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: CTU/S/00/34th CMETS-SR-Agenda

Date: 21.09.2024

As per distribution list

Subject: 34th Consultation Meeting for Evolving Transmission Schemes in Southern Region- agenda.

Dear Sir/Ma'am,

This is further to meeting notice dated 13.09.2024 and communicated dated 17.09.2024 regarding 34th Consultation Meeting for Evolving Transmission Scheme in Southern Region, scheduled to be held on 24.09.2024 at 10:30 Hrs through virtual mode. Please find attached agenda for the meeting. The agenda is also available on CTU webportal. It is kindly requested to attend or depute an authorized representative for the meeting.

Thanking you,

Yours faithfully,

Anil 21/9/24

(Anil Kr. Meena)
General Manager

List of Connectivity/ GNA applicants :

1. **Shri Pankaj Kumar** Authorised Signatory SAEL INDUSTRIES LIMITED 3rd Floor, Worldmark -1, Aerocity New Delhi – 110037 pankaj.sharma@sael.co; ajay.tiwari@sael.co;	2. **Shri Pritpal Singh** SVP Jsw Neo Energy Limited JSW Centre Bandra Kurla Complex Bandra East Mumbai pritpal.singh@jsw.in; abhay.yagnik@jsw.in;
3. **Shri Tarunveer Singh** Director SUNSURE Solar Park RJ One Private Limited 1101A-1107, 11th Floor, BPTP Park Centra, Jal Vayu Vihar, Sector 30 Gurugram, Haryana-122001 tarunveer.singh@sunsure.in; ishan.nagpal@sunsure.in;	4. **Shri Gopalakrishna** Director Nannai Solar Park Private Limited Aneja Towers, B-Block, 2nd Floor Plot No. 4 &5, Perungudi, OMR Chennai – 600096 dinesh.gopalakrishnan@everrenew.com: bhavna.kapuria@everrenew.com;
5. **Shri Gopalakrishna** Director Navaladi Wind Park Private Limited Aneja Towers, B-Block, 2nd Floor Plot No. 4 &5, Perungudi, OMR Chennai – 600096 dinesh.gopalakrishnan@everrenew.com: bhavna.kapuria@everrenew.com;	6. **Shri Harshit Gupta** Head Regulatory Affairs Hexa Climate Solutions Private Limited 14th Floor, Vatika Business Park Sohna Road, Gurugram Haryana-122018 harshit.gupta@hexaclimate.com; saurabh.pandey@hexaclimate.com;
7. **Shri Vaibhav Roongta** Authorised Signatory Jagaluru Solar Power Private Limited 6th floor, Imperia Mindspace Golf Course Ext Rd, Sector 62 Gurugram, Haryana 122001 vaibhav.roongta@rayspowerinfra.com; lalit@raysventures.com;	8. **Shri Sachin Jindal** General Manager EG Arka Solar Private Limited D.No. 8-2-610/68/1,2,3, Accord Blu 5th Floor, Road.No. 10, Banjara Hills Hyderabad 500034 Telangana s_sachin@enfinityglobal.com; radhe_goyal@enfinityglobal.com;
9. **Shri Arzaan Dordi** Chief Manager Serentica Renewables India Private Limited DLF Cyber Park, Block B, 9th Floor Udyog Vihar, Phase III, Sector-20 Gurugram, Haryana, India - 122008 arzaan.dordi1@serenticaglobal.com; aakanksha.bhisikar@serenticaglobal.com;	10. **Shri Jegathees Kumar** Director Subramaniyapuram Wind Park Private Limited M/S Subramaniyapuram Wind Park Private Limited C/O. KS infra, no 40, Visalakashi Street, Aiswarya Garden Goparasanallur, Poonamallee Chennai jegathees@ksinfra.in; ksinfra2015@gmail.com;

11. Shri Yogesh Sanklecha Vice President ACME SOLAR HOLDINGS LIMITED Plot No. 152, Sector-44, Gurugram, Haryana 122002, India yogesh@acme.in; apradhan@acme.in;	**12. Shri Animesh Manna** DGM NTPC Renewable Energy Limited NETRA Building, E-3, Ecotech-II Udyog Vihar, Greater Noida – 201306 amanna@ntpc.co.in; sarit@ntpc.co.in;
13. **Shri Jayakrishnan Chonat** Director Pratapati Energy (Seven) Private Limited D-2, First Floor, Southern Park Building Saket, New Delhi 110017 jayakrishnan.chonat@solarpack.es; ayush.jain@solarpack.es;	**14. Shri Jigish** Executive Director Torrent power ltd. SUGEN Mega Power Project Torrent Power Ltd., Village: Akhakhol Dist Surat 394155, jigishmehta@torrentpower.com; anshunegi@torrentpower.com;
15. Shri Ashutosh Head Energy Business Hero Solar Energy Private Limited Plot No. 201, Ground Floor Okhla Industrial Estate, Phase-III New Delhi – 110020 ashutosh.vyas@herofutureenergies.com; bdsolargrid@herofutureenergies.com;	**16. Shri Adrit Palchoudhury** Vice President Purvah Green Power Private Limited 2A Lord Sinha Road 1st Floor Middleton Row Kolkata- 700071 adrit.palchoudhury@rpsg.in; sushanta.basumatary@rpsg.in;
17. Shri Devi Dutta Vice President (BD & Commercial) Green Infra Renewable Energy Farms Private Limited Building 7A, Level 5, DLF Cyber City Gurugram 122002 girefpl@sembcorp.com; bidyut.chakraborty@sembcorp.com;	**18. Shri Ranjan Kumar** Senior Manager ACC Limited Adani Corporate House, Shantigram Near Vaishnodevi Circle, Ahmedabad Gujarat – 382421 ranjan.kumar3@adani.com; mohit.srivastava@adani.com;
19. Shri Arnava Vice President AM Green Ammonia (India) Private Limited 15th Floor, Hindustan Times House KG Marg Delhi 110001 Arnava.s@amgreen.com; manish.kumar@greenkogroup.com;	20. **Shri Georgie Thomas** Director Vismaya Renewables India Project Pvt. Ltd. B-208 & 209 Pioneer Urban, Square, 2nd floor, Sector62,Gurugram- 122005 georgie.thomas@upcrenewables.in; alok.nigam@upcrenewables.in
21. Shri Jayavardhan Authorized Signatory Welspun Godawari Pvt. Ltd. D/8, BKT House, Trade World, Kamala City, Senapati Bapat Marg, Lower Parel(West)--400013	22. **Shri Sachin Jindal** General Manager Enfinity Global Haritha Udwal Pvt. Ltd. D.No. 8-2-610/68/1,2,3, Accord Blu, 5th Floor, Road.No.10, Banjara Hills,

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25. Ms Anuradha Director Linde India Ltd. P43 Taratala Road Oxygen House, West Bengal madhu.rejeti@fourthpartner.co; tushar.bagla@linde.com;	**26. Shri Vishnu Pad Saha** Shirdi Sai Electricals Head Hydro Division 6-3-8-879/B, 3rd Floor, Green Lands, G Pullareddy Sweets Buildings, Begumpet, Hyderabad, Telangana vishnu.saha@ssel.in srikanth.panthangi@ssel.in
27. **Shri M Prabhakaran** Sr. DEE/TRD/MAS Indian Railways Senior Divisional Electrical Engineer, Divisional Railway Manager's Office, Traction Distribution Branch, IVth Floor, NGO Annexe, Park Town, Chennai - 600003 srdeetrd@mas.railnet.gov.in sanjay.raghunath@gov.in	**28. Shri Georgie** Director UPC Renewables India Management Pvt. Ltd. Hd-035, wework seawoods grant central, 10 Floor, tower 1, sector 40, Nerul Node Mumbai, Thane-400706 Maharashtra georgie.thomas@upcrenewables.in alok.nigam@upcrenewables.in
29. **Shri Angshuman** General Manager Avaada Energy Private Limited C-11, sector 65, Noida - 201301 angshuman.rudra@avaada.com shipra.arora@avaada.com	**30. Shri K A Vishwanath** Assistant Vice President Teq Green Power Xiii Private Limited DLF Square, 8th Floor, Jacaranda Marg DLF Phase 2, Sector 25, Gurugram Haryana 122002 pe@o2power.in; ka.vishwanath@o2power.in;
31. Shri Georgie Thomas Head of Development Diyos One Renewables Pvt. Ltd. B - 305 Pioneer Urban Square, 3rd Floor, Sector 62, Air Force, Gurgaon-122005, Haryana georgie.thomas@upcrenewables.in alok.nigam@upcrenewables.in	

Agenda for 34th Consultation Meeting for Evolving Transmission Scheme in SR, scheduled to be held on 24.09.2024

A. Confirmation of the minutes of 33rd CMETS-SR

Minutes of 33rd CMETS-SR were circulated vide letter dated 27.08.2024. As no observation is received, accordingly it is proposed to confirm the minutes.

B. ISTS Network expansion scheme in Southern Region

B.1. Augmentation of transformation capacity by 1x500 MVA ICTs (7th) at Anantapur-II PS

- Establishment of 4x1500 MVA, 765/400 kV & 6x500 MVA, 400/220 kV Anantapur-II Pooling Station near Kurnool, Andhra Pradesh was agreed 22nd NCT meeting held on 23.08.2024.
- Total Connectivity already granted / agreed for grant / considered for grant at Anantapur-II PS is 2489.7 MW. Further, connectivity corresponding to 1000 MW has been received out of which 500 MW has been considered for grant at 220 kV and 500 MW has been considered for grant at 400 kV. Therefore, total connectivity granted/ agreed for grant/ under consideration for grant at 220 kV will be 2989.7 MW. For grant of Connectivity total cumulative connectivity capacity of 2989.7 MW at 220 kV, 7x500 MVA, 400/220 kV ICTs are required (considering N-1 contingency criteria).
- Therefore, augmentation of 1x500 MVA, 400/220 kV (7th) ICTs at Anantapur-II PS is required.
- In view of above, it is proposed to augment 1x500 MVA, 400/220 kV ICTs (7th) at Anantapur-II PS

Members may deliberate

B.2. Augmentation of 1x500 MVA, 400/230 kV (5th) ICT at Karur PS

- Karur PS was planned for integration of 2500 MW potential RE capacity. Presently, Karur PS is under operation with 2x500 MVA, 400/230 kV ICTs. Further, 2x500 MVA, 400/230 kV ICTs (3rd & 4th) are under implementation with SCOD as 12.09.2025.
- Total Connectivity already granted/ agreed for grant is 1582.1 MW. Further, additional Connectivity corresponding to 157 MW has been received and considered for grant. Accordingly, for cumulative connectivity capacity corresponding to 1739.1 MW, 5x500 MVA, 400/230 kV ICTs are required (considering N-1 contingency criteria).
- During the 33rd CMETS-SR meeting held on 31.07.2024, it was informed that 1x500 MVA, 400/230 kV (5th) ICT would be required for grant of above the Connectivity at Karur PS.

- In view of above, augmentation of transformation capacity by 1x500 MVA, 400/230 kV ICT (5th) at Karur PS is being taken up for implementation.

Member may deliberate

B.3. Inter-Regional links between NEW-Grid & SR-Grid

3.1. As per the mandate in the 50th SRPC meeting held on 16.03.2024, Joint Studies were conducted from 2 - 4th May, 2024 at Hyderabad for identification of Inter-Regional links between NEW-Grid & SR-Grid and ISTS network strengthening in SR to facilitate import of additional power for meeting demand by 2029-30 time frame. Minutes of the meeting attached at **Annexure-A**.

3.2. The proposals agreed during the Joint Study meeting were submitted to SRPC which were deliberated in the 52nd SRPC meeting held on 03.08.2024 wherein it was decided that the shortest link(s) may be implemented at the earliest. Accordingly, it was agreed 765 kV Parli New (WR) - Bidar D/c link and 765 kV Angul(ER) - Srikakulam 2nd D/c link may be taken-up. For the third inter-regional link, two alternative links were proposed, one is proposed by APTRANSCO and another is proposed by CTUIL and same requires further analysis and discussions.

During the SRPC meeting, it was also informed that Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area, Andhra Pradesh was discussed in the 33rd CMETS-SR for ISTS proposals held on 25.07.2024 wherein it was informed that Angul – Srikakulam 765 kV 2nd D/c link shall be required for supply of power to Green Hydrogen / Ammonia projects at Kakinada under Phase-I (3000 MW).

It was also informed that Bidar - Parli New 765kV D/c link shall be required to further enhance the import / export capability of SR region. Bidar PS in Karnataka is proposed to be connected to Kurnool-IV through Kurnool-IV – Bidar 765kV D/c line for evacuation of RE potential in Kurnool area of Andhra Pradesh. Towards this, Bidar - Parli New 765kV D/c link shall facilitate evacuation of RE generation in Bidar / Kurnool RE complexes.

Following was decided in the 52nd SRPC meeting for above IR links :

- ✓ *SRPC approved the two inter regional links 765 kV Parli-Bidar D/C & 765 kV Angul-Srikakulam D/C. SRPC recommended that both the links shall be considered under National Component as 765 kV Parli-Bidar link would be used for RE evacuation and 765 kV Angul-Srikakulam link would be used to meet the GH&GA loads.*
- ✓ *CTUIL would furnish the formal proposal to SRPC Secretariat and comments would be collected through mail and separate SRPC meeting may not be required.*

Minutes of 52nd SRPC meeting held on 03.08.2024 attached at **Annexure-B**.

3.3. It was also informed that in the meeting held on 19.04.2024 under the chairmanship of Hon'ble Minister of Power and NRE, it was decided that Transmission charges for the Transmission system built for supply of power to Green Hydrogen / Green Ammonia manufacturing hubs may be declared as National Component.

3.4. It may be noted that Bidar 765/400/220kV PS has been identified for 2.5 GW RE potential and is under implementation by POWERGRID through TBCB route and is expected by Feb'26. The broad scheme is as below:

- Establishment of 765/400 kV 3x1500 MVA, 400/220 kV 5x500 MVA Bidar PS
- Bidar PS – Maheshwaram (PG) 765 kV D/c line

Against the 2.5 GW RE potential at Bidar PS, Connectivity of 2.5 GW at 220kV level have already been granted with the above under implementation transmission system. Further, augmentation of Bidar PS through 1x1500 MVA,765/400kV ICT (4th) and 3x500 MVA, 400/220kV ICTs (6th - 8th) has been approved for grant of additional connectivity applications for 600 MW. In addition, CTU has received additional applications for 550 MW at Bidar PS in the month of July 2024. With this, the total connectivity quantum granted / agreed / under process at Bidar PS shall be about 3350 MW. It is observed that RE Connectivity at Bidar PS has already surpassed the envisaged potential of 2.5 GW and looking into the response of RE developers, additional Connectivity applications are expected in due course of time.

Accordingly, in order to facilitate integration of additional RE potential at Bidar PS, Bidar (SR) - Parli New (WR) 765kV D/c link shall be required for grant of additional connectivity to RE generation projects.

3.5. In view of the above, following Inter-Regional links between NEW Grid and SR Grid are put-up for approval and implementation under National Component with implementation time frame of 24 months:

Scheme-1 : Inter-Regional Strengthening between SR Grid and ER Grid

Angul – Srikakulam 765 kV D/c line (about 275 km)

Scheme-2 : Inter-Regional Strengthening between SR Grid and WR Grid

Parli New – Bidar 765kV D/c line (about 150 km)

Members may deliberate.

B.4. Transmission system strengthening for integration of additional RE potential at Bijapur

4.1. The Transmission System for integration of Bijapur REZ in Karnataka is under bidding and is expected to be commissioned by Oct'26 (considering SPV transfer by Oct'24). Details of the transmission system is as below:

- Establishment of 400/220 kV, 5x500 MVA Pooling Station near Bijapur (Vijayapura), Karnataka
- Bijapur PS – Raichur New 400kV (Quad ACSR moose) D/c line

4.2. As per the 500 GW report, potential of 2 GW (wind) was envisaged at Bijapur PS and Connectivity of about 1900 MW has already been granted / agreed for grant. Further, CTU has received connectivity applications for 2414 MW. The connectivity quantum of applications has already surpassed the envisaged potential of Bijapur REZ. Accordingly, for grant of additional connectivity to above applications, additional transmission system strengthening beyond Bijapur PS is required.

4.3. In this respect, it may also be noted that Solapur PS (near Tuljapur in Maharashtra) is presently under implementation with SCOD of Feb-26 by M/s Torrent Power Ltd for 1500MW SEZ in Solapur. Now, applications for more than 1.5GW (1.55GW till Jul-24) have been received at Solapur PS and there is need to augment the system to enable evacuation upto 3GW RE power from Solapur PS. In view of the above, the "Transmission system for Evacuation of Power from RE Projects in Solapur SEZ in Maharashtra-Phase II (1500MW)" scheme is being planned as given below (to be deliberated in 32nd CMETS-WR scheduled on 24.09.2024):

- Creation of New 400kV and 220kV Bus Section-II with 400kV and 220kV Bus Sectionalizers
- 400/220 kV, 3x500 MVA ICT augmentation (5th ,6th & 7th) at Solapur PS on new 400kV & 220kV Bus Sections(Sec-II)
- 5 nos. 220kV line bays for RE Interconnection on new Bus Section-II
- Solapur PS(Sec-II) – Jejuri (M) 400 kV D/c line (Quad ACSR/ AAAC/ AL59 Moose equivalent) – Under ISTS

- Jejuri (M) – Pune-III 400 kV D/c line (Quad ACSR/ AAAC/ AL59 Moose equivalent) – Under ISTS
- Jejuri (M) – Hinjewadi (M) 400kV D/c line – Under In-STS (MSETCL)

Now, for accommodating additional RE capacity from Bijapur, following additional transmission system is proposed **:**

- Augmentation of 400/220 kV, 5x500 MVA Pooling Station at Bijapur PS along with 220kV bays for RE interconnection
- Bijapur – Solapur PS (Sec-II) (Quad ACSR/ AAAC/ AL59 Moose equivalent) line (~150km.)
- Establishment of 2x1500MVA, 765/400kV Karjat-II New S/s
- LILO of Aurangabad – Solapur 765kV D/c line at Karjat-II (LILO route length ~70km.)
- Karjat-II – Solapur PS(Sec-II) 400kV D/c (Quad ACSR/ AAAC/ AL59 Moose equivalent) line (~150km)
- Karjat-II - Karjat(M) 400kV D/c (Quad ACSR/ AAAC/ AL59 Moose equivalent) line (~30-40km)

Note*: 400kV & 220kV Bus Sectionalizers at Solapur PS between Under Construction Bus Section-I and New Bus Section-II shall be normally open to limit injection towards Solapur(PG) S/s.*

MSETCL is also planning a 400/220kV Substation at Waghdari (for 1.5GW RE Injection) which may also be interconnected with Solapur PS (Sec-II) / Karjat-II S/s at later stage as per system studies carried out in Western Region. Since the above scheme involves interconnections with MSETCL, the same shall be finalized in consultation with MSETCL as well as other stakeholders in WR.

Members may deliberate.

C. Connectivity related issued deliberated in earlier CMETS-SR

C.1. Connectivity Related proposal at Kadapa-II PS

Sl. No.	Application ID, date	Name of the Applicant	Project Location	Eligibility criterion	Nature of Applicant	Location details of Conn. / GNA (as requested)	Installed Capacity / GNA (MW)	Application & quantum: Connectivity / GNA/ GNA_{RE} (MW)	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
i.	2200000885 dt.31.05.24	Shirdi Sai Electricals Limited	Rachayapeta / Gopavaram, YSR, Andhra Pradesh	-	Standalone ESS (PSPP)	Kadapa-II	990	Connectivity 990 [Injection - 900 & Drawl - 990]	30.09.2030	ISTS

Application was discussed in 32nd & 33rd CMETS-SR meeting, held on 28.06.2024 & 31.07.2024 respectively. In the meeting, CTU informed that applicant has sought connectivity at Kadapa-II as per above details. However, transmission scheme for Kaddpa-II is yet to be finalized. Applicant was suggested to consider grant of connectivity at existing Cuddapah S/s / Ananthapuram PS. Representative mentioned that it will submit the details after analysis of suggested locations. Applicant may present the matter.

C.2. Connectivity related proposal at Gadag-II PS / Koppal-II PS

Sl. No.	Application ID, date	Name of the Applicant	Project Location	Eligibility criterion	Nature of Applicant	Location details of Conn. / GNA (as requested)	Installed Capacity / GNA (MW)	Application & quantum: Connectivity / GNA/ GNA_{RE} (MW)	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
i.	2200000825 dt. 20.05.2024	NTPC Renewable Energy. Ltd.	Taralakatt, Koppal, Karnataka	LoA	Generating station(s), including REGS(s), without ESS	Gadag-II PS	76 (wind)	Connectivity 76	16.04.2026	ISTS
ii.	2200000903 dt 13.06.2024	Torrent Power Limited	Koppal, Karnataka	LoA [contract capacity 100 MW]	Generating station(s), including REGS(s), without ESS	Koppal-II PS	100 (wind)	Connectivity 100	30.06.2026	ISTS

i. NTPC Renewable Energy. Ltd. has sought connectivity for 76 MW at Gadag-II PS as per above details. Connectivity has been sought on basis of multilocational SECI LoA, SECI/C&P/HPD/T7/LOA-A3/NREL/P1/63858 dated 03.05.2024, for contract capacity of 300 MW.

Application was discussed in 32nd & 33rd CMETS-SR meeting, held on 28.06.2024 and 31.07.2024, wherein CTU informed that margins are not available at Gadag-II PS for grant of additional connectivity and both Gadag-II PS & Koppal-II PS have already closed for grant of additional connectivity.

Subsequently, M/s NTPC Renewable Energy. Ltd. vide email dated 31.07.2024 requested to consider grant of Connectivity at Bellary PS. Detailed proposal for the application for grant of Connectivity is given along with proposal of other applications at Bellary PS at agenda item no. D(8)

ii. M/s Torrent Power Ltd. has sought connectivity on basis of SECI LoA, SECI/C&P/WPD/T16/LOA/KA/TPL/P1/62057 dated 09.02.2024. Application was discussed in 33rd CMETS-SR, held on 31.07.2024, wherein it was agreed reiterated that margins are not available at Koppal-II PS for grant of additional connectivity and both Gadag-II PS & Koppal-II PS have already closed for grant of additional connectivity. Applicant was opined to consider grant of Connectivity at other location. Subsequently, vide email dated 17.08.2024 applicant requested to consider grant of Connectivity at Bellary PS. Detailed proposal for the application for grant of Connectivity is given along with proposal of other applications at Bellary PS at agenda item no. D(8)

C.3. Proposal for modification in Connectivity transmission system of M/s ACME Solat Holding Ltd. agreed for grant at Ananthapuram-II PS

Sl. No.	Application ID, date	Name of the Applicant	Project Location	Eligibility criterion	Nature of Applicant	Location details of Conn. / GNA (as requested)	Installed Capacity / GNA (MW)	Application & quantum: Connectivity / GNA/ GNA_{RE} (MW)	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
i.	2200001003 dt 30.06.2024	ACME Solar Holdings Ltd. (erstwhile ACME Solar Holdings Pvt. Ltd.)	Anantapur, AP	Land BG route	Generating station(s), including REGS(s), without ESS	Ananthapuram-II PS	500 (solar)	Connectivity 500	25.06.2026	ISTS

M/s ACME Solar Holding Ltd. has sought connectivity as per above details. In the 33rd CMETS-SR meeting, it was agreed to grant Connectivity for 500 MW at Ananthapur-II PS through 220 kV D/c line.

However, it is to mention that for optimization of transmission system, all projects with Connectivity quantum of 500 MW and above are considered for grant at 400 kV. In the last CMETS meeting, the application was agreed for grant of Connectivity at 220 kV through D/c line due to oversight.

In view of the above, it is proposed to modify the grant Connectivity to M/s ACME Solar Holdings Ltd. (erstwhile ACME Solar Holdings Private Ltd.) for 500 MW through the following Connectivity transmission system.

Sl. No.	Application ID	Name of the Applicant	Connectivity at	Connectivity Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
i.	2200001003 dt 30.06.2024	ACME Solar Holdings Ltd. (erstwhile ACME Solar Holdings Private Ltd.)	Anantapur-II PS	500	• Generation Station of M/s Acme Solar Holdings Pvt. Ltd – Anantapur-II PS 400 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. of 400 kV line bay at Anantapur-II PS for above DTL – **under the scope of ISTS**	NIL	Details given below.	31.03.2027 * (Tentative) with availability of common transmission system other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : Rs.6.0 Cr (towards bay) • Conn-BG-3 : Rs. 10.0 Cr (@ Rs. 2.0 lakh /MW)

** The identified transmission scheme has been submitted to SRPC for its views and subsequently shall be submitted to NCT.*

Common transmission system (augmentation) other than ATS for M/s ACME Solar Holdings Ltd. (app. no 2200001003) :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission system for integration of Davanagere/ Chitradurga REZ (details as per **Annexure-II**).
- Transmission System for Integration of Anantapur-II (near Rayadurgam) REZs (**Phase-1**) (details as per **Annexure-IV**)

Note : *applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation.*

C.4. Proposal for grant of GNA to M/s Line India Ltd.

