सेंट्रल ट्रांसमिशन यूटिलिटी ऑफ इंडिया लिमिटेड
(पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड के स्वामित्व में)
(भारत सरकार का उद्यम)
CENTRAL TRANSMISSION UTILITY OF INDIA LTD.
(A wholly owned subsidiary of Power Grid Corporation of India Limited)
(A Government of India Enterprise)

Ref. No.: CTUIL/OM/17/21st NCT

21st August 2024

The Chairman & Managing Director
Power Grid Corporation of India Ltd.,
Saudamini, Plot No. 2, Sector-29,
Gurgaon- 122 001

Sub: Implementation of ISTS Transmission Schemes under Regulated Tariff Mechanism (RTM) as approved by National Committee on Transmission (NCT) in its 21st meeting held on 6th August 2024 - Reg.

NCT vide letter dated 21st August 2024 approved the implementation of following ISTS Transmission schemes under RTM mode by the respective implementing agency as indicated in the table below:

Sl. No.	Transmission Schemes	Implementing Agency
1.	Augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling Station in Karnataka and Implementation of 1 No. of 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for providing Connectivity to RE generation project.	POWERGRID
2.	North-Eastern Region Expansion Scheme-XXV Part-B (NERES-XXV Part-B)	POWERGRID

Copy of NCT letter dated 21st August 2024 is enclosed. The detailed scope of work along with implementation time frame for the above Transmission Schemes shall be as per the enclosed NCT letter and Minutes of the 21st meeting of NCT.

The implementing agency shall enter into a concession agreement with CTUIL for implementation of the aforementioned Transmission Schemes. However, pending finalization of Concession Agreement, it is requested to initiate necessary actions for implementation of the aforementioned Transmission Schemes.

This is for your kind information and necessary action, please.

Thanking you.

Yours faithfully,

(Partha Sarathi Das)
Sr. General Manager

Encl.: as stated.

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

सेवा में / To

Chief Operating Officer, CTUIL
Saudamini, Plot No. 2,
Sector-29, Gurgaon-122001

विषय/Subject: Implementation of ISTS Transmission/Communication Schemes approved by NCT in its 21st meeting held on 06.08.2024- regarding

महोदय/Sir,

The undersigned is directed to inform that NCT has approved implementation of the following ISTS Transmission and Communication Schemes in its 21st meeting held on 06.08.2024, in line with MoP office order dated 28.10.2021 and MoP Guidelines dated 09th March, 2022, to be implemented through Regulated Tariff Mechanism (RTM) route by agency as indicated below:

I. ISTS schemes approved by NCT under RTM route:

Sl. No.	Name of Transmission Scheme	Implementation Mode	Implementation timeframe	Estimated Cost(₹Cr)
1.	Augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling Station in Karnataka and Implementation of 1 Nos. of 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for providing Connectivity to RE generation project	RTM through POWERGRID	21 months	118
2.	North-Eastern Region Expansion Scheme-XXV Part-B (NERES-XXV Part-B)	RTM through POWERGRID	36 months (matching with North-Eastern Region Expansion Scheme-XXV Part-A	8.18

			(NERES-XXV Part-A))	

The above scheme is awarded to CTUIL for implementation under RTM mode. CTUIL is requested to take necessary action for entering into a concession agreement with the respective agency for implementation of the above schemes.

CTU is requested to intimate the implementing Agency. Detailed scope of the schemes are as per minutes of the meeting. Copy of the minutes are enclosed.

Encl.: As above.

भवदीय /Yours faithfully,

(बी.एस.बैरवा/ B.S.Bairwa)

मुख्य अभियन्ता (इंचार्ज) एवं सदस्य सचिव,एन.सी.टी./

Chief Engineer (I/C) & Member Secretary (NCT)

Copy to:

Joint Secretary (Trans), Ministry of Power, Shram Shakti Bhawan, New Delhi-110001

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

As per list of Addresses

विषय: ट्रांसमिशन पर राष्ट्रीय समिति (एनसीटी) की इक्कीसवी बैठक के कार्यवृत्त – के सम्बन्ध में ।

Subject: Minutes of the 21st Meeting of National Committee on Transmission (NCT) – regarding.

महोदया (Madam) / महोदय (Sir),

The 21st meeting of the "National Committee on Transmission" (NCT) was held on 6th August, 2024, at CEA, New Delhi. Minutes of the meeting are enclosed herewith.

भवदीय/Yours faithfully,

Signed by Bhagwan Sahay Bairwa
Date: 21-08-2024 10:17:05

(बी.एस.बैरवा/ B.S. Bairwa)
मुख्य अभियन्ता (इंचार्ज) एवं सदस्य सचिव,एन.सी.टी./
Chief Engineer (I/C) & Member Secretary (NCT)

प्रतिलिपि / **Copy to:**

Joint Secretary (Trans), Ministry of Power, New Delhi-110001

List of Addresses:

1.	Chairperson, Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	2.	Member (Power Systems), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.
3.	Member (Economic & Commercial), Central Electricity Authority Sewa Bhawan, R.K. Puram, New Delhi – 110 066.	4.	Director (Trans), Ministry of Power Shram Shakti Bhawan, New Delhi-110001.
5.	Sh. Lalit Bohra, Joint Secretary Room no 602, Atal Akshay Urja Bhawan Opposite CGO Complex, Gate No. 2, Lodhi Road, New Delhi – 110003	6.	Chief Operating Officer, CTUIL, Saudamini, Plot No. 2, Sector-29, Gurgaon – 122 001.
7.	Sh. Rajnath Ram, Adviser (Energy), NITI Aayog, Parliament Street, New Delhi – 110 001.	8.	CMD, Grid Controller of India, B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi – 110016
9.	Sh. Ravinder Gupta Ex. Chief Engineer CEA		

Table of Agenda

Minutes of the 21st meeting of National Committee on Transmission (NCT)

The 21st meeting of NCT was held on 6th August, 2024 at CEA, New Delhi. List of participants is enclosed at **Annexure-I**. Agenda wise deliberations are given below:

1 Confirmation of the minutes of the 20th meeting of National Committee on Transmission.

1.1 The minutes of the 20th meeting of NCT held on 25.06.2024 were issued vide CEA letter no CEA-PS-12-13/3/2019-PSPA-II dated 13.07.2024. No comments were received on the minutes.

1.2 Members confirmed the minutes.

2 Status of the transmission schemes noted/approved/recommended to MoP in the 20th meeting of NCT:

2.1 Status of new transmission schemes approved/recommended:

Sl. No.	Name of the Transmission Scheme	Noted/ Recommended/ Approved	Mode of Implementation	BPC	Award/ Gazette Notification
1.	Network Expansion scheme in Western Region to cater to Pumped storage potential near Talegaon (Pune)	Recommended	TBCB	RECPDCL	Under process in MoP
2.	Provision of ICT Augmentation and Bus Reactor at Bhuj-II PS	Recommended	TBCB	PFCCL	Under process in MoP
3.	Transmission System for Offshore Wind Zone Phase-1 (500 MW VGF off the coast of Gujarat for Subzone B3)	Recommended	RTM	Not applicable	Under process in MoP
4.	Transmission System for Offshore wind farm in Tamil Nadu (500 MW VGF)	Recommended	RTM	Not applicable	Under process in MoP
5.	Transmission System for evacuation of power from Mahan Energen Limited Generating Station in Madhya Pradesh	Recommended	TBCB	PFCCL	Under process in MoP
6.	Transmission system for Augmentation of transformation capacity at 765/400 kV Lakadia S/s (WRSS XXI(A) Transco Ltd) in Gujarat – Part B	Recommended	TBCB	RECPDCL	Under process in MoP
7.	Transmission System for evacuation of RE power from Raghanesda area of Gujarat – 3 GW under Phase-I	Recommended	TBCB	PFCCL	Under process in MoP

Sl. No.	Name of the Transmission Scheme	Noted/ Recommended/ Approved	Mode of Implementation	BPC	Award/ Gazette Notification
8.	Transmission scheme for evacuation of power from Ratle HEP (850 MW) and Kiru HEP (624 MW): Part A	Recommended	TBCB	RECPDCL	Under process in MoP
9.	Transmission scheme for evacuation of power from Ratle HEP (850 MW) and Kiru HEP (624 MW) Part B	Approved	RTM	Not applicable	Informed to CTUIL vide letter dated 13.07.2024
10.	Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects	Recommended	TBCB	PFCCL	Under process in MoP
11.	**A:** Supply and installation of 24 Fibre OPGW on PKTCL lines for providing redundant Communication for Parbati Pooling (Banala) (PG) S/s, Parbati-II (NHPC) and Parbati-III (NHPC) stations. **B:** Supply and installation of 24 Fibre OPGW and FOTE to Providing redundant communication for Parbati Pooling (Banala) (PG) S/s, Parbati-II (NHPC) and Parbati-III (NHPC) stations.	Approved	RTM	Not applicable	Informed to CTUIL vide letter dated 13.07.2024 CTUIL forwarded the recommendations vide letter dated 15.07.2024
12.	Redundant Communication for Chamera-III (NHPC) and Budhil (GreenCo) using 3 pairs of fibers sharing from HPPTCL network	Approved	RTM	Not applicable	
13.	Additional FOTE requirements at AGC locations in Western Region	Approved	RTM	Not applicable	
14.	Redundant OPGW communication path for Solapur STPP under AGC	Approved	RTM	Not applicable	
15.	Redundant OPGW communication path for 500 MW plant of NSPCL, Chhattisgarh.	Approved	RTM	Not applicable	

2.2 Status of transmission schemes where modifications was suggested by NCT:

S. No.	Scheme where modifications was suggested	Status
1.	Augmentation of transformation capacity at Jam Khambhaliya PS (JKTL)- PART B	Informed PFCCL vide letter dated 13.07.2024
2.	Modification in design / layout of Kurnool-III PS due to receipt of large quantum of Connectivity applications at 400 kV level	Informed to CTUIL vide letter dated 13.07.2024
3.	Change in Implementation time-frame of Eastern Region Expansion Scheme-XXXIX (ERES-XXXIX)	Informed to RECPDCL vide letter dated 13.07.2024
4.	System strengthening at Koppal-II and Gadag-II for integration of RE generation	Informed to PFCCL vide letter dated 13.07.2024
5.	Transmission system for evacuation of power from Luhri Stage-I HEP	Informed to RECPDCL vide letter dated 13.07.2024
6.	Augmentation with 400/220 kV, 1x500 MVA Transformer (10th) at Fatehgarh-2 PS	Informed to CTUIL vide letter dated 13.07.2024

3 Modifications in the earlier approved/notified transmission schemes:

3.1 Modification of implementation schedule of one of the 400 kV bay of M/s Indosol Solar Pvt. Ltd. under the scheme "Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects"

3.1.1 The transmission scheme "Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects" was recommended for implementation through TBCB route in the 20th meeting of NCT held on 25.06.2024.

3.1.2 Representative of CTUIL mentioned that the scheme includes implementation of 4 Nos. of 400 kV line bays at Kurnool-III PS for termination of dedicated transmission lines of M/s Indosol Solar Pvt. Ltd. The start date of connectivity for one of the 400 kV bay of M/s Indosol Solar Pvt. Ltd. was mentioned as 30.06.2025. However, "Transmission system strengthening at Kurnool-III PS will be required for integration of additional RE generation projects- Package-A" for evacuation of power.

