 220 kV Subhasgram-EMSS loading is low however it is more during the summer season.	<ol style="list-style-type: none"> 1. Commissioning of Rajarhat (POWERGRID) – New Town AA2 220 kV D/c, Rajarhat (PGCIL) – Barasat/Jeerat 220 kV D/c and Subashgram (PGCIL) – Baraipur 220 kV D/c. 2. Load trimming scheme has been implemented on 220 kV Subhasgram-EMSS D/C..
6.	220 kv Mujaffarpur (PG)-Hazipur D/C and 220 kv Hazipur-Amnour D/C	These lines are not N-1 compliant.	<ol style="list-style-type: none"> 1. Commissioning of 400/220 kV Sitamarhi substation along with associated lines. In addition, 220 kV Amnour-Mujaffarpur D/C commissioning along with Proposed 220/132 kV Digha-Amnour connectivity will also result in better reliability. 2. A new 400/220/132 kV substation at Chapra (2 X 500 MVA+2 X 200 MVA) has been proposed. The 220 kV connectivity has been proposed at 220 kV Chhapra(New)-Amnour D/C and 220 kV Chhapra(New)-Gopalganj D/C
7.	220 kV Gaya-(PG) - Bodhgaya D/C	These lines are not N-1 compliant.	<p>BSPTCL need to plan additional 220kV transmission system for taking care of the N-1 contingency of these circuits. With commissioning of 400/220 kV substation at Chandauti by LILO of Gaya-NPGC 400kV D/C line at 400 kV Chandauti and shifting of some load from Bodhgaya to this new substation loading of this line is expected to be reduced.</p>

ICT constraints

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
1	400/220 kV Ranchi 2 X	With Low generation at Tenughat,	Included in agenda item no 8.

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Sl. No.	Transmission Element	Description of Constraints	Remedial Action
	315 MVA ICTs	increased load of JUSNL and drawal by WBSETCL from 220 kV Chandil-STPS, loading of 400/220 kV Ranchi ICTs exceeded the (n-1) security limit	
2.	400/220 kV Muzaffarpur 2X315 MVA and 1 X 500 MVA ICTs	Muzaffarpur is feeding a major load in Bihar and presently feeding to Nepal under interim arrangement of 400 kV Muzaffarpur-Dhalkebar D/C operating at 220 kV. This is resulting in N-1 non-compliance.	<ol style="list-style-type: none"> 1. At present as an interim solution 220 kV Mujaffarpur-Dhalkebar D/C is tripped in case of overloading of ICTs under N-1 contingency. 2. Nepal to upgrade the transmission system at their end to utilise the 400 kV Mujaffarpur-Dhalkebar at 400 kV level. 3. Installation of 500 MVA additional ICT has already been planned and approved by Standing Committee.
3.	400/132 kV 2 X 200 MVA Motihari ICT	Motihari ICTs are feeding to loads of North Bihar as well as to Nepal through 132 kV Raxaul-Parwanipur circuits. Due to the increase in Load in North Bihar these ICTs do not satisfy N-1 Criteria.	<ol style="list-style-type: none"> 1. Commissioning of 400/220 kV Sitamarhi Substation, 400 kV Darbhanga-Sitamari-Motihari D/C lines and associated 220 kV and 132kV transmission system within Bihar would reduce the loading on the Motihari ICT. 2. Expediting the 3rd 315 MVA 400/132 kV ICT which is already planned for Motihari 3. SPS has to be implemented by DMTCL in coordination with BSPTCL.
4.	400/220 kV 2 X 500 MVA Darbhanga ICT	During peak load of Bihar, the total ICT loading is increasing above 500 MW. The N-1 of one ICT has 60 % sensitivity on other ICT at present. In future with increasing demand of Bihar the loading will further increase	BSPTCL has already planned and is executing the 400/220 kV Saharsa substation which will relieve these ICTs loading.

