Eastern Regional Power Committee

AGENDA

FOR

239th OCC MEETING

Venue: ERPC Secretariat, Kolkata

Date: 13.05.2026

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EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 239TH OCC MEETING TO BE HELD ON 13.05.2026 (WEDNESAY) AT 10:30 HRS

1. PART-A: CONFIRMATION OF MINUTES

1.1. Confirmation of Minutes of 238th OCC Meeting held physically at ERPC Secretariat on 17th April 2026

The Minutes of 238th Operation Coordination Sub-Committee meeting held on 17.04.2026 was circulated vide letter dated 25.04.2026.

Members may confirm the minutes of 238th OCC meeting.

2. PART-B: ITEMS FOR DISCUSSION

2.1 Update on follow up agenda: ERPC

a) Intrastate Transmission Network Assessment & Mitigation-Odisha

Reference:
Implementation of the Under Voltage Load Shedding (UVLS) scheme in the Odisha system has been under review since the 231st, 232nd, 233rd, and 234th OCC Meetings held on 22.09.2025, 24.10.2025, 22.11.2025, and 23.12.2025 respectively.
The matter was also discussed in the recently concluded 55th TCC/ERPC meeting held on 16.12.2025 and 17.12.2025 at Kalimpong, West Bengal. As per deliberation in 55th TCC Meeting, **300MW load** has been identified and it will be operationalized before **Summer '26**.

The continued delay in implementation is posing increasing risks not only to the Odisha system but also to the Eastern Region as a whole during the forthcoming Summer-2026 period.

As per 238th OCC:
SLDC Odisha updated that the order for implementing UVLS will be placed to the same vendor as for ADMS, on nomination basis. But placing order on nomination basis calls for recommendation from any authorised government entity.

238th OCC Decision
- OCC opined that minutes of OCC meetings and previous ERPC meetings may be referred by OPTCL & SLDC Odisha for expediting the work and further implementation of UVLS scheme.
- OCC advised ERLDC to convene a special meeting involving all concerned stakeholders to expedite UVLS implementation in the intra-state network of Odisha.

Update:
One meeting was convened on **30.04.2026** over video conference regarding the status update wherein following emerged:

- Director (Operation), OPTCL informed that implementation of the UVLS scheme in Odisha is being taken up on a fast-track basis as proposed in various OCC meetings. To expedite execution and avoid procedural delays, the scheme is being treated as a "top-up" or extension of the existing ADMS contract.
- He added that since SLDC Odisha has already implemented the ADMS system, the work of implementation of the UVLS scheme has been entrusted upon SLDC, being an extension of the ADMS project.
- SLDC Odisha and CGM, OPTCL confirmed that quotation for executing the UVLS scheme has been received from the existing ADMS implementing agency and are under review by the Telecom wing of OPTCL. Additionally, 31 feeders from TPCODL (Discom) and 23 feeders from TPNODL (Discom) have been identified under the scheme. The completion timeline targeted by **June 2026**.

Record notes of the meeting are attached as **Annexure 2.1.a**

SLDC Odisha and OPTCL may update. Members may discuss.

b) Status of ERS in Eastern Region

☐ Transmission lines are the arteries of the electricity grid and these are most prone to damage due to earthquakes, cyclones, floods etc. In case of damage to the transmission line, temporary arrangements for the restoration of power supply can be made with the help of ERS, which consists of a special type of lightweight modular structures, with lightweight polymer insulators and number of stays. In this regard CEA has issued guidelines for requisition of ERS and also an advisory has been issued by Ministry of Power to all state utilities.

☐ As per Central Electricity Authority (grid standards) regulations, 2010 and "Disaster Management Plan for Power Sector" the following are mandated in case of the ERS:
i.Each transmission licensee shall have an arrangement for the restoration of transmission lines of 400 kV and above and strategic 220 kV lines through the use of Emergency Restoration System in order to minimise the outage time of the transmission lines in case of tower failures.
ii.Strategic locations should be decided for spares on centralized/ regional /zonal basis.

As per 227th OCC:

- ➢ PowerGrid informed that mock drill is being conducted annually for testing of ERS.
- ➢ OPTCL informed that testing in two no. of ERS will be conducted in month of June, 2025.

227th OCC Decision

- ✓ All utilities were advised to maintain adequate ERS inventory for all voltage levels as per norms.
- ✓ All Trancos were advised to periodically test the operational readiness of ERS.

Details of Available ERS enclosed at **Annexure 2.1.b.**

All Transmission licensees(ISTS, State & Private) may update the ERS status.

c) Establishment of proposed TCF-II(Teesta Canal Fall) 220/132/33 KV S/S

☐ Proposal for TCF-II 220/132 KV SS is an Intra-State sub-station with ISTS connectivity [D/C LILO

of Siliguri PG-Kishanganj 220 KV D/C Line with HTLS conductor proposed]. The sub-station has been considered for meeting the growing load demand in and around Ghoshpukur and TCF area as projected by WBSEDCL which includes increasing demand of Dinajpur(N) and Darjeeling district of West Bengal.

- ☐ The proposal had already been discussed at CMETS-ER level for last few months [since May-2025] considering different scenarios and multiple operational aspects.
- ☐ The latest PSSE studies were submitted prior to the last 48th CMETS-ER meeting held on 30-10-2025. It was found as per the study that loading of Binaguri PG - Siliguri PG under N-1 condition is 393 MW [considering 1500 MW setting for APD-Agra DC Link as suggested by Grid India] which is within the 90% of thermal limit of the line [considering 450 MW rating of HTLS conductor].
- ☐ Observations of Grid India has been obtained on 14-11-2025. It is understood that Grid India has further considered 1000 MW setting for APD-Agra DC Link instead of 1500 MW during N-1 condition of peak load scenario creating additional contingency over and above N-1 condition.
- ☐ However, loading of one circuit of Binaguri PG - Siliguri PG even under this additionally contingent condition is found to be 426 MW which is also well within the thermal limit of the line [considering 450 MW rating of HTLS conductor] as per Cl-4.4.2 of CEA's Manual on Transmission Planning Criteria-2023. It is also noteworthy that this quantum of power will flow for a limited period of time only satisfying the special conditions pointed out by Grid India.
- ☐ In the last CMETS-ER meeting CTU proposed to pose the proposal before CEA to discuss with Resource Adequacy Plan for West Bengal by the Year 2034-35 which is in progress and may take time. Considering the immediate requirement, WBSETCL requested CTU to resolve the issue at CMETS-ER level.

As per 55th TCC meeting

WBSETCL informed that as per the system study conducted by them, there is no N-1 violation in Binaguri PG - Siliguri PG in 5 years resource adequacy plan.

➢ CTU updated that the matter is presently under consideration of CEA and as per the resource adequacy plan of CEA keeping in view of the surge in demand of WB in near future it would be prudent to go for 400KV substation in TCF-II instead of 220KV substation proposed by WBSETCL.

➢ In response WBSLDC submitted that there is a urgent requirement of TCF-II 220/132/33 KV SS since the proposed scheme is to cater the load 100-120 MW loading for the forthcoming Ghoshpukur 132 kV sub-station which is urgently needed by the DISCOM to accommodate "Data Centre Load". This was further mentioned that as per policy of the Central Govt to encourage Data Centre establishment, this initiative is in line with the facilitation of establishing data center as desired by CEA through online meeting in 2nd December 2025.

55th TCC Decision:

- TCC opined that in order to meet the additional load requirement of 120MW including data center load in immediate future, it would be prudent to go for 220/132/33 KV SS instead of 400kV system as of now for early implementation of the proposed scheme and the 400 kV scheme may be considered subsequently.
- TCC referred the matter to ERPC for further deliberation.

As per 55th ERPC meeting

- Member (PS), CEA opined that the requirement of the TCF-II ss would be finalized based on resource adequacy study of West Bengal.
- ERPC emphasized the requirement of 220/132/33 KV SS at TCF-II by LILO of 220 kV Siliguri-Kishanganj D/C line to meet the additional load requirement of 120 MW under yearly rolling plan and requested CEA to consider the above requirement.

As per 235th OCC meeting

WBSETCL submitted:

- ✓ In the CEA meeting on resource adequacy dated 24.12.2025, 220 kV substation has been proposed that may be upgraded to 400 kV as per future requirement. This was not agreed by CEA and establishment of 400 kV system was insisted in the present timeframe.
- ✓ Upgrading to 400 kV will be convenient in absence of ROW issues owing to close proximity of 400 kV line (within 500m-1 km).

WBSLDC submitted:

- ✓ Many critical transmission proposals are being repeatedly deferred by linking them to long-term (2034–35) resource adequacy studies, resulting in unacceptable delays.
- ✓ For meeting a load of 110 MW, opting for 400 kV supply is not possible as per WBERC guidelines.
- ✓ Without timely establishment of Ghospukur S/S, data centre cannot be setup on priority in line with Govt of India policy. Moreover, there is no other source(adjacent generating station/line) to meet the load of upcoming 132 kV S/S at Ghoshpukur.
- ✓ With load requirement of only ~110 MW, there is adequate N-1 compliance with Clear provision of land and corridor for future 400 kV upgradation
- ✓ All relevant data have already been shared with CEA and nothing is pending.

235th OCC Decision

- OCC acknowledged the requirement of 132 kV S/S at Ghoshpukur for meeting the immediate power requirement of the upcoming data center and of adjoining areas.
- It was advised that matter may be taken up with CEA by WBSETCL.

WBSETCL may update. Members may discuss.

d) Upgradation of 220kV Network in Kolkata Region

Vide **217th OCC** dated 24.07.24 Due to persistent N-1 violation, Upgradation of these 220 KV feeders to be planned:

- ☐ 220kV Subhasgram (WB)-Lakshmikantpur D/C
- ☐ 220 kV Jeerat-Barasat D/C
- ☐ 220 kV Barasat-Kasba D/C

- In **229th OCC** Meeting, WBSETCL updated that the approval for PSDF grant has not yet been received.
  They also apprised that only the following lines have been listed for upgradation.
  ✓ 220 kV Jeerat-Barasat D/C
  ✓ 220 kV Barasat-Kasba D/C
  ✓ 220 kV Subhasgram-Kasba
  ✓220KV Kolaghat-Foodpark
  ✓ 220KV Foodpark-Jangalpur

➢ OCC advised WBSETCL to expedite the upgradation work of above lines since it has already been delayed by more than 2 years and in case PSDF grant is not possible then other avenues of funding maybe explored since the loading of the above lines are going to be critical in the coming summer months.

As per 55th TCC meeting:
WBSETCL updated that tender has been done for upgradation of following lines:
✓ 220 kV Barasat-Kasba D/C
✓ 220 kV Subhasgram-Kasba D/C
✓ 220 kV Rajarhat-KLC S/C

- For remaining lines, the upgradation work will be taken up progressively as per the system requirement.
- They updated that the tentative timeline to complete the upgradation work of above three lines is **9(nine) months**.

WBSETCL may update. Member may discuss.

e) Upgradation of 66/11 kV Bulbuley Sub-station to 132 kV Level and associated Transmission Infrastructure Works in Gangtok

Upgradation of 66/11 kV sub-station at Bulbuley (Gangtok) to 132 kV voltage level, establishment of AIS extension bay at POWERGRID 132/66 kV sub-station at Lagyap and GIS bays at Bulbuley along with installation of 132/66 kV, 2x25 MVA transformers at Bulbuley along with construction of 132 KV LILO arrangement at 132 kV D/C transmission line.

Estimated Cost:: **Rs. 167.42 Crore.**

Bulbuley is the only major substation within Gangtok proper that still has scope for upgradation and availability of ROW corridor for construction of transmission line. Capacity augmentation is not possible in remaining two other 66/11 kV sub-stations within Gangtok proper, i.e. Tadong and Sichey, owing to space and ROW constraints. These areas are now completely built up and commercialized. Urgent need to upgrade the main power supply to main Gangtok city area to 132 kV voltage level due to current condition of the existing lines all of which are 66 kV lines. Need to undertake the work soon since there will not be any ROW availability nor space for expansion of sub-station in Gangtok proper in the near future.

In 55th CCM meeting,

Representative of Sikkim explained the issue.

- Representative of Powergrid submitted that the issue is placed for the first time in this meeting and requested Sikkim to provide the single line diagrams and other necessary documents to Powergrid at the earliest for study at their end.
- Committee was of the view that the issue should have been placed before OCC forum. However, considering the urgency as expressed by Sikkim, advised Powergrid to carry out a detailed study in coordination with Sikkim and submit a report in the upcoming 55th TCC & ERPC meetings for their consideration and further decision on the issue.

Deliberation in 55th TCC meeting

- ☐ Representative of Power Dept, Sikkim informed that the proposal for upgradation of 66/11 kV Bulbulay substation to 132 kV Level & other associated transmission work is put up considering the load growth of Gangtok in coming 10- & 15-years' timeframe and considering the constraints in constructing new transmission lines in the Gangtok area due to rapid urbanization.
- ☐ Powergrid submitted that as per their preliminary survey, there would be clearance issues for extension of the bus at 132 kV Gangtok S/s and therefore he suggested for joint site inspection to assess the site feasibility for the proposed plan.
- ☐ CTUIL informed that the present proposal is already under discussion at CEA level and as per the preliminary observation by CEA, the present upgradation is not required for Sikkim. However, in case of fresh proposal considering the change in load growth, the scheme may be put up to CEA for deliberation.

55th TCC Decision

TCC noted the concern of Sikkim for requirement of upgradation of Bulbulay S/s at 132 kV level keeping in view reliable power supply at Gangtok with enhanced demand and RoW issues & Space constraints in the vicinity. TCC advised ERPC Secretariat to plan a onsite visit comprising representatives from Powergrid, Power Dept Sikkim, ERLDC & ERPC.

TCC advised Power Dept, Sikkim to forward the proposal to CEA with proper justification for further deliberation and consideration.

55th ERPC Decision

ERPC noted the decision of TCC and ERPC Secretariat was advised to plan a onsite visit comprising representatives from Powergrid, Power Dept Sikkim, ERLDC & ERPC.

Recommendations of CEA:

- With the present and under implementation transmission system, the proposal of upgradation of Bulbuley 66/11 kV S/s to 132 kV level is not technically justified.
- The Power Department and POWERGRID shall endeavor to commission the Perbing 132/66 kV S/s and its transmission lines at the earliest.

Communication from CEA regarding DPR for upgradtion attached at **Annex B.2.1.e**

Sikkim may update. Members may discuss.

f) Spare Reactor procurement under Eastern Regional Pool as per CEA norms

In **52nd ERPC** meeting, estimated expenditure of **Rs. 55.67 Crores** (exclusive of GST but including transportation cost) was concurred towards procurement of spare reactors in ER pool by Powergrid ER-II as per CEA spare norms.

STATE	VOLTAGE	SIZE	STORAGE PLACE
WEST BENGAL	400 KV	125 MVAR	DURGAPUR SS
		80 MVAR	BINAGURI SS
SIKKIM	220 KV	31.5 MVAR	NEW MELLI SS
JHARKHAND	400 KV	125 MVAR	NEW RANCHI SS
ODHISSA	400 KV	63 MVAR	ROURKELLA SS

In **54th TCC** meeting, Powergrid intimated that the tender evaluation is on progress.

As per 55th TCC meeting:

- ✓ POWERGRID updated that tender has been awarded for the reactors except 31.5 MVAR reactor.
- ✓ Since the 31.5 MVAR reactor is seldom used at present, hence they have segregated it from the rest of the population and it will be done separately.

POWERGRID may update. Members may discuss.

g) Restoration of 220KV FSTPP LALMATIA Line.

The line is out of service since long due to tower collapse. Presently 220 kV Farakka-Lalmatia line is charged(from loc no 241 to loc 84) at 132 kV voltage level for anti-theft purpose by tapping at loc. No. 100-101.

As per 55th TCC meeting:

- ✓ JUSNL updated that tower no 1 to 18 falls under West Bengal area out of these, foundation of tower 1 to 12 are pending due to local issues.
- ✓ They have taken up the matter with concerned District Administrations of West Bengal.
- ✓ TCC advised WBSETCL to extend all support to JUSNL in this regard.

As per 235th OCC meeting

JUSNL updated:

- ✓ Presently the line is charged over location 248 to Location 33 from Lalmatia end
- ✓ Foundation is reaming in 8 locations.
- ✓ Tower erection is pending in 17 locations.

235th OCC Decision

OCC advised JUSNL to expedite restoration of remaining towers and share the progress update regularly. The line may be brought to service before summer 2026.

JUSNL may update. Member may discuss.

h) Review of JUSNL's SAMAST implementation and readiness for commencement of PVUNL scheduling along with development of intrastate DSM and settlement mechanisms.

As per the directions of Hon'ble CERC in Petition No. 658/MP/2025, ERLDC commenced scheduling of Patratu Stage-1 w.e.f. 05.11.2025 upon COD of Unit-1 and in accordance with the share allocation issued by ERPC. In line with the deliberations of the 229th OCC Meeting held on 25th July 2025, JUSNL is required to take over the scheduling of PVUNL units from January 2026 subsequent to the completion of SAMAST implementation.

In 233rd OCC Meeting:

JUSNL informed that SAMAST scheme is under implementation and it's expected to be completed by December 2025.Thereafter scheduling of PVUNL shall be taken up by SLDC, Ranchi.

- ERLDC apprised that for billing and settlement of account, an intrastate DSM mechanism and pool account needs to be developed by JUSNL.
- OCC advised JUSNL to expedite the SAMAST implementation and complete within Dec 2025 so that scheduling of PVUNL shall be commenced by JUSNL from 1st Jan 2025 as per the direction of CERC.
- OCC also advised SLDC, Ranchi to highlight the need of DSM Mechanism and Pool account for settlement and billing to the higher management and simultaneously take up the matter with SERC for implementation of the same.
- OCC referred the matter to TCC for further deliberation. OCC noted the modalities of scheduling and accounting of Patratu Stage-1 highlighted by ERLDC.

As per 55th TCC meeting

JUSNL updated that they have filed petition to CERC for extension of the scheduling of PVUNL by ERLDC till June 2026 for which the hearing is scheduled on 19th Dec'25.

TCC noted.

JUSNL may update. Members may discuss.

i) Discrepancy i.r.o Reactive Energy billing at Subhasgram (PG)

During the month of **December 2025,** the Reactive Energy billing data indicates a reversal in the direction of MVAR flow between two groups of ICTs at Subhasgram (PG) Sub-station. One group comprising ICT-I and ICT-II shows positive MVAR flow, while the other group comprising ICT-III, ICT-IV, ICT-V, and ICT-VII shows negative MVAR flow. Since all ICTs are operated in parallel, such divergence in the direction of reactive power flow appears anomalous and technically inconsistent.

In **235th OCC** Meeting, WB SLDC briefed the observed discrepancy in energy billing data w.r.t Subhasgram (PG)and submitted:

- ✓ In two ICTs, MVAR charges are negative while in other four ICTs, the charges are positive.
- ✓ All transformers are operating in parallel, so this trend is unusual. This behaviour was not seen last year. Comparative data for the last few weeks shows a consistent anomaly.
- ✓ This discrepancy should be rectified to ensure accurate meter data and should be implemented in billing with retrospective effect.

✓ ERLDC apprised that the discrepancy is predominant in those ICTs where meters replaced from Genus make to Secure make.

As per 238th OCC:

➢ Powergrid submitted:

✓ The import-export logic in four meters at Subhasgram (PG) corresponding to HV and LV side meter of ICT -6 along with 220 kV Subhashgram (WB) and 220 kV KLC Bantala (WB) feeders were modified on 08.04.2026. The details of the meters along with observations have been shared with ERLDC via email.
✓ Reactive energy validation challenges were highlighted due to lack of independent validation mechanism (unlike active energy) and billing is based on cumulative registers, not block-wise data
✓ It was further stated that, upon confirmation from ERLDC, the same logic will be implemented in all the SECURE make meters of ER.

➢ ERLDC apprised:

Reactive MVARH data for all seven ICTs and associated feeders at Subhashgram (PG) was presented for the period from 06.04.2026 to 12.04.2026 and the same is tabulated below:

	SUBHASGRAM-ICT-01 (HV SIDE)	SUBHASGRAM-ICT-02 (HV SIDE)	SUBHASGRAM-ICT-06 (HV SIDE)	SUBHASGRAM-ICT-03 (HV SIDE)	SUBHASGRAM-ICT-04 (HV SIDE)	SUBHASGRAM-ICT-05 (HV SIDE)	SUBHASGRAM-ICT-07 (HV SIDE)	220 kV Subhasgram (PG)-Subhasgram(WB)	220 kV Subhasgram(PG)-KLC(WB)	SUBHASGRAM-ICT-06 (LV SIDE)
	ER-1534-A	ER-1483-A	NS-2973-A	NS-3000-A	NS-2930-A	NS-2935-A	NS-2919-A	NS-2942-A	NS-2921-A	NS-2996-A
DATE										
06-04-26	-176.1	-161	233.5	147.3	144.9	158.9	266.2	242.6	59.2	-347.8
07-04-26	-190.3	-172.6	278.9	159.3	158.2	149.8	293.5	389.4	82.6	-369.3
08-04-26	-183.5	-162.5	342448	150.5	147.1	163.6	264	9370.6	319059.2	-289484.5
09-04-26	-150.5	-144.7	-231.6	129.6	129.4	170.2	234.9	-406.7	-49	321.6
10-04-26	-155.3	-147.3	-216.4	135.9	135.5	92.7	241.8	-380.2	-43.5	289.9
11-04-26	-121.3	-115	-182.5	101.9	101.2	108.4	186.9	-244.8	-20.2	216
12-04-26	-36	0	-24.4	25.5	23.1	0	43.3	-119	-11.2	120

***All values are in MVARH. The highlighted sections represent the cases where the meter logic has been modified.**

➢ Based on the Reactive register data, ERLDC informed the forum that, from 09.04.2026 onwards, the direction of reactive power flow on the HV side of ICT-6 is same as that of the Genus make meters installed at ICT-1 and ICT-
➢ WBSEDCL stated that the discrepancy in logic is impacting the Reactive energy accounting, hence corrective action should be taken at the earliest. Moreover, there should be mechanism of validation of VAR data as it is posing significant commercial implications.

➢ WB SLDC submitted :

Similar issue of reactive energy flow in reverse direction is being experienced in tie-lines of Binaguri-NJP ckt-I&II.

➢ DVC informed that they will test and validate the reactive energy meters in their lab and inform OCC forum accordingly.

238th OCC Decision

✓ The forum noted the modification in logic done by PowerGrid in secure make meter at Subhashgram(PG). Further, forum advised PowerGrid to implement the same logic correction across all remaining SECURE make meters(176) of ER. Powergrid to share detailed information with ERLDC regarding Meter no, location, date & time whenever any change in meter logic is carried out.

✓ WB SLDC to share the list of tie lines where similar issue of reactive energy recording is encountered.

✓ OCC suggested for escalating the issue of reactive energy meter reading validation to NPC forum for standardization across all regions.

WB SLDC, ERLDC & Powergrid may update. Members may discuss.

j) Update on islanding schemes in ER.

A special sub-group shall be constituted for the identification and implementation of islanding schemes in the capital cities of ER states.

1. Ranchi Islanding Scheme

☐ Nomination for ER sub-group of islanding scheme implementation was received from JUSNL.

☐ The kick-off meeting for the implementation of the Ranchi City Islanding Scheme was held on **23rd April 2026** under chairmanship of ERPC. Record Notes attached at **Annex B.2.1.n**

☐ To accurately define the electrical boundaries and load behaviour of the island, SLDC Jharkhand was requested to share:

- **Island Boundary & Feeder Logic:** Clearly define the islanded area and provide a comprehensive list of feeders that must be disconnected to ensure successful island formation.
- **Load Profiles:** Node-wise load data (Maximum, Minimum, and Average) for the identified area to ensure generation-load balancing.
- **Defense Mechanism Data:** Current node-wise loads of Jharkhand that are already covered under **AUFLS** (Automatic Under Frequency Load Shedding) and **ADMS** (Automatic Demand Management System).
- **Infrastructure Timeline:** Confirmation of the expected commissioning date for the **400kV Latehar New – Patratu New D/C** line, as this must be integrated into the islanding model.

SLDC Jharkhand may update. Members may discuss.

2.Patna Islanding Scheme under PSDF

➢ In 54th TCC meeting held on 23.06.2025, BSPTCL had proposed to implement Patna Islanding Scheme through Internal Resource Fund.

➢ However, a meeting was held on 24th June 2025 under the chairmanship of the Hon'ble

Minister of Power and Housing & Urban Affairs, wherein the matter of Islanding Patna city was discussed. In the meeting, it was decided that the State of Bihar would submit a proposal for funding the Islanding scheme by the Ministry of Power).

- In compliance to minutes of the meeting held on dt. 24.06.2025, Board of Directors, BSPTCL has approved for implementation of Patna Islanding Scheme through PSDF in 131st BOD meeting held on dt. 17.07.2025 vide its resolution no. 131-06.
- In line with the above, a proposal has been submitted for Implementation of Patna Islanding Scheme under PSDF to NLDC vide this office letter no. 549 dt. 18.07.2025 along with all the required documents in compliance to minutes of meeting held on dt. 24.06.2025.
- Further, Chief Engineer (Generation), CEA has requested the recommendation of ERPC for implementation of Patna Islanding Scheme through PSDF.

55th TCC deliberation:
ERPC Secretariat informed that BSPTCL has requested for appraisal report of the islanding scheme in A5 format of PSDF and the same has already been sent to them for onward submission to PSDF.

As per 238th OCC:
OCC suggested for formation of a sub group committee under chairmanship of S.E. (Operation), ERPC comprising members from ERPC, ERLDC, concern SLDC and Generating company for regular monitoring of islanding scheme formation and implementation in the ER States. **The committee shall coordinate with stakeholders and submit progress report in OCC.**

SLDC Bihar may update. Members may discuss.

3. IB Valley TPS Islanding Scheme (Odisha)

IB valley TPS Islanding scheme has also been put on hold for long time. The status regarding the same has been sought on urgent basis by Ministry of Power (Govt of India).
In 233rd OCC Meeting,

OPTCL updated that DPR i.r.o IB Valley TPS Islanding Scheme is not yet prepared and the proposed scheme is under review of Director, OPTCL.

- OCC took a serious note on slow progress in implementation of IB Valley TPS Islanding Scheme since this scheme has been pursued by ERPC since last five months.
- OCC advised OPTCL to highlight the importance of IB Valley TPS Islanding Scheme at the appropriate level and revert back within fortnight of December and the matter is referred to TCC for detailed deliberations.

As per TCC meeting

Director(Op), OPTCL stated that they need a clarification regarding load quantum required for islanding operation and as per their assessment load of 140-160 MW can be arranged at Budhipadar end for islanding operation.

OPGC representative replied that minimum load of 150 MW is required for islanding operation with one unit of IB TPS.

55th TCC decision

- After deliberation, it was finalized that the scheme will be implemented with minimum load quantum of 140 MW at Budhipadar along with one unit of IB TPS generation.
- TCC pointed out the inordinate delay in implementing the scheme and opined that OPTCL & OPGC shall take necessary steps to implement the scheme within six months.

As per 238th OCC:

OPTCL updated:

Work order has been reportedly issued by OPGC to PRDC

ERLDC apprised:

- Multiple revisions have been done in the scope of this islanding scheme. While earlier it was a two-unit configuration, in revised scheme one-unit configuration has been proposed with reduced load.
- Dynamic study of the original scheme had earlier been carried out by ERLDC.

238th OCC Decision

- ✓ OPGC was advised to clarify the role of vendor whom the work order has been placed, i.e whether it is for study or implementation of the scheme.
- ✓ ERLDC was advised to complete the revised study of IB Valley TPS islanding scheme with one-unit configuration.
- ✓ OCC sub-group to be formed as suggested that will coordinate with stakeholders and submit progress report in OCC.

OPGC/SLDC Odisha may update. Members may discuss.

4.Bhubaneswar Islanding Scheme (Odisha)

Nomination for sub-group of islanding scheme implementation in ER is still awaited.

5. Farakka islanding scheme

This is presently not in service due to long outage of 220 kv Farakka-Lalmatia line.

OPTCL/SLDC Odisha may update. Members may discuss.

k) Status of upcoming thermal generation capacity addition in Eastern Region:

Sr. No.	Plant Name/Agency	Unit No	Capacity (MW)	Status Update in 238th OCC
1	Patratu STPP (PVUNL)	2	800	Expected COD: 30.04.2026
2	Buxer TPP (SJVN)	2	660	Synchronization by end of April 2026.Expected COD: 31.05.2026

238th OCC Decision

In view of impending high demand season , it is imperative for the concerned thermal generating units to commence commercial operation as per scheduled timeline.

Concerned GENCOs may update. Members may discuss.

l) Review of AUFLS in Eastern Region: SCADA Integration & Data Updation

- Based on the recommendation and decisions in 14th NPC meeting held on 05.02.24, 214th OCC meeting and special meeting on 10.07.2024, a load relief quantum of 6916MW was finalized for Eastern Region. UFR Feeders real time monitoring has been discussed in NPC as well as various fora of ERPC.
- Further, with new IEGC 2023 the same has been mandated as quoted below: IEGC 2023, Clause 13.d: "SLDC shall ensure that telemetered data of feeders (MW power flow in real time and circuit breaker status) on which UFR and df/dt relays are installed is available at its control centre. SLDC shall monitor the combined load in MW of these feeders at all times.
- SLDC shall share the above data with the respective RLDC in real time and submit a monthly exception report to the respective RPC. RLDC shall inform SLDCs as well as the concerned RPC on a quarterly basis, durations during the quarter when the combined load in MW of these feeders was below the level considered while designing the UFR scheme by the RPC. SLDC shall take corrective measures within a reasonable period and inform the respective RLDC and RPC, failing which suitable action may be initiated by the respective RPC."

As per 238th OCC meeting:

Both Bihar & Jharkhand updated to Complete AUFLS implementation as well as SCADA integration by end of May 2026.

All SLDCs may update. Members may discuss.

2.2 Issues for follow-up: ERLDC

a) SPS for ACCP-II/JSPL

- ☐ Following the 233rd OCC meeting, a special meeting was held on November 26, 2025, to discuss the implementation of System Protection Schemes (SPS) for the new ACPP-II plant, during which OPTCL was advised to assess existing protection adequacy at the JSPL site.
- ☐ Although the site visit was eventually conducted on January 11, 2026, the overall implementation remains significantly delayed. While JSPL has implemented one SPS for injection control, a second scheme designed to restrict drawal at the Meramandali end is currently pending the transmission

of Talcher-Meramandali power flow data from OPTCL. Consequently, OPTCL has apprised that installing the necessary RTU at Meramandali for data visibility will require approximately two months.

- ☐ In **235th OCC** meeting, forum directed both JSPL and OPTCL to expedite the finalization and implementation of the remaining scheme to ensure grid stability. 237th OCC meeting, it was advised to SLDC/OPTCL to expedite the implementation.

As per 238th OCC meeting:

OPTCL updated:

JSPL has placed purchase order for procurement of RTU required for data telemetry of 400kV Talcher-Meramundali lines to JSPL for SPS action. The delivery of the RTU is expected in two weeks. Thereafter SPS for drawl restriction would be configured at JSPL end.

238th OCC Decision

OCC advised OPTCL to coordinate with JSPL so that the proposed SPS gets implemented on time.

ERLDC may explain. OPTCL may update Member may discuss.

2.3 Bus split operationalization at NTPC Kahalgaon: ERLDC

- ☐ Bus splitting of Kahalgaon, approved in the **24th ERPC** meeting on 27.04.2013 to reduce fault level but couldn't be operationalized due to the non-availability of 400/132 kV ICTs in Bus Sections for feeding auxiliaries of Stage-II units of Kahalgaon.
- ☐ As decided in **219th OCC** Meeting, a committee comprising of members from ERPC and ERLDC visited NTPC Kahalgaon on 17-10-2024 to assess the status of Bus splitting at 400kV level and way forward for operationalization of 400 KV Bus sectionalizer.
- ☐ After several follow-up & deliberation, segregation of auxiliary system at 132kV level for stage 2 was completed after commissioning of 400/132kV ICT 3 & 4 at Kahalgaon by NTPC in April 2026.
- ☐ **238th OCC decision:**OCC advised NTPC to strictly adhere to the submitted timeline(25 April 2026) for completion of bus splitting at 400 kV Kahalgaon station.
- ☐ Finally, bus split scheme was operationalized on **05.05.2026**.
- ☐ Impact assessment of Bus split was done, it is noticed that, following to the bus split, 16% power flow (50MW) increment was observed in each circuit of 400kV Farakka - Kahalgaon D/C. Similar, power flow increment was indicated in steady state power flow study.

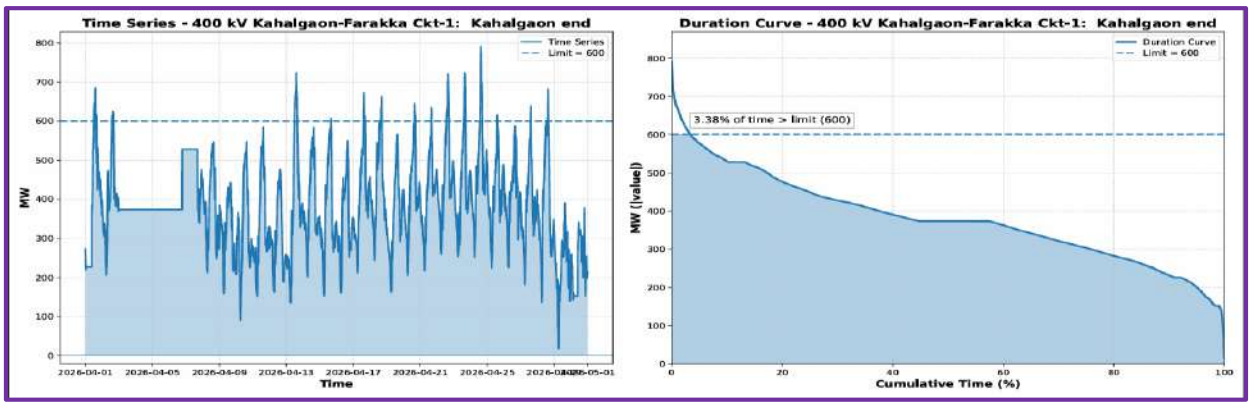


Figure 2-1: 400kV Farakka-Kahalgaon D/C power flow pattern (time Series & duration curve)

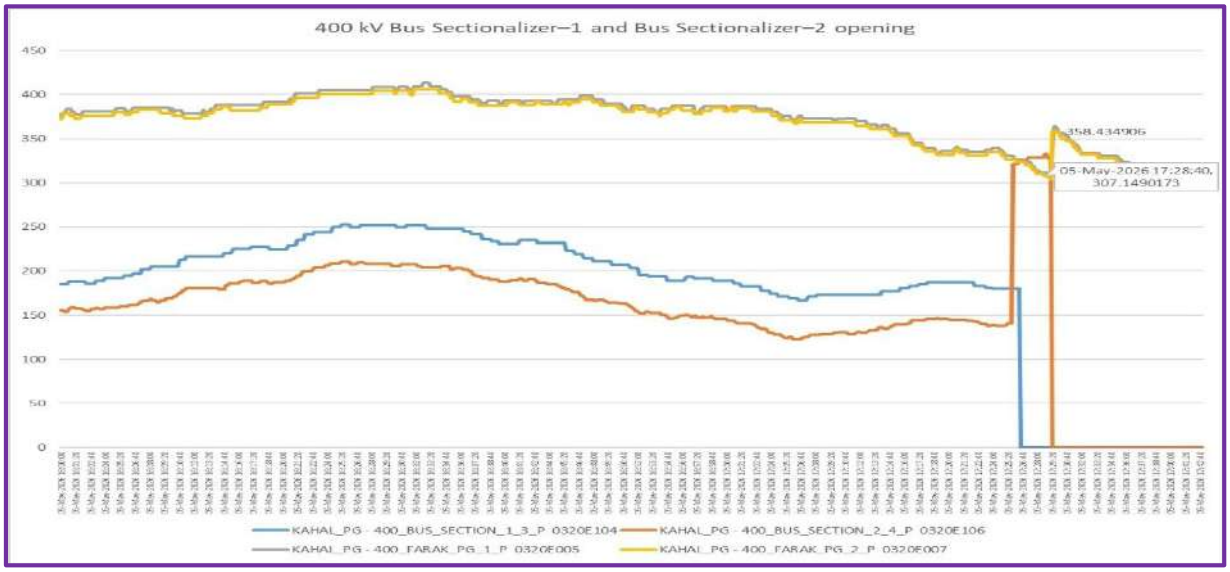


Figure 2-2: Power flow of 400kV Farakka-Kahalgaon D/C before & after Bus spit operationalization

- ☐ 400 kV Farakka–Kahalgaon D/C is a major power import corridor for West Bengal and remains critically loaded during solar hours, particularly during the summer season. A maximum power flow of 790 MW per circuit has been recorded with both circuits in service, rendering the corridor N-1 non-compliant.
- ☐ Although reconductoring of the 400 kV Farakka–Kahalgaon D/C corridor was planned for enhancing the corridor capacity, the work is yet to be completed. Under the present network condition, any additional increase of around 50–70 MW in line loading during peak summer may further aggravate the loading condition.
- ☐ **Keeping in view the anticipated high demand during the upcoming couple of months of peak summer period, a decision may be taken regarding operation of the Bus Sectionalizer at Kahalgaon considering both system reliability and fault level constraints.**

ERLDC and NTPC may update. Members may discuss.