Sl. No.	Application ID, date	Name of the Applicant	Eligibility criterion	STU details	Nature of Applicant	Location details of Connectivity / GNA requested	Application & quantum : Connectivity/ GNA / GNA_{RE}	GNA Breakup (Within & outside region)	Start date of GNA (requested)	End date of GNA (requested)
i.	2200000857 dt. 28.05.2024	Linde India Ltd.	GNA under 17.1 (ii)	APTRANSCO	Drawee entity connected to Intra State of APTRANSCO	132 kV Cherivi S/s of APTRANSCO	GNA_{RE} 8 MW	Within region : 8 MW Outside region : 0 MW	16.07.2024	30.06.2039

M/s Linde India Ltd. has sought grant of GNA as per above details. Applicant has submitted NoC dated 16.05.2024, issued by APTRANSCO. Application was also discussed in 32nd CMETS-SR, held on 28.06.2024. During the meeting, applicant requested to consider start date of GNA as 01.01.2025. Applicant was requested to share the details regarding how existing 8 MW load shall be met till grant of GNA. After detailed deliberations, it was decided that application shall be discussed in the next CMETS-SR meeting and applicant was requested to present the case.

IN 33rd CMETS-SR, held on 31.07.2024, M/s Lind India Ltd. stated that it is existing consumer and drawing power from DISCOM of Andhra Pradesh. It will continue to draw power from DISCOM of AP, till GNA is made operationalized. Further, GNA sought is within the timeline of issued NoC. Further, on CTU query, M/s Lind India Ltd. stated that it will continue to draw power form both ISTS and DISCOM of AP. CTU stated that it will result in dual GNA for same capacity from ISTS and DISCOMs of AP, which is not permitted under GNA Regulations 2022.

M/s Linde India stated that it has not sought Open Access from DISCOM of AP. it had submitted application for GNA from ISTS only. However, it will continue to remain consumer of DISCOM and draw the power, partly from ISTS and partly from DISCOM of AP and it is ready to pay charges for same.

CTU reiterated that consumer for both ISTS and DISCOM of AP for same quantum result in dual GNA. Dual GNA from ISTS and DISCOMs may result in double billing of ISTS system. One of the bill will be directly billed to applicant for ISTS charges and other

will be indirectly for GNA quantum blocked in ISTS by STU on behalf for M/s Lind India Ltd. As per GNA Regulations, GNA is to be taken up by STUs for respective DISCOMs/ bulk consumer connected to STU/DISCOMs. STU in consultation with DISCOM and SLDC has to bifurcate GNA among Consumers / DISCOMS, including bulk consumer.

APTRANSCO stated that applicant has to approach APTRANSCO for respective settlement of GNA within 30 days of getting GNA. Till such time, applicant is a energy consumer to AP DISCOM. After grant of GNA, energy charges will be collected by CTU and applicant to provide STU transmission charges, as per agreement. Further, all Open Access intra state generators are consumers and all consumers connected to DISCOMs are scheduled consumer of APTRANSCO. For the quantum, they are in HT service agreement with DISCOM, they get Open Access for same quantum. It was also informed that all consumers connected to DISCOMS of AP are by default consumer of DISCOMs of AP and can draw and schedule power from DISCOM of AP. Further, it was stated that conditional NoC has been issued to M/s Lind India Ltd.

CTU stated that it has received NoC without any conditions. Towards same, M/s Linde India Ltd. mentioned that it has not provided complete NoC. Pages related to conditions are missing in the NoC submitted to CTU.

After deliberation, it was decided that applicant shall submit the complete NoC to CTU along with any other pending documents. APTRANSCO was requested to review the case in line with CERC GNA Regulation 2022 and application shall be discussed in next CMETS-SR.

Applicant is requested to present the case.

C.5. Proposal for grant of GNA to Indian Railway

Sl. No.	Application ID, date	Name of the Applicant	Eligibility criterion	STU details	Nature of Applicant	Location details of Connectivity / GNA requested	Application & quantum : Connectivity/ GNA / GNA_{RE}	GNA Breakup (within / outside region)	Start date of GNA (requested)	End date of GNA (requested)
i.	2200000852 dt 26.06.2024	Indian Railways	GNA under Regulation 17.1 (ii)	TANTRANSCO	Bulk consumer seeking to connect to ISTS directly	Through intra state system	GNA 65 MW	Within region : 0 MW Outside region : 65 MW	29.03.2027	29.03.2052

Indian Railway has sought GNA through connectivity from Sriperumbudur S/s at 400 kV. Matter was also deliberate din 33rd CMETS-SR, held on 31.07.2024, wherein Indian Railway stated that it has already been granted GNA for 65 MW at Thiruvalam S/s and seeking connectivity through Sriperumbudur for reliability of the same. Towards same, CTU stated that Connectivity with N-1 reliability criteria has already been granted to Indian Railway at Thiruvalam. However, Indian Railway may share the detailed plan with CTU so that same may be put up in next can be discussed in next CMETS-SR for deliberation.

Indian Railway may present the case.

C.6. Connectivity related proposal at Bijapur PS

Sl. No.	Application ID, date	Name of the Applicant	Project Location	Eligibility criterion	Nature of Applicant	Location details of Conn. / GNA (as requested)	Installed Capacity/ GNA (MW)	Application & quantum: Connectivity / GNA/ GNA_{RE} (MW)	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
i.	2200000692 dt. 05.04.2024	Vismaya Renewables India Project Pvt. Ltd.	Bijapur, Karnataka	Land BG	Generating station(s), including REGS(s), without ESS	Bijapur PS	300 (Wind)	Connectivity 300	01.04.2027	ISTS
ii.	2200000708 dt. 12.04.2024	Sunsure SolarPark RJ One Pvt. Ltd.	Bijapur, Karnataka	Land BG	Generating station(s), including REGS(s), without ESS	Bijapur PS	48 (Wind)	Connectivity Enhancement 48	31.12.2027	ISTS
iii.	2200000717 dt. 16.04.2024	Welspun Godavari Pvt. Ltd.	Bijapur, Karnataka	Land BG	Generating station(s), including REGS(s), without ESS	Bijapur PS	250 (Wind)	Connectivity 250	31.01.2027	ISTS
iv.	2200000764 dt. 25.04.2024	Enfinity Global Haritha Udwal Pvt. Ltd.	Bijapur, Karnataka	Land Route	Generating station(s), including REGS(s), without ESS	Bijapur PS	100 (Wind)	Connectivity 100	31.12.2026	Requested to grant connectivity through DTL of M/s Tepsol Green Energy Pvt. Ltd. (application no.

										2200000657)
v.	2200000792 dt. 02.05.2024	UPC Renewables India Management Pvt. Ltd.	Bijapur, Karnataka	Land Route	Generating station(s), including REGS(s), without ESS	Bijapur PS	56 (Wind)	Connectivity Enhancement 56	30.11.2026	Requested to grant connectivity through already granted connectivity to it for app. no. 2200000584.
vi.	2200000868 dt. 30.05.2024 at 13:50 hrs	Purvah Green Power Pvt. Ltd.	Bijapur, Karnataka	Land BG	Generating station(s), including REGS(s), without ESS	Bijapur PS	351 (Wind)	Connectivity 351	01.08.2026	ISTS
vii.	2200000870 dt. 30.05.2024 at 14:20 hrs	Ganeko Four Energy Pvt. Ltd.	Bijapur, Karnataka	Land BG	Generating station(s), including REGS(s), without ESS	Bijapur PS	354 (Hybrid: Wind-99 MW & Solar-255 MW)	Connectivity 300	30.06.2028	ISTS
viii.	2200000871 dt. 30.05.2024 at 15:40 hrs	Purvah Green Power Pvt.Ltd.	Bijapur, Karnataka	Land BG	Generating station(s), including REGS(s), without ESS	Bijapur PS	250.8 (Wind)	Connectivity 250.8	01.08.2026 (vide email dt 24.07.2024 requested for change in start date from 01.04.2027 to 01.08.2026)	ISTS
ix.	2200000898 dt 03.06.2024	Diyos One Renewables Private Limited	Vijayapura, Karnataka	Land BG route	Generating station(s), including REGS(s), without ESS	Bijapur PS	250 (wind)	Connectivity 250	30.06.2028	ISTS

x.	2200000939 dt. 17.06.2024	Avaada Energy Private Limited	Bijapur, Karnataka	Land BG route	Generating station(s), including REGS(s), without ESS	Bijapur PS	300 (wind)	Connectivity 300	30.06.2027	ISTS
xi.	2200000969 dt 21.06.2024	TEQ Green Power Xiii Private Limited	Vijayapura, Raichur and Bagalkote, Karnataka	Land BG route	Generating station(s), including REGS(s), without ESS	Bijapur PS	120 (wind)	Connectivity 120	15.03.2027	ISTS
xii.	2200000937 dt 26.06.2024	UPC Renewables India Management Private Limited	Basavanabagewadi, Taluka Vijayapura, Karnataka	Land BG route	Generating station(s), including REGS(s), without ESS	Bijapur PS	88 (wind)	Connectivity enhancement (app. no. 2200000584 for 160 MW) 88	28.02.2027	-
	Total							**2413.8**		

Above application were listed in 33rd CMETS-SR meeting, held on 31.07.2024, wherein it was agreed that all above applications shall be deliberated in next CMETS meeting after identification and finalization of additional transmission system strengthening beyond Bijapur PS. Proposal for above applications is given with other applications received for grant of Connectivity at Bijapur PS, at agenda item no. D(2)

C.7. Revision in Connectivity transmission system of Ayana at Tumkur-II PS after revocation of Connectivity of Project Ten

M/s Project Ten Renewable Pvt. Ltd. (application no. 2200000301) was granted In-principle grant of connectivity for 50 MW at Tumkur-II PS through 220 kV S/c line and a new 220 kV bay was allocated for termination of dedicated connectivity transmission line. Subsequently, in the 25th CMETS-SR, held on 28.11.2024, it was agreed to grant connectivity for 150 MW to M/s Ayana Renewable Power Pvt. Ltd. (application no. 2200000320) through sharing of dedicated Connectivity transmission system of M/s Project Ten Renewable Power Pvt. Ltd. (for application no. 2200000301) i.e. generating Pooling Station of M/s Project Ten Renewable Power Pvt. Ltd.– Tumkur-II PS 220 kV S/c line.

CTU vide letter dated 05.08.2024, has revoked the in-principle grant of Connectivity to M/s Project Ten Renewable Pvt. Ltd. (application no. 2200000301). In view of same, it is proposed to reallocate the 220 kV terminal bay at Tumkur-II PS for termination of dedicated connectivity line to M/s Ayana Renewable Power Pvt. Ltd. (application no. 2200000320) and modify the dedicated connectivity transmission system. The proposed modified dedicated connectivity system along with Conn-BG details is given below.

Dedicated Connectivity transmission system as agreed in 25th CMETS-SR	**Proposed modified dedicated Connectivity transmission system**
• Through sharing of dedicated Connectivity transmission system of M/s Project Ten Renewable Power Pvt. Ltd. (for application no. 2200000301) i.e. generating Pooling Station of M/s Project Ten Renewable Power Pvt. Ltd.– Tumkur-II PS 220 kV S/c line – **all arrangement under the scope of applicant** • **Conn-Bs to be submitted :** Conn-BG1 of Rs. 50 lakhs + Conn-BG3 of Rs. 3.0 Cr. (@Rs.2 lakhs/MW)	Generation Pooling Station of M/s Ayana Renewable Power Pvt. Ltd. – Tumkur-II PS 220 kV S/c line. **Conn-Bs to be submitted :** Conn-BG1 of Rs. 50 lakhs + **Conn-BG2 of Rs. 3 Crs. (towards implementation of dedicated line bays under ISTS)** + Conn-BG3 of Rs. 3.0 Cr. (@Rs.2 lakhs/MW)

Members may deliberate.

C.8. Modification in Connectivity transmission system agreed for grant to M/s Sprng Vayu Kiran Pvt. Ltd. (application no. 2200000751) and at Bidar PS.

In 31st CMETS-SR meeting held on 30.05.2024, it was agreed to grant Connectivity to M/s Sprng Vayu Kiran Pvt. Ltd. (application no. 2200000751) at Bidar PS for 200 MW through 220 kV S/c line with start date of Connectivity as 30.06.2029. Further, as per applicant request, it was agreed to implement 220 kV terminal line bay at ISTS end under the scope of ISTS.

Applicants has sought connectivity in longer time frame (30.06.2029). For ease of implementation of dedicated connectivity line bays in the matching time frame of start date of connectivity, where connectivity has been sought in longer time frame, it is proposed that dedicated connectivity line bay at ISTS end may be implemented under the scope of applicant instead of ISTS. Accordingly, following is revised in Connectivity transmission system of M/s Sprng Vayu Kiran Pvt. Ltd. (application no. 2200000751).

Dedicated Connectivity transmission system as agreed in 31st CMETS-SR	Proposed modified dedicated Connectivity transmission system
• Generation Pooling Station of M/s Sprng Vayu Kiran Pvt. Ltd. – Bidar PS 220 kV S/c line along with line bay at generation pooling station – **under the scope of applicant** • 1 no. 220 kV line bay at Bidar PS end for termination of dedicated line – **under the scope of ISTS** • **Conn-Bs to be submitted :** Conn-BG1 of Rs. 50 lakhs + **Conn-BG2 of Rs. 3 Crs. (towards implementation of dedicated line bays under ISTS)** + Conn-BG3 of Rs. 4.0 Cr. (@Rs.2 lakhs/MW)	• Generation Pooling Station of M/s Sprng Vayu Kiran Pvt. Ltd. – Bidar PS 220 kV S/c line along with line bay at generation pooling station – **under the scope of applicant** • 1 no. 220 kV line bay at Bidar PS end for termination of dedicated line – **under the scope of applicant** • Conn**-Bs to be submitted :** Conn-BG1 of Rs. 50 lakhs + Conn-BG3 of Rs. 4.0 Cr. (@Rs.2 lakhs/MW)

Members may deliberate

C.9. Connectivity quantum reduction of SAEL from 300 MW to 250 MW at Kurnool-IV

In 32nd CMETS-SR held on 28.06.2024, it was agreed to grant in-principle grant of Connectivity to M/s SAEL Industries Pvt. Ltd. (app. no. 2200000843) for 300 MW at Kurnool -IV PS. Intimation for in-principle grant of Connectivity was issued vide letter dated 09.08.2024. Subsequently, M/s SAEL Industries Pvt. Ltd., vide letter dated 02.09.2024, has requested for reduction in Connectivity capacity from 300 MW to 250 MW.

In view of above, it is proposed that Connectivity quantum may be reduced for M/s SAEL Industries Pvt. Ltd. (app. no. 2200000844) from 300 MW to 200 MW.

Members may deliberate.

D. Connectivity related proposal for applications received in July 2024

D.1. Connectivity related proposal at Davangere PS

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity/ GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200001015 dt 20.06.2024	JSW Neo Energy Ltd.	Didege, Jagalur, Davangere, Karnataka	Connectivity	LoA [contract capacity - 300 MW (Solar :200 MW at Gujarat & Wind : 100 MW at Davangere, Karnataka)]	Generating station(s), including REGS(s), without ESS	Davangere PS	100 (wind)	100	31.07.2026	ISTS
II.	2200001019 dt. 05.07.2024	JSW Neo Energy Ltd.	Didege, Jagalur, Davangere, Karnataka	Connectivity	SECI LoA [contract capacity - 300 MW (Solar :200 MW at Gujarat & Wind : 100 MW at Davangere, Karnataka)]	Generating station(s), including REGS(s), without ESS	Davangere PS	100 (wind)	100	31.07.2026	ISTS
	Total								**200**		

- M/s JSW Neo Energy Ltd. has connectivity on basis of SECI LoA SECI/C&P/HPD/T8/LOA-A/JSWNEL/P1/65169 dated 25.06.2024 and SJVN LoA, SJVN/CC-Delhi/REIA/2024/HYBRID-2/JSW/387 dated 26.306.2024 & amendment dated 03.07.2024 for application no. 2200001019 and 2200001015 respectively.
- 4x1500 MVA, 765/400kV and 4x500 MVA, 400/220 kV Davanagere / Chitradurga Pooling Station is being established as part of 'Transmission system for integration of Davanagere / Chitradurga REZ'. Details of transmission system as per **Annexure-II**. The transmission scheme has been recommended for implementation through TBCB route in the 18th NCT held on 05.03.2024 and Gazette Notification published on 15.03.2024 by Ministry of Power with implementation time frame of 24 months. Considering the bidding process timeline, the scheme is expected tentatively by Sept. /Oct.' '2026.
- In 33nd CMETS-SR, held on 31.07.2024, it was agreed to augment transformation capacity by 4x500 MVA, 400/220 kV ICTs (5th - 8th) at Davangere PS.
- Total Connectivity already granted/ agreed for grant at Davanagere PS : **2625 MW**
- Total additional connectivity capacity under consideration: 200 MW **[100 MW + 100 MW]**
- System studies has been carried out and it is observed that connectivity may be granted for 200 MW at Davanagere / Chitradurga with existing/under-construction/under bidding transmission system which includes ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region (details given at Annexure-I) and Transmission system for integration of Davanagere / Chitradurga REZ (details as per Annexure-II) and augmentation of 4x500 MVA, 400/220 kV ICT (5th – 8th) at Davangere PS.
- In view of above, it is proposed to grant connectivity to above applications as per details given below.

Sl.	Application ID	Name of the Applicant	Connectivity at	Conn. Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
I.	2200001015 dt. 05.07.2024	JSW Neo Energy Ltd.	Davangere PS	100	• Generation Station of M/s JSW Neo Energy Ltd. – Davanagere / Chitradurga PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. 220 kV line bay at Davanagere / Chitradurga PS for	NIL	Details given below.	31.08.2026* (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : Rs.3.0 Cr (towards bay) • Conn-BG-3 : Rs. 1.0 Cr

					above DTL – **under the scope of ISTS**				(@ Rs. 2.0 lakh /MW)
II.	2200001019 dt 05.07.2024	JSW Neo Energy Ltd.	Davangere PS	100	• Through dedicated Connectivity transmission system proposed for application no. 2200001015 i.e. Generation Station of M/s JSW Neo Energy Ltd. – Davanagere / Chitradurga PS 220 kV S/c line – **all arrangement under the scope of applicant** • 1 no. 220 kV line bay at Davanagere/ Chitradurga PS for above DTL – **under the scope of ISTS**	NIL	Details given below.	31.08.2026* (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA (towards bay) • Conn-BG-3 : Rs. 1.0 Cr (@ Rs. 2.0 lakh /MW)

*Firm date of start date of connectivity shall be informed after successful transfer of SPV.

Common transmission system (augmentation) other than ATS for M/s Serentica Renewables INDIA 11 Pvt. Ltd. (application no. 2200000855) M/s JSW Neo Energy Ltd. (application no. 2200000932) and M/s Hexa Climate Solutions Pvt. Ltd. (application no. 2200000982) :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission system for integration of Davanagere/ Chitradurga REZ (details as per **Annexure-II**).
- Augmentation of 4x500 MVA, 400/220 kV ICT (5^{th} - 8^{th}) at Davangere PS.

Note : applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation.

Members may deliberate.

D.2. Connectivity related proposal at Bijapur PS

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity/ GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200001041 dt 11.07.2024	Sunsure Solarpark RJ One Private Limited	Yankanchi, Sindgi Taluka, Bijapur Karnataka	Connectivity	Land BG route	Generating station(s), including REGS(s), without ESS	Bijapur PS	150 (wind)	150	31.12.2027	ISTS
II.	2200001108 dt. 31.07.2024 & 12.08.2024	Purvah Green Power Private Limited	Hunsagi & Bandeppanahalli, Yadgir & Bijapur, Karnataka	Enhancement in Connectivity of app. no. 2200000871 (250.8 MW)	Land BG route	Generating station(s), including REGS(s), without ESS	Bijapur PS	90 (wind)	90	01.08.2026	-
	Total								**240**		

- Total Connectivity granted : 1814.4 MW
- Total Connectivity under consideration : 2413.8 [applications pending from 32nd CMETS-SR (1655.8 MW) + applications received in June'24 (758 MW) + Application received in July'2024(240 MW)]
- For grant of connectivity, additional transmission system strengthening beyond Bijapur PS has been identified. Intimation for grant of Connectivty to all above applications shall be issued only after finalization of transmission scheme by Western Regional Constituents.

D.3. Connectivity related proposal at Ananthapuram-II PS

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity/ GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200001043 dt 11.07.2024	Hexa Climate Solutions Pvt. Ltd.	Yerur, Ananthpur, AP	Connectivity	Land BG route	Generating station(s), including REGS(s), with ESS	Anantpur-II PS	200 (Wind : 200 MW + BESS : 50 MW)	200	30.06.2028	ISTS
II.	22000001074 dt 22.07.2024	JSW Neo Energy Ltd.	Raptadu, Ananthpur, AP	Connectivity	LoA [Contract Capacity : 500 MW]	Generating station(s), including REGS(s), without ESS	Anantpur-II PS	Solar : 500 + ESS : 500 MW	500	31.08.2026	ISTS (for 220 kV)
III.	2200001077 dt 24.07.2024	Serentica Renewables India Private Limited	Donimukkala, Nelagonda, Thimmapuram, Ananthpur, AP	Connectivity	Land route	Generating station(s), including REGS(s), without ESS	Anantpur-II PS	Hybrid : 430 MW [Solar : 200 MW + Wind : 230 MW]	300	31.12.2026	ISTS
	Total								**1000**		

- Applicants has sought grant of Connectivity as per above details. M/s JSW Neo Energy Ltd. has submitted application on basis of SECI LoA, SECI/C&P/SPD/ISTS-XV/LOA/JSWNEL/P1/65776 dated 19.07.2024.
- Ananthapuram-II PS in Andhra Pradesh was identified with 6x1500 MVA, 765/400 kV & 9x500 MVA, 400/220 kV ICTs for integration & evacuation of about 7.5 GW RE capacity from Anantapur area of Andhra Pradesh. During the 32nd CMETS-SR, it was decided that the transmission scheme may be considered for implementation in two phases. Phase-1 of the transmission scheme includes establishment of 4x1500 MVA, 765/400 kV & 6x500 MVA, 400/220 kV Ananthapuram-II PS, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Ananthapuram-II PS. The transmission scheme was agreed in 22nd NCT meeting

held on 23.08.2024. Details of the transmission system are given at **Annexure-IV.** Considering administrative approval and bidding process with implementation time period of 24 months, transmission scheme is expected by Feb. / March 2027.

- Total connectivity granted / agreed for grant : **2489.7 MW**
- Total Connectivity under consideration **: 1000 MW**
- For grant of additional connectivity, implementation of 1x500 MVA, 400/220 kV (7th) ICTs are required (considering N-1 contingency criteria)
- System studies has been carried out and it is observed that connectivity may be granted for 1000 MW at Anantapur-II PS with existing/under-construction/under bidding transmission system which includes ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region (details given at **Annexure-**I), Transmission system for integration of Davanagere/ Chitradurga REZ (details as per **Annexure-II**), Phase-1 of Transmission System for Integration of Anantapur-II (near Rayadurgam) REZs (details as per **Annexure-IV**) and augmentation of transformation capacity by 1x500 MVA ICTs (7th) at Anantapur-II PS.
- It is to mention that for optimization of transmission system, all applications, seeking connectivity for 500 MW and above, are being considered for grant at 400 kV. Further, transmission system for grant of connectivity is expected by Feb. /March 2027, however, applicants are seeking connectivity in longer time frame (2028 and beyond). For ease of implementation of dedicated connectivity line bays in the matching time frame of start date of connectivity, where connectivity has been sought in longer time frame, it is proposed that dedicated connectivity line bay at ISTS end may be implemented under the scope of applicant.
- In view of above, it is proposed to grant connectivity to above applicants as per details given below.

Sl.	Application ID	Name of the Applicant	Connectivity at	Connectivity Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity/	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
I.	2200001043 dt 11.07.2024	Hexa Climate Solutions Pvt. Ltd.	Ananthapuram-II PS	200	• Generation Station of M/s Hexa Climate Solutions Pvt. Ltd – Anantapur-II PS 220 kV S/c line along with line bay at generation PS –	NIL	Details given below.	30.06.2028 (Tentative) with availability of common tr. System	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 4.0 Cr

					under the scope of applicant • 1 no. 220 kV line bay at Anantapur-II PS for above DTL – **under the scope of applicant**			other than ATS	(@ Rs. 2.0 lakh /MW)
II.	2200000107 4 dt 22.07.2024	JSW Neo Energy Ltd.	Ananthapura m -II PS	500	• Generation Station of M/s JSW Neo Energy Ltd.– Anantapur-II PS 400 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. 400 kV line bay at Anantapur-II PS for above DTL – **under the scope of applicant**	NIL	Details given below.	31.03.2027 * (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 10.0 Cr (@ Rs. 2.0 lakh /MW)
III.	2200001077 dt 24.07.2024	Serentica Renewables India Pvt. Ltd.	Ananthapura m -II PS	300	• Generation Station of M/s Serentica Renewables India Pvt. Ltd.– Anantapur-II PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. 220 kV line bay at Anantapur-II PS for above DTL – **under the scope of ISTS**	NIL	Details given below.	31.03.2027 * (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : RS. 3.0 Crs. (towards bay) • Conn-BG-3 : Rs. 6.0 Cr (@ Rs. 2.0 lakh /MW)

Common transmission system (augmentation) other than ATS for M/s Hexa Climate Solutions Pvt. Ltd. (app. no 2200001043), M/s JSW Neo Energy Ltd. (app. No. 2200001074) and M/s Renewables India Pvt. Ltd . (app. no 2200010077) :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission system for integration of Davanagere/ Chitradurga REZ (details as per **Annexure-II**).
- Transmission System for Integration of Anantapur-II (near Rayadurgam) REZs (**Phase-1**) (details as per **Annexure-IV**)
- Augmentation of transformation capacity by 1x500 MVA ICTs (7th) at Anantapur-II PS

Note : applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation.