3.1.3 Further, it was stated that time frame for Package-A has been considered as 24 months. Accordingly, the in-principle grant of connectivity for M/s Indosol Solar Pvt. Ltd. has been granted with start date as 31.12.2026 (tentative). In view of above, the schedule of one of the 400 kV bay of M/s Indosol Solar Pvt. Ltd. may be modified as 24 months instead of 30.06.2025

3.1.4 After deliberations, NCT approved the change in schedule of one of the 400 kV bays of M/s Indosol Solar Pvt. Ltd of the transmission scheme "Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects" as follows:

Package	Scope of the Transmission Scheme	Capacity /km	Schedule	Revised Schedule
A	Augmentation of transformation capacity by 3x1500 MVA, 765/400 kV ICTs at Kurnool-III PS	• 3x1500 MVA, 765/400 kV ICT • 765 kV ICT bay – 3 Nos. • 400 kV ICT bay – 3 Nos. • 400 kV Bus Sectionaliser – 1 Set	24 months	No change
	Kurnool-III PS – Chilakaluripeta 765 kV D/c line with 240 MVAr switchable line reactors at both ends	~ 260 km • 765 kV line bays – 2 Nos. (at Kurnool-III PS) • 765 kV line bays – 2 Nos. (at Chilakaluripeta) • 765 kV, 240 MVAr SLR at Kurnool-III PS – 2 Nos. (6x80 MVAr units) • 765 kV, 240 MVAr SLR at Chilakaluripeta – 2 Nos. (6x80 MVAr units)		
B	2 Nos. of 400 kV line bays at Kurnool-III PS for termination of dedicated transmission line of M/s Adani Renewable Energy Forty Two Ltd.	• 400 kV line bays – 2 Nos.	30.06.26	No change
	4 Nos. of 400 kV line bay at Kurnool-III PS for termination of dedicated transmission lines of M/s Indosol Solar Pvt. Ltd.	• 400 kV line bays – 1 Nos.	30.06.25	**24 Months**
		• 400 kV line bays – 1 Nos.	24 months	No change
		• 400 kV line bays – 2 Nos.	31.03.27	No change
	2 Nos. of 400 kV line bays at Kurnool-III PS for termination of dedicated transmission line of M/s Adani Renewable Energy Fifty One Ltd.	• 400 kV line bays – 2 Nos.	31.12.27	No change
C	Augmentation of 1x1500 MVA 765/400 kV ICT (7th) at Kurnool-II PS	• 1x1500 MVA, 765/400 kV ICT • 765 kV ICT bay – 1 Nos. • 400 kV ICT bay – 1 Nos.	24 months	No change

3.2 Change in Implementation time-frame of Eastern Region Expansion Scheme-XXXIX (ERES-XXXIX)

3.2.1 In the 16th meeting of NCT held on 30.11.2023, the Eastern Region Expansion Scheme-XXXIX was recommended to be implemented through TBCB mode with tentative implementation timeframe of 30-06-2026. This scheme inter alia includes establishment of 765/400 kV ISTS substation at Gopalpur alongwith Angul

(POWERGRID) – Gopalpur 765 kV D/c line and Gopalpur (ISTS) – Gopalpur (OPTCL) 400 kV D/c line in Odisha. Bidding of the scheme is under progress.

3.2.2 In the 20th meeting of NCT held on 25.06.2024, change in implementation time-frame of ERES-XXXIX from 30-06-2026 to 31-12-2026 was approved. Further, CTUIL was directed to reconfirm commissioning schedule of Gopalpur S/s (OPTCL) from Odisha.

3.2.3 Representative of CTUIL stated that OPTCL vide letter dated 01.08.2024 had informed them that completion schedule of 400 kV OPTCL substation at Gopalpur is Dec'2027.

3.2.4 After deliberations, NCT approved the change in schedule of implementation time-frame of Eastern Region Expansion Scheme-XXXIX (ERES-XXXIX) from 31.12.2026 to 31.12.2027

3.3 Modification in the scope of works of the transmission scheme "Transmission Scheme for integration of Davanagere / Chitradurga REZ.

3.3.1 Representative of CTUIL stated that "Transmission Scheme for integration of Davanagere / Chitradurga REZ" was agreed in 18th meeting of NCT at an estimated cost of ₹ 2640 Cr. The scheme inter-alia includes the LILO of Narendra New – Madhugiri 765 kV D/c line at Davanagere / Chitradurga S/s. Under present scope, 765 kV, 2x240 MVAr (765 kV) Line reactors at Narendra New are proposed for Narendra New – Davanagere / Chitradurga 765 kV D/C line. Existing 765 kV Bus Reactors and Line Reactors at Narendra New are of single phase 110 MVAr rating, therefore, the existing spare 1-phase Shunt Reactor unit cannot be utilized for the switchable line reactor banks (240 MVAr).

3.3.2 CTUIL proposed to amend the scope of works incorporating a spare 80 MVAr, 765 kV reactor at Narendra New in the transmission scheme.

3.3.3 The revised cost of the said transmission scheme incorporating a spare 80 MVAr, 765 kV reactor is ₹ 2651.5 Cr and the percentage increase in the estimated cost is 0.44%.

3.3.4 After deliberations, NCT approved the modification in the scope of the "Transmission Scheme for integration of Davanagere / Chitradurga REZ" by addition of a spare 80 MVAr 765 kV reactor at Narendra New.

4 <u>New Transmission Schemes</u>:

4.1 Transmission System for supply of power to Green Hydrogen/Ammonia manufacturing potential in Kandla area of Gujarat (Phase-I: 3 GW)

4.1.1 Representative of CTUIL stated that MNRE has forwarded the Green Hydrogen/Ammonia manufacturing locations along with the associated electricity demand by 2030. It was informed that Green Hydrogen/Ammonia manufacturing is planned in the coastal states of Gujarat, Karnataka, Tamil Nadu, Andhra Pradesh, West Bengal and Odisha.

4.1.2 MNRE representative informed that earlier M/s NTPC and M/s Renew Power had plans to establish Green hydrogen/ammonia manufacturing facility in Kandla, however, as

per latest information they will not be setting up the Green hydrogen/ammonia manufacturing facility at Kandla, while M/s Ocior Energy is planning to set up the facility during 2027-28. Therefore, total electricity demand of Green Hydrogen and Green Ammonia plants/industries will be around 2,190 MW in 2027-28 at Kandla. Accordingly, the modified year wise electricity demand on account of Green Hydrogen and Green Ammonia production at Kandla is given below:

Location	Developer	Electricity Demand 2026-27 (MW)	Additional Electricity Demand in 2027-28 (MW)	Additional Electricity Demand in 2028-29 (MW)	Additional Electricity Demand in 2029-30 (MW)
Kandla	Greenko	0	1500	0	0
	Renew Power	0	0	0	0
	Welspun New Energy	500	0	0	4500
	Ocior Energy	0	190	0	1500
	NTPC	0	0	0	0
	Total	**500**	**1690**	**0**	**6000**

4.1.3 Representative of CTUIL stated that they have planned transmission System for Green Hydrogen / Green Ammonia production in Kandla area by establishing a 765/400 kV sub-station at Kandla and Halvad – Kandla 765 kV D/c line. Estimated cost of the scheme is ₹ 2,775 Cr with implementation timeframe of 24 months. However, implementation time frame needs to be deliberated considering that MNRE has given requirement in 2027-28 timeframe.

4.1.4 Regarding implementation timeframe, it was deliberated that considering requirement in 2027-28 time frame, implementation schedule of 36 months may be considered. CMD, Grid-India enquired whether the green hydrogen developers will apply for GNA. CTUIL confirmed that the developers will apply for GNA, however, no applications have been received so far and the transmission system is being developed considering the potential as informed by MNRE.

4.1.5 WRPC in its 49th meeting held on 03.05.2024 had recommended the proposal for implementation.

4.1.6 After deliberations, NCT recommended Transmission System for supply of power to Green Hydrogen/Ammonia manufacturing potential in Kandla area of Gujarat (Phase-I: 3 GW) as mentioned below:

4.1.6.1 Summary of the scheme is given below:

Sl. No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Cr)	Remarks
1.	Transmission System for supply of power to Green Hydrogen/Ammonia manufacturing potential in Kandla area of Gujarat (Phase-I: 3 GW) Tentative implementation timeframe: 36 Months	₹ 2775 Cr	Recommended under TBCB route with PFCCL as BPC

4.1.6.2 Detailed scope of the scheme is given below:

S. No.	Scope of the Transmission Scheme	Capacity/line length km
1.	Establishment of 3x1500 MVA, 765/400 kV Kandla (GIS) with 2x330 MVAR 765 kV bus reactor and 2x125 MVAR 420 kV bus reactor. **Future Provisions**: Space for • 765/400 kV ICT along with bays-3 Nos. (on Sec-II) • 765 kV line bays along with switchable line reactors – 2 Nos. (on Sec-I) & 4 Nos. (on Sec-II) • 765 kV Bus Reactor along with bay: 2 Nos. (on Sec-II) • 765 kV Sectionaliser: 1 -set • 400 kV line bays along with switchable line reactors– 12 Nos. (6 on Sec-I & 6 on Sec-II) • 400/220 kV ICT along with bays-6 Nos. (3 Nos. each on Sec-I & Sec-II) • 400 kV Bus Reactor along with bays: 2 Nos. (Sec-II) • 400 kV Sectionalization bay: 1-set • 220 kV line bays: 12 Nos. (6 nos. each on Sec-I & Sec-II) • 220 kV Sectionalization bay: 1set • 220 kV BC: 2 Nos. • 2 Nos. STATCOM (±400 MVAR) along with 2x125 MVAr MSC & 1x125 MVAr MSR and associated bays-2Nos. (1 on 400kV Sec-I and 1 on 400 kV Sec-II)	765/400 kV, 1500 MVA ICT-3 Nos. 765 kV ICT bays- 3 Nos. 400 kV ICT bays- 3 Nos. 330 MVAR 765 kV bus reactor-2 Nos. 125 MVAR 420 kV bus reactor-2 Nos. 765 kV reactor bay- 2 Nos. 765 kV line bay- 2 Nos. 400 kV reactor bay- 2 Nos. 500 MVA, 765/400 kV 1-Ph Spare ICT-1 110 MVAR, 765 kV, 1-ph reactor (spare unit for line/bus reactor)-1
2.	Halvad – Kandla(GIS) 765 kV D/c line	140 km (approx.)
3.	2 Nos. of 765 kV line bays at Halvad for termination of Halvad – Kandla 765 kV D/c line	765 kV line bays– 2 Nos. (for Halvad end)
4.	240 MVAr switchable line reactors on each ckt at Kandla (GIS) end of Halvad – Kandla 765 kV D/c line (with NGR bypass arrangement)	• 240 MVAr, 765 kV switchable line reactor- 2 Nos. • Switching equipment for 765 kV line reactor- 2 Nos. • 80 MVAR, 765 kV, 1-ph reactor (spare unit for line/bus reactor)-1 Nos.
5.	± 400 MVAr STATCOM along with 2x125 MVAr MSC & 1x125 MVAr MSR at Kandla(GIS) 400 kV Bus section-I	• ±400 MVAr STATCOM along with 2x125 MVAr MSC & 1x125 MVAr MSR • 400 kV bay – 1 Nos.
	Note: *As per initial discussions with Deen Dayal Port Authority w.r.t. land allocation done to various Green Hydrogen/Ammonia developers in Kandla area, Kandla S/s is proposed to be located near Bhimasar area and line length of Kandla-Halvad line has been considered accordingly. However, exact location of the substation would be finalized by*	

S. No.	Scope of the Transmission Scheme	Capacity/line length km
	the BPC/Survey Agency in consultation with Deen Dayal Port Authority and other stakeholders *Further, TSP of Halvad S/s shall provide space for scope at Sl. No. 3 above.*	

4.2 Transmission System for supply of power to Green Hydrogen/Green Ammonia manufacturing potential in Mundra area of Gujarat under Phase-I

4.2.1 Representative of CTUIL stated that MNRE has forwarded the Green Hydrogen/Ammonia manufacturing locations along with the associated electricity demand by 2030. Green Hydrogen/Ammonia manufacturing is planned in the coastal states of Gujarat, Karnataka, Tamil Nadu, Andhra Pradesh, West Bengal and Odisha.