2.4 Finalization of System Protection Scheme (SPS) for Godda TPS and Approval of Implementation Logic:ERLDC

- ☐ In the 236th OCC meeting dated 20.02.2026, under agenda item 2.4, the requirement for an SPS at Godda STPS was discussed and agreed upon to ensure grid stability following the steady-state interconnection studies. The minutes of that meeting established that while the broad philosophy was set, the final logic—including alarming conditions, time delays and trigger thresholds—would be determined through detailed dynamic and Electromagnetic Transient (EMT) simulation studies once the generator, exciter and governor models were provided. It was further mandated that the implementation of this SPS, along with the Kahalgaon bus splitting, must be completed prior to the interconnection of the Godda units.
- ☐ Following the submission of the requisite technical data, a comprehensive dynamic feasibility study was conducted to refine the protection requirements. To discuss the findings of this study and the resulting technical parameters, a coordination online meeting was held on May 5th, 2026, between ERLDC, ERPC, and Godda STPS. During this session, the simulation results were reviewed and SPS logic was finalized to ensure robust performance during various grid contingencies.
- ☐ The final recommendations and the specific SPS logic derived from these studies are presented below for the formal review and approval of the OCC.
  I. Protection to ensure faster fault clearance (not more than 100 msec. under any conditions).
  II. SPS needs to be implemented as per the logic below:

SPS-1: SPS for Godda Generation

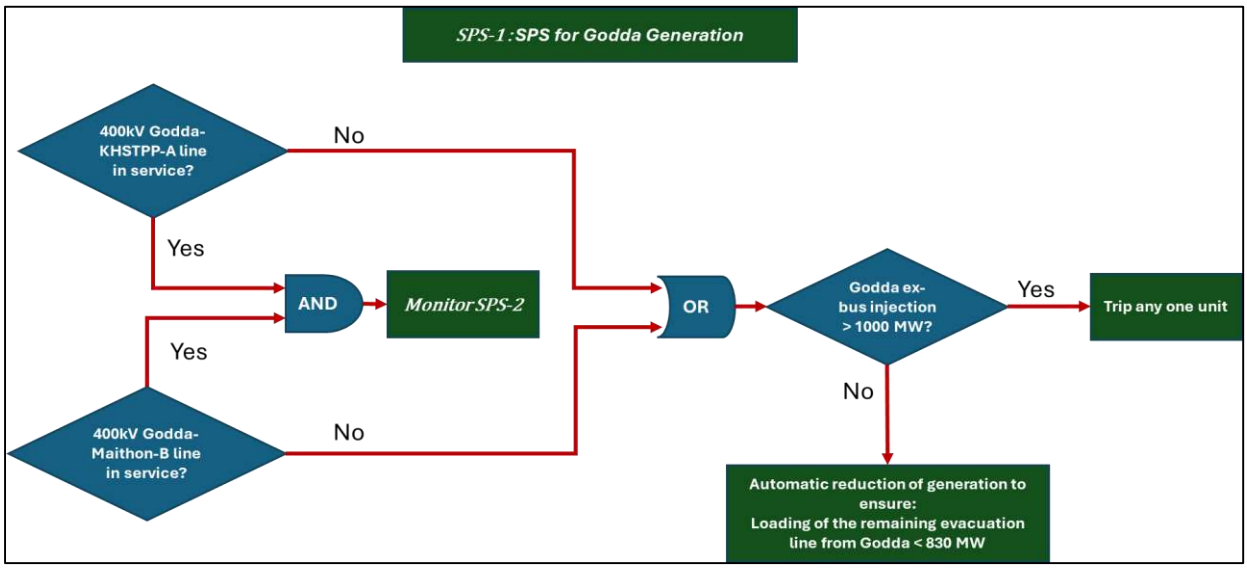


Figure 15: SPS-1 - SPS for Godda Generation

In case of tripping of any one evacuation paths from Godda (either 400kV Godda – KHSTPP-A or 400kV Godda – Maithon-B CKT), the loading in the remaining evacuation path is bound to go beyond the thermal limit of the line unless Godda net ex-bus injection is below 874 MVA.

In case of tripping of any one of the evacuation paths from Godda:

- If Godda ex-bus injection > 1000 MW = Trip any one unit
- If Godda ex-bus injection < 1000 MW = Automatic reduction of generation to tech. min. so that the loading in the remaining CKT goes below 830 MW (874 MVA, 0.95 pf)

SPS-2: SPS for Godda evacuation path

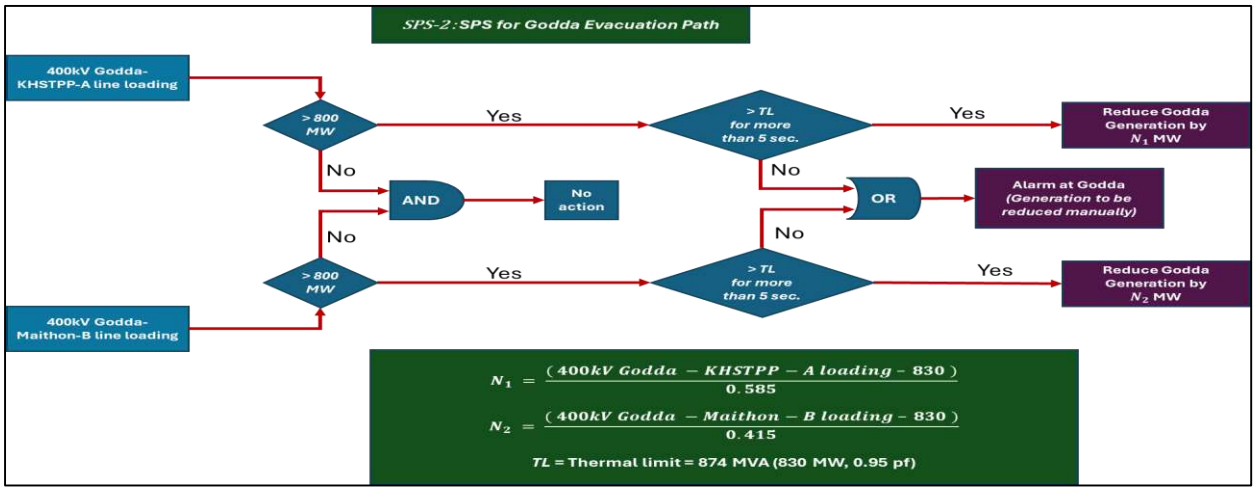


Figure 16: SPS-2 – SPS for Godda evacuation path

If both the lines from Godda are in service, in that case also, loading can reach beyond thermal limit in any one of the lines.

In such cases also, one SPS is required to be implemented such that:

- If the loading in any one of the lines crosses 800 MW, an alarm is to be set for manual reduction of generation.
- If the loading in any one of the lines crosses the thermal limit of 830 MW (8
- 74 MVA, 0.95 pf) for 5 seconds, then Godda generation may be reduced so that the loading goes below the thermal limit.
- Sensitivity of Godda generation on:
    - 400kV Godda – KHSTPP-A = 58.5%
    - 400kV Godda – Maithon-B = 41.5%

Godda STPP may implement the above agreed SPS logic before synchronisation of any Unit.

ERLDC may explain. Members may discuss.

2.5 Restoration issues i.r.o. 400kV PVUNL-Tenughat line: ERLDC

☐ 400KV PVUNL–Tenughat line tripped on single-phase to ground fault on 29.04.2026 at 15:16 hrs. Subsequently, the line was charged on 02.05.2026. Persistent high voltage at the 400 kV bus of Tenughat was observed to be the primary reason for delay in restoration of the line. Similar incidents of high voltage had also been observed earlier, wherein restoration and line charging could not be carried out after tripping of the line.

☐ To address the persistent issue, an online meeting was convened on 04.05.2026 to deliberate upon the difficulties faced during synchronization and restoration of the line. The meeting was attended

by representatives from ERLDC, SLDC Jharkhand, JUSNL, PVUNL and TVNL. Minutes of the meeting are enclosed at **Annexure–B.2.5**

☐ The following are the salient points of the meeting:

- At the Tenughat end, Auto Reclosure (A/R) was unsuccessful during the tripping event. Tenughat agreed to resolve the issue related to unsuccessful A/R operation.
- GT tap position at Tenughat was found to be maintained at '1' instead of the nominal position, which was identified as a major contributing factor for the high voltage observed at Tenughat buses. The forum advised Tenughat to maintain GT taps at the nominal position. Tenughat agreed to take up the matter with OEM, M/s BHEL, for detailed analysis and further corrective action.
- A standard operating procedure (SOP) for prompt restoration of the line following tripping was discussed and agreed upon by all stakeholders.

☐ Since the **400 kV PVUNL–Tenughat** line is an important line for reliability of the Jharkhand system as well as evacuation of PVUNL generation, the issue related to GT tap setting at Tenughat may be taken up on priority for necessary corrective action.

ERLDC may explain. Members may note and Jharkhand may update.

2.6 Transition of Scheduling & Accounting Functions of Patratu Stage-I from ERLDC to SLDC Jharkhand: ERLDC

☐ The Hon'ble CERC vide RoP for hearing dated 08.07.2025 against Petition No. 658/MP/2025 permitted ERLDC to carry out scheduling and accounting functions for Patratu Thermal Power Station, Stage-I (3x800 MW) as an interim arrangement till December 2025 or till operationalisation of SAMAST Portal of SLDC Jharkhand. Subsequently, vide RoP for hearing dated 19.12.2025, the Hon'ble Commission extended the interim arrangement up to June 2026 or till SAMAST becomes operational, whichever is earlier.

☐ At present, scheduling and accounting activities of PTPS-I are being carried out by ERLDC. As per the directions of Hon'ble CERC, scheduling and accounting activities of PTPS-I are to be taken over by SLDC Jharkhand after June 2026 or upon operationalisation of SAMAST, whichever is earlier. Thus, scheduling of PTPS-I shall not be undertaken by ERLDC beyond June 2026.

☐ In view of the above, SLDC Jharkhand is requested to provide information regarding readiness of the SAMAST portal at SLDC Jharkhand and their preparedness for taking over scheduling and accounting activities of PTPS-I from ERLDC.

ERLDC may explain. Members may discuss.

2.7 Replacement of CLR insulators of PMJTL lines: ERLDC

Replacement of faulty insulator (Decan make) in the In765 kV New Ranchi – Medinipur D/C, 765 kV Medinipur – New Jeerat D/C, 400 kV New Jeerat – Subhasgram D/C and 400 kV New Jeerat – Jeerat D/C transmission corridors has been discussed in various ER OCC meetings to ensure reliability of power supply to Kolkata and adjoining areas of South Bengal.

In **229th OCC** meeting, Powergrid submitted:

• Insulator failure in the 400 kV line is mainly due to insulator flashover and in the 765 kV line due to breakdown of insulator FRP rod.

• Following is the breakup of insulators installed in the PMJTL line:

Voltage level(kV)	Insulators	Decan insulators	Identified defective Decan insulators	Defective insulator replaced
765	58092	17795	1082	1044
400	16162	10273	3619	3500
Total	74254	28068	4701	4544

(As on 25.07.2025)

Long term planning: Replacement of balance Decan insulators (excluding the already replaced and identified defective ones) will be completed by Feb'26 for 400 kV lines and by Oct'26 for 765 kV lines.

• OCC took a serious note of the repeated failures of CLR insulators in the above-mentioned lines jeopardizing the critical power corridor of Kolkata.

• OCC advised Powergrid that Deccan make insulators being installed as replacement may be tested by any certified testing agency like CPRI to ensure its reliability and the testing certificate maybe shared with ERPC.

The matter was also referred to the 55th TCC/ERPC Meeting

As per 55th TCC meeting:

- ☐ Powergrid reiterated that the replacement of balance insulators for 400 kV lines will be completed before summer of 2026.
- ☐ SLDC, WB suggested that insulator replacement in railway crossings for 765 kV lines may be completed before commencement of summer as it would be difficult to allow emergency shutdowns during the summer. Powergrid agreed with SLDC WB and stated that they would submit the detailed action plan for replacement of insulators in strategic locations of 765 kV lines.

However, frequent emergency shutdown requests have been receiving i.r.o 765 kV New Ranchi – Medinipur D/C and 765 kV Medinipur – New Jeerat D/C lines.

In the short term, a suitable methodology needs to be finalized to address and manage these recurring emergency shutdown requests. A reconciliation of shutdowns availed for replacement of failed CLR insulators during the period from 01.04.2025 to 30.04.2026 is furnished below:

	Availed By ER-I		Availed By ER-II		Total	
Name of Element	No. of Times	Total Outage Duration (In Hrs)	No. of Times	Total Outage Duration (In Hrs)	No. of Times	Total Outage Duration (In Hrs)
400KV-JEERAT-NEW JEERAT-1	-	-	3	25.7	3	25.7
400KV-JEERAT-NEW JEERAT-2	-	-	5	49.0	5	49.0

400KV-NEW JEERAT-SUBHASGRAM(PG)-1	-	-	12	124.0	12	124.0
400KV-NEW JEERAT-SUBHASGRAM(PG)-2	-	-	1	14.9	1	14.9
Total SD of 400KV System					**21**	
765KV-MEDINIPUR-NEW JEERAT-1	-	-	16	110.8	16	110.8
765KV-MEDINIPUR-NEW JEERAT-2	-	-	12	96.1	12	96.1
765KV-NEW RANCHI-MEDINIPUR-1	5	40.4	10	80.3	15	120.8
765KV-NEW RANCHI-MEDINIPUR-2	5	29.4	15	117.1	20	146.5
Total SD of 760KV System					**63**	
Grand Total	**10**	**69.8**	**74**	**617.9**	**84**	**687.7**

- ☐ It is evident from the above table that POWERGRID has sought shutdowns of the **765 kV New Ranchi – Medinipur – New Jeerat corridor** as many as **63 times** during the **last one year**. Further, during the ongoing summer period alone, i.e., in April 2026, **7 nos** such emergency shutdowns have already been facilitated in real time, thereby exposing the system to high operational risk.
- ☐ In view of the above, a suitable modus operandi may be finalized for facilitating such shutdowns, particularly during the ongoing summer period, while ensuring reliability and security of the grid.

ERLDC may explain.PMJTL/Powergrid may update. Member may discuss.

2.8 Endangering Grid connectivity, security & stability of 400 KV Sundargarh-Raigarh Ckt – 3 & 400KV Sundargarh- Rourkela#1 D/C line near Sundergarh due to over crossing of dead LILO line of M/s Vedanta Ltd, Jharsuguda: Powergrid Odisha.

- ☐ As per the agreement dated 22.12.2010 between M/s Vedanta Ltd. And Powergrid, the connectivity to Vedanta Ltd sub-station was carried out from LILO of 400 KV Sundargarh- Raigarh D/C line # 3 between Tower No – 834 (DD+0) & 835 (DD+0) and 400 KV Sundargarh-Raigarh D/C line # 4 between Tower No – 299 (DD+0) & new Vedanta Tower No-VL3 (DD+0) was done during the year 2011. This activity was taken up as per direction of CERC and instruction of ERLDC/WRLDC in order to charge the Vedanta switchyard at Jharsuguda for sending and receiving of power at Vedanta end with CTU transmission system.

I. LILO-1 in 400KV Sundargarh-Raigarh Line #3 between existing tower No-834(DD+3) & 835(DD+0).
II. LILO-2 in 400KV Sundargarh-Raigarh#4 between tower No-299(DD+0) & towerno.298(DA+0) by inserting a Tower V1 (DD+0) in between Loc. 298 & 299 and over crossing POWERGRID 400KV Sundargarh-Raigarh#3 & 400KV Sundargarh- Raourkela#1 D/C line.

- ☐ After direct connectivity of Vedanta 400 KV sub-station with 765/400 KV sub-station of Powergrid at Sundergarh, the tapping points of LILO portion of line # 3 & # 4 was disconnected by M/s Vedanta Pvt. Ltd. In the year 2014 & 2017 respectively and direct connectivity for Powergrid was completed in above-mentioned LILO lines in 2022 & 2023 respectively. However, removal of over crossing conductor of LILO-2 over D/C line **400KV Sundargarh-Raigarh#3** & 400KV Sundargarh-Rourkela#1 is still pending.
- ☐ In this regard, the authority of **M/s Vedanta** has been informed many times to take necessary steps to de-string the over crossing line for keeping the tower in safe condition and to take urgent action for direct connectivity of both LILO points.
- ☐ M/s Vedanta submitted through email that they will use the LILO for CTU connectivity with POWERGRID Sundargarh S/s. But till date no proper approval has been submitted by them.
- ☐ In spite of several correspondences and discussions with M/s Vedanta Ltd., the over crossing lines have not been removed by them till date. This is causing severe danger to POWERGRID lines 400KV Sundargarh-Raigarh#3 & 400KV Sundargarh- Rourkela#1 line.
- ☐ POWERGRID submission: M/s Vedanta to remove the over crossing LILO line immediately so that there shall not be any damage to Powergrid system due to failure of over crossing conductors of dead LILO line.
- ☐ This agenda was submitted by POWERGRID, Odisha Projects for further deliberation in the **228th OCC** Meeting of ERPC held on 17.06.2025. During the discussion in the meeting. In the minutes of the meeting of **228th OCC** Meeting, it was advised to **refer the matter for discussion in the CMETS-ER** Meeting.

As per the minutes of the meeting of **228th OCC** Meeting, this issue was put up for inclusion in the agenda points of **CMETS-ER** Meeting, however, **CTU rejected this agenda point of POWERGRID, Odisha Projects citing the reason that, the issue does not require any technical deliberation in the CMETS-ER Meeting**.

Submitted again for further deliberation on the matter.

Powergrid Odisha may explain. Members may discuss.

2.9 Shutdown of 400 KV Baripada-Duburi-Pandiabili line: Powergrid Odisha.

- ☐ Shutdown of both 400kV Baripada-Pandiabili Line and 400kV Pandiabili-Duburi Line were approved in the 237th OCC Meeting of ERPC for the month of April'2026 for the replacement of old Decosil Polymer insulator at Location No.- 665 inside the river Mahanadi and at other locations identified as critical in thermovision scanning.
- ☐ The shutdown of both transmission lines requested by POWERGRID in April 2026 was denied by ERLDC due to prevailing system constraints, as such an outage would have impacted grid stability. Moreover, the shutdown window that was allotted was not feasible for execution since the required work was scattered across multiple locations, making it impractical to complete within the given time frame.
- ☐ In July 2025, one CLR at location no. 665 of the 400 kV Duburi–Pandiabili line, situated inside the Mahanadi River, was de-capped under forced water flow conditions, creating severe challenges for the POWERGRID team during replacement; learning from that experience, the team has now scheduled the replacement of the other CLR at the same location for April 2026, when water levels

and flow are expected to be lower, thereby reducing risks and easing logistics for safe and efficient execution.

- ☐ As per POWERGRID maintenance standards, thermovision monitoring of CLRs has revealed 12 CLRs as critical, with insulators under severe electrical stress due to continuous high loading and adverse weather conditions; hence, immediate replacement of these components is essential to prevent potential failures that could otherwise result in forced outages and compromise overall system reliability.
- ☐ Considering the above facts, it is requested to grant permission for availing the shutdown of both 400kV Baripada-Pandiabili Line and 400kV Baripada-Duburi Line at the earliest for improvement of reliability and preventive maintenance of both the critical lines.

Powergrid Odisha may explain. Members may discuss.

2.10 Shutdown of 400 KV Rourkela-Talcher line: Powergrid Odisha.

- ☐ Shutdown of both 400kV Rourkela-Talcher Ckt 1 & 2 were approved in the 238th OCC Meeting of ERPC for the month of May'2026 for the replacement of old Decosil Polymer insulator and identified CLR insulator as critical in thermovision scanning.
- ☐ The shutdown of both transmission lines requested by POWERGRID in May 2026 was denied by ERLDC due to prevailing system constraints, as such an outage would have impacted grid stability. Moreover, the shutdown window that was allotted was not feasible for execution since the required work was scattered across multiple locations with geographically challenging, making it impractical to complete within the given timeframe.
- ☐ That's a very concerning observation. Seven numbers of CLR de-capping incidents on both 400 kV Rourkela–Talcher circuits within a single financial year 2025-26 is indeed significant.
- ☐ As per POWERGRID maintenance standards, thermovision monitoring of CLRs has revealed 332 CLRs as critical, with insulators under severe electrical stress due to continuous high loading and adverse weather conditions; hence, immediate replacement of these components is essential to prevent potential failures that could otherwise result in forced outages and compromise overall system reliability
- ☐ Considering the above facts, it is requested to grant permission for availing the shutdown of both 400kV Rourkela-Talcher#1&2 Line at the earliest for improvement of reliability and preventive maintenance of both the critical lines.

Powergrid Odisha may explain. Members may discuss.

2.11 Diversion of RPC approved Spare Transformers and Reactors to the constituents / State Transmission Utilities: ERPC

- ☐ **Chairperson, CEA/NPC** opined that private Transmission Service Providers (TSPs) may be considered for diversion of RPC approved spare transformers and reactors on a case-to-case basis, subject to discussion in the respective Regional Power Committee (RPC) forum.
- ☐ **Chairperson, CEA/NPC** further suggested that a suitable mechanism for periodic rotation/usage of spare transformers and reactors within the utility or among the constituents / State Transmission Utilities (STUs) may be explored. This would ensure that spare transformers and reactors do not remain unused for prolonged periods and become too old without operational utilization.

☐ It was suggested that all RPCs may review the existing Standard Operating Procedures (SOPs) prepared by SRPC (attached at **Annexure-B.2.11**) and NRPC (attached at **Annexure-B.2.11**) in their respective forums, obtain comments from stakeholders, and submit their suggestions. The matter may thereafter be deliberated in the Operation Sub-Group of the NPC for finalization of a uniform SOP at the national level.

As per 17th NPC decision:

➢ All RPCs to explore a suitable mechanism for periodic rotation/usage of spare transformers and reactors within the utility or among the constituents / State Transmission Utilities (STUs) and also examine the inclusion of Private Transmission Service Providers in the scheme. All RPCs may also review the existing Standard Operating Procedures (SOPs) prepared by SRPC and NRPC in their respective RPC forums.

Members may discuss.

2.12 Multiple shutdown proposals for re-orientation of lines connected to New Purnea due to change of river course: ERLDC

☐ Multiple shutdown proposals of transmission lines connected to a single node of 400 kV New Purnea S/S were proposed by the transmission utilities of ER for carrying out tower shifting/pile foundation works necessitated due to change in river course, during the 238th OCC Meeting held on 17.04.2026 at ERPC Secretariat.

☐ Considering the criticality of the corridor and the simultaneous shutdown requests from the same node, OCC opined that a special meeting involving all stakeholders may be convened to finalize the planned shutdown schedule while ensuring grid security and reliability.

☐ Accordingly, an online meeting was convened with the concerned transmission licensees on 20.04.2026 to assess the shutdown requirements and prepare a shutdown plan considering network security and reliability.

Shutdown proposals submitted by the respective licensees are as follows:

Name of Transmission Line	Owner	Reason	Continuous Shutdown Period
400kV N. Purnea-Muzaffarpur D/C	POWERLINKS	Shifting to pile foundation for change of course of River Kamala Balan	27.05.26 – 20.06.26
400kV N. Purnea-Farakka & 400kV N. Purnea – Gokarno	POWERGRID ER-I	Shifting line to pile foundation caused due to river erosion	15.05.26 - 25.06.26 (Plan A: 2 Piles + 1 Normal) 15.05.26 – 10.06.26 (Plan B: 1 Pile +2 Normal)
400kV N. Purnea-Binaguri D/C	POWERGRID ER-II	Shifting to pile foundation for change of course of River Parman	20.06.26 – 04.07.26

During the meeting, the following points were confirmed by the respective licensees:

- All the concerned licensees confirmed that the shutdowns of the above-mentioned transmission lines involve pile foundation works of towers, which are required to be completed before the onset

of monsoon for better site accessibility. Hence, simultaneous shutdown requirements cannot be avoided.

- It was also confirmed by the respective indenters that deployment of temporary ERS is not feasible to keep the lines in service due to non-availability of adequate space near the riverside and the continuous stretch of span involving river crossings.

Although availability of all these lines is essential during the hydro season, considering the vulnerability of towers and the necessity of simultaneous shutdowns, the following proposal may be deliberated:

- Shutdown of 400 kV New Purnea – Muzaffarpur D/C and 400 kV New Purnea – Farakka & 400 kV New Purnea – Gokarno may be allowed, subject to strict adherence to the approved shutdown schedule without any time overrun.
- Temporary shorting arrangement for creation of a 400 kV Farakka – Gokarno line may be ensured for reliability of power supply at Gokarno, as requested by SLDC West Bengal.
- Shutdown of 400 kV New Purnea – Binaguri D/C is proposed to be avoided during the present period due to the potential threat of islanding of ER–NER system along with Bhutan and Sikkim hydro generation. Shutdown of 400 kV New Purnea – Binaguri D/C may instead be considered during the lean hydro season, i.e., during November 2026 – January 2027.

ERLDC may explain. Members may discuss.

2.13 Certification of 400 kV STU Lines of OPTCL as Non-ISTS Lines Carrying ISTS Power: OPTCL

OPTCL had filed a petition before CERC for approval of transmission tariff for the period 2014–19 in respect of the following nine Non-ISTS lines owned by OPTCL, which are carrying ISTS power, for inclusion in the computation of PoC charges and losses in accordance with the **CERC (Sharing of Transmission Charges and Losses) Regulations, 2010.**

Sl. No	Line Name	Voltage Level	Connecting Status	Ckt. Kms	Type Conductor	DOCO
1	Indravati–Indravati PG SC	400KV	Odisha, AP	3.970	Twin ACSR Moose	1999
2	Rengali–Keonjhar- SC	400KV	Odisha, WB	115.530	Twin ACSR Moose	1995
3	Keonjhar–Baripada-SC	400KV	Odisha, WB	104.243	Twin ACSR Moose	1995
4	Baripada–Kharagpur (Up Odisha Border)-SC	400KV	Odisha, WB	21.727	Twin ACSR Moose	1995

Sl. No	Line Name	Voltage Level	Connecting Status	Ckt. Kms	Type Conductor	DOCO
5	Jaynagar–PGCIL-DC	220KV	Odisha, CTU	15.460	ACSR Zebra	1990
6	Rengali–Rengali PGCIL-DC	220KV	Odisha, CTU	2.000	ACSR Zebra	1997
7	Balimela PH–Upper Sileru	220KV	Odisha, AP	24.760	ACSR Zebra	1982
8	Joda–JSPL SC	220KV	Odisha, JSEB	14.110	ACSR Zebra	1984
9	Joda–Kenduposi SC	132KV	Odisha	49.900	ACSR	1985

The Hon'ble CERC, vide order dated 26.02.2025 in Case No. 288/TT/2023, has approved the tariff of seven lines and recommended their inclusion in the computation of PoC charges. It may be noted that the Balimela PH-Upper Sileru line was considered under idle charges, and the Rengali-Rengali PGCIL-DC line was not considered, which appears to be inadvertent and will be apprised to the Hon'ble Commission in the subsequent tariff filing.

In this regard, it is submitted that the following regulatory provisions were considered by the Hon'ble CERC for inclusion of the above assets as **non-ISTS lines owned by OPTCL carrying ISTS power**.

Para 2.1.3 of Annexure-I of the 2010 Sharing Regulations provides as under:

"*Certification of non-ISTS lines carrying inter-State power, which were not approved by the RPCs on the date of notification of the Central Electricity Regulatory Commission (Sharing of Transmission Charges and Losses) Regulations, 2009, shall be done on the basis of load flow studies. For this purpose, STU shall put up proposal to the respective RPC Secretariat for approval. RPC Secretariat, in consultation with RLDC, using WebNet Software would examine the proposal. The results of the load flow studies and participation factor indicating flow of Inter State power on these lines shall be used to compute the percentage of usage of these lines as inter State transmission. The software in the considered scenario will give percentage of usage of these lines by home State and other than home State. For testing the usage, tariff of similar ISTS line may be used. The tariff of the line will also be allocated by software to the home State and other than home State. Based on percentage usage of ISTS in base case, RPC will approve whether the particular State line is being used as ISTS or not. Concerned STU will submit asset-wise tariff. If asset wise tariff is not available, STU will file petition before the Commission for approval of tariff of such lines. The tariff in respect of these lines shall be computed based on Approved ARR and it shall be allocated to lines of different voltage levels and configurations on the basis of methodology which is being done for ISTS lines*."

- ☐ In line with the above directions, ERPC, vide letter dated **12.10.2018**, had provided certification of non-ISTS lines carrying inter-state power for the period from FY 2014-15 to 2018-19.

- Following the order dated 26.02.2025, OPTCL requested ERPC, vide letters dated 30.07.2025 and 12.09.2025, to provide certification for the periods 2019-24 and 2024-29, respectively, in line with the above regulatory provisions, for filing the tariff petition before CERC. However, OPTCL has not received the required certification from ERPC to date.

- In the **231st OCC** meeting of ERPC held on 22.09.2025, it was decided that OPTCL would submit the availability percentage and tripping data of the above transmission lines for FY 2019–24 (extract enclosed as Annexure-01). Accordingly, OPTCL, vide Letter No. 341 dated 15.12.2025, has submitted the details of the above lines (copy enclosed as **Annexure-B.2.13**).

- ERPC, vide email dated 26.03.2026, has informed that, as per the CERC Tariff Regulations, the verification of non-ISTS lines carrying ISTS power falls under the purview of CTUIL. RPC shall certify the same only after receipt of the verified status of such lines.

- With reference to the above, it may be noted that CTUIL, vide letter dated 26.08.2025, has stated that once the transmission charges of non-ISTS lines are included in the ISTS pool, **the availability of such lines needs to be verified by the respective RPC, and recovery of tariff should be linked to their availability, for which the necessary mechanism may be put in place by the RPCs.**

- **CERC further directed that YTC of such intra State Lines shall be included in the PoC Pool based on the availability of each of the lines as certified by the RPCs in terms of the provisions under the 2014 tariff Regulations and the 2019 Tariff Regulations, as applicable**.

- Further, Clause 5 of Regulation 93 of Tariff Regulation, 2024 applicable for 2024-29 Tariff block also provides that Tariff of Non-ISTS lines carrying Inter-State Power shall be approved based on provisions of these Regulations, and the fixed charges of such system shall be allowed based on the availability as certified by respective RPCs shall be allowed to be recovered as per the mechanism specified in **CERC (Sharing of Inter-State transmission Charges and Losses) 2020.**

- In the absence of availability certificate of intra-state/natural ISTS lines of STUs, CTU is including transmission charges of intra-state/natural ISTS lines in ISTS pool on normative availability basis i.e without any incentive/penalty, however, in light of CERC orders and provisions of Tariff Regulations, 2024, recovery ISTS charges to STU is subject to the availability of transmission system as certified by RPCs. Any under recovery / over recovery on account of certified transmission system availability needs to be adjusted in ISTS pool to comply the CERC direction/ Regulations.

- In view of all above, all STUs whose intra-state lines /natural ISTS lines are included in ISTS system as per CERC Sharing Regulations, 2020 are requested to obtain availability certificate of their intra-state lines/natural ISTS lines from respective RPCs as directed by CERC in tariff orders/provisions

of tariff Regulations, 2024 and submit the same to CTU for necessary adjustment in ISTS pool. Copy of the letter is attached at **Annexure-B.2.13**

☐ **Since the views of CTUIL, as conveyed vide letter dated 26.08.2025, differ from those of ERPC, as communicated via email dated 26.03.2026, the matter is placed before the 239th OCC Meeting for further deliberation, as OPTCL has been incurring revenue loss since 01.04.2019.**

OPTCL may explain. Members may discuss.

2.14 NOC for Crossing of 765 kV D/C Angul-Paradeep and Angul-Gopalpur Transmission Lines over JIPL's 400 kV D/C Angul-DER Transmission Line: JITPL

☐ This is with reference to the proposals submitted by **TP Paradeep Transmission Limited and TP Gopalpur Transmission Limited seeking issuance of a No Objection Certificate (NoC) for crossing their 765 kV D/c transmission lines over JIPL's existing 400 kV D/C Angul-DER transmission line.**

☐ At the outset, it is respectfully submitted that JIPL's aforesaid 400 kV D/C transmission line constitutes the sole evacuation corridor for its 2 x 600 MW generating station, presently operating at full load, with the entire 1200 MW generation capacity being evacuated through the said line and no alternate evacuation arrangement presently available. Any outage, disruption, derating, shutdown, or operational disturbance to this line would therefore have serious technical, operational, commercial, and grid stability implications, affecting not only JIPI, but also downstream beneficiaries and grid stakeholders.

☐ The proposed crossing involves Extra High Voltage (EHV) transmission infrastructure over an operational generating evacuation corridor carrying 1200 MW continuously. Such crossing activity inherently involves substantial engineering complexity and operational sensitivity.

☐ OCC may deliberate and provide guidance inter alia on:

- Treatment of deemed availability/generation in case of disruption during Execution.
- Recovery mechanism for fixed and variable charges under affected PPAs.
- Framework for liability, indemnity and insurance obligations.
- Minimum standards for ToR/Crossing Agreement.
- Compliance verification of statutory/regulatory approvals.
- Technical standards and safety protocols for live-line execution.

Details enclosed at **Annexure B.2.14.**

JITPL may explain.Member may discuss.