Members may deliberate

D.4. Connectivity related proposal at Bidar PS

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity/ GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200001072 dt 19.07.2024	Hero Solar Energy Private Limited	Goundgaon & Hassikera, Bidar, Karnataka	Connectivity	LoA (contract capacity : 250 MW)	Generating station(s), including REGS(s), with ESS	Bidar PS	250 MW [Solar : 250 MW & BESS : 125 MW]	250	31.10.2026	ISTS
II.	2200001098 dt 30.07.2024	Lambent Energy (Eight) Private Limited	Deoni, Latur, Maharashtra	Connectivity	Land BG route	Generating station(s), including REGS(s), without ESS	Bidar PS	Hybrid : 354 MW [Solar : 255 MW & Wind : 99 MW]	300	31.12.2027	ISTS
	Total								**550**		

- Hero Solar Energy Pvt. Ltd. has Connectivity on basis of SECI LoA, SECI/C&P/SPD/ISTS-XV/LOA/HSEPL/P1/65774 dated 19.07.20254.
- 3x1500 MVA, 765/400kV & 5x500 MVA, 400/220 kV Bidar PS has been under implementation as part of "**Transmission Scheme for Solar Energy Zone in Bidar (2500 MW), Karnataka**" with implementation schedule of 09.02.2026. In 33rd CMETS-SR, held on 31.07.2024, it was agreed for implementation of 3x500 MVA (6th – 8th), 400/220 kV ICT and 1x1500 MVA, 765/400kV ICT (4th) at Bidar PS.
- Earlier Connectivity granted / agreed for grant at Bidar PS : 2800 MW.
- Additional grant of **connectivity** under consideration : 550 MW

- Considering implementation schedule of 21 months and other administrative and bidding process, augmentation of transformation capacity may be available tentatively by Sept./ Oct.' 2026, if required in matching time frame.
- Study analysis has been carried out for grant of additional connectivity for 550 MW. From study analysis, it is observed that Connectivity may be granted along with existing/under-construction transmission system which includes ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region (details given at **Annexure-I**), Transmission Scheme for Solar Energy Zone in Bidar (2500 MW), Karnataka (details as per **Annexure-V**) and augmentation of 3x500 MVA, 400/220 kV (6th - 8th) ICTs and 1x1500 MVA, 765/400kV ICT (4th) at Bidar PS.
- M/s Lambent Energy (Eight) Private Limited has sought connectivity from 31.12.2027, which is long time ahead. For ease of implementation of 220 kV dedicated connectivity line bay at ISTS end in matching time frame of generation project, it is proposed to implent 220 kV dedicated Connectivity line bay at ISTS end under the scope of applicant.
- In view of above, it is proposed to grant connectivity to above applicants as per details given below.

Sl.	Application ID	Name of the Applicant	Connectivity at	Connectivity Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity/	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
I.	2200001072 dt 19.07.2024	Hero Solar Energy Private Limited	Bidar PS	250	• Generation Pooling S/s of M/s Hero Solar Energy Pvt. Ltd. – Bidar PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. 220 kV line bay at Anantapur-II PS for above DTL – **under the scope of ISTS**	NIL	Details given below.	31.10.2026 (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : 3.0 Crs. • Conn-BG-3 : Rs. 5.0 Cr (@ Rs. 2.0 lakh /MW)
II.	2200001098 dt 30.07.2024	Lambent Energy (Eight) Private Limited	Bidar PS	300	• Generation Pooling S/s of M/s Lambent Energy (Eight) Pvt. Ltd. – Bidar PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant**	NIL	Details given below.	31.12.2027 (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 6.0 Cr

					• 1 no. 220 kV line bay at Anantapur-II PS for above DTL – **under the scope of applicant**				(@ Rs. 2.0 lakh /MW)

Common transmission system (augmentation) other than ATS for M/s Hero Solar Energy Private Limited (app. no 2200001072) for 250 MW and M/s Lambent Energy (Eight) Private Limited (app. no 2200001098) for 300 MW :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission Scheme for Solar Energy Zone in Bidar (2500 MW), Karnataka (details as per **Annexure-V**)
- Augmentation of 3x500 MVA, 400/220 kV (6^{th} - 8^{th}) ICTs and 1x1500 MVA, 765/400kV ICT (4^{th}) at Bidar PS

Note : applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation.

Members may deliberate.

D.5. Connectivity related proposal at Kurnool-IV PS

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity/ GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200001099 dt 31.07.2024	Pratapati Energy (Seven) Private Limited	Ramakrishnapuram, Kurnool, Andhra Pradesh	Connectivity	Land BG route	Generating station(s), including REGS(s), without ESS	Kurnool-IV PS	Hybrid :354 MW (solar : 255 MW + Wind : 99 MW)	300	31.12.2027	ISTS
	Total								**300**		

- 6x1500 MVA, 765/400 kV & 10x500 MVA, 400/220 kV Kurnool-IV PS, near Aspiri, has planned for integration of additional RE capacity (7.5 GW). In the 32^{nd} CMETS-SR it was agreed to implement Kurnool-IV PS in phased manner. In 23^{rd} NCT held on

2.09.2024, it was agreed to implement Phase-I transmission system, which includes establishment of 4x1500 MVA, 765/400 kV and 4x500 MVA, 400/220 kV Kurnool-IV PS. Details of the phase-I transmission system is given at **Annexure-VI.** Considering administrative approval and bidding process with implementation time period of 24 months, transmission scheme is expected by Feb / Mar, 2027.

- Earlier Connectivity granted / agreed for grant at Kurnool-IV PS : 1230 MW.
- Additional grant of connectivity under consideration : 300MW
- System studies have been carried out and it is observed that additional connectivity may be granted for 300 at Kurnool-IV PS with existing/under-construction/under bidding transmission system which includes ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region (details given at **Annexure-I**), and **Phase-1** of Transmission System for Integration of Kurnool-IV REZs (details as per **Annexure-VI**).
- In view of above, it is proposed to grant connectivity to above applications as per details given below.

Sl.	Application ID	Name of the Applicant	Connectivity at	Connectivity Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity/	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
I.	2200001099 dt 31.07.2024	Pratapati Energy (Seven) Private Limited	Kurnool-IV PS	300	• Generation Station of M/s Pratapati Energy (Seven PVt. Ltd.– Kurnool -IV PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. 220 kV line bay at Kurnool-IV PS for above DTL – **under the scope of ISTS**	NIL	Details given below.	31.12.2027 (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : Rs. 3.0 Crs. • Conn-BG-3 : Rs. 6.0 Cr (@ Rs. 2.0 lakh /MW)

Common transmission system (augmentation) other than ATS for M/s Pratapati Energy (Seven) Private Limited (app. no 2200001099) :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission System for Integration of Kurnool-IV PS (Near Aspiri) (**Phase-1**) details as per **Annexure-VI**)

Note : applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation.

Members may deliberate.

D.6. Connectivity related proposal at Karur PS

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity/ GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200001023 dt 08.07.2024	Nannai Solar Park Pvt. Ltd.	Karur, Tamil Nadu	Connectivity	Land BG route	Generating station(s), including REGS(s), without ESS	Karur PS	57 (Wind)	57	30.09.2025	Enhancement of application no. 2200000628 (93 MW)
II.	2200001033 dt 22.07.2024	Navaladi Wind Park Pvt. Ltd.	Karur, Tamil Nadu	Connectivity	Land BG route	Generating station(s), including REGS(s), without ESS	Karur PS	100 (Wind)	100	30.09.2025	-
	Total								**157**		

- M/s Navaladi Wind Park Pvt. Ltd. has sought connectivity under Regulation 5.7 and submitted the dedicated connectivity sharing agreement with M/s Nannai Solar Park Pvt Ltd., which has been granted connectivity for 93 MW at Karur for application no. 2200000628.
- Karur PS was planned for 2500 MW potential RE capacity. Presently, Karur PS is under operation with 2x500 MVA, 400/230 kV ICTs. Further, 2x500 MVA, 400/230 kV ICTs (3rd & 4th) are under implementation with SCOD as 12.09.2025.
- Total Connectivity already granted/ agreed for grant : 1582.1 MW.

- Total Connectivity under consideration for grant : 157 MW.
- For grant of additional Connectivity, augmentation of 1x500 MVA, 400/230 kV ICT (5th) is required. Considering implementation schedule of 18 months and other administrative approval/ process, transmission scheme is expected by Sept.'2026.
- System Studies have been carried out and Connectivity may be granted with existing / under construction/ planned system, which includes Narendra- Pune 765 kV D/c line, details as per **Annexure-I**, and augmentation of 1x500 MVA, 400/230 kV ICT (5th) at Karur PS.
- It is to mention that M/s Nannai Solar Park Pvt Ltd. has already been granted connectivity for 93 MW [application no. 2200000628] through 230 kV S/c line. Subsequently, M/s Amplus Theta Energy Pvt. Ltd. (application no. 2200000698 for 65 MW) and M/s Amplus Sun Beat Pvt. Ltd. (application no. 2200000699 for 80 MW) were grant connectivity at Karur PS through sharing of dedicated connectivity transmission system of M/s Nannai Solar Park Private Ltd. for application no. 2200000628 (for 93 MW).
- With consideration of all applications granted/ agreed for grant/ under process for connectivity, total connectivity granted through dedicated connectivity infrastructure for application no. 2200000628 will be 395 MW (93 MW for application no. 2200000628 + 65 MW for application no. 2200000698 + 80 MW for application no. 2200000699 + 57 MW for application no. 2200001023 + 100 MW for application no. 2200001033)
- In view of above it is proposed to grant connectivity through stringing of 2nd arms of 230 kV D/c towers of the dedicated connectivity line for application no. 2200000628, 2200000698 & 220000699 and bunching both arms circuit at both ends to form single circuit line for termination in same bay allocated for application no. 2200000628, 2200000698 & 220000699 .
- In view of above, it is proposed to grant connectivity to above applications as per details given below.

Sl.	Application ID	Name of the Applicant	Connectivity at	Connectivity Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity/	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
I.	2200001023 dt 08.07.2024	Nannai Solar Park Pvt. Ltd.	Karur PS	57	• Through dedicated connectivity transmission system [allocated to M/s Nannai Solar Park Pvt. Ltd. for application no. 2200000628, M/s Amplus Theta Energy Pvt. Ltd. for application no. 2200000698 and M/s Amplus Sun Beat Pvt. Ltd. for	NIL	Details given below.	30.09.2026* (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 1.14 Cr (@ Rs.

					application no. 2200000699] i.e Generation pooling station of M/s Nannai Solar Park Pvt. Ltd. -Karur PS 230 kV line and stringing of 2nd arms of 230 kV D/c towers of dedicated connectivity line and bunching both arms circuit at both ends to form single circuit line – **all arrangement under the scope of applicant**				2.0 lakh /MW)
II.	2200001033 dt 22.07.2024	Navaladi Wind Park Pvt. Ltd	Karur PS	100	• Through dedicated connectivity transmission system [allocated to M/s Nannai Solar Park Pvt. Ltd. for application no. 2200000628, M/s Amplus Theta Energy Pvt. Ltd. for application no. 2200000698 and M/s Amplus Sun Beat Pvt. Ltd. for application no. 2200000699] i.e Generation pooling station of M/s Nannai Solar Park Pvt. Ltd. -Karur PS 230 kV line and stringing of 2nd arms of 230 kV D/c towers of dedicated connectivity line and bunching both arms circuit at both ends to form single circuit line – **all arrangement under the scope of applicant**	NIL	Details given below.	30.09.2026* (Tentative) with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 2.0 Cr (@ Rs. 2.0 lakh /MW)

*Firm date of start date of connectivity shall be informed after successful transfer of SPV/ issuance of OM.

Common transmission system (augmentation other than ATS) for M/s Nannai Solar Park Pvt. Ltd. & Navaladi Wind Park Pvt. Ltd. (for application nos. 2200001023 & 2200001033 respectively) :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Augmentation of 1x500 MVA, 400/230 kV ICT (5th) at Karur PS.

Note : *As, connectivity has already been granted / agreed for grant to M/s Nannai Solar Park Pvt. Ltd. (application no. 2200000628), M/s Amplus Theta Energy Pvt. Ltd. (application no. 2200000698) and M/s Amplus Sun Beat Pvt. Ltd. (application no. 2200000699) through common dedicated connectivity transmission system, therefore intimation for in-principle grant of Connectivity to M/s Nannai Solar Park Pvt. Ltd. application no. 2200001023 shall be issued only after submission dedicated Connectivity infrastructure sharing agreement with M/s Amplus Theta Energy Pvt. Ltd. (application no. 2200000698) and M/s Amplus Sun Beat Pvt. Ltd. (application no. 2200000699). Similarly, Intimation for in-principle grant of connectivity shall be issued to M/s Navaladi Wind Park Pvt. Ltd. (for application no. 2200001033) only after submission of dedicated Connectivity infrastructure sharing agreement with M/s Amplus Theta Energy Pvt. Ltd. (application no. 2200000698) and M/s Amplus Sun Beat Pvt. Ltd. (application no. 2200000699) and M/s Nannai Solar Park Pvt. Ltd. for application no. 2200000628 and 2200001023*.

Members may deliberate.

D.7. Connectivity Related proposal at Tumkur-II PS

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity/ GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200001012 dt 03.07.2024	SAEL Industries Ltd.	Palavalli, Tumkur, Karnataka	Connectivity	Land BG	Generating station(s), including REGS(s), without ESS	Tumkur-II PS	300 (solar)	300	30.09.2026	ISTS
II.	2200001017 dt 04.07.2024	Sunsure Solar Park Rj One Pvt. Ltd.	Srirangapura, Tumkur, Karnataka	Connectivity	Land BG	Generating station(s), including REGS(s),	Tumkur-II PS	300 (solar)	300	31.03.2028	ISTS

						without ESS					
III.	2200001061 dt 17.07.2024	Jagaluru Solar Power Pvt. Ltd.	Kamanadurga, Tumkur, Karnataka	Connectivity	Land BG	Generating station(s), including REGS(s), without ESS	Tumkur-II PS	300 (solar)	300	31.12.2027	ISTS
IV.	2200001075 dt 22.07.2024	EG Arka Solar Pvt. Ltd.	Kamanadurga, Tumkur, Karnataka	Connectivity	Land BG	Generating station(s), including REGS(s), without ESS	Tumkur-II PS	100 (solar)	100	31.12.2026	Applicant
V.	2200001082 dt 26.07.2024	ACME Solar Holdings Ltd.	Bypura & Aralikunte, Tumkur, Karnataka	Connectivity	LoA (contract capacity 350 MW)	Generating station(s), including REGS(s), without ESS	Tumkur-II PS	350 (Solar and ESS: 175 MW)	350	31.12.2026	ISTS
	Total								**1350**		

M/s SAEL Industries has sought connectivity on basis of LOA, SECI/C&P/SPD/ISTS-XIC/LOA/SIL/P1/63588 dated 23.04.2023 issued by SECI.

- 4x500 MVA, 400/220 kV Tumkur-II PS, detailed scheme as per **Annexure-VII**, is under implementation with SCOD as 03.09.2026.
- Connectivity already granted/ agreed for grant : 1350 MW
- Connectivity under consideration : 1350 MW.
- It is to mention that it was agreed to grant connectivity to M/s Ayana Renewable Power Pvt. Ltd. for 150 MW (application no. 2200000320). Sufficient margins is there for grant of additional connectivity for about 150 MW through sharing of dedicated connectivity transmission infrastructure. In view of optimization of transmission system, it is proposed to grant Connectivity to M/s EG Arka Solar Pvt. Ltd. through dedicated connectivity transmission system of M/s Ayana Renewable Power Pvt. Ltd.
- For grant of additional connectivity, 2x500 MVA, 400/220 kV (5^{th} & 6^{th}) ICTs are required. Considering implementation schedule of 18 months, bidding timeline and other administrative process, system may be expected tentatively by Sept / Oct.'2026.
- System studies have been carried out and it is observed that connectivity may be granted with under implementation and planned transmission system, which includes Transmission Scheme for integration of Tumkur-II REZ in Karnataka, as per **Annexure-VII**, ISTS Network Expansion scheme in Western Region & Southern Region, as per **Annexure-I** and augmentation of transformation capacity by 2x500 MVA (5^{th} & 6^{th}) at Tumkur-II PS.

- M/s Sunsure Solar Park Rj One Pvt. Ltd. and M/s Jagaluru Solar Power Pvt. Ltd have sought connectivity from 31.03.2028 and 31.12.2027 respectively, which is long time ahead. For ease of implementation of 220 kV dedicated connectivity line bay at ISTS end in matching time frame of generation project, it is proposed to implent 220 kV dedicated Connectivity line bay at ISTS end under the scope of applicant.
- In view of above, it is proposed to grant connectivity as per below given details.

Sl.	Application ID	Name of the Applicant	Connectivity at	Connectivity Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity/	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
I.	2200001012 dt 03.07.2024	SAEL Industries Ltd.	Tumkur-II PS	300	• Generation Station of M/s SAEL Industries Ltd. – Tumkur-II PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. 220 kV line bay at Tumkur-II PS for above DTL – **under the scope of ISTS**	30.09.2026	Details given below.	31.10.2026* (Tentative) (with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : Rs. 3.0 Crs. (towards terminal bay) • Conn-BG-3 : Rs. 6.0 Cr (@ Rs. 2.0 lakh /MW)
II.	2200001017 dt 04.07.2024	Sunsure Solar Park Rj One Pvt. Ltd.	Tumkur-II PS	300	• Generation Station of M/s Sunsure Solar Park Rj One Pvt. Ltd. – Tumkur-II PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. 220 kV line bay at Tumkur-II PS for above DTL – **under the scope of applicant**	31.03.2028	Details given below.	31.03.2028 (with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 6.0 Cr (@ Rs. 2.0 lakh /MW)
III.	2200001061 dt 17.07.2024	Jagaluru Solar Power Pvt. Ltd.	Tumkur-II PS	300	• Generation Station of M/s Jagaluru Solar Power Pvt. Ltd. –	31.12.2027	Details given below.	31.12.2027 (with availability of	• Conn-BG1 : Rs. 50 lakhs

					Tumkur-II PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. 220 kV line bay at Tumkur-II PS for above DTL – **under the scope of applicant**			common tr. System other than ATS	• Conn-BG2 : NA • Conn-BG-3 : Rs. 6.0 Cr (@ Rs. 2.0 lakh /MW)
IV.	2200001075 dt 22.07.2024	EG Arka Solar Pvt. Ltd.	Tumkur-II PS	100	• Through dedicated connectivity transmission system granted to M/s Ayana Renewable Power Pvt. Ltd. for application no. 2200000320(150 MW) i.e. Generation Station of M/s s Ayana Renewable Power Pvt. Ltd. – Tumkur-II PS 220 kV S/c line – **all arrangement under the scope of applicant**.	31.12.2026	Details given below.	31.12.2026* (Tentative) (with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 2.0 Cr (@ Rs. 2.0 lakh /MW)
V.	2200001082 dt 26.07.2024	ACME Solar Holdings Ltd.	Tumkur-II PS	350	• Generation Station of M/s ACME Solar Holdings Ltd. – Tumkur-II PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 1 no. 220 kV line bay at Tumkur-II PS for above DTL – **under the scope of ISTS**	31.12.2026	Details given below.	31.12.2026* with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : Rs. 3.0 Crs. (towards terminal bay) • Conn-BG-3 : Rs. 7.0 Cr (@ Rs. 2.0 lakh /MW)

*Part Transmission scheme is under approval.

Common transmission system (augmentation other than ATS) for M/s SAEL Industries Ltd . (application no. 2200001012), for M/s Sunsure Solar Park Rj One Pvt. Ltd (application no. 2200001017), for M/s Jagaluru Solar Power Pvt. Ltd . (application no. 2200001061), for M/s EG Arka Solar Pvt. Ltd. **. (application no. 2200001075) and M/s ACME Solar Holdings Ltd (application no. 2200001082) :**

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission Scheme for integration of Tumkur-II REZ in Karnataka, as per **Annexure-VII**
- Augmentation of transformation capacity by 2x500 MVA, 400/220 kV ICTs at Tumkur-II PS.

Note : applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation

Members may deliberate.

D.8. Connectivity Related proposal at Bellary PS

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity/ GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200000825 dt 20.05.2024	NTPC Renewable Energy Ltd.	Koppal, Karnataka	Connectivity	LoA SECI/C&P/ HPD/T7/LOA-A3/NREL/P1 /63858	Generating station(s), including REGS(s), without ESS	Gadag-II PS	76 (wind)	76	16.04.2026	ISTS
II.	2200000903 dt 13.06.2024	Torrent Power Limited	Koppal, Karnataka	Connectivity	LoA SECI/C&P/ WPD/T16V/ LOA/KA/TPL/P1/62057	Generating station(s), including REGS(s), without ESS	Koppal-II PS	100 (wind)	100	30.06.2026	ISTS

III.	2200001102 dt 31.07.2024	NTPC Renewable Energy Ltd.	Koppal, Karnataka	Connectivity	LoA REMCL/CO/PP/P-91/2	Generating station(s), including REGS(s), without ESS	Gadag-II PS	345 (wind)	345	14.08.2026	ISTS
IV.	2200001103 dt 31.07.2024	NTPC Renewable Energy Ltd.	Koppal, Karnataka	Connectivity	LoA REMCL/CO/PP/P-91/2	Generating station(s), including REGS(s), without ESS	Gadag-II PS	55 (wind)	55	14.08.2026	ISTS
	Total								**576**		

- 4x500 MVA, 400/220kV Pooling Station near Bellary, detailed scheme as per **Annexure-VIII**, is under bidding and expected tentatively by Sept. 2026 (considering SPV transfer by Sept. 2024 with implementation schedule of 24 months).
- System studies has been carried and it is observed that Connectivity may be granted with existing/ under-construction/ under bidding transmission system which includes ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region (details given at **Annexure-I**) and Transmission Scheme for integration of Bellary REZ in Karnataka, as per **Annexure-VIII.**
- In view of above, it is proposed to grant connectivity to above applications as per details given below.

Sl.	**Application ID**	**Name of the Applicant**	**Connectivity at**	**Connectivity Quantum (MW)**	**Connectivity Transmission System under GNA**			**Start date of Connectivity/**	**BG details**
					Dedicated Connectivity Transmission System (DTL)	**ATS**	**Augmentation other than ATS**		
I.	2200000825 dt 20.05.2024	NTPC Renewable Energy Ltd	Bellary PS	76	• Generation Station of M/s NTPC Renewable Energy Ltd. – Bellary PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 01 no. 220 kV line bay at Bellary PS for above	NIL	Details given below.	30.09.2026 (Tentative)* with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : 3.0 Crs. • Conn-BG-3 : Rs. 1.52 Cr (@ Rs. 2.0 lakh /MW)

					DTL – **under the scope of ISTS**				
II.	2200000903 dt 13.06.2024	Torrent Power Ltd. #	Bellary PS	100	• Through Sharing of dedicated connectivity transmission system of M/s NTPC Renewable Energy Ltd. proposed for grant for 76 MW for application no. 2200000825 [i.e. Generation Station of M/s NTPC Renewable Energy Ltd. – Bellary PS 220 kV S/c line along with line bay at generation PS – all arrangement **under the scope of applicant]**	NIL	Details given below.	30.09.2026 (Tentative)* with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 2.0 Cr (@ Rs. 2.0 lakh /MW)
III.	2200001102 dt 20.05.2024	NTPC Renewable Energy Ltd	Bellary PS	345	• Generation Station of M/s NTPC Renewable Energy Ltd. – Bellary PS 220 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 01 no. 220 kV line bay at Bellary PS for above DTL – **under the scope of ISTS**	NIL	Details given below.	30.09.2026 (Tentative)* with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : 3.0 Crs. • Conn-BG-3 : Rs. 6.90 Cr (@ Rs. 2.0 lakh /MW)
IV.	2200001103 dt 31.07.2024	NTPC Renewable Energy Ltd. #	Bellary PS	55	• Through dedicated connectivity transmission system proposed for grant of Connectivity to M/s NTPC Renewable Energy Ltd. (application no. 2200000825) and	NIL	Details given below.	30.09.2026 (Tentative)* with availability of common tr. System other than ATS	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 1.10 Cr (@ Rs. 2.0 lakh /MW)

					M/s Torrent Power Ltd. (application no. 2200000903) [i. e Generation Station of M/s NTPC Renewable Energy Ltd. – Bellary PS 220 kV S/c line along with line bay at generation PS – all arrangement **under the scope of applicant]**				

*Firm date of start date of connectivity shall be informed after successful transfer of SPV.

Common transmission system (augmentation) other than ATS for M/s NTPC Renewable Energy Ltd. (application nos. 2200000825, 2200001102 & 2200001103) and M/s Torrent Power Ltd. (Application no. 2200000903) :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I**.
- Transmission Scheme for integration of Bellary REZ in Karnataka, as per **Annexure-VIII**.
- Transmission system for integration of Davanagere/ Chitradurga REZ (details as per **Annexure-II**)

Note : *applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation.*

 # In-principle grant of connectivity shall be issued to M/s Torrent Power Ltd. (app. No. 2200000903) after submission of dedicated Connectivity infrastructure sharing agreement wityh M/s NTPC Renewables Energy Ltd. (appl. No 2200000825). Further, In-principle grant of connectivity shall be issued M/s NTPC Renewable Energy Ltd. for app. No. 2200001013 only after submission of dedicated connectivity infrastructure agreement with M/s Torrent Power Ltd. (app. No. 2200000903).

Members may deliberate.

