



सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केंद्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग- II

Power System Planning &amp; Appraisal Division-II

सेवा में /To

As per list of Addresses

**विषय: ट्रांसमिशन पर राष्ट्रीय समिति (एनसीटी) की छब्बीसवीं बैठक के कार्यवृत्त ।****Subject: Minutes of the 26<sup>th</sup> Meeting of National Committee on Transmission (NCT) – regarding.****महोदया (Madam) / महोदय (Sir),**

The 26<sup>th</sup> meeting of the National Committee on Transmission (NCT) was held on 6<sup>th</sup> January, 2025 at Bangaram Island, Lakshadweep. Minutes of the meeting are enclosed herewith.

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)**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, Floors No. 5-10, Tower 1, Plot No. 16, IRCON International Tower, Institutional Area, Sector 32, Gurugram, Haryana - 122001.
7.	Sh. Rajnath Ram, Adviser (Energy), NITI Aayog, Parliament Street, New Delhi – 110 001.	8.	CMD, Grid Controller of India, B-9 (1 <sup>st</sup> Floor), Qutub Institutional Area, Katwaria Sarai, New Delhi – 110016
9.	Sh. Ravinder Gupta Ex. Chief Engineer CEA		

**Special Invitee**

1. Chief Engineer (PCD), CEA
2. CEO, RECPDCL
3. CEO, PFCCL

## **Table of Agenda**

1	Confirmation of the minutes of the 25 <sup>th</sup> meeting of National Committee on Transmission.	1
2	Status of the transmission schemes noted/approved/recommended to MoP in the 25th meetings of NCT:	1
3	Modifications in the earlier approved/notified transmission schemes:	2
4	New Transmission Schemes:	6
5	Presentation by CTUIL	25
6	Status of the bids under process by BPCs	25
7	Comparison of completion timeline of the schemes awarded under RTM vis-à-vis the timeline agreed by NCT	26
8	Status on decisions taken in the previous NCT meetings.	26
	Summary of the deliberations of the 26 <sup>th</sup> meeting of NCT held on 6 <sup>th</sup> January, 2025	27

## Minutes of the 26<sup>th</sup> meeting of National Committee on Transmission (NCT)

The 26<sup>th</sup> meeting of the National Committee on Transmission (NCT) was held on 6<sup>th</sup> January, 2025 at Bangaram Island, Lakshadweep. List of participants is enclosed at **Annexure-I**. Agenda wise deliberations are given below:

### **1 Confirmation of the minutes of the 25<sup>th</sup> meeting of National Committee on Transmission.**

1.1 The minutes of the 25<sup>th</sup> meeting of NCT held on 28.11.2024 were issued on 10.12.2024 vide CEA letter Nos. CEA-PS-12-13/3/2019-PSPA-II. No comments have been received on the minutes.

1.2 Members confirmed the minutes.

### **2 Status of the transmission schemes noted/approved/recommended to MoP in the 25th meetings 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.	Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area, Andhra Pradesh (Phase-I)	Recommended	TBCB	PFFCL	Scheme notified in Gazette by MoP on 26.12.2024.
2.	Augmentation of transformation capacity at 765/400 kV Sipat STPS in Chhattisgarh by 1x1500 MVA, 765/400 kV ICT (3rd).	Approved	To be implemented by NTPC	Not applicable	Not applicable

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

Sl. No.	Scheme where modifications was suggested	Status
1.	Post facto approval for modification in the scope of work of Transmission system for evacuation of power from Rajasthan REZ Ph-IV (Part 1) (Bikaner Complex) – Part-E	Informed to CTUIL vide letter dated 10.12.2024.
2.	Bid process for selection of Bidder as Transmission Service Provider (TSP) to establish “Transmission system strengthening to facilitate evacuation of power from Bhadla/Bikaner complex”	CTUIL vide letter dated 10.12.2024 awarded the scheme to implementing agency. Scheme was de-notified vide Gazette dated 31.12.2024.
3.	Consideration of GIS station in place of AIS station for the scheme “Transmission System for Offshore wind farm in Tamil Nadu {500 MW VGF}”	Informed to MoP vide letter dated 10.12.2024. MoP to modify the O.M.

Sl. No.	Scheme where modifications was suggested	Status
4.	Modification in the scope of the scheme “Transmission system for proposed Green Hydrogen/ Green Ammonia projects in Tuticorin area”.	Scope is modified by MoP vide Gazette notification dated 26.12.2024

### **3 Modifications in the earlier approved/notified transmission schemes:**

#### **3.1 Requirement of additional land adjacent to Pachora PS for carrying out works agreed in 24<sup>th</sup> NCT meeting**

3.1.1 Representative from CTUIL stated that Rajgarh Phase-I scheme is being implemented by M/s G.R. Infrastructure Limited (GRIL). Further, two schemes which require augmentation at Rajgarh i.e. “*Transmission system for Evacuation of Power from RE Projects (1500 MW) in Rajgarh SEZ in Madhya Pradesh-Phase III*” with estimated cost of the scheme ₹1079 Crore and “*Transmission system for Evacuation of Power from RE Projects (1000 MW) in Neemuch SEZ in Madhya Pradesh- Phase II*” with estimated cost of the scheme ₹2393 Crore were recommended for implementation in the 24<sup>th</sup> meeting of NCT held on 23<sup>rd</sup> October, 2024. Schemes were notified by MoP vide Gazette notification dated 12.12.2024.

3.1.2 CTUIL further stated that due to additional space requirement of 400 kV Bus Sectionaliser bays, 220 kV Bus Sectionaliser bays as well as 2 Nos. 400 kV bay requirement on Bus Sec-II (which was planned by M/s GRIL at Sec-I), 6 Nos. 400 kV bays at 400 kV Sec-II as part of Neemuch Ph-II & Rajgarh Ph-III schemes, cannot be accommodated at Rajgarh (Pachora) PS as per layout.

3.1.3 It was mentioned that additional land (approx. 8.7 acres) adjacent to Pachora PS is necessary for the implementation of the above 02 schemes and is under possession of RUMSL (Rewa Ultra Mega Solar L.td.) Further, RUMSL had conveyed to CTUIL that “*Land can be allotted in the vicinity of present Pachora ISTS S/s. Terms and conditions of allotment will be communicated separately after finalisation*”.CTUIL proposed to include in the RfP document of the schemes that the “TSP shall coordinate with RUMSL for allotment of additional land as required for developing the scope of work at Pachora PS as per the terms of RUMSL”.

3.1.4 After deliberations, NCT recommended for clubbing of both the transmission schemes “*Transmission system for Evacuation of Power from RE Projects (1500 MW) in Rajgarh SEZ in Madhya Pradesh-Phase III*” and “*Transmission system for Evacuation of Power from RE Projects (1000 MW) in Neemuch SEZ in Madhya Pradesh- Phase II*” notified by MoP vide Gazette notification dated 12.12.2024 with provision for acquiring land for additional scope.

3.1.5 Summary of the clubbed scheme is given below:

Sl. No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Crore)	Remarks
1.	Transmission system for Evacuation of Power from RE Projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh-Phase III and Evacuation of Power from RE Projects in Neemuch (1000 MW) SEZ in Madhya Pradesh-Phase II  <b>Tentative implementation timeframe:</b> Implementation timeframe of element at Sl. No. 2b shall be 31.03.2028 in matching timeframe of RE generator (Purvah Green Power Pvt. Ltd.: 297 MW) and for remaining elements it shall be 24 months from date of SPV transfer	3472	Recommended under TBCB route with RECPDCL as BPC

3.1.6 Detailed scope of the scheme is given below:

Sr. No.	Scope of the Transmission Scheme	Capacity
1.	Creation of New 220 kV Bus Section (3rd) with 220 kV Bus Sectionaliser and 400/220 kV, 3x500 MVA ICT augmentation (7th, 8th & 9th) at Pachora PS terminated on 220 kV Bus Section (3rd)	500 MVA 400/220 kV ICT – 3 Nos. 400 kV ICT bay – 3 Nos. (on Section-II) 220 kV ICT bay – 3 Nos. (on Section-III) 220 kV Bus Sectionaliser bays – 1 set 220 kV BC & TBC – 1 Nos. each
2.	<b>2a.</b> 3 Nos. 220 kV line bays for RE interconnection on Bus Section (3rd)	3 Nos. on Sec-III
3.	<b>2b.</b> 1 Nos. 220 kV line bay for RE Interconnection of Purvah Green Power Pvt. Ltd. on Bus Section (3rd)	1 No. on Sec-III
4.	Pachora PS – Rajgarh(PG) 400 kV D/c line (Quad ACSR/ AAAC/ AL59 Moose equivalent) along with associated line bays at both ends and 50 MVAR Switchable Line Reactors (Sw LR) on each ckt at both ends	Line length: 180 km. 400 kV line bays: 4 Nos. (2 at Rajgarh(PG) & 2 at Pachora PS) 420 kV, Switchable Line Reactors (Sw LRs): 4 Nos. (2 at Rajgarh(PG) & 2 at Pachora PS) Switching equipment for 400 kV line reactor – 4 Nos. (2 at Rajgarh(PG) & 2 at Pachora PS)
5.	Installation of 1x125 MVAR, 420 kV bus reactor at Pachora PS (400 kV Bus Section-II)	125 MVAR, 420 kV Bus reactor – 1 Nos. 400 kV Bus reactor bay: 1 Nos.
6.	Creation of New 220 kV Bus Section-II at Neemuch PS with Augmentation of transformation capacity by 3x500 MVA, 400/220 kV ICTs (3 <sup>rd</sup> , 4 <sup>th</sup> & 5 <sup>th</sup> ) at Neemuch S/s along with associated bays.	500 MVA 400/220 kV ICT – 3 Nos. 400 kV ICT bay – 3 Nos. 220 kV ICT bay – 3 Nos. (on Sec-II) 220 kV Bus Sectionaliser bays – 1 set 220 kV BC & TBC – 1 Nos. each
7.	4 Nos. 220 kV Line bays at Neemuch PS for RE interconnection	220 kV Bays – 4 Nos. on Sec-II
8.	Neemuch PS – Pachora PS 400 kV D/c line (Quad ACSR/ AAAC/ AL59 Moose equivalent) along associated Line bays and 50 MVAR Switchable Line Reactor (Sw LR) on each ckt at both ends	Line length: 190km. 400 kV Line bays: 4 Nos. (2 at Neemuch PS & 2 at Pachora PS) 420 kV, Switchable Line Reactors (Sw LRs): 4 Nos. (2 at Neemuch PS & 2 at Pachora PS) Switching equipment for 400 kV line reactor – 4 Nos. (2 at Neemuch PS & 2 at Pachora PS)