2.15 Demolition & reconstruction of Residential Quarters at Rengali, Jeypore and Indravati Substations under O&M ADD-CAP 2024-29 block under Jeypore Talcher Transmission System: Powergrid Odisha

- ☐ Under the **Jeypore-Talcher Transmission System (JTTS)** Project, Rengali, Jeypore and Indravati Substations in Odisha were constructed and are in operation since 1990. These stations have already completed more than 35 years of service.
- ☐ As part of this project, in addition to Substation equipment's, Residential Buildings were constructed at Rengali, Jeypore and Indravati for accommodation of employees and were allotted to employees in these years. These residential buildings have already completed more than 35 years of life.
- ☐ In spite of regular maintenance now, due to ageing these residential buildings are in dilapidated condition i.e. cracks in roofs, walls & floors, seepage in roofs & walls, wear & tear of window/ doors, cisterns etc. have developed. Present condition of these residential quarters has become uninhabitable and unsafe for the employees & their family members.
- ☐ Further, as Rengali, Jeypore and Indravati Substations are vital nodes in Eastern Grid, staff quarters are very much essentially required considering reliable operation of these vital sub-stations and Grid security aspects.
- ☐ In view of the facts mentioned above, it is proposed to demolish some of these staff quarters which are in uninhabitable & unsafe condition and construct some new quarters as per the present manpower policy. Tentative estimated cost for the said work comes at all the 3 No. above mentioned substations comes to around ₹ 21 crores.
- ☐ Considering the above facts, it is requested for kind consideration for approval of ERPC for demolition and reconstruction of Residential Quarters at Rengali, Jeypore and Indravati Substations under O&M ADD-CAP 2024-29 block under Jeypore Talcher Transmission System (JTTS).

Powergrid Odisha may explain. Members may discuss.

2.16 Shutdown proposal of Thermal generating units: ERPC

Shutdown request of Kamalanga TPS: GMR

- ☐ The boiler operating licence of Unit 2 is expiring on **23rd July 2026** and **Unit 1** is expiring in **27th July 2026** .
- ☐ Moreover , in critical safety and reliability consideration, GKEL Uni#2 is facing significant operational challenges due to incipient risk to stable furnace pressure control caused by increasing in Bag Filter DP and reduced the operating margin of the ID Fan. With respect to the progression of parameters ,extending the operation of the Unit-2 beyond June 3rd week will pose a risk to safety and reliability of the unit.
- ☐ Considering that GKEL Unit#1 Boiler license is expiring on **July 27th**, we are forced to take an maintenance outage of Unit 2 from June 3rd week/last week and bring it back before Unit 1 license expiration.
- ☐ **In view of the critical safety, reliability, and statutory compliance considerations, it is requested , kindly give approval for taking Unit-2 for annual overhauling as proposed from June 21st 2026 for a duration of 22days.**

Sl. No.	Plant/Unit Name	Capacity (MW)	Shutdown Proposal Period from Generators
2	GMR U#2	350	21.06.2026 to 12.07.2026
3	GMR U#1	350	19.07.2026 to 09.08.2026

GMR may explain. Members may discuss.

Other ER thermal generating utilities may also update on schedule of planned shutdown. Members may discuss/update.

2.17 Certification of FRO in respect of DVC Generating Stations for FY-2026-27: DVC

- ☐ In line with the Clause No. 4.4 (b) of the CERC Approved NLDC procedure for computation of Average Monthly Frequency Response Performance, Beta 'β', SLDCs have been directed to assess the FRO (Frequency Response obligation) in respect of the Generating Stations, whose tariff is determined by CERC & falling under jurisdiction of the SLDC. Accordingly, SLDC, DVC has proposed the following methodology for distribution of FRO among all the DVC Generating Stations since these generators are under Section 62 of the EA-2003.
- ☐ FRO as allotted to the DVC State is = **459 MW/Hz** for **Solar Hrs** & **295 MW/Hz** for **Non-Solar Hrs for FY-2026-27 [ref. Annexure-B.2.17: *NLDC notification of Assessment of FRO of each control area under RLDC jurisdiction for FY-2026-27, Revision-2*]**.

Step-I: The Total MU demand-met data of DVC Control area has been computed from the SCADA for last FY and accordingly average MW demand data has been assessed.

Step- II: It has been assumed that ~ 4% of the Average demand contributes to the DVC C/A frequency response during any Frequency excursion event - Demand Response. **Ref.** : Methodology-III of the **Minutes of 48th FOLD meeting** (Annexure-B.2.17) produced below:

Method-III of 48th FOLD Minutes

FRO = (Average Generation of individual generating station/ (Sum of Avg. generation of all considered generating stations)) X (FRO allotted to state control area - Demand Response (=4% of Avg. Demand per Hz))

The demand response to be considered equal to the maximum 4% of Average Demand per Hz.

Step -III : The remaining FRO will be accountable to the Generating Stations under DVC Control area:

= (FRO allotted to DVC C/A – Demand Response of 4%)

Step- IV: Total MU Generation and the Avg. MW Generation for each Station has been computed based on the monthly ORT Report, as received from Corporate OS Dept., DVC of the last FY. The remaining FRO has been allocated among the Plants in pro-rata of Avg. MW Generation for each station, as derived from the monthly ORT reports.

The detail computation & station-wise FRO figures has been depicted in the below table:

The Ex-bus Generation data of Generating Stations in MU for Last FY (2025-26) :

AG(MU)	Data Source ORT Data from Stations												
	BTPS	DSTPS	KTPS	RTPS	CTPS	MTPS-7	MTPS-7&8	MTPS-5	MTPS-6	MTPS-5&6	MTPS-1-3	MTPS-4	Total Thermal Generation
Apr-25	0.00	537.04	580.44	612.48	255.83	283.06	547.20	138.75	129.16	267.91	294	115	3209
May-25	72.12	525.86	531.15	489.32	263.54	268.36	511.16	109.25	131.55	240.80	310.78	115.10	3060
Jun-25	244.24	423.30	446.88	607.68	157.75	261.32	499.75	139.27	137.95	277.22	307.02	115.18	3079
Jul-25	282.15	536.95	531.45	588.66	119.48	240.15	506.80	130.06	128.57	258.63	328.11	111.92	3264
Aug-25	284.90	386.77	508.65	582.00	150.45	261.92	523.45	123.69	123.90	247.59	304.10	108.98	3097
Sep-25	261.54	388.88	447.94	371.53	205.45	250.74	500.58	119.61	101.05	220.65	321.55	104.51	2823
Oct-25	275.58	494.06	460.21	324.85	233.82	248.37	501.69	116.47	114.84	231.31	293.29	103.85	2919
Nov-25	107.47	435.18	494.09	382.83	236.24	249.19	495.34	121.45	120.41	241.86	297.46	28.28	2719
Dec-25	296.04	523.03	413.51	618.09	294.57	268.65	537.42	133.97	120.20	254.17	329.14	53.03	3319
Jan-26	170.77	538.25	303.41	573.82	303.96	270.42	517.12	120.24	48.76	168.99	221.49	116.85	2915
Feb-26	214.12	480.37	444.50	534.79	271.25	226.34	459.87	123.69	25.35	149.05	193.25	108.99	2856
Mar-26	191.29	586.29	532.80	731.64	322.57	0.00	268.52	142.40	132.84	275.23	226.22	124.00	3259
Total MU	**2400**	**5856**	**5695**	**6418**	**2815**	**2829**	**5869**	**1519**	**1315**	**2833**	**3426**	**1205**	**36518**
Avg. MW	**274**	**668**	**650**	**733**	**321**	**323**	**670**	**173**	**150**	**323**	**391**	**138**	**4169**

Accordingly, Station-wise FRO has been segregated as below for **FY-2026-27**:

FRO	Solar Hrs	Non-Solar hrs
DVC State	**459**	**295**
DVC Avg. Demand (MW) *[*Average DVC Demand of 2025-26 is ~2830 MW. Extrapolated as 2900MW in 26-27]*	**2900**	**2900**
DVC Avg. generation (MW)	**4169**	**4169**
Demand Response (4% of Avg. Demand)	**116**	**116**

Required Generator Response (State FRO - Demand Response)	343	179

Station	Solar Hrs	Non-Solar Hrs
BTPS	23	12
DSTPS	55	29
KTPS	53	28
RTPS	60	31
CTPS	26	14
MTPS-7&8	55	29
MTPS-5&6	27	14
MTPS-1-3	32	17
MTPS-4	11	6
	343	**179**

MTPS-5	14	7
MTPS-6	12	6
MTPS-7	27	14

This is placed for necessary approval of the Forum.

DVC may explain. Members may discuss.

2.18 Data Collection for monitoring Pan-India Captive Generating Capacity: ERPC

- Present electricity generation figures reflect only the power generated by the utilities and do not capture the gross electricity generation from Captive Power Plants (CPPs). Accounting for generation from these sources is essential to arrive at a comprehensive assessment of total energy generation and actual power consumption beyond utility-based generation.
- In the meeting taken by **Secretary (Power**), Govt of India on **17.12.2025**, it was decided that the State Chief Electrical Inspectors (CEIs) / State Load Despatch Centres (SLDCs) shall act as the nodal agencies for collection of **Captive Generation** & **Open Access** data for their respective States.
- At present, the **Central Electricity Authority (CEA)** collects details of **Captive Power Plants** having an **installed capacity of 0.5MW** and above in Format-21 prescribed under **Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007.**
- In order to collect monthly data of captive generation, an online portal (**https://intranet.cea.gov.in/captiveNew/)** for data collection has been developed in CEA and the

monthly data collection process needs to be streamlined through this portal with the involvement of **Regional Power Survey Offices (RPSOs).**

☐ The current status of CPP registration for Eastern Region is as follows:

1. Total No. of CPPs as per Format 21 replies in FY2024-25: 226 Nos.
2. No. of CPPs registered on the portal from FY2024-25 list: 125 Nos.

It is requested that concerned utilities may ensure that all CPPs under their jurisdiction get registered on the said portal at the earliest and ensure timely submission of monthly captive generation data.

Members may discuss.

3. PART-C: ITEMS FOR INFORMATION

3.1. ER Grid performance during March 2026

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month April -2026 were as follows:

AVERAGE CONSUMPTION (MU)	MAXIMUM CONSUMPTION(MU)/ DATE	MAXIMUM DEMAND (MW)	MINIMUM DEMAND (MW)	SCHEDULE EXPORT	ACTUAL EXPORT
		DATE / TIME	DATE / TIME	(MU)	(MU)
632 MU	723 MU, 25.04.2026	32758 MW, 24.04.2026 at 22:41 Hrs.	16679 MW, 29.04.2026 at 20:59 Hrs.	1073	1423

ERLDC/ERPC may highlight the performance of the ER grid.

3.2. Non-Submission of FRC data in stipulated time-frame: ERLDC

Adhering to IEGC clauses 30.8 and 30.10.(a) to 30.10.(q), generating stations within the Eastern region are required to submit essential data to ERLDC within two days of receiving a notification regarding a reportable frequency event. Additionally, according to clause 30.10.(n), all control areas within the eastern region must assess their frequency response characteristics and share the evaluation, along with high-resolution data, with the ERLDC. Therefore, timely submission of primary response data is crucial for compliance with the IEGC.
Hence all are again requested to follow the stipulated timeline and submit the data to ERLDC and also fill the google sheet below to include the email address where notifications of reportable events should be sent.

The latest data receipt status is given below: (as on **07.05.2026)**:

STATIONS		14.01.2026 13:38 hrs	14.01.2026 14:05 hrs	14.01.2026 14:09 hrs	30.01.2026 11:08 hrs	13.02.2026 12:14 hrs	22.02.2026 22:56 hrs	22.02.2026 23:00 hrs	03.03.2026 11:42 hrs	13.04.2026 11:00 hrs
FSTPP #STG 1 & 2	ISGS									
FSTPP # STG 3	ISGS									
KhSTPP #STG 1	ISGS									
KhSTPP #STG 2	ISGS									
TSTPP #STG 1	ISGS									
Barh stage-1	ISGS									
Barh stage-2	ISGS									
BRBCL	ISGS									
Darlipalli	ISGS									
North Karanpura	ISGS									
NPGC	ISGS									
TEESTA V	ISGS									
PVUNL	ISGS									
Dikchu	IPP									
IBEUL (JSW UTKAL)/INDBHARAT	IPP									
GMR	CPP									
MPL	CPP									
ADHUNIK	CPP									
JITPL	CPP									
TEESTA III	CPP									
Bihar	STATE									
Jharkhand	STATE									
DVC	STATE									
OPTCL	STATE									
WB	STATE									

Updated as on	07.05.2026
	Received
	Not Received
	Plant Out
	Data freeze at plant

Hence all are again requested to follow the stipulated timeline and submit the data to ERLDC and also fill in the google sheet below to include the email address where notifications of reportable events should be sent.

https://docs.google.com/spreadsheets/d/1slvAOmQIEQVlMn0LnB78eKMa2sz2QYICZ-sPEpeV_jk/edit?usp=sharing

238th OCC Decision: -

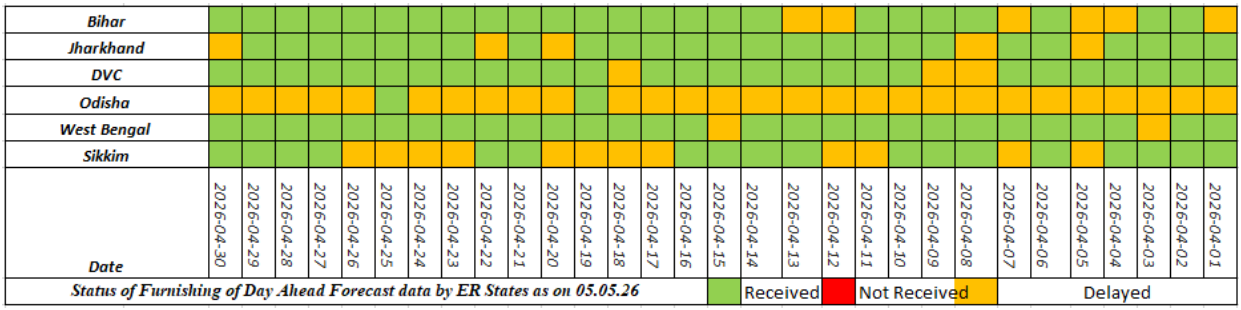
- All generators were advised to regularly share high resolution data against each reportable frequency event with ERLDC on time to facilitate accurate assessment of FRP for respective control areas.
- All generating utilities were also urged to update the google sheet (link mentioned above) with email address where notifications of reportable events will be shared.

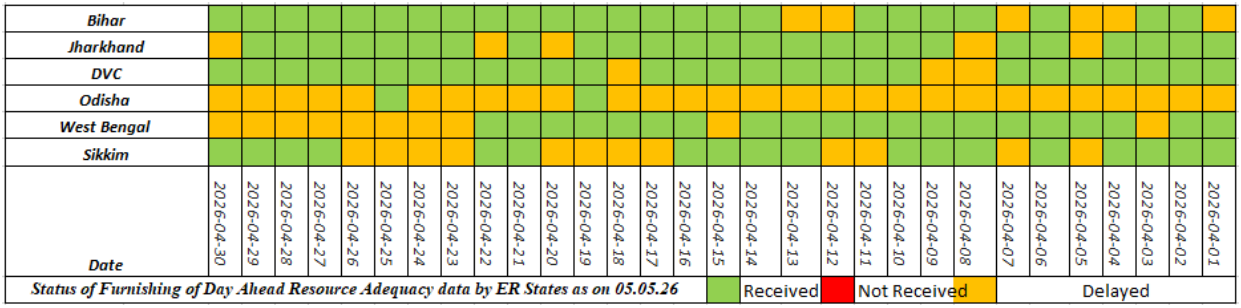
ERLDC may explain and all SLDCs may update. Members may discuss.

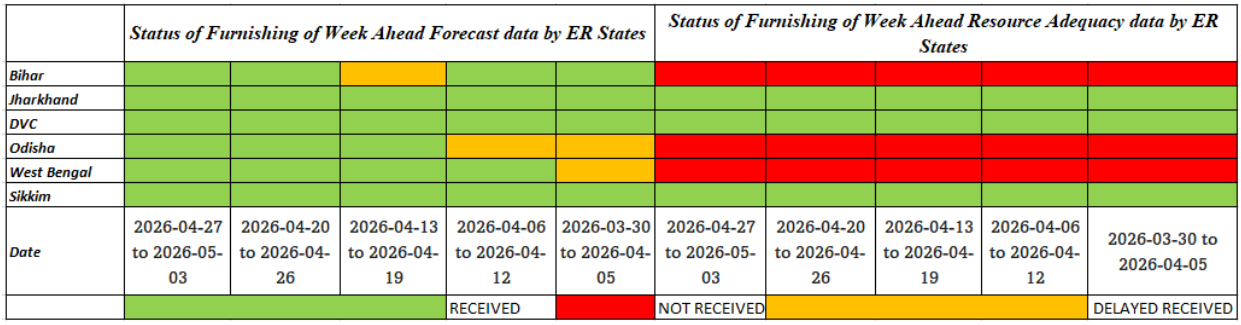
3.3. Regarding Non-Submission of Forecasting Data from States: ERLDC

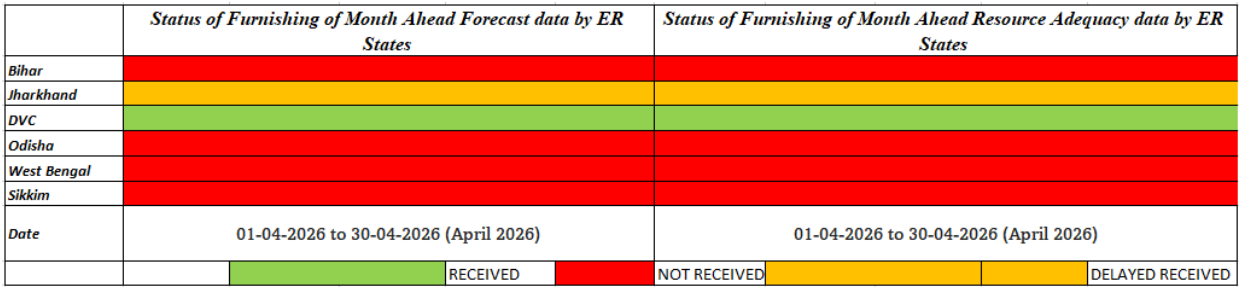
Clause 2 of **Regulation 31** of **IEGC 2023** has mandated all the SLDCs to timely submit the demand estimate data to the respective RLDC and RPC.

Current data submission status is given in the table below: Hence it is again requested to all the concerned for timely submission of demand estimation data to ERLDC. This collaboration is essential for effective planning and preparedness to meet the region's electricity demands efficiently and reliably. Latest Forecast and Resource Adequacy Data receipt status at ERLDC is shown below:









238th OCC Decision: -

- ✓ OCC advised all SLDCs for strictly adhering to the schedule of demand estimation as mandated in IEGC 2023, timely sharing with ERLDC in specified format as well as uploading of forecasting error on their respective websites.
- ✓ SLDCs who are submitting day ahead forecast was advised to also share the forecasting data for their respective control areas on weekly as well as monthly basis with ERLDC.
- ✓ All SLDCs were urged to regularly furnish resource adequacy data besides demand forecast.

ERLDC may explain and all SLDCs may update. Members may discuss.

4. PART-D: OPERATIONAL PLANNING

4.1. Major Thermal Generating Units/Transmission Element outages/shutdown in ER Grid (as on 07-05-2026)

SL No	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	FSTPP	WEST BENGAL	NTPC	3	200	Problem in Excitation System	06-Apr-2026
2	NORTH KARANPURA	JHARKHAND	NTPC	2	660	High vibration and abnormal sound from HP Turbine	24-Mar-2026
3	BAKRESHWAR	WEST BENGAL	WBPDCL	1	210	BTL and other allied maintenance jobs.	06-May-2026
4	BARAUNI TPS	BIHAR	NTPC	9	250	Boiler tube leakage	04-May-2026
5	RTPS	DVC	DVC	2	600	High Turbine Vibration	14-Apr-2026
6	MEJIA TPS	DVC	DVC	2	210	Stator earth fault	07-Jan-2026

All Generating stations are requested to update expected restoration time and reason outage to ERLDC/ERPC on weekly basis in case of any change at their end.

Major Generating stations Out on Reserve Shutdown due to low system demand:

SL No	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE

NA

Hydro Unit Outage Report: -

S. NO	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	BURLA HPS/HIRAKUD I	ODISHA	OHPC	5	43.65	Annual Maintenance	19-Jan-2026
2	BALIMELA HPS	ODISHA	OHPC	5	60	Repair and maintenance work	16-Jan-2025
3	BALIMELA HPS	ODISHA	OHPC	6	60	Initially unit was out due to Severe water leakage from turbine, later unit was taken under Repair and maintenance work from 00:00 hrs of 16.01.25	06-Jan-2025
4	CHIPLIMA HPS / HIRAKUD II	ODISHA	OHPC	1	24	Capital Overhauling	15-Dec-2023
5	TEESTA HPS	SIKKIM	NHPC	1	170	Sudden cloudburst at glacier fed LOHNAK Lake followed by huge inrush of water in Teesta River and damage of Teesta III Dam & downstream Powerhouses	04-Oct-2023
6	TEESTA HPS	SIKKIM	NHPC	2	170		04-Oct-2023
7	TEESTA HPS	SIKKIM	NHPC	3	170		04-Oct-2023
8	TEESTA STG III Hep	SIKKIM	TUL	1	200		04-Oct-2023
9	TEESTA STG III Hep	SIKKIM	TUL	2	200		04-Oct-2023
10	TEESTA STG III Hep	SIKKIM	TUL	3	200		04-Oct-2023
11	TEESTA STG III Hep	SIKKIM	TUL	4	200		04-Oct-2023
12	TEESTA STG III Hep	SIKKIM	TUL	5	200		04-Oct-2023
13	TEESTA STG III Hep	SIKKIM	TUL	6	200		04-Oct-2023
14	U. KOLAB	ODISHA	OHPC	2	80	Heavy Leakage in guide vane	22-Jan-2026
15	BURLA HPS/HIRAKUD I	ODISHA	OHPC	4	32	Annual Maintenance	21-Apr-2026

4.2. Long outage report of transmission Element (MORE THAN 01 WEEK) (As on 05.04.2026):

Transmission Element / ICT	Outage From	Reasons for Outage
220KV-FSTPP-LALMATIA-I	21-04-2021	Two nos. of tower collapsed on 29.05.2024 near to Lalmatia GSS in the Loc. No. 246 & 247. 220KV S/C Farakka-Lalmatia Transmission Line

		is in anti-theft charging condition from Loc no 248 (Lalmatia end) to Loc no 33. Foundation, erection, and stringing progress from loc 1 to 32
132KV-BARHI-RAJGIR-1	25-03-2023	Dismantling of tower no. 227, 228, and 229 crossing the premises of Mahabodhi Cultural centre along with Destringing of conductor of both circuits and Earth wire between tension tower no. 218-237 in same line. The lines from Barhi (DVC) will be terminated at Barachatti (BH) and new line to be constructed from Barachatti to Rajgir (BH)
132KV-NALANDA-BARHI(DVC)-1	25-03-2023	Dismantling of tower no. 227, 228, and 229 crossing the premises of Mahabodhi Cultural centre along with Destringing of conductor of both circuits and Earth wire between tension tower no. 218-237 in same line. The lines from Barhi (DVC) will be terminated at Barachatti (BH) and new line to be constructed from Barachatti to Nalanda (BH)
400KV-RANGPO-TEESTA-V-1	04-10-2023	Tower near gantry of Teesta V HEP collapsed during GLOF event in Oct 2023 also leading to damage in powerhouse. Tower subsequently erected on 15.06.2024. Teesta V HEP GIS damaged due to hill sinking on 20.08.2024. Presently, GIS under restoration and generation expected by 31.03.2026.
400KV-RANGPO-TEESTA-V-2	04-10-2023	Tower near gantry of Teesta V HEP collapsed during GLOF event in Oct 2023 also leading to damage in powerhouse. Tower subsequently erected on 15.06.2024. Teesta V HEP GIS damaged due to hill sinking on 20.08.2024. Presently, GIS under restoration and generation expected by 31.03.2026.
132KV-CHANDIL-MANIQUI-1	05-06-2024	Power assistance withdrawn
400KV/220KV 315 MVA ICT 1 AT NORTH KARANPURA	12-09-2024	Tripped on Differential protection
400KV/220KV 315 MVA ICT 1 AT TSTPP	01-11-2024	Tripped on PRD protection. Current status: The failed transformer has reached the vendor, the repair scope has been finalized, the PR is created, and the PO is in the advanced stage of processing. The repair, transportation, installation, and commissioning are expected to take about six months, with the unit likely to be available by 30.06.2026. A spare 315 MVA ICT on loan from PGCIL is being explored, and their response is awaited.
400KV/220KV 315 MVA ICT 2 AT MEJIA-B	20-01-2025	315 MVA ICT-2 at MTPS-B got damaged while charging from 220kV GIS bay. New procurement of ICT has been taken up & installation of the same may complete by end of Mar'28.
400KV-DIKCHU-RANGPO-2	05-08-2025	Damaged insulator replacement work. While charging the line bus bar protection operated at Dikchu. Issue in GIS chamber of Y ph Isolator

		between line cb and bus 2, Powder formation inside isolator chamber, Revival Expected by December 25 as per availability of GE person. Presently negotiation in place for offer
400KV MAIN BUS - 2 AT DIKCHU	05-08-2025	Bus bar protection operated, Issue in GIS chamber of Y ph Isolator between Rango ckt 2 line cb and bus 2, Powder formation inside isolator chamber, Revival Expected by December 25 as per availability of GE person. Presently negotiation in place for offer
220KV-PATNA-KHAGAUL-1	24-09-2025	LBB relay operated during rectification of DC grounding defect by M/S KRR at GSS khagaul. Earlier w.e.f 02-08-2025 12:06 Hrs, Tower No. 63 has bent significantly on one side
220KV-BIDHANNAGAR-WARIA-1	29-10-2025	To control loading of 220 kV Waria-Mejia D/C (Anti-theft charged from Waria end.)
220KV-BIDHANNAGAR-WARIA-2	29-10-2025	Initially line was opened to control line loading. In between B-phase CT Blast at Bidhannagar end. Now Line is charged as anti-theft from Waria end to control loading of 220 kV Waria-Mejia D/C.
220KV-BALIMELA-UPPER SILERU-1	21-11-2025	Idle charged from U. Sileru end. Power drawl by Odisha halted due to non-concurrence by Andhra Pradesh.
132KV-MADHEPURA (BH)-SAHARSA-1	18-12-2025	To control the line loading. Line kept idle charged from Saharsa.
220KV-RAJARHAT-NEW TOWN(AA-II)-2	08-02-2026	For cable swapping job with RAJARHAT-NEWTOWN IIC-2
132KV-PATRATU-PATRATU-2	09-02-2026	Power assistance withdrawn
400KV/220KV 315 MVA ICT 1 AT KODERMA	10-02-2026	DGA violation -rising actylene trend
132KV-RANGIT-SAGBARI-1	28-02-2026	Necessary jumpering modification at Sagbari station (EPDS)
400KV-TEESTA-III-RANGPO-1	15-03-2026	Rangpo: B_N, DEF, 0.68 kA
765KV-JHARSUGUDA-DHARAMJAIGARH-3	16-03-2026	For diversion of existing 765kV D/C Jharsuguda – Dharamjaygarh Ckt 3&4, due to upcoming railway line of IRCON
765KV-JHARSUGUDA-DHARAMJAIGARH-4	16-03-2026	For diversion of existing 765kV D/C Jharsuguda – Dharamjaygarh Ckt 3&4, due to upcoming railway line of IRCON
HVDC 800KV ALIPURDUAR (PG) Pole 3	19-03-2026	H/T ON VOLTAGE REGULATION
HVDC 800KV ALIPURDUAR (PG) Pole 4	19-03-2026	H/T ON VOLTAGE REGULATION
132KV-BANKA (PG)-SULTANGANJ-1	19-03-2026	For reconductoring work in transmission line.
400KV/220KV 315 MVA ICT 2 AT LAPANGA	14-04-2026	Differential Protection Operated causing tripping of ICT. As reported multiple bushings damaged.

		Expected restoration timeline yet to be intimated by OPTCL.
220KV-RAJARHAT-NEW TOWN(AA-II)-1	18-04-2026	Shutdown to attend smoke detected from underground cable
400KV-BINAGURI-NORBUGANG-1	20-04-2026	Binaguri end: RN fault, 108 km, 3.45 kA
132KV-ARRAH (PG)-JAGDISHPUR-1	23-04-2026	Site initiated Hand Trip
220KV-BUDHIPADAR-KORBA-2	24-04-2026	For modification/diversion work between loc. No. 77 (A+3m) – 80 (A+0m) (RL – 1.032 KM). Erection of 04 No. BN60 type towers and Dismantling 02 No. existing towers- 78 & 79 on request of M/s IRCON Ltd Bilaspur due to construction of new BG Urga- Dharamjaigarh Rail Corridor.
132KV-PATRATU-PATRATU-1	25-04-2026	For system requirement power order change
765KV-ANGUL-JHARSUGUDA-4	26-04-2026	H/T ON VOLTAGE REGULATION

Transmission licensees/ Utilities are requested to update expected restoration date & work progress regarding restoration regularly to ERPC/ERLDC on monthly basis by 5th of each month so that status of restoration can be reviewed in OCC. Utilities are also requested to update outage of any elements within their substation premises like isolator/breaker to ERPC/ERLDC regularly. (Reported as per Clause 5.2(e) of IEGC).

Members may note.

4.3. Commissioning of new units and transmission elements in Eastern Grid in the month of April -2026

The details of new units/transmission elements commissioned in the month of April-2026 based on the inputs received from beneficiaries:

NEW ELEMENTS COMMISSIONED DURING April, 2026							
उत्पादन इकाइयाँ / GENERATING UNITS							
क्र. सं. Sl. No.	स्थान Location / Pooling Station	मालिक/यूनिट का नाम OWNER/UNIT NAME	यूनिट संख्या/स्रोत Unit No/Source	संकलित क्षमता (मेगावाट) Capacity added (MW)	कुल/स्थापित क्षमता (मेगावाट) Total/Installed Capacity (MW)	दिनांक DATE	टिप्पणी Remarks
NIL							
आई.सी.टी/जी.टी/एस.टी / ICTs/ GTs / STs							

क्र. सं. Sl. No.	एजेंसी/ मालिक Agency/ Owner	उप-केन्द्र SUB-STATION	आईसीटी संख्या ICT NO	वोल्टेज (केवी) Voltage Level (kV)	क्षमता (एमवीए) CAPACITY (MVA)	दिनांक DATE	टिप्पणी Remarks
1	NTPC	NTPC KAHALGAON	ICT-3	400KV/132KV	200	08-04-2026	
2	NTPC	NTPC KAHALGAON	ICT-4	400KV/132KV	200	08-04-2026	
3	OPGC Ltd	OPGC	ICT-1	400KV/11KV	50	08-04-2026	
4	OPGC Ltd	OPGC	ICT-2	400KV/11KV	50	08-04-2026	

प्रेषण लाइन / TRANSMISSION LINES

क्र. सं. Sl. No.	एजेंसी/ मालिक Agency/ Owner	लाइन का नाम LINE NAME	लंबाई (किमी) Length (KM)	कंडक्टर प्रकार Conductor Type	दिनांक DATE	टिप्पणी Remarks

NIL

लिलो / प्रेषण लाइन की पुनर्व्यवस्था / LILO/RE-ARRANGEMENT OF TRANSMISSION LINES

क्र. सं. Sl. No.	एजेंसी/ मालिक Agency/ Owner	लाइन का नाम / लिलो पर Line Name/LILO at	लंबाई (किमी) Length (KM)	कंडक्टर प्रकार Conductor Type	दिनांक DATE	टिप्पणी Remarks

NIL

बस/लाइन रिएक्टर / BUS/LINE REACTOR

क्र. सं. Sl. No.	एजेंसी/ मालिक Agency/ Owner	एलेमेंट का नाम Element Name	उप-केन्द्र SUB-STATION	रेटिंग (एमवीएआर) Rating (MVAr)	दिनांक DATE	टिप्पणी Remarks
1	PGCIL ER-II	400 kV, 63 MVAr Switchable Line Reactor (along with associated 450 Ohm NGR, including NGR bypassing scheme) for 400 kV Malda-Purnea Ckt-1 at Malda SS.	400	63	23-04-2026	

एच.वी.डी.सी/ए.सी फिल्टर बैंक/फैक्ट्स डिवाइस संबद्ध प्रणाली / HVDC /AC Filter bank / FACTS DEVICE associated System

क्र. सं. Sl. No.	एजेंसी/ मालिक Agency/ Owner	एलेमेंट का नाम Element Name	उप-केन्द्र SUB-STATION	वोल्टेज (केवी) Voltage Level (kV)	दिनांक DATE	टिप्पणी Remarks
NIL						
बस - बे / BUS - BAYS						
क्र. सं. Sl.No.	एजेंसी/ मालिक Agency/ Owner	एलेमेंट का नाम Element Name	उप-केन्द्र SUB-STATION	वोल्टेज (केवी) Voltage Level (kV)	दिनांक DATE	टिप्पणी Remarks
1	NTPC	132KV MAIN BAY OF 200 MVA ICT-3 AT KAHALGAON	KAHALGAON	132KV	08-04-2026	
2	NTPC	132KV BUS SECTIONALIZER BAY OF (132KV MAIN BUS-3 AND 132KV MAIN BUS-5) AT KAHALGAON	KAHALGAON	132KV	08-04-2026	
3	NTPC	132KV MAIN BAY OF 200 MVA ICT-04 AT KAHALGAON	KAHALGAON	132KV	08-04-2026	
4	NTPC	132KV BUS SECTIONALIZER BAY OF (132KV MAIN BUS-4 AND 132KV MAIN BUS-6) AT KAHALGAON	KAHALGAON	132KV	08-04-2026	
5	OPGC Ltd	400KV TIE BAY OF (50 MVA ICT-1 & 50 MVA ICT-02) AT OPGC	OPGC	400 KV	08-04-2026	
6	NTPC	132KV BUS SECTIONALIZER BAY OF (132KV MAIN BUS-4 AND 132KV MAIN BUS-6) AT KAHALGAON	KAHALGAON	132KV	08-04-2026	
7	NTPC	132KV BUS COUPLER BAY-1 AT KAHALGAON	KAHALGAON	132KV	08-04-2026	
8	NTPC	132KV BUS COUPLER BAY-2 AT KAHALGAON	KAHALGAON	132KV	08-04-2026	
9	NTPC	400KV MAIN BAY OF 200 MVA ICT-03 AT KAHALGAON (MAIN-I)	KAHALGAON	400 KV	09-04-2026	
10	NTPC	400KV MAIN BAY OF 200 MVA ICT-4 AT KAHALGAON(MAIN-I)	KAHALGAON	400 KV	09-04-2026	
11	NTPC	400KV MAIN BAY OF 200 MVA ICT-4 AT KAHALGAON(MAIN-I)	KAHALGAON	400 KV	13-04-2026	
12	NTPC	132KV MAIN BAY OF ST -05 AT KAHALGAON	KAHALGAON	132KV	25-04-2026	
13	NTPC	132KV MAIN BUS-3 AT KAHALGAON	KAHALGAON	132KV	08-04-2026	

14	NTPC	132KV MAIN BUS-5 AT KAHALGAON	KAHALGAON	132KV	08-04-2026	
15	NTPC	132KV MAIN BUS-6 AT KAHALGAON	KAHALGAON	132KV	08-04-2026	
16	NTPC	132KV MAIN BUS-4 AT KAHALGAON	KAHALGAON	132KV	08-04-2026	

Members may note.