4.2.2 MNRE representative informed that the modified year wise electricity demand on account of Green Hydrogen and Green Ammonia production in Mundra area by 2029-30 is as follows

Location	Developer	Electricity Demand 2026-27 (MW)	Additional Electricity Demand in 2027-28 (MW)	Additional Electricity Demand in 2028-29 (MW)	Additional Electricity Demand in 2029-30 (MW)
Mundra	Adani New Industries Ltd	2000	6000	8000	6000

4.2.3 Representative of CTUIL further stated that transmission system for supply of power for Green Hydrogen/Green Ammonia production in Mundra has been planned in Phases. In first Phase, it is proposed to take up for approval the transmission System for Green Hydrogen / Green Ammonia production expected by 2027-28. Tentative System for Green Hydrogen / Green Ammonia production expected by 2028-29 has also been planned, which shall be reviewed later based on visibility of Green Hydrogen / Green Ammonia production in the above areas.

4.2.4 In view of the above, this scheme was proposed under two parts:

A. Transmission system for supply of power to Green Hydrogen/Ammonia manufacturing potential in in Mundra area of Gujarat under Phase-I: Part B1 scheme (6 GW at Navinal S/s) mainly consists of augmentation of transformation capacity at Navinal 765/400 kV sub-station (GIS), Navinal (Mundra) (GIS) – Bhuj 765 kV D/c line of 70 km and Navinal (Mundra) (GIS) – Bhuj-II 765 kV D/c line of 80 km.

B. Transmission System for supply of power to Green Hydrogen/Ammonia manufacturing potential in Mundra area of Gujarat under Phase-I: Part B2 scheme (3.5 GW at Navinal-II S/s). It consists of establishment of 765/400 kV Navinal-II (Mundra) S/s (GIS), LILO of KPS3 (GIS) – Lakadia 765 kV D/c line of 70 km at Navinal-II (Mundra) (GIS) S/s

4.2.5 CMD, Grid-India stated that feeding load of more than 10 GW from a single substation (Navinal) may be reviewed from resiliency point of view. The complete outage of the station during natural disasters (cyclones etc.) would lead to a large disturbance. Therefore, in place of feeding large quantum of load from a single station (with bus sections), separate pooling stations may be planned to enhance the resiliency.

4.2.6 Director (SO), Grid-India stated that the line length of 02 Nos. 765 kV D/C lines from Bhuj-II to Navinal i.e. one direct D/C from Bhuj-II and one after LILO of 765 kV Bhuj-II – Lakadia D/C at Navinal is different (80 kms and 120 kms). This difference in line length and hence difference in impedance would result in uneven loading in these lines and the shorter line would reach the permissible loading limit before the other line, leading to suboptimal utilization of the corridor.

4.2.7 He also stated that voltage stability related issues at Navinal station may be studied in detail considering both - the potential reactive power drawl by electrolyzer load and large load throw off scenarios. He further stated that the requirement of providing static reactive power compensation in the form of MSCs and MSRs along with dynamic compensation (VSC) may be reviewed as large variation in voltage may lead to frequent operation of these static devices.

4.2.8 CMD, Grid-India suggested that planning 400 kV lines from RE stations in Khavda complex to load centers like Navinal and Kandla may help in avoiding step up/down 765/400 kV ICTs at Khavda and Navinal/Kandla respectively.

4.2.9 After deliberations, it was decided that the scheme may again be examined jointly by CEA, CTUIL and Grid India. Thereafter, the scheme may be brought in next NCT meeting for decision.

4.3 Augmentation of transformation capacity at Banaskantha (Raghanesda) PS (GIS)

4.3.1 Representative of CTUIL stated that Banaskantha (Raghanesda) PS (GIS) is an existing substation of POWERGRID with 2x500 MVA, 400/220 kV ICTs and the same was planned to cater to 700 MW GPCL's Radhanesda Solar Park. Additional 250 MW from M/s Sprng Power Earth Pvt Ltd. was also accommodated in the existing Banaskantha (Raghanesda) PS (GIS) S/s.

4.3.2 To cater to applications received beyond 950 MW at Banaskantha (Raghanesda) PS (GIS) [Applications received for additional 300 MW] and to meet N-1 reliability criteria, installation of additional 2x500 MVA, 400/220 kV ICTs (3rd & 4th) is required. The Radhanesda – Banaskantha 400 kV D/c line (Twin AL-59) (existing) is sufficient to evacuate this 1,250 MW evacuation requirement from Banaskantha (Raghanesda) PS (GIS) S/s. The estimated cost of the scheme is ₹172 Cr with implementation timeframe of Dec'2026.

4.3.3 After deliberations, NCT approved the scheme "Augmentation of transformation capacity at Banaskantha (Raghanesda) PS (GIS)".

4.3.3.1 Summary of the scheme is given below:

Sl. No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Crore)	Remarks
1.	Augmentation of transformation capacity at Banaskantha (Raghanesda) PS (GIS) Implementation timeframe: 24 Months	₹ 172 Cr	Approved under TBCB route with RECPDCL as BPC

4.3.3.2 Detailed scope of the scheme is given below:

Sl. No.	Scope of the Transmission Scheme	Capacity /km
1.	Augmentation of transformation capacity at Banaskantha (Raghanesda) PS (GIS) by 2x500 MVA, 400/220 kV ICTs (3rd & 4th)	500 MVA, 400/220 kV ICTs: 2 Nos. 400 kV ICT bays: 2 Nos. (+ 2 Nos. for dia completion with provision of Switchable LR) 220 kV ICT bays: 2 Nos.

4.4 Augmentation of transformation capacity at KPS1 (GIS) Part-B1 and KPS2 (GIS) Part-B2 (Phase-V) scheme

4.4.1 Representative of CTUIL stated that

a) KPS1 S/s with 3x1500 MVA ICTs on Section-I is already commissioned by M/s Adani. 1x1500 MVA addl. ICT at Section-I is also being implemented by M/s Adani (under RTM) under Khavda Ph-IV Part-E1 scheme. Further, Section-II of KPS1 is being established by M/s Megha Engineering & Infrastructures Limited with SCOD of Jan-25 with 4x1500 MVA ICTs.

To cater to the applications received for 810 MW at KPS1 (Section-II) from M/s Adani Green Energy Ltd., ICT Augmentation is required at KPS1 (Section-II) in order to maintain N-1 compliance. The subject ICT would facilitate immediate injection of power at KPS1 (Section-II). However, onwards evacuation would be based on available margins only.

b) KPS2 S/s with 4x1500 MVA ICTs (2x1500 MVA on Section-I & 2x1500 MVA on Section-II) is under implementation by M/s POWERGRID. 4x1500 MVA (2x1500 MVA on Section-I & 2x1500 MVA on Section-II) addl. ICTs are also being implemented by POWERGRID (under TBCB) under Khavda Ph-IV Part-E2 scheme.

To cater to the applications received for 659 MW, ICT Augmentation at KPS2 (Section-I) is required in order to maintain N-1 compliance.

4.4.2 It was further mentioned that in the meeting held under Chairmanship of Joint Secretary, MNRE on 21.05.2024, GIPCL had informed that their generation is expected to be ready in 2025-26 time-frame (for 500 MW, PPA has been signed with GUVNL with SCOD of Apr'25 and for 1200 MW, tendering is complete and adoption of tariff is awaited from GERC). Hence, the subject ICT on Section-I would facilitate immediate injection of power at KPS2. However, evacuation would be based on available margins only.

4.4.3 Director (SO), Grid-India stated that pooling of ~10 GW of RE power at a single station may be reviewed from resiliency point of view. The complete outage of any of these large RE pooling stations during natural disasters (cyclones) may severely impact the RE generation evacuation. Therefore, in place of pooling large quantum RE generation at a single station (with bus sections), separate pooling stations may be planned to enhance the resiliency.

4.4.4 On the issue of elements of multiple transmission licenses in a single switchyard under TBCB regime, CMD, Grid-India emphasized on the requirement of a comprehensive connection agreement between such transmission licensees. The connection agreement shall cover the responsibilities of each licensee during the construction and subsequent operations and maintenance phase for better coordination and reliable operation.

4.4.5 After deliberations, NCT approved the scheme of augmentation of transformation capacity at KPS1 (GIS) (Phase-V Part B1 scheme) and KPS2 (GIS) (Phase-V Part B2 scheme) under TBCB with implementation time frame of 24 months and estimated cost of ₹466 Cr.

4.4.5.1 Summary of the scheme is given below:

SI No.	**Name of the scheme and tentative implementation timeframe**	**Estimated Cost (₹Cr)**	**Remarks**
1.	Augmentation of transformation capacity at KPS1 (GIS) and KPS2 (GIS) (Phase-V Part B1 and Part B2 scheme) Tentative implementation timeframe**:** 24 months from date of allocation to implementing agency	₹ 466 Cr	Approved Under TBCB route with RECPDCL as BPC

4.4.5.2 Detailed scope of the scheme is given below:

S. No.	**Scope of the Transmission Scheme**	**Capacity /km**
1.	Augmentation of transformation capacity at KPS1(GIS) by 1x1500 MVA, 765/400 kV ICT on Bus section-II (9th)	• 1500 MVA, 765/400 kV ICT – 1 Nos. • 765kV ICT bay – 1 Nos. on Bus section-II* • 400 kV ICT bay – 1 Nos. (+1 Nos. (with Sw. LR bay provision) for Dia. Completion in GIS) on Bus section-II

S. No.	Scope of the Transmission Scheme	Capacity /km
2.	Augmentation of transformation capacity at KPS2(GIS) by 1x1500 MVA, 765/400 kV ICT on Bus section-I (9th)	• 1500 MVA, 765/400 kV ICT – 1 Nos. • 765 kV ICT bay – 1 Nos. (+1 Nos. (with Sw. LR bay provision) for Dia. Completion in GIS) on Bus section-I • 400 kV ICT bay – 1 Nos. (+1 Nos. (with Sw. LR bay provision) for Dia. Completion in GIS) on Bus section-I

****** As per TSP (Adani) mail dated 14.06.2024, Half dia has been considered for 765kV ICT bay due to space constraint.*