<b>Sr. No.</b>	<b>Scope of the Transmission Scheme</b>	<b>Capacity</b>
9.	Establishment of 2x500 MVA, 400/220 kV S/s at Handiya alongwith 2x125 MVAR 420 kV Bus Reactors <b>Future provision (space for):</b> <ul style="list-style-type: none"> <li>➤ 400 kV line bays along with switchable line reactors– 6 Nos. (Sec-II)</li> <li>➤ 400/220 kV ICT along with bays - 4 Nos. (1 Nos. on Sec-I &amp; 3 Nos. on Sec-II)</li> <li>➤ 400 kV Bus Reactor along with bays: 2 Nos. (Sec-II)</li> <li>➤ 220 kV line bays: 8 Nos. (on Sec-II)</li> <li>➤ 400 kV Sectionalization bay: 1 set</li> <li>➤ 220 kV Sectionalization bay: 1 set</li> <li>➤ 220 kV TBC &amp; BC: 1 Nos.</li> </ul>	400/220 kV ICTs: 2 Nos. 400 kV ICT Bays: 2 Nos. 220 kV ICT Bays: 2 Nos. 400 kV Line bays: 6 Nos. 220 kV line bays for MPPTCL – 8 Nos. 125 MVAR, 420 kV Bus reactor – 2 Nos. 400 kV Bus reactor bay: 2 Nos. 220 kV TBC bay – 1 Nos. 220 kV BC bay – 1 Nos.
10.	Pachora PS – Handiya 400 kV D/c line (Quad ACSR/ AAAC/ AL59 Moose equivalent) along with associated bays at Pachora PS end and 50 MVAR Switchable Line Reactor (Sw LR) on each ckt at both ends	Line length: 190 km. 400 kV bays: 2 Nos. (at Pachora PS) 420 kV, Sw LRs: 4 Nos. (2 at Handiya & 2 at Pachora PS) Switching equipment for 400 kV line reactor – 4 Nos. (2 at Handiya & 2 at Pachora PS)
11.	LILO of Khandwa(PG) – Itarsi(PG) 400 kV D/c (Twin Moose) line at Handiya S/s	LILO route length : 22 km (88 ckm) The Khandwa(PG) – Itarsi(PG) 400 kV D/c line is of Twin Moose configuration and LILO shall be of similar conductor configuration
12.	Installation of 1x125 MVAR, 420 kV bus reactor (2 <sup>nd</sup> ) at Neemuch PS	125 MVAR, 420 kV Bus reactor – 1 Nos. 400 kV Bus reactor bay: 1 Nos.
<b>Note:</b> <ol style="list-style-type: none"> <li>1. TSP (Existing) of Neemuch PS shall provide space for above scope of work (free of cost) at Neemuch PS.</li> <li>2. The TSP shall coordinate with M/s GR Infra Projects (TSP of Pachora PS) for available land within Pachora PS (free of cost) and shall coordinate with RUMSL for acquisition of additional land as required for developing the scope of work at Pachora PS</li> <li>3. 400 kV lines (Pachora PS -Rajgarh, Neemuch - Pachora PS &amp; Pachora PS – Handiya), 400/220 kV, 3x500 MVA ICTs &amp; 1x125 MVAR, 420 kV bus reactor at Pachora PS under the subject scheme shall be terminated at bus section-II of 400 kV level of Pachora PS being implemented under Rajgarh Phase-II:1000MW scheme by M/s G R Infra projects Ltd.</li> <li>4. MPPTCL to implement below scope of works in matching time-frame of Handiya (ISTS) S/s (as confirmed by MPPTCL vide e-mail dated 23.07.2024):</li> </ol>		
<b>Sl. No.</b>	<b>Name of Work</b>	<b>Line Length (Km)</b>
1	LILO of both Circuit of Handia(MPPTCL)220 to Bisonikala (TBCB) 220kV lines at Handia 400 (New ISTS S/s).	2x10 km (Approx)
2	LILO of Itarsi(MP) to Handia(MPPTCL) 220kV line at Handia 400 (New ISTS S/s).	10 km (Approx)
3	LILO of Itarsi(MP) to Barwaha(MP) 220kV line at Handia 400 (New ISTS S/s).	10 km (Approx)

**3.2 Transmission scheme for evacuation of power from Ratle HEP (850 MW) & Kiru (624 MW) HEP: Part B**

3.2.1 In the 20<sup>th</sup> meeting of National Committee on Transmission (NCT) held on 25/06/2024, the NCT approved “Transmission scheme for evacuation of power from Ratle HEP (850 MW) & Kiru (624 MW) HEP: Part B” for implementation under RTM route to POWERGRID with the estimated cost of Rs.195.67 Cr with implementation time frame of 24 months or matching with Transmission scheme for evacuation of power from Ratle HEP (850 MW) & Kiru HEP (624 MW) : Part-A scheme whichever is later. Subsequently, CTU vide letter dated 15/07/2024 has communicated the same to Power Grid Corporation of India Ltd.

3.2.2 Representative of CTUIL stated that CERC vide order dated 25/10/2024 in the Petition no. 94/TT/2024 for determination of transmission tariff for re-conductoring of 400 kV Kolhapur (PG)- Kolhapur (MSETCL) T/L along with upgradation of 400 kV bays at Kolhapur (MSETCL) substation under “*Transmission system strengthening beyond Kolhapur for export of power from Solar & Wind energy zones in Southern Region - Re-conductoring of Kolhapur (PG) - Kolhapur 400 kV D/c line*”, stated the following:

*“12. As per the above, it is observed that the petitioner first implemented 400 kV Kolhapur- Mapusa Transmission line in the year 2002/2003, and further LILO of 400 kV Kolhapur- Mapusa Transmission line at the Kolahapur (New) GIS Substation was implemented in the year 2015. The existing 400 kV Kolhapur- Mapusa Transmission line has already completed 21 years, and LILO has completed about 8 years as on 9.3.2023. Regulation 3(73) of 2019 tariff Regulations defines useful life in relation to transmission lines as 35 years. The towers installed in both assets have not completed their useful life, and only their conductor and associated bay equipments have been replaced under the re-conductoring scheme. We observe that the transmission assets covered in the instant Petition are not new assets. Instead, they are re-conductoring and upgrading the already existing assets, which are expenses in the nature of Additional Capitalization in the assets, for which the tariff has already been approved. The Petitioner is, accordingly, directed to claim the capital cost incurred towards the Reconductoring of Kolhapur (PG) – Kolhapur 400 kV D/c line under additional capital expenditure (ACE) under Transmission System associated with System Strengthening- XVII in the Southern Region in Petition No. 208/TT/2020 while filing true-up of tariff for 2019-24 and determination of tariff for 2024-29 Period.”*

3.2.3 It was further mentioned that POWERGRID, referring to the above CERC order, has requested to take up approval of the scope of “Reconductoring of 400 kV Kishenpur-Kishtwar section (up to LILO point) with Twin HTLS (minimum 2100 MVA capacity) (formed after LILO of Kishenpur-Dulhasti line at Kishtwar S/s) along with bay upgradation works (2000 A to 3150 A) at Kishenpur end for above line” as additional capital expenditure under the original project, however, the remaining scope of work is to be considered under subject transmission scheme “Transmission scheme for evacuation of power from Ratle HEP (850 MW) & Kiru (624 MW) HEP: Part B” under RTM Route.



3.2.4 CTUIL also provided segregated cost for the subject mentioned scheme as mentioned as below:

<b>Sl. No.</b>	<b>Description of Transmission Element</b>	<b>Scope of work (Type of Substation/Conductor capacity/km/no. of bays etc.)</b>	<b>Cost (Rs. in Crores)</b>
1	Reconductoring of 400 kV Kishenpur-Kishtwar section (up to LILO point) with Twin HTLS (minimum 2100 MVA capacity) (formed after LILO of Kishenpur-Dulhasti line at Kishtwar S/s) along with bay upgradation works (2000 A to 3150 A) at Kishenpur end for above line.	Length – 120 km 400 kV Bay upgradation work - 1 no. bay at Kishenpur end.	151.74
2	Bypassing both ckts. of 400 kV Kishenpur – Samba D/c line (Twin) & 400 kV Samba – Jalandhar D/c line (Twin) at Samba and connecting them together to form <b>400 kV Kishenpur–Jalandhar D/c direct line (Twin)</b>  (4 Nos. of vacated 400 kV line bays at Samba S/s will be utilized for 400 kV Kishenpur-Samba D/c line (Quad) & 400 kV Samba- Jalandhar D/c line (Quad))	Length -0.5 km (Twin)	
3	Bays upgradation works (2000A to 3150A) at Samba end (4 Nos. bays vacated after bypassing of Kishenpur – Samba D/c line (Twin) & 400 kV Samba – Jalandhar D/c line (Twin))	400 kV Bay upgradation works - 4 Nos. bays	43.93
4	Redundant Communication System for Dulhasti (NHPC) & Kishtwar (Sterlite) stations by installing OPGW on 400 kV Kishenpur-Kishtwar S/c line alongwith reconductoring work and FOTE at Dulhasti & Kishenpur.	Length – 120 km	

3.2.5 After deliberations, NCT noted the above segregated cost and decided that all the reconductoring proposals will be deliberated in NCT along with cost breakup of Re-conductoring portion and the developer who is awarded the scheme under RTM shall approach the appropriate commission in terms of the existing provisions of the regulations.

#### **4 New Transmission Schemes:**

##### **4.1 Network Expansion in Gujarat for RE interconnection at Raghnesda PS**

4.1.1 Representative of CTUIL stated that for evacuation of 3 GW capacity from Raghnesda region in Banaskantha district of Gujarat, the scheme “Transmission System for

*evacuation of RE power from Raghnesda area of Gujarat– 3 GW under Phase-I*” was recommended under TBCB with PFCCL as BPC in the 20th meeting of NCT held on 25.06.24 with an estimated cost of ₹1855 Crore and implementation time frame of 30 months from the date of SPV transfer. The scheme is presently under tendering stage.

- 4.1.2 The scope of the scheme includes ‘Establishment of 765/400 kV Raghnesda (GIS) S/s along with 3x1500 MVA, 765/400 kV ICTs’ & ‘Raghnesda (GIS) – Banaskantha (PG) 765 kV D/c line’. At the time of scheme conceptualization, 4 Nos. 400 kV bays were kept for RE injection directly at 400 kV level of Raghnesda (GIS) S/s.
- 4.1.3 Representative from CTUIL stated that connectivity applications for 3450 MW have already been received.
- 4.1.4 CTUIL stated that in order to accommodate cumulative capacity of 650 MW at 220 kV level of Raghnesda PS (out of the 3500 MW which can be evacuated on Ph-I system) as well as additional capacity for about 500 MW (beyond 3000 MW) augmentation of Transformation Capacity at Raghnesda PS by 1x1500 MVA, 765/400 kV ICT (4<sup>th</sup>) is required. Accordingly, CTUIL proposed a transmission scheme “Network Expansion in Gujarat for RE interconnection at Raghnesda PS” for an estimated cost of Rs. 247 Cr which includes Installation of 1x1500 MVA, 765/400 kV ICT (4<sup>th</sup>) at Raghnesda PS (Sec-I), Creation of 220 kV switchyard (Bus Sec-I) at Raghnesda PS (GIS) along with installation of 2x500 MVA, 400/220 kV ICTs, and 2 Nos. 220 kV line bay (GIS) (on 220 kV Bus Sec-I).
- 4.1.5 Chairperson, CEA enquired for time extension required if the proposed scope is clubbed with the scheme already under bidding. Representative of PFCCL mentioned that additional one month will be sufficient.
- 4.1.6 Representative of CTUIL stated that the time frame of under tendering scheme was 30 months. However, implementation time frame of one of the applicants’ at 220 kV level is September, 2027 (300MW) & for another applicant is Mar’28 (350MW). In this respect, it was deliberated that the 400/220 kV ICT augmentation as well as 1 No. of 220 kV bay can be implemented by Sep-27 and the second 220 kV bay can be implemented later (by Mar’28). Further, the rest of the scheme, viz. 4x1500 MVA 765/400 kV ICTs at Raghnesda (incl. 4<sup>th</sup> ICT proposed under present scheme) & Raghnesda – Banaskantha 765 kV D/c line can be implemented in 27 months so as to accommodate any RE applicants coming at 400 kV level of Raghnesda and are desirous to come as early as Jun-27.
- 4.1.7 Accordingly, CTUIL proposed the following augmentation at Raghnesda PS:

Sl. No.	Scope	Capacity / line length km
1	Installation of 1x1500MVA, 765/400 kV ICT (4 <sup>th</sup> ) at Raghnesda PS (Sec-I)	1500MVA, 765/400 kV ICT-1 No.1 765kV ICT Bay – Nil (To be terminated in existing Dia.) 400 kV ICT Bay –1 No. (+ 1 No. for Dia. Completion, to be utilized for 1

Sl. No.	Scope	Capacity / line length km
		No. 400/220kV ICT termination for ICT proposed at Sl. 2)*
2	Creation of 220kV switchyard (Bus Sec-I) at Raghnesda PS (GIS) along with installation of 2x500MVA, 400/220 kV ICTs	500MVA, 400/220kV ICT – 2 No. 400 kV ICT bay – 1 No. (+ 1 No. for Dia completion) 220kV ICT bay – 2 Nos. 220kV BC – 1 No.
3	1 No. 220kV line bay (GIS) (on 220kV Bus Sec-I) for interconnection of Solar project of Sunsure Solarpark RJ One Pvt. Ltd. (2200001018) (350MW)	220kV line bay–1 No.
4	1 No. 220kV line bay (GIS) (on 220kV Bus Sec-I) for interconnection of Solar project of Azure Power Sixty Three Pvt. Ltd. (2200001107) (300MW)	220kV line bay–1 No.
<b>Note:</b> TSP of Raghnesda PS shall provide requisite space for above scope of work.		