D.9. Connectivity related proposal at Trichy / Nagapattinam Substation, Tamil Nadu

Sl.	Application ID & date	Name of the Applicant	Project Location	Application for: Conn. / GNA/ GNARE	Eligibility criterion for application	Nature of Applicant	Location details of Conn. / GNA requested	Total Installed Capacity/ GNA	Conn. Sought for [Power interchange with ISTS (MW)]	Start date of Conn. / GNA (as requested)	Implementation of terminal bay at ISTS end under the scope of (as requested)
I.	2200001079 dt 24.07.2024	Subramaniyapuram Wind Park Pvt. Ltd.	Trichy, Tamil Nadu	Connectivity	Land Route	Generating station(s), including REGS(s), without ESS	Connectivity requested through LILO of 400kV Pugalur Nayveli line	440 (wind)	440	31.03.2026	ISTS
	Total								**440**		

- M/s Subramaniyapuram Wind Park Pvt. Ltd has sought connectivity for 440 MW on Land route basis. As Pugalur – Navelli 400 kV line is important line for evacuation of power from Navelli complex. Further, Pugalur S/s is also connected to Pugalur HVDC. In view of above, it is proposed to grant connectivity at Trichy or Nagapattinam substation through 400 kV S/c line.
- System studies has been carried and it is observed that Connectivity may be granted with existing/ under-construction/ under bidding transmission system which includes ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region (details given at **Annexure-I**).
- In view of above, it is proposed to grant connectivity to above applications as per details given below

Sl.	Application ID	Name of the Applicant	Connectivity at	Connectivity Quantum (MW)	Connectivity Transmission System under GNA			Start date of Connectivity/	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS		
I.	2200001079 dt 24.07.2024	Subramaniyapuram Wind Park Pvt. Ltd	Trichy	440	• Generation Station of M/s Subramaniyapuram Wind Park Pvt. Ltd. – Trichy or Nagapattinam substation 400 kV S/c line along with line bay at generation PS – **under the scope of applicant** • 01 no. 400 kV line bay at Trichy or Nagapattinam substation for above DTL – **under the scope of applicant**	NIL	Details given below.	31.03.2026 (with availability of common tr. System other than ATS)	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 8.80 Cr (@ Rs. 2.0 lakh /MW)

Common transmission system (augmentation) other than ATS for M/s Subramaniyapuram Wind Park Pvt. Ltd. (application no. 2200001073) :

- ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region as per **Annexure-I.**

Note : applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation.

E. GNA Related proposal for applications received in Southern Region

E.1. Proposal for grant of GNA Applications

Sl.	Application ID, date of submission	Name of the Applicant	Application for: Connectivity/ GNA/ GNARE	GNA Breakup (Within & outside region)	Eligibility under GNA Regulations 2022	STU details	Nature of Applicant	Location details of GNA requested	GNA quantum	Start date of GNA (requested)	End date of GNA (requested)
I.	2200000433 dt 16.12.2023	AM Green Ammonia (India) Pvt. Ltd.	GNARE	Within Region : 0 MW Outside Region : 700 MW	Under GNA Regulations 17.1 (iii)	NA	Bulk consumer seeking to connect to ISTS directly	Kakinada GH	700	01.07.2026	30.06.2050
II.	2200000607 dt 29.02.2024	AM Green Ammonia (India) Pvt. Ltd.	GNARE	Within Region : 0 MW Outside Region : 1660 MW	Under GNA Regulations 17.1 (iii)	NA	Bulk consumer seeking to connect to ISTS directly	Tuticorin GH	1660	01.12.2026	30.11.2051
III.	2200001034 dt 10.07.2024	Green Infra Renewable Energy Farms Pvt. Ltd.	GNARE	Within Region : 800 MW Outside Region : 0 MW	Under GNA Regulations 17.1 (iii)	NA	Bulk consumer seeking to connect to ISTS directly	Tuticorin GH	800	31.12.2028	25.12.2053
IV.	2200001052 dt 17.07.2024	ACC Ltd.	GNARE	Within Region : 0 MW Outside Region : 22.5 MW	Under GNA Regulations 17.1 (iii)	KPTCL	Drawee entity connected to Intra State	220/110 kV Shahabad S/s	22.5	01.09.2024	31.03.2026
V.	2200001053 dt 17.07.2024	ACC Ltd.	GNARE	Within Region : 0 MW Outside Region : 9 MW	Under GNA Regulations 17.1 (iii)	KPTCL	Drawee entity connected to Intra State	66kV Gowribidanur S/s	9	01.09.2024	31.03.2026
VI.	2200001066 dt 18.07.2024	AM Green Ammonia (India) Pvt.	GNARE	Within Region : 1300 MW	Under GNA Regulations 17.1 (iii)	NA	Drawee entity connected to ISTS	Kakinada	1300	01.01.2027	31.12.2052

		Ltd.		Outside Region : 0 MW							

a. Proposal for Grant of GNA for Green Hydrogen/ Ammonia projects at Tuticorin :

i. For app. No. 2200000607, M/s AM Green Ammonia (India) Pvt. Ltd. has sought grant GNA for 1660 MW (Within Region: 0 MW & Outside Region: 1660 MW) as Bulk Consumer. Application was also discussed in 29th CMETS-SR meeting held on 28.03.2024 and 31st CMETS-SR held on 30.05.2024.

ii. For app. No 2200001034, M/s Green Infra Renewable Energy Farms Pvt. Ltd. has sought grant of GNA for 800 MW. As per submitted application GNA sought within region as 0 MW and GNA outside the region as 800 MW. However, vide letter dated 12.08.2024, it has requested to consider the GNA quantum within the region as 05 MW and outside the region as 795 MW.

iii. Transmission scheme required to supply power to Green Hydrogen / Green Ammonia developers in Tuticorin area was also discussed in 31st CMETS-SR, held on 30.05.2024 wherein it was also informed that a meeting was held on 19.10.2023 chaired by Hon'ble Minister with Green Hydrogen stakeholders/association, wherein it was instructed that developers shall share the details of year-wise planned Green Ammonia / Green Methanol capacities and corresponding drawl capacities desired at different locations. Hon'ble minister also instructed that this information should be shared with CTU for planning the required substation capacities at these specified locations. MNRE vide letter dated 01.11.2023 has forwarded the consolidated information of the planned projects and drawl requirements of various developers. (copy of letter attached at **Annexure-C)**

In this regard, a meeting was convened by CEA with Green Hydrogen/ Green Ammonia manufacturers to access the year wise electricity demand for proper planning of transmission system. In Tuticorin area, about 7000 MW demand has been envisaged for the Green Hydrogen/ Green Ammonia projects.

iv. The Transmission scheme required to supply power to Green Hydrogen / Green Ammonia developers in Tuticorin area was also discussed and agreed in the 52nd SRPC meeting held on 03.08.2024. The National Committee on Transmission in its 22nd meeting held on 23.08.2024 has recommended the implementation of the subject transmission scheme through TBCB route. As per minutes of the NCT, implementation schedule of the transmission scheme 30 months from date of allocation to implementing agency. Considering Administrative process, bidding timeline and implementation schedule of the scheme, transmission scheme is expected by June/ July' 2027. Brief transmission system is given below, however, detailed transmission system is given at **Annexure-IX**.

Transmission system for proposed Green Hydrogen / Green Ammonia projects in Tuticorin area.

- Establishment of 3x1500 MVA, 765/400 kV Tuticorin (GH) project with 1x240 MVAR bus Reactor.
- Upgradation of 765 kV Tuticorin Pool (presently charged at 400 kV) to its rated voltage at 765 kV along with 3x1500 MVA, 765/400 kV ICTs and 1x330 MVAr bus Reactor.
- Upgradation of 765 kV Dharmapuri (presently charged at 400 kV) to its rated voltage at 765 kV along with 3x1500 MVA, 765/400 kV ICTs and 1x330 MVAr bus Reactor.
- Upgradation of Tuticorin Pool – Dharmapuri 765 kV line (presently charged at 400 kV) to its rated voltage at 765 kV along with 1x330 MVAr Switchable Line Reactor at both end of each circuit.
- Upgradation of Dharmapuri – Madhugiri 765 kV 2xS/c lines (presently charged at 400 kV) to its rated voltage at 765 kV along with 1x330 MVAr Switchable Line Reactor at Dharmapuri end of each circuit
- Tuticorin Pool – Tuticorin (GH) 765 kV D/c line.

Further, as per the meeting held on 12.07.2023 among CEA and CTUIL regarding deliberations on the identification of Associated Transmission System (ATS) and common Augmentation of Inter State Transmission System (ISTS) for grant of Connectivity and GNA under General Network Access (GNA) Regulations, 2022 of CERC, following was agreed *:*

a. *The ISTS identified/planned for multiple injecting entities e.g. RE potential zone (identified by MNRE/SECI) can be considered as an augmentation without ATS. Accordingly, the Connectivity for such injecting entities can be granted with common augmentation. The same approach can be followed for potential based bulk consumers including consumers producing green hydrogen provided the potential site of such bulk consumers has been confirmed by the central/state government.*
b. *The ISTS identified/planned exclusively for specific injecting entity(ies), can be considered as an augmentation with ATS. Accordingly, the Connectivity for such injecting entity(ies) can be granted with ATS.*
c. *For ISTS augmentation being implemented under Tariff based Competitive Bidding (TBCB), the same can be considered to be under implementation if the Special Purpose Vehicle (SPV) transfer has been completed before the completion of the interconnection study. Similarly, for the ISTS augmentations under Regulated Tariff Mechanism (RTM), they can be considered to be under implementation from the date of its intimation by CTU to the Transmission Service Provider (TSP), considering the conditions stipulated, if any.*

In view of above it is proposed to grant GNA-RE to M/s AM Green Ammonia (India) Pvt. Ltd. and M/s Green Infra Renewable Energy Farms Pvt. Ltd. as per details given below.

Sl.	Application ID	Name of the Applicant	Connectivity at	GNA-RE Quantum (MW)	Connectivity Transmission System under GNA-RE			Start date of GNA	End date of GNA	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS			
I.	2200000607 dt 29.02.2024	AM Green Ammonia (India) Pvt. Ltd.	Tuticorin GH	Within Region : 0 MW Outside Region : 1660 MW	• Generation Station of M/s AM Green Ammonia (India) Pvt. Ltd. – Tuticorin GH 400 kV D/c line along with line bay at generation PS – **under the scope of applicant** • 02 no. 400 kV line bay at Tuticorin GH for above DTL – **under the scope of applicant**	NIL	Details given below.	31.07.2027* (Tentative) (with availability of common tr. System other than ATS)	30.11.2051	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 33.2 Cr (@ Rs. 2.0 lakh /MW)
II.	2200001034 dt 10.07.2024	Green Infra Renewable Energy Farms Pvt. Ltd.	Tuticorin GH	Within Region : 800 MW Outside Region : 0 MW	• Generation Station of M/s Green Infra Renewable Energy Farms Pvt. Ltd. – Tuticorin GH 400 kV D/c line along with line bay at generation PS – **under the scope of applicant** • 02 no. 400 kV line bay at Tuticorin GH for above DTL – **under the scope of applicant**	NIL	Details given below.	31.12.2028* (Tentative) (with availability of common tr. System other than ATS)	25.12.2053	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 16 Cr (@ Rs. 2.0 lakh /MW)

Common transmission system (augmentation other than ATS) for M/s AM Green Ammonia (India) Pvt. Ltd. (application nos. 2200000607) and M/s Green Infra Renewable Energy Farms Pvt. Ltd. (Application no. 2200001034) :

- Transmission system for proposed Green Hydrogen / Green Ammonia projects in Tuticorin area, as per **Annexure-IX**.

Note : applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation.

b. Proposal for Grant of GNA for Green Hydrogen/ Ammonia projects at Kakinada :

i. For app. nos. 2200000433 and 2200001066, M/s AM Green Ammonia (India) Private Limited [as an eligible entity under Regulation 17.1 (iii)] has sought grant of GNA as Bulk Consumer for 700 MW (Within Region: 0 MW & Outside Region: 700 MW) and 1300 MW (Within Region: 1300 MW & Outside Region: 0 MW) respectively. Applicant has sought the GNA as per above details.

ii. Application no. 2200000433 was also discussed in the 27th CMETS-SR, held on 30.01.2024, it was agreed to grant GNA-RE to M/s AM Green Ammonia Pvt. Ltd. (application no. 2200000433) for 700 MW through establishment of 2x1500 MVA, 765/400 kV Kakinada PS and Pooling Station of M/s AM Green Ammonia (India) Private Limited – Kakinada PS 400 kV D/c line (as dedicated connectivity transmission system) with tentative start date of connectivity as 31.08.2026.

Subsequently, vide letter dated 21.02.2024, M/s AM Green Ammonia Pvt. Ltd. mentioned that manufacturing of Green Ammonia is scheduled to commence by the end of May'2026. The requirement of power supply is anticipated w.e.f June 1, 2026. Therefore, M/s AM Green Ammonia (India) Pvt. Ltd. requested to revised the connectivity transmission system and provide the connectivity through 400 kV D/c (twin Moose) from 765/400 kV Vemagiri (GIS) S/s instead of connectivity through establishment of 765/400 kV S/s at Kakinada.

Application further deliberated in 29th CMETS-SR meeting held on 28.03.2024, wherein, it was informed that 765/400 kV Vemagiri (GIS) S/s is under operation with 2x1500 MVA, 765/400 kV ICTs. For additional drawl of power, 1x1500 MVA 765/400 kV ICT (3rd) is required. In the meeting, matter regarding applicability of ATS to bulk consumer was also deliberated. Regulations 12.5 of GNA Regulation provides that '***In case of an entity covered under Regulation 17.1(iii), the line to connect such an entity to the ISTS and necessary augmentation for providing connection to the ISTS, shall be constructed and maintained by a licensee at the cost of such entity***'

During the meeting CTU mentioned that, as per GNA Regulations 2022, following system may be considered for grant of Connectivity/ GNA-RE to the applicant (application no. 2200000433 for 700 MW).

Dedicated Connectivity Tr. System:

- Pooling Station of M/s AM Green Pvt. Ltd.- Vemagiri (GIS) S/s 400 D/c (twin Moose) line along with line bays at both ends under the scope of applicant.

Augmentation in ISTS network for providing Connectivity / GNA:

- 1x1500 MVA, 765/400 kV ICT(3rd) at Vemagiri (GIS) S/s – implementation and maintenance under the scope of applicant
- Start date of Connectivity: 01.06.2026

Further, applicant is required to submit BGs as per following details within one month of the in-principle grant of intimation:
• Conn-BG1 of Rs. 50 lakhs and Conn-BG3 of Rs.14.0 Cr. (@Rs. 2 lakh/ MW

In the meeting it was also informed that as per GNA Regulations, bulk consumer is required to implement and maintained required augmentation in ISTS at the cost of bulk consumer. Further, transmission system under ISTS can be implemented through TBCB route or RTM route and needs clarification for implementation of ISTS at the cost of bulk consumer. Accordingly, matter is being taken up with CERC.

Subsequently matter was taken up with CERC and expected to be resolved shortly.

iii. However, it is to mention that MNRE vide letter dated 01.11.2023 (copy attached at **Annexure-C**) has forwarded the consolidated information of the planned projects and drawl requirements of various developers.

Subsequently, CEA convened a meeting with Green Hydrogen/ Green Ammonia manufacturers to access the year wise electricity demand for proper planning of transmission system. In Kakinada area, about 6000 MW demand has been envisaged for the Green Hydrogen/ Green Ammonia projects. The details of the phased development are as follows:

Year	Cumulative Electricity Demand (MW)
by 2027	1775
by 2028	3275
by 2029	4645
by 2030	6015

In view of the upcoming Green Hydrogen / Green Ammonia plants / industries, planning of transmission system has been done for delivery of power to Green Hydrogen / Ammonia manufacturing projects at Kakinada in Andhra Pradesh. Upon discussions

between CTU and CEA, following transmission system has been identified for supply of power to Green Hydrogen / Ammonia projects at Kakinada :

Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area

Phase-I : 3000 MW

- Establishment of Kakinada 765/400 kV, 3x1500 MVA substation
- LILO of Vemagiri – Srikakulam 765 kV D/c line at Kakinada substation

Note * : Angul – Srikakulam 765 kV 2nd D/c line shall also be required.

Phase-II : Cumulative 6000 MW

- Augmentation by 3x1500 MVA, 765/400 kV ICTs at Kakinada substation
- Establishment of Khammam-II 765/400 kV, 3x1500 MVA substation
- Warangal – Khammam-II 765 kV D/c line
- Khammam-II – Vemagiri 765 kV D/c line
- Khammam-II – Khamman (exisiting) 400 kV D/c (quad) line
- Vemagiri – Kakinada 765 kV 2nd D/c line

The transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area was deliberated in the 33rd CMETS-SR meeting held on 25.07.2024 and 31.07.2024. After detailed deliberations, the proposal for "Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area, Andhra Pradesh (Phase-I)" was agreed, the details of the scheme are as below:

Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area (Phase-I)

- Establishment of Kakinada 765/400 kV, 3x1500 MVA substation alongwith bus reactor
- LILO of Vemagiri – Srikakulam 765 kV D/c line at Kakinada substation

*Note * : Angul – Srikakulam 765 kV 2nd D/c line shall be required for meeting the Green Hydrogen / Green Ammonia demand in SR in general and Kakinada area in particular.*

The transmission system was also deliberated and agreed in-principally in the 52nd SRPC meeting held on 03.08.2024. Considering implementation schedule of 24 months and other administrative & bidding process, the scheme is expected by March/ April '2027.

iv. In view of pending clarification from CERC on GNA Regulation 12.5 regarding bulk consumer is required to implement and maintained required augmentation in ISTS at the cost of bulk consumer, it is proposed to modify the GNA transmission system for application no. 2200000433 and grant the Connectivity / GNA at Kakinada GH S/s.

In view of above and as per decision of the meeting dated 12.07.2023 held between CEA & CTU, as mentioned above, it is proposed to grant the GNA-RE to M/s AM Green Ammonia (India) Private Limited for application no. 2200000433 (700 MW) and 2200001066 (1300 MW) as per below given details.

Sl.	Application ID	Name of the Applicant	Connectivity at	GNA-RE Quantum (MW)	Connectivity Transmission System under GNA-RE			Start date of GNA	End date of GNA	BG details
					Dedicated Connectivity Transmission System (DTL)	ATS	Augmentation other than ATS			
I.	2200000433 dt 16.12.2023	AM Green Ammonia (India) Pvt. Ltd.	Kakinada GH	Within Region : 0 MW Outside Region : 700 MW	• Generation Station of M/s AM Green Ammonia (India) Pvt. Ltd. – Kakinada GH 400 kV D/c line along with line bay at generation PS – **under the scope of applicant** • 02 no. 400 kV line bay at Tuticorin GH for above DTL – **under the scope of applicant**	NIL	Details given below.	30.04.2027* (Tentative) (with availability of common tr. System other than ATS)	30.11.2051	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 14.0 Cr (@ Rs. 2.0 lakh /MW)
II.	2200001066 dt 18.07.2024	AM Green Ammonia (India) Pvt. Ltd.	Kakinada GH	Within Region : 1300 MW Outside Region : 0 MW	• Generation Station of M/s AM Green Ammonia (India) Pvt. Ltd. – Kakinada GH 400 kV D/c line along with line bay at generation PS – **under the scope of applicant** • 02 no. 400 kV line bay at Tuticorin GH for above	NIL	Details given below.	30.04.2027* (Tentative) (with availability of common tr. System other than ATS)	25.12.2053	• Conn-BG1 : Rs. 50 lakhs • Conn-BG2 : NA • Conn-BG-3 : Rs. 26.0 Cr (@ Rs.

					DTL – **under the scope of applicant**					2.0 lakh /MW)

Common transmission system (augmentation other than ATS) for M/s AM Green Ammonia (India) Pvt. Ltd. (application nos. 2200000433 & 2200001066) :

- Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area (Phase-I), as per **Annexure-X**.

Note : applicants are required to submit BGs as per above details within one month of the in-principle grant of Connectivity intimation.

c. Proposal for Grant of GNA to STU connected drawee entities in Karnataka :

For application nos. 2200001052 and 2200001053, M/s ACC Ltd. [as an eligible entity under Regulation 17.1 (iii)] has applied for GNA as drawee entity connected to Intra State (KPTCL) for 22.5 MW (Within Region: 0 MW & Outside Region: 22.5 MW) and 9 MW (Within Region: 0 MW & Outside Region: 9 MW) seeking connectivity/GNA at 220/110 kV Shahabad S/s and 66kV Gowribidanur S/s in Karnataka with start and end date as 01.09.2024 & 31.03.2026 respectively for both applications.

Further, M/s ACC Ltd has requested for grant of cumulative GNA for 31.5 MW and has submitted NoC dated 11.07.2024 issued by SLDC of Karnataka for both applications with start and end date of NoC as 01.09.2024 & 31.03.2026 respectively.

It is to mention that Karnataka has registered a maximum drawl of 8538 MW from ISTS. Presently, GNA for 5376 MW has been allocated to KPTCL and in addition that Indian Railways has given GNA for 37.45 MW through transmission system of KPTCL. In view of above, sufficient margins are available in ISTS for drawl of 31.5 MW [9 MW +22.5 MW] by M/s ACC Ltd.

In view of above, it is proposed to grant GNA to M/s ACC Ltd. for applications no. 2200001052 (22.5 MW : Within Region : 0 MW & Outside Region : 22.5 MW) and 2200001053 (9 MW : Within Region : 0 MW & Outside Region : 9 MW).

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Annexure-I

ISTS Network Expansion scheme in Western Region & Southern Region for export of surplus power during high RE scenario in Southern Region

Sl.	*Scope of the Transmission Scheme*	*Capacity /km*
1.	Narendra New (GIS) – Pune (GIS) 765kV D/c line with 1x330MVAr switchable line reactor on each ckt at both ends	340 km • 765 kV line bays -2 (GIS) (at Narendra New) • 765 kV line bays -2 (GIS) (at Pune) • 765 kV, 330 MVAr SLR – 2 nos (7 X 110 MVAr incl. 1 switchable spare unit) at Pune (GIS) • 765 kV, 330 MVAr SLR – 2 nos (6 X 110 MVAr) at Narendra (New) (GIS)
2.	Upgradation of Narendra (New) (GIS) to its rated voltage of 765 klevel along with 4x1500 MVA transformer and 2x330 MVAr Bus Reactor.	• 765/400 kV, 1500 MVA- 4 no. (13 X 500 MVA incl. 1 spare unit) • 765 kV ICT bays- 4 nos. (GIS) • 400 kV ICT bays- 4 nos. (GIS) • 765 kV, 330 MVAr BR – 2 nos. (7 X 110 MVAr incl. 1 switchable spare unit to be used for both bus/line reactors) • 765 kV Bus Reactor bays – 2 nos. (GIS)

Annexure-II

Transmission Scheme for integration of Davanagere / Chitradurga REZ in Karnataka

i) Establishment of 765/400kV 4x1500 MVA, 400/220kV 4x500 MVA Pooling Station near Davanagere / Chitradurga, Karnataka with provision of two (2) sections of 4500 MVA each at 400kV level and provision of four (4) sections of 2500 MVA each at 220kV level

ii) Upgradation of Narendra New – Madhugiri 765kV D/c line (presently charged at 400kV level) at its rated 765kV voltage level

iii) Upgradation of Madhugiri {Tumkur(Vasantnarsapura)} to its rated voltage of 765kV level alongwith 3x1500 MVA, 765/400kV ICTs and 2x330 MVAr, 765kV bus reactors

iv) LILO of Narendra New – Madhugiri 765kV D/c line at Davanagere / Chitradurga 765/400kV PS (~35 km) {with 240 MVAr SLR at both ends on Narendra New – Davanagere section (~280 km) and 330 MVAr SLR at Davanagere end on Davangere – Madhugiri section (~200 km)}

v) 400 kV line reactors (80 MVAr) on both ends of Narendra New – Madhugiri 765kV D/c line shall be utilized as bus reactors at respective 400kV substations based on availability of bays or may be utilized as line reactor / bus reactor at other line / substation as per requirements.

vi) 2x330 MVAr (765kV) bus reactors at Davanagere/ Chitradurga PS

Annexue-III

Transmission Scheme for integration of Bijapur REZ in Karnataka

- Establishment of 5x500 MVA, 400/220kV Pooling Station near Bijapur (Vijayapura) area, Karnataka
- Bijapur PS – Raichur New 400kV (Quad ACSR moose) D/c line with 80 MVAr SLR at Bijapur end on both circuits (~150 km)
- 2x125MVAr 420 kV bus reactors at Bijapur PS

Annexure-IV

Transmission System for Integration of Anantapur-II (Near Rayadurgam) REZs (for 7.5 GW)

- Establishment of 6x1500 MVA, 765/400 kV & 10x500 MVA, 400/220 kV Anantapur-II Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Anantapur-II PS (4 GW injection at 220 kV level and 3.5 GW injection at 400 kV level)
- + 300 MVAR STATCOM at Ananthpur-II, 2x125 MVAr MSR
- Establishment of 3x1500 MVA, 765/400 kV CN'Halli Station 765/400 along with 2x330 MVAr (765 kV) bus reactors
- Anantapur-II – Davangere 765kV D/c line (about 150km) with 240 MVAR SLR at Anantapur-II end on both circuits
- Anantapur-II – Cuddapah 765kV D/c line (about 200km) with 330 MVAR SLR at Anantapur-II end on both circuits
- Anantapur-II – CN'Halli 765kV D/c line (about 180km) with 330 MVAR SLR at Anantapur-II end on both circuits
- CN'Halli - CN'Halli (KPTCL) 400 kV (quad) D/c line (about 10km)