Under voltage constraints

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
1	Arambag,	The voltage of Arambag fluctuates	West Bengal has planned the

	Shubhasgram and Jeerat	in the range 380-420 kV. The low voltage has been observed during peak hours of July and with insufficient reactive power compensation at 220 kV and below levels in West Bengal.	capacitor bank installation at 132kV s/stns catered by Arambag. In 2nd ERPCTP WBSETCL intimated that out of 670 MVAR capacitor bank, 80 MVAR has already been commissioned , 290 MVAR is expected by next six months and rest on later dates.
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Over voltage constraints:

Sl. No.	Transmission Element	Description of Constraints	Remedial Action
1	400 kV NPGC	High voltage is observed during the off-peak hour due to lightly loaded condition of Patna-NPGC D/C.	Full utilization of the reactive capability of 1X660MW unit of NPGC.
2	400 kV Binaguri,	High voltage at Binaguri occurs during low hydro generation in Sikkim and Bhutan. There are two long Twin Moose lines to Bongaigaon(NER) and four Qd. Moose lines to Alipurduar connected to Binaguri. Due to the extremely light loaded condition of the lines, high voltage was aggravated at Binaguri	One circuit of Binaguri-Alipurduar had to be opened as last resort. However, there was no requirement of line opening in this quarter.
3	400 kV New PPSP	Light loading of 400kV NPPSP-Ranchi D/C and NPPSP-Arambag D/C lines, which are more than 200 km each and absence of PPSP units during part of the lean hours caused high voltage at New PPSP and other nearby stations.	Need of additional reactors at N. PPSP Or Purulia pump storage HPS. Presently one circuit of N. PPSP – Arambag 400 kV D/C line is being opened on daily basis to control voltage. WBSETCL has already planned installation of 1X125MVAR bus reactor at NPPSP.
4	400 kV Maithon A	Lightly loaded condition of 400kV Gaya-Maithon Qd. Moose lines coupled with inadequate reactive power absorption by Mejia-B units caused high voltage at Maithon A	Additional reactive power planning may be considered at Maithon.
5	400 kV New Dubri	During lean hours Odisha's consumption at N. Duburi area falls to low values leading to an extremely underloaded condition of N. Duburi-Baripada and N. Duburi – Pandiabil 400kV lines	Addition of 125 MVAR shunt reactor at N. Duburi has already been planned by OPTCL. Its implementation status needs to be shared.

5.2 Members may deliberate.

<p>B. ToR 2(ii) – ASSESSMENT OF TRANSMISSION SYSTEM REQUIREMENTS IN NEAR, MEDIUM AND LONG TERM AND FORMULATE TRANSMISSION SCHEME</p>

6. Non-compliance of N-1 contingency criteria on 220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C line.

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- 6.1 In the 2nd meeting of ERPCTP, ERLDC had raised the issue of high loading and non-compliance of N-1 contingency criteria on 220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C lines. With addition of 3rd ICT of 400/220 kV 500 MVA at Maithon, loading on these circuits will further increase.
- 6.2 The issue was discussed in the Joint Study of Eastern Region held on 22.12.2020 wherein DVC proposed the following scheme to reduce the power flow of these lines and relieving congestion:
 - (A) Establishment of 220KV infrastructure at existing Raghunathpur Thermal Power Station (RTPS) along with associated lines**

Presently, RTPS is having two units (U # 1 & 2 :: 600 MW x 2) which are connected to 400KV grid system. DVC proposed for:

 - a. Establishment of 220KV side connectivity of 2 x 315MVA 400/220KV ICT (already in service) along with 04 nos. of 220KV line bays for the connectivity of item b.
 - b. D/C LILO of 220KV Chandrapura TPS – Kalyaneswari line to RTPS
 - (B) Construction of 400KV (AIS)/220KV (GIS) infrastructure at existing Mejia Thermal Power Station (MTPS) along with associated lines**

DVC stated that MTPS (U # 1 to 6 :: 210 MW x 4 + 250 MW x 2, U # 7 & 8 :: 500 MW x 2) is having no electrical connectivity between the 400 kV and 220 kV system. DVC proposed for:

 - a. Installation of 2 x 315MVA 400/220KV ICT along with controlling bays at both sides and 04 nos. of 220KV line bays for the connectivity of item b & c.
 - b. Shifting of 220KV D/C MTPS-A – Barjora Line from MTPS – A to MTPS – B Switchyard
 - c. Tie connection between MTPS – A & MTPS – B at 220KV level.
 - d. 220KV S/C LILO of MTPS-A – Durgapur at Barjora substation.
- 6.3 DVC has informed that these schemes will meet the substantial Power Demand of Barjora, Durgapur, CTPS and downstream connectivity's of that region. Also, there will be reduction of power flow of 400KV S/C RTPS – Maithon (PG), 220KV D/C Kalyaneswari – Maithon (PG), 220KV D/C Parulia (DVC) – Parulia (PG) & 220KV D/C Dhanbad – Maithon (PG) lines thereby relieving from Congestion.
- 6.4 In the Joint Study meeting, members agreed “in-principle” that the above proposed schemes for MTPS and RTPS will help in mitigating the non-compliance of N-1 contingency criteria on 220 kV Maithon-Dhanbad D/C and 220 kV Maithon-Kalyaneshwari D/C lines.
- 6.5 Members may discuss.