4.5 Transmission system for evacuation of power from Rajasthan REZ Ph-V (Part-1: 4 GW) [Sirohi/Nagaur] Complex

4.5.1 Representative of CTUIL stated that large no. of applications from new RE generators have been received for connectivity at Sirohi and Nagaur/Merta complexes. Therefore, a transmission system for evacuation of power from Rajasthan REZ Ph-V (Part-1 :4 GW) [Sirohi/Nagaur] Complex, is evolved. It was discussed that Merta S/s is under bidding as part of "Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B" scheme which was recommended to be implemented through TBCB route with RECPDCL as BPC in 19th NCT meeting held on 29.04.2024. MoP vide Gazette ID no. CG-DL-E-14062024-254705 dated 14.06.24 notified the above transmission scheme. It was decided that transmission system for immediate evacuation of power from Merta-II PS as part of transmission system for evacuation of power from Rajasthan REZ Ph-V (Part-1 :4 GW) [Sirohi/Nagaur] Complex [approx Rs 197 Cr] shall be included in the scope of Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B. Therefore, following scope may be incorporated in the mentioned scheme i.e. Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B

- 3x500 MVA, 400/220 kV ICTs at Merta-II S/s along with associated transformer bays
- 4 Nos. 220 kV line bays at Merta-II S/s for RE interconnection
- 220 kV Sectionalizer bay (1 set) along with 220 kV BC (1 No.) bay and 220 kV TBC (1 No.) bay at Merta-II S/s

4.5.2 The revised scope of above scheme (Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B) will be as mentioned below:

S.No.	Earlier Scope of Transmission Scheme	Revised Scope of Transmission Scheme
1	Establishment of 765/400 kV, 2x1500 MVA S/s at suitable location near Merta (Merta-II Substation) along with 2x240 MVAr (765 kV) & 2x125 MVAr (420 kV) bus reactor at Merta-II S/s **Merta-II S/s -AIS**	Establishment of 765/400 kV, 2x1500 MVA S/s at suitable location near Merta (Merta-II Substation) along with 2x240 MVAr (765 kV) & 2x125 MVAr (420 kV) bus reactor at Merta-II S/s **Merta-II S/s –AIS**

	• 765/400 kV 1500 MVA ICTs- 2 Nos. (7x500 MVA including one spare unit) • 400/220 kV 500 MVA ICTs -2 Nos. • 765 kV ICT bays-2 Nos. • 400 kV ICT bays- 4 Nos. • 220 kV ICT bays- 2 Nos. • 765kV line bays: 4 Nos. (for 765kV interconnection with Dausa S/s & Barmer-I PS) • 400 kV line bays: 2 Nos. (for 400 kV interconnection with Beawar S/s) • 240 MVAr Bus Reactor-2 Nos. (7x80 MVAr, including one spare unit) • 765 kV Bus reactor bays-2 Nos. • 125 MVAr Bus Reactor-2 Nos. • 400 kV Bus reactor bays- 2 Nos. • 220 kV line bays: 3 Nos. (for RE connectivity) • 220 kV BC (1 No.) bay and 220 kV TBC (1 Nos.) bay • 110 MVAr spare reactor unit (single phase)-1 Nos. **Future provisions at Merta-II S/s:** **Space for** • 765/400 kV ICTs along with bays- 4 Nos. • 765 kV line bays along with switchable line reactors – 8 Nos. • 765 kV Bus Reactor along with bay: 1 Nos. • 400 kV line bays along with switchable line reactor –8 Nos. • 400 kV line bays – 2 Nos. • 400 kV Bus Reactor along with bays: 1 Nos. • 400 kV Sectionalizer bay: 2 sets • 400/220 kV ICTs along with bays -4 Nos. • 220 kV line bays for RE injection -5 Nos. • 220 kV Sectionalizer bay: 2 set • 220 kV BC (2 Nos.) bays and 220 kV TBC (2 Nos.) bays • STATCOM (2x±300 MVAr, 4x125 MVAr MSC, 2x125 MVAr MSR) along with 400 kV bays (2 Nos.)	• 765/400 kV 1500 MVA ICTs- 2 Nos. (7x500 MVA including one spare unit) • 400/220 kV 500 MVA ICTs **-5 Nos**. • 765 kV ICT bays-2 Nos. • 400 kV ICT bays- **7 Nos.** • 220 kV ICT bays- **5 Nos.** • 765 kV line bays: 4 Nos. (for 765 kV interconnection with Dausa S/s & Barmer-I PS) • 400 kV line bays: 2 Nos. (for 400 kV interconnection with Beawar S/s) • 240 MVAr Bus Reactor-2 Nos. (7x80 MVAr, including one spare unit) • 765 kV Bus reactor bays-2 Nos. • 125 MVAr Bus Reactor-2 Nos. • 400 kV Bus reactor bays- 2 Nos. • 220 kV line bays: **7 Nos. (for RE connectivity)** • 220 kV BC **(2 No.)** bay and 220 kV TBC **(2 Nos**.) bay • 110 MVAr spare reactor unit (single phase)-1 Nos. • **220 kV sectionalizer bay (1 set)** **Future provisions at Merta-II S/s:** **Space for** • 765/400 kV ICTs along with bays- 4 Nos. • 765 kV line bays along with switchable line reactors – 8 Nos. • 765 kV Bus Reactor along with bay: 1 Nos. • 400 kV line bays along with switchable line reactor –8 Nos. • 400 kV line bays – 2 Nos. • 400 kV Bus Reactor along with bays: 1 Nos. • 400 kV Sectionalizer bay: 2 sets • 400/220 kV ICTs along with bays **-1 No.** • 220 kV line bays for RE injection **-1 No.** • 220 kV Sectionalizer bay**: 1 set** • 220 kV BC (**1 No**.) bays and 220 kV TBC (**1 No**.) bays • STATCOM (2x±300 MVAr, 4x125 MVAr MSC, 2x125 MVAr MSR) along with 400 kV bays (2 Nos.)

2	Barmer-I PS – Merta-II 765 kV D/c line along with 330 MVAr switchable line reactor for each circuit at each end of Barmer-I PS – Merta-II 765 kV D/c line	**No Change**
3	Merta-II – Beawar 400 kV D/c line (Quad)	
4	Merta-II – Dausa 765 kV D/c line along with 240 MVAr switchable line reactor for each circuit at each end of Merta-II – Dausa 765 kV D/c line line	
5	2 Nos. 765 kV line bays each at Barmer-I PS & Dausa S/s	
6.	2 Nos. 400 kV line bays at Beawar S/s	

4.5.3 Further, for Sirohi and Nagaur complexes, scheme for Transmission system for evacuation of power from Rajasthan REZ Ph-V (Part-1: 4 GW) [Sirohi/Nagaur] Complex was recommended by NCT under TBCB with above mentioned changes in the scheme.

4.5.3.1 Summary of the scheme is given below:

SI No.	**Name of the scheme and tentative implementation timeframe**	**Estimated Cost (₹ Crore)**	**Remarks**
1.	Transmission system for evacuation of power from Rajasthan REZ Ph-V (Part-1: 4 GW) [Sirohi/Nagaur] Complex Implementation timeframe: 24 months from allocation of project	₹5027.61 Cr (NR Portion : ₹2897.4.4 Cr WR Portion : ₹2130.21 Cr)	Recommended under TBCB route with RECPDCL as BPC

4.5.3.2 Detailed scope of the scheme is given below:

Sl. No.	**Description of Transmission Element**	**Scope of work (Type of Substation/Conductor capacity/km/no. of bays etc.)**
1. Transmission system for immediate Evacuation of Power from Sirohi S/s (2 GW)		
1	5x500 MVA, 400/220 kV ICTs at Sirohi S/s along with transformer bays	• 400/220 kV 500 MVA ICTs- 5 Nos. • 400 kV ICT bays-5 Nos. • 220 kV ICT bays- 5 Nos.
2	6 Nos. 220 kV line bays at Sirohi S/s for RE interconnection	• 220 kV line bays – 6 Nos.

3	220 kV Sectionalizer bay (1 set) along with 220 kV BC (2 Nos.) bay and 220 kV TBC (2 Nos.) bay at Sirohi S/s	• 220 kV Sectionalizer bay (1 set) • 220 kV BC (2 Nos.) bay and 220 kV TBC (2 Nos.) bay
2.	**Transmission system for Common Evacuation of Power from Sirohi PS (2 GW) & Merta-II PS (2 GW)**	
4	Sirohi – Mandsaur PS 765 kV D/c line along with 240 MVAr switchable line reactor at Sirohi end and 330 MVAr switchable line reactor at Mandsaur PS end for each circuit of Sirohi – Mandsaur PS 765KV D/c line	Line Length -320 km (approx.) • 765 kV line bays at Sirohi S/s – 2 Nos. • 765 kV line bays at Mandsaur PS – 2 Nos. • 765 kV, 240 MVAr switchable line reactors at Sirohi S/s end– 2 Nos. • 765 kV, 330 MVAr switchable line reactors at Mandsaur PS end– 2 Nos. • Switching equipment for 765kV, 240 MVAr switchable line reactors at Sirohi S/s end – 2 Nos. • Switching equipment for 765kV, 330 MVAr switchable line reactors at Mandsaur PS end – 2 Nos.
5	Mandsaur PS – Khandwa (New) 765 kV D/c line along with 240 MVAr switchable line reactor for each circuit at each end of Mandsaur PS – Khandwa (New) 765kV D/c line	Line Length ~260 km (Approx) • 765 kV line bays at Mandsaur PS – 2 Nos. • 765 kV line bays at Khandwa (New) – 2 Nos. • 765 kV, 240 MVAr switchable line reactors at Mandsaur PS end– 2 Nos. • 765 kV, 240 MVAr switchable line reactors at Khandwa (New) end– 2 Nos. • Switching equipment for 765kV, 240 MVAr switchable line reactors at Mandsaur PS end – 2 Nos. • Switching equipment for 765kV, 240 MVAr switchable line reactors at Khandwa (New) end – 2 Nos.

- *Developer of Sirohi S/s shall provide space for 2 Nos. of 765 kV line bays, 400/220 kV ICTs, 220 kV line bays. 220 kV Sectionalizer bay along with 220 kV BC bay and 220 kV TBC bay, switchable line reactors (along with switching equipment) at Sirohi S/s as per the scope*
- *Developer of Mandsaur PS shall provide space for 4 Nos. of 765 kV line bays, switchable line reactors (along with switching equipment) at Mandsaur PS*
- *M/s Sterlite shall provide space for 2 Nos. of 765 kV line bays switchable line reactor (along with switching equipment) at Khandwa S/s*
- *The line lengths mentioned above are approximate as the exact length shall be obtained after the detailed survey*

4.6 Augmentation with 400/220 kV 3x500 MVA (6th to 8th) ICTs at Fatehgarh-IV PS (Section-II) & 400/220 kV 2x500 MVA (3rd & 4th) ICTs at Barmer-I PS

4.6.1 Representative of CTUIL stated that at present, total connectivity granted/agreed at Fatehgarh-IV PS (Section-II) is 4,980 MW. Out of this, 3480 MW is granted at 220 kV and 1500 MW is granted at 400 kV level. Establishment of Fatehgarh-IV PS (Section-II) and associated transmission system is currently under bidding as part of "Transmission System for evacuation of power from Rajasthan REZ Ph-IV (Part-2: 5.5

GW) (Jaisalmer/ Barmer Complex)" expected to be awarded in Aug'24 (with 24 months schedule).