4.1.8 After deliberations, NCT recommended that the augmentation proposed by CTUIL may be added to the transmission scheme under bidding viz. “Transmission System for evacuation of RE power from Raghnesda area of Gujarat– 3 GW under Phase-I” with modified implementation timeframe of the scheme as 27 months from the date of SPV transfer:

4.1.9 Summary of the scheme is given below:

Sl. No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Crore)	Remarks
1.	Transmission system for evacuation of RE power from Raghnesda Area of Gujarat-3 GW under Phase-I  Tentative implementation timeframe: Sl. 1 to 3: 27 months, Sl. 4 & 5: 30.09.2027 (subject to minimum 27 months) & Sl. 6: 31.03.2028	2102	Recommended under TBCB route with PFCCCL as BPC

4.1.10 Detailed scope of the scheme is given below:

Sl. No.	Scope of the Transmission Scheme	Capacity
1.	Establishment 4x1500 MVA, 765/400 kV Substation near Raghnesda (GIS) with 2x330 MVAR, 765 kV bus reactor and 2x125 MVAR, 420 kV bus reactor  <b>Future Scope (Space for):</b> ➤ 765/400 kV ICT along with bays- 4 Nos. (on Sec-II)	<ul style="list-style-type: none"> <li>• 765/400 kV, 1500 MVA ICT – 4 Nos. (13x500 MVA single phase units including one spare ICT Unit)</li> <li>• 765 kV ICT bays – 4 Nos.</li> <li>• 400 kV ICT bays – 4 Nos.</li> </ul>

Sl. No.	Scope of the Transmission Scheme	Capacity
	<ul style="list-style-type: none"> <li>➤ 765 kV line bays along with switchable line reactors – 8 Nos. (4 Nos. on Sec-I &amp; 4 Nos. on Sec-II)</li> <li>➤ 765 kV Bus Reactor along with bay: 2 Nos. (on Sec-II)</li> <li>➤ 765 kV Sectionalizer: 1 -set</li> <li>➤ 400 kV line bays along with switchable line reactors– 12 Nos. (4 Nos. on Sec-I &amp; 8 Nos. on Sec-II)</li> <li>➤ 400/220 kV ICT along with bays - 6 Nos. (2 Nos. on Sec-I &amp; 4 Nos. on Sec-II) (in addn. to 2 Nos. 400/220 ICTs on Sec-I in present scope)</li> <li>➤ 400 kV Bus Reactor along with bays: 2 Nos. (Sec-II)</li> <li>➤ 400 kV Sectionalization bay: 1- set</li> <li>➤ 220 kV line bays: 10 Nos. (4 Nos. on Sec-I &amp; 6 Nos. on Sec-II) (in addn. to 2 Nos. 220kV bays on Sec-I in present scope)</li> <li>➤ 220 kV Sectionalization bay: 1 set</li> <li>➤ 220 kV BC: 1 No. (for Sec-II)</li> <li>➤ Establishment of 6000 MW, ± 800 kV Raghnesda (HVDC) [LCC] terminal station (4x1500 MW) along with associated interconnections with 400 kV HVAC Switchyard &amp; all associated equipment (incl. filters)/bus extension, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• 765 kV Line bays – 2 Nos.</li> <li>• 1x330 MVA, 765 kV bus reactor- 2 Nos. (7x110 MVAR single phase Reactors including one spare Unit for bus /line reactor)</li> <li>• 765 kV Bus reactor bay – 2 Nos.</li> <li>• 125 MVA, 420 kV reactor- 2 Nos.</li> <li>• 400 kV Reactor bay- 2 Nos.</li> <li>• 400 kV line bays - 4 Nos. (for interconnection of RE Projects)</li> </ul>
2.	Raghnesda (GIS) – Banaskantha (PG) 765 kV D/c line	Route length: 95 km
3.	2 Nos. 765 kV line bays at Banaskantha (PG) S/s	765 kV line bays – 2 Nos.
4.	Creation of 220kV switchyard (Bus Sec-I) at Raghnesda PS (GIS) along with installation of 2x500MVA, 400/220 kV ICTs	500MVA, 400/220kV ICT – 2 No. 400 kV ICT bay – 2 Nos. 220kV ICT bay – 2 Nos. 220kV BC – 1 No.
5.	1 no. 220kV line bay (GIS) (on 220kV Bus Sec-I) for interconnection of Solar project of Azure Power Sixty Three Pvt. Ltd. (2200001107) (300MW)	220kV line bay–1 No.
6.	1 No. 220kV line bay (GIS) (on 220kV Bus Sec-I) for interconnection of Solar project of Sunsure Solarpark RJ One Pvt. Ltd. (2200001018) (350MW)	220kV line bay–1 No.

**Note:**

- TSP of Banaskantha S/s (POWERGRID) shall provide space for scope at Sl. 3 above.
- Bay(s) required for completion of diameter (GIS) in one-and-half breaker scheme shall also be executed by the TSP.

**4.2 Augmentation of transformation capacity and Implementation of line bays at Mandsaur S/s for RE Interconnection**

4.2.1 Representative of CTUIL stated that for the evacuation of 2 GW RE from Neemuch / Mandsaur region in MP, establishment of 765/400 kV Mandsaur S/s with 3x1500 MVA 765/400 kV ICTs & 5x500 MVA, 400/220kV ICTs along with Mandsaur – Indore 765 kV D/c line is already under implementation with SCOD of Aug’26 and Mandsaur – Kurawar 765kV D/c line is under implementation with SCOD of Oct’26. Further, for

evacuation of power from Sirohi PS (2 GW) & Merta-II PS (2GW) in Rajasthan, Mandsaur PS – Khandwa (New) 765 kV D/c line was also planned, which is under tendering stage. Based on load flow studies, the same has also been linked with RE projects beyond 2 GW received at Mandsaur PS.

- 4.2.2 It was further informed that till Oct-24, applications for about 4.5 GW have been received at Mandsaur PS (2998MW at 220kV level and 1500MW (600: Sprng and 900 NTPC REL) at 400 kV level. To accommodate the same, Augmentation of transformation capacity is required at Mandsaur PS by 2x500 MVA 400/220 kV ICTs, 1x1500 MVA, 765/400 kV ICT (4<sup>th</sup>) along with 400 kV and 220 kV line bays for RE interconnection is proposed.
- 4.2.3 After deliberations, NCT approved the scheme “Augmentation of transformation capacity & Implementation of line bays at Mandsaur S/s for RE Interconnection” under TBCB route as mentioned below:
- 4.2.4 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 & Implementation of line bays at Mandsaur S/s for RE Interconnection  <b>Tentative implementation timeframe:</b> <ul style="list-style-type: none"> <li>● Scope at Sl. 1, 2, 3, 4 &amp; 6: Matching with SCOD of Mandsaur – Khandwa 765kV D/c line being implemented under Transmission system for Common Evacuation of Power from Sirohi PS (2 GW) &amp; Merta-II PS (2GW), which is currently under tendering stage subject to minimum schedule of 18 months.</li> <li>● Scope at Sl. 5: 31.03.2027 or Matching with SCOD of Mandsaur – Khandwa 765kV D/c line, whichever is later subject to minimum schedule of 18 months</li> <li>● Scope at Sl. 7 &amp; 8: 15.06.2027 or Matching with SCOD of Mandsaur – Khandwa 765kV D/c line, whichever is later (subject to minimum schedule of 18 months)</li> <li>● Scope at Sl. 9: 30.03.2028</li> </ul>	319	Recommended under TBCB route with PFCCCL as BPC

4.2.5 Detailed scope of the scheme is given below:

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
1	Creation of New 400 kV & 765kV Bus Section-II through Sectionaliser arrangement	765 kV Sectionalization bay: 1- set (so that Sirohi & Khandwa (New) 765kV D/c lines, currently under tendering, are

Sl. No.	Scope of the Transmission Scheme	Capacity / line length km
		terminated on New 765kV Bus Section-II) 400 kV Sectionalization bay: 1- set
2	Augmentation of Transformation capacity by 1x1500MVA, 765/400 kV ICT (4 <sup>th</sup> ) (Terminated at 400 kV & 765kV Bus Section-II)	765/400 kV, 1500 MVA ICT – 1 No. 765kV ICT bay - 1 No. on Sec-II 400 kV ICT bay - 1 No. on Sec-II
3	Augmentation of Transformation capacity by 1x500MVA, 400/220kV ICT (6 <sup>th</sup> ) (Terminated on 400 kV Bus Section-I & 220kV Bus Section-II)	1x500MVA, 400/220kV ICT – 1 No. 400 kV ICT bay - 1 No. on Sec-I 220kV ICT bay - 1 No. on Sec-II
4	1 No. 220kV line bay (on 220kV Bus Sec-II) at Mandasaur PS for interconnection of Solar project of Waaree Renewable Technologies Ltd. (WRTL) (2200001192) (300MW)	220kV line bay – 1 No. on Sec-II
5	1 No. 400 kV line bay at Mandasaur PS (on 400 kV Bus Sec-II) for interconnection of Solar project of NTPC Renewable Energy Ltd. (NTPCREL) (2200001301) (300MW)	400 kV line bay – 1 No. on Sec-II
6	Augmentation of Transformation capacity by 1x500MVA, 400/220kV ICT (7 <sup>th</sup> ) (Terminated on 400 kV Bus Section-II & 220kV Bus Section-III) at Mandasaur PS	1x500MVA, 400/220kV ICT – 1 No. 400 kV ICT bay - 1 No. on Sec-II 220kV ICT bay - 1 No. on Sec-III
7	Creation of New 220kV Bus Section-3 with Sectionalizer arrangement at Mandasaur PS	220 kV Sectionalization bay: 1- set 220kV BC & TBC – 1 No.
8	1 No. 220kV line bay at Mandasaur PS (220kV New Bus Section-3) for interconnection of wind project of JSP Green Pvt. Ltd. (JSPGPL) (2200001356) (350MW)	220kV line bay – 1 No. on Sec-III
9	1 No. 220kV line bay at Mandasaur PS (220kV New Bus Section-3) for interconnection of Hybrid project of TEQ Green Power XXII Pvt. Ltd. (TGP XXII PL) (2200001431) (250MW)	220kV line bay – 1 No. on Sec-III
<p><i>Note: TSP of Mandasaur PS shall provide requisite space for above scope of work (free of cost)</i></p>		

### 4.3 Paradeep – Andaman – Nicobar HVDC link

4.3.1 Keeping in view the long-term power requirement of Andaman & Nicobar Islands (ANI); to supply clean and reliable power towards greening the island initiative; reduce

dependency on diesel generators; reduce greenhouse gas emissions; and improve reliability, security and quality of power supply, a HVDC link from mainland to ANI through undersea cable has been envisaged.