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7. Augmentation of transformation capacity at 400/220kV Ranchi (POWERGRID) S/s

7.1 In the 2nd meeting of ERPCTP, CTU informed that the the power flow through both the 400/220kV Ranchi (POWERGRID) S/s having the transformation capacity of 630MVA (2x315MVA ICT), exceeds more than 400-450MW during peak hours, thereby not meeting the N-1 reliability criteria and proposed for the augmentation of the transformation capacity at Ranchi S/s with additional 400/220kV, 500MVA ICT along with associated bays in ISTS. After deliberations, following were agreed:

(i) JUSNL will provide generation/load data and intra-state transmission system under execution/planned with timelines to CEA/CTU.

(ii) JUSNL will share their TTC/ATC calculations files with CEA/CTU/ERLDC.

(iii) A joint study will be carried out to examine the issue.

(iv) Thereafter, the issue would be discussed in next meeting of ERPCTP.

7.2 The issue was discussed in the Joint Study of Eastern Region held on 22.12.2020 wherein JUSNL agreed for the augmentation and stated that 315 MVA 400/220 kV ICT can be installed at Ranchi S/s. ERLDC suggested that the bunched ICTs at Rourkela and Jeypore S/s, where new 400/220 kV 315 MVA ICTs were installed and bunched with the existing 315 MVA ICTs may be used for the augmentation at Ranchi S/s. After deliberations, members "in-principle" agreed for the following:

(a) The augmentation of the transformation capacity at Ranchi S/s with additional 400/220kV, 500MVA ICT along with associated bays.

(b) CTU to explore for the spare transformer at Rourkela, Jeypore or any other place for Ranchi S/s.

7.3 CTU may present about the spare transformers in Eastern Region.

7.4 Members may discuss.

8. First time charging(FTC) request of 315MVA 400/220KV/33KV ICT#1 and associated 400KV bay of DSTPS, DVC at 400KV level.

8.1 DVC vide email dated 11.12.2020 requested CEA for approval for the first time charging(FTC) of 315MVA 400/220KV/33KV ICT#1 and associated 400KV bay of DSTPS, DVC at 400KV level.

8.2 The issue was discussed in the Joint Study meeting of Eastern Region held on 22.12.2020, DVC informed that CEA, vide letter no. 74/1/2012-SP&PA/823-824 dated 31.07.2012, gave technical approval for 12th plan transmission augmentation of DVC system. This plan included "Establishment of 220 kV level at the existing DSTPS with associate line bays and ICT bays".

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However, there is no specific mention about ICTs at DSTPS. It was understood that two(2) ICTs are required to create 220 kV level at DSTPS.

- 8.3 DVC has also informed that subsequent to erection and commissioning of transformer RIO (East), CEA, vide letter RIO/ER/DVCDSTPS/2020/109 dated 17.08.2020, has given approval for energisation of the electrical installations of new 315 MVA, 400/220/132 kV ICT#1 and associated 400 kV bay at DVC DSTPS substation.
- 8.4 In the meeting held on 22nd Dec, 2020, it was agreed that the DVC assets for DSTPS are already in place which is ready for charging and may be given “in-principle” acceptance by CEA to put the asset in use.
- 8.5 Considering above, CEA conveyed “in-principle” approval for charging of 2x315MVA 400/220KV/33KV ICTs along with associated 400KV bay of DSTPS of DVC vide letter no. CEA-PS-12-15/13/2018-PSPA-II Division/I/13064/2021 dated 07.01.2021.
- 8.6 Members may concur.

C. ToR 2(iii) – APPLICATIONS FOR CONNECTIVITY AND ACCESS

No connectivity/access applications received after 2nd meeting of ERPCTP.