4.4. UFR operation during the month of April 2026

Frequency profile for the month as follows:

MONTH	MAX (DATE/TIME)	MIN (DATE/TIME)	% LESS IEGC BAND	% WITHIN IEGC BAND	% MORE IEGC BAND
April 2026	50.39 (on 19-Apr-26 at 17:04 Hrs.)	49.45 (on 03-Apr-26 at 10:19 Hrs.)	7.8	73.8	18.4

Hence, no report of operation of UFR has been received from any of the constituents.

Members may note.

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Annexure 2.1.a

Record Notes of Meeting to review UVLS scheme Implementation Status in Odisha – Dated 30.04.2026

In accordance with the decision of the 238th OCC meeting held on 17.04.2026 at ERPC Secretariat regarding implementation of the long pending Under Voltage Load Shedding (UVLS) system in Odisha during extreme emergency condition, an online meeting was convened on 30.04.2026. The primary objective was to review progress of implementation to ensure reliability of Odisha system during the peak summer season. The meeting was attended by Director (Operation) - OPTCL, CGM - OPTCL, Director- SLDC Odisha and team, SE (Operation) - ERPC and ED- ERLDC. The list of participants is enclosed at ***Annex-I***.

At the outset, ED, ERLDC welcomed all participants and highlighted the critical requirement of UVLS scheme for safeguarding the Bhubaneswar area, which is being discussed two quarters since last 6 months. SE (Operation), ERPC also emphasized the necessity of implementation of UVLS scheme in the Odisha system to ensure system reliability during the ensuing peak summer conditions.

To start with, team ERLDC reiterated the decisions of the previous meeting regarding UVLS implementation of UVLS scheme in the Odisha System and highlighted the major points agreed upon in the meeting held on 18.02.2026. The Minutes of Meeting dated 18.02.2026 are enclosed at ***Annex-II*** for ready reference.

Key Discussions-Salient points discussed in the meeting:

- Director (Operation), OPTCL informed that implementation of the UVLS scheme in Odisha is being taken up on a fast-track basis as proposed in various OCC meetings. To expedite execution and avoid procedural delays, the scheme is being treated as a “top-up” or extension of the existing ADMS contract.
- He added that since SLDC Odisha has already implemented the ADMS system, the work of implementation of the UVLS scheme has been entrusted upon SLDC, being an extension of the ADMS project.
- SLDC Odisha and CGM, OPTCL confirmed that quotation for executing the UVLS scheme has been received from the existing ADMS implementing agency and are under review by the Telecom wing of OPTCL. Additionally, 31 feeders from TPCODL (Discom) and 23 feeders from TPNODL (Discom) have been identified under the scheme. The completion timeline targeted by June 2026.
- SE (Operation), ERPC referred to the deliberations of the 238th OCC meeting, wherein SLDC had indicated completion by 30th April 2026.

- ED, ERLDC expressed concern regarding the revised timeline, as the system around the State capital with approximately 3000 MW load will remain vulnerable to voltage collapse during peak summer months (May–June 2026), till implementation of the UVLS
- SLDC Odisha and OPTCL assured that efforts shall be made to expeditiously complete the work before June 2026.

**********Meeting Ended with Thanks**********

Annexure-I

Attendance:

1. Sh. Prasanta Kumar Pattanaik, Director (Operation), OPTCL
2. Sh. B. B. Mehta, Director (SLDC), OPTCL
3. Sh. Surajit Banerjee, ED, ERLDC
4. Sh. R.K. Meena, SE (Operation), ERPC
5. Sh. Laxmikanta Panda, CGM (O&M), OPTCL
6. Sh. Subhas Chandra Dash, CGM, SLDC Odisha
7. Sh. D. Biswas, GM(SO) ERLDC
8. Sh. S. K. Mishra, SGM, SLDC Odisha
9. Sh. Manas Ranjan Samantaray, SGM, SLDC Odisha
10. Sh. Pranab Kumar Nayek, SGM (Tel), OPTCL
11. Sh. Bilash Achari, DGM(SO) ERLDC
12. Sh. Manas Das, DGM(SO) ERLDC
13. Sh. Surya Pratap Rath, AGM (O&M), OPTCL
14. Sh. Alok Pratap Singh, Ch. Mgr. (SO), ERLDC
15. Sh. Chandan Mallick, Ch. Mgr. (SO), ERLDC

Record of Meeting – Discussion on Requirement and Implementation of UVLS Scheme on 18-02-2026

An online meeting was convened on 18.02.2026 at the request of OPTCL to discuss the implementation plan of the already approved UVLS scheme around the capital city of Odisha. Participants from ERLDC, OPTCL, and SLDC Odisha attended the meeting.

During the meeting, ED, ERLDC highlighted the requirement of **Under Voltage Load Shedding (UVLS)**, which had been deliberated and agreed upon in various OCC and TCC meetings**.** The need for UVLS was emphasized as a critical measure to safeguard the power system around the capital city of Odisha. It was noted that during the previous summer peak period, the area had experienced severe low-voltage conditions and a few near-miss events under different system contingencies.

OPTCL proposed to implement the UVLS scheme in two stages instead of implementing it in a single step. Accordingly, the following UVLS logic was agreed:

- When the voltage at Mendhasal falls below 370 kV for a duration of 5 seconds, 200 MW of load shall be tripped.
- Subsequently, the voltage shall be re-evaluated, and if the voltage remains below 375 kV for more than 3 seconds, an additional 150 MW of load shall be tripped.The detailed UVLS logic is enclosed as **Annexure-1.**

OPTCL informed that the scheme would utilize the existing ADMS-integrated feeder infrastructure to trigger the identified load groups through the under-voltage logic.

For faster implementation, it was agreed that the existing ADMS infrastructure may be utilized, subject to the following conditions:

- Once the under-voltage logic is asserted, the required quantum of load relief in stage wise shall be ensured without overlap with other ADMS logics.
- If any load group has already been shed through ADMS-based overdrawal or frequency-based logic, the same load group shall not receive an additional trip command under the UVLS logic, as this would not provide effective voltage relief.
- The UVLS logic shall ensure tripping of alternate load groups that are not already in a tripped condition under other ADMS logics.

It was further discussed and agreed that the load quantum integrated under ADMS for UVLS should belong to the Mendhasal / Pandiabilli fed area, so as to provide maximum voltage relief at the stressed location.

The Director, OPTCL assured that all the above aspects would be duly addressed during the detailed design stage and that the UVLS scheme would be implemented in two stages, utilizing the existing ADMS infrastructure, while ensuring the required load relief under under-voltage conditions.

Annexure 2.1.b.

Status of Availability of Emergency Restoration System (ERS) in ER

Sl. No.	Entity	ERS Required as per the Govt. norms (as per present requirement)	Voltage levels	Length of TL owned by the utility (ckt kms)	No. of ERS set (tower) available	No. of ERS set (tower) unavailable	Status of procurement of ERS set (tower) with location	Remarks
1	OPTCL	1 set	400 kV	1196.87	29	-	-	Available:Mancheswar-27; In use: Mendhasal-Meramundali line-2
		2 set	220 kV	6835.48	0	-	-	
		2 set	132 kV	8717.11	0	-	-	
2	Powergrid: ER	5	upto 400kV (HVAC), ±320kV (HVDC)	22520.00	4	1	-	-
		1	765kV (HVAC), ±500kV (HVDC), ±800kV (HVDC)	3173.00	2	-	-	-
3	Adani transmission limited(ATL)	1 set	400 kV	959.32	3	-	-	Sami(Gujarat): 1, Koradi(Maharashtra): 1 Akola(Maharashtra): 1
4	PGCIL (Odisha)	1 set	765 kV	1845.00	9	-	-	Rengali (Supension type: 6, Tension type: 3)
					15	-	-	Angul (Supension type: 9, Tension type: 6)
		1 set	400 kV	3355.00	3	-	-	Rourkela (Supension type: 2, Tension type: 1)
		1 set	220 kV	61.00		-	-	-
5	WBSETCL	1 set	220kV	4051.22	6	-	-	Durgapur-6
					2	-	-	Jeerat-2
					1	-	-	New Town-1
					3	-	-	New Jalpaiguri-3
					4	-	-	Laxmikantapur-4
		1 set	400 kV	2492.51	0	-	-	-
		2 set	132 kV	9670.58	0	-	-	-
		1 set	66 kV	333.00	0	-	-	-
6	Indigrid (ENICL, OGPTL & PKTCL)	1 set	400 kV	1556.70	1	-	-	Bhopal, IndiGrid, maintains a centrally located ERS set at Bhopal, which is deployed across all five regions on a need basis.
		1 set	765 kV	612.00	0	-	-	-
7	JUSNL	1 set	220 KV	2599.51	3	-	-	Hatia-3
					2	-	-	Jamshedpur-2
					3	-	-	Dumka-3
		1 set	400 kV	360.94	0	-	-	-
		1 set	132 kV	4067.80	0	-	-	-
8	DVC	1 set	220 kV	2975.64	7	-	-	Maithon: Suspension /Running angle 0 to 20 deg S/C ERS Tower: 4 Tension / Dead End 0 to 60 deg S/C ERS Tower: 2 Tension / Dead End 0 to 90 deg S/C ERS Tower: 1
		1 set	400 kV	482.69			-	
		1 set	132 kV	4005.21	0	-	-	-
9	BSPTCL	3 set	132kV	12194.38	42	-	-	-
		1 set	220 kV	5476.29	0	-	-	
		1 set	400 kV	600.00	0	-	-	

Annex B.2.1.e

सत्यमेव जयते

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

विषय: गंगटोक की पारेषण प्रणाली के एक खंड को 66 केवी से 132 केवी तक उन्नत करने के लिए डीपीआर - तत्संबंधी।

Subject: DPR for upgradation of one section of transmission system of Gangtok from 66 kV to 132 kV – regarding.

This has reference to MoP email dated 01.10.2025, forwarding the letter from Power Department, Govt. of Sikkim enclosing DPR for upgradation of one section of transmission system of Gangtok from 66 kV to 132 kV.

The matter has been examined and our observations/recommendations are as under:

1. Proposal in the DPR:

The proposal in the DPR includes the following

- Upgradation of 66/11 kV sub-station at Bulbuley (Gangtok) to 132 kV voltage level, with 132/66 kV 2x25 MVA transformers and
- Upgradation of Gangtok (PG) – Bulbuley 66 kV S/c line to 132 kV to be formed after LILO of Gangtok (PG) – Sherethang 66 kV S/c line at Bulbuley.

2. Observations:

i). System studies have been carried out by considering demand up to the timeframe of 2034-35 in consultation with CTUIL, Grid-India and Power Department Sikkim.

ii). Presently Gangtok (PG) 132/66 kV S/s have following transmission line connected at 66 kV level.

a) Gangtok (PG) – Bulbuley 66 kV S/c line

b) Gangtok (PG) – LLHP 66 kV D/c line

c) Gangtok (PG) – Tadong 66 kV S/c line

iii). Power Department, Sikkim has mentioned that Tadong – Gangtok (PG) 66 kV S/c line and Tadong – LLHP 66 kV S/c line to be dismantled as at the RoW area immediately below the line many houses have been constructed which are perilously close to the 66 kV lines and Department has not been able to prevent line clearance

violation. The diversion of these lines, even laying of cables is not possible because of RoW issue and lack of open space on the ground.

iv). Perbing 132/66 kV sub-station is under construction under CSSTDS Scheme in Sikkim which would have following connection.

a) Perbing – Dikchu Pool 132 kV D/c line

b) Perbing – Pangthang line 66 kV D/c line

c) Perbing – Sichey line 66 kV S/c line

d) Perbing – Tadong line 66 kV S/c line

v). Load flow studies were carried out and it was observed that after implementation of Perbing 132/66 kV sub-station the loading at Bulbuley 66/11 kV sub-station would reduce and no transmission constraints were noticed in Bulbuley area whether Tadong – Gangtok (PG) 66 kV S/c line and Tadong – LLHP 66 kV S/c lines remain in service or not. Accordingly, if the Bulbuley substation is upgraded to 132 kV, it will remain highly unutilized even in the timeframe of 2034-35.

vi). Further, upgradation of Bulbuley 66/11 kV S/s to 132 kV level has been proposed with a single 132 kV transmission line connection, without fulfilling the N-1 contingency criteria.

3. Recommendations

i). With the present and under implementation transmission system, the proposal of upgradation of Bulbuley 66/11 kV S/s to 132 kV level is not technically justified.

ii). The Power Department and POWERGRID shall endeavor to commission the Perbing 132/66 kV S/s and its transmission lines at the earliest.

Signed by Farooque Iqbal
Date: 17-11-2025 10:36:29

(फ़ारूख इकबाल / Farooque Iqbal)
निदेशक/Director

निदेशक (ट्रांस -डेस्क), विद्युत मंत्रालय, श्रम शक्ति भवन, रफ़ी मार्ग, नई दिल्ली /
Director (Trans.-Desk), Ministry of Power, Shram Shakti Bhawan, Rafi Marg, New Delhi

Annex B.2.1.n

Record Notes of discussion held on 23rd April 2026 for Ranchi Islanding Design

The kick-off meeting for the implementation of the Ranchi City Islanding Scheme was held following the directives issued during the 238th OCC meeting and subsequent mandates from the Ministry of Power.

Meeting, organized by ERPC, observed active participation from key stakeholders including representatives from ERLDC, SLDC Jharkhand, PUVNL, and the JUSNL SCADA team. The primary focus of the discussion centred on establishing a dedicated committee for island design and monitoring, with a specific emphasis on the technical roadmap required to isolate Ranchi City's electrical network during grid disturbances.

During the initial deliberations, the committee reviewed the proposed network map for the islanded area and evaluated various schematic configurations attached in Annexure-1. A significant portion of the meeting was dedicated to defining load-generation scenarios, where members agreed that a comprehensive feasibility study must be conducted through multi-scenario simulations to ensure the island remains stable under varying conditions. The discourse highlighted the necessity of aligning generation capabilities with local demand to prevent a total blackout in the event of a grid disturbance.

To facilitate the upcoming Dynamic Feasibility Study, several critical action items were assigned to the respective utilities.

Action Items for SLDC Jharkhand

To accurately define the electrical boundaries and load behaviour of the island, SLDC Jharkhand is requested to share:

- **Island Boundary & Feeder Logic:** Clearly define the islanded area and provide a comprehensive list of feeders that must be disconnected to ensure successful island formation.
- **Load Profiles:** Node-wise load data (Maximum, Minimum, and Average) for the identified area to ensure generation-load balancing.
- **Defense Mechanism Data:** Current node-wise loads of Jharkhand that are already covered under **AUFLS** (Automatic Under Frequency Load Shedding) and **ADMS** (Automatic Demand Management System).
- **Infrastructure Timeline:** Confirmation of the expected commissioning date for the **400kV Latehar New – Patratu New D/C** line, as this must be integrated into the islanding model.

Action Items for PUVNL

To ensure the generation units can withstand the transition to an islanded state, PUVNL is requested to submit:

- **Protection Settings:** Current operational settings for **Over-frequency (O/F)** and **Under-frequency (U/F)** protection for the Patratu units.

Moving forward, the submission of this data is considered a prerequisite for the technical modelling phase. The committee concluded that the expedited delivery of the information outlined above and in the attached annexure is essential for the next course of action. Once

the data is compiled, the committee will reconvene to review the simulation results and finalize the design parameters for the Ranchi City Islanding Scheme, ensuring a robust and reliable defense mechanism for the Ranchi City.

LIST of Participants

1. R.K Meena, SE operation, ERPC
2. Dilip Khuntia , ERPC
3. Bilash Achari, DGM ERLDC
4. Manas Das, DGM, ERLDC
5. Alok Pratap Singh, CM, ERLDC
6. Chandan Mallick CM, ERLDC
7. Laldhari Kumar, Manager, ERLDC
8. Srimalya Ghosal, AM, ERLDC
9. Shailesh Kumar, DGM SLDC RANCHI
10. Upendra kumar mishra, Jusnl scada
11. ULDC JUSNL Ranchi
12. Raju Kacchap , Sr. Manager ,SLDC RANCHI OPERATION
13. RAKESH Kumar, Sr. Manger, PUVNL
14. Prasenjit Halder, PUVNL
15. ABHIJEET MAITI, PUVNL
16. Kothamasu , PUVNL
17. RK Niranjan
18. R p verma

Annexure–B.2.5

Record Notes of Meeting on Restoration Issues of 400 kV PVUNL–Tenughat Line - dated 04.05.2026

An online meeting was convened on 04.05.2026 to deliberate on the issues faced during restoration of the 400 kV PVUNL–Tenughat transmission line. The primary objective of the meeting was to identify the reasons for delayed restoration and to finalize corrective measures to avoid such recurrence.

The meeting was attended by officials from ERLDC, SLDC Jharkhand, JUSNL, PVUNL and TVNL. The list of participants is enclosed at **Annexure-I**.

GM (SO), ERLDC welcomed all participants and highlighted the critical issue wherein the 400 kV PVUNL–Tenughat line could not be synchronized/charged due to high voltage conditions for a prolonged period of 3 days. He emphasized the importance of expeditious restoration of this corridor, considering limited evacuation path for PVUNL generating station. He urged to prepare a Standard Operating Procedure for restoration of the cited element within shortest possible timeframe.

The gist of discussion in the meeting are as follows:

- ERLDC stated that the 400kV PVUNL-Tenughat line tripped on B-N fault on 29th Apr'26 15:16Hrs. A/R was successful at PVUNL end whereas unsuccessful at Tenughat. Subsequently, line charging was attempted from Tenughat end at 17:03Hrs but it tripped immediately due to overvoltage. Afterwards, the line was charged on 02nd May'26 17:02Hrs. Persisting high voltage at the 400kV bus of Tenughat was observed to be the primary reason for delay in restoration.

  ERLDC also made a presentation highlighting reactive power exchange of the generating units (2x210MW) of Tenughat on 30th Apr'26. Reactive power export from the generating units was observed throughout the day despite minimization efforts taken up by engineers. Tenughat were also requested to share the existing tap positions in GT and 220/400kV ICTs for further analysis.

- In turn, Tenughat agreed to investigate and resolve the issue of unsuccessful A/R in the line. They further intimated that tap positions in the GTs are maintained at '1' in place of nominal tap position since the inception of the generating plant in 1987. Thus, it is established that the existing tap position '1' is a major contributor towards high bus voltage. As the GT Tap is at '1', LV side voltage is on lower side while HV side (220 KV side) voltage is on a higher side and that is also the reason that to maintain LV side voltage up to rated voltage, units are always injecting reacting power.

- Tenughat intimated that they would take up the matter with OEM M/s BHEL to explore to change of tap from present position to nominal position.

- SLDC Ranchi requested JUSNL to carry out line maintenance works properly to avoid line tripping.
- Tenughat intimated that synchronization trolley is already available at site and will be ready at 400kV level by the end of the month.

The forum suggested to explore the feasibility of changing GT tap and keep in nominal tap position if agreed by OEM. Till the high voltage problem is resolved, it was agreed that in future cases of line tripping, SOP will be followed.

The meeting ended with thanks to all the participants.

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Standard Operating Procedure (SOP) for Charging of 400 kV PVUNL–Tenughat Line

1. Pre-Charging Checks: To ensure that the line is healthy from transmission wing and all protections are in service.

2. Voltage Control Measures:

- Tenughat to ensure bus voltage is within acceptable limits by taking suitable measures. Reactive absorption by the unit to be maximised.
- Switch ON, line reactor before charging.

4. Charging Procedure:

- On receipt of tripping details and ensuring line healthiness, SLDC Jharkhand will obtain real time code from ERLDC.
- Tenughat will extend the line ensuring that voltage at 400 kV Tenughat is not more than 434 kV. After extending, if open end voltage remains within permissible limit of synchro check setting and not exceeding overvoltage setting, line will be synchronized at PVUNL end.
- If open end voltage exceeds overvoltage setting, line will trip on overvoltage. However, it will be ensured that there is no fault in line and it is healthy.
- As healthiness is now ensured, line will be extended from PVUNL end up to 400 KV Tenughat bus as PVUNL bus voltage remains in normal range (up to 410 kV). Thereafter, HV side of Tenughat ICT will be closed and then at 220 KV side it will be synchronised with Synchroscope.
- Once synchroscope is commissioned at 400 KV level, the cited synchronization may be done at 400 KV level instead of 220kV level.

xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

List of Participants

Annexure-I

ERLDC

1. Sh. Debabrata Biswas, GM (SO)
2. Sh. Manas Das, DGM(SO)
3. Sh. Bimal Swargiary, DGM (SO)
4. Sh. Rakesh Kr Pradhan, Ch. Manager
5. Sh. Alok Pratap Singh, Ch. Manager

SLDC, Jharkhand

1. Sh. Umesh Kumar Singh, GM
2. Sh. Sailesh Prakash, DGM (O)
3. Sh. Raju Kachhap, Sr. Manager

JUSNL

1. Sh. Pravin Ram, DGM, Hazaribagh

TVNL

1. Sh. Ashish Sharma, ESE(EM-II)
2. Sh. Rajeev Kumar, ESE(Operation)
3. Sh. Rajendra Prasad, EEE(EM-II)
4. Sh. Jyoti Prasad, EEE(EM-I)
5. Sh. Samish Srivastava, AExE(EM-II)

PVUNL:

1. Sh. K Suresh Kumar, AGM
2. Sh. S MD Rasool, DGM (EMD)
3. Sh. Rakesh Kumar, Sr. Manager (Commercial)

Final SoP/ Guidelines for diversion of RPC approved Spare Transformers and Reactors to the constituents / state transmission utilities

A. Background:

1. In line with the recommendations of committee formed under the direction of CERC in Petition No. 38/TT/2017, requirement of regional spare transformers and reactors is being assessed by POWERGRID and agreed in RPCs based on the population of existing transformers and reactors in POWERGRID substations.

2. POWERGRID procures & maintains the RPC approved spare transformers and reactors as Regional Spares to meet any contingency in its existing Substations to ensure the reliability of the grid and to minimise downtime.

3. These spares are approved primarily for use of POWERGRID in its ISTS Substations. However, in some of the cases, requests are being received by POWERGRID from constituents/ state utility to divert Regional spare transformer(s)/ reactor(s) on temporary basis for their use considering certain exigencies, to maintain continuity of power supply and also considering the grid stability & reliability. Further, in past, in few of the cases regional spare transformers/ reactors have been diverted to constituents/ state utilities after necessary approval of concerned RPC.

B. General Condition:

4. As Regional spares are approved primarily for use of POWERGRID in its ISTS Substations, its diversion to regional state transmission utility may be considered under exceptional circumstances considering the gravity of requirement to the constituent and its beneficiaries on expeditious replenishment basis. Further, Inter Regional diversion of equipment to the constituent shall not be considered.

C. Utilities eligible for diversion: Following utilities (hereinafter referred as Borrower) shall be eligible for diversion of Regional spares as per the conditions specified;

i) **State Transmission Utility**: Diversions can be considered in case of failure of existing equipment in use of respective RPC constituents and diversion required in the interest of Grid security and reliability. It is clarified that under normal circumstances, a regional spare shall not be diverted for commissioning of new assets.

ii) **Other Utilities**: For utilities other than State Transmission Utilities, under normal circumstances, such diversions are not envisaged. However, if agreed by RPC forum, such diversions may be allowed only under the exceptional circumstances.

D. Modalities for diversion of Regional spare transformer(s)/ reactor(s) to State Transmission Utility:

5. In case of requirement of Regional spare transformer/ reactor by the Borrower i.e. State Transmission Utility, the requirement shall be put up for consent of the respective RPC forum.

6. In this regard, the concerned Borrower shall submit the following to the RPC for consideration:

   i) Contingency situations describing the requirement of spare equipment from POWERGRID.
   ii) Action plan along with timeline for return/ replenishment of the spare equipment to POWERGRID.

7. Decision of diversion along with associated terms and conditions for diversion will be based on the agreement reached in RPC Forum after considering the merit of the request. It is clarified that regional spare transformer/ reactor can be diverted only in case of restoration of failed equipment and generally not for commissioning of new equipment.

8. Upon approval in the RPC, the Spare transformer/ reactor shall be diverted to the Borrower only on usage/replenishment basis and the same shall not be sold to the Borrower under any circumstances.

E. Signing of agreement:

Upon approval in the RPC Forum & before diversion of Regional spare transformer/ reactor, an agreement shall be signed between POWERGRID and the Borrower. The agreement shall cover the terms and conditions for the diversion of equipment in line with this SOP and as discussed below broadly.

a) Time period:

The Borrower shall return the Spare transformer/ reactor within the timeframe agreed by the RPC which in all cases shall not exceed a maximum of 24 months from the date of diversion. The spare transformer/ reactor is to be lifted within 3 months of signing of agreement. Failing which the consent for diversion as agreed in the RPC shall be deemed to be withdrawn.

POWERGRID shall monitor the list of such diverted equipment and coordinate to ensure that the replenishment by the borrower is done as per agreed timeframe and keep the RPC forum informed.

b) Cost Implications:

The equipment shall be diverted on zero cost basis/ cost neutral basis to POWERGRID. On account of the diversion, POWERGRID shall remain revenue

neutral i.e. there shall be no change in CERC approved tariff or its sharing due to diversion of the concerned regional spare transformer/ reactor. The sharing of cost of the asset shall be as per Sharing Regulations. Tariff of the asset shall be borne by the requestor for the period of usage and charges of the asset shall be recovered bilaterally and adjusted back to pool." Tariff of the asset would be put up to borrower and RPC by POWERGRID in advance.

c) <u>Responsibility of Borrower:</u>

i) The Borrower shall be responsible for dismantling, to & fro transportation, transit insurance, statutory expenses, erection, testing & commissioning charges (including at POWERGRID station after return) etc., any other incidental expenditure associated with the diversion of equipment or any loss to POWERGRID on account of diversion and all such charges shall be borne by the Borrower.

ii) Borrower shall verify the condition of equipment at POWERGRID substation before taking the equipment on loan basis. After verification, the equipment shall be handed over to the Borrower.

iii) The Borrower shall be responsible for transportation/ erection/ commissioning/ operation & maintenance.

iv) The Borrower shall be responsible to maintain the equipment in healthy condition as per the standard maintenance practices.

v) The Borrower shall be responsible to ensure that the equipment is returned to POWERGRID in healthy condition as per the commitment/ action plan agreed prior to diversion.

vi) Any damage/failure of the equipment shall be the responsibility of the Borrower till the equipment is taken over by POWERGRID in healthy condition.

vii) In case of failure/ breakdown of equipment during transportation/ erection/ commissioning/ operation & maintenance or during any other activity, the Borrower shall return the equipment after repair/ refurbishment of the same rating as per the POWERGRID specification. Alternatively, new equipment matching with the POWERGRID specifications and from POWERGRID approved vendors shall be replenished. All cost for repair/ refurbishment/ replacement as applicable shall be borne by the Borrower.

viii) After returning of equipment, all pre-commissioning tests shall be jointly performed at POWERGRID station to ascertain healthiness. In case of any deviation, POWERGRID shall take up the repair of equipment and cost of the repair shall be borne by the Borrower.

d) <u>Return of equipment:</u>

In case of any exigency or if required in the interest of the Grid, POWERGRID reserves the right to demand the diverted Spare from the Borrower prior to the time period as agreed in the RPC after intimation to RPC. Once consented in RPC Forum, Borrower shall return the diverted spare to POWERGRID on immediate basis.

e) <u>Penalty clause:</u>

In the event of a delay in the return or replenishment of spare equipment beyond the agreed timeframe (which is a maximum of 24 months from the date of diversion), a penalty of 15% of the approved tariff for the diverted equipment will be imposed on the Borrower for the duration of the deployment. However, this penalty will not be applied if an extended return or replenishment period is approved by the Regional Power Committee (RPC), subject to maximum extension period of 12 months.

Annexure 1B

GUIDELINES
on
DIVERSION of REGIONAL COLD SPARES (TRANSFORMERS and REACTORS)

November 2025

NORTHERN REGIONAL POWER COMMITTEE

1. Background & Objective

POWERGRID procures and maintains regional spares- transformers and reactors- to ensure the continuity of power supply and grid stability in the event of a contingency, such as the sudden failure of an in-service transformer or reactor. The primary purpose of these spares is to meet contingencies/emergencies within ISTS substations of the region. Regional spares are primarily sanctioned for use in Inter-State Transmission System (ISTS) substations. However, diversion of such spares to a State Transmission Utility (STU) may be permitted only under exceptional circumstances, based on the criticality of the requirement and subject to expeditious replenishment by the Borrower.

These Guidelines sets out the framework, eligibility, processes, roles, responsibilities, and conditions under which regional spares- transformers and reactors-maintained by POWERGRID may be diverted to eligible utilities. These Guidelines seeks to balance the need to extend emergency support to constituents with the responsibility of ensuring adequate spare availability for the ISTS network.

2. Scope & Applicability

These Guidelines applies exclusively to transformers and reactors approved by the respective Regional Power Committee (RPC) as *Cold Regional Spares* for use in Inter-State Transmission System (ISTS) substations within the region. These spares are procured, owned, and maintained by POWERGRID to ensure operational continuity of the ISTS network during contingencies. Diversion of Regional Spares may be considered for the following eligible beneficiaries within the same Region:

- **ISTS Substations**.
- **State Transmission Utility (STU) Substations**

Diversion may be considered only in case of failure of existing in-use equipment and where diversion is essential for grid security and reliability. Diversion for commissioning of new assets or Inter-regional diversion of equipment to any constituent may not be permitted. All diversions may be executed strictly on a replenishment basis and may not amount to sale or transfer of ownership of the equipment.

3. Roles and Responsibilities

3.1. Lender (POWERGRID): POWERGRID may ensure that the cold regional spares- Transformers and Reactors- are maintained in operationally ready condition and available for deployment during contingencies. POWERGRID may:

- Maintain a central inventory of all Regional Spares with technical particulars and locations.
- Implement the diversion only after RPC or its sub-forum’s approval, as the case may be, and in accordance with these guidelines.
- Record every approved diversion in the central register, including date of diversion, borrower, and approved return timeline.

- Monitor adherence to approved diversion timelines and report deviations to the respective RPC Secretariat.

3.2. Borrower: The Borrower may be responsible for safe custody and operation of the diverted Regional Spare during its possession. The Borrower may:

- Submit a formal diversion request to the respective RPC Secretariat with required technical and contingency details.
- Jointly verify the equipment condition at POWERGRID substation prior to MoU signing.
- Bear all expenses associated with transportation (both ways), transit insurance, erection, testing, commissioning, and related statutory charges, as applicable, and any incidental expenditure or loss to POWERGRID.
- Ensure site readiness and compatibility of the spare equipment before diversion.
- Furnish a valid Bank Guarantee equal to the prevailing cost of the equipment, effective till 45 days after return or replenishment is completed.
- Maintain and operate the equipment in accordance with applicable technical standards and POWERGRID's guidelines.
- Return or replenish the equipment in healthy condition within the approved timeframe and bear any repair or replacement cost arising from damage or failure.
- After returning of equipment, all pre-commissioning tests may be jointly performed at POWERGRID station to ascertain healthiness. In case of any deviation, POWERGRID may take up the repair of equipment and cost of the repair may be borne by the Borrower.

3.3. RPC Secretariat: The concerned RPC Secretariat may facilitate deliberation of the diversion proposal in the RPC or its sub-forum and place the Borrower's request before the members for decision. It may record all decisions, including timelines for return or replenishment. RPC Secretariat may communicate the decision of the forum to borrower and Powergrid within one week of decision in RPC or its sub-forum meeting.

4. Procedure for Diversion

4.1. Submission of Request: The Borrower may submit a written request to the concerned RPC Secretariat, specifying:

- The nature of contingency or failure necessitating diversion, including details of affected substation and equipment.
- Technical parameters of the failed equipment and the matching requirement from the Regional Spare pool.
- A detailed action plan and proposed timeline for return or replenishment of the diverted equipment.

4.2. Evaluation and Approval: The RPC or its sub-forum may evaluate the request on merit, considering:

- The severity and genuineness of the contingency.
- Availability of the Regional Spare and its necessity for ISTS grid reliability.
- Impact on overall system stability and adequacy of remaining spares.

The decision of the RPC or its sub-forum will be final and binding on all concerned entities. Upon approval, the forum may record the diversion details and the agreed period of utilization in its proceedings.

4.3. Execution of Memorandum of Understanding (MoU)

- Following the approval of diversion by the respective RPC or its sub-forum, the Borrower and POWERGRID may execute a Memorandum of Understanding (MoU) within forty-five (45) days from the date of RPC or its sub-forum. *For the purpose of these Guidelines, date of communication by RPC secretariat of the decisions of the forum to borrower and Powergrid as defined in para 3.3 shall be treated as the date of RPC or its sub-forum approval, as the case may be.*
- The MoU may specify all terms and conditions of diversion, including equipment details, responsibilities of both parties, financial implications, Bank Guarantee (BG) requirements, maintenance and reporting obligations, timelines for return/replenishment, and applicable penalties for default.

4.4. Condition Assessment and Testing

- Before diversion, a joint inspection of the equipment may be carried out by POWERGRID and the Borrower at the designated POWERGRID substation. The physical condition and test results may be documented and signed jointly.
- Upon return, the equipment may undergo joint pre-commissioning testing at the POWERGRID station to ascertain its healthiness. Any deviation, defect, or damage observed during inspection may be rectified at the Borrower's cost. Where repair or refurbishment is necessary, the Borrower may carry it out through the OEM or other approved agency as per POWERGRID specifications.

5. General Conditions of Diversion

5.1. Timeframe for Diversion and Return

- The Borrower should take the physical handover of the equipment from the designated POWERGRID substation within forty-five (45) days from the date of execution of the MoU.
- Failure to take the physical handover of the equipment within the ninety-days (90) days from RPC or its sub-forum approval, as applicable, may be treated as revocation the diversion approval.

- The maximum diversion period may not exceed twenty-four (24) months from the Zero Date of Diversion.
- The Borrower may ensure return or replenishment of the diverted equipment within this period as per the action plan approved by the RPC or its sub-forum, as applicable, and the provisions of the MoU.
- Any request for extension of the diversion period beyond twenty-four (24) months or delay in taking the physical handover of the equipment may require prior approval of the respective RPC or its sub-forum, as applicable, supported by written justification.
- On completion of the diversion period, the Borrower should return the equipment in healthy condition to POWERGRID to POWERGRID's technical specifications.
- *The "Zero Date of Diversion" shall be the date recorded in the joint handover certificate signed by representatives of POWERGRID and the Borrower at the time of physical transfer from the designated POWERGRID substation or storage location.*
- *The "Date of Return" shall be the date recorded in the joint handover certificate signed by representatives of POWERGRID and the Borrower, after successful healthiness checking, at the time of physical transfer at the designated POWERGRID substation or storage location.*

5.2. Early Recall

- RPC Forum may recall any diverted equipment at any time before the expiry of the approved period if required in the interest of grid security or system reliability.
- The Borrower should return the equipment immediately upon receipt of such recall notice, and the RPC Secretariat may be intimated accordingly.

5.3. Financial Provisions: Diversion of Cold Regional Spares may be carried out on a cost-neutral basis, ensuring that POWERGRID neither incurs financial loss nor earns additional revenue on account of such diversion. The diversion should not result in any change in the Yearly Transmission Charges recoverable by POWEGRID as per the approved tariff against the diverted asset and financial adjustments, if any, may be settled within the regional pool mechanism as approved by the RPC forum. The Borrower may bear all direct and incidental costs, including transportation, loading/unloading, insurance, erection, testing, and commissioning charges. The Borrower may be fully liable for any loss, damage, theft, or deterioration of the equipment during the diversion period. Insurance coverage may be obtained in the joint name of POWERGRID and the Borrower, with POWERGRID designated as the primary beneficiary.