Phase-I (4 GW)

- Establishment of 4x1500 MVA, 765/400 kV & 6x500 MVA, 400/220 kV Anantapur-II Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Anantapur-II PS
- + 300 MVAR STATCOM at Ananthpur-II, 2x125 MVAr MSR
- Anantapur-II – Davangere 765kV D/c line (about 150km) with 240 MVAR SLR at Anatpur-II end on both circuits
- Anantapur-II – Cuddapah 765kV D/c line (about 200km) with 330 MVAR SLR at Anatpur-II end on both circuits

Phase-II (3.5 GW)

- Augmentation of 2x1500 MVA, 765/400 & 6x500 MVA, 400/220 kV Anantapur-II Pooling Station
- Establishment of 3x1500 MVA, 765/400 kV CN'Halli Station along with 2x330 MVAr (765 kV) bus reactors
- Anantapur-II – CN'Halli 765kV D/c line (about 180km) with 330 MVAR SLR at Anatpur-II end on both circuits
- CN'Halli - CN'Halli (KPTCL) 400 kV (quad) D/c line (about 10km)

Annexure-V

Transmission Scheme for Solar Energy Zone in Bidar (2500 MW), Karnataka

- Establishment of 3x1500MVA (765/400kV), 5x500MVA (400/220kV)
- Bidar PS with 765kV (1x240 MVAR) and 400kV (1x125 MVAR) Bus Reactor
- Bidar PS – Maheshwaram (PG) 765kV D/C line with 240 MVAr SLR for each circuit at Bidar PS end

Annexure-VI

Transmission System for Integration of Kurnool-IV (Near Aspiri) REZ (for 7.5 GW)

- Establishment of 6x1500 MVA, 765/400 & 10x500 MVA, 400/220 kV Kurnool-IV Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Kurnool-IV PS (4 GW injection at 220 kV level and 3.5 GW injection at 400 kV level)
- + 300 MVAR STATCOM at Kurnool-IV, 2x125 MVAr MSR
- Establishment of 3x1500 MVA, 765/400 kV Veltoor-II Station with 2x330 MVAr (765 kV) bus reactors
- Kurnool-IV – Veltoor-II 765kV D/c line (about 180 kms) with 330 MVAR SLR at Kurnool-IV on both circuits

- Veltoor-II– Bidar 765kV D/c line (about 200 kms) with 330 MVAR SLR at Bidar end on both circuits
- Kurnool-IV – Kurnool-III PS 765 kV D/c line (about 150 kms) with 240 MVAR SLR at Kurnool-IV end on both circuits
- Augmentation of 1x1500 MVA, 765/400 kV ICT at C'Peta
- Veltoor-II– Veltoor TS 400 kV (quad) D/c line (about 60 kms)
- Veltoor-II– Udandpur 400 kV (quad) D/c line (about 30 kms)
- LILO of Vijayawada-Nellore 400 kV D/c line at C'Peta (about 20 kms)

Phase-I (4.5 GW)

- Establishment of 4x1500 MVA, 765/400 & 4x500 MVA, 400/220 kV Kurnool-IV Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Kurnool-IV PS (1.5 GW injection at 220 kV level and 3 GW injection at 400 kV level)
- + 300 MVAR STATCOM at Kurnool-IV, 2x125 MVAr MSR
- Kurnool-IV – Bidar 765kV D/c line (about 330 kms) with 330 MVAR SLR at both end on both circuits
- Kurnool-IV – Kurnool-III PS 765 kV D/c line (about 150 kms) with 240 MVAR SLR at Kurnool-IV end on both circuits
- Augmentation of 1x1500 MVA, 765/400 kV ICT at C'Peta

Phase-II (3 GW)

- Augmentation of 2x1500 MVA, 765/400 & 6x500 MVA, 400/220 kV Kurnool-IV Pooling Station (2 GW injection at 220 kV level and 2 GW injection at 400 kV level)
- Establishment of 3x1500 MVA, 765/400 kV Veltoor-II Station with 2x330 MVAr (765 kV) bus reactors
- LILO of Kurnool-IV – Bidar 765kV D/c line at Veltoor-II (about 60 kms)
- Veltoor-II– Veltoor TS 400 kV D/c (quad) line (about 60 kms)
- Veltoor-II– Udandpur 400 kV D/c (quad) line (about 30 kms)
- LILO of Vijayawada-Nellore 400 kV D/c line at C'Peta (about 20 kms)

Annexure-VII

Transmission Scheme for integration of Tumkur-II REZ in Karnataka

- Establishment of 400/220 kV 4x500 MVA Pooling Station near Tumkur, Karnataka.
- Tumkur-II – Tumkur(Pavagada) 400 kV (Quad ACSR moose) D/c line.
- 2x125 MVAr, 420 kV bus reactors at Tumkur-II PS

Annexure-VIII

Transmission Scheme for integration of Bellary REZ in Karnataka

- Establishment of 4x500 MVA, 400/220kV Pooling Station near Bellary area (Bellary PS), Karnataka
- Bellary PS – Davanagere / Chitradurga 400kV (Quad ACSR moose) D/c line
- 2x125MVAr 420 kV bus reactors at Bellary PS

Annexure-IX

Transmission system for proposed Green Hydrogen / Green Ammonia projects in Tuticorin area

- Establishment of 3x1500 MVA, 765/400 kV Tuticorin (GH) S/s with 1x240 MVAR bus Reactor
- Tuticorin PS – Tuticorin (GH) 765 kV D/c line
- Upgradation of Tuticorin PS - Dharmapuri (Salem New) 765kV D/c line (presently charged at 400kV level) at its rated 765kV voltage level with 1x330 MVAr switchable Line Reactor on both ends of each circuit
- Transmission line for change of termination from 400kV switchyard to 765kV switchyard for Tuticorin PS – Dharmapuri (Salem New) 765kV D/c line at Tuticorin PS & Dharmapuri (Salem New)
- Upgradation of Tuticorin PS to its rated voltage of 765kV level alongwith 3x1500 MVA, 765/400kV ICTs and 1x330 MVAr, 765kV bus reactors
- Upgradation of Dharmapuri (Salem New) to its rated voltage of 765kV level alongwith 3x1500 MVA, 765/400kV ICTs and 1x330 MVAr, 765kV bus reactor

- 400 kV line reactors on Tuticorin PS - Dharmapuri (Salem New) 765kV D/c line shall be utilized as bus reactors at respective 400kV substations based on availability of bays
- Upgradation of Dharmapuri (Salem New) – Madhugiri 765kV 2xS/c lines (presently charged at 400 kV) to its rated voltage at 765 kV with 1x330 MVAr switchable Line Reactor on Dharmapuri (Salem New) end of each circuit
- Transmission line for change of termination from 400kV switchyard to 765kV switchyard for Dharmapuri (Salem New) – Madhugiri 765kV 2xS/c line at Dharmapuri (Salem New) & Madhugiri
- 400 kV line reactors on Dharmapuri (Salem New) – Madhugiri 765 kV 2xS/c lines shall be utilized as bus reactors at respective 400kV substations based on availability of bays.

Note :

i. POWERGRID shall provide space for upgradation of Tuticorin PS to its rated voltage level of 765kV level
ii. POWERGRID shall provide space for upgradation of Dharmapuri (Salem New) to its rated voltage level of 765kV level
iii. POWERGRID / TSP shall provide space for 2 nos. of 765kV line bays at Madhugiri 765kV for termination of Dharmapuri (Salem New) – Madhugiri 765kV 2xS/c lines

Annexure-X

Transmission system for proposed Green Hydrogen / Green Ammonia projects in Kakinada area (Phase-I)

- Establishment of Kakinada 765/400 kV, 3x1500 MVA substation alongwith bus reactor
- LILO of Vemagiri – Srikakulam 765 kV D/c line at Kakinada substation

*Note * : Angul – Srikakulam 765 kV 2nd D/c line shall be required for meeting the Green Hydrogen / Green Ammonia demand in SR in general and Kakinada area in particular.*

Annexure-A

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.: CTU/S/00/Joint Study MoM **Date:** 28.05.2024

As per distribution list

Subject: Minutes of the Joint Study meeting of Southern Region Constituents held from 2nd to 4th May, 2024 at Hyderabad.

Dear Sir / Madam,

The Joint Study meeting of Southern Region Constituents was held from 2nd to 4th May, 2024 at Hyderabad regarding Inter-Regional links between NEW-Grid & SR-Grid and ISTS network strengthening in SR to facilitate import of power for meeting demand by 2029-30 time frame and various ISTS proposals.

Kindly find attached the Minutes of the meeting.

Thanking you,

Yours faithfully,

Anil 28/5/24

(Anil Kr. Meena)
General Manager

Distribution List:

1. Chief Engineer (PSP&A – I) Central Electricity Authority Sewa Bhawan, R.K.Puram, New Delhi – 110 066.	**2. Member Secretary** Southern Regional Power Committee 29, Race Course Cross Road Bangalore – 560 009.
3. Director (Transmission) Transmission Corp. of Andhra Pradesh Ltd. (APTRANSCO) Vidyut Soudha, Gunadala, Eluru Rd, Vijayawada, Andhra Pradesh – 520 004	**4. Director Transmission)** Transmission Corp. of Telangana Ltd. Vidyut Soudha Hyderabad – 500 082 Fax: 040-23321751
5. Director (Transmission) Karnataka State Power Transmission Corp. Ltd., Cauvery Bhawan Bangalore – 560 009 Fax: 080-22228367	**6. Director (Trans. & System Op.),** Kerala State Electricity Board Ltd. Vidyuthi Bhawanam, Pattom, P.B. No. 1028 Thiruvananthapuram – 695 004. Fax: 0471-2444738
7. Director (Transmission Projects) Tamil Nadu Transmission Corporation Ltd (TANTRANSCO) 6th Floor, Eastern Wing, 800 Anna Salai, Chennai – 600 002 Fax: 044-28516362	**8. Superintending Engineer –I** First Floor, Electricity Department Gingy Salai, Puducherry – 605 001.
9. Executive Director SRLDC, GRID-INDIA 29, Race Course Cross Road, Bangalore – 560 009	

Minutes of the Joint Study meeting of Southern Region Constituents held from 2nd to 4th May, 2024 at Hyderabad

In the 50th SRPC meeting held on 16.03.2024 and 29th CMETS-SR held on 28.03.2024, it was decided to hold physical Joint Study meeting for Inter-Regional links between NEW-Grid & SR-Grid and ISTS network strengthening in SR to facilitate import of power for meeting demand by 2029-30 time frame and various ISTS proposals. Accordingly, Joint Study meeting was conducted from 2nd to 4th May, 2024 at POWERGRID SRTS-I RHQ Hyderabad with participation from SRPC, CTUIL, SRLDC, KPTCL, KSEBL, APTRANSCO, TSTRANSCO, TANTRANSCO and TANGEDCO. List of participants is attached at **Annexure-I**.

As host for the Joint Study meeting, ED, SRTS-I, POWERGRID welcomed all the participants and expressed gratitude for providing the opportunity for hosting the meeting towards identification / strengthening of SR Grid. He wished the participants all the very best for fruitful deliberations and planning of optimal transmission system for SR Grid. He requested SRPC and CTU to proceed with the agenda for the meeting.

Superintendent Engineer, SRPC, welcomed the participants and stated that Joint Studies would be conducted as per the decision in the 50th SRPC meeting held on 16.03.2024 for identification of Inter-Regional links between NEW-Grid & SR-Grid and ISTS network strengthening in SR to facilitate import of power for meeting demand by 2029-30 time frame. Further based on the decision in the meeting, the schemes shall be deliberated in the next SRPC meeting. He requested CTU to take up the agenda for the meeting.

CTU stated that tentative proposal along with the system study files have already been circulated vide email dated 29.04.2024. Demand projections have been sought for 2029-30 timeframe from STUs for carrying out the system studies, as per the decision in the various SRPC meetings. Inputs have been received from SR STUs except from KPTCL and Puducherry. KPTCL informed that they would require one month for providing the requisite inputs. It was opined that, in case of non-availability of inputs, demand may be considered as per 20th EPS.

A. Transmission System for integration of Kurnool-IV and Anantapur-II REZs in Andhra Pradesh

1. CTU informed that Transmission System for integration of Kurnool-IV and Ananthapuram-II REZs were discussed in the 28th CMETS-SR held on 29.02.2024 wherein it was informed that Govt. of India has set a target of 500 GW generation capacity from non-fossil fuel resources by 2030. In this direction, MNRE has identified addition of 86 GW RE Potential is identified in the State of Andhra Pradesh, Telangana, Karnataka and Tamil Nadu (Offshore) in Southern Region. Out of the identified (86 GW) RE Potential in Southern Region, 51 GW has been identified in the State of Andhra Pradesh (Ananthapur– 20 GW, Kurnool – 23 GW & Kadapa – 8 GW).

A comprehensive transmission system for integration of 51 GW RE Potential in Andhra Pradesh have been identified by CEA and a report on Transmission System for Integration of over 500 GW RE Capacity has been published by CEA on 07.12.2022. The details of district wise potential is as below.

District	Pooling Station	Potential (GW)		Total (GW)	Maximum Dispatch (GW)	BESS (GW)	Evacuation System (GW)
		Wind	Solar				
Anantapur	Anantapur, Anantapur-II	10	10	20	15	5	10
Kurnool	Kurnool-IV, Kurnool-V	8	15	23	18	6	12
Kadapa	Kadapa-II	0	8	8	8	3	5
Total		**18**	**33**	**51**	**41**	**14**	**27**

2. As per the CEA 500 GW RE report, following transmission system has been identified for integration of Kurnool-IV, Anantapur-II, Kurnool-V & Kadapa-II :

a. Transmission System for integration of Kurnool REZ-I (7.5 GW Solar, 4 GW Wind, 3 GW BESS)

- Establishment of 5x1500 MVA, 765/400 & 7x500 MVA, 400/220 kV Kurnool-IV Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) & 2x125 MVAr (400 kV) bus reactors at Kurnool-IV PS (3 GW injection at 220 kV level and 3 GW injection at 400 kV level)
- Kurnool-IV – Kurnool-III PS 765 kV D/c line (~100 km)
- Kurnool-IV – Bidar PS 765 kV D/c line with 240 MVAr SLR at both ends (~280 km)

b. Transmission System for integration of Kurnool REZ-II (7.5 GW Solar, 4 GW Wind, 3 GW BESS)

- Establishment of 5x1500 MVA, 765/400 kV & 7x500 MVA, 400/220 kV Kurnool-V Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) & 2x125 MVAr (400 kV) bus reactors at Kurnool-V PS (3 GW injection at 220 kV level and 3 GW injection at 400 kV level)
- Kurnool-V – Chilakaluripeta 765 kV D/c line with 330 MVAr SLR at Kurnool-V PS end (~210 km)
- Kurnool-V – Kurnool-IV 765 kV D/c line (~100 km)
- Chilakaluripeta – Podili 400 kV (quad) D/c line (~100 km)
- Augmentation by 2x1500 MVA, 765/400 kV ICTs at Chilakaluripeta 765/400 kV substation
- Augmentation by 2x1500 MVA, 765/400 kV ICTs at Maheshwaram 765/400 kV substation

c. Transmission System for integration of Anantapur-II REZ (7.5 GW Solar, 4 GW Wind, 3 GW BESS)

- Establishment of 6x1500 MVA, 765/400 kV & 9x500 MVA, 400/220 kV Anantapur-II Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) & 2x125 MVAr (400 kV) bus reactors at Anantapur-II PS (4 GW injection at 220 kV level and 4 GW injection at 400 kV level)
- Anantapur-II – Cuddapah 765 kV D/c line with 240 MVAr SLR at Anantapur-II PS (~250 km)
- Anantapur-II – Kurnool-V PS 765 kV D/c line (~100 km)

d. Transmission System for integration of Kadapa REZ (8 GW Solar, 3 GW BESS)

- Establishment of 4x1500 MVA, 765/400 kV & 6x500 MVA, 400/220 kV Pooling Station near Kadapa (Kadapa II PS), Andhra Pradesh along with 2x330 MVAr (765 kV) & 2x125 MVAr (400 kV) bus reactors at Kadapa-II PS (2.5 GW injection at 220 kV level and 2.5 GW injection at 400 kV level)
- LILO of both circuits of Anantapur-II – Cuddapah 765 kV D/c line at Kadapa-II PS (~10 km)
- Kadapa-II PS – Thiruvalam 765 kV D/c line with 240 MVAr SLR at both ends (~250 km)

3. Matter was discussed in the 28th CMETS-SR held on 29.02.2024 wherein it was informed that Connectivity of about 7740 MW (2390 MW at 220kV level & 5350 MW at 400kV level) has been granted / agreed for grant at Kurnool-III PS. Similarly, Connectivity of about 3765 MW (1055 MW at 220kV level & 2710 MW at 400kV level) has been granted / agreed for grant at Ananthapuram PS. Keeping above in view, it is prudent to take up the implementation of Kurnool-IV PS and Anantapur-II PS for integration of RE generation projects in Kurnool and Anantapur areas. It was also informed that NREDCAP had requested for establishment of new 765kV substation near Aspiri, Kurnool district, accordingly, same may be established at suitable location near Aspiri in Kurnool district. Further, as requested by NREDCAP Ananthapuram-II PS may be established at suitable location near Raydurg in Ananthapuram district. After detailed deliberations, it was decided that a physical joint study may be carried out for finalization of the transmission system for Kurnool-IV and Ananthapuram-II.

4. During the Joint Study meeting, CTU informed that presently Connectivity of about 5300 MW (2390 MW at 220kV level & 5350 MW at 400kV level) has been granted / agreed for grant at Kurnool-III PS. Similarly, Connectivity of about 3905 MW (1195 MW at 220kV level & 2710 MW at 400kV level) has been granted / agreed for grant at Ananthapuram PS. Accordingly, for further grant of connectivity in Kurnool/Ananthpur area, timely implementation of transmission schemes identified in Kurnool/Ananthpur as a part of above identified potential may be taken-up in phases.

   It was stated that transmission may be taken-up in phased manner in order to ensure proper utilization of the transmission system. CTU proposed that in the initial phase, Kurnool-IV and Ananthpur-II PS may be taken-up for implementation to facilitate integration of RE.

Further, the transmission system as finalized in the joint Study meeting may be taken-up in phases.

5. CTU informed that as per the 500 GW report, a huge quantum of RE power is being integrated at planned Kurnool-IV, Kurnool-V, Anantapur-II and Kadapa-II PS together with existing/under implementation Kurnool (new), Kurnool-III and Anantapur PS. Further for optimal utilization of the existing/under construction transmission system, additional 3.5 GW power is being integrated at Kurnool-III PS through augmentation of 3x1500 MVA, 765/400 kV ICTs and Kurnool-III- C'Peta 765 kV D/c line. All these Pooling stations are interconnected through 765 kV or 400 kV transmission network. This may lead to overloading of immediate transmission system and may lead to outage of huge quantum of power due to proximity and huge pooling of RE generation as well as common evacuation corridors. In view of the above, it is prudent to review the transmission system in consultation with the regional constituents.

   It was informed that as per the proposed transmission system, Kurnool-IV and Anantapur-II PS which were earlier being integrated through Kurnool-V are proposed to be disintegrated and connected to different ISTS points for further dispersal of power. Kurnool-IV PS is being integrated to Kurnool-III, Bidar and Veltoor-II (proposed new substation) through 765 kV high capacity corridors along with 400 kV interconnections to STU substations for meeting load requirements. Further, Anantapur-II PS is proposed to be interconnected to Davangere, Cuddapah and CN'Halli (proposed new substation) through 765 kV high capacity corridors along with 400 kV interconnections to STU substations for meeting load requirements.

   It was stated that implementation of transmission system may be taken-up in phased manner in order to utilization of the transmission system. It was proposed that in the initial phase, Kurnool-IV and Ananthpur-II PS may be taken-up for implementation to facilitate integration of RE. Further, the transmission system as finalized in the joint Study meeting may be taken-up in phases.

6. CTU informed that the considering the implementation schedule of 36 months [24 months of implementation and 6 months of approval] transmission scheme for integration of potential REZ at Kurnool-IV and Ananthpur-II PS is likely to be commissioned by Dec'26. Accordingly, system studies have been conducted in 2026-27 timeframe. CTU informed that considering the methodology for preparation of Load generation balance of the Rolling Plan, demand of 61 GW is considered in Scenario-4 (June Solar max), whereas demand of 73 GW is considered in Scenario-7 (February evening peak). In this regard, it was opined that Southern Region has already recorded demand of 64 GW and the same is expected to rise to 80 GW as per the EPS by 2026-27 timeframe. Accordingly, demand considered for system studies may be finalized as per the inputs received from the STUs. Based on the observations received from STUs, load-generation and network updation was carried out and detailed system studies were conducted. As per the revised LGB, export of about 16000 MW was observed in Scenario-4 with the consideration of various RE pooling stations

in Southern Region and proposed Kurnool-IV & Ananthpur-II PS and Davanagere/Chitradurga, Bellary and Bijapur REZ potential. Further, import of about 11000 MW was observed in Scenario-7. The load-generation balance, study results and assumptions considered are enclosed at **Annexure-II**.

7. During the meeting, following comprehensive transmission system was proposed for integration of RE generation projects at Kurnool-IV and Anantapur-II in Andhra Pradesh :

a. Transmission System for Integration of Kurnool-IV (Near Aspiri) REZ (for 7.5 GW)

- Establishment of 6x1500 MVA, 765/400 & 10x500 MVA, 400/220 kV Kurnool-IV Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Kurnool-IV PS (4 GW injection at 220 kV level and 3.5 GW injection at 400 kV level)
- ± 300 MVAR STATCOM at Kurnool-IV, 2x125 MVAr MSR
- Establishment of 3x1500 MVA, 765/400 kV Veltoor-II Station with 2x330 MVAr (765 kV) bus reactors
- Kurnool-IV – Veltoor-II 765kV D/c line (about 180 kms)
- Veltoor-II– Bidar 765kV D/c line (about 200 kms)
- Kurnool-IV – Kurnool-III PS 765 kV D/c line (about 150 kms)
- Augmentation of 1x1500 MVA, 765/400 kV ICT at C'Peta
- Veltoor-II– Veltoor TS 400 kV (quad) D/c line (about 60 kms)
- Veltoor-II– Udandpur 400 kV (quad) D/c line (about 30 kms)
- C'Peta – Thalapaleyam 400 kV (quad) D/c line (about 30 kms)

b. Transmission System for Integration of Anantapur-II (Near Rayadurgam) REZs (for 7.5 GW)

- Establishment of 6x1500 MVA, 765/400 kV & 10x500 MVA, 400/220 kV Anantapur-II Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Anantapur-II PS (4 GW injection at 220 kV level and 3.5 GW injection at 400 kV level)
- ± 300 MVAR STATCOM at Ananthpur-II, 2x125 MVAr MSR
- Establishment of 3x1500 MVA, 765/400 kV CN'Halli Station 765/400 along with 2x330 MVAr (765 kV) bus reactors
- Anantapur-II – Davangere 765kV D/c line (about 150km)
- Anantapur-II – Cuddapah 765kV D/c line (about 200km)
- Anantapur-II – CN'Halli 765kV D/c line (about 180km)
- CN'Halli - CN'Halli (KPTCL) 400 kV (quad) D/c line (about 10km)

8. During the meeting, TANGEDGO and APTRANSCO stated that as per the proposal, Kurnool-IV & Ananthpur-II PS are planned with transformation capacity of 7.5 GW each. In this context, how much RE capacity and connectivity shall be integrated/granted at these

Pooling Stations. Towards this, CTU stated that as per the CEA Transmission Planning Criteria, maximum 9 GW of transformation capacity has been stipulated for generation stations. Accordingly, considering 'N-1' criteria, maximum 7.5 GW of RE capacity injection shall be allowed at these proposed substations and the same has been considered in the studies. Further, with respect to quantum of connectivity, it was informed that connectivity for injecting entities shall be limited to 7.5 GW at 400kV/220kV level.

TANGEDGO stated that as per CEA 500 GW report, for optimal utilization of transmission system, dispatch factors were considered against the envisaged RE potential for each RE zone. Further, BESS was also considered at a number of RE Pooling stations for further optimization of the transmission system. In this regard, it was requested to clarify whether the same is being considered in the studies. Towards this, CTU stated that connectivity application being received at RE Pooling Stations have variation from the earlier envisaged configurations. For example, Koppal-II & Gadag-II PS were envisaged with 4 GW potential (Solar-2 GW, Wind-2 GW), however connectivity has been granted for 9181 MW out of which total installed capacity of Solar is 2728 MW and wind is 6794 MW. Further, no application was received from BESS in Koppal-II or Gadag-II. Accordingly, REZ capacity to be integrated at Koppal-II and Gadag-II has surpassed the earlier projections in the report. Accordingly, injections has been considered based on the actual data of the applications.

TANGEDGO stated that in case the dispatch factors and BESS as envisaged in the 500 GW report are not considered, it may lead to excessive transmission system planning and the transmission system may be stranded. In this regard, CTU clarified that connectivity grantees are installing more capacity at the RE Pooling stations in order to meet requisite contracts especially RTC contracts commensurate to the connectivity quantum. Further, there are provisions in the Regulations which allows connectivity grantees to add more generation keeping the connectivity quantum same in order to meet their contract requirements. In such a case, if transmission system is planned considering the dispatch factors, it may lead to sub-optimal planning of transmission system and generation projects may not be able to evacuate power commensurate to the connectivity granted. This may lead to bottle-up of RE generations. Further, in-case BESS apply for connectivity at proposed RE Pooling Stations, it shall further facilitate accommodation of more RE potential without any additional investment in transmission system.