D. ToR 2(iv) – REVIEW OF UPSTREAM AND DOWNSTREAM NETWORK

9. **Interim connectivity to generation projects in ER through LILO arrangement**
- 9.1 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.
- 9.2 The progress of associated transmission system of IPPs and the deliberations in the 2nd ERPC(TP) meeting is summarized as below:

Generation Project in ER connected through temporary LILO arrangement					
Sl.	Generation	IC	Present	Final	Anticipated Completion

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No.	Project	(MW)	Connectivity through LILO	Connectivity Arrangement	Schedule
1	Sneha Kinetic Power Projects Pvt. Ltd. (Dikchu HEP)	2x48	LILo of one circuit of Teesta-III – Rangpo 400kV D/c line at Dikchu <i>(granted in Dec'14 by CERC)</i>	LILo of one circuit of Dikchu pool – Singhik D/c (Twin Moose) line (220kV line operated at 132kV) at Dikchu HEP	The final connectivity of Dikchu HEP as LILo of one circuit of Dikchu pool – Singhik D/c line (220kV line operated at 132kV) at Dikchu HEP was agreed. E&P Dept., Govt. of Sikkim stated that Dikchu pool - Singhik line is expected to be completed by December, 2020 and LILo portion by December 2021, by Govt. of Sikkim.
2	Shiga Energy Pvt. Ltd. (Tashiding HEP)	2x48.5	LILo of one circuit of Rangpo-New Melli 220kV D/c line at Tashiding through Tashiding-Legship Pool-New Melli 220kV D/c	Tashiding – Legship Pool 220kV D/c line	E&P Dept., Govt. of Sikkim stated that retendering for packages including Legship Pool has been done and the expected completion by December, 2021.

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

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

10.1 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 in 2nd meeting of ERPCTP, updated information on planned/under-construction downstream system is as follows:

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Updated Completion Schedule
A	Existing Substations:			
	To be implemented by WBSETCL:			
A1	Rajarhat	400/220kV		
i)	Rajarhat (POWERGRID) – New Town AA3	220kV D/c	Commissioned	
ii)	Rajarhat (POWERGRID) – New Town AA2	220kV D/c	--	Dec'21
iii)	Rajarhat (POWERGRID) – Barasat/Jeerat	220kV D/c	--	Dec'21
A2	Subashgram	400/220kV		

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Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Updated Completion Schedule
i)	Subashgram (POWERGRID) – Baraipur	220kV D/c	--	Dec'20
To be implemented by OPTCL:				
A3	Pandiabil	400/220kV		
i)	Pratapsasan (OPTCL) – Pandiabil (POWERGRID)	220kV D/c		March'21
A4	Bolangir	400/220kV		
i)	LILO of one ckt of Sadeipalli – Kesinga 220kV D/c at Bolangir	220kV		June'21
A5	Keonjhar	400/220kV		
i)	Keonjhar (POWERGRID) – Turumunga (OPTCL)	220kV D/c		June'21
To be implemented by JUSNL:				
A6	Daltonganj	400/220/132kV		
i)	Daltonganj (POWERGRID) – Latehar	220kV D/c		Dec,21
ii)	Daltonganj (POWERGRID) – Garhwa	220kV D/c		Dec,21
iii)	Daltonganj (POWERGRID) – Chatarpur	132kV D/c		Dec,21
A7	Chaibasa	400/220kV		
i)	Chaibasa (POWERGRID) – Jadugoda (JUSNL)	220kV D/c		No update
B Under Construction Substations:				
B1	Sitamarhi	400/220/132kV		expected by Jan 2021
i)	Sitamarhi (New) – Motipur (BSPTCL)	220kV D/c		Oct, 2020
ii)	Sitamarhi (New) – Raxaul (New)	220kV D/c (Twin Moose)		Jan, 2021
iii)	Sitamarhi (New) – Runni Saidpur	132kV D/c		Oct, 2020
iv)	LILO of Benipatti – Pupri 132kV S/c at Sitamarhi (New)	132kV S/c		Mar, 2021