In line with these principles, the financial treatment for diversion may be as follows:

- **ISTS Substations:** Diversion to any ISTS substation, should be without financial liability to Powergrid/DIC. Such diversion should not affect the Regional tariff or cost-sharing framework.
- **STU Substations:** For diversions to STU substations, the equivalent Yearly Transmission Charge (YTC) of the diverted asset on pro-rate basis, along with any applicable penalty, may be credited to the Regional ISTS Pool for the diverted period.

  For this purpose, POWERGRID may raise bilateral bills to the borrower to recover the equivalent YTC of the diverted asset on pro-rate basis, along with any applicable penalty. The YTC may be computed in accordance with the prevailing Tariff Regulations, Sharing Regulations, or any other rules or regulations notified by CERC or the Ministry of Power, and all provisions relating to due dates, late payment surcharge, interest, or other billing conditions may likewise be governed by the applicable rules or regulations. The amount so recovered may be adjusted in the Regional ISTS Pool through the Second Bill mechanism under sharing regulations, and the corresponding credit shall be passed on to the DICs of the Region in the same Second Bill.

5.4. Bank Guarantee (BG) requirements:

- Borrower may furnish a valid Bank Guarantee equal to the prevailing cost of the equipment, effective till 45 days after return or replenishment is completed.
- The BG may be invoked by POWERGRID to recover any financial loss or liability arising from events such as failure to return or replenish the equipment within the agreed timeframe, or failure to repair, refurbish, or replace the equipment in the event of damage, failure, or loss during transit, erection, or operation.

5.5. Penalty and Default:

- If the Borrower fails to return or replenish the diverted equipment within the agreed timeframe, which may not exceed 24 months, a penalty of 15% of the approved Yearly Transmission Charge (YTC) of the diverted asset may be levied on a pro-rata basis for the delayed duration.
- The penalty amount may be credited to the Regional Component of ISTS charges for the corresponding period. In case of continued default or non-replenishment, POWERGRID may report the matter to the RPC forum for further decision, which may include encashment of the Bank Guarantee and/or regulatory intervention.

5.6. Record-Keeping and Monitoring: POWERGRID may maintain a centralized and up-to-date register of all diversions, containing the following information:

- Borrower entity name and category.
- Equipment details (type, rating, make, serial number).
- Date of diversion and expected return date.
- Physical and test condition at dispatch and upon return.
- Financial treatment and applicable YTC adjustments.
- Status of replenishment or replacement.

6. **Review and Amendment:** These Guidelines may be reviewed from time to time to incorporate operational experience, regulatory updates, or changes in system requirements.
7. **Power to Relax:** RPC forum may relax any of the provisions of these guidelines on its own or on an application made before it by the affected party.

Annexure-B.2.13

Annexure-II

ଓଡ଼ିଶା ବିଦ୍ୟୁତ ଶକ୍ତି ସଂଚାରଣ ନିଗମ ଲି.
ODISHA POWER TRANSMISSION CORPORATION LIMITED
(A Government of Odisha Undertaking)
Regd.Office: Janpath: Bhubaneswar-751007.
Telephone: (0674) 2540051 (EPABX), Website: www.optcl.co.in
CIN: U4102OR2004SGC007553

No. RT&C-05/2023 341(5) Date 15.12.2025

To,

The Member Secretary
Eastern Regional Power Committee
14, Golf Club Road,
Tollygunge, Kolkata-700033

Sub: Certification of non-ISTS lines of OPTCL carrying ISTS Power for FY 2019-2024.

Ref: 1) Your letter no ERPC/COM-I/NON-ISTS/2018/5246 dated 12.10.2018.
2) CERC order dated 26.02.2025 in Petition No. 288/TT/2023.
3) Para 2.15 of Agenda of 231st OCC meeting held on 22.09.2025

Sir,

With reference to the subject cited above, we would like to bring to your kind attention that, upon our request based on the requirement of CERC, the following 9nos. Non-ISTS lines carrying ISTS power were certified by ERPC for the period 2014–2019.

Sl. No	Line Name	Voltage Level	Connecting Status	Ckt. Kms	Type Conductor	DOCO
1	Indravati–Indravati PG SC	400KV	Odisha, AP	3.970	Twin ACSR Moose	1999
2	Rengali–Keonjhar- SC	400KV	Odisha, WB	115.530	Twin ACSR Moose	1995
3	Keonjhar–Baripada-SC	400KV	Odisha, WB	104.243	Twin ACSR Moose	1995
4	Baripada–Kharagpur (Up Odisha Border)-SC	400KV	Odisha, WB	21.727	Twin ACSR Moose	1995
5	Jaynagar–PGCIL-DC	220KV	Odisha, CTU	15.460	ACSR Zebra	1990
6	Rengali–Rengali PGCIL-DC	220KV	Odisha, CTU	2.000	ACSR Zebra	1997
7	Balimela PH–Upper Sileru	220KV	Odisha, AP	24.760	ACSR Zebra	1982
8	Joda–JSPL SC	220KV	Odisha, JSEB	14.110	ACSR Zebra	1984
9	Joda–Kenduposi SC	132KV	Odisha	49.900	ACSR	1985

However, in para 2.15 of 231st OCC meeting agenda , it was requested that SLDC Odisha has to submit the verified tripping data of above transmission lines for FY 2014 onwards. OPTCL has attached the availability of the above lines (Annexure-1) along with tripping data (Annexure-2) and the same may be kindly verified and certified at your end.

Therefore it is requested that necessary certification in respect of above mentioned lines for the period FY 2019-2024 may please be issued at an early date for filling the same before CERC within the stipulated time.

Yours faithfully

15/11/24

Sr. GM (RT&C)

CC

1. Sr.PS to CMD, OPTCL, Bhubaneswar for kind information of CMD.
2. Sr. PS to Director (SLDC), Bhubaneswar for kind information of Director(SLDC)
3. PS to Director (O), OPTCL, Bhubaneswar for kind information of Director (O).
4. PS to Director (F), OPTCL, Bhubaneswar for kind information of Director (F).

(Annexure - 1)

SLNO	NAME OF THE LINE	VOLTAGE LEVEL	AVAILABILITY FOR 2019-2020 IN %	AVAILABILITY FOR 2020-2021 IN %	AVAILABILITY FOR 2021-2022 IN %	AVAILABILITY FOR 2022-2023 IN %	AVAILABILITY FOR 2023-2024 IN %
1	Indravati - Indravati PG -SC	400	100	100	100	100	100
2	Rengali- Keonjhar-SC	400	100	100	100	100	100
3	Keonjhar- BARIPADA-SC	400	100	100	100	100	100
4	Baripada- Kharagpur(upto Odisha Boarder)SC	400	100	100	100	100	100
5	Jayanagar-PGCIL DC	220	100	100	100	99.99	100
6	Rengali-Rengali PGCIL DC	220	100	100	100	100	100
7	Balimela PH-U. Silure SC	220	100	100	100	100	100
8	Joda-JSPL SC	220	100	99.99	100	99.99	100
9	Joda-Kenduposi SC	132	99.96	100	100	99.98	100

Annexure-III

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/BCD/AVC/01

Date: 26.08.2025

To.
As per distribution list

Sub: Availability Certification of deemed ISTS lines/natural ISTS lines of STUs.

Sir,

Central Transmission Utility of India Ltd.. as CTU, has been mandated for Billing, Collection and Disbursement of ISTS charges as per provisions of CERC Sharing Regulations, 2020. Billing for ISTS charges includes transmission lines of ISTS Licensees and intra-state lines considered as deemed ISTS lines/natural ISTS lines of STUs. Hon'ble CERC is determining tariff for such lines of STUs as per provisions of CERC Tariff Regulations applicable from time to time and CERC Suo-moto order 15/SM/2012 dtd. 14.03.2012 & 07/SM/2017 dtd 12.05.2017.

CERC while approving tariff in following tariff orders observed that once transmission charges of non-ISTS lines are included in the ISTS pool, the availability of such lines needs to be verified by the respective RPC and recovery of tariff should be linked with their availability, for which necessary mechanisms may be put in place by the RPCs. CERC further directed that YTC of such intra-State lines shall be included in the PoC Pool based on the availability of each of the lines as certified by the RPCs in terms of the provisions under the 2014 Tariff Regulations and the 2019 Tariff Regulations, as applicable.

Sr. No.	STU	Pet. No.	Tariff Block	Order date	Concerned RPC
1	WBSETCL	324/TT/2023	2019-24	31.05.2025	ERPC
2	WBSETCL	309/TT/2023	2014-19	29.05.2025	ERPC
3	TG Transco (Telangana)	330/TT/2022	2019-24	01.08.2024	SRPC
4	RRVPNL	112/TT/2017	2014-19	02.08.2024	NRPC
5	RRVPNL	215/TT/2017	2014-19	02.08.2024	NRPC
6	RRVPNL	212/TT/2022	2019-24	20.03.2024	NRPC
7	OPTCL	288/TT/2023	2014-19	26.02.2025	ERPC
8	MSETCL	82/TT/2022	2014-19 & 2019-24	11.11.2024	WRPC
9	MPPTCL	329/TT/2022	2019-24	30.04.2024	WRPC
10	MPTCL	73/TT/2024	2014-19 & 2019-24	28.04.2025	WRPC
11	KPTCL	353/TT/2023	2019-24	07.05.2025	SRPC

Further, Clause 5 of Regulation 93 of Tariff Regulations, 2024 applicable for 2024-29 Tariff block also provides that Tariff of Non-ISTS Lines carrying Inter-State Power shall be approved based on provisions of these Regulations, and the fixed charges of such system shall be allowed based on the availability as certified by respective RPCs and shall be allowed to be recovered as per the mechanism specified in CERC (Sharing of Inter-State Transmission Charges and Losses), 2020.

In the absence of availability certificate of intra-state/natural ISTS lines of STUs, CTU is including transmission charges of intra-state /natural ISTS lines in ISTS pool on normative availability basis i.e. without any incentive/penalty, however, in light of above CERC orders and provisions of Tariff Regulations, 2024,

Office : 5th -10th Floor, Plot No. 16, Ircon International Tower-1, Sector 32, Gurugram, Haryana- 122003
Registered Address : 2nd Floor, Plot No -2, Sector 29, Gurugram, Haryana-122001
कार्यालय : 5वीं -10वीं मंजिल, प्लॉट नंबर 16, इरकॉन इंटरनेशनल टॉवर -1, सेक्टर 32, गुरुग्राम, हरियाणा- 122003
पंजीकृत कार्यालय : दूसरी मंजिल, प्लॉट नंबर -2, सेक्टर 29, गुरुग्राम, हरियाणा-122001

recovery of ISTS charges to STUs is subject to the availability of transmission system as certified by RPCs. Any under recovery /over recovery on account of certified transmission system availability needs to be adjusted in ISTS pool to comply the CERC directions/Regulations.

In view of the above, all STUs & DVC, whose intra-state lines/natural ISTS lines are included in ISTS system as per CERC Sharing Regulations, 2020, are requested to obtain availability certificates of their intra-state lines/natural ISTS lines from respective RPCs as directed by CERC in tariff orders/provisions of Tarriff Regulations, 2024 and submit the same to CTU for necessary adjustment in ISTS pool.

Further, in some cases of intra-state/natural ISTS lines of STUs, where tariff has been approved by CERC for 2014-19 and 2019-24 tariff block and as per approved tariff, amount over recovered needs to be refunded in ISTS pool, therefore, STUs are requested to refund the over recovered amount in ISTS pool immediately.

STUs & DVC are also requested to file petition for determination of tariff for 2024-29 tariff block on priority basis and intimate the status of petition filing to CTU.

Thanking you,

Yours faithfully,

(V. C. Sekhar)
Sr. GM (Commercial)

TP PARADEEP TRANSMISSION LIMITED

Annexure B.2.14.

(Formerly Known as Paradeep Transmission Limited)

Registered Office: Plot No. 181, Ground Floor, Block – K, Mangolpuri, Delhi - 110083

Corporate Office: Unit 104-A, 191/A, Kharvel Nagar, Unit-03, 11th Street, Bhubaneswar, Khurdha, Odisha-751001

CIN: U42201DL2023PLC423252 • Tel.: +91- 9223501318

Letter No: PTL/2025-26/ 230 **Date:** 22/08/2025

To,
The Dy General Manager,
EHT (Maint.) Dn.
JITPL, Derang

Subject: Regarding submission of power line crossing proposal of proposed (Under Construction) 765kV D/C Angul-Paradeep transmission line under TP Paradeep Transmission Limited.

Dear Sir,

TP Paradeep Transmission Limited (100% wholly-owned subsidiary of The TATA Power Company Ltd.) is constructing an overhead 765KV D/C Angul-Paradeep Transmission Line.

The subject transmission line of TP Paradeep Transmission Limited is crossing 400 kV D/C ANG-DER (JITPL) Transmission Line of JITPL as per detail given below:

Sl. No.	Proposed Line		Name of the Existing Line (JITPL)	Details of the JITPL		
	Name of the Line	(Crossing in between Loc. No.)		Tower No	Voltage Rating in KV	Name of the Owner
1	765KV D/C Angul-Paradeep Transmission Line.	AP5-AP6	400 kV D/C ANG-DER (JITPL) Transmission Line	06-07	400kV	JITPL

It is requested to kindly provide the approval of above power line crossing at the earliest possible. Your early action in this regard shall be highly solicited.

Thanking You

Yours Faithfully

(T.P. Paradeep Transmission Limited)

Copy to:

1- Chief Executive Officer, TP Paradeep, Bhubaneswar

POWER LINE (OVERHEAD) CROSSING PROPOSAL CHECK LIST		ANNEXURE-I	
Name of the project /Line (proposed):		**765 KV D/C Angul-Paradeep Transmission Line (CONSTRUCTION OF 765KV & 400KV DOUBLE CIRCUIT TRANSMISSION LINES FOR EASTERN REGION EXPANSION SCHEME-XXXIV (ERES-XXXIV)**	
A	**Details of Existing Power line :**		
1	Name of the Line	**400 kV D/C ANG- DER(JITPL) Transmission Line**	
2	Owner of the Line	**JITPL**	
3	Line Voltage/Configuration	400 kV D/C Transmission Line	
4	Crossing Span	384 M	
5	Crossing Tower No./Type	**Left (C)**	**Right (D)**
		TN-06	TN-07
6	Distance of Tower on both side from crossing point	286m	98m
7	Height of both the Existing towers	47.45 M	47.45 M
8	RL of the Existing tower w.r.t. Proposed tower	103.112 M	98.616 M
9	GPS Coordinate of both the Crossing Tower of Existing Line	20°43'58.18"N	20°43'45.71"N
		85°10'2.27"E	85°10'1.35"E
10	Ht. Of Earth Wire of Existing Line at Crossig Point from Ground Level at 0°Temperature.	**41.20 Mtrs.**	
A	**Details of Propose Power line :**		
1	Name of the Proposed Line	**765 KV D/C Angul-Paradeep Transmission Line**	
2	Owner of the Line	**Paradeep Transmission Limited**	
3	Line Voltage/Configuration	**765 KV D/C**	
4	Type of Conductor /No of Conductors per phase	AL 59 Zebra	
5	Crossing Span	**258 M**	
6	Crossing Tower No./Type	**Loc.A**	**Loc.B**
		AP5/0 (DD60+25)RC 3	AP6/0 (DD60+18)RC 3
7	Distance of Proposed towers on both side from Crossing Point	159 M	99 M
8	Height of Proposed Towers	101.33 M	94.33 M
9	RL of the Proposed tower	55.16 M	55.20 M
10	GPS Coordinate of both the crossing tower of Proposed line	20°43'49.10"N	20°43'48.78"N
		85° 9'56.09"E	85°10'5.01"E
11	Angle of Deviation of Proposed Tower	12°01'05"RT	45° 17' 32"RT
12	Near Village	Near Girdhabasa , Angul	Near Girdhabasa , Angul
13	Ht. Of Bottom Conductor of Proposed Line at Crossing Point from Ground Level at 85°Temperature.	**50.6Mtrs.**	

C Crossing Details:

1	Crossing Angle	88°08'33"
2	Clearance between E/W of Existing line at 0° Temperature & Bottom Conductor of Proposed line at 85° Temperature.(in case of overhead crossing)	9.4Mtrs.
3	Required Clearance as per **IE Rules**	**7.94 M**

For, TP Paradeep Transmission Limited

Owner:-	TP PARADEEP TRANSMISSION LIMITED
Project:-	EPC OF 765 KV G 400 KV D/C TRANSMISSION LINES FOR EASTERN REGION EXPANSION SCHEME-XXXIV (ERES-XXXIV).
Line:-	TOWER SCHEDULE FOR 765 KV D/C ANGUL - PARADEEP TRANSMISSION LINE.
Contractor:-	TATA PROJECTS LIMITED,NOIDA
Title	Tower Schedule Loc.no.4/0 to Loc.no.-6/1 (Total =.917 KM.)

TATA

Doc. No. TPPTL/TS/AP-/Loc.4/0- Loc 6/1

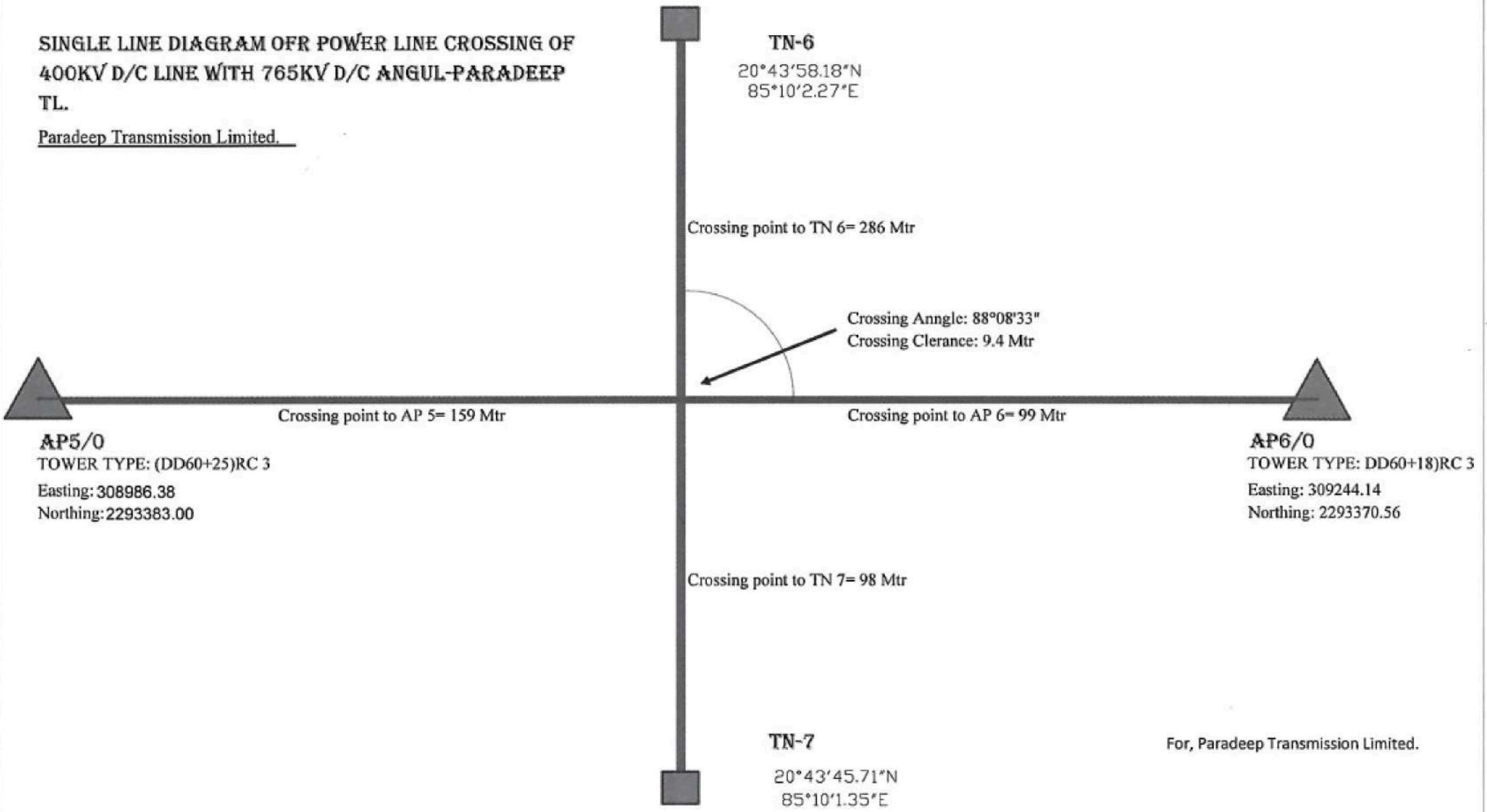
Sr. No	Loc. No.	Type of Tower	RAISED CHIMNEY				Easting (X)	Northing (Y)	Ground Level M.S.L (m)	Deviation Angle	Span (m)	Sum of Adjacent Span (m)	Cum. Length (m)	Wind Span (m)	Weight Span in Mtr (Cold)			Weight Span in Mtr (Hot)			Remarks & Crossings.	Near Village
			A	B	C	D									Left	Right	Total	Left	Right	Total		
1	AP4	DD45+0_W5	0	0	0	0	308740.549	2293342.952	103.656	36°25'12"LT		0	0	336	159	-52	107	170	25	195		TALMULSASAN
											249											
2	AP5	DD60+25_W5	3	3	3	3	308986.379	2293383.004	99.006	12°01'05"RT		507	249	254	303	205	508	225	174	399		TALMULSASAN
											258										400 KV D/C (ANG-DER)JITPL CKT T/L X-ING	
3	AP6	DD60+18_W5	3	3	3	3	309244.136	2293370.559	95.5	45°17'33"RT		668	507	334	53	290	343	85	270	355		TALMULSASAN
											410											
4	6/1	DA-1.5_W5	0	0	0	0	309518.179	2293065.598	97.624			0	917	394	121	205	326	143	201	344		TALMULSASAN

FOR TATA PROJECTS LIMITED			FOR TP PARADEEP TRANSMISSION LIMITED		
Prepared By	Checked By	Submitted By	Checked By	Recommended By	Approved By

TP PARADEEP TRANSMISSION LIMITED

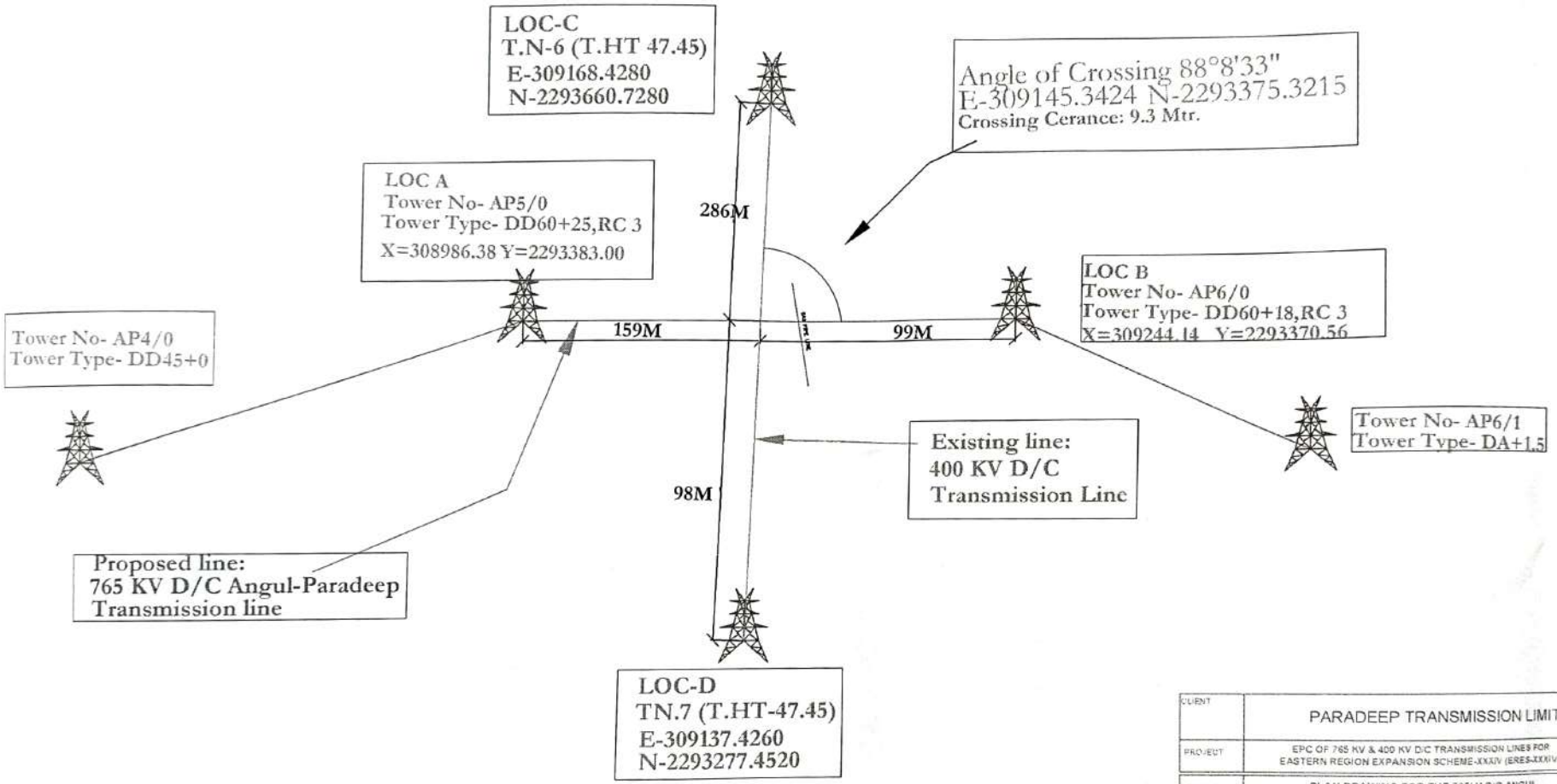
SINGLE LINE DIAGRAM OFR POWER LINE CROSSING OF 400KV D/C LINE WITH 765KV D/C ANGUL-PARADEEP TL.

Paradeep Transmission Limited.



For, Paradeep Transmission Limited.

400 kV D/C POWER LINE CROSSING PLAN



CLIENT	PARADEEP TRANSMISSION LIMITED
PROJECT	EPC OF 765 KV & 400 KV D/C TRANSMISSION LINES FOR EASTERN REGION EXPANSION SCHEME-XXXIV (ERES-XXXIV)
DRAWING DESCRIPTION	PLAN DRAWING FOR THE 765kV D/C ANGUL PARADEEP TRANSMISSION LINE CROSSING WITH 400 KV D/C T/L

FOR TATA PROJECTS LIMITED

SURVEYED BY | CHECKED BY

TATA PROJECTS LIMITED

FOR TP PARADEEP TRANSMISSION LIMITED

CHECKED BY | RECOMMENDED BY | APPROVED BY

TP PARADEEP TRANSMISSION LIMITED

TP PARADEEP TRANSMISSION LIMITED

JINDAL INDIA POWER LIMITED

VILL/P.O : DERANG, TEHSIL : KANIHA, DIST. : ANGUL, ODISHA, PIN-759117
Phone NO - 91-9583040700/701/702/7
CIN : U74999DL2001PLC109103

12.09.2025

To
The Project In-Charge
T.P. Paradeep Transmission Ltd,
Angul, Odisha.

Sub: Approval for Power Line Crossing of 765 kV Angul – Paradeep Transmission Line over JIPL – Angul 400 kV Transmission Line – reg

Ref: Your letter No. PTL/2025-26/230 dated: 22-08-2025

Dear Sir,

With reference to your letter No. **PTL/2025-26/230** and the enclosed proposal, it is observed that the 765 kV Angul – Paradeep Transmission Line is crossing our JIPL – Angul 400 kV Transmission Line at Giridhibasia Village between towers 4B/0 – 4C/0.

Please note that both units of JIPL are currently operating at full load and Double circuit line is lifeline for exporting power, and hence, it is not possible to switch off the JIPL – Angul 400 kV line for **Offline** execution of the crossing work.

Therefore, the proposed crossing must be executed **ONLINE**, as the shutdown of the JIPL – Angul line is not feasible.

However, before according to approval for the online execution of the work, we seek clarifications and commitments on the following points:

1. **Statutory Approvals**

   Please provide the complete list and current status of all statutory approvals obtained or pending for execution of your line (including ROW, PTCC, Civil Aviation, Railway/Highway crossings, MOEFCC clearances, and CEA/CTU approvals).

2. **Route Alignment & Alternatives**

   Kindly confirm whether alternative alignments were explored to avoid crossing our line and provide justification for selecting the present crossing location.

3. **Underground Cable Option (for crossing) with 400 KV transmission instead of 765KV**

   Please explore the option of 400 KV transmission line with underground 400 KV EHV cable for crossing.

JINDAL INDIA POWER LIMITED

VILL/P.O : DERANG, TEHSIL : KANIHA, DIST. : ANGUL, ODISHA, PIN-759117
Phone NO - 91-9583040700/701/702/7
CIN : U74999DL2001PLC109103

4. **Execution-Stage Responsibilities**

   In case of flashover, tripping, or any major incident affecting our line during execution, kindly confirm that TP Paradeep Transmission Ltd. shall fully compensate JITPL for all direct and consequential losses (including repair costs, generation/supply loss, and penalties).In the event of any physical damage to our line during stringing or tower erection, kindly confirm that all rectification works shall be carried out at your cost, either by your approved contractors or by JITPL (with costs reimbursed by you). Also please specify the insurance policies in place (Contractor All Risk, Third Party Liability) covering such incidents.

5. **Post-Erection Liabilities**

   Should any damage or operational disturbance occur to our line after the erection of your 765 kV line due to any problem in the 765 kV line, kindly confirm that TP Paradeep Transmission Ltd. shall remain responsible for rectification and full cost bearing, including compensation for outages, penalties, and consequential losses.

   We also request your confirmation on providing a permanent indemnity undertaking covering all future liabilities arising out of the crossing arrangement.

6. **Detailed TOR**

   We request you to share a draft Terms of Reference (TOR) or Agreement for crossing, clearly outlining the roles, responsibilities, cost-bearing mechanisms, and indemnity provisions, for mutual review and finalization before any approval is granted.

We look forward to your comprehensive response to the above queries and submission of supporting documents/undertakings. Only after satisfactory resolution of these points will JIPL be in a position to consider the requested clearance for the crossing.

Thanking you,

Yours faithfully,

For Jindal India Power Limited (JIPL)

TP PARADEEP TRANSMISSION LIMITED

(Formerly Known as Paradeep Transmission Limited)
Registered Office: Plot No.181, Ground Floor, Block –K,Mangolpuri, Delhi-110083
Corporate Office:Unit 104-A, 191/A, Kharvel Nagar, Unit-03, 11thStreet, Bhubaneswar, Khurdha, Odisha-751001CIN: U42201DL2023PLC423252 ● Tel.: +91- 9223501318

Ref:PTL/2025-26/376 **Date: 03/11/2025**

To,
Avinash Sapre,
GM, EMD, JIPL

Ref: Your Letter received on dated 12.09.2025

Dear Sir,

We thank you for your detailed observations and concerns regarding the proposed crossing of the 765 kV Angul–Paradeep Transmission Line over the JIPL–Angul 400 kV Transmission Line at Giridhibasia Village.

Please find below our response to the queries raised:

1. Statutory Approvals:

This is a TBCB project approved by Ministry of Power Vide Gazette Notification no. 2080 dated 12.05.2023 had appointed PFC Consulting Ltd. as Bid Process Coordinator. This project is being executed under Power Ministry and is monitored under PM Gati Shakti portal. As and when required TPPTL shall take the statutory approvals to comply with all relevant regulations. The approvals are confidential with NDA clauses and they cannot be shared.

2. Route Alignment & Alternatives:
In regard to route alignment multiple route options were explored, however the crossing location is near the Angul Powergrid Substation, where bay extension has been allocated in a zone that **does not allow any feasible alternative to avoid crossing** your line.

3. Underground Cable Option:
As the transmission line under construction is a **765 kV overhead line**, underground cabling is **not technically feasible with the existing technologies available**. The use of underground EHV cable at this voltage level is not feasible due to limitations in technology, cost, and operational reliability.

4. Execution-Stage Responsibilities:
We confirm that TP Paradeep Transmission Ltd. will bear full responsibility for any damage or incident during execution. Necessary insurance policies of our executing agency (Contractor All Risk, Third Party Liability) are in place. Compensation and rectification will be undertaken as per mutually agreed terms.

5. Post-Erection Liabilities:
We accept responsibility for any operational disturbance or damage caused by our line post-erection. An undertaking will be provided.

6. Terms of Reference (TOR):
A draft TOR outlining roles, responsibilities, indemnity clauses, and cost-sharing mechanisms will be provided before Stringing.

We assure you of our commitment to safety, coordination, and transparency throughout the execution. We look forward to your approval upon satisfactory review of the enclosed documents.

Thanking You

Sambit Nayak
Group Head, Transmission Line

TP PARADEEP TRANSMISSION LIMITED

TP PARADEEP TRANSMISSION LIMITED
(Formerly Known as Paradeep Transmission Limited)
Registered Office: Plot No. 181, Ground Floor, Block – K, Mangolpuri, Delhi - 110083
Corporate Office:Unit 104-A, 191/A, Kharvel Nagar, Unit-03, 11th Street, Bhubaneswar, Khurdha, Odisha-751001

WITHOUT PREJUDICE

Letter No. PTL /25-26/625 **Date: 23.02.2026**

To,

The Plant Head

Jindal India Power limited, Angul, Odisha

Subject: Approval for powerline crossing Proposal of 765 kV D/C Angul (Power Grid) – Paradeep Transmission Line over 400KV D/C Angul (Powergrid) – DER (Jindal-JIPL) Transmission Line.

References:

1. TP Paradeep Transmission Ltd letter no. PTL /2025-26/230 dated 22.08.2025 to Jindal India Power Limited.
2. Letter from Jindal India Power Limited to TP Paradeep Transmission Ltd dated 12.09.2025.
3. TP Paradeep Transmission Ltd letter no. **PTL /25-26/376 dated 03.11.2025** to Jindal India Power Limited.

Dear Sir,

1. We write in reference to above referred letters and meeting at your good office on 17.02.2026, with respect to crossing of 765 kV D/C Angul (Power Grid) - Paradeep Transmission Line ("**TPPTL Transmission Line**") over 400KV D/C Angul (Powergrid) – DER (Jindal-JIPL) Transmission Line ("**JIPL Transmission Line**").
2. TP Paradeep Transmission Limited is a Special Purpose Vehicle (SPV) incorporated by the Government (PFCCL) for implementation of 765KV Substation project as part of Eastern Region Expansion Scheme for setting up a 765/400 KV Substation along with the 765 kV Angul (PowerGrid) – Paradeep transmission line and associated 400 kV line of Eastern Region Expansion Scheme. The project is being monitored by Central Electricity Authority and Central Transmission Utility of India Limited, and it is also registered on the PM Gati Shakti portal.