9. APTRANSCO informed that it is understood that connectivity has been granted to PSPs at various RE Pooling stations. PSP are expected to run in motoring mode and draw power from grid under high RE scenario and accordingly the capacity of PSP may be reduced for arriving at net injection at such RE PS. In this regard, CTU informed that there is no mandate/regulation wherein PSP may be restricted to operate in motoring mode in high RE scenarios. Accordingly, no injection or drawl has been considered from PSPs while calculation of margins for grant of Connectivity to RE generations.

After detailed deliberations, it was agreed that CTU may refer the matter to CEA seeking necessary clarification and may request CEA to conduct a meeting with participation from

SR stake holders regarding consideration of PSP in various scenarios. Further dispatch factors from RE generations for consideration for immediate evacuation under various studies may also be discussed and recorded for the purpose of standardization among regions and stakeholders.

10. APTRANSCO stated that Kurnool-III and Anantapur PS is under implementation with 3x1500 MVA 765/400 kV ICTs, 7x500 MVA, 400/220 kV ICTs at Kurnool-III and 7x500 MVA, 400/220 kV ICTs at Anantapur PS. It is understood that connectivity of 5350 MW has been granted at 400 kV and 2650 MW at 220 kV at Kurnool-III. Similarly connectivity of 2710 MW has been granted at 400 kV and 1195 MW at 220 kV at Anatapur PS. Accordingly, 5 nos. of 400/220 kV ICTs are not getting utilized at Kurnool-III / Anantpur PS. It was requested that proper planning must be done to ensure utilization of transmission system.

    In this regard, CTU clarified that Kurnool-III and Anantapur PS were planned earlier as part of 66.5 GW of REZ schemes wherein entire power has envisaged at 220 kV level and accordingly all the ICTs were planned and awarded for implementation for accommodating connectivity at 220 kV level. However, looking into the quantum of connectivity being received, connectivity have been granted at 400 kV level also. Options are being explored for utilization of above ICTs at Kurnool-III and Anantapur PS.

    CTU further informed that under the 500 GW report, all the RE PS are being planned optimally with about 50% injection at 400 kV and balance at 220 kV level thereby deferring the requirement of additional 400/220 kV ICTs. Same has also been considered in the present proposal wherein 4 GW injection at 220 kV level and 3.5 GW injection at 400 kV level has been considered at Kurnool-IV and Anantapur-II PS.

11. During the meeting, TSTRANSCO enquired about the requirement of STATCOMs at Kurnool-IV and Anantapur-II PS, wherein it was clarified that STATCOMs are being proposed at these RE Pooling stations as a huge quantum of RE power is being pooled at Kurnool (new), Kurnool-III, Anantapur, Kurnool-IV and Anantapur-II. Further, Kurnool-V and Cuddapah-II shall also be integrated in these complex. Looking into the variable and intermittent nature of RE power and huge quantum of RE power being pooled in the Kurnool & Anantapur area, STATCOMs are being proposed to provide dynamic reactive support as well as grid stability in the area. Further, since high voltages are primarily observed in the area, only 2x125 MVAR MSR are being proposed along with the STATCOMs for providing static voltage support.

    SRLDC, Grid-India stated that they are not able to utilize the full range of reactive support from the STATCOM due to LV bus voltage. The issue could be addressed by providing online tap change in the coupling transformer of STATCOM. CTU clarified that based on the feedback from Grid-India, the matter is being addressed in the RfP documents for all the upcoming schemes.

12. During the meeting TANTRANSCO, TSTRANSCO and APTRANSCO stated that in case, transmission system is implemented under ISTS for dispersal of RE power from the proposed Pooling Stations whether the same shall be considered under national component or not. Towards this, CTU clarified that as per the Sharing Regulations, *National Component-Renewable Energy shall comprise of the Yearly Transmission Charges for transmission systems developed for renewable energy projects as identified by the Central Transmission Utility*. Further, *Transformer Component for a State shall comprise of Yearly Transmission Charges for inter-connecting transformers (ICTs) planned for drawl of power by the concerned State*.

13. With respect to the proposal of Kurnool-IV, TANGEDGO stated that option may be explored for phasing of the transmission system commensurate with the quantum of connectivity applications received at Kurnool-IV. Further, Kurnool-IV- Bidar 765 kV D/c line may initially be charged at 400 kV and depending on the visibility of generation, same may be upgraded to 765 kV.

    In this regard, CTU informed that Bidar PS is implemented as 765/400/220 kV pooling station and only marginal investment may be deferred by initially charging Kurnool-IV- Bidar 765 kV D/c at 400 kV level. Further, as per the applications being received at Kurnool-III/Kurnool-IV, upgradation shall be required in a very short period of time. This may lead to delay in implementation of transmission system and bottling-up of RE power in case the upgradation is taken-up at a later stage. According, it is proposed that Kurnool-IV- Bidar 765 kV D/c may be implemented in the initial phase itself and 765/400 kV & 400/220 kV ICTs may be taken-up in phases for optimization of investment in the transmission system.

14. TSTRANSCO stated that though the proposal of integration of Kurnool-IV REZ with Velttor (TSTRANSCO) through LILO of Kurnool-IV – Bidar 765kV D/c line at Veltoor-II and Veltoor-II– Veltoor TS 400 kV (quad) D/c line Veltoor-II – Udandpur 400 kV (quad) D/c line primarily seems to be in order, they shall communicate regarding availability of space for termination of proposed transmission lines at Veltoor TS. Further, they would discuss the proposal with senior management.

15. APTRANSCO stated that Vijayawada-Nellore 400 kV D/c line is passing in the vicinity of C'Peta substation and accordingly option may be explored for LILO of Vijayawada-Nellore 400 kV D/c line at C'Peta. Same was studied and it was agreed that LILO of Vijayawada-Nellore 400 kV D/c line at C'Peta may be considered in place of C'Peta – Thalapaleyam 400 kV (quad) D/c line.

16. During the meeting, APTRANSCO also raised the issue of high short circuits at Kurnool. In this regard, CTU informed that the issue has also been reported as a part of Rolling Plan report of CTU and detailed studies shall be carried out for mitigation of high short circuit at all substations reported in the report in consultation with the constituents.

It was noted that prima-facie, with the introduction of 15 ohm series limiting reactor between Kurnool & Kurnool (new) 400 kV D/c line, there is a reduction of 6-7 kA in short circuit current. Further, SC currents at Kurnool are observed excessively high which needs detailed analysis along with the detailed system modelling of the generation projects pooled at Kurnool (new) including hydro PSP generations. Detailed studies and analysis shall be done in due course of time and same shall be deliberated in the CMETS meeting.

17. After detailed deliberation, it was agreed that transmission system for Kurnool-IV may be phased out with Kurnool-IV – Bidar 765kV D/c line and Kurnool-IV – Kurnool-III PS 765 kV D/c line in the first phase and balance transmission system in second phase. It was also agreed that the transmission system may taken-up for further approval in the upcoming CMETS meeting of SR and subsequently with SRPC and NCT.

18. With respect to the proposal of Anatapur-II, SRPC stated that as per the proposed transmission system, Anathpur-II is being integrated with CN'Halli 400/220 kV susbstation of KPTCL through Anantapur-II – CN'Halli 765kV D/c line and CN'Halli - CN'Halli (KPTCL) 400 kV (quad) D/c line. In such a case, in case CN'Halli (KPTCL) is delayed, there shall be no evacuation path from CN'Halli 765/400 kV substation. CTU stated that proposed CN'Halli 765/400 kV substation may be implemented under ISTS as 765/400/220 kV substation in case KPTCL is not taking up the CN'Halli (KPTCL) 400/200 kV substation. Towards a query regarding status of implementation of the CN'Halli (KPTCL) substation, KPTCL informed that land acquisition is under process. CTU stated that the CN'Halli substation and associated transmission system was finalized in the 2015, however there has been substantial delay in the implementation of the transmission system. There have been several instance of network overloading particularly Mysore ICTs on account of such delays in implementation of STU transmission system. SRLDC stated that on account of above, SPS was implemented and has already been operated number of times. Accordingly, KPTCL is requested to expedite the implementation of approved STU schemes at the earliest. It was also suggested that KPTCL may explore options for implementation of the transmission scheme under ISTS through various routes. It was also informed that as per the studies Anantapur-II – Davangere 765kV D/c line and Anantapur-II – Cuddapah 765kV D/c line shall be sufficient for evacuation of about 4-4.5 GW of RE, a third outlet shall in any case be required for evacuation of entire power of 7.5 GW from Anantapur-II PS. Looking into the load proximity and based on optimal power flow, integration with CN'Halli has been proposed after exploring all the available alternatives.

19. After detailed deliberation, it was agreed that transmission system of Anantpur-II may be phased out with Anantapur-II – Davangere 765kV D/c line and Anantapur-II – Cuddapah 765kV D/c line in the first phase and balance transmission system in second phase. Further, based on communication received from KPTCL, shall communicate regarding the decision of implementation CN'Halli substation may be implemented as 765/400/220 KV or may be integrated with CN'Halli (KPTCL) through CN'Halli - CN'Halli (KPTCL) 400 kV (quad) D/c line. It was also agreed that the transmission system may taken-up for further approval in the upcoming CMETS meeting of SR and subsequently with SRPC and NCT.

20. After detailed deliberations, following transmission system was finalized for integration of RE generation projects at Kurnool-IV and Anantapur-II in Andhra Pradesh :

a. <u>Transmission System for Integration of Kurnool-IV (Near Aspiri) REZ (for 7.5 GW)</u>

- Establishment of 6x1500 MVA, 765/400 & 10x500 MVA, 400/220 kV Kurnool-IV Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Kurnool-IV PS (4 GW injection at 220 kV level and 3.5 GW injection at 400 kV level)
- <u>+</u> 300 MVAR STATCOM at Kurnool-IV, 2x125 MVAr MSR
- Establishment of 3x1500 MVA, 765/400 kV Veltoor-II Station with 2x330 MVAr (765 kV) bus reactors
- Kurnool-IV – Veltoor-II 765kV D/c line (about 180 kms) with 330 MVAR SLR at Kurnool-IV on both circuits
- Veltoor-II– Bidar 765kV D/c line (about 200 kms) with 330 MVAR SLR at Bidar end on both circuits
- Kurnool-IV – Kurnool-III PS 765 kV D/c line (about 150 kms) with 240 MVAR SLR at Kurnool-IV end on both circuits
- Augmentation of 1x1500 MVA, 765/400 kV ICT at C'Peta
- Veltoor-II– Veltoor TS 400 kV (quad) D/c line (about 60 kms)
- Veltoor-II– Udandpur 400 kV (quad) D/c line (about 30 kms)
- LILO of Vijayawada-Nellore 400 kV D/c line at C'Peta (about 20 kms)

<u>Phase-I (4.5 GW)</u>

- Establishment of 4x1500 MVA, 765/400 & 4x500 MVA, 400/220 kV Kurnool-IV Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Kurnool-IV PS (1.5 GW injection at 220 kV level and 3 GW injection at 400 kV level)
- <u>+</u> 300 MVAR STATCOM at Kurnool-IV, 2x125 MVAr MSR
- Kurnool-IV – Bidar 765kV D/c line (about 330 kms) with 330 MVAR SLR at both end on both circuits
- Kurnool-IV – Kurnool-III PS 765 kV D/c line (about 150 kms) with 240 MVAR SLR at Kurnool-IV end on both circuits
- Augmentation of 1x1500 MVA, 765/400 kV ICT at C'Peta

<u>Phase-II (3 GW)</u>

- Augmentation of 2x1500 MVA, 765/400 & 6x500 MVA, 400/220 kV Kurnool-IV Pooling Station (2 GW injection at 220 kV level and 2 GW injection at 400 kV level)
- Establishment of 3x1500 MVA, 765/400 kV Veltoor-II Station with 2x330 MVAr (765 kV) bus reactors
- LILO of Kurnool-IV – Bidar 765kV D/c line at Veltoor-II (about 60 kms)

- Veltoor-II– Veltoor TS 400 kV D/c (quad) line (about 60 kms)
- Veltoor-II– Udandpur 400 kV D/c (quad) line (about 30 kms)
- LILO of Vijayawada-Nellore 400 kV D/c line at C'Peta (about 20 kms)

b. Transmission System for Integration of Anantapur-II (Near Rayadurgam) REZs (for 7.5 GW)

- Establishment of 6x1500 MVA, 765/400 kV & 10x500 MVA, 400/220 kV Anantapur-II Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Anantapur-II PS (4 GW injection at 220 kV level and 3.5 GW injection at 400 kV level)
- ± 300 MVAR STATCOM at Ananthpur-II, 2x125 MVAr MSR
- Establishment of 3x1500 MVA, 765/400 kV CN'Halli Station 765/400 along with 2x330 MVAr (765 kV) bus reactors
- Anantapur-II – Davangere 765kV D/c line (about 150km) with 240 MVAR SLR at Anatpur-II end on both circuits
- Anantapur-II – Cuddapah 765kV D/c line (about 200km) with 330 MVAR SLR at Anatpur-II end on both circuits
- Anantapur-II – CN'Halli 765kV D/c line (about 180km) with 330 MVAR SLR at Anatpur-II end on both circuits
- CN'Halli - CN'Halli (KPTCL) 400 kV (quad) D/c line (about 10km)

Phase-I (4 GW)

- Establishment of 4x1500 MVA, 765/400 kV & 4x500 MVA, 400/220 kV Anantapur-II Pooling Station near Kurnool, Andhra Pradesh along with 2x330 MVAr (765 kV) bus reactors at Anantapur-II PS (1.5 GW injection at 220 kV level and 2.5 GW injection at 400 kV level)
- + 300 MVAR STATCOM at Ananthpur-II, 2x125 MVAr MSR
- Anantapur-II – Davangere 765kV D/c line (about 150km) with 240 MVAR SLR at Anatpur-II end on both circuits
- Anantapur-II – Cuddapah 765kV D/c line (about 200km) with 330 MVAR SLR at Anatpur-II end on both circuits

Phase-II (3.5 GW)

- Augmentation of 2x1500 MVA, 765/400 & 6x500 MVA, 400/220 kV Kurnool-IV Pooling Station (2.5 GW injection at 220 kV level and 2 GW injection at 400 kV level)
- Establishment of 3x1500 MVA, 765/400 kV CN'Halli Station along with 2x330 MVAr (765 kV) bus reactors
- Anantapur-II – CN'Halli 765kV D/c line (about 180km) with 330 MVAR SLR at Anatpur-II end on both circuits

- CN'Halli - CN'Halli (KPTCL) 400 kV (quad) D/c line (about 10km)

21. It was agreed that the above finalized transmission system for Integration of Kurnool-IV and Anantapur-II REZ (for 7.5 GW each) and shall be taken-up in the upcoming CMETS meeting and SRPC meeting for further approval and implementation.

B. Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects.

1. CTU informed that "*System strengthening at Kurnool-III PS for integration of additional RE generation projects*" was discussed in the 28th CMETS-SR held on 29.02.2024 wherein following transmission system was agreed for integration of additional RE generation projects at Kurnool-III PS which is under implementation under the transmission scheme "*Transmission scheme for evacuation of power from RE sources in Kurnool Wind Energy Zone (3000MW)/Solar Energy Zone (AP) (1500MW) - Part-A and Part-B*" by POWERGRID under RTM and is expected to be commissioned by Nov'24 :

   - Augmentation of transformation capacity of 3x1500 MVA, 765/400kV ICTs at Kurnool-III PS
   - Kurnool-III PS – Chilakaluripeta 765 kV D/c line (about 260 km) with 240 MVAr switchable line reactors at both ends

2. CTU informed that vide letter dated 08.04.2024, scheme was forwarded for SRPC views. MS, SRPC vide email dated 17.04.2024 has requested to include the transmission scheme in the Joint Study meeting to look into the scheme in comprehensive manner for optimisation of the Transmission system requirements.

3. In view of the above, the transmission scheme was considered in the system studies for integration of RE generation projects at Kurnool-IV and Anantapur-II in Andhra Pradesh (as discussed above) wherein, it was observed that proposed transmission system strengthening at Kurnool-III PS is required for immediate integration & evacuation of power for grant of Connectivity to additional RE generation projects.

4. During the meeting, utilisation of the under implementation of 9x500 MVA 400/220kV ICTs were also deliberated wherein CTU informed that on receipt of large number of applications at 400kV level, matter was discussed with POWERGRID and it has been agreed to modify the SLD for optimum utilization of the ICTs. In this modification there is an additional requirement of bus sectionalization arrangement at 400 kV bus which may be included in the Transmission system strengthening at Kurnool-III PS.

C. Inter-Regional links between NEW-Grid & SR-Grid and ISTS network strengthening in SR to facilitate import of power for meeting demand by 2029-30 time frame

1. CTU informed that present peak demand of SR as on March, 2024 is 68,094 MW and expected peak demand of SR as per the 20th EPS during 2029-30 timeframe is about 97.5

GW. The present TTC for import of power from NEW grid to SR Grid is about 24,500 MW and it is expected to be enhanced to 25,000 MW with the commissioning of Narendra-Pune 765kV D/c line. The present limiting constraint for import of power from ER to SR is Angul-Srikakulam 765kV D/c line and from WR to SR is Nizamabad 765/400kV, 1500MVA ICT under contingency. Southern Region has already imported about 22 GW from NEW grid during the peak demand period in March, 2024. Further, the import requirements is expected to increase further during 2029-30 timeframe.

Further, as per MNRE OM dated 01.11.2023, Green Hydrogen / Ammonia demand (by 2030) in Southern Region is about 23,450 MW. The demand for production of Green Hydrogen / Green Ammonia has not been considered under the CEA report on Transmission System for Integration of over 500 GW RE Capacity. This demand is expected to be over and above the peak demand projections of 97.5 GW as per 20th EPS in 2029-30 timeframe. Therefore, total demand is expected to be over 120 GW. The existing / under implementation Inter Regional links between NEW Grid and SR Grid shall not be adequate to meet the above demand. Therefore, the ISTS / STU transmission requirements need to be identified including additional Inter-regional links for meeting the demand including Green Hydrogen / Green Ammonia manufacturing alongwith additional RE potential sites in SR, if any.

2. CTU further informed that considering the drawl GNA (within and outside region) of the SR States, the existing IR links are adequate for meeting the drawl GNA and no additional Inter-Regional link(s) is required between NEW Grid & SR Grid. However, the present study is being conducted as per the decision during the 50th SRPC meeting held on 16.03.2024 to hold physical Joint Study meeting for Inter-Regional links between NEW-Grid & SR-Grid and ISTS network strengthening in SR to facilitate import of additional power for meeting demand by 2029-30 time frame.

   In order to enhance the TTC/ATC under the 2029-30 timeframe, following probable Inter-Regional links between NEW Grid and SR Grid were studied/deliberated :

   Scheme-1:

   a) Gopalpur – Srikakulam 765 kV D/c line (about 100 km)

   or

   b) Angul – Srikakulam 765 kV D/c line (about 275 km) (in case bays are available at Angul)

   Scheme-2:

   a) Parli New – Bidar 765kV D/c line (about 150 km)

   Scheme-3:

a) Nagpur – Adilabad 765kV D/c line (about 200 km)
b) Establishment of 765/400kV Adilabad substation and its 400kV interconnections
c) Adilabad – Warangal New 765kV D/c line (about 200 km)
d) Establishment of 765/400kV Khammam-II substation and its 400kV interconnections with existing Khammam
e) Warangal New – Khammam-II 765kV D/c line (about 110 km)
f) Khammam-II – Vemagiri 765kV D/c line (about 215 km)
g) Establishment of 765/400kV Vizag-II substation and its 400kV interconnections with existing Vizag pool / Gazuwaka
h) Srikakulam – Vizag-II 765kV D/c line (about 230 km)
i) Vizag-II – Vemagiri 765kV D/c line (about 150 km)

or

a) Establishment of 765/400kV Jagdalpur-II substation and its 400kV interconnections with existing Jagdalpur
b) Raipur PS – Jagdalpur-II 765kV D/c line (about 300 km)
c) Jagdalpur-II – Vizag-II 765kV D/c line (about 200 km)
d) Establishment of 765/400kV Vizag-II substation and its 400kV interconnections with existing Vizag pool / Gazuwaka
e) Srikakulam – Vizag-II 765kV D/c line (about 230 km)
f) Vizag-II – Vemagiri 765kV D/c line (about 150 km)
g) Establishment of 765/400kV Khammam-II substation and its 400kV interconnections with existing Khammam
h) Warangal New – Khammam-II 765kV D/c line (about 110 km)
i) Khammam-II – Vemagiri 765kV D/c line (about 215 km)

3. System studies were conducted in 2029-30 timeframe. Initially for system studies, Load Generation Balance was deliberated in detail and the modifications as suggested by the STU's (i.e., State peak demand, Generation, Intra-State network, Demand Factors etc.) were incorporated. The demand factors for the SR entities have been derived from actual demand factors met during FY 2023-24.

4. CTU informed that as per 20th EPS, the demand of SR for 2029-30 timeframe is 97.5 GW. Based on the observations received from STUs, demand of about 110 GW have been considered in Scenario-8 (February evening peak) and about 84 GW have been considered in Scenario-4 (June Solar max) for 2029-30 timeframe. The above demand also includes Green Hydrogen demand of about 9.75 GW in both the scenarios. As per the revised LGB, SR import of about 30 GW have been arrived in Scenario-8 and SR export of 14 GW have

been arrived in Scenario-4. The study results and assumptions considered are enclosed at **Annexure-III**.

5. To enhance the ER-SR import limit, a parallel corridor to existing IR link of Angul-Srikakulam 765kV D/c line has been identified as Gopalpur-Srikakulam 765kV D/c line (Scheme-1) from the under bidding Gopalpur GIS 765/400kV S/s. Gopalpur GIS S/s is planned to meet the Green Ammonia/Hydrogen demand with interconnection to Angul 765kV S/s through 765kV D/c line and ±800kV, 6000MW HVDC emanating from Bikaner, Rajasthan.

   Further, additional inter-regional corridor between WR-SR as Bidar - Parli 765kV D/c line (Scheme-2) has been proposed to further enhance the import capability of SR region. Bidar S/s is further interconnected with Veltoor-II 765/400kV S/s (proposed under the Kurnool-IV REZ scheme)

   Further, additional link from Nagpur-Adilabad-Warangal New 765kV D/c link (Scheme-3) was identified for further enhancement of import capabilities and to remove the limiting constraint on Wardha - Nizamabad 765kV D/c line. The distance between Nagpur and Warangal New is about 500 km and hence an intermediate S/s near Adilabad needs to be established for optimal utilization of the link. Under this alternative, establishment of Adilabad new 765/400kV S/s along with its 400kV interconnections with nearby STU network are required.

6. During the meeting, APTRANSCO also suggested an alternative to WR-SR link (Scheme-3) for consideration for studies for enhancement in import capabilities and drawal from Chhattisgarh area especially from Raipur 765/400kV PS to meet the growing demand of Visakhapatnam city. Distance between Raipur PS and Vizag new S/s is about 500km and hence an intermediate S/s near Jagdalpur needs to be established for optimal utilization of the link. Under this alternative, establishment of Jagdalpur new 765/400kV S/s along with its interconnection with existing Jagdalpur 400kV (STU) through 400kV D/c line was considered.

7. The last TTC declared on CTU website for import of power from NEW grid to SR Grid is about 25,000 MW with the commissioning of Narendra-Pune 765kV D/c line. Subsequently, significant augmentation in the ISTS network has been identified and under implementation viz Koppal-II – Narendra New 765kV D/c line, Koppal-II – Raichur New 765kV D/c line, LILO of Narendra New – Madhugiri 765kV D/c line at Davanagere PS etc. due to which the SR import TTC is expected to be enhanced to about 26700 MW. It is also observed that SR export TTC has also been enhanced due to displacement of power flow and revised load generation balance. Further, considering the above proposed IR schemes, the overall TTC of SR is envisaged to be enhanced as below:

Sl. No.	Case under study	SR TTC (MW)	Limiting Constraint (N-1 Contingency)
1	Base case	26700	Wardha - Nizamabad 765kV D/c Line

2	Base case + Scheme-1 (Gopalpur-Srikakulam 765kV D/c line)	27600	Wardha - Nizamabad 765kV D/c Line
3	Base Case + Scheme-2 (Parli - Bidar 765kV D/c line)	28770	Angul – Srikakulam 765kV D/c Line
4	Base Case + Scheme-1 + Scheme-2 (Parli - Bidar 765kV D/c line)	31200	Wardha - Nizamabad 765kV D/c Line
5	Base Case + Scheme-1 + Scheme-2 + Scheme-3_Alt-1 (Raipur PS – Jagdalpur new- Vizag new 765kV D/c line)	35150	Wardha - Nizamabad 765kV D/c Line
6	Base Case + Scheme-1 + Scheme-2 + Scheme-3_Alt-2 (Nagpur – Adilabad – Warangal New 765kV D/c line)	36150 36600	Warangal New 765/400kV ICTs Wardha - Nizamabad 765kV D/c Line

From the above, it is observed that considering Gopalpur-Srikakulam 765kV D/c line (Scheme-1) alone the incremental TTC is about 900 MW and limiting constraint is Wardha – Nizamabad 765kV D/c line. With Parli - Bidar 765kV D/c line (Scheme-2) alone about 2000 MW increment in TTC is observed and the limiting constraint is Angul – Srikakulam 765kV D/c line. It was observed that with strengthening of ER-SR (Scheme-1) IR corridor alone, the limiting constraint is shifted to WR-SR link i.e. Wardha – Nizamabad 765kV D/c line and vis-à-vis with strengthening of WR-SR (Scheme-2) IR corridor alone, the limiting constraint is shifted to ER-SR link i.e. Angul – Srikakulam 765kV D/c line. Accordingly, to meet the anticipated import requirement of 30 GW by SR, Scheme-1 and Scheme-2 are required to be taken up for implementation simultaneously for effective increment in TTC of about 4500 MW between NEW grid and SR grid.