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Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Updated Completion Schedule
B2	Saharsa	400/220/132kV		expected by Mar 2021
i)	Saharsa (New) – Khagaria	220kV D/c		Mar, 2021
ii)	Saharsa (New) – Begusarai	220kV D/c		Mar, 2021
iii)	Saharsa (New) – Saharsa 132kV D/c line formed by LILO of Saharsa – Banmankhi and Saharsa – Uda Kishanganj 132kV S/c lines	132kV D/c		Dec, 2020
B3	Chandauti	400/220/132kV		Expected by Mar 2021
i)	LILO of Gaya (POWERGRID) – Sonenagar 220kV D/c at Chandauti (New)	220kV D/c		Dec, 2020
ii)	LILO of Chandauti (BSPTCL) – Rafiganj 132kV S/c at Chandauti (New)	132kV S/c		Dec, 2020
iii)	LILO of Chandauti (BSPTCL) – Sonenagar 132kV S/c at Chandauti (New)	132kV S/c		Dec, 2020
B4	Dhanbad	400/220kV		expected by Oct 2020
i)	LILO of the 220 kV Tenughat – Govindpur D/c line at Jainamore and at Dhanbad.	220kV	(Approval expected in next budget)	2024-25

10.2 Members may update the status of the above.

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

11.1 Following 400kV substations have been approved in the previous meetings under intra-state strengthening schemes in ER. Status of

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completion/commissioning as per information provided in the 2nd meeting of ERPCTP is given below:

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
A	<u>Bihar (to be implemented by BSPTCL/BGCL)</u>			
I	Naubatpur GIS	400/220/132/33kV, 2x500MVA + 2x160MVA + 2x80MVA	26.04.2018	
a)	Naubatpur	2x500 MVA +2x160 MVA+2x80 MVA 400/220/132 kV S/S		31.03.2021
b)	LILO of circuits 3 & 4 of Patna (PG)-Balua 400 kV D/c (Quad) line at Naubatpur 400 kV 2x D/C	400 kV 2x D/C		March'21
c)	LILO of both circuits of Ara (PG) – Khagaul (BSPTCL) line at Naubatpur (New) 220 kV 2xD/C	220 kV 2xD/C		March'21
d)	Naubatpur (New)-Bihta (BSPTCL)	220kV D/c		March'21
e)	Naubatpur (New)-Bhusaula (New)	220kV D/c		March'21
f)	Naubatpur (New)-Paliganj	132kV D/c		May'21
g)	Naubatpur (New)-Masaurhi (existing)	132kV D/c		March'21
II	Bakhtiyarpur GIS:	400/220/132kV, 2x500MVA + 2x160MVA	26.11.2019	
a)	Bakhtiyarpur	2x500 MVA +2x160 MVA 400/220/132 kV GIS S/S		December 2021.
b)	LILO of both circuits of Barh – Patna (PG) 400kV D/c (Quad) line-1 at Bakhtiyarpur 400 kV 2xD/C	400kV 2xD/c		31.03.2021.
c)	Bakhtiyarpur (New) - Sheikhpura (New)	220 kV D/C		31.03.2021.
d)	Bakhtiyarpur (New) -	220 kV D/C		31.03.2021.

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Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
	Hathidah (New)			
e)	Bakhtiyarpur (New) - Fatuha (BSPTCL)	220 kV D/C		31.03.2021.
f)	Bakhtiyarpur (New) - Harnaut (BSPTCL)	132 kV D/C		31.12.2020.
g)	Bakhtiyarpur (New) - Baripahari (BSPTCL)	132 kV D/C		31.12.2020.
h)	LILO of 132 kV S/C Line Baripahari – Harnaut at Bakhtiyarpur	132kV S/c		31.12.2020.
III	Jakkanpur GIS	400/220/132/33kV, 2x500MVA + 3x160MVA + 4x80MVA	26.04.2018	
a)	Jakkanpur	2x500 MVA +3x160 MVA+3x80 MVA 400/220/132/33 kV GIS S/S		31.01.2021.
b)	LILO of both circuits of Nabinagar-II – Patna (PG) 400kV D/c at Jakkanpur 400 kV 2xD/C	400 kV 2xD/C		Jan 2021.
c)	LILO of both circuits of Sipara (BSPTCL)-Bihta (BSPTCL) line at Jakkanpur (new) 2x220 kV D/C	2x220 kV D/C		March 2021.
d)	LILO of Khagaul (BSPTCL) - Sipara (BSPTCL) 220 kV S/C line at Jakkanpur (New) 220 kV D/C	220 kV D/C		Jan 2021.
e)	LILO of both circuits of Jakkanpur-Sipara line at Jakkanpur New (being reconducted with HTLS by BSPTCL) 2x132 kV D/C	2x132 kV D/C		March 2021.
f)	LILO of 132 KV S/C Jakkanpur/Mithapur-Fatuha line at Jakkanpur New (being reconducted with HTLS by BSPTCL) 132 kV D/C	132kV S/c		Jan 2021
IV	Chappra (New):			