TP PARADEEP TRANSMISSION LIMITED
(Formerly Known as Paradeep Transmission Limited)
Registered Office: Plot No. 181, Ground Floor, Block – K, Mangolpuri, Delhi - 110083
Corporate Office:Unit 104-A, 191/A, Kharvel Nagar, Unit-03, 11th Street, Bhubaneswar, Khurdha, Odisha-751001

3. With reference to discussion held at your good office on 17.02.2026 and in continuation to our letter dated 03.11.2025, we hereby clarify the following:

   a. During the execution stage of TPPTL Transmission Line, TPPTL shall bear full responsibility for any damage or incident affecting JIPL Transmission Line of Jindal India Power Limited ("**JIPL**") and shall compensate JIPL for all direct losses (if any). It is clarified that, TPPTL shall not be liable for any damages or incident affecting JIPL Transmission Line during execution of TPPTL Transmission Line arising due to force majeure events, including but not limited to act of God, Grid Disturbances, Natural Calamities, act of third parties, statutory or regulatory actions. Further, necessary insurance policies, including Contractor All Risk and Third-Party Liability insurance, have been arranged by our executing agency. Any compensation and rectification shall be undertaken as per mutually agreed terms.

   b. TPPTL shall be liable for rectification and associated costs only to the extent any damage is caused to JIPL Transmission Line directly attributable to TPPTL's acts, omissions, negligence or non-compliance with approved technical specifications in relation to TPPTL Transmission Line. It is clarified that TPPTL shall not be liable for any damages, outages, or loss arising from force majeure events, including but not limited to act of God, Grid Disturbances, Natural Calamities, acts of third parties, statutory or regulatory actions or any other event beyond the reasonable control of TPPTL.

4. We assure you of our full commitment to safety, coordination, and transparency throughout the execution of the work. We look forward to your approval upon satisfactory review of the above submissions.
5. The present letter is being issued without prejudice to rights of TPPTL under the extant statutory and regulatory framework.

Thanking you,

TP PARADEEP TRANSMISSION LIMITED

Kapil Umak
Chief Executive Officer
TP Paradeep Transmission Limited

TP GOPALPUR TRANSMISSION LIMITED

(Formerly Known as ERES-XXXIX Power Transmission Limited)

Registered Office: Plot No. 181, Ground Floor, Block – K, Mangolpuri, Delhi – 110083

Corporate Office: Unit 104-B, 191/A, Kharvel Nagar,Unit-03,11th Street, Bhubaneswar, Khurdha, Odihsa-751001

CIN: U42202DL2024PLC428871 • Tel.: +91- 9223581895 • Email ID: tushardhande@tatapower.com

Letter No. TPGTL /25-26/183 **Date: 14.01.2026**

To,
The Station Head,
Jindal India Power limited,
Angul, Odisha

Subject: Proposal for 400KV D/C Angul(Powergrid) – DER (Jindal-JIPL) Transmission Line crossing by our 765 kV D/C Angul (Power Grid) - Gopalpur Transmission Line

Dear Sir,

Ministry of Power, Government of India (RECPDCL) has formed SPV i.e TP Gopalpur Transmission Ltd for implementation infrastructure development scheme - Eastern Region Expansion Scheme - XXXIX for evacuation of power from generating station and transmission to load centers. Under the ERES XXXIX scheme a 765 KV D/C Transmission Line is being constructed from Power Grid Angul to proposed 765/ 400 kV station at Gopalpur. TP Gopalpur Transmission Ltd, an SPV formed by GOI is executing the bay extension work. This project is vital for the development of the Eastern Region and for strengthening the national grid in the public interest.

The aforementioned Transmission line is proposed to cross existing **400KV D/C Angul(Powergrid) – DER (Jindal-JIPL) Transmission Line** are as under:

Sl. No.	Name of EHV Transmission Line	Crossing Tower Nos.	Village	Tehsil (Block)	District
1.	765 kV D/C Angul (Power Grid) - Gopalpur TL	2 - 3	Durgaprasadpur	Banarpal	Angul

Plan profile drawing and detailed crossing information, clearly indicates the positions of both the existing and proposed transmission line are enclosed herewith.

We kindly request you to issue necessary approval for this powerline crossing. Please let us know if any additional information or documentation is required for the issuance of the crossing approval.

Thanking you,

TP GOPALPUR TRANSMISSION LIMITED

Tushar Dhande
CEO, TP Gopalpur Transmission Limited

Received
17.01.2026

OVER HEAD POWERLINE CROSSING BY 765KV D/C Angul - Gopalpur Transmission line

A	**Details of Existing Transmission line**			
1	Name of The transmission Line		400KV D/C ANGUL – DER (Jindal-JIPL) Transmission Line	
2	Owner of The transmission Line		Jindal India Power Limited (JIPL)	
3	RL of the Crossing Point		110.51m	
4	Spherical Coordinates of Crossing Point	Latitude -N	20°42'56.77"N	
		Longitude -E	85° 9'19.91"E	
5	Height of Earth wire at Crossing point		37.26m	
6	IN between =Tower No - 11 to Tower No - 12, [vill - Dhurgaprasadapur, Odisha]			
B	**Details of the Proposed power Line**			
7	Name of The transmission Line		765KV D/C Angul - Gopalpur Transmission Line	
8	Owner of The transmission Line		TP Gopalpur Transmission Limited	
9	Line Voltage / Configuration		765kv Double circuit, 3 phase, One Earth wire & One OPGW	
10	Type of the conductor /No. of Conductors		AL59 ZEBRA (HEXA)- 61/4.54mm	
11	Crossing Span		249m	
12	Span		**Preceding Span**	**Succeding Span**
			454m	383m
13	Crossing Tower No./Type		**Preceding Span**	**Succeding Span**
			DD60+25	DD60+18
14	Distance of the Proposed tower on both Side from crossing		132m	117m
15	Height of the proposed towers		98.33m	91.33m
16	RL of the proposed tower		110.139m	109.897m
17	Spherical Coordinates of the Proposed towers on both Side of existing Line	AP - 2	20° 43' 0.10"N	85° 9' 17.10"E
		AP - 3	20° 42' 53.77"N	85° 9' 22.46"E
18	Ht. of bottom conductor of proposed line at crossing point w.r.t ground		47.46m	
C	**Crossing Details**			
19	Crossing angle		84°48'40"	
20	Available Clearance		10.2m	
21	Required Clearance as per IE rules		7.94m	

TATA PROJECTS LIMITED

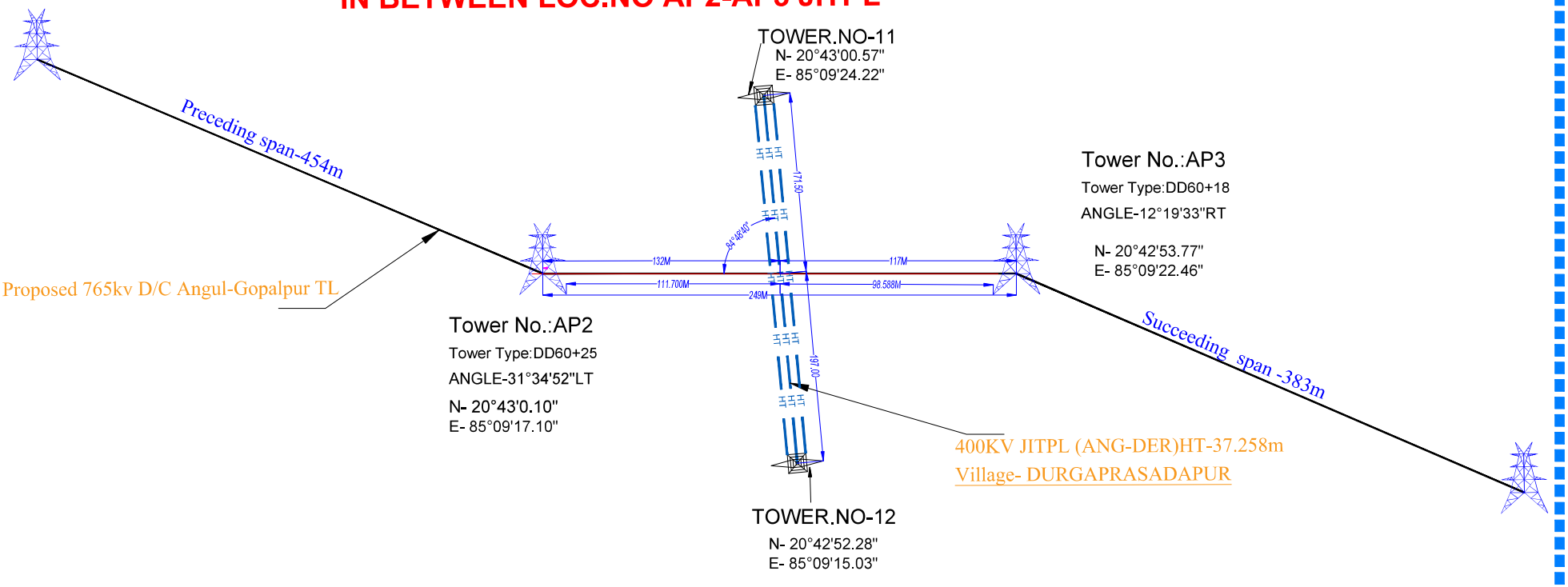
TP GOPALPUR TRANSMISSION LIMITED

Owner:-	EASTERN REGION EXPANSION SCHEME -XXXIX (ERES – XXXIX) - TP GOPALPUR TRANSMISSION LTD
Project:-	CONSTRUCTION OF 765KV & 400KV DOUBLE CIRCUIT TRANSMISSION LINES FOR EASTERN REGION EXPANSION SCHEME-XXXIX (ERES – XXXIX)
Line:-	TOWER SCHDULE FOR ANGUL- GOPALPUR 765 kV D/C TRANSMISSION LINE
Contractor:-	TATA PROJECTS LIMITED,NOIDA
Title	Tower Schedule From Gantry - AP 4 Showing Power Line Crossing Details at AP 2 - AP 3

Sl No.	Loc. No.	Type of Tower	Raised Chimney				WGS-84 (UTM ZONE-45)		Ground Level M.S.L. (M)	Deviation Angle	Span (M)	Section Length (M)	Cumulative Length (M)	Crossing Details and Remarks
			A	B	C	D	Easting (X)	Northing (Y)						
1	**ANGUL GANTRY**	**BAY**					**307698.930**	**2293185.500**	**116.500**				0	
											106	**106**		
2	**AP1**	**DD60+0_W5**					**307708.940**	**2293079.670**	**115.564**	**0°54'33"LT**			106	Village-TALMULSASAN
											358			
3	1/1	DA-1.5_W5					307748.298	2292723.881	110.780				464	
											386	**1198**		
4	1/2	DA+3_W5					307790.739	2292340.221	102.401				850	
											454			
5	**AP2**	**DD60+25_W5**					**307840.659**	**2291888.949**	**108.141**	**31°34'52"LT**			1304	Village-DURGAPRASADAPUR
											249	**249**		**400kv Line**, 11kV Line
6	**AP3**	**DD60+18_W5**					**307993.640**	**2291692.390**	**111.201**	**12°19'33"RT**			1553	Village-DURGAPRASADAPUR
											383			Cart Track, Tar Road
7	3/1	DA+1.5_W5					308158.934	2291346.895	106.836			**789**	1936	
											406			Water logged area, 33kv line.
8	**AP4**	**DC-1.5_W5**					**308334.190**	**2290980.580**	**115.198**	**26°38'19"LT**			2342	Village-TALMULSASAN
											351	**1197**		Pond, Cart Track

SUBMITTED BY TATA PROJECTS LTD	**APPROVED BY TP GOPALPUR TRANSMISSION LTD**

OVER HEAD POWERLINE CROSSING 400KV ANG- DER T\L
IN BETWEEN LOC.NO AP2-AP3 JITPL

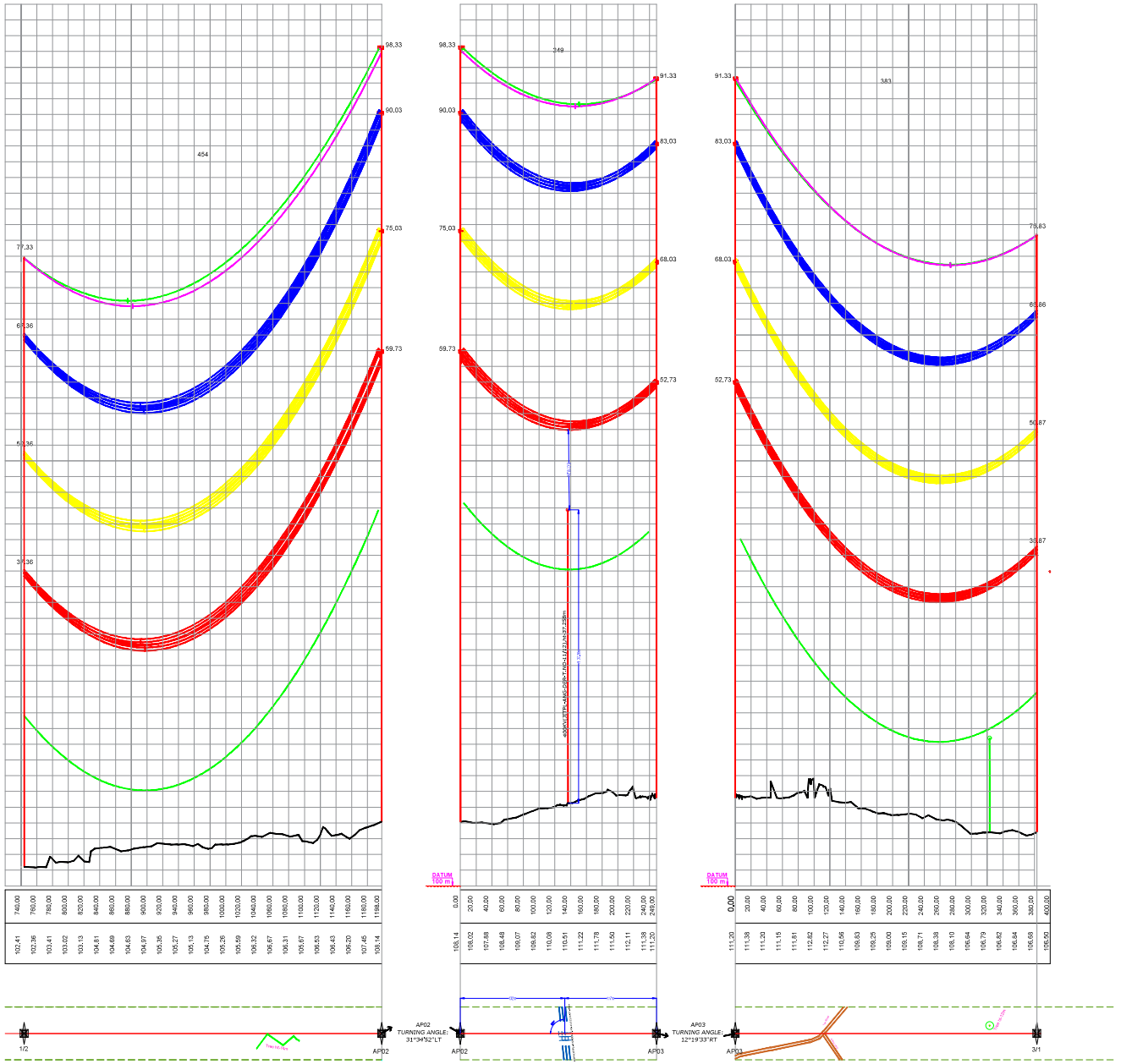


Tower No. 1/2
Tower Type:DA+3_W5
Wind Span:420
Wt.Span (Cold):177(L)+127(R)=304(T)
Wt.Span (Hot):181(L)+150(R)=331(T)
X=307790.74
Y=2292340.22
Ht.=77.33Ele=102.40

Tower No. AP2
Tower Type:DD60+25_W5
Wind Span:352
Wt.Span (Cold):329(L)+155(R)=484(T)
Wt.Span (Hot):307(L)+142(R)=448(T)
X=307840.66
Y=2291888.95
Ht.=98.33Ele=108.14

Tower No. AP3
Tower Type:DD60+18_W5
Wind Span:316
Wt.Span (Cold):95(L)+284(R)=378(T)
Wt.Span (Hot):108(L)+263(R)=371(T)
X=307993.64
Y=2291622.39
Ht.=91.33Ele=111.20

Tower No. 3/1
Tower Type:DA+1.5_W5
Wind Span:396
Wt.Span (Cold):101(L)+179(R)=280(T)
Wt.Span (Hot):123(L)+185(R)=308(T)
X=308158.93
Y=2291346.90
Ht.=75.83Ele=106.84

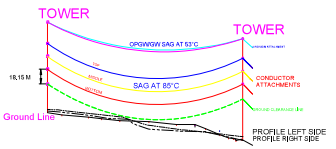


PLS-CADD Profile Drawing of 765kV D/C TL (NON-COASTAL REGION)

Tower Spotting Data for 765kV D/C TL (Wind Zone-5, 50m/s)

1. Conductor	ALS9 ZEBRA
2. Cable Diameter	27.22 mm.
3. Area of Conductor	454 mm²
4. Unit Weight of Conductor	1.254 Kg./M.
5. Normal Span (Ruling Span)	400 Mt.
6. Maximum Sag @ 85° Temperature, No Wind	16.114 Mt.
7. Ground Clearance (Including Sag error of 0.15m)	18.150 Mt.
8. Sag Tension For Hot Curve (85° Temp, No Wind)	1556.45 Kg.
9. Sag Tension For Cold Curve (0° Temp, No Wind)	2025.91 Kg.

LEGENDS:



Legends

Sr.No.	Description	Symbol
1.	Alignment	
2.	Power Line Corridor	
3.	Hot Curve / Cold Curve	
4.	Ground Clearance / Ground Profile	
5.	House / Ground Profile Side Hill	
6.	Railway Track	
7.	National Highway / State Highway	
8.	Road / Cart Track	
9.	Existing 110kV / 132kV / 220kV / 400kV & above TL	HT HT
10.	66kV / 33kV Line	
11.	11kV Line / LT Line	
12.	Telephone Line / Fence	
13.	Pond / Canal / Nala / River	
14.	Bund / Well / Tube Well / Tree	

Notes:-

1. All Dimensions are in Metre Otherwise Stated
2. Kindly refer tower schedule for further details about wind and weight span

Revision	Description	Date	Drawn
R0	Released for Approval	21 March,2025	RAHUL
R1			
R2			

DRG. NO.: TPL VENDOR:
Sheet Name: AP2-AP3 | Section Length: 1.086 Kms. | Paper Size: 36" Roll | Dated: 21 MARCH,2025

Scale:-
Horizontal Scale 1:2000 (1 cm = 20m)
Vertical Scale 1:200 (1 cm = 2m)

LOI NO:- TPC/CC/PTL/004 DATED-07/11/2024

CLIENT: TP GOPALPUR TRANSMISSION LIMITED
(FORMELY KNOWN AS EASTERN REGION EXPANSION SCHEME-XXXIX (ERES – XXXIX))

EPC CONTRACTOR: TATA PROJECTS LIMITED
1ST FLOOR, TOWER-1, OKAYA CENETR, PLOT NO.B-5, SECTOR-62, NOIDA-201307, U.P.

PROJECT: EPC OF 765 KV & 400 KV D/C TRANSMISSION LINES FOR EASTERN REGION EXPANSION SCHEME -XXXIX (ERES – XXXIX)

DRAWING DESCRIPTION: TOWER SPOTTING PROFILE FOR THE 765kV D/C ANGUL GOPALPUR TRANSMISSION LINE

FOR TATA PROJECTS LIMITED

DRAWN & DESIGNED BY	SURVEYED & CHECKED BY	SUBMITTED BY
Rahul Kumar	Kartiek Patro	

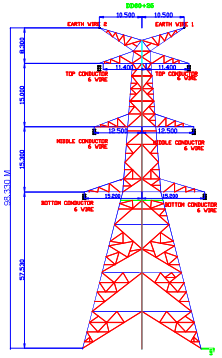
EASTERN REGION EXPANSION SCHEME -XXXIX (ERES – XXXIX)

CHECKED BY	APPROVED BY
Akhil Pradhan	

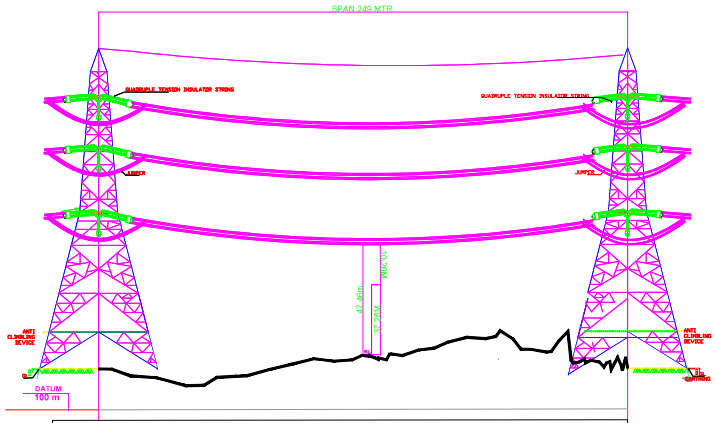
POWER LINE CROSSING PROPOSAL BETWEEN AP-2 TO AP-3 OF 765KV D/C ANGUL-GOPALPUR T/L

POWER LINE CROSSING PROPOSAL

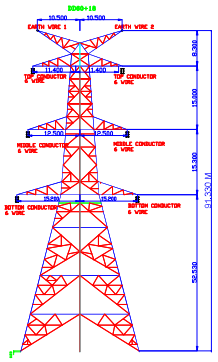
1.	NAME OF THE EXISTING LINE	400KV D/C POWER LINE CROSSING(JITPL)
2.	CROSSING LOC.NO :	AP2 & AP5
3.	CROSSING SPAN	249.00 M
4.	DISTANCE FROM AP- 2	132.00 M
5.	DISTANCE FROM AP- 3	117.00 M
6.	TYPE OF TOWER	DD60+25 & DD60+18
7.	TOWER HEIGHT	98.33m & 91.33m
8.	ACTUAL CLEARANCE	10.20m
9..	REQUIRED CLEARANCE	7.94m
10.	CROSSING ANGLE	84°48'40"



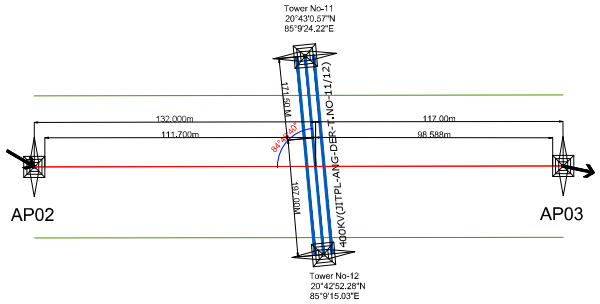
AP02, DD60+25
20°43'0.10"N
85°09'17.10"E



0.00	20.00	40.00	60.00	80.00	100.00	120.00	140.00	160.00	180.00	200.00	220.00	240.00	249.00
108.14	108.02	107.88	108.48	109.07	109.82	110.08	110.51	111.22	111.78	111.50	112.11	111.38	111.20



AP03,DD60+18
20°42'53.77"N
85°09'22.46"E



AP02
TURNING ANGLE:
31°34'52"LT
20°43'0.10"N
85°09'17.10"E

AP03
TURNING ANGLE:
12°19'33"RT
20°42'53.77"N
85°09'22.46"E

LEGENDS FOR LONGITUDINAL SECTION AND KEY PLAN

RAILWAY TRACK	
ANGLE POINT	
RAILWAY POLE	
TOWER	
LT/11KV LINE	
NH/NALA	
GAS PIPE LINE	

DATE	REV.NO.	DESCRIPTION	DRAWN	CHECKED	APPROVED
22.09.25	R0	CROSSING PROPOSAL FOR 400KV DC LINE	W.P	JN	SSJ/JKS

REVISIONS

OWNER / CLIENT : TP GOPALPUR TRANSMISSION LIMITED

CONTRACTOR : TATA PROJECTS LIMITED

PROJECT : 765KV D/C ANGUL - GOPALPUR TRNSMISSION LINES FOR EASTERN REGION EXPANSION SCHEME XXXIX (ERES-XXXIX)

JOB No. 000-000

	NAME	DATE
DRN		
CHD		
APP		

TITLE : PROFILE & ELEVATION DETAILS FOR POWER LINE CROSSING BETWEEN LOC. NO. AP2/0 TO AP3/0 OF 765KV D/C ANGUL - GOPALPUR TRANSMISSION LINE

SCALE

DRAWING NO. TPL/LE9F2-TL-3000-EC-PFC-009/AP2-AP3 /POWER LINE PROPOSAL/001

SHEET NO.01 OF 01

SIZE A0 | REV. 0

FOR

JINDAL INDIA POWER LIMITED

VILL/P.O : DERANG, TEHSIL : KANIHA, DIST. : ANGUL, ODISHA, PIN-759117
Phone NO - 91-9583040700/701/702/7
CIN : U74999DL2001PLC109103

20.01.2026

To
The Project In-Charge
T.P. Gopalpur Transmission Ltd,
Angul, Odisha.

Sub: Approval for Power Line Crossing of 765 KV DC Angul – Gopalpur Transmission Line over JIPL – Angul 400 kV Transmission Line – reg

Ref: Your letter No. TPGTL/25-26/183 dated: 14.01.2026

Dear Sir,

With reference to your letter No. **TPGTL/25-26/183** and the enclosed proposal, it is observed that the 765 KV DC Angul – Gopalpur Transmission Line is crossing our JIPL – Angul 400 kV Transmission Line at Durgaprasadpur Village.

Please note that both units of JIPL are currently operating at full load and Double circuit line is lifeline for exporting power, and hence, it is not possible to switch off the JIPL – Angul 400 kV line for **Offline** execution of the crossing work.

Therefore, the proposed crossing must be executed **ONLINE**, as the shutdown of the JIPL – Angul line is not feasible.

However, before according approval for the online execution of the work, we seek clarifications and commitments on the following points:

1. **Statutory Approvals**

   Please provide the complete list and current status of all statutory approvals obtained or pending for execution of your line (including ROW, PTCC, Civil Aviation, Railway/Highway crossings, MOEFCC clearances, and CEA/CTU approvals).

2. **Route Alignment & Alternatives**

   Kindly confirm whether alternative alignments were explored to avoid crossing our line and provide justification for selecting the present crossing location.

3. **Underground Cable Option (for crossing) with 400 KV transmission instead of 765KV**

   Please explore the option of 400 KV transmission line with underground 400 KV EHV cable for crossing.

JINDAL INDIA POWER LIMITED
VILL/P.O : DERANG, TEHSIL : KANIHA, DIST. : ANGUL, ODISHA, PIN-759117
Phone NO - 91-9583040700/701/702/7
CIN : U74999DL2001PLC109103

4. **Execution-Stage Responsibilities**

   In case of flashover, tripping, or any major incident affecting our line during execution, kindly confirm that TP Gopalpur Transmission Ltd. shall fully compensate JIPL for all direct and consequential losses (including repair costs, generation/supply loss, and penalties).In the event of any physical damage to our line during stringing or tower erection, kindly confirm that all rectification works shall be carried out at your cost, either by your approved contractors or by JIPL (with costs reimbursed by you). Also please specify the insurance policies in place (Contractor All Risk, Third Party Liability) covering such incidents.

5. **Post-Erection Liabilities**

   Should any damage or operational disturbance occur to our line after the erection of your 765 kV line due to any problem in the 765 kV line, kindly confirm that TP Gopalpur Transmission Ltd. shall remain responsible for rectification and full cost bearing, including compensation for outages, penalties, and consequential losses.

   We also request your confirmation on providing a permanent indemnity undertaking covering all future liabilities arising out of the crossing arrangement.

6. **Detailed TOR**

   We request you to share a draft Terms of Reference (TOR) or Agreement for crossing, clearly outlining the roles, responsibilities, cost-bearing mechanisms, and indemnity provisions, for mutual review and finalization before any approval is granted.

We look forward to your comprehensive response to the above queries and submission of supporting documents/undertakings. Only after satisfactory resolution of these points will JIPL be in a position to consider the requested clearance for the crossing.

Thanking you,

Yours faithfully,

20/1/2026

For Jindal India Power Limited (JIPL)

TP GOPALPUR TRANSMISSION LIMITED

(Formerly Known as ERES-XXXIX Power Transmission Limited)

Registered Office: Plot No. 181, Ground Floor, Block – K, Mangolpuri, Delhi – 110083

Corporate Office: Unit 104-B, 191/A, Kharvel Nagar,Unit-03,11th Street, Bhubaneswar, Khurdha, Odihsa-751001

CIN: U42202DL2024PLC428871 • Tel.: +91- 9223581895 • Email ID: tushardhande@tatapower.com

Letter No. TPGTL /25-26/217 **Date:13.03.2026**

To,

The Plant Head
Jindal India Power limited, Angul, Odisha

Subject: Approval for powerline crossing Proposal of 765 kV D/C Angul (Power Grid) – Gopalpur Transmission Line over 400KV D/C Angul (Powergrid) – DER (Jindal-JIPL) Transmission Line.

References:

1. TP Gopalpur Transmission Ltd letter no. TPGTL /25-26/183 dated 14.01.2026 to Jindal India Power Limited.
2. Letter from Jindal India Power Limited to TP Gopalpur Tra dated 20.01.2026. to TP Gopalpur Transmission Ltd
3. TP Gopalpur Transmission Ltd letter no.**TPGTL /25-26/193** to Jindal India Power Limited.

Dear Sir,

We write in reference to above referred letters and meeting at your good office on 17.02.2026, with respect to crossing of 765 kV D/C Angul (Power Grid) - Gopalpur Transmission Line ("**TPGTL Transmission Line**") over 400KV D/C Angul (Powergrid) – DER (Jindal-JIPL) Transmission Line ("**JIPL Transmission Line**").

765 kV Angul (Power Grid) - Gopalpur Transmission Line is a part of the Eastern Region Expansion Scheme–XXXIX formulated by Ministry of Power ("**MoP**"). The project has been allotted by REC Power Development and Consultancy Limited (appointed by MoP Bid Process Co-ordinator) to TP Gopalpur Transmission Ltd. ("**TPGTL**") under the Tariff Based Competitive Bidding route. The project is being monitored by Central Electricity Authority and Central Transmission Utility of India Limited, and it is also registered on the PM Gati Shakti portal.

With reference to discussion during meeting at your good office on 17.02.2026, this is to clarify following again.

during the execution of TPGTL Transmission Line, TPGTL shall bear full responsibility for any damage or incident affecting JIPL Transmission Line of Jindal India Power Limited ("**JIPL**") and shall compensate JIPL for all direct losses (if any). It is clarified that, TPGTL shall not be liable for any damages or incident affecting JIPL Transmission Line during execution of TPGTL Transmission Line arising due to force majeure events, including but not limited to act of God, Grid Disturbances, Natural Calamities, Act of third parties, statutory or regulatory actions.

Further, necessary insurance policies, including Contractor All Risk and Third-Party Liability insurance, have been arranged by our executing agency. Any compensation and rectification shall be undertaken as per mutually agreed terms.

Tushar M Dhande
Chief Executive Officer
TP GOPALPUR TRANSMISSION LTD.

TP GOPALPUR TRANSMISSION LIMITED

(Formerly Known as ERES-XXXIX Power Transmission Limited)

Registered Office: Plot No. 181, Ground Floor, Block - K, Mangolpuri, Delhi - 110083

Corporate Office: Unit 104-B, 191/A, Kharvel Nagar,Unit-03,11th Street, Bhubaneswar, Khurdha, Odihsa-751001

CIN: U42202DL2024PLC428871 • Tel.: +91- 9223581895 • Email ID: tushardhande@tatapower.com

TPGTL shall be liable for rectification and associated costs only to the extent any damage is caused to JIPL Transmission Line directly attributable to TPGTL's acts, omissions, negligence or non-compliance with approved technical specifications in relation to TPGTL Transmission Line. It is clarified that TPGTL shall not be liable for any damages, outages, or loss arising from force majeure events, including but not limited to act of God, Grid Disturbances, Natural Calamities, acts of third parties, statutory or regulatory actions or any other event beyond the reasonable control of TPGTL.

We assure you of our full commitment to safety, coordination, and transparency throughout the execution of the work. We look forward to your approval upon satisfactory review of the above submissions.

The present letter is being issued without prejudice to rights of TPGTL under the extant statutory and regulatory framework.

Thanking you,

Tushar M Dhande
Chief Executive Officer
TP GOPALPUR TRANSMISSION LTD.

Tushar Dhande
Chief Executive Officer
TP Gopalpur Transmission Limited

TP GOPALPUR TRANSMISSION LIMITED

(Formerly Known as ERES-XXXIX Power Transmission Limited)

Registered Office: Plot No. 181, Ground Floor, Block – K, Mangolpuri, Delhi – 110083

Corporate Office: Unit 104-B, 191/A, Kharvel Nagar,Unit-03,11th Street, Bhubaneswar, Khurdha, Odihsa-751001

CIN: U42202DL2024PLC428871 ● Tel.: +91- 9223581895 ● Email ID: tushardhande@tatapower.com

WITHOUT PREJUDICE

Letter No. TPGTL /25-26/193 **Date: 31.01.2026**

To,
General Manager, EMD
Jindal India Power limited, Angul, Odisha

Kind Attention – Mr. Avinash Sapre

Subject: Approval for powerline crossing Proposal of 765 kV D/C Angul (Power Grid) – Gopalpur Transmission Line over 400KV D/C Angul (Powergrid) – DER (Jindal-JIPL) Transmission Line.

References:
1. TP Gopalpur Transmission Ltd letter no. TPGTL /25-26/183 dated 14.01.2026 to Jindal India Power Limited
2. Letter from Jindal India Power Limited to TP Gopalpur Tra dated 20.01.2026

Dear Sir,

We write in reference to your letter dated 20.01.2026 wherein your good office sought certain clarifications/commitments from TP Gopalpur Transmission Limited ("**TPGTL**") with respect to crossing of 765 kV D/C Angul (Power Grid) - Gopalpur Transmission Line ("**TPGTL Transmission Line**") over 400KV D/C Angul (Powergrid) – DER (Jindal-JIPL) Transmission Line ("**JIPL Transmission Line**"). In view of the same, please find below our point-wise clarifications regarding the queries raised by your good office:

1. **Statutory Approvals:**

TPGTL Transmission Line is part of the Eastern Region Expansion Scheme–XXXIX, notified by Ministry of Power ("**MoP**") *vide* Gazette Notification No. CG-DL-E-01032026-252546 dated 28.02.2024, issued under Para 3 of Section 63 of the Electricity Act, 2003. The project has been allotted by REC Power Development and Consultancy Limited (appointed by MoP Bid Process Co-ordinator) to TP Gopalpur Transmission Ltd. ("**TPGTL**") under the Tariff Based Competitive Bidding route. The execution of the project is being monitored by Central Electricity Authority and Central Transmission Utility of India Limited, and it is also registered on the PM Gati Shakti portal. Further, as per statutory requirements, TPGTL is in the process of obtaining approvals from the competent authorities. Copies of the relevant approvals which are not governed by Non-Disclosure Agreement will be shared in due course of time.

2. **Route Alignment & Alternatives:**

Multiple route options were explored and surveyed with an objective to minimize power line crossings. However, JIPL Transmission Line is located in close proximity to the 765 kV bay of the Angul–Gopalpur transmission line at the PowerGrid Angul pooling station. Therefore, the crossing of both lines is technically unavoidable.

3. Underground Cable Option:

The project allotted by RECPDCL to TPGTL provides for a detailed scope of work which involves construction of Angul-Gopalpur 765 kV Double Circuit Transmission Line. Hence, option of constructing 400 kV line instead of 765 kV line is ruled out.