4.3.2 In the 20<sup>th</sup> meeting of the NCT held on 25-06-2024, feasibility of  $\pm 320$  kV, 500 MW HVDC Bipole Paradeep – Andaman interconnection (about 1150 km) with 250 MW HVDC terminals at both ends in first phase was discussed. In that meeting, NCT directed CTUIL to carry out the following comparison/studies:

- Techno economic studies of comparison between diesel-based plant and laying of subsea cable shall be carried out by considering the 30-35 years life span of cables.
- Financial support to bring down the transmission cost of the scheme and subsequently tariff.
- Probable ways of funding
- Sharing of cost/transmission charges

4.3.3 CTUIL mentioned that the necessary comparison/studies have been carried out assuming DPR cost of the project: INR 30762 Cr, Project completion: 60 months, Present Land cost of electricity with DG (Rs/kWh): ₹44.5, Growth Rate of Diesel price (based on Crude oil price): 4.98% (CAGR of last 35 years), Energy cost mainland (input cost) (Rs/kWh): ₹4.5 with growth rate of 3%, ISTS Wheeling Charges (Rs/kWh): ₹0.7 with growth rate of 5.65%, Year wise demand data (MW and MU) projected by CEA etc. The analysis has been conducted for the scenarios such as, (A) with complete DPR cost with RTM mode of recovery, (A1) with complete DPR cost considering levelized tariff: INR 3759 Cr. (12.2%), (B) with low interest loan: Interest rate of loan as 1%, (C) With waiver of taxes and duties, IDC etc.: ₹25,897 Cr., (D) With 50% VGF: ₹15,381 Cr., (E) With all the above i.e. (B) + (C) + (D) considering RTM mode of recovery.

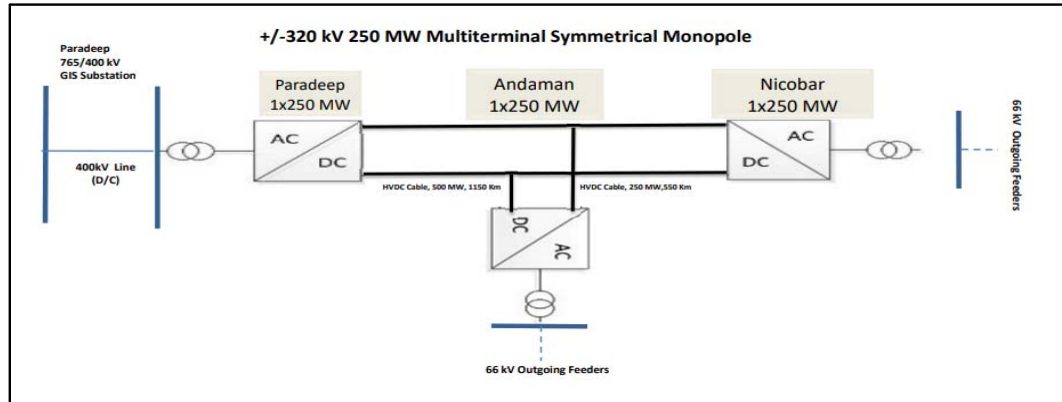
4.3.4 Representative of CTUIL further mentioned that after carrying out the comparison/studies and considering that HVDC link shall be available in 2031, Cost of Electricity with Diesel generation shall be about ₹62.5/kWh in 2031. Further, from 6<sup>th</sup> year of operation, the HVDC link shall provide electricity at cost lower than the cost of electricity through Diesel generation. Any form of financial assistance like low interest loan, waiver of taxes & duties, VGF or combination of these, shall make the HVDC link viable in the 2<sup>nd</sup> – 3<sup>rd</sup> year of operation itself.

4.3.5 Representative of Grid-India emphasized on the need of maintaining adequate local generation within the island from reliability and resilience consideration, especially during the outage of the proposed HVDC link.

4.3.6 It was deliberated that new bulk power demand is expected in greater Nicobar area. Accordingly, this link can be extended to greater Nicobar Island. Various alternatives regarding the Paradeep – Andaman – Greater Nicobar were deliberated and a configuration comprising of three 250 MW VSC Symmetrical Monopole HVDC Terminals one each at Paradeep, Andaman Islands and Greater Nicobar Islands and 500 MW HVDC cable from Paradeep to Andaman and 250 MW HVDC Cable from Andaman Islands to Greater Nicobar Islands was decided from techno-economical point of view.

4.3.7 Further, three alternatives were examined for voltage rating viz.  $\pm 200$  kV,  $\pm 320$  kV and  $\pm 525$  kV. Losses at  $\pm 200$  kV would be much higher compared to higher voltage alternatives.  $\pm 525$  kV voltage would require larger land and considerable increase in price considering the low quantum of power transfer. Therefore,  $\pm 320$  kV voltage is chosen as the most suitable techno-commercial option to optimize cost and land requirement compared to the  $\pm 525$  kV alternative and better efficiency (less loss) compared to the  $\pm 200$  kV solution.

4.3.8 Considering the present and future demand expected at Andaman Islands and Greater Nicobar Islands,  $\pm 320$  kV, 250 MW Multi-Terminal Symmetrical Monopole HVDC link with 250 MW terminals each at Paradeep (Odisha), Andaman Islands and Greater Nicobar Islands is technically feasible. The cable from Paradeep to Andaman Islands shall have 500 MW rating and the one from Andaman to Greater Nicobar shall be rated for 250 MW. Space shall be kept at Paradeep HVDC station for upgradation of terminal by 250 MW when total demand towards the A&N Islands exceeds 250 MW. A schematic is given below:



4.3.9 The Cost Estimate of this revised configuration shall be ₹ 37,981 Cr. [₹ 30,524 Cr. excluding T & D].

4.3.10 The detailed scope of works is as below:

**A. Transmission Line**

- (a) 400 kV D/c (Twin Moose) Paradeep 765/400 kV GIS S/S - Paradeep HVDC Station line: **12 km**
- (b) Paradeep HVDC Station – Andaman Island: 320 kV, 500 MW HVDC Undersea Cable: **1150 km**
- (c) Andaman Island – Nicobar Island 320kV, 250 MW HVDC Undersea Cable: **550 km**

*Remarks: 66 kV lines at Andaman and Nicobar side not considered and expected to be under Andaman & Nicobar Electricity Department Scope.*

**B. Substation**

- (a) Establishment of new HVDC station at Paradeep, Orissa



- $\pm 320$  kV, 250 MW VSC based Symmetric Monopole HVDC terminal at Paradeep, Orissa
- Power will be injected at 400 kV AC bus through VSC converter transformers
  - 400 kV line bays (AIS): 2 nos. for termination of Paradeep HVDC Station – Paradeep 765/400 kV GIS Substation (400 kV D/c Twin Moose) line
  - 400 kV VSC bays: 2 Nos. for evacuation through VSC Pole
- (b) Extension at Paradeep 765/400 kV GIS Substation S/S
  - 2 Nos. 400 kV line bays (GIS) at Paradeep 765/400 kV GIS Substation S/S for termination Paradeep HVDC Station – Paradeep 765/400 kV GIS Substation 400 kV D/c (Twin Moose) line
- (c) Establishment of new HVDC station at Andaman Island
  - $\pm 320$  kV, 250 MW VSC based Symmetric Monopole HVDC terminal at Andaman Island
  - Power will be drawn at 66 kV AC bus through VSC interface transformers
    - 12 nos. 66kV GIS line bays for termination of outgoing 66kV feeder
    - 1 No. 66kV GIS (3000 A) VSC Bay for evacuation from VSC System
- (d) Establishment of new HVDC station at Nicobar Island
  - $\pm 320$  kV, 250 MW VSC based Symmetric Monopole HVDC terminal at Nicobar Island
  - Power will be drawn at 66 kV AC bus through VSC interface transformers
    - 12 Nos. 66kV GIS line bays for termination of outgoing 66kV feeder
    - 1 No. 66kV GIS (3000 A) VSC Bay for evacuation from VSC System

4.3.11 NCT opined that the scheme Paradeep – Andaman – Nicobar HVDC link may be implemented under Green Energy Corridor-III scheme for availing grant. The HVDC system may also be included under National Component in similar manner to Biswanath Chariali – Alipurduar – Agra HVDC system to bring down the tariff burden for Andaman and Nicobar Islands.

4.3.12 NCT deliberated that ideally the scheme should be given in TBCB mode. However, Andaman and Nicobar Islands being strategic location, the scheme, when finalized, may be given to Government entity under RTM mode.

4.3.13 After deliberations, following was recommended by the NCT:

- (a) The “Paradeep – Andaman – Nicobar HVDC link” shall be of  $\pm 320$  kV Multi-Terminal Symmetrical Monopole configuration with 250 MW terminals to be installed at all three locations in Phase-I along with space for 2<sup>nd</sup> 250 MW terminal at Paradeep. The capacity of undersea cable from Paradeep to Andaman Islands shall be 500 MW and that from Andaman Islands to Greater Nicobar Islands shall be 250 MW. Detailed scope of works is mentioned above at para 4.3.10.

- (b) Implementation timeframe for the links – 5 years from the date of allocation
- (c) The HVDC scheme may be taken up for implementation through RTM mode in view of strategic location of Greater Nicobar Islands.
- (d) Grant, if any, for this HVDC scheme may be considered under Green Energy Corridor-III scheme.
- (e) The HVDC system may be included under the National Component mentioned in the CERC Sharing Regulations for tariff recovery purpose.

#### **4.4 CERC observation on variation in the Investment Approval (IA) cost as compared to the estimated cost by CTUIL for the transmission schemes awarded to the existing Transmission Licensees**

- 4.4.1 Transmission schemes with estimated cost of less than ₹100 Crores are awarded by CTUIL to the existing Transmission Licensees (POWERGRID as well as other TBCB Licensees) along with estimated cost and implementation timeframe.
- 4.4.2 Representative from CTUIL stated that POWERGRID vide letter dt 04.12.2024 has informed CTUIL that they are in receipt of tariff order dated 01.11.2024 issued by the Hon'ble CERC in the petition Nos. 351/TT/2023 regarding approval of transmission tariff for the tariff period 2019-24 for the project "Eastern Region Expansion Scheme-XXVI" in Eastern Region. In the said tariff order, CERC has observed that estimated cost considered by CTUIL while approving the scheme was ₹ 27.00 Crores and Investment approval (IA) approved by the petitioner's board was ₹ 32.10 crores. Thus, there is variation of about ₹5.10 crores (18.88%) compared with the estimated cost of CTUIL. the commission directs CTUIL to put in place a procedure in consultation with NCT for ratification/approval of the schemes in case of the following (1) variation of IA cost beyond 10% of CTUIL's estimated cost, (2) Where the IA cost arrived at by the implementing agency exceeds 100 cr. for a transmission scheme awarded by CTUIL.
- 4.4.3 The matter was deliberated in NCT and it was decided that the following procedure shall be followed by CTUIL in case variation of DPR cost is beyond 10% of CTUIL's estimated cost.
  - a. Within 30 days of the allocation of the project/scheme by CTUIL, the Transmission Licensee (TSP) shall intimate the DPR cost alongwith break-up of cost estimate including compensation cost with supporting documents to CTUIL.
  - b. CTUIL shall analyse the DPR cost as submitted by TSP and may ask for further clarification along with supporting documents as required within 7 days' time. TSP shall furnish the requisite details to CTUIL within another 7 days' time.
  - c. CTUIL shall prepare a comparison statement of their original estimated cost vs Licensee's DPR cost. After due diligence, CTUIL shall revise the cost estimate of the ISTS project/scheme, if required and intimate the revised cost estimate to TSP

without any change in timeline of the project/scheme within 10 working days if the CTUIL revised cost estimate of ISTS project/scheme is less than Rs.100 Cr.

- d. If CTUIL revised cost estimate of ISTS project/scheme is greater than Rs. 100 Cr., then CTUIL shall bring up the scheme in the NCT as a fresh agenda.