4.6.2 Considering the connectivity of 3480 MW granted at 220 kV level of Fatehgarh-IV PS(Section-II), augmentation with 3x500 MVA ICTs are required matching with the scheme (Rajasthan REZ Ph-IV (Part2: 5.5 GW)) for evacuation of power as well as to meet N-1 compliance.

4.6.3 CTUIL representative further mentioned that, at present, total connectivity granted/agreed at Barmer-I PS is 3950 MW at 220 kV level. Out of this 3950 MW, about 1550 MW connectivity is granted/agreed with Transmission System for evacuation of power from Rajasthan REZ Ph-IV (Part-2: 5.5 GW) (Jaisalmer/ Barmer Complex) scheme. Therefore, considering the connectivity of 1,550 MW granted at 220 kV level of Barmer-I PS with Ph-IV Part-2 scheme, augmentation by 2x500 MVA ICTs (3rd & 4th) is required matching with the scheme (Rajasthan REZ Ph-IV (Part2: 5.5 GW)) for reliable evacuation of power.

4.6.4 After deliberations, NCT approved the scheme of Augmentation with 400/220 kV 3x500 MVA (6th to 8th) ICTs at Fatehgarh-IV PS(Section-II) & 400/220 kV 2x500 MVA (3rd & 4th) ICTs at Barmer-I PS under TBCB route with estimated cost of Rs 279.65 Cr. along with the transmission scheme mentioned at Agenda 4.7 below.

4.7 Augmentation with 765/400 kV, 1x1500 MVA Transformer (7th) at Fatehgarh-II PS

4.7.1 Representative from CTUIL stated that scheme of Augmentation with 765/400 kV, 1x1500 MVA, Transformer (7th) at Fatehgarh-II PS was taken up for approval in 14th NCT held on 09.06.23 as part of Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-2 :5.5 GW) (Jaisalmer/Barmer Complex): Part G scheme at an estimated cost of ₹132 Cr. The scheme was agreed to be deferred and it was decided in the meeting that the scheme would be taken up for implementation in the matching timeframe of Fatehgarh-II PS- Bhadla-III PS 400 kV D/c line, once the transmission line is approved by the Great Indian Bustard (GIB) Committee constituted by the Hon'ble Supreme Court.

4.7.2 Representative from CTUIL further stated that at present, RE Connectivity of 5310 MW (4460 MW at 220 kV and 850 MW at 400 kV) under GNA is granted/agreed at Fatehgarh-II PS. Fatehgarh-II PS also gets feed from Fatehgarh-III PS (Section-1) (1980 MW) and Fatehgarh-I PS (2200 MW) at 400 kV level. As ratification of 400 kV Fatehgarh-II PS- Bhadla-III PS 400 kV D/c line is not provided by the erstwhile GIB Committee, 765/400 kV ICTs (6x1500 MVA) at Fatehgarh-II PS is becoming N-1 non-compliant considering above quantum of injection. Estimated cost of the scheme is 124.18 Cr.

4.7.3 After deliberations, NCT approved the transmission scheme of Augmentation with 765/400 kV, 1x1500 MVA, Transformer (7th) at Fatehgarh-II PS. It was decided in the meeting to combine the schemes mentioned at Agenda 4.6 above with this scheme.

4.7.3.1 Summary of the scheme (combined) is given below:

SI No.	Name of the scheme and tentative implementation timeframe	Estimated Cost(in ₹Cr)	Remarks
1.	Augmentation at Fatehgarh-II PS, Fatehgarh-IV PS(Section-II) and Barmer-I PS	₹ 403.83 Cr	Approved under TBCB route with PFCCL as BPC

4.7.3.2 Detailed scope of the scheme (combined) is given below:

Sl. No.	Scope of the Transmission Scheme	Item Description	Implementation Timeframe.
1.	Augmentation with 765/400 kV, 1x1500 MVA Transformer (7th) at Fatehgarh-II PS along with associated transformer bays	• 1500 MVA, 765/400 kV ICT - 1 Nos. • 765 kV ICT bay – 1 Nos. • 400 kV ICT bay – 1 Nos.	21 Months from SPV transfer
2.	Augmentation with 400/220 kV, 3x500 MVA (6th ,7th & 8th) ICTs at Fatehgarh-IV PS(Section-II) along with associated transformer bays	• 500 MVA, 400/220 kV ICT - 3 nos. • 400 kV ICT bays – 3 Nos. • 220 kV ICT bay – 3 Nos.	Matching with Rajasthan REZ Ph-IV (Part-2:5.5 GW) Scheme. Rajasthan REZ Ph-IV (Part-2:5.5 GW) Scheme expected SPV transfer: Aug'24 with 24 months schedule
3.	Augmentation with 400/220 kV, 2x500 MVA (3rd & 4th) ICTs at Barmer-I PS along with associated transformer bays	• 500 MVA, 400/220 kV ICT - 2 Nos. • 400 kV ICT bays – 2 Nos. • 220 kV ICT bay – 2 Nos.	

4.8 Augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling Station in Karnataka and Implementation of 1 nos. of 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for providing Connectivity to RE generation project

4.8.1 Representative of CTUIL stated that presently, Tumkur (Pavagada) PS is being operated with 6x500 MVA, 400/220 kV ICTs. Further, additional 2x500 MVA, 400/220 kV ICTs (7th & 8th) are under implementation and is expected by Aug'25. So far, Connectivity of 3350 MW has been granted at Tumkur (Pavagada) PS.

4.8.2 Representative of CTUIL further mentioned that, connectivity of 200 MW has been agreed to be granted to M/s TEQ Green Power XVIII Pvt. Ltd. at 220 kV level with requirement of 1 Nos. of 220 kV bay. The above applicant has requested for implementation of 220 kV bay at Tumkur (Pavagada) PS under ISTS with start date as 30.06.2026.

4.8.3 Further, CTUIL representative mentioned that, M/s KSPDCL has submitted application for enhancement of connectivity for 300 MW at Tumkur (Pavagada) PS (from under operation 2050 MW solar project to 2350 MW) as Renewable Power Park Developer.

4.8.4 It is to be mentioned that KSPDCL has facilitated acquisition of additional land to existing owner, therefore, land is available for expansion of the pooling station for optimal utilization of the transmission system and augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling stations.

4.8.5 CTUIL further informed that POWERGRID vide email dated 10.07.2024 has communicated that due to non-availability of spare 400 kV bay /space adjacent to 7th ICT bay, 8th ICT has been envisaged to be placed in other side of 400 kV diameter and ICT interconnection with 220 kV bay has been proposed using 220 kV EHV cable. Subsequent to acquisition of additional land for 9th & 10th ICTs, adjacent to 7th ICT at Tumkur (Pavagada) PS, the 8th ICT can also be accommodated. With this arrangement of 8th ICT, requirement of 245 kV EHV cable for interconnection with 220 kV bay can be avoided. It was also informed that 8th ICT is required for meeting N-1 contingency criteria and was approved in 17th NCT meeting held on 31.01.2024 alongwith 7th ICT. The 7th & 8th ICTs were allocated to POWERGRID vide CEA/CTUIL letter dated 16.02.2024. Accordingly, it was proposed that implementation schedule of 8th ICT may be modified and kept alongwith the timeframe of 9th & 10th ICTs at Tumkur (Pavagada).

4.8.6 After deliberations, NCT approved the modification in the implementation schedule of 8th ICT and the transmission scheme for "Augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling Station in Karnataka and Implementation of 1 Nos. of 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for providing connectivity to RE generation project" under RTM mode.

4.8.6.1 Summary of the scheme is given below:

SI No.	**Name of the scheme and tentative implementation timeframe**	**Estimated Cost(in ₹ Cr)**	**Remarks**
1.	Augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV PS in Karnataka and Implementation of 1 Nos. of 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for providing Connectivity to RE generation project Tentative implementation timeframe : 21 Months	₹ 118 Cr	Approved under RTM Mode through POWERGRID

4.8.6.2 Detailed scope of the scheme is given below:

Package	**Scope of the Transmission Scheme**	**Capacity /km**	**Schedule**
A	Augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling Station	• 2x500 MVA, 400/220 kV ICTs • 400 kV ICT bay – 2 Nos. • 220 kV ICT bay – 2 Nos.	21 months

Package	Scope of the Transmission Scheme	Capacity /km	Schedule
	Additional land of about 100 m (width) x 540 m (length) on right side of the Tumkur (Pavagada) PS for expansion of Tumkur (Pavagada) PS with 2 Nos. of additional 500 MVA ICTs & 220 kV line bays	The total land of about 13 Acres 22 Guntas is required for the proposed expansion; land rate has been fixed by the Deputy Commissioner at ₹2.62 Cr. (₹ 19.35 L per acre) as communicated by KSPDCL vide letter dated 31.05.2024	
B	Implementation of 1 Nos. of 220 kV line bay at Tumkur(Pavagada) 400/220 kV PS for providing Connectivity to RE generation project	1 Nos. 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for termination of dedicated line of M/s TEQ Green Power XVIII Pvt. Ltd.	21 months
C	Modification in the implementation schedule of 8th ICT, approved in 17th NCT meeting held on 31.01.2024 alongwith 7th ICT at Tumkur (Pavagada) and allocated to POWERGRID vide CEA/CTUIL letter dated 16.02.2024. • The 8th ICT for N-1 contingency criteria may be implemented in the same timeframe of 9th & 10th ICTs at Tumkur (Pavagada).		21 Months

4.9 North-Eastern Region Expansion Scheme-XXV (NERES-XXV)

4.9.1 Representative of CTUIL stated that Bongaigaon S/s is gateway to NER grid as all synchronous interconnections to NER originate from this substation. In the 2nd meeting of NERPC-TP held on 25-09-2020, it was recorded that "NERLDC expressed that another 400 kV entry point of Bornagar in North Eastern states will be crucial and helpful in system operation as NER has only one AC entry point as Bongaigoan S/s which is flood affected area. This may lead to crucial situation in case of outage of Bongaigaon S/s."

4.9.2 CTU submitted that NERLDC mentioned that Bornagar 400 kV S/s is essential so as to create an alternative path for ER-NER interconnection. The substation is essential for reliable power supply in NER, as all existing ER-NER AC interconnections are only through Bongaigaon S/s and any mishap at the substation could jeopardise power supply situation in NER.

4.9.3 Considering the importance of additional feed to the NER grid through inter-regional lines, in case of contingencies/eventualities for reliable power supply in NER 400 kV Bornagar S/s (with provisions to establish 765 kV and 220 kV levels in future) was proposed to be set up with LILO of Bongaigaon – Balipara 400 kV D/c (Quad) line and establishment of Alipurduar – Bornagar 400 kV D/c (Quad) line by shifting of the existing Alipurduar – Bongaigaon 400 kV D/c (Quad) line from Bongaigoan S/s to Bornagar S/s.

4.9.4 It was observed that the scheme inter alia involves conversion of existing 420 kV, 1x63 MVAr fixed line reactor at Bongaigaon (POWERGRID) S/s in each circuit of Bongaigaon (POWERGRID) – Borngar (ISTS) 400 kV D/c line [formed after LILO of

both circuits of existing Bongaigaon (POWERGRID) – Balipara (POWERGRID) 400 kV D/c (Quad) line at Bornagar (ISTS)] to Switchable Line Reactor along with implementation of NGR bypass arrangement. This work is of the nature of technical upgradation and keeping in view coordination issues during implementation, the subject work could be taken up through RTM mode.