4. Execution-Stage Responsibilities:

During the execution of TPGTL Transmission Line, TPGTL shall bear full responsibility for any damage or incident affecting JIPL Transmission Line of Jindal India Power Limited ("**JIPL**") and shall compensate JIPL for all direct losses (if any). It is clarified that, TPGTL shall not be liable for any damages or incident affecting JIPL Transmission Line during execution of TPGTL Transmission Line arising due to force majeure events, including but not limited to act of God, Grid Disturbances, Natural Calamities, Act of third parties, statutory or regulatory actions.

Further, necessary insurance policies, including Contractor All Risk and Third-Party Liability insurance, have been arranged by our executing agency. Any compensation and rectification shall be undertaken as per mutually agreed terms.

5. Post-Erection Liabilities:

TPGTL shall be liable for rectification and associated costs only to the extent any damage is caused to JIPL Transmission Line directly attributable to TPGTL's acts, omissions, negligence or non-compliance with approved technical specifications in relation to TPGTL Transmission Line. It is clarified that TPGTL shall not be liable for any damages, outages, or loss arising from force majeure events, including but not limited to act of God, Grid Disturbances, Natural Calamities, acts of third parties, statutory or regulatory actions or any other event beyond the reasonable control of TPGTL.

6. Terms of Reference (TOR):

A draft Terms of Reference (TOR) detailing roles, responsibilities, indemnity provisions, and cost-sharing mechanisms shall be submitted prior to commencement of stringing activities.

We assure you of our full commitment to safety, coordination, and transparency throughout the execution of the work. We look forward to your approval upon satisfactory review of the above submissions.

The present letter is being issued without prejudice to rights of TPGTL under the extant statutory and regulatory framework.

Thanking you,

Tushar Dhande
Chief Executive Officer

रजिस्ट्री सं. डी.एल.- 33004/99 REGD. No. D. L.-33004/99

भारत का राजपत्र
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असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (ii)
PART II—Section 3—Sub-section (ii)

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विद्युत मंत्रालय

अधिसूचना

नई दिल्ली, 28 फरवरी, 2024

का.आ. 988(अ).—केंद्र सरकार, विद्युत अधिनियम, 2003 (2003 की संख्या 36) की धारा 63 के अंतर्गत परिचालित दिशानिर्देशों के पैरा 3 के उप-पैरा 3.2 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, पारेषण संबंधी राष्ट्रीय समिति की 16वीं बैठक की सिफारिशों पर, टीबीसीबी मोड के तहत निम्नलिखित पारेषण स्कीमों को उनके संबंधित बोली-प्रक्रिया समन्वयक (बीपीसी) के साथ अधिसूचित करती है:

क्र.सं.	पारेषण स्कीम का नाम एवं कार्यक्षेत्र
1.	**क्षेत्र में विद्युत निकासी हेतु गुजरात के नवीनल (मुंद्रा) क्षेत्र में नेटवर्क विस्तार स्कीम”** कार्यान्वयन की संभावित समय-सीमा: 21 महीने बीपीसी: पीएफसी कंसल्टिंग लिमिटेड कार्यक्षेत्र

क्र.सं.	पारेषण स्कीमका कार्यक्षेत्र	क्षमता (एमवीए) / मार्ग की लंबाई (किमी)
1.	2x330 एमवीएआर, 765 केवी और 1x125 एमवीएआर, 420 केवी बस रिएक्टरों के साथ 4x1500 एमवीए,	चार 765/400 केवी, 1500 एमवीए आईसीटी (एक अतिरिक्त आईसीटी यूनिट

	765/400 केवी नवीनल (मुंद्रा) एस/एस (जीआईएस) की स्थापना **भावी प्रावधान (इसके लिए स्थान):** ➢ बे सहित दो 765/400 केवी आईसीटी ➢ स्विचेबल लाइन रिएक्टरों के साथ चार 765 केवी लाइन बे ➢ बे सहित दो 765 केवी बस रिएक्टर ➢ 765 केवी सेक्शनलाइज़र: 1-सेट ➢ स्विचेबल लाइन रिएक्टरों के साथ छ: 400 केवी लाइन बे *(नोट के तहत उल्लिखित एमयूएल- नेविनल (मुंद्रा) (जीआईएस) 400 केवी 2xडी/सी लाईन के लिए 4 बे के अलावा)* ➢ बे सहित छ: 400/220 केवी आईसीटी। ➢ बे सहित तीन 400 केवी बस रिएक्टर। ➢ 400 केवी सेक्शनलाइजेशन बे: 1- सेट ➢ दस 220 केवी लाइन बे। ➢ 220 केवी सेक्शनलाइजेशन बे: 1 सेट ➢ दो 220 केवी बीसी और टीबीसी। ➢ एमएससी (2x125 एमवीएआर) और एमएसआर (1x125 एमवीएआर) और संबंधित बे के साथ दो स्टेटकॉम (±300 एमवीएआर)।	सहित 13x500 एमवीए सिंगल फेज यूनिट्स) चार 765 केवी आईसीटी बे। चार 400 केवी आईसीटी बे। चार 765 केवी लाईन बे। दो 1x330 एमवीएआर, 765 केवी बस रिएक्टर (7x110 एमवीएआर सिंगल फेज रिएक्टर जिसमें बस/लाइन रिएक्टर के लिए एक अतिरिक्त इकाई शामिल है) । दो 765 केवी बस रिएक्टर बे। एक 125 एमवीएआर, 420 केवी रिएक्टर। एक 400 केवी रिएक्टर बे।
2.	नवीनल (मुंद्रा) (जीआईएस) एस/एस पर संबद्ध बे के साथ नवीनल (मुंद्रा) (जीआईएस) एस/एस पर भुज-II से लकाडिया 765 केवी डी/सी लाइन का लिलो।	लिलो मार्ग की लंबाई: 70 किमी (280 सीकेएम)।
3.	लकाड़िया से नेविनल 765 केवी डी/सी लाईन (उपरोक्त एलआईएलओ के बाद गठित) के नेविनलछोर पर प्रत्येक सीकेटी पर 1x330 एमवीएआर स्विचेबल लाईन रिएक्टर की स्थापना।	दो 1x330 एमवीएआर, 765 केवी स्विचेबल लाइन रिएक्टर। 765 केवी लाइन रिएक्टर के लिए दो स्विचिंग उपकरण।

टिप्पणी:

(i) टीएसपी द्वारा डेढ़ ब्रेकर स्कीम में व्यास (जीआईएस) को पूरा करने के लिए आवश्यक बे(ओं) को भी निष्पादित किया जाएगा।

(ii) टीएसपी, नवीनल (मुंद्रा) (जीआईएस) के 765 केवी स्तर पर पांच पूर्ण व्यास लागू करेगा, जिसमें डेढ़ ब्रेकर स्कीम में व्यास (जीआईएस) को पूरा करने के लिए आवश्यक 2 मुख्य बे और 1 टाई बे शामिल होंगे। (4 आईसीटी बे + 4 लाइन बे + 2 बस रिएक्टर बे)।

(iii) इसके अलावा, टीएसपी नवीनल (मुंद्रा) (जीआईएस) के 400 केवी स्तर पर चार पूर्ण व्यास भी लागू करेगा, जिसमें डेढ़ ब्रेकर स्कीम में व्यास (जीआईएस) को पूरा करने के लिए आवश्यक 2 मुख्य बे और 1 टाई बे शामिल होंगे। (4 आईसीटी बे +1 बस रिएक्टर बे + 3 व्यास पूर्णता के लिए)।

(iv) नेविनल (मुंद्रा) एस/एस (जीआईएस) के साथ 400/220 केवी एमयूएल (वितरण लाइसेंसधारी) एस/एस के इंटरकनेक्शन हेतु निम्नलिखित कार्य क्षेत्र एमयूएल के अधिकार क्षेत्र में है और इसे उसी समय सीमा में लागू किया जाना आवश्यक है:

- एमयूएल-नेविनल (मुंद्रा) (जीआईएस) 400 केवी 2xडी/सी (ट्विन एचटीएलएस- क्वाड मूज समतुल्य) (इसका निर्माण और रखरखाव लाइसेंसधारी द्वारा इस इकाई की लागत पर किया जाएगा) तथा केसीएल, एमपीएल को विद्युत निकासी हेतु एमयूएल के 400/220 केवी सबस्टेशन से जोड़ा जायेगा।
- एमयूएल नवीनल छोर पर डेढ़ ब्रेकर स्कीम में 2 मुख्य बे और 1 टाई बे से युक्त एक पूर्ण व्यास (जीआईएस) लागू करेगा क्योंकि व्यास को पूरा करने के लिए टीएसपी द्वारा कार्यान्वित किए जा रहे अतिरिक्त बे में 3 लाइन बे को समाप्त किया जा सकता है।
- वितरण लाइसेंसधारी एमयूएल छोर पर चार 400 केवी लाइन बे।

2. पूर्वी क्षेत्र विस्तार स्कीम- X X X IX (ईआरईएस-X X X IX)

कार्यान्वयन की संभावित अवधि: 30.06.2026

बीपीसी: आरईसी पॉवर डेवलपमेंट एँड कंसल्टेंसी लिमिटेड

कार्यक्षेत्र:

1.	ओडिशा के गोपालपुर में नए 765/400 केवी, 2x1500 एमवीए जीआईएस सबस्टेशन की स्थापना भविष्य में विस्तार के लिए अतिरिक्त क्षेत्र:- • 765/400 केवी, 4x1500 एमवीए आईसीटी (12x500 एमवीए सिंगल फेज यूनिट्स) दोनों वोल्टेज स्तरों पर संबंधित आईसीटी बे के साथ • दोनों वोल्टेज स्तरों पर संबंधित आईसीटी बे के साथ 400/220 केवी, 4x500 एमवीए आईसीटी • संबंधित बे के साथ 765 केवी, 2x330 एमवीएआर (6x110 एमवीएआर सिंगल फेज यूनिट्स) बस रिएक्टर • संबंधित बे के साथ 420 केवी, 2x125 एमवीएआर बस रिएक्टर • भविष्य में लाइन बिछाने के लिए आठ 765 केवी लाइन बे (स्विचेबल लाइन रिएक्टर हेतु स्थान के साथ)। • भविष्य में लाइन बिछाने के लिए दस 400 केवी लाइन बे (स्विचेबल लाइन रिएक्टर हेतु स्थान के साथ)। • भविष्य में लाइन बिछाने के लिए बारह 220 केवी लाइन बे। • 765 केवी बस सेक्शनलाईजर बे: 1 सेट • 400 केवी बस सेक्शनलाईज़र बे: 1 सेट • 220 केवी बस सेक्शनलाईज़र बे: 1 सेट • दो 220 केवी बस कपलर बे।	दो 765/400 केवी, 1500 एमवीए आईसीटी (एक अतिरिक्त यूनिट सहित 7x500 एमवीए सिंगल फेजयूनिट्स) दो 765 केवी आईसीटी बे। दो 400 केवी आईसीटी बे। दो 765 केवी, 330 एमवीएआर बस रिएक्टर (7x110 एमवीएआर सिंगल फेज यूनिट्स, जिसमें बस और लाइन रिएक्टर दोनों के लिए एक अतिरिक्त इकाई शामिल है) दो 765 केवी बस रिएक्टर बे। दो 420 केवी, 125 एमवीएआर बस रिएक्टर दो 400 केवी बस रिएक्टर बे। दो 765 केवी लाइन बे। [दोनों सर्किट में गोपालपुर छोर पर 765 केवी, 1x330 एमवीएआर स्विचेबल लाइन रिएक्टर के साथ अंगुल (पावरग्रिड) - गोपालपुर 765 केवी डी/सी लाइन की समाप्ति के लिए] दो 400 केवी लाइन बे। [गोपालपुर-गोपालपुर (ओपीटीसीएल) 400 केवी डी/सी (क्वाड) लाइन की समाप्ति के लिए] एसोसिएटेड बे और 500 ओम एनजीआर (एनजीआर बाईपास व्यवस्था के साथ) के साथ दो 765 केवी, 330 एमवीएआर (3x110 एमवीएआर सिंगल फेज यूनिट) स्विचेबल लाइन रिएक्टर [गोपालपुर छोर पर अंगुल (पावरग्रिड)-गोपालपुर 765 केवी डी/सी लाइन के दोनों सर्किट में]
2.	अंगुल – गोपालपुर 765 केवी डी/सी लाइन	मार्ग की लंबाई: 205 किमी

3.	जीआईएस में बस विस्तार सहित अंगुल (पावरग्रिड) एस/एस में 765 केवी स्तर पर विस्तार	दो 765 केवी जीआईएस/हाइब्रिड लाइन बे (भविष्य में स्विच करने योग्य लाइन रिएक्टर के लिए जगह के साथ) [अंगुल (पावरग्रिड)-गोपालपुर की समाप्ति के लिए 765 केवी डी/सी लाइन] जिसमें जीआईएस में लगभग 3000 मीटर का बस विस्तार शामिल है।
4.	गोपालपुर- गोपालपुर (ओपीटीसीएल) 400 केवी डी/सी (क्वाड) लाइन @	मार्ग की लंबाई: 20 किमी (लगभग)
5.	#गोपालपुर (ओपीटीसीएल) जीआईएस एस/एस में 400 केवी स्तर पर विस्तार	दो 400 केवी जीआईएस लाइन बे [गोपालपुर-गोपालपुर (ओपीटीसीएल) 400 केवी डी/सी (क्वाड) लाइन की समाप्ति के लिए] + व्यास पूरा करने के लिए दो लाईन बे #

टिप्पणी:

i. @ गोपालपुर (ओपीटीसीएल) में कार्यान्वयन का कार्य किया जा रहा है और मार्च, 2024 तक कार्य प्रारंभ होने की संभावना है। ओपीटीसीएल की सूचनाओं के अनुसार, गोपालपुर में 765/400 केवी (आईएसटीएस) और 400/220 केवी (अंत: राज्यीय) सबस्टेशनों के बीच 20 किमी लाइन की लंबाई पर विचार किया गया है।

ii. # गोपालपुर (ओपीटीसीएल) जीआईएस एस/एस में 400 केवी स्तर की बस स्कीम डेढ़ ब्रेकर स्कीम होगी, दो पूर्ण व्यास अर्थात् गोपालपुर (ओपीटीसीएल) - गोपालपुर 400 केवी डी/सी (क्वाड) लाइन को दो अलग-अलग व्यासों में समाप्त करने के लिए 2 जीआईएस बे की आवश्यकता के लिए इस स्कीम में 4 जीआईएस बे को लागू करने की आवश्यकता है। इन व्यासों के अन्य 2 जीआईएस बे के उपयोग की पहचान भविष्य में की जाएगी।

iii. गोपालपुर (आईएसटीएस) - गोपालपुर (ओपीटीसीएल) 400 केवी डी/सी (क्वाड) लाइन की समाप्ति हेतु दो 400 केवी जीआईएस लाइन बे के कार्यान्वयन के लिए ओपीटीसीएल द्वारा कार्यान्वयनाधीन गोपालपुर (ओपीटीसीएल) 400/220 केवी जीआईएस एस/एस पर स्थान उपलब्धू कराया जाएगा। पूर्ण व्यास के 2 अर्थात् 4 जीआईएस बे स्थापित किए जाएंगे।

iv. अंगुल (पावरग्रिड)-गोपालपुर 765 केवी डी/सी लाइन की समाप्ति के लिए पावरग्रिड द्वारा जीआईएस में बस विस्तार के साथ दो 765 केवी लाइन बे (भविष्य में स्विच करने योग्य लाइन रिएक्टर के लिए जगह के साथ) के कार्यान्वयन के लिए अंगुल (पावरग्रिड) 765/400 केवी एस/एस पर स्थान उपलब्ध कराया जाएगा।

2. इस संबंध में बोली प्रक्रिया समन्वयक की नियुक्ति विद्युत मंत्रालय द्वारा समय-समय पर संशोधित दिशानिर्देशों में विनिर्दिष्ट शर्तों के अधीन है।

[फा.सं. 15/3/2018-ट्रांस-पार्ट(1)]

बिहारी लाल, अवर सचिव (पारेषण)

MINISTRY OF POWER

NOTIFICATION

New Delhi, the 28th February, 2024

S.O. 988(E).—In exercise of the powers conferred by sub-para 3.2 of Para 3 of the Guidelines circulated under Section 63 of the Electricity Act, 2003 (No. 36 of 2003), the Central Government, on the recommendations of 16th meeting of National Committee on Transmission, hereby notifies the following transmission schemes under TBCB mode, with details of respective Bid-Process Coordinators (BPCs): -

Sl. No.	Name & Scope of the Transmission Scheme
1.	**Network Expansion Scheme in Navinal (Mundra) area of Gujarat for drawal of power in the area"** Tentative implementation time-frame: 21 months BPC: PFC Consulting Limited Scope:

Sl. No.	Scope of the Transmission Scheme	Capacity (MVA) / Route Length (Km)
1.	Establishment of 4x1500 MVA, 765/400 kV Navinal (Mundra) S/s (GIS) with 2x330 MVAR, 765 kV & 1x125MVAr, 420 kV bus reactors **Future provision (space for):** ➢ 765/400 kV ICT along with bays- 2 Nos. ➢ 765 kV line bays along with switchable line reactors – 4 Nos. ➢ 765 kV Bus Reactor along with bay: 2 Nos. ➢ 765 kV Sectionaliser: 1 –set ➢ 400 kV line bays along with switchable line reactors– 6 Nos. *(in addition to 4 nos. bays for MUL – Navinal (Mundra) (GIS)400 kV 2xD/c line mentioned under Note)* ➢ 400/220 kV ICT along with bays -6 Nos. ➢ 400 kV Bus Reactor along with bays: 3 Nos. ➢ 400 kV Sectionalization bay: 1- set ➢ 220 kV line bays: 10 Nos. ➢ 220 kV Sectionalization bay: 1 set ➢ 220 kV BC and TBC: 2 Nos. ➢ STATCOM (±300 MVAR) along with MSC (2x125 MVAr) & MSR (1x125 MVAr) and associated bays- 2 Nos.	765/400 kV, 1500 MVA ICT – 4 Nos. (13x500 MVA single phase units including one spare ICT Unit) 765 kV ICT bays – 4 Nos. 400 kV ICT bays – 4 Nos. 765 kV Line bays – 4 Nos. 1x330 MVAr, 765 kV bus reactor- 2 Nos. (7x110 MVAR single phase Reactors including one spare Unit for bus /line reactor) 765 kV Bus reactor bay – 2 Nos. 125 MVAr, 420 kV reactor- 1 Nos. 400 kV Reactor bay- 1 No.
2.	LILO of Bhuj-II – Lakadia 765 kV D/c line at Navinal(Mundra) (GIS) S/s with associated bays at Navinal (Mundra) (GIS) S/s	LILO Route length: 70 km (280 ckm)
3.	Installation of 1x330 MVAr switchable line reactor on each ckt at Navinal end of Lakadia – Navinal 765 kV D/c line (formed after above LILO)	1x330 MVAr, 765 kV switchable line reactor – 2 Nos. Switching equipment for 765 kV line reactor – 2 Nos.

Note:

i. Bay(s) required for completion of diameter (GIS) in one-and-half breaker scheme shall also be executed by the TSP.

ii. The TSP shall implement five complete diameters at 765 kV level of Navinal (Mundra) (GIS) consisting of 2 Main Bays & 1 Tie Bay required for completion of diameter (GIS) in one-and-half breaker scheme. (4 ICT bays + 4 Line Bays+2 Bus Reactor Bays).

iii. Further, the TSP shall also implement four complete diameters at 400 kV level of Navinal (Mundra) (GIS) consisting of 2 Main Bays & 1 Tie Bay required for completion of diameter (GIS) in one-and-half breaker scheme. (4 ICT bays +1 Bus Reactor Bay + 3 for dia completion).

iv. The following scope of works for interconnection of 400/220 kV MUL (Distribution Licensee) S/s with Navinal (Mundra) S/s (GIS) is under the scope of MUL and is required to be implemented in the same time frame:

- MUL – Navinal (Mundra) (GIS) 400 kV 2xD/c (Twin HTLS - Quad Moose equivalent) (shall be constructed and maintained by a licensee at the cost of such entity) & KCL, MPL shall get interconnected with 400/220 kV Substation of MUL for drawal of power.
- MUL shall implement one complete diameter (GIS) consisting of 2 main bays & 1 Tie bay in one and half breaker scheme at Navinal end as 3 line bays can be terminated in spare bays being implemented by TSP for completion of dia.
- 4 no. 400kV Line bays at the Dist. Licensee MUL end.

2. Eastern Region Expansion Scheme- XXXIX (ERES-XXXIX)

Tentative Implementation Time: 30.06.2026

BPC: REC Power Development and Consultancy Limited

Scope:

Sl. No.	Scope of the Transmission Scheme	Capacity (MVA)/ Route Length (Km)
1.	Establishment of new 765/400kV, 2x1500MVA GIS substation at Gopalpur in Odisha Additional space for future expansion: - • 765/400kV, 4x1500MVA ICTs (12x500MVA single phase units) along with associated ICT bays at both Voltage levels • 400/220kV, 4x500MVA ICTs along with associated ICT bays at both voltage levels • 765kV, 2x330MVAr (6x110MVAr single phase units) bus reactor along with associated bays • 420kV, 2x125MVAr bus reactor along with associated bays • 8 nos. of 765kV line bays (along with space for switchable line reactor) for future lines • 10 nos. of 400kV line bays (along with space for switchable line reactor) for future lines • 12 nos. of 220kV line bays for future lines • 765kV bus sectionaliser bay: 1 set • 400kV bus sectionaliser bay: 1 set • 220kV bus sectionaliser bay :1 set • 220kV bus coupler bay: 2 no.	765/400 kV, 1500MVA ICTs: 2 Nos. (7x500 MVA single phase units including one spare) 765 kV ICT bays: 2 Nos. 400 kV ICT bays: 2 Nos. 765 kV, 330 MVAr Bus reactor: 2 Nos. (7x110 MVAr single phase units including one spare unit for both bus and line reactors) 765 kV Bus reactor bays: 2 Nos. 420 kV, 125 MVAr Bus reactor: 2 Nos. 400 kV Bus reactor bays: 2 Nos. 765 kV line bays: 2 Nos. [for termination of Angul (POWERGRID) – Gopalpur 765 kV D/c line along with 765 kV, 1x330 MVAr switchable line reactor at Gopalpur end in both circuits] 400 kV line bays: 2 Nos. [for termination of Gopalpur – Gopalpur (OPTCL) 400 kV D/c (Quad) line] 765 kV, 330 MVAr (3x110 MVAr single phase units) switchable line reactor along with associated bay and 500 ohm NGR (with NGR bypass arrangement) [at Gopalpur end in both circuits of Angul (POWERGRID) – Gopalpur 765 kV D/c line]: 2 Nos.
2.	Angul – Gopalpur 765 kV D/c line	Route length: 205 km
3.	Extension at 765kV level at Angul (POWERGRID) S/s including bus extension in GIS	765 kV GIS/Hybrid line bays (along with space for future switchable line reactor): 2 nos. [for termination of Angul (POWERGRID) – Gopalpur 765kV D/c line] including bus extension in GIS of about 3000 m
4.	Gopalpur – Gopalpur (OPTCL) 400kV D/c (Quad) line@	Route length: 20 km (approx.)
5.	Extension at 400kV level at #Gopalpur (OPTCL) GIS S/s	400 kV GIS line bays: 2 nos. [for termination of Gopalpur – Gopalpur (OPTCL) 400kV D/c (Quad) line] + #2 nos. for diameter completion

Note:

i. @Gopalpur (OPTCL) is being taken up for implementation and is expected to be awarded by Mar 2024. As per OPTCL's input, 20 km line length has been considered between 765/400kV (ISTS) and 400/220kV (Intra-state) substations at Gopalpur.

	ii.	#The bus scheme of 400kV level at Gopalpur (OPTCL) GIS S/s shall be one and half breaker scheme, 2 nos. full diameter i.e. 4 nos. of GIS bays needs to be implemented in the scheme for requirement of 2 nos. GIS bays for termination of Gopalpur (OPTCL) – Gopalpur 400kV D/c (Quad) line in two different diameters. Utilisation of other 2 nos. GIS bays of these diameters shall be identified in future.
	iii.	OPTCL shall provide space at under implementation Gopalpur (OPTCL) 400/220kV GIS S/s for implementation of 2 nos. of 400kV GIS line bays for termination of Gopalpur (ISTS) – Gopalpur (OPTCL) 400kV D/c (Quad) line. 2 nos. full diameter i.e. 4 nos. GIS bays shall be established.
	iv.	POWERGRID shall provide space at Angul (POWERGRID) 765/400kV S/s for implementation of 2 nos. of 765kV line bays (along with space for future switchable line reactor) along with bus extension in GIS for termination Angul (POWERGRID) – Gopalpur 765kV D/c line.

2. The appointment of the Bid Process Coordinator is subject to the conditions laid down in the Guidelines issued by Ministry of Power in this regard, amended from time to time.

[F. No. 15/3/2018-Trans-Part(1)]

BIHARI LAL, Under Secy. (Transmission)

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ग्रिड-इंडिया
GRID-INDIA

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(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
राष्ट्रीय भार प्रेषण केन्द्र / National Load Despatch Centre

आज़ादी का अमृत महोत्सव

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Annexure-B.2.17

संदर्भ: NLDC/SO/FRO/2026-27/R2 **दिनांक: 13th Apr 2026**

सेवा में/ To,

All the Stakeholders

विषय/Subject: Revised Assessment of Frequency Response Obligation (FRO) of each control area under RLDC jurisdiction for FY 2026-27 – Reg.

महोदय/महोदया,

NLDC, in consultation with RLDCs, has assessed Frequency Response Obligation (FRO) of each control area under RLDC jurisdiction for FY 2026-27 in compliance with Reg. 30 (10) (f) and as per Annexure-2 of the CERC (Indian Electricity Grid Code), Regulations 2023. The FRO has been assessed based on minimum All India target frequency response characteristics (FRC), giving due consideration to generation and load within each control area during CY 2025 and the details as given in Table 4 under Reg. 30 (10) (g) of CERC (IEGC), 2023.

The FRO of each control area under RLDC jurisdiction for FY 2026-27 is enclosed herewith. It may also be downloaded from this link: https://grid-india.in/en/reports/primary-response/fro

Note: FRO has been revised based on the updated average generation data of Bihar, Odisha, and West Bengal, along with corrections to the names and capacities considered for FRO of some control areas.

सधन्यवाद,

13/04/2026 भवदीय,

(मनोज कुमार अग्रवाल/Manoj Kumar Agrawal)
कार्यपालक निदेशक, रा.भा.प्रे.कें./Executive Director, NLDC

Copy for kind information:

1. Chairman and Managing Director, GRID-INDIA
2. Director (Market Operation), GRID-INDIA
3. Director (System Operation), GRID-INDIA
4. Secretary, Central Electricity Regulatory Commission
5. Member Secretary, NPC/NRPC/WRPC/SRPC/ERPC/NERPC, CEA
6. Executive Director, NRLDC/WRLDC/SRLDC/ERLDC/NERLDC, GRID-INDIA

Grid Controller of India Limited
National Load Despatch Centre

Frequency Response Obligation (FRO) of each control area under RLDC jurisdiction for FY 2026-27

Revision No. 2 **Issue Date: 13th April, 2026**

I. Calculation of Frequency Response Obligation (FRO) of each control area:

As per Annexure-2 of IEGC, 2023, the minimum Frequency Response Obligation (FRO) of each control area in MW/Hz has been calculated as:

FRO = (Control Area average Demand + Control Area average Generation) * minimum all India Target Frequency Response Characteristic/ (Sum of average demand of all control areas + Sum of average generation of all control areas)

The relevant terms and their definitions, used in the assessment of FRO are available at **Section-IV**

1. Identification of Control Areas {in accordance with IEGC Reg.3 (Definitions) and IEGC Reg.43 (Control area jurisdiction of Load Despatch Centre}:

Total Control Areas considered for FRO assessment	Control Areas for whom FRO shall be nil i.e. FRO=0	Control Areas for whom FRO has been assessed
173	7	166

a) All Indian states (28 Nos.)
b) Union Territories viz. Delhi, Chandigarh, J&K and Ladakh, DD & DNH and Puducherry (05 Nos.)
c) Control Areas viz. Balco (Bulk Consumer), AMNSIL, RIL Jamnagar and DVC (04 Nos.)
d) Regional Thermal (Coal/Lignite) Generating Entity of 200 MW and above (86 Nos.)
e) Regional Hydro Generating Entity of 25 MW and above (37 Nos.)
f) Regional Gas based Generating Entity of Gas Turbine above 50 MW (09 Nos.)
g) Regional Pumped storage plants (PSP) of 25 MW and above (02 Nos.)
h) Transnational Control Areas viz. Nepal and Bhutan (02 Nos.)
Note: Bangladesh and Myanmar are exempted and not been considered for FRO assessment due to asynchronous connection with India

FRO shall be nil in case of a control area not having any generation resources viz. Chandigarh, Goa, DD & DNH, Puducherry, Sikkim, Manipur and BALCO (Bulk Consumer).

As per Reg. 30(10) (h) of CERC (IEGC), 2023 quoted below, the WS sellers, nuclear generating stations and hydro generating stations (with pondage up to 3 hours or Run of the river projects) have been excluded from assessment of FRO and have the option to provide primary response.

1. *"WS Sellers commissioned after the date as specified in CEA Technical Standards for Connectivity shall have the option to provide primary response individually through ESS or through a common ESS installed at its pooling station.*
2. *Nuclear generating stations and hydro generating stations (with pondage up to 3 hours or Run of the river projects) shall be exempt from mandatory primary response. They may*

provide the primary response to the extent possible, considering the safety and security of machines and humans."

2. **Data Source used for averaging over Calendar Year 2025:**

Particulars	Data Source
Average Generation of Generating Stations	Interface Energy Meter
Average Generation of State/UT Control Areas	Daily Power Supply Position data, as reported to RLDCs
Average Demand of State/UT/Bulk Consumer Control Areas	
Average Demand and Generation of Transnational Control Areas	Interface Energy Meter

3. **Reference Contingency** (Link for Reference Contingency 2026-27) **and Minimum All India Target Frequency Response Characteristic (as per Annex-2 of IEGC, 2023) for Generation/Load loss in Indian Power System for FY 2026-27**:

FY 2026-27	Solar Hours	Non-Solar Hours
Reference Contingency (MW)	7000	4500
Minimum All India Target FRC (MW/Hz)	23,333	15,000

Minimum All India Target Frequency Response Characteristic = Quantum of load or generation loss in reference contingency divided by frequency deviation value of 0.3 Hz

II. Assessment of Frequency Response Obligation (FRO) of control areas for FY 2026-27:

FRO has been assessed for **166 control areas** for solar as well as non-solar hours. The table is enclosed as **Annexure-I**

III. Calculation of Frequency Response Performance (FRP) of each control area:

The performance of each control area in providing frequency response characteristic shall be calculated for each reportable event. Each control area shall separately assess their frequency response characteristic and share with RLDC along with high resolution data of at least one (1) second for regional entity generating stations and ten (10) second for state control area. The concerned generating station and state control area shall furnish the requisite data to the LDCs within two days of notification of reportable event by the NLDC.

Frequency Response Performance (FRP) = Actual Frequency Response Characteristic (AFRC)/ Frequency Response Obligation (FRO)

FRC Calculation shall be done in accordance with Methodology for Computation of Primary Frequency Response Obligation and Performance, available as Annexure-V of NLDC Operating Procedure.

Timeline for FRC and FRP computation during events

Particulars	Stipulated Timeline*
Submission of high resolution data by regional entity generating stations and state control area to RLDCs[#]	2 working days after the event
FRC and FRP computation by NLDC	3 working days after the event
FRC and FRP computation by RLDC, SLDC and Generating Units	6 working days after the event

**Timeline for data submission and FRC computation are excluding the day of event*

[#] In case of delay in data submission by regional entity generating stations and state control area to RLDCs, SCADA data available at RLDCs shall be used for FRC and FRP calculations.

IV. Definitions as per CERC (IEGC) Regulations, 2023

S.No.	Particulars	Definitions
1	**'Control Area'**	means an electrical system bounded by interconnections (tie lines), metering and telemetry which controls its generation and/or load to maintain its interchange schedule with other control areas and contributes to regulation of frequency as specified in these regulations;
2	**'Event'**	means an unscheduled or unplanned occurrence in the grid including faults, incidents and breakdowns;
3	**Free Governor Mode of Operation**	Means the mode of operation of governor where machines are loaded or unloaded directly in response to grid frequency i.e. machine unloads when grid frequency is more than 50 Hz and loads when grid frequency is less than 50 Hz. The amount of loading or unloading is proportional to the governor droop.
4	**'Frequency Response Characteristics' or 'FRC'**	Means automatic, sustained change in the power consumption by load or output of the generators that occurs immediately after a change in the load-generation balance of a control area and which is in a direction to oppose any change in frequency. Mathematically it is equivalent to FRC = Change in Power (ΔP) / Change in Frequency (Δf);
5	**'Frequency Response Obligation' or 'FRO'**	means the minimum frequency response a control area has to provide in the event of any frequency deviation;
6	**'Frequency Response Performance' or 'FRP'**	means the ratio of actual frequency response with frequency response obligation;
7	**'Governor Droop'**	in relation to the operation of the governor of a generating unit means the percentage drop in system frequency which would cause the generating unit under governor action to change its output from no load to full load;
8	**'Load'**	means the active, reactive or apparent power consumed by a utility/installation of consumer;
9	**'Maximum Continuous Rating' or 'MCR'**	means the maximum continuous output in MW at the generator terminals guaranteed by the manufacturer at rated parameters;
10	**'Nadir Frequency'**	means minimum frequency after a contingency in case of generation loss and maximum frequency after a contingency in case of load loss;
11	**'Primary Reserve'**	means the maximum quantum of power which will immediately come into service through governor action of the generator or frequency controller or through any other resource in the event of sudden change in frequency as specified in clause (10) of Regulation 30 of CERC (IEGC), 2023;
12	**'Reference contingency'**	means the maximum positive power deviation occurring instantaneously between generation and demand and considered for estimation of reserves;
13	**Reportable Event**	Means any load or generation loss incident involving net change of more than 1000 MW of load or generation or a frequency change involving 0.1 Hz or more. The event shall be notified by the NLDC.