**4.5 Alignment of packages of Transmission Schemes**

**4.5.1 Rajasthan Ph-IV Part-2 (5.5 GW) scheme**

4.5.1.1 Representative from CTUIL stated that in the 22<sup>nd</sup> meeting of NCT, the matter for alignment of Rajasthan Ph-IV Part-2 (5.5 GW) scheme was discussed wherein CTUIL informed that as per the Gazette notification, all the packages of Rajasthan Ph-IV Part- 2 (5.5 GW) scheme packages i.e. Part A, B, C, D, E, F, H1, H2 to be aligned and awarded at same time. The H2 package (RTM) was later decided to be matched with H1 package. CTUIL further mentioned that Part C and Part-E were transferred to the successful bidder on 19.08.2024 (REC), Part-A was transferred to the successful bidder on 21.08.2024 (REC) whereas Part B and Part D were transferred to the successful bidder on 22.08.2024 (PFC). Matter was also discussed in 22<sup>nd</sup> NCT meeting held on 23.08.2024 wherein it was decided that RECPDCL may align its packages i.e. Part-A, C & E to Part-B & D (PFCCL) i.e. 22/08/24. However, above packages were not aligned.

4.5.1.2 It was further informed that CERC vide ROP for hearing dated 30/12/24 on TL petitions for above packages asked CTUIL to explore possibilities of amending the TSAs to align the SCOD of all five packages (A to E) with the concerned/relevant stakeholders and file an affidavit indicating outcome thereof within 2 weeks.

4.5.1.3 After deliberations, NCT agreed that the SCOD of Rajasthan Ph-IV Part-2 (5.5 GW) Part-A, C & E (RECPDCL) may be aligned to Part-B & D (PFCCL) i.e. SCOD-22/08/26 by amending the respective TSAs, as mentioned below. Further, the balance packages (Part-F, H1/H2) SCOD will be as per their already signed TSA/schedule.

Sl. No.	Name of Project	Name of successful bidder	SCOD as per present TSA	SCOD as per modified TSA
1.	Rajasthan Ph-IV Part-2 Part A	Rajasthan IV A Power transmission Ltd.	21.08.2026	22.08.2026
2.	Rajasthan Ph-IV Part-2 Part B	Sirohi Transmission Ltd.	22.08.2026	22.08.2026
3.	Rajasthan Ph-IV Part-2 Part C	Rajasthan IV C Power transmission Ltd.	19.08.2026	22.08.2026
4.	Rajasthan Ph-IV Part-2 Part D	Beawar - Mandsaur Transmission Ltd.	22.08.2026	22.08.2026
5	Rajasthan Ph-IV Part-2 Part E	Rajasthan IV E Power Transmission Ltd.	19.08.2026	22.08.2026
6	Rajasthan Ph-IV Part-2 Part F	Barmer I Transmission Ltd.	07.11.2026	NA
7	Rajasthan Ph-IV Part-2 Part H1	Rajasthan IV H1 Power Transmission Ltd.	15.10.2026	NA

**4.5.2 Transmission system for evacuation of power from potential renewable energy zone in Khavda area of Gujarat under phase-IV (7 GW): Part A to D.**

4.5.2.1 Representative of CTUIL stated that as per Gazette notification No. CG-DL-E-06092023-248580 dt 29.08.2023 all the SPVs of Parts A, B, C & D of Khavda Ph-IV (7 GW) are mandated come in matching timeframe of 24 months from effective date.

4.5.2.2 The matter was taken up in the meeting Chaired by JS (Transmission), MoP on 30-08-2024 wherein it was decided that at least SPV handover of Package C (by REC) and Package B (by PFC) should be aligned on the same day. The same would also be informed in the forthcoming NCT meeting.

4.5.2.3 CTUIL mentioned that in line with the meeting Chaired by JS (Transmission) on 30-08-2024, SCOD of Part-B & Part-C has been aligned as per details mentioned below:

Sl. No.	Name of Project	Name of successful bidder	Effective Date	SCOD as per Gazette	SCOD as per TSA
1.	Transmission system for evacuation of power from potential renewable energy zone in Khavda area of Gujarat under phase-IV (7 GW): Part A	Adani Energy Solutions Limited	30.08.2024	24 months from effective date	30.08.2026
2.	Transmission system for evacuation of power from potential renewable energy zone in Khavda area of Gujarat under phase-IV (7 GW): Part B	POWER GRID CORPORATION OF INDIA LIMITED	15.10.2024	24 months from effective date	15.10.2026
3.	Transmission system for evacuation of power from potential renewable energy zone in Khavda area of Gujarat under Phase-IV (7 GW): Part C	Sterlite Grid 38 Limited	15.10.2024	24 months from effective date	15.10.2026
4.	Transmission system for evacuation of power from potential renewable energy zone in Khavda area of Gujarat under phase-IV (7 GW): Part D	Adani Energy Solutions Limited	19.11.2024	24 months from effective date	19.11.2026

4.5.2.4 It was mentioned that Parts A and D are not directly linked with commissioning of Parts B & C and can be commissioned independently.

4.5.2.5 NCT noted the alignment in the SCOD of Part-B & Part-C for the above mentioned transmission schemes.

**4.6 Redundant Communication for Salal (NHPC) station**

4.6.1 Representative from CTUIL stated that at present Salal Generating Station (NHPC) is connected with radial path from Salal-Kishenpur and no redundant communication path is available, same was highlighted by NRLDC during 25th TeST Meeting of NRPC held on 25.06.2024. Any issues of communication in this path may lead to outage of Salal data. Non-availability of data leads to non-visibility of Salal Generation and difficulty in computation of drawl of J&K.

4.6.2 After deliberations NCT approved the communication scheme “Redundant Communication for Salal (NHPC) station” as mentioned below:

4.6.3 Summary of the scheme is given below:

Sl. No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Cr)	Remarks
1.	Redundant Communication for Salal (NHPC) station Tentative implementation timeframe: 18 months from the date of allocation	₹ 3.41 Cr	Approved under RTM by POWERGRID

4.6.4 Detailed scope of the scheme is given below:

Sl. No.	Scope of the transmission scheme
1	Installation of OPGW (48F) on existing 220 kV Salal (NHPC)-Jammu (Gladini) (JKPTCL) S/c line (Total 62 km.)

**4.7 Redundant Communication for Tuticorin GIS (PG) Substation.**

4.7.1 Representative of CTUIL stated that Tuticorin GIS (PG) is presently connected with ISTS communication network via Tuticorin PS with single fibre path. In the 4<sup>th</sup> & 6<sup>th</sup> CPM of SR held on 31.07.2023 & 13.08.2024 respectively, redundant communication of Tuticorin GIS was deliberated.

4.7.2 Further, it was mentioned that that there are two separate 400 kV D/c lines are available between Tuticorin GIS & Tuticorin PS, therefore redundant communication of Tuticorin GIS can be created by installing OPGW on 2nd 400 kV Tuticorin GIS-Tuticorin PS line (Line length is 25 Km). Further as discussed with POWERGRID no additional FOTE are required as existing FOTE shall suffice this new link requirement.

4.7.3 After deliberations NCT approved the communication scheme “Redundant Communication for Tuticorin GIS (PG) Substation” as mentioned below:

4.7.4 Summary of the scheme is given below:

Sl. No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Cr)	Remarks
1.	Redundant Communication for Tuticorin GIS (PG) Substation Tentative implementation timeframe: 18 months from the date of allocation	₹ 1.38 Cr	Approved under RTM by POWERGRID

4.7.5 Detailed scope of the scheme is given below:

Sl. No.	Scope of the transmission scheme
1	Supply & installation of OPGW (48 Fiber) on Tuticorin GIS -Tuticorin PS Line (Total 25 kms.)

**4.8 Establishment of Communication for New SRLDC Building (at CPRI Campus)**

4.8.1 Representative from CTUIL stated that Grid-India have plan to shift their existing SRLDC building to new location (at CPRI Campus). Further SRLDC/Grid-India has requested CTU to plan communication system for their new upcoming SRLDC building for Grid-Operation. They have also informed that existing communication system shall remain at the existing location in view of Life Cycle of SCADA / REMC and other systems.

4.8.2 CTUIL also mentioned that for connectivity of the new SRLDC building (at CPRI Campus) communication including BoQ, Cost and links required to be created, Considering the requirement of uninterrupted real time voice/ data communication between upcoming SRLDC building (CPRI campus), POWERGRID (Somanhalli) and existing SRLDC, two (2) redundant paths are proposed. The scheme has been deliberated in the 53rd SRPC held on 30.11.2024.

4.8.3 Grid-India representative stated that the 48F UGFO cable being installed in the CPRI campus is intended for last-mile connectivity in multiple directions. It will support the SRLDC control centre for grid applications, provide an alternate communication path for new technology migrations, and cater to RTU, ICCP, VOIP, PMU, AGC, and other requirements.

4.8.4 After deliberations, NCT approved the transmission scheme “Establishment of Communication for New SRLDC Building (at CPRI Campus)” under RTM mode.

4.8.5 Summary of the scheme is given below:

Sl. No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Crore)	Remarks
1.	Establishment of Communication for New SRLDC Building (at CPRI Campus) Implementation timeframe: 24 months from the date of allocation with matching timeframe of commissioning of SRLDC building	₹ 11.84 Cr	Approved under RTM to POWERGRID

4.8.6 Detailed scope of the scheme is given below:

Sl. No.	Scope of the Transmission Scheme
1.	Supply & installation of OPGW (48F) - 115 Km, UGFO (48F) - 15 Km, 9 Nos. of FOTE, 3 set of Battery Bank along with charger & DCDB (2 sets at New SRLDC building and 1 set existing SRLDC building)

**4.9 Upgradation of existing STM-4 equipment to STM-16 equipment due to bandwidth congestion**

4.9.1 Representative of CTUIL informed that for the following STM-4 links network bandwidth is utilised more than 75%:

- a) Kudankulam - Tutricoin PS- Madurai- Udumelpet
- b) Kudankulam- Tirunelveli- Trivandrum
- c) Tirunelveli - Edamon
- d) Gooty- Kurnool
- e) Gooty- Gooty (Ap)
- f) Pugular HVDC – Arasur – Udumelpet

4.9.2 To increase network bandwidth in the above links and for smooth Grid-Operation, following augmentation was proposed:

- (a) 5 Nos. of FOTE, one each at Kudankulam, Tuticorin PS, Edamon, Pugalar HVDC and Arasur are required to be upgrade from STM-4 to STM-16 alongwith optical interfaces.
- (b) Optical interfaces required for Gooty (PG) - Kurnool (PG) link and Gooty (PG) – Gooty (AP) link.

4.9.3 After deliberations, NCT approved the communication scheme “Upgradation of existing STM-4 equipment to STM-16 equipment due to bandwidth congestion” under RTM mode as follows.

4.9.4 Summary of the scheme is given below:

SI No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹Cr)	Remarks
1.	Upgradation of existing STM-4 equipment to STM-16 equipment due to bandwidth congestion Tentative implementation timeframe: 12 months from date of allocation of project	₹ 1.50 Cr	Approved under RTM to POWERGRID

4.9.5 Detailed scope of the scheme is given below:

S.N.	Substation Name	Nos. of FOTE required
(a) 5 Nos. of FOTE are required to be upgrade from STM-4 to STM-16 alongwith optical interfaces:		
1	Kudankulam	1
2	Tuticorin PS	1
3	Edamon	1
4	Pugalar HVDC	1
5	Arasur	1
(b) Optical interfaces for the following links: (i) Gooty (PG) - Kurnool (PG) link 150 Km solution SFPs (ii) Gooty (PG) – Gooty (AP) link Short Haul SFP (S16.1) required.		

**4.10 OPGW replacement on 132 kV Kahilipara - Umiam Stg. III -Umiam Stg. I – NEHU link & OPGW laying on 132kV Sarusujai to Umtru line and UGFO laying from NERLDC Guwahati to Gantry of Kahilipara S/s for back up NERLDC connectivity**

4.10.1 Representative from CTUIL stated that in order to maintain reliability of communication system at mission-critical establishment of NERLDC as well as regional communication backbone network, it is essential to replace the 12F link on 132kV Kahilipara – Umiam Stg. III – Umiam Stg. I –NEHU with 48F fiber link.