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Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
	Establishment of 2x500 MVA +2x200 MVA 400/220/132/kV GSS S/S at Chhapra	400/220/132/kV	Scheme under consideration at Bihar Government	2021-22
	LILO of 400 kV Barh (NTPC) - Motihari (DMTCL) D/C (Quad) transmission line at Chhapra (about 40 km)	400 kV		
	220 kV Chhapra (New) - Gopalganj DCDS (about 100 km)	220 kV		
	220 kV Chhapra(New) - Amnour DCDS (about 25 km)	220 kV		
	132 kV Chhapra(New) - Maharajganj DCDS (about 45 km)	132 kV		
	132 kV Chhapra(New) - Raghunathpur DCDS (about 80 km)	132 kV		
B	<u>Odisha (to be implemented by OPTCL)</u>			
a)	Meramundali-B:	400/220kV, 2x500MVA		Mar'21
b)	Narendrapur (New):	400/220kV, 2x500MVA		Dec'23
c)	Khuntuni:	400/220kV, 2x500MVA		Mar'23
d)	Bhadrak:	400/220kV, 2x500MVA		June'23
e)	Paradeep:	400/220kV, 2x500MVA		Oct'23
f)	Begunia: 765/400kV, 2x1500MVA along with Angul-Begunia 765kV D/c line and LILO of Pandiabil – Narendrapur 400kV D/c line at Begunia – Land Acquisition problem.	765/400kV, 2x1500MVA		Expected by 2024-25.
g)	Narendrapur – Therubali – Jeypore 400kV D/c line along with 400kV switching station at	400kV D/c		Dec'23

Sl. No.	Substation/Location	Transformation Capacity/ Element	Date of Award	Completion Schedule
	Therubali and 420kV, 1x125MVA r bus reactor			
C	<u>Jharkhand (to be implemented by JUSNL)</u>			
a)	Jasidih:	400/220kV, 2x500MVA	RFQ/RFP will be floated after approval of the transmission scheme by JSERC	2024-25
b)	Chandil (New):	400/220kV, 2x500MVA		
c)	Koderma:	400/220kV, 2x500MVA		
d)	Mander:	400/220kV, 2x500MVA		
e)	Dumka (New):	400/220kV, 2x500MVA		
D	<u>West Bengal (to be implemented by WBSETCL)</u>			
a)	Laxmikantpur GIS	400/132kV, 2x315MVA		Aug'22

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

E. ToR 2(v) – EXAMINE AND EVALUATE INTRA-STATE PROPOSALS

12. Creation of 220 kV bus at Banka (PG) and Lakhisarai (PG)

12.1 In the 2nd meeting of ERPCTP, BSPTCL proposed for the creation of 220kV voltage level at existing 400/132 kV substations at Banka (PG) at present with transformation capacity of 2x315 MVA. Accordingly, following was agreed for implementation:

Under ISTS:

Eastern Region Strengthening Scheme-XXV (ERSS-XXV)

- (a) Creation of 220kV GIS bus at Banka (POWERGRID) S/s
- (b) 400/220kV, 2x500MVA ICTs along with associated bays (220kV bays in GIS)
- (c) 2 nos. of 220kV GIS line bays at Banka (POWERGRID) for termination of Banka (POWERGRID) - Goradih (Sabour New) 220kV D/c line of BSPTCL
- (d) Space for future 220kV GIS bays: 6 no.

By BSPTCL:

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220kV Banka (POWERGRID) - Goradih (Sabour New) D/C line along with associated bays at Goradih (Sabour New) end. BSPTCL will implement this line matching with the schedule of associated ISTS scheme as above.

- 12.2 It was also agreed in the meeting that BSPTCL would study requirement of reactive power in Bihar system and send to CEA/CTU for discussion in the next meeting of ERPCTP.
- 12.3 BSPTCL may present. Members may discuss.