4.9.5 After deliberations, NCT recommended that the subject scheme may be bifurcated into two schemes viz. North-Eastern Region Expansion Scheme-XXV Part-A (NERES-XXV Part-A) and North-Eastern Region Expansion Scheme-XXV Part-B (NERES-XXV Part-B), to be taken up under TBCB mode and RTM mode respectively.

4.9.5.1 Summary of the scheme is given below:

SI No.	**Name of the scheme and tentative implementation timeframe**	**Estimated Cost(in₹Cr)**	**Remarks**
1.	North-Eastern Region Expansion Scheme-XXV Part-A (NERES-XXV Part-A) Tentative implementation timeframe: 36 Months	₹ 825.06 Cr	Recommended under TBCB mode with PFCCL as BPC
2.	North-Eastern Region Expansion Scheme-XXV Part-B (NERES-XXV Part-B) Tentative implementation timeframe: 36 Months [matching with North-Eastern Region Expansion Scheme-XXV Part-A (NERES-XXV Part-A)]	₹ 8.18 Cr	Approved under RTM mode through POWERGRID

4.9.5.2 Detailed scope of the scheme is given below:

A. North-Eastern Region Expansion Scheme-XXV Part-A (NERES-XXV Part-A)

Sl. No.	**Scope of the Transmission Scheme**	**Capacity (MVA) / Line length (km) / Nos.**	**Estimated Cost (₹ Cr.)**
(a)	Establishment of new 400 kV Bornagar (ISTS) switching station in Assam (765 kV and 220 kV levels to be established in future) **Additional space for future expansion:** • 6x1500 MVA, 765/400 kV ICTs (19x500 MVA single phase including one spare unit) along with associated ICT bays at both voltage levels • 5x500 MVA, 400/220 kV ICTs along with associated	• 420 kV, 1x125 MVAr Bus Reactor: 2 Nos. • 400 kV bus reactor bays: 2 Nos. • 400 kV line bays: i) 2 Nos. each with provision for installation of 1x80 MVAr switchable line reactor [for termination of Alipurduar (POWERGRID) – Bornagar (ISTS) 400 kV D/c (Quad) line formed after shifting of Alipurduar (POWERGRID) – Bongaigaon (POWERGRID) 400 kV D/c (Quad) line from Bongaigaon	₹ 156.78 Cr

Sl. No.	Scope of the Transmission Scheme	Capacity (MVA) / Line length (km) / Nos.	Estimated Cost (₹ Cr.)
	ICT bays at both voltage levels • 765 kV line bays (along with space for switchable line reactor) for future lines: 8 nos. • 400 kV line bays (along with space for switchable line reactor) for future lines: 8 Nos. • 220 kV line bays: 10 nos. • 4x330 MVAr, 765 kV Bus Reactors (13x110 MVAr single phase including one spare unit) along with associated bays • 3x125 MVAr, 420 kV Bus Reactors along with associated bays • 765 kV Bus Sectionaliser: 1 set • 400 kV Bus Sectionaliser: 1 set • 220 kV Bus Sectionaliser: 1 set • 220 kV Bus Coupler bays: 2 Nos. • 220 kV Transfer Bus Coupler bays: 2 Nos.	(POWERGRID) end to Bornagar (ISTS) S/s] ii) 2 Nos. [for termination of Bongaigaon (POWERGRID) – Bornagar (ISTS) 400 kV D/c (Quad) line formed after LILO of both circuits of existing Bongaigaon (POWERGRID) – Balipara (POWERGRID) 400 kV D/c (Quad) line at Bornagar (ISTS)] iii) 2 Nos. each with provision for installation of 1x63 MVAr switchable line reactor [for termination of Bornagar (ISTS) – Balipara (POWERGRID) 400 kV D/c (Quad) line formed after LILO of both circuits of existing Bongaigaon (POWERGRID) – Balipara (POWERGRID) 400 kV D/c (Quad) line at Bornagar (ISTS)]	
(b)	LILO of both circuits of existing Bongaigaon (POWERGRID) – Balipara (POWERGRID) 400 kV D/c (Quad) line at Bornagar (ISTS)	About 8 km (4 km Loop-in + 4 km Loop-out)	₹ 40.51 Cr
(c)	#Disconnection of Alipurduar (POWERGRID) – Bongaigaon (POWERGRID) 400 kV D/c (Quad) line from Bongaigaon (POWERGRID) end and extension of the line for termination at Bornagar (ISTS) S/s so as to form Alipurduar	About 110 km additional line section	₹ 556.94 Cr

Sl. No.	Scope of the Transmission Scheme	Capacity (MVA) / Line length (km) / Nos.	Estimated Cost (₹ Cr.)
	(POWERGRID) – Bornagar (ISTS) 400 kV D/c (Quad) line		
(d)	Installation of 420 kV, 1x80 MVAr switchable line reactor (along with 500 ohm NGR and NGR bypass arrangement) at Bornagar (ISTS) end in each circuit of Alipurduar (POWERGRID) – Bornagar 400 kV D/c (Quad) line formed after shifting of Alipurduar (POWERGRID) – Bongaigaon (POWERGRID) 400 kV D/c (Quad) line from Bongaigaon (POWERGRID) end to Bornagar (ISTS) S/s	• 420 kV, 1x80 MVAr switchable line reactor (along with 500 ohm NGR and NGR bypass arrangement) - 2 Nos. • Switching equipment for switchable line reactor of 420 kV, 1x80 MVAr - 2 Nos.	₹ 36.45 Cr
(e)	Installation of 420 kV, 1x63 MVAr switchable line reactor (along with 400 ohm NGR and NGR bypass arrangement) at Bornagar (ISTS) end in each circuit of Bornagar (ISTS) – Balipara (POWERGRID) 400 kV D/c (Quad) line formed after LILO of both circuits of existing Bongaigaon (POWERGRID) – Balipara (POWERGRID) 400 kV D/c (Quad) line	• 420 kV, 1x63 MVAr switchable line reactor (along with 400 ohm NGR and NGR bypass arrangement) - 2 Nos. • Switching equipment for switchable line reactor of 420 kV, 1x63 MVAr - 2 Nos.	₹ 34.38 Cr
		Total	₹ **825.06** Cr

Note:

(i) #Siliguri (POWERGRID) – Bongaigaon (POWERGRID) 400kV D/c (Quad) line was implemented by M/s East North Interconnection Company Limited (M/s ENICL, SPV of M/s Sterlite). Line bays at both ends were implemented by POWERGRID. Further, this line was LILOed at Alipurduar (POWERGRID) S/s by POWERGRID along with implementation of line bays for termination of line, resulting in formation of Alipurduar (POWERGRID) – Bongaigaon (POWERGRID) 400kV D/c (Quad) line. The Alipurduar (POWERGRID) – Bongaigaon (POWERGRID) 400 kV D/c (Quad) line (partly owned by M/s ENICL and partly by POWERGRID) is to be disconnected from Bongaigaon (POWERGRID) end and extended for termination at Bornagar (ISTS) S/s so as to form Alipurduar (POWERGRID) – Bornagar (ISTS) 400kV D/c (Quad) line. Upon shifting of line, the line section left unutilised at Bongaigaon (POWERGRID) end needs to be kept anti-theft charged so that the same can be used in future for termination of new line. Further, upon shifting of Alipurduar (POWERGRID) – Bongaigaon (POWERGRID) line from Bongaigaon (POWERGRID) S/s to Bornagar (ISTS) S/s, connectivity of all operational communication links through Bongaigaon has to be ensured. For the same additional OPGW and FOTE needs to be planned as per requirement. ISTS licensee implementing the NERES-XXXV Part-

A scheme needs to coordinate with M/s ENICL for line shifting and keeping the unutilised line section at Bongaigaon (POWERGRID) end anti-theft charged.

(ii) The line lengths mentioned above are approximate as the exact line length shall be obtained after the detailed survey.

B. North-Eastern Region Expansion Scheme-XXV Part-B (NERES-XXV Part-B)

Sl. No.	Scope of the Transmission Scheme	Capacity (MVA) / Line length (km) / Nos.	Estimated Cost (₹ Cr.)
(a)	Conversion of existing 420 kV, 1x63 MVAr fixed line reactor at Bongaigaon (POWERGRID) end in each circuit of Bongaigaon (POWERGRID) – Borngar (ISTS) 400 kV D/c line formed after LILO of both circuits of existing Bongaigaon (POWERGRID) – Balipara (POWERGRID) 400 kV D/c (Quad) line at Bornagar (ISTS) to Switchable Line Reactor along with implementation of NGR bypass arrangement.	• Switching equipment for conversion of existing fixed line reactor to switchable line reactor along with implementation of NGR bypass arrangement - 2 Nos.	₹ 8.18 Cr
		Total	₹ **8.18** Cr

5 Status of the bids under process by BPCs

5.1.1 Both the Bid Process Coordinators [BPCs], i.e, PFCCL and RECPDCL made presentations on under bidding Inter State Transmission Schemes. Salient points of the discussion were as under:

5.1.2 Representative from PFCCL informed that total 25 schemes are under bidding process. Detailed summary of the schemes is as under:

S.N.	Region(s)	No. of projects under bidding
1	LoI issued and SPV to be transferred	4 (SPV transfer expected by August, 2024)
2	e-RA completed	2
3	Bids Under Evaluation	2
4	RfP issued and bids to be submitted	11
5	RfP to be issued	4 (20th NCT)
6	RfP bid submission on hold	2
Total		**25**

5.1.3 Representative from RECPDCL informed that total 20 schemes are under bidding process. Detailed summary of the schemes is as under:

S.N.	Region(s)	Nos. of projects under bidding
1	Bidding Concluded	7
2	Bids Opened & Under Evaluation	2
3	Bids Under Evaluation	8
4	RfP to be issued	3
Total		**20**

5.1.4 Transmission system for evacuation of power from Chhatarpur SEZ (1500 MW) in Madhya Pradesh is also on hold due to non-finalization of location by the REZ. In the 20th meeting of NCT Chairperson, CEA suggested PFCCL to take up the matter with Madhya Pradesh. It was informed that the above mentioned solar park has been cancelled. NCT recommended for denotification of the associated transmission scheme.

5.1.5 Chairperson, CEA directed BPCs to streamline the process of award of Bids, to timely conclude the Bids and highlight the issues, if any.