4.10.2 After deliberations NCT approved the communication scheme “OPGW replacement on 132 kV Kahilipara - Umiam Stg. III -Umiam Stg. I – NEHU link & OPGW laying on 132kV Sarusujai to Umtru line and UGFO laying from NERLDC Guwahati to Gantry of Kahilipara S/s for back up NERLDC connectivity” under RTM.

4.10.3 Summary of the scheme is given below:

SI No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹Cr)	Remarks
1.	OPGW replacement on 132 kV Kahilipara - Umiam Stg. III -Umiam Stg. I – NEHU link & OPGW laying on 132kV Sarusujai to Umtru line and UGFO laying from NERLDC Guwahati to Gantry of Kahilipara S/s for back up NERLDC connectivity Tentative implementation timeframe: 24 months from date of allocation of project	₹ 15.84 Cr	Approved under RTM to POWERGRID

4.10.4 Detailed scope of the scheme is given below:

SI. No.	Scope of the Transmission Scheme
1.	a) Replacement of the 12F OPGW in 132 kV Kahilipara – Umiam Stg. III – Umiam Stg. I – NEHU link by laying of 48F OPGW on 132 kV Kahilipara -Umtru- Umiam Stg. III –Umiam Stg.I -Umiam S/s – NEHU (including Umtru and 132kV Umiam S/s connectivity) (approx. 89.26 kms). b) Laying of 48F OPGW on 132kV Sarusujai to Umtru line (approx. 40 kms) alongwith STM-16 FOTE equipment at Umtru end. c) Laying of two 24F underground fiber optic(UGFO) cable (2x1km) from NERLDC Guwahati to Gantry of Kahilipara(one for NERLDC to Sarusujai and the other for NERLDC to Umtru direction)

**4.11 Establishment of redundant fibre path between NERLDC, Shillong, Khelieriat and NEHU by OPGW replacement on 132kV NEHU-Khliehriat ckt-1 line and laying of UGFO cable from Tower 25 of 132 kV NEHU – Mawlyndep line to NERLDC, Shillong**

4.11.1 Representative from CTUIL stated that 12F OPGW on 132kV NEHU-Khliehriat ckt-1 line contains critical ISTS data and at present this is the only path for NERLDC connectivity. 12F OPGW between NEHU to Khliehriat was laid in ULDC phase-I by POWERGRID however, line ownership belongs to Meghalaya. This line has completed



its useful life of 15 years and has deteriorated in its performance as informed by NERLDC. As such replacement of the same has become essential.

4.11.2 After deliberations NCT approved the communication scheme “Establishment of redundant fibre path between NERLDC, Shillong, Khelieriat and NEHU by OPGW replacement on 132kV NEHU-Khliehriat ckt-1 line and laying of UGFO cable from Tower 25 of 132 kV NEHU – Mawlyndep line to NERLDC, Shillong” under RTM

4.11.3 Summary of the scheme is given below:

SI No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹Cr)	Remarks
1.	Establishment of redundant fibre path between NERLDC, Shillong, Khelieriat and NEHU by OPGW replacement on 132kV NEHU-Khliehriat ckt-1 line and laying of UGFO cable from Tower 25 of 132 kV NEHU – Mawlyndep line to NERLDC, Shillong  Tentative implementation timeframe: 18 months from date of allocation of project	₹ 9.73 Cr	Approved under RTM to POWERGRID

4.11.4 Detailed scope of the scheme is given below:

SI No.	Scope of the Transmission Scheme
1.	a) Replacement of 12F existing OPGW by 48F OPGW on 132kV NEHU-Khliehriat ckt-1 (132 kV NEHU – NEIGRIHMS – Khliehriat line) with approx. line length as 73km. b) Laying of 48F underground fiber optic (UGFO) cable from Tower 25 of 132 kV NEHU – Mawlyndep line to NERLDC, Shillong with approx. line length as 3.5km.

**4.12 VOIP Communication system for Grid-Operation for all Five Regions NR, NER, SR, WR, ER as PAN India**

4.12.1 Representative from CTUIL stated that hot Line Speech Communication System (VOIP based PABX system) was implemented in 2016 by POWERGRID in all five regions after grid disturbance in 2012 where grid operators faced problem of fast communication due to unavailability of dedicated speech communication PAN India between NLDC, RLDCs, SLDCs, important State and ISTS substations and generators.

4.12.2 After deliberations NCT directed that a meeting may be convened by CEA with CTUIL, POWERGRID, and Grid India to examine the complete scope of VOIP to be brought up for consideration and approval in the next NCT meeting.

**4.13 Revision in Implementation Schedule for Communication schemes approved in 9<sup>th</sup>, 11<sup>th</sup> and 22<sup>nd</sup> NCT meeting**

4.13.1 CTUIL intimated that POWERGRID vide letter dated 01.11.2024 has requested for revision of time schedule of the ISTS Communication schemes approved in 9<sup>th</sup> NCT ,

11<sup>th</sup> NCT & 22<sup>nd</sup> NCT allocated to M/s POWERGRID under RTM mode due to constraints faced by them as mentioned below:

- Tender annulment as bid cost was more compared to NIT estimate
- Repackaging with STUs
- Implementation constraints
- RoW permissions for different sections, excavations in National Capital Territory, applicable GRAP restrictions etc.

4.13.2 CTUIL proposed to revise the implementation schedule as under:-

Sl. No.	NCT approved /OM date	List of Links	Implementation Schedule/Implementation date(as per OM)	Revised schedule proposed by POWERGRID
1.	9 <sup>th</sup> NCT/OM dtd 15/11/22	400 kV Vapi -Kakrapar	Matching time frame of upcoming LILO of these lines	10.01.2025
		400 kV Bachau-EPGL		05.03.2027
		400 kV Satna-Bina		05.03.2027
		765 kV Jaipur-Gwalior		05.03.2027
		400 kV Agra-Jaipur South		05.03.2027
2.	11 <sup>th</sup> NCT/OM dtd 16/02/23	400 kV Jalandhar (PG)-Kurukshetra (PG)	24months/ 16.02.2025	30.06.2027
		400 kV Agra-Ballabgarh	18 months/ 16.08.2024	20.11.2026
		400 kV Kishenpur-Wagoora	18 months /16.08.2024	20.11.2026
		Redundant communication System for Bhinmal(PG) and Kankroli	18 months/ 16.08.2024	28.09.2026
3.	22 <sup>nd</sup> NCT/OM dtd 02/09/24	Scheme for 48Fiber UGFO connectivity to New NLDC Building, New Delhi	12 months/ 02.09.2025	02.09.2026

4.13.3 After deliberations, NCT agreed to revise the Implementation time Schedule of ISTS Communication System Schemes, mentioned in Table below, as follows:-

- For line length less than 200 km - 18 months from the date of award
- For line length of 200 km and more - 24 months from the date of award.
- For the Communication System Scheme mentioned at SI No. 3 in the table above, the Implementation time Schedule is revised to 18 months.

4.13.4 Accordingly, revised implementation schedule of ISTS Communication System Schemes will be as under:

Sl. No.	NCT approved /OM date	List of Links	Length of Line (km)	Implementation Schedule/ Implementation date (as per OM)	Revised schedule
1.	9 <sup>th</sup> NCT/OM dtd 15/11/22	400 kV Vapi - Kakrapar	116	Matching time frame of upcoming LILO of these lines	10.01.25 POWERGRID told that scheme is

Sl. No.	NCT approved /OM date	List of Links	Length of Line (km)	Implementation Schedule/ Implementation date (as per OM)	Revised schedule
					covered in running packages.
2.		400 kV Bachau-EPGL	221		21.11.2026
3.		400 kV Satna-Bina	276		21.11.2026
4.		765 kV Jaipur-Gwalior	312		21.11.2026
5.		400 kV Agra-Jaipur South	254		21.11.2026
6.	11 <sup>th</sup> NCT/OM dtd 16/02/23	400 kV Jalandhar (PG)-Kurukshetra (PG)	229	24months/16.02.2025	10.01.2027
7.		400 kV Agra-Ballabgarh	181	18 months/16.08.2024	21.05.2026
8.		400 kV Kishenpur-Wagoora	183	18 months /16.08.2024	21.11.2026 (18 months from Award + 6 months for hilly terrain)
9.		Redundant communication System for Bhinmal (PG) and Kankroli	5	18 months/16.08.2024	21.05.2026
10.	22 <sup>nd</sup> NCT/OM dtd 02/09/24	Scheme for 48Fiber UGFO connectivity to New NLDC Building, New Delhi	35	12 months/02.09.2025	18 months/02.03.2026

**4.14 Implementation schedule for communication schemes**

4.14.1 Representative of CTUIL informed that POWERGRID has requested to revise the Implementation time Schedule of ISTS Communication System Schemes due to constraints being faced on account of RoW issues, Permit to Work (PTW) not being given timely etc. It was proposed to revise the Implementation time frame to 24 months for line length less than 200 km and 30 months for line length of 200 km and more. Moreover POWERGRID also requested that the Implementation time schedule should

be at least 36 months for lines lesser than 200 km and 48 months for lines greater than 200 km for hilly and snow bound terrains.

4.14.2 After deliberations, NCT decided that following implementation time Schedule of ISTS Communication System Schemes may be considered for future schemes:

- For line length less than 200 km - 24 months from the date of allocation
- For line length of 200 km and more - 30 months from the date of allocation.
- Further, additional 6 months may be given for hilly and difficult terrains.

## **5 Presentation by CTUIL**

5.1.1 CTUIL made a presentation on Inter-State Transmission System (ISTS) Rolling Plan report for 2027-28 time frame.

5.1.2 Based on the presentation, NCT advised CTUIL to consider the following for next rolling plan in association with CEA:

- Present scenario of RE both in Inter-State as well as in Intra-State.
- Distributed Renewable energy (DRE) schemes like PM KUSUM, PM Surya Ghar Scheme etc.
- Updated list of PSPs and Nuclear power plants.
- Detailed ISTS plan for RE potential areas such as Khavda and Rajasthan.
- Year wise cost comparison of transmission system evolved viz-a-viz projects bid out.

## **6 Status of the bids under process by BPCs**

6.1.1 RECPDCL made a presentation regarding their suitability for being considered as an implementing agency for transmission projects. NCT noted the same.

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

a) Status of transmission projects under bidding by the BPCs:

<b>Sl.No.</b>	<b>Region(s)</b>	<b>RECPDCL</b>	<b>PFCCCL</b>
1	Bids Under Evaluation	02	02
2	RfP issued and bids to be submitted	5	10
3	RfP to be issued	01	03
4	RfP bid submission on hold	01	01
	<b>TOTAL</b>	<b>09</b>	<b>16</b>

6.1.3 Based on the presentation, NCT directed the following:

- Regarding space in existing substation, the available land shall be given to another TSP free of cost.
- BPCs may device a mechanism to explore the possibilities of acquiring land for substation to be implemented under TBCB. Further, transmission line corridors may also be identified by the BPCs.

- To bring down the bidding timelines:
  - Both the BPCs to make a proposal with pros and cons and submit it to Member (E&C), CEA for specifying the time period for e-reverse auction.
  - BPCs to segregate the RfP inputs whether it pertains to CTUIL, CEA or BPCs and thereafter seek relevant information from respective organization.
  - BPCs to standardize the requirements from other TSPs and provide format to all TSPs. TSPs to provide details in the prescribed format without fail.

## **7 Comparison of completion timeline of the schemes awarded under RTM vis-à-vis the timeline agreed by NCT**

7.1.1 A presentation was made on completion timeline of the schemes awarded under RTM vis-à-vis the timeline agreed by NCT.

7.1.2 It was observed that most of the projects are in progress/completed as per schedule. However, few projects (4-5 Nos.) have deviations in the timelines ranging from 12 months to 21 months citing the reasons such as delay in supply of ICTs, delay in forest clearances, to match the timeframe with associated intra -state network, severe RoW issues, etc.