8. SRPC and STU's enquired about the enhancement of export limit of SR TTC with the proposed IR links. As per the study results, TTC export limit of SR is as below:

Sl. No.	Case under study	SR TTC (MW)	Limiting Constraint (N-1 Contingency)
1	Base case	20700	Narendra – Pune-III 765kV D/c Line
2	Base case + Scheme-1 (Gopalpur-Srikakulam 765kV D/c line)	21100	Narendra – Pune-III 765kV D/c Line
3	Base Case + Scheme-1 + Scheme-2 (Parli - Bidar 765kV D/c line)	22450	Narendra – Pune-III 765kV D/c Line
4	Base Case + Scheme-1 + Scheme-2 + Scheme-3_Alt-1 (Raipur PS-Jagdalpur new- Vizag new 765kV D/c line)	22480	Narendra – Pune-III 765kV D/c Line
5	Base Case + Scheme-1 + Scheme-2 + Scheme-3_Alt-2 (Nagpur – Adilabad – Warangal New 765kV D/c line)	22830	Narendra – Pune-III 765kV D/c Line

From the above, it is observed that there is marginal enhancement in the SR export TTC limits with the above schemes.

9. It was pointed out that as per the LGB worked out for the study timeframe, import of about 30 GW is anticipated. In order to meet this import requirement, Scheme-1 and Scheme-2 as stated above may be taken up for further approval process. However, for Scheme-3, two nos. of alternatives were studied which requires further detailed study analysis and CTU may share the study case files for further analysis and deliberations. CTUIL suggested that after sharing case study files for the above schemes and suggestions / modifications, if any, in the scheme-3 may be submitted for further analysis or studies / deliberations. It was also suggested that if required, a separate joint study can be conducted through VC.

D. Augmentation of transformation capacity with 400/220kV, 1x500 MVA ICT (4th) at Nagarjunasagar 400/220kV substation

1. POWERGRID vide letter dated 16.10.2023 has informed that presently Nagarjunasagar 400/220kV substation is under operation with 3x315 MVA, 400/220 kV ICTs. These ICTs are catering to the loads of Andhra Pradesh and Telangana. CE/SLDC, TSTRANSCO vide letter dated 29.09.2023 expressed that the ICTs at Nagarjunasagar are getting loaded about 90% during the peak agriculture demand period and restricting the running of no. of units in pump mode during the morning hours. It was requested to study and address the issue so that Nagarjunasagar units can operate in pump mode as and when required for subsequent power generation during peak hours. It was also requested to explore the possibility of augmentation of 3x315 MVA ICTs to 2x500 MVA + 1x315 MVA capacity. POWERGRID also informed that one 315 ICT is being replaced with 500 MVA ICT as per the recommendations of 44th SRPC meeting.

2. TSTRANSCO vide letter dated 17.11.2023 has informed that when the Nagarjuna Sagar generation units (7x100.8 MW) are operated in pump mode, power is imported from 3x315 MVA ICTs through 3 nos. of 220kV Nagarjuna Sagar – Tallapally lines. Further, during recent times due to scant rain fall, the 3x315 MVA ICTs are fully loaded due to simultaneous incidence of agricultural demand in Telangana and Andhra Pradesh. The maximum load on the 3x315 MVA ICTs recorded on 10.10.2023 at 12:00 hrs is 304 MW, 314 MW and 273 MW respectively. TSSLDC had requested SRLDC, PGCIL and SRPC to relieve the congestion on Nagarjuna Sagar ICTs at the earliest.

3. Accordingly, the proposal for augmentation of transformation capacity with 400/220kV, 1x500 MVA ICT (4th) at Nagarjunasagar 400/220kV substation was deliberated in the 25th CMETS-SR held on 28.11.2023 based on the inputs from TSTRANSCO and POWERGRID. During the meeting APTRANSCO informed that requirement of 4th ICT may also be studied and downstream 220kV loadings also needs to be checked as it is already highlighted in the operational feedback. After detailed deliberations it was decided that proposal for replacement of 315 MVA ICT-1 with 500 MVA ICT may be deliberated in the next CMETS based on the inputs from POWERGRID. It was also decided that the proposal for augmentation of 4th ICT at Nagarjunasagar along with system studies may be deliberated in the next CMETS.

Keeping above in view, the proposal for augmentation of 4th ICT at Nagarjunasagar is deliberated in the present joint study meeting.

4. During the Joint Study meeting, SRPC opined that as the high loadings are being observed during the real time operation and the studies may be carried out on the present time frame study files. It was requested to SRLDC to present the studies in the present timeframe case files with loading pattern of the ICTs.

   SRLDC informed that at present 400/220kV, 3x315 MVA ICTs are installed at Nagarjunasagar S/s. During peak demand period and pump mode operation of Nagarjunasagar units, the ICTs loading is going beyond N-1 Limits. Under N-1 of one ICT, the loading on remaining ICTs is going up to 118% of the rated MVA. Further, it was informed that ICT-2(315 MVA) is being replaced with 500MVA. Even with the replacement under N-1 the other ICTs loading is 118%. Further, considering the 4th 500 MVA ICT, under N-1 of one ICT, the loading on remaining ICTs is going up to 80% of the rated MVA. Hence additional ICT of 500 MVA is required at Nagarjunasagar. The study results are attached at Annexure-IV.

5. APTRANSCO informed that with proposed augmentation of 4th ICT at Nagarjuna Sagar, loading on the downstream network may also be studied.

   SRLDC informed that, presently there are 3 nos. of 220kV circuits emanating from Talapalli to Nagarjunasagar generating station. Out of three circuits, two circuits are twin moose and one circuit is Zebra conductor. When more than four units are operating in motoring mode at Nagarjunasagar generating station, under N-1 of any twin moose line, the loading on zebra conductor is crossing 213 MVA (thermal limit). Hence strengthening of the third circuit is also required for running more than four units in motoring mode at Nagarjunasagar generating station. Further, SRLDC informed that Talapalli – Rentachintali 220kV S/c line is also getting overloaded and suitable strengthening is required for addressing the same. APTRANSCO informed that Talapalli – VTPS 220kV 2nd circuit is proposed to be LILOed at Rentachintali and with this LILO arrangement, the loading issue shall be addressed. Further, APTRANSCO informed that space for 220kV ICT bay may be a constraint and therefore needs to be looked into.

   TSTRANSCO informed that the strengthening of Talapalli – Nagarjunasagar 220kV third circuit is not required as only four units are operating in motoring mode at Nagarjunasagar generating station.

   SRLDC informed that considering the future demand growth, the strengthening of the Talapalli – Nagarjunasagar 220kV third circuit may be taken up immediately, for which TSTRANSCO informed that in case of operation of more than 4 units in motoring mode at Nagarjunasagar generating station, suitable strengthening shall be carried out by TSTRANSCO and APTRANSCO for their own portions.

6. After detailed deliberations, augmentation of transformation capacity with 400/220kV, 1x500 MVA ICT (4th) at Nagarjunasagar 400/220kV substation was agreed by the SR constituents. It was also agreed that a joint site visit with participation from CTU, SRPC, POWERGRID, APTRANSCO and TSTRANSCO may be planned to explore the space availability for 220kV ICT bay.

E. Utilization of Gazuwaka back-to-back HVDC to its rated capacity of 1000 MW during import / export modes with redressal of low voltage conditions in Gazuwaka ER bus.

SRLDC informed that presently, Gazuwaka back-to-back HVDC is being operated with power order of about 650 MW in both forward and reverse direction due to low voltage issues in Gazuwaka East bus.

CTU informed that with the commissioning of Jeypore – Jagdalpur 400kV twin HTLS D/c line which under implementation and expected to be available by March, 2025, the issue of low voltage in Gazuwaka East bus shall be addressed and Gazuwaka back-to-back HVDC may be operated with power order of 850 MW considering the thermal rating of Jeypore – Gazuwaka 400kV D/c line.

F. Possibility of operation of Talcher – Kolar HVDC in reverse mode

The SR constituents in various forums has requested to explore the possibility of operation of Talcher – Kolar HVDC in reverse mode during high RE scenario of SR for optimal utilization of the IR links.

Accordingly, the issue was deliberated in the joint study meeting wherein CTU informed that when the power order on Talcher – Kolar HVDC is reduced below 1150 MW in forward direction then there are constraints in evacuation of Talcher generation and generation unit(s) are required to be back down. Further, in reverse mode of operation, there shall be severe constraints in both ISTS as well as STU network of Karnataka apart from severe constraints at Talcher end for evacuation of power. For reverse operation of the HVDC, large number of augmentation is required under ISTS for supply of 4000 MW power at Kolar, as no source of power is available near to Kolar and large quantum of load (about 3000 MW) of Bangalore city is required to be met. It is also to be noted that under peak load conditions, Kolar & around substations observes low voltage conditions. Further for reversal of 2000 MW through Talcher-Kolar HVDC and 2000 MW of Talcher generation, transmission system for evacuation of 4000 MW shall required to be identified at Talcher end. Accordingly, the reversal of the HVDC shall require large investment towards augmentation of ISTS at Kolar & Talcher ends which may only be utilized for a very short period of time and that too is RE surplus scenario only.

In view of the above, CTU expressed that reverse mode operation of Talcher – Kolar HVDC may not be beneficial and feasible.

G. Transmission system for supply of power to Green Hydrogen / Green Ammonia consumers.

1. CTU informed that Ministry of Power has issued Hydrogen Policy vide notification dated 17.02.2022 to facilitate the energy transition from fossil fuel / fossil fuel-based feedstock to Green hydrogen / Green ammonia as energy carriers / chemical feedstock for different sectors.

   In this regard, MNRE vide OM dated 01.11.2023 have forwarded the locations of Green Hydrogen/Ammonia capacities expected by 2030 upon discussions with the Green hydrogen / Green ammonia manufacturers and the electricity demand at these locations, the OM is enclosed at **Annexure-V**. As per MNRE OM dated 01.11.2023, Green Hydrogen / Ammonia demand (by 2030) in Southern Region is about 23,450 MW. Further, Tuticorin, Kakinada and Mangalore has been considered as prioritized zones for Green Hydrogen/ Green Ammonia production. The expected total demand from Green Hydrogen / Green Ammonia developers in Tuticorin area, Tamil Nadu, is of order of 7 GW. Year-wise expected demand from Green Hydrogen/ Green Ammonia developers is given below.

Year	Cumulative Electricity Demand at Tuticorin (MW)
by 2027	2900
by 2028	2900
by 2029	5645
by 2030	7015

2. It was also informed that M/s AM Green Ammonia (India) Pvt. Ltd., vide application dated 29.02.2024, has submitted application for GNA-RE, as Bulk Consumer, for 1660 MW (Within Region: 0 MW & Outside Region: 1660 MW) at Tuticorin, Tamil Nadu with start and end date as 01.12.2026 & 31.11.2051 respectively. Further, M/s AM Green Ammonia (India) Pvt. Ltd. has indicated that they are in the process of developing the Green Ammonia Plant in phased manner and total drawl requirements for the entire project capacity shall be 2260 MW. The details provided by M/s AM Green Ammonia (India) Pvt. Ltd. are as below :

Phase	Capacity (MW)
Phase-I	1660
Phase-II	600
Total	**2660**

3. The application was discussed in 29th CMETS-SR, held on 28.03.2024, wherein it was agreed that the subject agenda shall be deliberated in the joint study meeting. CTU further stated that all applications received for grant of Connectivity/ GNA under GNA Regulations 2022 are required to be processed in time bound manner, therefore transmission system required for grant of Connectivity/ GNA to Green Hydrogen / Green Ammonia developers in Tuticorin area is required to be finalized so that connectivity/ GNA applications may be processed in time bound manner.

4. CTU informed that in view of the upcoming demand of about 7 GW from Green Hydrogen/ Green Ammonia plants/ industries in Tuticorin area System studies have been carried out. As per study analysis, following transmission system is required for grant of Connectivity to Green Hydrogen/ Green Ammonia developers in Tuticorin area.
   - Upgradation of 765 kV Tuticorin PS (presently charged at 400 kV) to its rated voltage at 765 kV. for order of about 7 GW
   - Upgradation of 765 kV Dharmapuri (presently charged at 400 kV) to its rated voltage at 765 kV.
   - Upgradation of Tuticorin PS – Dharmapuri 765 kV line (presently charged at 400 kV) to its rated voltage at 765 kV.
   - Upgradation of Dharmapuri – Madhugiri 765 kV line (presently charged at 400 kV) to its rated voltage at 765 kV
   - Establishment of Tuticorin (GH) 765/400 kV, 3x1500 MVA S/s with 1x240 MVAR Bus Reactor.
   - Tuticorin PS – Tuticorin (GH) 765 kV D/c line

5. During the meeting, it was opined that possibility of granting connectivity to Green Hydrogen / Green Ammonia developers through 400 kV at Tuticorin PS may be explored instead of establishing a new 765/400 kV Tuticorin (GH) S/s.

   In this regard, CTU informed that existing Tuticorin PS (presently charged at 400 kV) has limited space provision for implementation of 765/400 kV ICTs and termination of 400 kV lines, therefore, it shall not be possible to accommodate connectivity for identified potential corresponding to 7 GW. Accordingly, establishment of Tuticorin (GH) S/s has been envisaged for grant of Connectivity corresponding to identified potential of about 7 GW.

   SE, SRPC suggested that CTU may further study requirements and may put-up the proposal for further deliberations. Further, possibility of acquisition of additional space contiguous to Tuticorin PS may be explored for grant of GNA/Connectivity to Green Hydrogen / Green Ammonia developers.

H. The balance agenda points could not deliberated during the Joint study meeting due to paucity of time and the same may be taken up in the next Joint Study meeting.
   - Transmission System for integration of Kurnool-V REZ in Andhra Pradesh
   - Transmission System for integration of Kadapa-II REZ in Andhra Pradesh
   - Constraints in Transmission system of Southern Region as per the SRLDC operational feedback
   - Short Circuit analysis at different substations in Southern Region

Meeting ended with the vote of thanks.

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Annexure-I

List of participants for Joint Study Meeting with SR constituents held from 2nd -4th May'2024 at SRTS-I RHQ, Hyderabad

SRPC

1.	Shri Asit Singh	MS
2.	Shri Meka Ramakrishna	SE
3.	Ms. Anusha Das	EE

GRID-INDIA

1.	Shri Vivek Pandey	Sr.GM, NLDC
2.	Shri Priyam Jain	Chief Manager, NLDC
3.	Shri Gaurab Dash	Dy. Manager, NLDC
4.	Shri A Janardhan	Chief Manager, SRLDC
5.	Shri G Praveen Kumar	Manager, SRLDC

STU

1.	Ms. Gayatri Kulkarni	EE, KPTCL
2.	Ms. Divya Prabha	AEE, KPTCL
3.	Ms. Resmi S	AEE, KSEBL
4.	Ms. Amritha Sasi	AEE, KSEBL
5.	Shir M. Sudarsan	SE/ SS, TANTRANSCO
6.	Shri G Ramesh Kumar	EE/ SS, TANTRANSCO
7.	Ms. J Kalai Selvi	AEE/ SS, TANTRANSCO
8.	Shir M. Sathuraman	SE/ CERC, TANGEDCO
9.	Dr. R. Kathiravan	EE/ CERC, TANGEDCO
10.	Ms. K Bindu	SE/ SS, TSTRANSCO

11.	Dr. M. Sheshagiri	DE/ SS, TSTRANSCO
12.	Shri P. Srinivasa	ADE, TSTRANSCO
13.	Shri P. Sandeep Reddy	AE, TSTRANSCO
14.	Shri V. Mahender Reddy	AE, TSTRANSCO
15.	Shri S. Sreenivasalu	DEE, APTRANSCO
16.	Shri Ch. Sreenivasa Rao	EE/ SS-I, APTRANSCO
17.	Shri Ch. Anil Kumar	AEE, APTRANSCO
18.	Shri G Ramamohan Rao	AEE-I/ SS-I, APTRANSCO

CTUIL

1.	Shri V Thiagrajan	Sr.GM
2.	Shri Anil Kumar Meena	GM
3.	Shri Ajay Dahiya	DGM
4.	Shri Ankush Patel	Chief Manager
5.	Shri Venkatesh Gorli	Chief Manager
6.	Shri Mahendranath Malla	Chief Manager
7.	Shri Umesh Dhanuk	Engineer

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2	**3(3) Raigarh-Pugalur – Madakkathara (Trissur) HVDC Transmission System** ***Decision:*** *Chairperson, SRPC & MD, KPCL opined that further follow up (on the matter of funding from PSDF & NCEF) is required at MoP on the SRPC letter sent on 26.03.2024 and a reminder letter would be sent to MoP.*	Chairperson, SRPC vide letter dated 03.06.2024 had taken up with Secretary, MoP.	*Copy of the letter at* ***Annexure-ATR.3***
3	**4. ISTS NETWORK EXPANSION SCHEME FOR VIEWS OF SOUTHERN REGION POWER COMMITTEE (SRPC)** **Transmission system strengthening at Kurnool-III PS for integration of additional RE generation projects** ***Decision:*** *Chairperson, SRPC concluded that constituent members to furnish their observations, if any, in writing on the proposed transmission scheme by 20.05.2024 to SRPC secretariat. Otherwise, deliberations in the meeting would be submitted to CTUIL as SR constituent's views as the views of SRPC are to be submitted to CTUIL by 22.05.2024 as per the MoP Gazette for further taking up with NCT.*	Member Secretary, SRPC vide letter dated 22.05.2024 had communicated the views as deliberated in the 51st SRPC meeting and views as furnished by SR constituent states to CTUIL for further taking up with NCT.	Copy of the letter at ***Annexure-ATR.4***

✓ **Forum noted that all actions required as per 51st SRPC Meeting had been complied.**

4) INTER-REGIONAL TTC AND ISTS STRENGTHENING IN SR FOR 2029-30 TIME FRAME

a) In the 47th SRPC meeting held on 22.07.2023, it was concluded that the agenda in respect of transmission constraints at intra-state and inter-state transmission networks & recommendations of Joint Studies for planning of inter-regional and inter-state transmission system in order to enhance the transfer capability to SR and with SR states would be deliberated in detail SRPC meetings.

b) In the 47th SRPC (22.07.2023), 48th SRPC (13.10.2023) & 49th SRPC (09.12.2023), all the states were requested to furnish the details/projections after thorough discussions internally to CTUIL & SRPC secretariat. CTUIL would convene a Joint Study with participation from Grid India, SRPC Secretariat and all SR constituent States/UT.

c) In 50th SRPC meeting held on 16.03.2024, it had been concluded that all States/UT would furnish the required demand/generation data to CTUIL. Joint Studies along with all stake holders would be conducted in the month of April 2024 and the outcome along with the analysis under different scenarios would be put up in next SRPC meeting scheduled in July 2024.

d) CTUIL had conducted the Joint Studies Meeting on Inter-Regional system strengthening for 2029-30 time frame during 02nd to 04th May 2024 at Hyderabad. CTUIL vide letter dated 28.05.2024 had issued the MoM, copy is at **Annexure-4A**.

e) In the 51st SRPC Meeting held on 15.05.2024, the following were deliberated:

   i. CTUIL had informed that as mandated by SRPC for Inter-regional system strengthening for SR import requirement by 2029-30, new Inter regional links have been identified and would be put up to SRPC in two parts. Shortest links being proposed are **765 kV Gopalpur(ER) - Srikakulam D/C** & **765 kV Parli (WR)– Bidar D/C**. With these links, SR may be able to meet the immediate import requirement which can be implemented in a very quick time. For the third inter-regional link, two alternative links were proposed, one is proposed by APTRANSCO and another is proposed by CTUIL. They have analysed/studied both the links and requires further analysis and discussion. Either of one may be proposed after studies.

   ii. It was concluded that CTUIL may circulate the Inter-regional system strengthening proposals (along-with study files) among all the SR constituents for feedback/ comments and after considering the feedback/comments, the firm proposal may be presented in the next TCC & SRPC meetings for deliberations.

TCC Deliberations

f) SRPC Secretariat pointed out regarding the mismatch in declaration of TTC by CTUIL and Grid-India. CTUIL & Grid-India were requested to reconcile the TTC quantum. Around 2000 MW variation has been observed.

g) Chairperson, TCC suggested that CTUIL and Grid-India to discuss bilaterally and arrive one quantum. The same was agreed by CTUIL and Grid-India.

h) SRPC Secretariat highlighted about the substantial growth in SR demand and the same had been emphasized during since 47th SRPC meeting and in the subsequent meetings. SR demand had already touched around 68~70 GW. By 2029-30, the SR states demand will be touching around 97 GW while expected Green Hydrogen demand during the timeline will be 23 GW. Hence, the total load will be 120 GW. Therefore, this necessitates to identify the interregional link to cater the SR load during the time frame 2029-30. The same has been discussed in the Joint study meeting held on 2nd to 4th May 2024

and the Studies were carried out for the period 2029-30 time frame. Following interregional links were identified:

i. **765 kV Parli (WR)– Bidar (Karnataka) D/C-:** Bidar is a RE Pooling station which pools the RE generation available at North Karnataka area and the same connected to Parli (WR) substation.

ii. Second link has been proposed with two options:

765 kV Gopalpur (ER) - Srikakulam D/C or 765 kV Angul (ER) - Srikakulam D/C

iii. Third Scheme (765kV links) with two options was proposed:

I. Nagpur (Maharashtra) – Adilabad (TG)- Warangal (New) (TG)- Khammam-II (TG) – Vemagiri (AP)- Vizag-II (AP)- Srikakulam (AP).

II. Raipur (Chattisgarh)- Jagdalpur (Chattisgarh)- Vizag-II(AP) -Srikakulam (AP)

It was noted that with the above three links, the SR import TTC will be increased to around 36 GW.

i) CTUIL informed that 765 kV Gopalpur substation will take another 4 to 5 years for commissioning. But IR links are required for SR import before those time lines and it was informed that since bays are available at Angul substation for another D/C line, second D/C line of Angul – Srikakulam can be considered. Therefore, the final proposed two links are **765 kV Angul (ER) - Srikakulam D/C & 765 kV Parli (WR) – Bidar D/C.**

CTUIL presented the details regarding the identified Inter-Regional links. Copy of the presentation is at **Annexure-4B.** CTUIL updated the forum that the current TTC of 24500 MW will be enhanced to 25000 MW with the commissioning of Narendra-Pune 765 kV link. This link is mainly for exporting of power and it will not contribute too much for importing of power. SR Demand has increased enormously which in turn had resulted in substantial growth towards import of Power. Pattern of SR import vis-a-vis SR peak demand for past years has been presented and stated that the percentage increase of 22.7% in import requirement up to the year 2024. The demand of SR is increasing with a pace of about 6% year on year basis and no much internal generation addition will be added by 2029-30. Therefore, due to load growth and no adequate generation addition in SR, additional Interregional links are required in order to meet the demand.

The peak demand of SR States had crossed 68 GW and total GNA is only 28 GW. From 28 GW, 21 GW is GNA inside the region and outside the region is around 7.6 GW. Balance demand will be met by means of short-term access and power exchanges. As per EPS demand for 2029-30, the total SR demand has been expected as 97.5 GW whereas demand projection as per STU is 99.4 GW. Subsequently, MNRE has projected the Green Hydrogen/Green ammonia demand in SR as 24.5 GW. Altogether, the

total demand of SR by 2029-30 will be 124 GW. The IR links between NEW Grid and SR Grid shall not be adequate to meet the above demand.

Accordingly, Joint Study meeting was conducted from 2nd to 4th May, 2024 at Hyderabad with participation from all SR stakeholders. Number of scenarios have been studied during the meeting. Certain assumptions have been arrived while preparing the study file that out of 24.5 GW of Green Hydrogen /Green Ammonia load, only 10 GW has been considered in the study file. Therefore, total SR demand of 110 GW was modelled. As per the LGB in 2029-30 (with about 10GW of Green Hydrogen/Green Ammonia load), **SR import of 30 GW** have been assessed in scenario-8 and **SR export of 14 GW** have been assessed in Scenario-4. The limiting constraint for import of power from ER to SR is **Angul-Srikakulam 765kV D/C line** and from WR to SR is **Nizamabad 765/400 kV, 1500 MVA ICT** under contingency.