Summary of the deliberations of the 21st meeting of NCT held on 06th August, 2024

I. Modification in the earlier approved/notified transmission schemes:

1. Modification of implementation schedule of one of the 400 kV bay of M/s Indosol Solar Pvt. Ltd. under the scheme "Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects"

NCT approved the change in schedule of one of the 400 kV bay of M/s Indosol Solar Pvt. Ltd of the transmission scheme "Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects" as mentioned below:

Package	Scope of the Transmission Scheme	Capacity /km	Schedule	Revised Schedule
A	Augmentation of transformation capacity by 3x1500 MVA, 765/400 kV ICTs at Kurnool-III PS	• 3x1500 MVA, 765/400 kV ICT • 765 kV ICT bay – 3 Nos. • 400 kV ICT bay – 3 Nos. • 400 kV Bus Sectionaliser – 1 Set	24 months	No change
	Kurnool-III PS – Chilakaluripeta 765 kV D/c line with 240 MVAr switchable line reactors at both ends	~ 260 km • 765 kV line bays – 2 Nos. (at Kurnool-III PS) • 765 kV line bays – 2 Nos. (at Chilakaluripeta) • 765 kV, 240 MVAr SLR at Kurnool-III PS – 2 Nos. (6x80 MVAr units) • 765 kV, 240 MVAr SLR at Chilakaluripeta – 2 Nos. (6x80 MVAr units)		
B	2 Nos. of 400 kV line bays at Kurnool-III PS for termination of dedicated transmission line of M/s Adani Renewable Energy Forty Two Ltd.	• 400 kV line bays – 2 Nos.	30.06.26	No change
	4 Nos. of 400 kV line bay at Kurnool-III PS for termination of dedicated transmission lines of M/s Indosol Solar Pvt. Ltd.	• 400 kV line bays – 1 Nos.	30.06.25	**24 Months**
		• 400 kV line bays – 1 Nos.	24 months	No change
		• 400 kV line bays – 2 Nos.	31.03.27	No change
	2 Nos. of 400 kV line bays at Kurnool-III PS for termination of dedicated transmission line of M/s Adani Renewable Energy Fifty One Ltd.	• 400 kV line bays – 2 Nos.	31.12.27	No change
C	Augmentation of 1x1500 MVA 765/400 kV ICT (7th) at Kurnool-II PS	• 1x1500 MVA, 765/400 kV ICT • 765 kV ICT bay – 1 Nos. • 400 kV ICT bay – 1 Nos.	24 months	No change

2. Change in Implementation time-frame of Eastern Region Expansion Scheme-XXXIX (ERES-XXXIX)

NCT approved the change in implementation time frame of Eastern Region Expansion Scheme-XXXIX (ERES-XXXIX) from 31.12.2026 to 31.12.2027

3. Modification in the scope of works of the transmissions scheme "Transmission Scheme for integration of Davanagere / Chitradurga REZ."

NCT approved the modification in the scope of "Transmission Scheme for integration of Davanagere / Chitradurga REZ" as follows:

Incorporation of one spare 80 MVAr, 765 kV reactor at Narendra New. Cost of the scheme changes from 2640 Cr. to 2651.5 Cr and the percentage variation in the estimated cost is 0.44%.

4. Modification in the Transmission scheme "Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B".

NCT approved the modification in the Transmission scheme "Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part-4: 3.5 GW): Part B" as mentioned below:

S.No.	Earlier Scope of Transmission Scheme	Revised Scope of Transmission Scheme
1	Establishment of 765/400 kV, 2x1500 MVA S/s at suitable location near Merta (Merta-II Substation) along with 2x240 MVAr (765 kV) & 2x125 MVAr (420 kV) bus reactor at Merta-II S/s **Merta-II S/s -AIS** • 765/400 kV 1500 MVA ICTs- 2 Nos. (7x500 MVA including one spare unit) • 400/220 kV 500 MVA ICTs -2 Nos. • 765 kV ICT bays-2 Nos. • 400 kV ICT bays- 4 Nos. • 220 kV ICT bays- 2 Nos. • 765kV line bays: 4 Nos. (for 765kV interconnection with Dausa S/s & Barmer-I PS) • 400 kV line bays: 2 Nos. (for 400 kV interconnection with Beawar S/s) • 240 MVAr Bus Reactor-2 Nos. (7x80 MVAr, including one spare unit) • 765 kV Bus reactor bays-2 Nos. • 125 MVAr Bus Reactor-2 Nos. • 400 kV Bus reactor bays- 2 Nos. • 220 kV line bays: 3 Nos. (for RE connectivity)	Establishment of 765/400 kV, 2x1500 MVA S/s at suitable location near Merta (Merta-II Substation) along with 2x240 MVAr (765 kV) & 2x125 MVAr (420 kV) bus reactor at Merta-II S/s **Merta-II S/s –AIS** • 765/400 kV 1500 MVA ICTs- 2 Nos. (7x500 MVA including one spare unit) • 400/220 kV 500 MVA ICTs **-5 Nos**. • 765 kV ICT bays-2 Nos. • 400 kV ICT bays- **7 Nos.** • 220 kV ICT bays- **5 Nos.** • 765 kV line bays: 4 Nos. (for 765 kV interconnection with Dausa S/s & Barmer-I PS) • 400 kV line bays: 2 Nos. (for 400 kV interconnection with Beawar S/s) • 240 MVAr Bus Reactor-2 Nos. (7x80 MVAr, including one spare unit) • 765 kV Bus reactor bays-2 Nos. • 125 MVAr Bus Reactor-2 Nos. • 400 kV Bus reactor bays- 2 Nos. • 220 kV line bays: **7 Nos. (for RE connectivity)**

	• 220 kV BC (1 No.) bay and 220 kV TBC (1 Nos.) bay • 110 MVAr spare reactor unit (single phase)-1 Nos. **Future provisions at Merta-II S/s:** **Space for** • 765/400 kV ICTs along with bays- 4 Nos. • 765 kV line bays along with switchable line reactors – 8 Nos. • 765 kV Bus Reactor along with bay: 1 Nos. • 400 kV line bays along with switchable line reactor –8 Nos. • 400 kV line bays – 2 Nos. • 400 kV Bus Reactor along with bays: 1 Nos. • 400 kV Sectionalizer bay: 2 sets • 400/220 kV ICTs along with bays -4 Nos. • 220 kV line bays for RE injection -5 Nos. • 220 kV Sectionalizer bay: 2 set • 220 kV BC (2 Nos.) bays and 220 kV TBC (2 Nos.) bays • STATCOM (2x±300 MVAr, 4x125 MVAr MSC, 2x125 MVAr MSR) along with 400 kV bays (2 Nos.)	• 220 kV BC **(2 No.)** bay and 220 kV TBC **(2 Nos.)** bay • 110 MVAr spare reactor unit (single phase)-1 Nos. • **220 kV sectionalizer bay (1 set)** **Future provisions at Merta-II S/s:** **Space for** • 765/400 kV ICTs along with bays- 4 Nos. • 765 kV line bays along with switchable line reactors – 8 Nos. • 765 kV Bus Reactor along with bay: 1 Nos. • 400 kV line bays along with switchable line reactor –8 Nos. • 400 kV line bays – 2 Nos. • 400 kV Bus Reactor along with bays: 1 Nos. • 400 kV Sectionalizer bay: 2 sets • 400/220 kV ICTs along with bays **-1 No.** • 220 kV line bays for RE injection **-1 No.** • 220 kV Sectionalizer bay**: 1 set** • 220 kV BC (**1 No**.) bays and 220 kV TBC (**1 No**.) bays • STATCOM (2x±300 MVAr, 4x125 MVAr MSC, 2x125 MVAr MSR) along with 400 kV bays (2 Nos.)
2	Barmer-I PS – Merta-II 765 kV D/c line along with 330 MVAr switchable line reactor for each circuit at each end of Barmer-I PS – Merta-II 765 kV D/c line	**No Change**
3	Merta-II – Beawar 400 kV D/c line (Quad)	
4	Merta-II – Dausa 765 kV D/c line along with 240 MVAr switchable line reactor for each circuit at each end of Merta-II – Dausa 765 kV D/c line line	
5	2 Nos. 765 kV line bays each at Barmer-I PS & Dausa S/s	
6.	2 Nos. 400 kV line bays at Beawar S/s	

II. De-notification of the earlier approved/notified transmission schemes:

1. Denotification of the transmission scheme "Transmission system for evacuation of power from Chhatarpur SEZ (1500 MW) in Madhya Pradesh"

MoP vide Gazette dated 19.07.2021 notified the transmission scheme "Transmission system for evacuation of power from Chhatarpur SEZ (1500 MW) in Madhya Pradesh" with PFCCL as bid process coordinator. In the 21st meeting of NCT, it was informed that above mentioned solar park has been cancelled. NCT recommended for denotification of the associated transmission scheme.

III. ISTS Transmission schemes, approved by NCT:

1. The transmission schemes approved by NCT under RTM route is given below:

Sl. No.	Name of Transmission Scheme	Implementation Mode	Implementation timeframe	Estimated Cost (₹ Cr)
1.	Augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling Station in Karnataka and Implementation of 1 Nos. of 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for providing Connectivity to RE generation project	RTM through POWERGRID	21 months	118
2.	North-Eastern Region Expansion Scheme-XXV Part-B (NERES-XXV Part-B)	RTM through POWERGRID	36 months (matching with North-Eastern Region Expansion Scheme-XXV Part-A (NERES-XXV Part-A))	8.18

The broad scope of above schemes are given below

Sl. No.	Name of Scheme & Tentative implementation timeframe	Broad Scope
1.	Augmentation of transformation capacity by 2x500 MVA (9th&10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling Station in Karnataka and Implementation of 1 Nos. of 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for providing Connectivity to RE generation project	**Package A** i. Augmentation of transformation capacity by 2x500 MVA (9th & 10th), 400/220 kV ICTs at Tumkur (Pavagada) 400/220 kV Pooling Station ii. Additional land of about 100 m (width) x 540 m (length) on right side of the Tumkur (Pavagada) PS for expansion of Tumkur (Pavagada) PS with 2 Nos. of additional 500 MVA ICTs & 220 kV line bays **Package B**

	Implementation Timeframe: 21 Months	i. Implementation of 1 Nos. of 220 kV line bay at Tumkur (Pavagada) 400/220 kV PS for providing Connectivity to RE generation project **Package C** i. Modification in the implementation schedule of 8th ICT, approved in 17th NCT meeting held on 31.01.2024 alongwith 7th ICT at Tumkur (Pavagada) and allocated to POWERGRID vide CEA/CTUIL letter dated 16.02.2024. *The 8th ICT for N-1 contingency criteria may be implemented in the same timeframe of 9th & 10th ICTs at Tumkur (Pavagada).* **(Detailed scope as approved by 21st NCT and subsequent amendments thereof)**
2.	North-Eastern Region Expansion Scheme-XXV Part-B (NERES-XXV Part-B) **Implementation Timeframe:** 36 Months [matching with North-Eastern Region Expansion Scheme-XXV Part-A (NERES-XXV Part-A)]	Conversion of existing 420 kV, 1x63 MVAr fixed line reactor at Bongaigaon (POWERGRID) end in each circuit of Bongaigaon (POWERGRID) – Borngar (ISTS) 400 kV D/c line formed after LILO of both circuits of existing Bongaigaon (POWERGRID) – Balipara (POWERGRID) 400kV D/c (Quad) line at Bornagar (ISTS) to Switchable Line Reactor along with implementation of NGR bypass arrangement **(Detailed scope as approved by 21st NCT and subsequent amendments thereof)**

2. The transmission schemes approved by NCT under TBCB route is given below:

Sl. No.	Name of Transmission Scheme	Implementation Mode	Implementation timeframe	BPC	Estimated Cost (₹ Crs)
1.	Augmentation of transformation capacity at Banaskantha (Raghanesda) PS (GIS)	TBCB	24 months	RECPDCL	172
2.	Augmentation of transformation capacity at KPS1 (GIS) and KPS2 (GIS) (Phase-V Part B1 and Part B2 scheme)	TBCB	24 Months	RECPDCL	466