## **8 Status on decisions taken in the previous NCT meetings.**

8.1.1 Chief Engineer (PSPA-II), CEA made a presentation on status on decisions taken in the previous NCT meetings. Chairperson, CEA advised to expedite the workings of the various committees constituted by NCT.

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**Summary of the deliberations of the 26<sup>th</sup> meeting of NCT held on 6<sup>th</sup> January, 2025**

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

**1. Transmission scheme for evacuation of power from Ratle HEP (850 MW) & Kiru (624 MW) HEP: Part B**

NCT noted the above segregated cost and decided that all the re-conductoring proposals will be deliberated in NCT along with cost breakup of Re-conductoring portion and the developer who is awarded the scheme under RTM shall approach the appropriate commission in terms of the existing provisions of the regulations..

**2. Network Expansion in Gujarat for RE interconnection at Raghnesda PS**

NCT recommended that the subject elements may be added to the transmission scheme under bidding viz. “Transmission System for evacuation of RE power from Raghnesda area of Gujarat– 3 GW under Phase-I” scheme. Accordingly, the following modifications in the scope of the “Transmission System for evacuation of RE power from Raghnesda area of Gujarat– 3 GW under Phase-I” with modified implementation timeframe of 27 months from the date of SPV transfer were recommended:

Summary of the scheme is given below:

Sl. No.	Name of the scheme and tentative implementation timeframe	Estimated Cost (₹ Crore)	Remarks
1.	Transmission system for evacuation of RE power from Raghnesda Area of Gujarat- 3 GW under Phase-I  Tentative implementation timeframe: Sl. 1 to 3: 27 months, Sl. 4 & 5: 30.09.2027 (subject to minimum 27 months) & Sl. 6: 31.03.2028	2102	Recommended under TBCB route with PFCCCL as BPC

Detailed scope of the scheme is given below:

Sl. No.	Scope of the Transmission Scheme	Capacity
1.	Establishment 4x1500 MVA, 765/400 kV Substation near Raghnesda (GIS) with 2x330 MVAR, 765 kV bus reactor and 2x125 MVAR, 420 kV bus reactor  <b>Future Scope (Space for):</b> ➤ 765/400 kV ICT along with bays- 4 Nos. (on Sec-II)	<ul style="list-style-type: none"> <li>• 765/400 kV, 1500 MVA ICT – 4 Nos. (13x500 MVA single phase units including one spare ICT Unit)</li> <li>• 765 kV ICT bays – 4 Nos.</li> <li>• 400 kV ICT bays – 4 Nos.</li> <li>• 765 kV Line bays – 2 Nos.</li> </ul>

Sl. No	Scope of the Transmission Scheme	Capacity
	<ul style="list-style-type: none"> <li>➤ 765 kV line bays along with switchable line reactors – 8 Nos. (4 Nos. on Sec-I &amp; 4 Nos. on Sec-II)</li> <li>➤ 765 kV Bus Reactor along with bay: 2 Nos. (on Sec-II)</li> <li>➤ 765 kV Sectionalizer: 1 -set</li> <li>➤ 400 kV line bays along with switchable line reactors– 12 Nos. (4 Nos. on Sec-I &amp; 8 Nos. on Sec-II)</li> <li>➤ 400/220 kV ICT along with bays - 6 Nos. (2 Nos. on Sec-I &amp; 4 Nos. on Sec-II) (in addn. to 2 Nos. 400/220 ICTs on Sec-I in present scope)</li> <li>➤ 400 kV Bus Reactor along with bays: 2 Nos. (Sec-II)</li> <li>➤ 400 kV Sectionalization bay: 1- set</li> <li>➤ 220 kV line bays: 10 Nos. (4 Nos. on Sec-I &amp; 6 Nos. on Sec-II) (in addn. to 2 Nos. 220kV bays on Sec-I in present scope)</li> <li>➤ 220 kV Sectionalization bay: 1 set</li> <li>➤ 220 kV BC: 1 No. (for Sec-II)</li> <li>➤ Establishment of 6000 MW, ± 800 kV Raghnesda (HVDC) [LCC] terminal station (4x1500 MW) along with associated interconnections with 400 kV HVAC Switchyard &amp; all associated equipment (incl. filters)/bus extension, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• 1x330 MVAR, 765 kV bus reactor- 2 Nos. (7x110 MVAR single phase Reactors including one spare Unit for bus /line reactor)</li> <li>• 765 kV Bus reactor bay – 2 Nos.</li> <li>• 125 MVAR, 420 kV reactor- 2 Nos.</li> <li>• 400 kV Reactor bay- 2 Nos.</li> <li>• 400 kV line bays - 4 Nos. (for interconnection of RE Projects)</li> </ul>
2.	Raghnesda (GIS) – Banaskantha (PG) 765 kV D/c line	Route length: 95 km
3.	2 Nos. 765 kV line bays at Banaskantha (PG) S/s	765 kV line bays – 2 Nos.
4.	Creation of 220kV switchyard (Bus Sec-I) at Raghnesda PS (GIS) along with installation of 2x500MVA, 400/220 kV ICTs	500MVA, 400/220kV ICT – 2 No. 400 kV ICT bay – 2 Nos. 220kV ICT bay – 2 Nos. 220kV BC – 1 No.
5.	1 No. 220kV line bay (GIS) (on 220kV Bus Sec-I) for interconnection of Solar project of Azure Power Sixty Three Pvt. Ltd. (2200001107) (300MW)	220kV line bay–1 No.
6.	1 No. 220kV line bay (GIS) (on 220kV Bus Sec-I) for interconnection of Solar project of Sunsure Solarpark RJ One Pvt. Ltd. (2200001018) (350MW)	220kV line bay–1 No.

**Note:**

- TSP of Banaskantha S/s (POWERGRID) shall provide space for scope at Sl. 3 above.
- Bay(s) required for completion of diameter (GIS) in one-and-half breaker scheme shall also be executed by the TSP.

**3. Revision in Implementation Schedule for Communication schemes approved in 9<sup>th</sup>, 11<sup>th</sup> and 22<sup>nd</sup> NCT meeting**

NCT approved revised implementation schedule of ISTS Communication System Schemes as under:

Sl. No.	NCT approved /OM date	List of Links	Length of Line (KM)	Implementation Schedule/ Implementation date (as per OM)	Revised schedule
1.	9 <sup>th</sup> NCT/OM dtd 15/11/22	400 kV Vapi - Kakrapar	116	Matching time frame of upcoming LILO of these lines	10.01.25 POWERGRID told that scheme is covered in running packages.
2.		400 kV Bachau-EPGL	221		21.11.2026
3.		400 kV Satna-Bina	276		21.11.2026
4.		765 kV Jaipur-Gwalior	312		21.11.2026
5.		400 kV Agra-Jaipur South	254		21.11.2026
6.	11 <sup>th</sup> NCT/OM dtd 16/02/23	400 kV Jalandhar (PG)-Kurukshetra (PG)	229	24months/ 16.02.2025	10.01.2027
7.		400 kV Agra-Ballabgarh	181	18 months/ 16.08.2024	21.05.2026
8.		400 kV Kishenpur-Wagoora	183	18 months /16.08.2024	21.11.2026 (18 months from Award + 6 months for hilly terrain)
9.		Redundant communication System for Bhinmal (PG) and Kankroli	5	18 months/ 16.08.2024	21.05.2026
10.	22 <sup>nd</sup> NCT/OM dtd 02/09/24	Scheme for 48Fiber UGFO connectivity to New NLDC Building, New Delhi	35	12 months/ 02.09.2025	18 months/02.03.2026

**4. Implementation schedule for communication schemes**



NCT decided to revise the Implementation time Schedule of ISTS Communication System Schemes as under:-

- For line length less than 200 km - 24 months from the date of allocation
- For line length of 200 km and more - 30 months from the date of allocation.
- Further, additional 6 months are given for hilly and difficult terrains.

**II. ISTS Transmission schemes, costing between Rs 100 Crore to Rs 500 Crore, approved by NCT:**

Sl. No.	Name of Transmission Scheme	Implementation Mode	Tentative Implementation timeframe	BPC	Estimated Cost (₹ Crs)
1.	Augmentation of transformation capacity & Implementation of line bays at Mandsaur S/s for RE Interconnection	TBCB	<ul style="list-style-type: none"> <li>• Scope at Sl. 1, 2, 3, 4 &amp; 6: Matching with SCOD of Mandsaur – Khandwa 765kV D/c line being implemented under Transmission system for Common Evacuation of Power from Sirohi PS (2 GW) &amp; Merta-II PS (2GW), which is currently under tendering stage subject to minimum schedule of 18 months.</li> <li>• Scope at Sl. 5: 31.03.2027 or Matching with SCOD of Mandsaur – Khandwa 765kV D/c line, whichever is later subject to minimum schedule of 18 months</li> <li>• Scope at Sl. 7 &amp; 8: 15.06.2027 or</li> </ul>	PFCCCL	319

			Matching with SCOD of Mandsaur – Khandwa 765kV D/c line, whichever is later (subject to minimum schedule of 18 months)		
			<ul style="list-style-type: none"> <li>● Scope at Sl. 9: 30.03.2028</li> </ul>		

The broad scope of above schemes are given below

Sl. No.	Name of Scheme & Tentative implementation timeframe	Broad Scope
1.	Augmentation of transformation capacity & Implementation of line bays at Mandsaur S/s for RE Interconnection  <b>Implementation timeframe:</b> <ul style="list-style-type: none"> <li>● Scope at Sl. 1, 2, 3, 4 &amp; 6: Matching with SCOD of Mandsaur – Khandwa 765kV D/c line being implemented under Transmission system for Common Evacuation of Power from Sirohi PS (2 GW) &amp; Merta-II PS (2GW), which is currently under tendering stage subject to minimum schedule of 18 months.</li> <li>● Scope at Sl. 5: 31.03.2027 or Matching with SCOD of Mandsaur – Khandwa 765kV D/c line, whichever is later subject to minimum schedule of 18 months</li> <li>● Scope at Sl. 7 &amp; 8: 15.06.2027 or Matching with SCOD of Mandsaur – Khandwa 765kV D/c line,</li> </ul>	<ol style="list-style-type: none"> <li>1. Creation of New 400 kV &amp; 765kV Bus Section-II through Sectionaliser arrangement</li> <li>2. Augmentation of Transformation capacity by 1x1500MVA, 765/400 kV ICT (4<sup>th</sup>) (Terminated at 400 kV &amp; 765kV Bus Section-II)</li> <li>3. Augmentation of Transformation capacity by 1x500MVA, 400/220kV ICT (6<sup>th</sup>) (Terminated on 400 kV Bus Section-I &amp; 220kV Bus Section-II)</li> <li>4. 1 No. 220kV line bay (on 220kV Bus Sec-II) at Mandsaur PS for interconnection of Solar project of Waaree Renewable Technologies Ltd. (WRTL) (2200001192) (300MW)</li> <li>5. 1 No. 400 kV line bay at Mandsaur PS (on 400 kV Bus Sec-II) for interconnection of Solar project of NTPC Renewable Energy Ltd. (NTPCREL) (2200001301) (300MW)</li> <li>6. Augmentation of Transformation capacity by 1x500MVA, 400/220kV ICT (7<sup>th</sup>) (Terminated on 400 kV Bus Section-II &amp; 220kV Bus Section-III) at Mandsaur PS</li> <li>7. Creation of New 220kV Bus Section-3 with Sectionaliser arrangement at Mandsaur PS</li> <li>8. 1 No. 220kV line bay at Mandsaur PS (220kV New Bus Section-3) for interconnection of wind project of JSP Green Pvt. Ltd. (JSPGPL) (2200001356) (350MW)</li> <li>9. 1 No. 220kV line bay at Mandsaur PS (220kV New Bus Section-3) for interconnection of</li> </ol>

	whichever is later (subject to minimum schedule of 18 months) • Scope at Sl. 9: 30.03.2028	Hybrid project of TEQ Green Power XXII Pvt. Ltd. (TGP XXII PL) (2200001431) (250MW)
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**III. 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 Evacuation of Power from RE Projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh-Phase III and Evacuation of Power from RE Projects in Neemuch (1000 MW) SEZ in Madhya Pradesh-Phase II	TBCB	Implementation timeframe of element at Sl. No. 2b shall be 31.03.2028 in matching timeframe of RE generator (Purvah Green Power Pvt. Ltd.: 297 MW) and for remaining elements it shall be 24 months from date of SPV transfer	RECPDCL	3472
2.	Paradeep – Andaman – Nicobar HVDC link	RTM	5 years from date of allocation		37981