In order to enhance the TTC/ATC under the 2023-30 timeframe, following probable Inter-Regional links between NEW Grid and SR Grid were studied/deliberated during the Joint Study meeting.

i. **IR link-1: Angul / Gopalpur – Srikakulam 765 kV 2nd D/c line (about 275 km/100 km)**

ii. **IR link-2: Parli New – Bidar 765kV D/c line (about 150 km)**

iii. **IR link-3 (Scheme-III):**

Raipur PS – Jagdalpur new – Vizag new 765kV D/c line

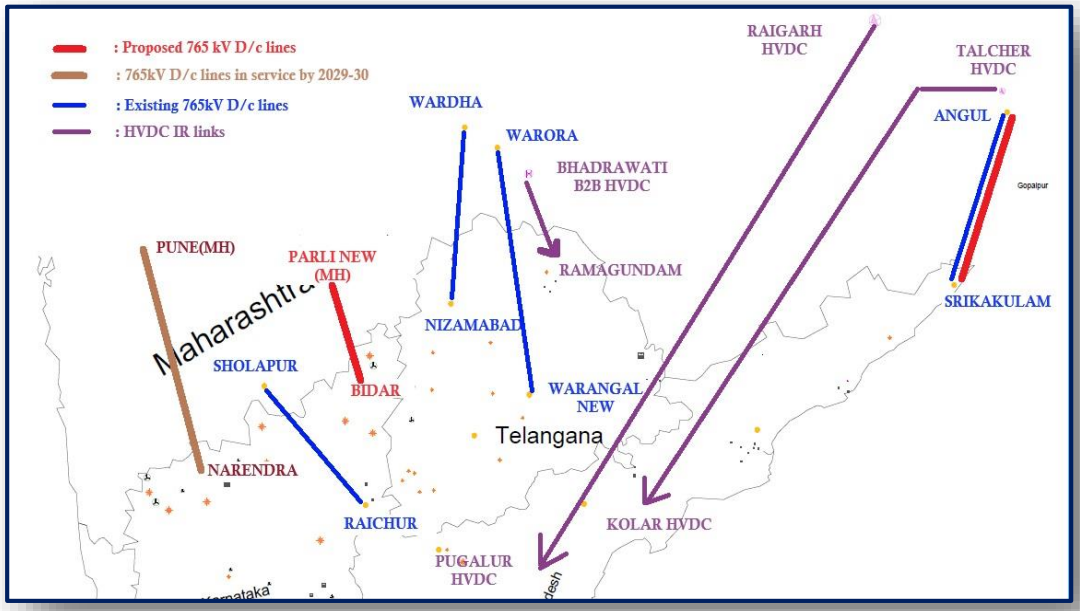
Or

Nagpur – Adilabad – Warangal New 765kV D/c line

CTUIL elaborated about the enhancement of TTC with above IR links as below:

Sl. No.	Case under study	SR TTC (MW)	Limiting Constraint (N-1 Contingency)
1	IR link-1 (Angul/ Gopalpur-Srikakulam 765kV D/C line)	27600	Wardha - Nizamabad 765kV D/c Line
2	IR link-2 (Parli - Bidar 765kV D/C line)	28770	Angul – Srikakulam 765kV D/c Line
3	IR link-1 + IR link-2	31200	Wardha - Nizamabad 765kV D/c Line
4	IR link-1 +IR link-2 +IR link-3 _Alt-1 (Raipur PS – Jagdalpur new- Vizag new 765kV D/C line)	35150	Wardha - Nizamabad 765kV D/c Line
5	Base Case + IR link-1 +IR link-2 +IR link-3 _Alt-2 (Nagpur – Adilabad – Warangal New 765kV D/C line)	**36600**	Wardha - Nizamabad 765kV D/c Line

CTUIL further informed that with two IR links, Angul -Srikakulam 765kV D/C line and Parli - Bidar 765kV D/C line, the TTC import of 31.2 GW can be met. With the surge in Green Hydrogen/Green ammonia loads (i.e. more than 10 GW), third link will also be vital to meet the demand. Limiting constraints have been studied and analyzed with both IR link-1 & IR link-2 discretely and for combined scenarios. IR Link-1 and IR Link-2 will provide the desired TTC import capability. Due to time constraints the third link were not studied and concluded. The same may be taken up in next Joint study meeting. Upon concurrence of SRPC Forum, the proposal of two IR links may be put up before NCT meeting along with views of SR beneficiaries. It was also informed that after getting the approval from NCT meeting, the minimum timeline will be 36 months. CTUIL underlined that by next year itself, based on the load growth trend, SR may hit the import TTC limits. Therefore, it is high time, without any further delay the proposal should be processed. Two proposed IR links are highlighted in red color as shown below:



j) APTRANSCO concurred with the study proposal put forth by CTUIL. In the Joint study meeting, APTRANSCO had proposed the third link Raipur-Jagdalpur-Vizag. Huge thermal potential is available at Raipur station (cheaper power) and the same can be imported to SR via Jagdalpur station.

k) KPTCL & KSEBL agreed for the proposal.

l) On query from TANGEDCO regarding for opting the Angul instead of Goplapur, CTUIL explained that the commissioning time of HVDC link of Bikaner-Gopalpur and 765/400 kV Gopalpur SS will take around 5 to 6 years. It has been linked with Bikaner (RE pooling station). RE power will be pooled to Gopalpur station to cater the Green Hydrogen/Green Ammonia loads at Gopalpur. It was also informed that due to bay lim-

itation in Angul substation, Gopalpur substation had been proposed earlier. It was confirmed that 765 kV bays are available at Angul SS, therefore, in order to meet the immediate requirement, second D/C of Angul-Srikakulam 765 kV line can be considered.

m) TANGEDCO stated that Joint Studies to be carried out based on the Andhra Pradesh's proposal to meet the Green Hydrogen/ Green Ammonia loads from the RE power pooled in SR. By the addition of lump sum Green Hydrogen/Green Ammonia loads in SR and if these loads are to be met by the huge RE power available within Southern region, the proposed links may be reworked to optimize the transmission system.

TANGEDCO pointed out that CTUIL has stated that only 500 MW increase in TTC import can be achieved with the commissioning of 765kV Narendra-Pune link. The same needs to be studied properly. The limiting constraints on this 765kV link needs to be explored and identify the cause for the restriction in TTC import. Addition of Interregional links should not be the corrective action to mitigate the TTC constraints instead the existing Interregional links need to be utilized till its maximum capability for import as well as export scenario.

CTUIL replied that SRLDC had stated that the current limiting constraints is Angul-Srikakulam 765 kV D/C line. With the addition of SR-WR links, the constraints in ER-SR will not be corrected. Pune station is predominately load centre and Narendra station is a Generation hub, mainly RE pooling station such as Koppal-I, Koppal-II Gadag-I, Gadag-II Pooling station etc. At any time, Narendra-Pune link cannot be utilized for the import scenario because wind generation will be available to evacuate to Pune station. For peak RE scenario, 55-65% export of power will occur through this link and during off peak scenario, around 10-15% export of power will take place. The Flow Gate itself will not allow in import state.

n) TGTRANSCO agreed for the proposed two links and requested to carry out system studies to finalize the third link. Enquired the reason for not considering the Nagpur – Adilabad – Warangal New 765 kV D/C line instead of Parli-Bidar 765kV D/C line.

SRPC Secretariat stated that third link will be finalized after studies only and in order to meet the immediate requirement, two Interregional links have been proposed by CTUIL. Parli-Bidar 765 kV D/C line is the shortest link & with minimal investment, TTC import limit can be enhanced. With the simultaneous implementation of the above two 765kV D/C links, SR TTC import 31.2 GW can be achieved. Third link (Scheme-III) is required to meet the import requirement of 36 GW

o) Puducherry ED stated that with the availability of Interregional links, the TTC will be improved. It was also informed that the demand of PED is also increasing tremendously. Therefore, the two links were agreeable to them.

p) SRLDC/Grid-India stated that the constraints faced by SR are for import are Angul-Srikakulam and ICT at Nizamabad. Maximum drawl against import TTC limit of 21300 MW had already been met. All corridors have been touched its limit and there is need for the enhancement of the connectivity among the corridors. Even if other links come

up, the existing constraints will be the limiting one. Therefore, the constraint points needs to be addressed and solved at the earliest in order to enhance the TTC import limit.

q) Chairperson, TCC suggested that the commissioning of these links may take more than 36 months' time. In order to meet the growing SR import condition, the two links are very much vital and it can be proceeded for the next step. Regarding third link (Scheme-III), another study may be carried out to finalize the scheme.

r) Regarding cost estimation, CTUIL stated that both the ends the substations are available, for the 765 kV lines, the rough estimate is around Rs 7 crores/kM. 765 kV Angul (ER) - Srikakulam D/c is around 275 kM and 765 kV Parli (WR)– Bidar D/C is of 150 kM. The tentative estimated cost of both the IR links is approximately Rs 3000 Crores.

s) Regarding the timeline for commissioning of these links, CTUIL informed that after getting SRPC concurrence, the official proposal will be put forth in NCT meeting to be held in September 2024. It will take 36 months for commissioning after NCT approval.

CTUIL added that too many RE applications have been received from Bidar substation and predominantly, it is from Wind Developers. An interconnection exists between Bidar to Maheshwaram substation. Therefore, 765 kV Parli (WR) – Bidar D/C line can be accounted under the transmission scheme of Bidar PS (National Component).

Regarding 765 kV Angul (ER) - Srikakulam D/C line, it is purely for the removal of limiting constraints for the import of the power. Additionally, Angul substation is also a conventional generation hub and it will be difficult to consider under National Component.

SRPC Secretariat suggested to consider the Green Hydrogen loads at Vizag & Kakinada areas. CTUIL replied that since Green Hydrogen/Green Ammonia loads have been identified near Kakinada substation. Additional justification can be provided for 765 kV Angul (ER) - Srikakulam D/C line but it is difficult to create a link to RE projects.

t) SRPC Secretariat requested CTUIL to furnish the proposals along with PSSE cases, LGBR, assumptions etc. in advance (with sufficient time) to all stakeholders. All stake holders are also requested to participate in the Joint Study meeting and furnish the comments during the meeting. It was observed that the views/observations have been received after the meeting which may not be able to include in the study file. Therefore, all States were requested to furnish the comments regarding LGBR considered in the study file etc. for fruitful discussion in the meeting.

u) TCC concluded the following :

- **CTUIL proposed two inter-regional links viz. 765 kV Angul (ER) - Srikakulam D/C & 765 kV Parli (WR) – Bidar D/C were recommended. If approved by SRPC, CTUIL would furnish the formal proposal to SRPC Secretariat and comments would be collected through mail and separate SRPC meeting may not be required.**
- **In respect of Third IR link, Joint Study meeting may be conducted by CTUIL and the link may be proposed in the next SRPC meeting.**

SRPC deliberations

v) SRPC Secretariat informed that it had been noted in the 50th SRPC Meeting, SR import ATC limits are hitting and additional links for import of power to SR are required. Hence SRPC had recommended that CTUIL to carry out joint studies for additional IR links in consultation with stake holders and the outcome to be put up to SRPC. After deliberation on the proposed IR links by CTUIL as finalized in the Joint Studies meeting held on 2nd to 4th May 2024, TCC has recommended two IR links viz. 765 kV Angul (ER) - Srikakulam D/C & 765 kV Parli (WR) – Bidar D/C. If they are approved, CTUIL would furnish the formal proposal to SRPC Secretariat and comments would be collected through mail. The SR import ATC with the above proposed links would be enhanced to 31.6 GW (ATC increment of around 7000 MW). In the TCC meeting, CTUIL has informed that the SR demand of around 125 GW would be expected considering the Green Hydrogen/Green Ammonia Loads of around 25 GW as projected by MNRE by 2028, hence third IR link would be very much required. For third IR link, two links have been proposed, one was proposed by APTRANSCO (Raipur-Jagadalpur-Vizag with associated transmission system) and other by CTUIL (Nagpur-Adilabad link with associated transmission system) in the Joint Study meeting. In this regard, TCC has recommended that Joint Studies may be conducted by CTUIL for finalizing the third link and same may be proposed in the next SRPC meeting.

w) On a query from TANGEDCO regarding the sharing of transmission charges of the above proposed links, CTUIL informed that Bidar- Parli link can be considered under the National Component as the link will be used for evacuation of RE power at Bidar complex and they would put up for the formal approval to NCT/CERC accordingly.

With respect to Angul-Srikakulam link, CTUIL stated that it is qualified for Regional Component and to be shared by ER & SR but they will try to link it with Green Hydrogen (GH)/Green Ammonia (GA) to consider it under National Component as the link would be used for drawl of the GH/GA loads at Vishakhapatnam/Kakinada areas. Around 10 GW of GH&GA loads are envisaged in the Vishakhapatnam (4 GW) & Kakinada (6 GW). REGs are located in different regions and the RE power to be imported to meet the demand of GH & GA from WR & ER through HVDC links or through high capacity AC links. 765 kV Angul-Srikakulam link is one of the critical link to import the RE power to the GH/GA load centres.

CTUIL further informed that the transmission system identified at the moment for GH/GA, there are no provisions in the CERC Sharing Regulations to be shared under National Component. However, Hon'ble Minister of Power had taken a meeting wherein it was recommended that the transmission schemes identified for supply to GH/GA loads may be considered under National Component. CTUIL has already received 2000 MW of GNA connectivity for GH/GA loads at Kakinada area which would be supplied with the 765 kV Angul-Srikakulam link. The Phase-1 transmission scheme for supplying to Kakinada GH/GA is also proposed as agenda to this meeting, in which establishment of 765/400 kV Kakinada SS and LILO of 765kV Vemagiri-Srikakulam line are envisaged in order to meet the GH/GA loads from 765 kV Srikakulam.

x) Chairperson, SRPC enquired CTUIL how the transmission charges are shared for the transmission systems for evacuation of RE power from RE pooling stations/complexes at Koppal, Gadag etc. in Karnataka. CTUIL informed that the charges for those ISTS are shared under National Component.

y) TANGEDCO stated that because of the European Union decision, one shift operation for GH shall be with renewable energy. Hence GH/GA plants will try to import RE power from Rajasthan(for Solar), wind energy from other places, Hydro from ER & NER etc. as solar generation itself is not sufficient to run the GH/GA loads 24/7 time frame. Hence 765 kV Angul-Srikakulam line would be helpful in import of hydro from Eastern & North Eastern Regions.

z) CTUIL stated that for the third IR link, Joint Studies would be carried by end of August/September 2024 and would be proposed in the next SRPC meeting. With the third link, ATC of another 6000 MW would be enhanced.

aa) TANGEDCO stated that while finalizing the third Inter Regional link all the assumptions shall be discussed in the technical Joint Studies meeting.

CTUIL informed that as decided in the TCC meeting, before the Joint Studies meeting, the proposals along with the assumptions, case files etc. will be circulated in advance to all SR stakeholders to have fruitful deliberations in the meeting. CTUIL opined that it is a high time to build new transmission lines keeping in view of Right of Way (RoW) issues.

bb) Chairperson, SRPC noted that these additional IR links being approved are in addition to the already being commissioned and the links already in execution. He opined that SR need to have much more strengthening with other regions as number of instances have been seen in the last two months in which SR has excess power and not able to export to other regions. Such constraints have to be progressively addressed and sorted out.

CTUIL stated the few constraints are observed are the seasonal issues and once the system is strengthened such issues will be resolved.

cc) TANGEDCO stated that renewable generation is only growing in SR as there is huge PSP potential in AP, Karnataka, Tamil Nadu & Telangana. When the generation capacity grows in the states/region, the capacity of the existing lines/links will be redundant. Hence these factors are required to be considered while planning the transmission system. It was informed that AP has MoU with PSPs with M/s Greenko, TN has come out with policy on MoU etc. Without factoring all, all the constituents would be stuck on the cost implications for 25-40 years.

dd) KPTCL while endorsing the views of TANGEDCO stated that Pumped Storage and Battery Storage which is going to come, needs to be taken into account while planning the transmission network. It may not be seasonal factor and would be there throughout the year.

CTUIL stated that Southern Region has got very good advantage as it has clusters of both RE generation and load centres. This advantage is not there for Northern Region as they don't have loads in the RE potential area. Hence the expenditure on ISTS is minimum in Southern Region for maximum RE injection whereas in WR & NR, it is huge and they have to depend on HVDC links.

CTUIL further stated that the export issues faced recently would be resolved with Narendra-Pune link which is expected by December 2024.

ee) APTRANSCO & TGTRANSCO while agreeing for proposed Inter Regional links, stated that it needs to be ensured that the transmission charges for these two links shall be shared under National Component.

ff) SRPC concluded with following:

- ✓ **SRPC approved the two inter regional links 765 kV Parli-Bidar D/C & 765 kV Angul-Srikakulam D/C. SRPC recommended that both the links shall be considered under National Component as 765 kV Parli-Bidar link would be used for RE evacuation and 765 kV Angul-Srikakulam link would be used to meet the GH&GA loads.**
- ✓ **CTUIL would furnish the formal proposal to SRPC Secretariat and comments would be collected through mail and separate SRPC meeting may not be required.**
- ✓ **In respect of third IR link, CTU would conduct a Joint Study meeting with all SR stake holders and the outcome of the meeting may be proposed in the next SRPC meeting.**

5) INTRA-REGIONAL TRANSMISSION CONSTRAINTS

a) The Intra-Regional Transmission constraints have been under discussion in the SRPC & TCC meetings and being followed up in Sub Committee Meetings.

b) The Intra-Regional Transmission constraints have been under discussion in the SRPC & TCC meetings and being followed up in Sub Committee Meetings.

c) In the 50th SRPC Meeting held on 16.03.2024, it was recommended that SRLDC to segregate the Transmission Constraints in to two parts, one which have impact only on the respective state (which will be discussed among the specific state and its stake holders) and the other part which have impact on regional basis (which will be discussed in TCC/SRPC meetings). Actionable points also to be identified as actions initiated and actions to be initiated and prioritisation of the actionable points also may be looked into to the extent possible.

d) In the OCC Meetings, SRLDC had presented the transmission constraints (**Annexure-5A)**.

Annexure-C

1/54/2023 - NT
Ministry of New and Renewable Energy
Government of India

Atal Akshay Urja Bhawan
Lodhi Road, New Delhi – 110003
1st November 2023

OFFICE MEMORANDUM

Subject: Details of year-wise planned Green Ammonia/ Green Methanol capacities and corresponding withdrawal capacities - reg.

The undersigned is directed to refer to the discussions held during the meeting chaired by Hon'ble Minister with Green Hydrogen industry stakeholders/associations on 19th October 2023, wherein Hon'ble Minister had instructed the developers to provide details of year-wise planned Green Ammonia/ Green Methanol capacities and corresponding withdrawal capacities desired at different locations. Hon'ble Minister also instructed that this information should be shared with the Central Transmission Utility of India Limited (CTUIL) for the purpose of planning the required substation capacities at these specified locations.

2. MNRE has consolidated the information received from various developers regarding their planned projects and their withdrawal requirements at the respective locations. The compiled list is attached herewith.

3. This issues with the approval of the component authority.

Anubhav
Anubhav Uppal
Scientist - C

Enclosed: *as above*

To:

Shri Abhay Choudhary
Chairman
Central Transmission Utility of India Limited
First Floor, Saudamini, Plot No.– 2, Sector– 29
Near IFFCO Chowk Metro Station
Gurgaon – 122001, Haryana

Copy for information to:

i. Chairman, Central Electricity Authority
ii. PS to Hon'ble Minister
iii. PSO (Secretary), MNRE

Connectivity to the Grid for planned Green Ammonia/ Green Methanol Plants						
S. No.	**Developer**	**Product (Green Hydrogen/ Ammonia/ Green Methanol/ others- specify)**	**Planned Capacity (in Million Tonnes Per Annum)**	**Expected Year of Operations (provide breakup of capacity year wise)**	**Location where connectivity is required (mention the nearest port as well, if applicable)**	**Required Capacity of Power withdrawal from nearest Substation (in GW)**
1.	**Renew Power**	Green Ammonia	1.1 MMTPA	300 TPD - 2026 1500 TPD - 2028 1500 TPD - 2030	Paradip	3 GW
		Green Ammonia	1.1 MMTPA	300 TPD – 2027 1500 TPD - 2029 1500 TPD - 2031	Gopalpur	3 GW
		Green Ammonia	1.1 MMTPA	300 TPD – 2027 1500 TPD - 2029 1500 TPD – 2031	Tuticorin	3 GW
		Green Ammonia	1.1 MMTPA	300 TPD – 2027 1500 TPD - 2029 1500 TPD - 2031	Kakinada	3 GW
		Green Ammonia	1.1 MMTPA	300 TPD – 2027 1500 TPD - 2029 1500 TPD - 2031	Kandla	3 GW
		Green Methanol	0.3 MMTPA	450 TPD - 2027 450 TPD - 2029	Rayagada	1.1 GW
		Green Methanol	0.5 MMTPA	750 TPD - 2027 750 TPD - 2029	Malkangiri	1.8 GW
2.	**Axis Energy Ventures India Pvt Ltd**	Green Hydrogen, Ammonia, Methanol and its derivatives	2 MMTPA	1 MMTPA – 2027 1 MMTPA - 2030	Ramayapatnam Port, Andhra Pradesh	3.5 - 4 GW
3.	**Welspun New Energy**	Green Hydrogen & Green Ammonia	0.7 MMTPA (GA equivalent)	0.1 MMTPA - 2027 0.6 MMTPA - 2030	Kendarpada dist.	3.5 GW
		Green Hydrogen & Green Ammonia	1 MMTPA (GA equivalent)	0.1 MMTPA - 2027 0.9 MMTPA - 2030	Kandla area, Kutch district	5 GW
4.	**Gentari Hydrogen - India**	Green Ammonia	0.5 MMTPA (500 KTPA) Phase 1	2027	V. O. Chidambaranar Port - Tuticorin (Tamil Nadu)	750 MW (0.75 GW)
		Green Ammonia	0.5 MMTPA	2028	New Mangalore Port	750 MW (0.75 GW)

			(500 KT PA) Phase 1		- Mangalore (Karnataka)	
5.	**Aditya Birla Renewables**	Green Ammonia	0.1 MMTPA	2027-28	Paradip Port	0.15 GW
6.	**Greenko**	Green Ammonia	1 MMTPA	2026	Kakinada	1.5 GW
		Green Ammonia	1 MMTPA	2027	Kakinada	1.5 GW
		Green Ammonia	1 MMTPA	2027	Tuticorin	1.5 GW
		Green Ammonia	1 MMTPA	2028	Mangalore	1.5 GW
		Green Ammonia	1 MMTPA	2028	Kandla	1.5 GW
7.	**Adani New Industries Limited (ANIL)**	Green Ammonia	1.2 MMTPA	2027	Injection point: (a) Lakadia ISTS S/s (up to 4 GW from Zone 3) (b) At a nearby location of Zone II / Zone I which may be taken into CEA planning considering huge quantum of power. Else, Radhanesda ISTS S/s (up to 18 GW) from Zone II / Zone I	4 GW
		Green Ammonia	1.2 MMTPA	2028		7 GW
		Green Ammonia	1.6 MMTPA	2029		6 GW
		Green Ammonia	1.6 MMTPA	2030		5 GW (22* GW combined) Withdrawal point - Proposed ISTS S/s at Navinal, Mundra (22 GW) ***Overall plan is for transmission of ~ 40 GW of RE through ISTS by the end of 2032 for ~9 MTPA of Green Ammonia production**
8.	**Infinity Global**	Green Ammonia (Odisha)	0.5 MMTPA	Phase 1- 2027 Phase 2- 2029	Gopalpur Port, Odisha	0.75 GW RTC
		Green Ammonia (Tamil Nadu)	0.5 MMTPA	Phase 1- 2027 Phase 2- 2029	Tuticorin Port, Tamil Nadu	0.75 GW RTC

9.	**Ocior Energy**	Green Ammonia	1 MMTPA	0.1 MMTPA – Jan 2027 0.9 MMTPA – Jan 2030	Gopalpur Industrial Park (TATA SEZ) in Odisha near Gopalpur port	0.15 GW [connected on state (Odisha) transmission system by Jan 2027] 1.5 GW [connected on Inter State transmission system by 2030]
		Green Ammonia	1 MMTPA	0.1 MMTPA - Jan 2027 0.9 MMTPA - Jan 2030	Kandla, Gujarat near Deendayal/Kandla port	0.19 GW (connected on Inter State Transmission System by Jan 2027) 1.5 GW (connected on Inter State transmission System by 2030)
10.	**Hindustan Petroleum Corporation Limited (HPCL)**	Green Hydrogen – Visakhapatnam Refinery	0.37 KTPA (0.00037 MMTPA)	November 2023	Visakhapatnam, Andhra Pradesh	2.6 MW (0.0026 GW)
		Green Hydrogen – Barmer Refinery	4.30 KTPA (0.0043 MMTPA)	December 2025	Newai, Dist. Balotra, Rajasthan	30 MW (0.03 GW)
		Green Hydrogen – Visakhapatnam Refinery	2.60 KTPA (0.0026 MMTPA)	December 2025	Visakhapatnam, Andhra Pradesh	20 MW (0.02 GW)
		Green Hydrogen – Visakhapatnam Refinery	21.80 KTPA (0.0218 MMTPA)	2030	Visakhapatnam, Andhra Pradesh	150 MW (0.15 GW)
11.	**Bharat Petroleum Corporation Limited**	Green Hydrogen through electrolysis (cumulative production)	0.70 KTPA (0.0007 MMTPA)	2025	Bina, MP	5 MW (0.005 GW)
			7.60 KTPA (0.0076 MMTPA)	2027	Yet to be finalized	55 MW (0.055 GW)
			20.70 KTPA (0.0207 MMTPA)	2030	Yet to be finalized	150 MW (0.15 GW)

		Green Hydrogen through biomass (cumulative production)	37 KTPA (0.037 MMTPA)	2030	Yet to be finalized	
12.	**NTPC**	Green Ammonia	0.5 MMTPA	2027	VOC Port, Tuticorin, Tamil Nadu	1 GW
		Green Ammonia	1 MMTPA	2027	Deendayal Port, Kandla, Gujarat	2 GW
		Green Ammonia	2 MMTPA	2027	Pudimadaka, Andhra Pradesh (Near Visakhapatnam Port)	4 GW
		Green Ammonia	0.5 MMTPA	2028	Syama Prasad Mookerjee Port, (Near Haldia port)	1 GW
		Green Methanol	0.5 MMTPA	2028	Simhadri / Pudimadaka, Andhra Pradesh, (Near Visakhapatnam Port)	1 GW
Total			29.295 MMTPA			75.3 GW