F. ToR 2(vi) – REVIEW AND FACILITATE CONSTRUCTION OF INTER-REGIONAL GRID STRENGTHNING SCHEME

13. Re-conductoring of Siliguri-Bongaigaon 400kV D/c Twin Moose line with Twin HTLS conductor, re-conductoring of Alipurduar – Salakati (Bongaigaon) 220kV D/c line with Single HTLS

13.1 Re-conductoring of the following transmission system have been agreed in the 1st meeting of NERPC-TP held on 08-11-2019:

- (i) Re-conductoring of Siliguri – Bongaigaon line with Twin HTLS conductor (ampacity of single HTLS shall be 1596A) along with requisite modifications in line bay equipment at both ends.
- (ii) Re-conductoring of Alipurduar – Salakati (Bongaigaon) 220kV D/c line with single HTLS (ampacity of single HTLS shall be 1596A) along with requisite modifications in line bay equipment at both ends.

13.2 This proposal was also discussed in 2nd meeting of ERPC-TP, wherein CTU informed that MoP has allocated the above work of re-conductoring of lines under RTM to POWERGRID on 25-09-2020 with implementation schedule of 30 months. These works are being carried out as part of NERSS-XII scheme.

13.3 However, CTU informed that the above transmission lines are very old and were designed with maximum conductor temperature of 65°C and 75°C for 220kV and 400kV lines respectively, considering an ambient temperature of 40°C. During detailed engineering, it was observed that the sag considered in the tower design, corresponding to the maximum conductor temperature as mentioned above, is very less compared to present day design of transmission lines where maximum operating temperature is higher (75°C/85°C). Therefore, ampacity of new conductor needs to be modified.

13.4 To discuss the issue, a meeting was held on 21-12-2020 wherein based on the technical difficulties in achieving the approved current rating through HTLS and considering power flow requirement as per studies of CTU, it was agreed that the Ampacity of HTLS conductors for these inter-regional lines in

ER-NER corridor, as mentioned below in col (E) meets the technical requirement:

Sl. No.	Name of transmission line	Ampacity of existing ACSR sub-conductor (A)	Ampacity of Single HTLS Conductor as per MoP order (A)	Ampacity of single HTLS sub-conductor agreed considering technical constraints and system requirement (A)
(A)	(B)	(C)	(D)	(E)
1	400kV D/C Siliguri-Bongaigaon line (Twin ACSR Moose)	707	1596	1400
2	220kV D/C Alipurduar-Salakati line (Single ACSR Zebra)	451	1596	1100

13.5 Members may concur.

G. CROSS BORDER INTERCONNECTIONS

14. Katihar (Bihar) – Parbotipur (Bangladesh) – Bornagar (Assam) 765kV D/c line

14.1 In the 6th meeting of Standing Committee on Power System Planning of NER held on 03-10-2016, Katihar (Bihar) – Parbotipur (Bangladesh) – Bornagar (Assam) 765kV D/c line (initially operated at 400kV) along with HVDC back-to-back at Parbotipur (2x500MW, 1x500MW with 400kV operation and 2nd 1x500MW with 765kV operation) was agreed.

14.2 The issue was discussed in the 8th meeting of India-Bangladesh JTT-T held on 15-12-2019 & 06-03-2020. In the 18th meeting of JSC on India-Bangladesh Cooperation in Power Sector held on 07th March 2020, it was mentioned that

“India would like to go ahead with the financing and construction of the entire 765kV D/C Katihar (India) – Parbotipur (Bangladesh) – Bornagar (India) cross border link. The Bangladesh side may synchronize through this link at Parbotipur at an appropriate time as suggested by JWG for drawal of power. Bangladesh side welcomed the proposal of India’s financing and construction of the 765 kV D/c lines”.

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- 14.3 The issue was discussed in the 2nd meeting of ERPCTP, wherein Odisha, Bihar, West Bengal, DVC and Jharkhand stated that considering ROW constraints at chicken neck area, the link is strategically very important. However, they also stated that the link should be implemented by funds of Central Government and there should not be any financial implication on them. WBSETCL stated that detailed techno-commercial review is required before taking up the project.
- 14.4 MoP vide letter No. 9/5/2018-trans-Pt(1) dated 31.12.2020, has approved implementation of the 765 kV D/C Katihar (India) – Parbotipur (Bangladesh) – Bornagar (India) cross border transmission link (india as well as Bangladesh portion), by Power Grid Cooperation of India Ltd (PGCIL) under Regulated Tariff Mechanism (RTM). This entire link is declared as a project of “National Importance”. Recovery of transmission tariff for subject link will be under “National Component” as per CERC (Sharing of Inter-State Transmission Charges and Losses) Regulations 2020.
- 14.5 Members may note.