The broad scope of the above ISTS schemes is as given below:

Sl. No.	Name of Scheme & Tentative implementation timeframe	Broad Scope	Bid Process Coordinator
1.	Transmission system for Evacuation of Power from RE Projects in Rajgarh (1500 MW) SEZ in Madhya Pradesh-Phase III and Evacuation of Power from RE Projects in Neemuch (1000 MW) SEZ	1. Creation of New 220 kV Bus Section (3rd) with 220 kV Bus Sectionalizer and 400/220 kV, 3x500 MVA ICT augmentation (7th, 8th & 9th) at Pachora PS terminated on 220 kV Bus Section (3rd)	RECPDCL

<p>in Madhya Pradesh-Phase II</p> <p><b>Tentative implementation timeframe:</b></p> <p>Implementation timeframe of element at Sl. No. 2b shall be 31.03.2028 in matching timeframe of RE generator (Purvah Green Power Pvt. Ltd.: 297 MW) and for remaining elements it shall be 24 months from date of SPV transfer</p>	<ol style="list-style-type: none"> <li>2. <b>2a.</b> 3 Nos. 220 kV line bays for RE interconnection on Bus Section (3rd)</li> <li><b>2b.</b> 1 Nos. 220 kV line bay for RE Interconnection of Purvah Green Power Pvt. Ltd. on Bus Section (3rd)</li> <li>3. Pachora PS – Rajgarh(PG) 400 kV D/c line (Quad ACSR/ AAAC/ AL59 Moose equivalent) along with associated line bays at both ends and 50 MVAr Switchable Line Reactors (Sw LR) on each ckt at both ends</li> <li>4. Installation of 1x125 MVAR, 420 kV bus reactor at Pachora PS (400 kV Bus Section-II)</li> <li>5. Creation of New 220 kV Bus Section-II at Neemuch PS with Augmentation of transformation capacity by 3x500 MVA, 400/220 kV ICTs (3<sup>rd</sup>, 4<sup>th</sup> &amp; 5<sup>th</sup>) at Neemuch S/s along with associated bays</li> <li>6. 4 Nos. 220 kV Line bays at Neemuch PS for RE interconnection</li> <li>7. Neemuch PS – Pachora PS 400 kV D/c line (Quad ACSR/ AAAC/ AL59 Moose equivalent) along associated Line bays and 50 MVAr Switchable Line Reactor (Sw LR) on each ckt at both ends</li> <li>8. Establishment of 2x500 MVA, 400/220 kV S/s at Handiya alongwith 2x125 MVAr 420 kV Bus Reactors</li> <li>9. Pachora PS – Handiya 400 kV D/c line (Quad ACSR/ AAAC/ AL59 Moose equivalent) along with associated bays at Pachora PS end and 50 MVAr Switchable Line Reactor (Sw LR) on each ckt at both ends</li> <li>10. LILO of Khandwa(PG) – Itarsi(PG) 400 kV D/c (Twin Moose) line at Handiya S/s</li> </ol>	
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		<p>11. Installation of 1x125 MVAR, 420 kV bus reactor (2nd) at Neemuch PS</p>	
<p>2.</p>	<p>Paradeep – Andaman – Nicobar HVDC link</p> <p>Implementation timeframe: 2031</p>	<p><b>1. Transmission Line</b></p> <p>(a) 400 kV D/c (Twin Moose) Paradeep 765/400 kV GIS S/S - Paradeep HVDC Station line: <b>12 km</b></p> <p>(b) Paradeep HVDC Station – Andaman Island: 320kV, 500 MW HVDC Undersea Cable: <b>1150 km</b></p> <p>(c) Andaman Island – Nicobar Island 320kV, 250 MW HVDC Undersea Cable: <b>550 km</b></p> <p><b>Remarks:</b> 66kV lines at Andaman and Nicobar side not considered and expected to be under Andaman &amp; Nicobar Electricity Department Scope.</p> <p><b>2. Substation</b></p> <p>(a) Establishment of new HVDC station at Paradeep, Orissa</p> <ul style="list-style-type: none"> <li>- ±320kV, 250 MW VSC based Symmetric Monopole HVDC terminal at Paradeep, Orissa</li> <li>- Power will be injected at 400 kV AC bus through VSC converter transformers <ul style="list-style-type: none"> <li>➤ 400 kV line bays (AIS): 2 Nos. for termination of Paradeep HVDC Station – Paradeep 765/400 kV GIS Substation (400 kV D/c Twin Moose) line</li> <li>➤ 400 kV VSC bays: 2 Nos. for evacuation through VSC Pole</li> </ul> </li> </ul> <p>(b) Extension at Paradeep 765/400 kV GIS Substation S/S</p> <ul style="list-style-type: none"> <li>- 2 Nos. 400 kV line bays (GIS) at Paradeep 765/400 kV GIS Substation S/S for termination Paradeep HVDC Station –</li> </ul>	

		<p>Paradeep 765/400 kV GIS Substation 400 kV D/c (Twin Moose) line</p> <p>(c) Establishment of new HVDC station at Andaman Island</p> <ul style="list-style-type: none"> <li>- ±320kV, 250 MW VSC based Symmetric Monopole HVDC terminal at Andaman Island</li> <li>- Power will be drawn at 66 kV AC bus through VSC interface transformers <ul style="list-style-type: none"> <li>➤ 12 Nos. 66kV GIS line bays for termination of outgoing 66kV feeder</li> <li>➤ 1 no. 66kV GIS (3000 A) VSC Bay for evacuation from VSC System</li> </ul> </li> </ul> <p>(d) Establishment of new HVDC station at Nicobar Island</p> <ul style="list-style-type: none"> <li>- ±320kV, 250 MW VSC based Symmetric Monopole HVDC terminal at Nicobar Island</li> <li>- Power will be drawn at 66 kV AC bus through VSC interface transformers <ul style="list-style-type: none"> <li>➤ 12 Nos. 66kV GIS line bays for termination of outgoing 66kV feeder</li> <li>➤ 1 No. 66kV GIS (3000 A) VSC Bay for evacuation from VSC System</li> </ul> </li> </ul>	
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**(Detailed scope as approved by 26<sup>th</sup> NCT and subsequent amendments thereof)**

Further, the transmission schemes (a) “Transmission system for Evacuation of Power from RE Projects (1500 MW) in Rajgarh SEZ in Madhya Pradesh-Phase III” and (b) “Transmission system for Evacuation of Power from RE Projects (1000 MW) in Neemuch SEZ in Madhya Pradesh- Phase II” notified by MoP vide Gazette notification dated 12.12.2024 to be denotified, as both the schemes have been clubbed to form a single scheme as given above at point 1 of the table.

**IV. ISTS communication schemes approved by NCT:**

<b>Sl. No.</b>	<b>Name of Transmission Scheme</b>	<b>Implementation Mode</b>	<b>Implementation timeframe</b>	<b>Estimated Cost (₹ Cr)</b>
1	Redundant Communication for Salal (NHPC) station	RTM through POWERGRID	18 months from the date of allocation	3.41
2	Redundant Communication for Tuticorin GIS (PG) Substation	RTM through POWERGRID	18 months from date of allocation	1.38
3	Establishment of Communication for New SRLDC Building (at CPRI Campus)	RTM through POWERGRID	24 months from the date of allocation with matching timeframe of commissioning of SRLDC building	11.84
4	Upgradation of existing STM-4 equipment to STM-16 equipment due to bandwidth congestion	RTM through POWERGRID	12 months from date of allocation	1.5
5	OPGW replacement on 132 kV Kahilipara - Umiam Stg. III -Umiam Stg. I – NEHU link & OPGW laying on 132kV Sarusujai to Umtru line and UGFO laying from NERLDC Guwahati to Gantry of Kahilipara S/s for back up NERLDC connectivity	RTM through POWERGRID	24 months from date of allocation	15.84
6	Establishment of redundant fibre path between NERLDC, Shillong, Khelieriat and NEHU by OPGW replacement on 132kV NEHU-Khliehriat ckt-1 line and laying of UGFO cable from Tower 25 of 132 kV NEHU – Mawlyndep line to NERLDC, Shillong	RTM through POWERGRID	18 months from date of allocation	9.73

**(Detailed scope as approved by 26<sup>th</sup> NCT and subsequent amendments thereof)**

**V. Alignment of packages of Transmission Schemes**

Rajasthan Ph-IV Part-2 (5.5 GW) scheme

NCT approved that the SCOD of Rajasthan Ph-IV Part-2 (5.5 GW) Part-A, C & E (RECPDCL) to be aligned to Part-B & D (PFCCL) i.e. SCOD-22/08/26 by amending the respective TSAs

Transmission system for evacuation of power from potential renewable energy zone in Khavda area of Gujarat under phase-IV (7 GW): Part A to D

NCT noted the alignment in the SCOD of Part-B & Part-C for the above mentioned transmission schemes as well as SCODs of the remaining parts (A,D)



**Annexure-I**

**List of participants of the 26<sup>th</sup> meeting of NCT**

**CEA:**

1. Sh. Ghanshyam Prasad, Chairperson, CEA & Chairman, NCT
2. Sh. A.K. Rajput, Member (Power Systems)
3. Sh. Ishan Sharan, Chief Engineer (PSPA-I)
4. Sh. B.S. Bairwa, Chief Engineer (I/c) (PSPA-II)
5. Sh. Rahul Raj, Director (PSPA-II)
6. Ms. Priyam Srivastava, Deputy Director (PCD)
7. Sh. Pranay Garg, Deputy Director (PSPA-II)

**MoP:**

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

**MNRE:**

1. Sh. Tarun Singh, Scientist E
2. Sh. Himanshu Prabhakar, Under Secretary

**SECI:**

1. Sh. Vineet Kumar, DGM
2. Sh. R.K. Agarwal, Consultant

**NITI Ayog:**

1. Sh. Manoj Kumar Upadhyay, Deputy Advisor

**CTUIL:**

1. Sh. Ashok Pal, COO
2. Sh. K K Sarkar, Sr GM
3. Sh. Rajesh Kumar, Sr GM
4. Sh. P.S. Das, Sr GM
5. Sh. Vikas Bagadia, Sr. GM
6. Sh. H.S. Kaushal, Senior GM
7. Sh. Kashish Bhambhani, GM
8. Sh. Pratyush Singh, DGM
9. Sh. Sandeep Kumawat, DGM
10. Sh. Mahendranath Malla, Chief Manager
11. Sh. Chinmay Sharma, Chief Manager

**GRID India:**

1. Ms. S Usha, ED (NLDC)
2. Sh. Priyam Jain, Chief Manager
3. Sh. Raj Kishan, Deputy Manager

**RECPDCL**

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

**PFCCL**

1. Sh. Manoj Rana, CEO
2. Sh. Sanjay Nayak, AVP
3. Sh. Navin Phogat, GM (Tech)
4. Sh. Rishab Jain, GM
5. Sh. Deepak Kumar, AM

**POWERGRID**

1. Sh. Naveen Srivastava, Director (Operation)
2. Sh. Doman Yadav, ED
3. Sh. Vishal Singh, GM

**Expert Member**

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

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