3.	Augmentation at Fatehgarh-II PS, Fatehgarh-IV PS(Section-II) and Barmer-I PS	TBCB	21 months and Matching with Rajasthan REZ Ph-IV (Part-2:5.5 GW) Scheme *(Rajasthan REZ Ph-IV (Part-2:5.5 GW) Scheme expected SPV transfer: Aug'24 with 24 months schedule)*	PFCCL	403.83

The broad scope of above schemes is given below

Sl. No.	**Name of Scheme & Tentative implementation timeframe**	**Broad Scope**	**Bid Process Coordinator**
1.	Augmentation of transformation capacity at Banaskantha (Raghanesda) PS (GIS) **Implementation Timeframe: 24 Months**	Augmentation of transformation capacity at Banaskantha (Raghanesda) PS (GIS) by 2x500 MVA 400/220 kV ICTs (3rd & 4th) • *500 MVA, 400/220 kV ICTs: 2 Nos.* • *400 kV ICT bays: 2 Nos. (+ 2 Nos. for dia completion with provision of Switchable LR)* • *220 kV ICT bays: 2 Nos.* **(Detailed scope as approved by 21st NCT and subsequent amendments thereof)**	RECPDCL
2.	Augmentation of transformation capacity at KPS1 (GIS) Part B1 and KPS2 (GIS) Part B2 (Phase-V) scheme **Implementation Timeframe: 24 Months**	i. Augmentation of transformation capacity at KPS1(GIS) by 1x1500 MVA, 765/400 kV ICT on Bus section-II (9th) • *1500 MVA, 765/400 kV ICT – 1 Nos.* • *765kV ICT bay – 1 Nos. on Bus section-II* • *400 kV ICT bay – 1 Nos. (+1 Nos. (with Sw. LR bay provision) for Dia. Completion in GIS) on Bus section-II* ii. Augmentation of transformation capacity at KPS2(GIS) by 1x1500 MVA, 765/400 kV ICT on Bus section-I (9th) • *1500 MVA, 765/400 kV ICT – 1 Nos.* • *765kV ICT bay – 1 Nos. (+1 Nos. (with Sw. LR bay provision) for Dia. Completion in GIS) on Bus section-I* • *400 kV ICT bay – 1 Nos. (+1 Nos. (with Sw. LR bay provision) for Dia. Completion in GIS) on Bus section-I*	RECPDCL

		(Detailed scope as approved by 21st NCT and subsequent amendments thereof)	
3.	A. Augmentation with 765/400 kV, 1x1500 MVA Transformer (7th) at Fatehgarh-II PS **Implementation Timeframe: 21 Months** from SPV transfer B. Augmentation with 400/220 kV 3x500 MVA (6th to 8th) ICTs at Fatehgarh-IV PS(Section-II) & 400/220 kV 2x500 MVA (3rd & 4th) ICTs at Barmer-I PS **Implementation Timeframe:** Matching with Rajasthan REZ Ph-IV (Part-2:5.5 GW) Scheme. Rajasthan REZ Ph-IV (Part-2:5.5 GW) Scheme expected SPV transfer: Aug'24 with 24 months schedule	i. Augmentation with 765/400 kV, 1x1500 MVA Transformer (7th) at Fatehgarh-II PS along with associated transformer bays • *1500 MVA, 765/400 kV ICT - 1 Nos.* • *765 kV ICT bay – 1 Nos.* • *400 kV ICT bay – 1 Nos.* i. Augmentation with 400/220 kV, 3x500 MVA (6th ,7th & 8th) ICTs at Fatehgarh-IV PS(Section-II) along with associated transformer bays ii. Augmentation with 400/220 kV, 2x500 MVA (3rd & 4th) ICTs at Barmer-I PS along with associated transformer bays **(Detailed scope as approved by 21st NCT and subsequent amendments thereof)**	PFCCL

IV. ISTS Transmission schemes, costing greater than ₹ 500 Crore, recommended by NCT to MoP:

The ISTS transmission schemes recommended by NCT to MoP are given below:

Sl. No.	Name of Transmission Scheme	Implementation Mode	Tentative Implementation timeframe	BPC	Estimated Cost (₹ Crs)

1.	Transmission System for supply of power to Green Hydrogen/Ammonia manufacturing potential in Kandla area of Gujarat (Ph-I: 3.0 GW)	TBCB	36 Months	PFCCL	2775
2.	Transmission system for evacuation of power from Rajasthan REZ Ph-V (Part-1: 4 GW) [Sirohi/Nagaur] Complex	TBCB	24 Months	RECPDCL	5027.61 (NR Portion : 2897.4.4) WR Portion : 2130.21)
3.	North-Eastern Region Expansion Scheme-XXV Part-A (NERES-XXV Part-A)	TBCB	36 Months	PFCCL	825.06

The broad scope of the above ISTS schemes to be notified in Gazette of India is as given below:

Sl. No.	**Name of Scheme & Tentative implementation timeframe**	**Broad Scope**	**Bid Process Coordinator**
1.	Transmission System for supply of power to Green Hydrogen/Ammonia manufacturing potential in Kandla area of Gujarat (Phase-I: 2.465 GW) **Implementation Timeframe: 36 Months**	i. Establishment of 3X1500 MVA 765/400 kV Kandla (GIS) with 2X330 MVAR 765 kV bus reactor and 2X125 MVAR 420 kV bus reactor. ii. Halvad – Kandla(GIS) 765 kV D/c line (140 km) iii. 2 *Nos.*. of 765 kV line bays at Halvad for termination of Halvad – Kandla 765 kV D/c line iv. 240 MVAr switchable line reactors on each ckt at Kandla(GIS) end of Halvad – Kandla 765 kV D/c line (with NGR bypass arrangement) v. ±400 MVAr STATCOM along with 2x125 MVAr MSC & 1x125 MVAr MSR at Kandla(GIS) 400 kV Bus section-I **(Detailed scope as approved by 21st NCT and subsequent amendments thereof)**	PFCCL
2.	Transmission system for evacuation of power from Rajasthan REZ Ph-V	**Transmission system for immediate evacuation of power from Sirohi S/s (2 GW)**	RECPDCL

	(Part-1: 4 GW) [Sirohi/Nagaur] Complex **Implementation timeframe : 24 months**	i. 5x500 MVA, 400/220 kV ICTs at Sirohi S/s along with associated transformer bays ii. 6 Nos. 220 kV line bays at Sirohi S/s for RE interconnection iii. 220 kV Sectionalizer bay (1 set) along with 220 kV BC (2 Nos.) bay and 220 kV TBC (2 Nos.) bay at Sirohi S/s **Transmission system for common evacuation of power from Sirohi PS (2 GW) & Merta-II PS (2 GW)** i. Sirohi – Mandsaur PS 765 kV D/c line along with 240 MVAr switchable line reactor at Sirohi S/s end and 330 MVAr switchable line reactor at Mandsaur PS end for each circuit of Sirohi – Mandsaur PS 765KV D/c line (~320 Km.) ii. Mandsaur PS – Khandwa (New) 765kV D/c line along with 240 MVAr switchable line reactor for each circuit at each end of Mandsaur PS – Khandwa (New) 765 kV D/c line (~260 Km.) **(Detailed scope as approved by 21st NCT and subsequent amendments thereof)**	
3.	North-Eastern Region Expansion Scheme-XXV Part-A (NERES-XXV Part-A) **Implementation timeframe:** 36 Months	i. Establishment of new 400 kV Bornagar (ISTS) switching station in Assam (765 kV and 220 kV levels to be established in future) ii. LILO of both circuits of existing Bongaigaon (POWERGRID) – Balipara (POWERGRID) 400 kV D/c (Quad) line at Bornagar (ISTS) iii. Disconnection of Alipurduar (POWERGRID) – Bongaigaon (POWERGRID) 400 kV D/c (Quad) line from Bongaigaon (POWERGRID) end and extension of the line for termination at Bornagar (ISTS) S/s so as to form Alipurduar (POWERGRID) – Bornagar (ISTS) 400kV D/c (Quad) line iv. Installation of 420 kV, 1x80MVAr switchable line reactor (along with 500 ohm NGR and NGR bypass arrangement) at Bornagar (ISTS) end in	PFCCL

		each circuit of Alipurduar (POWERGRID) – Bornagar 400 kV D/c (Quad) line formed after shifting of Alipurduar (POWERGRID) – Bongaigaon (POWERGRID) 400 kV D/c (Quad) line from Bongaigaon (POWERGRID) end to Bornagar (ISTS) S/s v. Installation of 420 kV, 1x63 MVAr switchable line reactor (along with 400 ohm NGR and NGR bypass arrangement) at Bornagar (ISTS) end in each circuit of Bornagar (ISTS) – Balipara (POWERGRID) 400 kV D/c (Quad) line formed after LILO of both circuits of existing Bongaigaon (POWERGRID) – Balipara (POWERGRID) 400 kV D/c (Quad) line **(Detailed scope as approved by 21st NCT and subsequent amendments thereof)**	

Annexure-I

List of participants of the 21st meeting of NCT

CEA:

1. Sh. Ghanshyam Prasad, Chairperson, CEA & Chairman, NCT
2. Sh. Ajay Talegaonkar, Member (E&C)
3. Sh. A.K. Rajput, Member (Power Systems)
4. Sh. Ishan Sharan, Chief Engineer (PSPA-I)
5. Sh. B.S. Bairwa, Chief Engineer (I/C) (PSPA-II)
6. Sh. Rahul Raj, Director (PSPA-II)
7. Sh. Praveen Kumar Sahukari, Deputy Director (F&CA)
8. Sh. Manish Kumar Verma, Assistant Director (PSPA-II)

MoP:

1. Sh. Om Kant Shukla, Director (Trans.)

MNRE:

1. Sh. Tarun Singh, Scientist E
2. Sh. Prasad Chaphekar, Deputy Secretary

SECI:

1. Sh. R.K. Agarwal, Consultant
2. Sh. Prashant Kumar Upadhyay, Sr. Manager
3. Sh. Shubham Mishra, Sr. Manager

NITI Aayog:

1. Sh. Manoj Kumar Upadhyay, Deputy Advisor

CTUIL:

1. Sh. P C Garg, COO
2. Sh. Ashok Pal, Deputy COO
3. Sh. K K Sarkar, Sr GM
4. Sh. P.S. Das, Sr GM
5. Sh. Rajesh Kumar, Sr GM
6. Sh. Kashish Bhambhani, GM
7. Sh. Bhaskar Wagh, DGM
8. Sh. Sandeep Kumawat, DGM
9. Sh. Manish Ranjan Keshari, Chief Manager

GRID India:

1. Sh. S.R. Narasimhan, CMD
2. Sh. Rajiv Porwal, Director (SO)
3. Sh. Vivek Pandey, Senior GM
4. Sh. Priyam Jain, Chief Manager
5. Sh. Gaurab Dash, Dy. Manager

RECPDCL

1. Sh. T.S.C. Bosh, CEO
2. Sh. Satyaban Sahu, GM (Tech)

PFCCL

1. Sh. Navin Phogat, GM (Tech)
2. Sh. Rishab Jain, GM
3. Sh. Deepak Kumar, AM

Expert Member

1. Sh. Ravinder Gupta, Ex Chief Engineer, CEA

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