Frequency Response Obligation of Control Areas in Northern Region for FY 2026-27

Northern Region					
Sl. No.	States	Avg. Generation (MW)	Avg. Demand (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	Chandigarh*	0	213	0	0
2	Delhi	301	4319	296	190
3	Haryana	1987	7940	636	409
4	Himachal Pradesh	915	1488	154	99
5	J&K(UT) and Ladakh(UT)	574	2341	187	120
6	Punjab	3927	8646	806	518
7	Rajasthan	6248	12760	1218	783
8	Uttar Pradesh	10898	18405	1878	1207
9	Uttarakhand	656	1892	163	105

Sl. No.	Entity Name (Registered User in NRLDC)	Capacity considered for FRO (MW)	Avg. Generation (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	ADHPL	192	95	6	4
2	Anta GPP	419	146	9	6
3	Auraiya GPP	663	143	9	6
4	Bairasiul HPS	180	106	7	4
5	Bhakra Complex	1415	743	48	31
6	Budhil HPS	70	52	3	2
7	Chamera-I HPS	540	293	19	12
8	Chamera-II HPS	300	218	14	9
9	Chamera-III HPS	231	156	10	6
10	Dadri GPP	830	219	14	9
11	Dadri NCTPS	840	433	28	18
12	Dadri Stage-II NCTPS	980	555	36	23
13	Dehar HEP	990	329	21	14
14	Dhauliganga HPS	280	178	11	7
15	Dulhasti HPS	390	249	16	10
16	IGSTPS	1500	798	51	33
17	Kishanganga HEP	330	256	16	11
18	Koldam HEP	800	674	43	28
19	Koteshwer HPS	400	161	10	7
20	KWHPS	1045	605	39	25
21	Nathpa-Jhakri HPS	1500	994	64	41
22	Parbati-II HEP	800	291	19	12
23	Parbati-III HEP	520	191	12	8
24	Pong HEP	396	218	14	9
25	Rampur HEP	412	265	17	11

*FRO shall be nil in case of a control area not having any generation resources

Sl. No.	Entity Name (Registered User in NRLDC)	Capacity considered for FRO (MW)	Avg. Generation (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
26	Rihand-I STPS	1000	733	47	30
27	Rihand-II STPS	1000	786	50	32
28	Rihand-III STPS	1000	805	52	33
29	Sainj HEP	100	40	3	2
30	Salal HPS	690	384	25	16
31	SEWA-II	120	94	6	4
32	Singoli-Bhatwari HEP	99	68	4	3
33	Singrauli STPS	2000	1499	96	62
34	SORANG HEP	100	46	3	2
35	Tanakpur HPS	94	56	4	2
36	Tanda Stage II	1320	906	58	37
37	Tehri HPS	1000	624	40	26
38	Tehri PSP	1000	349	22	14
39	Unchahar-I TPS	420	232	15	10
40	Unchahar-II TPS	420	263	17	11
41	Unchahar-III TPS	210	139	9	6
42	Unchahar-IV TPS	500	350	22	14
43	Uri HPS	480	263	17	11
44	URI 2 HEP	240	158	10	6

*FRO shall be nil in case of a control area not having any generation resources

Frequency Response Obligation of Control Areas in Western Region for FY 2026-27

Western Region					
Sl. No.	States	Avg. Generation (MW)	Avg. Demand (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	Arcelor Mittal Nippon Steel India Limited	345	761	71	46
2	Bharat Aluminium Company Ltd (Bulk Consumer)*	0	535	0	0
3	Chhattisgarh	2168	4914	454	292
4	DNHDD*	0	1257	0	0
5	Goa*	0	618	0	0
6	Gujarat	6840	18169	1603	1030
7	Madhya Pradesh	4230	11865	1032	663
8	Maharashtra	13812	23800	2411	1550
9	RIL Jamnagar	1168	214	89	57

Sl. No.	Entity Name (Registered User in WRLDC)	Capacity considered for FRO (MW)	Avg. Generation (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	ACB (India) Limited (MCCPL)	300	251	16	10
2	Adani Power Limited - Raipur TPP	1370	874	56	36
3	Adani Power Limited - Raigarh TPP	600	523	34	22
4	BALCO	1200	843	54	35
5	DB Power Limited	1200	973	62	40
6	DGEN CCPP	1200	576	37	24
7	Dhariwal Infrastructure Limited	600	472	30	19
8	Gadarwara	1600	1013	65	42
9	Gandhar	657	164	11	7
10	GMR Warora Energy Limited	600	471	30	19
11	Jaypee Nigrie STPP	1320	1114	71	46
12	Jhabua Power Limited	600	433	28	18
13	Jindal Stage-1	1000	621	40	26
14	Jindal Stage-2	2400	1976	127	81
15	KAWAS	656	137	9	6
16	Khargone	1320	757	49	31
17	KSK Mahanadi Power Company Ltd.	1800	1240	79	51
18	KSTPS 1 & 2	2100	1705	109	70
19	KSTPS 3	500	450	29	19
20	LANCO	600	465	30	19
21	Lara	1600	1333	85	55
22	Mahan Energen Limited	1200	896	57	37
23	Mauda Stage-1	1000	689	44	28
24	Mauda Stage-2	1320	936	60	39

*FRO shall be nil in case of a control area not having any generation resources

Sl. No.	Entity Name (Registered User in WRLDC)	Capacity considered for FRO (MW)	Avg. Generation (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
25	MB Power (MP) Limited	1200	940	60	39
26	NSPCL	500	387	25	16
27	RGPPL	1968	540	35	22
28	RKM Powergen Private Limited	1440	824	53	34
29	SASAN	3960	3200	205	132
30	Sipat Stage-1	1980	1577	101	65
31	Sipat Stage-2	1000	738	47	30
32	SKS Power Generation(C.G) Limited	600	449	29	18
33	Solapur	1320	723	46	30
34	SSP	1450	602	39	25
35	The Tata Power Company Limited	4000	2704	173	111
36	TRN Energy Private Limited	600	406	26	17
37	Vedanta Limited	600	443	28	18
38	VSTPS Stage-1	1260	884	57	36
39	VSTPS Stage-2	1000	758	49	31
40	VSTPS Stage-3	1000	758	49	31
41	VSTPS Stage-4	1000	769	49	32
42	VSTPS Stage-5	500	405	26	17

*FRO shall be nil in case of a control area not having any generation resources

Frequency Response Obligation of Control Areas in Southern Region for FY 2026-27

Southern Region					
Sl. No.	States	Avg. Generation (MW)	Avg. Demand (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	Andhra Pradesh (AP)	5396	9107	930	598
2	Karnataka (KAR)	5243	10992	1040	669
3	Kerala (KER)	1132	3554	300	193
4	Puducherry*	0	402	0	0
5	Tamil Nadu (TN)	3921	15003	1213	780
6	Telangana (TG)	4599	10117	943	606

Sl. No.	Entity Name (Registered User in SRLDC)	Capacity considered for FRO (MW)	Avg. Generation (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	Coastal Energen Pvt. Ltd	1200	700	45	29
2	Greenko AP01 IREP Pvt Limited	1200	846	54	35
3	IL & FS Tamil Nadu Power Company Limited	1200	687	44	28
4	LANCO Kondappalli Power Pvt. Ltd Stage II.	366	183	12	8
5	Meenakshi Energy Limited	700	220	14	9
6	NEW NEYVELI THERMAL POWER PLANT	1000	596	38	25
7	NLC Tamil Nadu Power Limited	1000	557	36	23
8	NLC TPS I Expansion	420	249	16	10
9	NLC TPS II Expansion	500	185	12	8
10	NLC TPS II Stage I	630	208	13	9
11	NLC TPS II Stage II	840	300	19	12
12	NTPC Kudgi Super Thermal Power Plant	2400	1175	75	48
13	NTPC Simhadri Stage I	1000	609	39	25
14	NTPC Simhadri Stage II	1000	631	40	26
15	NTPC Talcher Stage II	2000	1464	94	60
16	NTPC Tamil Nadu Energy Company Ltd, Chennai	1500	874	56	36
17	NTPC Telangana	1600	1023	66	42
18	Ramagundam Stage I & II	2100	1134	73	47
19	Ramagundam Stage III	500	344	22	14
20	SEIL Energy India Limited	1320	874	56	36
21	SEIL Energy India Limited Project -2	660	524	34	22

*FRO shall be nil in case of a control area not having any generation resources

Frequency Response Obligation of Control Areas in Eastern Region for FY 2026-27

Eastern Region					
Sl. No.	States	Avg. Generation (MW)	Avg. Demand (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	Bihar	412	5277	365	234
2	DVC	4331	2831	459	295
3	Jharkhand	435	1732	139	89
4	Odisha	3166	4890	516	332
5	Sikkim*	0	60	0	0
6	West Bengal	5464	8208	876	563

Sl. No.	Entity Name (Registered User in ERLDC)	Capacity considered for FRO (MW)	Avg. Generation (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	APNRL	540	393	25	16
2	BARH-STG-1	1980	943	60	39
3	BARH-STG-2	1320	915	59	38
4	BRBCL	1000	689	44	28
5	DARLIPALLI	1600	1279	82	53
6	DIKCHU	96	83	5	3
7	FARKKA-I & II	1600	998	64	41
8	FKSTPP-III	500	369	24	15
9	GMR	700	577	37	24
10	JIPL	1200	984	63	41
11	JSW Utkal Energy	700	402	26	17
12	KAHALGAON-stg 1	840	564	36	23
13	KAHALGAON-stg 2	1500	1133	73	47
14	MPL	1050	750	48	31
15	NKSTPP	1980	1203	77	50
16	NPGC	1980	1399	90	58
17	PUVNL	800	600	38	25
18	TALCHER stg-1	1000	757	49	31

*FRO shall be nil in case of a control area not having any generation resources

Frequency Response Obligation of Control Areas in North Eastern Region for FY 2026-27

North Eastern Region					
Sl. No.	States	Avg. Generation (MW)	Avg. Demand (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	Arunachal Pradesh	10	136	9	6
2	Assam	236	1539	114	73
3	Manipur*	0	132	0	0
4	Meghalaya	118	238	23	15
5	Mizoram	34	86	8	5
6	Nagaland	9	113	8	5
7	Tripura (including Bangladesh's radial load)	77	273	22	14

Sl. No.	Entity Name (Registered User in NERLDC)	Capacity considered for FRO (MW)	Avg. Generation (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	BONGAIGAON TPP (NTPC)	750	458	29	19
2	DOYANG, NEEPCO	75	50	3	2
3	KAMENG, NEEPCO	600	349	22	14
4	KOPILI, NEEPCO	200	162	10	7
5	LOKTAK, NHPC	105	88	6	4
6	PALATANA, OTPC	727	424	27	17
7	PARE, NEEPCO	110	59	4	2
8	PANYOR, NEEPCO	405	237	15	10
9	Subansiri Lower H.E. Project	750	579	37	24

*FRO shall be nil in case of a control area not having any generation resources

Frequency Response Obligation of Nepal & Bhutan for FY 2026-27

Transnational					
Sl. No.	States	Avg. Generation (MW)	Avg. Demand (MW)	FRO (MW/Hz)	
				Solar Hours	Non-Solar Hours
1	Nepal	391	176	36	23
2	Bhutan	1000	219	78	50

*FRO shall be nil in case of a control area not having any generation resources

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Minutes of the 48th Meeting of Forum of Load Despatchers (FOLD)

held on 21st August 2024 through Online

The 48th Meeting of the Forum of Load Despatchers was held online via Webex on 21st August 2024. Over 170 participants including senior officials from CERC, GRID-INDIA and State Load Despatcher attended the meeting.

A) Opening Remarks by CMD, Grid-India

CMD, Grid-India, expressed appreciation for the enthusiastic participation from all attendees and welcomed the Secretary, Central Electricity Regulatory Commission (CERC) & Forum of Regulators (FOR).

He highlighted the recent achievements since the last FOLD meeting on 3rd June 2024, including the record-breaking peak demands met by various states.

CMD mentioned key incidents such as the overflow of reservoirs in the Southern and Western regions due to good monsoon rains and the adverse impact on power plants in Himachal Pradesh.

CMD, Grid-India, highlighted a significant incident that occurred on 17th June 2024, where all four poles of the HVDC Champa-Kurukshetra tripped, resulting in a severe low voltage scenario and a brief loss of 16.5 GW of consumer load in the Northern **Region**. A committee headed by CEA has investigated the incident and submitted a report, which will be shared soon for further review and action.

CMD congratulated RLDCs, SLDCs, and NTPC for the successful reconfiguration of the network on 14th August, which enabled the transfer of NTPC Rihand Stage-3 generating station from the Western to the Northern region.

He also informed that Grid-India implemented a new Web-Based Energy Scheduling (WBES) system on 4th August, covering all five RLDCs and NLDC, and acknowledged the excellent coordination among SLDCs, RLDCs, and NLDC in rolling out the system.

The agenda for the meeting was outlined, focusing on load forecasting, resource adequacy, reserves estimation, real-time generation monitoring, technical minimum requirement, frequency response obligation, and intra-state SCED implementation.

B) Address by Secretary, CERC & FOR

Secretary (CERC & FOR) thanked CMD, Grid-India, and emphasized the critical role load dispatchers play in achieving reliability, affordability, and sustainability of power supply in India.

He acknowledged the successful management of renewable energy-induced variations by the load dispatchers and encouraged them to continue tackling future challenges, especially during the upcoming monsoon break.

Secretary (CERC & FOR) highlighted the importance of operational planning and resource adequacy, advising SLDCs to comply with IEGC regulations by submitting demand and generation forecasts to RLDCs.

He stressed the significance of addressing downward flexing issues, especially when all ISGS stations have already been performing to the technical minimum of 55% and below. He encouraged SLDCs to ensure similar reductions at the intra-state generating stations to optimize power supply costs.

He also noted the agenda on assessing captive power generation capacity and its potential to avoid additional investments, urging SLDCs to submit relevant data for resource adequacy analysis.

He urged all participants to deliberate on the issues and provide valuable recommendations for CERC to consider in future regulatory interventions.

C) Deliberations during the meeting:

The approved agenda items were discussed as per below during the meeting.

Agenda-1: Load Forecasting Practices / Methodology.

Agenda-2: Operational Planning & Resource Adequacy Assessment

Agenda-3: Real-Time Monitoring of the available margin in all the plants

Agenda-4: Technical Minimum of intra-state coal-based generating stations

Agenda-5: Dropped.

Agenda-6: Assessment of quantum of Secondary & Tertiary Reserve Capacity & Information on Exchange

Agenda-7: Methodology for calculation of FRO of intra-state entities

Agenda-8: Implementation of SCED at the State level

D) Agenda 1: Load Forecasting Practices / Methodology.

Grid-India deliberated on carrying out the demand estimation at DISCOMs/SLDCs as mandated by the IEGC under clauses 5.2 and 31.2 across different timelines (yearly, monthly, weekly, and daily basis) and submitting it to respective RLDCs, which would then be aggregated at NLDC for the accurate national-level demand estimation.

Current Status: It was noted that, currently, NLDC is independently carrying out demand estimations using SCADA data and other sources, rather than receiving the necessary inputs from SLDCs via RLDCs. This practice is not in alignment with IEGC mandates. The importance of integrated operations and adherence to the regulations was emphasized, particularly considering recent CERC directives requiring strict compliance with IEGC guidelines.

Survey and Compliance: A survey form was circulated to all SLDCs to gather information about their forecasting practices, including timelines (yearly, monthly, weekly, daily), methodologies etc. While many responses have been received, some are still pending. Participants were urged to submit their completed questionnaires by the 23rd of August to facilitate the preparation of a compliance report for submission to CERC.

Some SLDCs confirmed receipt and submission of the survey, while others were advised to submit their responses promptly.

Action Points:

- SLDCs must aggregate the demand estimation at each DISCOM level and submit the estimated demand data to respective RLDCs as per the timelines set in IEGC.
- All SLDCs that have not yet responded were asked to do so by the 23rd of August 2024.
- A compliance report will be prepared based on the survey responses and submitted to CERC.

E) Agenda 2: Operational Planning with Resource Adequacy

Grid-India highlighted the importance of the operational planning exercise as outlined in IEGC 2023, which must be carried out by each SLDC and includes demand estimation and generation planning to ensure resource adequacy. This information is to be submitted to the respective RLDCs (and then NLDC) according to the timelines specified in the Grid code for regional and national level planning.
The present status (at all-India level) of the day-ahead demand estimation being submitted to respective RLDCs:

	Daily	Weekly	Monthly	Yearly
No. of states/utilities* submitting day-ahead demand forecast	31	20	10	20

As per information available with RLDCs *out of 38 states/utility (ISTS connected bulk consumers like Railways etc.)

It was noted that while many states are complying with day-ahead data sharing, most are not using the prescribed format finalized during the deliberations before implementing the new IEGC 2023. The meeting emphasized the importance of submitting data in the correct format to ensure accurate resource adequacy and generation planning.

Grid-India stressed the need for a bottom-up approach in resource adequacy analysis, urging SLDCs to provide detailed and accurate data to RLDCs for regional and national aggregation.

Resource Adequacy Analysis at NLDC: A detailed explanation of the Resource Adequacy Analysis was provided using the Probabilistic Resource Adequacy Suite (PRAS) and production cost modelling with the Grid-Path software. The analysis revealed potential shortages, especially during non-solar hours, and emphasized the importance of contributions from SLDCs and RLDCs for accurate national-level resource adequacy planning.

Action Points:

- SLDCs are to perform the operational planning exercise with the estimated demand and generation to ensure the resource adequacy across all the timelines.
- Must adhere to the submission timelines: daily data by 10:00 hours D-1, weekly data by the first working day of the week, monthly data by the 5th day of the previous month, and yearly data by the 30th of September of the previous year in the prescribed format as available in the NLDC Operating Procedure (uploaded at NLDC website) as well.
- The forecasting errors are to be analysed at the SLDC level and published on their respective websites as per IEGC.

CMD, Grid-India, acknowledged the participation of Member Secretaries from RPCs and invited questions and suggestions from attendees.

Member, ERPC:

Highlighted the issue of many states lagging in providing load forecasts and preparedness plans for the upcoming years. It was noted that while DVC has made progress in capacity addition, other states and central generating stations in the Eastern region lack concrete plans for new capacity.

Currently, only a few projects are underway, such as Talcher Extension (2x660 MW), North Karanpura U#3 (600 MW), SJVN Buxar (2x660 MW), and Patratu (3x800 MW) over the next 3-4 years. However, this additional capacity is not exclusively intended for the Eastern region.

Suggested prioritizing the allocation of unallocated power (15%) by the Ministry of Power to the Eastern region's needy states.

Noted challenges with overloaded transmission lines due to the inflow of renewable energy (RE) from the Northern Grid, highlighting the need to address transmission and distribution capacities in addition to ensuring generation adequacy.

Mentioned that captive generation data and industrial load projections are not systematically shared at the RPC level, complicating planning. Recommended that SLDCs regularly provide captive generation data to improve planning.

CMD, GRID-INDIA acknowledged the importance of transmission issues and stated they are regularly raised with CTU and CEA. Emphasized the need for data flow and exercises on resource adequacy to start, with further discussions in subsequent meetings.

Telangana:

Shared efforts in Telangana to integrate real-time data from all captive power plants and rooftop solar generators. Mentioned the integration of real-time data from rooftop solar to SLDC and plans to cover 280 MW out of 400 MW total rooftop solar in the state.

Emphasized the importance of accounting for captive consumption in the load-generation balance and the role of real-time data in Open Access transactions.

Director (SO), GRID – INDIA suggested that SRLDC and SLDC Telangana discuss about the inclusion of captive generation in the load generation balance and explore adopting this model in other states as well.

UP SLDC:

Suggested making data on forecast versus actual demand publicly available on SLDC websites and involving academic institutions in analysing forecast errors. Highlighted that the approach could lead to localized solutions and better grid management.

CMD, GRID-INDIA agreed that load and RE forecast errors should be regularly worked out by SLDCs, RLDCs, and NLDCs, incorporating weather parameters into forecasting models.

Supported the idea of fostering local innovations in forecasting rather than adopting a centralized approach, encouraging the development of effective tools and methods at the DISCOM, state and regional level.

F) Agenda 3: Real-Time Monitoring of the available margin in all the plants

The necessity of monitoring reserves in real-time was emphasized to maintain a balance between load and generation, particularly during peak demand periods. Instantaneous data on Declared Capacity (DC) and scheduling from interstate thermal plants are integrated into RLDCs from SLDCs to optimize margin utilization besides the ISGS data.

Grid-India reported that, in compliance with the Ministry of Power's (MoP) directions, a real-time generation monitoring portal has been implemented at RLDCs and NLDC. This portal provides data on generation from both interstate and intra-state thermal plants, aiming to offer comprehensive visibility into actual generation and available margins. However, issues with data quality and availability from Intra-state plants have been observed, which affect the accuracy of margin assessments.

A recent directive from the Ministry of Power, discussed in a meeting on July 25th, 2024, mandates that all grid-connected generator data be accessible on a common portal. This measure is intended to enhance transparency and ensure data availability to all stakeholders, with appropriate access controls.

CMD, Grid-India, deliberated on the strategic measures taken during April and May this year in response to high demand forecasts. These measures included deferring plant maintenance and maximizing thermal capacity utilization and critical need for closely monitoring reserve margins level to ensure optimal generation capacity and grid stability.

The emphasis was placed on the importance of real-time reserve monitoring to effectively balance load and generation. Integrating instantaneous data on Declared Capacity (DC) and schedules from interstate thermal plants into RLDCs is crucial for optimizing margin utilization.

The discussion also highlighted the impact of increasing renewable energy penetration on conventional generation. During periods of high wind and solar generation, demand on coal-fired units dropped significantly. NTPC has been notably impacted, bearing more than 50% of the required reductions. While the 55% technical

minimum mandate for ISGS is being implemented, many intra-state plants continue to operate above this threshold, indicating further potential for reducing thermal generation.

Action Points:

SLDCs: Improve the quality and availability of plant-wise data for real-time monitoring and ensure timely updates to RLDCs regarding any changes.

RLDCs/NLDC: Enhance the real-time generation monitoring portal to ensure comprehensive and accurate data.

All Stakeholders: Focus on increasing the flexibility of coal-fired plants and addressing transmission congestion to support better integration of renewable energy and enhance overall grid reliability.

G) Agenda-4: Technical Minimum of intra-state coal-based generating stations

In the Indian Power system, thermal ISGS provide the bulk of the flexibility required in view of increasing renewable penetration. Many ISGS are being scheduled below their technical minimum on daily basis while they are receiving full requisition during non-solar peak hours. In order to maintain spinning reserves, some ISGS are being provided support up to technical minimum under Security Constrained Unit Commitment (SCUC) mechanism. However, there are increasing number of instances where available down reserves to balance the SCUC support quantum are insufficient. Down reserves are being fully exhausted and even pit head stations are being backed down till technical minimum. This is resulting in high frequency operation during solar hours.

It is being observed that the burden of flexing is much higher on inter-state thermal stations relative to their share in generation. On a sample day, thermal ISGS having 34% share in All India Thermal generation provided more than half of the total thermal flexing.

55% Technical minimum provisions at inter-state level were introduced in 2016 with IEGC 4th Amendment. Since then, 55% technical minimum provisions have been incorporated in the state grid codes of only some states. Inflexibility in intra-state thermal fleet is also contributing towards congestion on inter-regional corridors.

Grid-India has advocated for the need to have a regulatory mechanism to promote flexibility at various forums, including the Forum of Regulators (FoR).

Action Points:

SLDCs may take up advocacy with state regulatory commissions for amendment in state grid codes to mandate technical minimum provisions for intra-state thermal plants.

H) Agenda-5: Details of the captive power genera□on embedded in the states

This agenda was dropped as it was decided to discuss the same with more details in subsequent meetings.

I) Agenda-6: Assessment of quantum of Secondary & Tertiary Reserve Capacity & Information on Exchange.

Grid-India mentioned about the provisions for ancillary services as per IEGC 2023 and CERC approved procedure for the assessment and procurement of reserves, aligning with both the IEGC and ancillary services regulations. The reserve requirements at the central sector and state levels have been outlined and mandate for the upload of the same at Grid India website has also been emphasised.

The challenges posed by insufficient reserves in ISGS were highlighted, emphasizing the need for a bottom-up approach. State-level reserve contributions are crucial, especially with increasing RE penetration, where both upward and downward reserves are essential for grid stability. The submission of requisite data by the states in RAS-1 and RAS-2 formats, as outlined in the detailed procedure, was also stressed for accurate year-ahead reserve estimation and day-ahead reserve procurement at the national level.

Current Status: In absence of requisite data from the states, NLDC and RLDCs are currently computing the ACE data for states with the available SCADA data at NLDC/RLDCs.

Challenges in Maintaining Reserves: Despite efforts, the actual reserves available for secondary control are currently insufficient, often falling short of the required levels. This issue is particularly concerning given the increased uncertainty and contingency risks associated with higher RE integration, especially during non-solar hours.

Action Points:

Data Submission by States: For the estimation of year-ahead reserves, each state is required to submit time series data of tie-line flows, frequency response characteristics, and other relevant information as per the prescribed format (RAS-1) to RLDCs/NLDC.

Reserve Maintenance at State Level: States must actively work towards evaluating and maintaining reserves at the state level, ensuring that sufficient reserves are available for dispatch during load-generation imbalances or forecast deviations.

Reserve information in D-2: States must provide reserve information on a D-2 basis to be included in national reserve calculations, ensuring effective reserve management across all levels.

Collaboration with RLDCs and NLDC: States should enhance coordination with RLDCs and NLDC to address the challenges of reserve maintenance, particularly in the context of high RE penetration. The reserve levels and data quality provided by the states will be monitored continuously, and improvements will be made to ensure grid stability and security.

J) **Agenda-7: Methodology for calculation of FRO of intra-state entities.**

Grid-India highlighted the introduction of Frequency Response Obligation (FRO) for each control area under the CERC (IEGC) Regulations, 2023. Accordingly, NLDC has assessed the FRO for each control area under the jurisdiction of RLDCs, including both state control areas and regional entity generating stations.

Director (SO), Grid-India explained the concept of FRO introduced in the IEGC, 2023, highlighting it as the minimum requirement for primary response from control areas in the event of any grid contingency. It was mentioned that All India minimum target FRC was calculated for reference contingency in the grid and

based on this FRC value, FROs have been allocated to each control area, as per the formula given in IEGC, 2023. Some of the SLDCs have approached RLDCs and NLDC about the distribution of the FRO assigned to the state control area among their internal generating stations.

It was presented that there could be four potential methodologies for distributing the FRO allotted to a state control area among its intra-state entities, including generating stations and loads, without requiring amendments to the IEGC, 2023. Additionally, one methodology would involve amending the IEGC, 2023.

Method-I

FRO = (Average Generation of individual generating station/ (Sum of Avg. generation of all considered generating stations)) X FRO allotted to state control area.

Method-I simply distributes FRO allotted to a state control area among its intra-state generating stations. These generating stations can be identified in accordance with Table-4 of IEGC, 2023.

Method-II

FRO= (Average Generation of individual generating station/ (Sum of Avg. generation of all considered generating stations + Average Demand of State Control Area)) X FRO allotted to state control area

Method-III

FRO= (Average Generation of individual generating station/ (Sum of Avg. generation of all considered generating stations)) X (FRO allotted to state control area-Demand Response (=4% of Avg. Demand per Hz))

Method-II & Method-III accommodates demand response while distributing FRO allotted to a state control area among its internal generating stations and load entities.

Method-IV

FRO= (Average Generation of individual generating station/ (Sum of Avg. generation and Avg. Demand of all control areas)) X Minimum All India Target FRC

Method-IV utilizes the formula provided in the IEGC, 2023. In this approach, the FRO for intra-state generating stations is allocated from the All-India minimum target FRC, based on the proportion of their average generation relative to the total average generation and average demand across India.

Method-V

FRO= (Average Generation of individual generating station/ (Sum of Avg. generation of all considered generating stations (ISGS + Intra SGS))) X Minimum All India Target FRC

Method-V entails amendment in current provisions of IEGC, 2023 related to assessment of FRO. All India minimum target FRC would be expected to be achieved by generating stations only.

Summation of FROs allotted to Intra-state generating stations within a state control area shall constitute FRO of that state control area

SLDCs shall be responsible for assessment and monitoring of FRO of Intra-state generating stations and thereby FRO of state control area

Director (SO), Grid-India clarified that the purpose of this agenda was to inform all FOLD members about the different methods for distributing the Frequency Response Obligation (FRO) assigned to a state control area among its entities. SLDCs are free to implement any of these methods within their states. Any challenges encountered during implementation, as well as feedback and suggestions, can be communicated to the FOLD Secretariat.

Director, UPSLDC and Director (SO), Grid-India discussed about the identification of control area in accordance with IEGC, 2023. It was deliberated that load entities like bulk consumers can also be apportioned FRO allotted to state control area.

FRO targets of each control area under RLDC jurisdiction for FY 2024-25, have been assessed by NLDC in accordance with IEGC, 2023 based on the average generation and average demand of control areas for CY 2023. The FRO targets are available in public domain at Grid-India website. The web-link for accessing the same was shared with the members during the discussion.

K) **Agenda-7: "My-SCED" project for implementation of SCED at the State level.**

The background of SCED was discussed, highlighting the successful pilot projects at the national level that began in April 2019 and continued through various extensions. SCED has now become a formalized part of the Indian Electricity Grid Code (IEGC) 2023, ensuring optimal dispatch of generation resources and minimization of generation costs while maintaining grid security. Since April 2019, ₹40 billion in savings were achieved, with significant reductions in average variable cost and schedule changes.

SCED was identified as a superior mechanism to merit order dispatch (MOD), offering better management of state-level resources and handling constraints like ramp rates, energy charges, load generation balance, and transfer capability. It was emphasized that SCED improves congestion management, provides detailed marginal cost information, and optimizes resource dispatch more efficiently than manual processes. The expected potential savings from intra-state SCED were estimated at ₹4000 crores annually.

"My-SCED" project was proposed, encouraging states to develop SCED solutions in-house and create dedicated teams to handle scheduling, market operations, IT infrastructure, and procurement. States will receive technical support through workshops and access to shared resources like sample code directories and publications. Handbook under development shall be shared for comments.

Maharashtra and Gujarat informed that they have started preparing for the pilot projects in coordination with IIT Bombay and IIT Gandhinagar respectively. Uttar Pradesh informed that they are working towards intra-state SCED.

Action Points:

States were advised to immediately nominate officers from different backgrounds (scheduling, market operations, IT infrastructure, and procurement) to work on intra-state SCED (My-SCED) and kick-start the intra-state SCED initiative, aiming for completion by 2025.

The meeting ended with the vote of thanks.

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Annexure-B.2.17

48th Meeting of Forum of Load Despatchers
Date: - 21 - August - 2024
Time: 02:30 PM onwards
Agenda

1. **Opening remarks by CMD, GRID-INDIA and Special Remarks by Secy. CERC/FOR FOR**

2. **Agenda-1 : Load Forecasting Practices / Methodology**

To ensure supply adequacy in the states and thereby in regions and at the national level, it is important to forecast electricity demand. This demand forecast is required for Operational Planning (Demand estimation, Error Analysis, Generation Estimation, Resource Adequacy). The demand forecast is to be shared with concerned RLDCs as per below given timelines.

Yearly demand estimation	30th September of the previous year
Monthly demand estimation	Fifth day of the previous month
Weekly demand estimation	First working day of previous week
Daily demand estimation	10:00 hrs of previous day

SLDCs are requested to share the details of demand estimation practices through the questionnaire .

3. **Agenda-2: Operational Planning & Resource Adequacy Assessment**

As per CERC Regulation-31 of Indian Electricity Grid Code (IEGC) 2023, Operational Planning is to be carried out by NLDC, RLDCs and SLDCs within their respective control area for different time frames. Which includes the following:

I. Daily/Weekly/Monthly/Yearly Demand estimation and submission of the same to respective RLDCs as per timelines mentioned in IEGC as above:
II. Computation of Forecasting errors and publishing at the respective website.
III. Generation forecast including the intra-state Renewable Energy (RE) resources
IV. Resource Adequacy analysis comprising of the source-wise generation with the reserves and flexibility requirements and submission of the same to respective RLDC in day-ahead horizon
V. Data submission as per the format RA-1 to RA-5 for data submission as per "Procedure for Resource Adequacy Assessment" issued in September 2023. Link: https://posoco.in/wp-content/uploads/2023/09/Final-Procedure-%E2%80%93-Resource-Adequacy-and-Operational-Planning-submitted-to-CERC.pdf

The NLDC/RLDC Operating Procedure in this regard is available at their respective websites.

Members are requested to share the status at the respective SLDCs

4. Agenda-3: Real-Time Monitoring of the available margin in all the plants

To ensure load generation balance and meeting unrestricted demand of the country, Ministry of Power has instructed to monitor the available margins in all the thermal plants across the country. For that an SOP has been approved by the Ministry and real-time data of Declared Capacity (DC) and Schedule (in MW) of intra-state thermal plants have been linked from all the SLDCs to RLDCs beside the actual generation. A Real-Time Generation (RTG) monitoring portal has been developed for the continuous monitoring of available margin in the respective plants and directions are being issued to maximize the generation by offering the same in the market. The real-time data availability and correctness is of utmost requirement to compute the available reserve margins at regional and national level.

In the meeting held under the chairmanship of Secretary (Power) on 25.07.2024 to discuss the issues related to Grid Management and Grid Operation, had advised to ensure the availability of the grid-connected data generators data for all grid-connected generators, including unit capacity, declared capacity, scheduled generation, and other relevant parameters, on a common portal accessible to all stakeholders. It is suggested to publish the above mentioned data with an access-controlled manner.

In this regard, SLDCs are requested to ensure availability and accuracy of data reflected at RTG portal for further publishing the same to other entities with an access controlled manner.

5. Agenda-4 : Technical Minimum of intra-state coal-based generating stations

Flexibility of conventional generating stations is required for reliable grid operation with increased penetration of RE. All coal-based Inter-state Generating Stations (ISGS) are already flexing to 55%. Details of technical minimum for thermal generating stations at Intra-state level as specified by SERCs or as per operational practices reported by the states have been tabulated below:

State	Technical Minimum	Regulations/ Data Source	Remarks
Uttar Pradesh	55%	UPERC (Merit Order Despatch and Optimization of Power Purchase) Regulations, 2021[6]	Includes compensation mechanism for part load operation
Haryana	55%	HERC (Terms and Conditions for Determination of Tariff for Generation, Transmission, Wheeling and Distribution & Retail Supply under Multi Year Tariff Framework) Regulations, 2019[7]	Includes compensation mechanism for part load operation and additional start/stop

Maharashtra	55%	MERC (State Grid Code Regulations), 2020[8]	Includes compensation mechanism for part load operation and additional start/stop
Madhya Prade	55%	MP Electricity Grid Code, 2024[9]	Includes compensation mechanism for part load operation and additional start/stop
Karnataka	55%	KERC (Merit Order Despatch and Optimization of Power Purchase Cost) Regulations, 2024[10]	Includes compensation mechanism for part load operation Two units operating with technical minimum of 40% (intimated in 210th SR OCC meeting)
Andhra Prades	520 MW & above: 55% Upto 500 MW: 71.4%	Minutes of 210th Meeting of Southern Region Operation Coordination Committee (OCC)[11]	
Tamil Nadu	600 MW: 60% 210 MW: 80%	Minutes of 210th Meeting of Southern Region OCC	
Telangana	58-67% for different units	Minutes of 210th Meeting of Southern Region OCC	
West Bengal	63-73% for different units	Minutes of 214th Meeting of Eastern Region Operation Coordination Committee (OCC)[12]	
Odisha	55-60%	Minutes of 214th Meeting of Eastern Region OCC	

On 3rd & 4th August 2024, sustained high frequency operations were observed. Congestion warning and charges had been imposed on several occasions. Going forward such situations may arise frequently, therefore, flexing of intra-state thermal generation is also of utmost important.

In the meeting held under the chairmanship of Secretary (Power) on 25.07.2024 to discuss the issues related to Grid Management and Grid Operation has directed to take appropriate measures by the states for RE curtailment / RSD/ Ramping-up or down wrt the intra-state thermal units for ensuring the grid reliability and security .

Members may like to deliberate in this regard.

6. Agenda-5: Details of the captive power generation embedded in the states

As captive power generation continues to grow with increasing industrialization, particularly in heavy industries such as steel and cement production, accurate accounting of these generation resources becomes crucial. This is especially important during peak demand periods when meeting the country's energy needs becomes critical. Additionally, the tripping of any unit within the captive power fleet poses challenges, as the demand from these industries shifts to the grid. Members may like to share the following details of the captive power plants in their respective states.

- Generation Capacity (MW)
- Captive load (MW)
- PLF (annual avg.)
- Fuel (Domestic/Imported/Blend/other)
- Point of Connection (kV level)
- Visibility in respective SCADA (Yes or No)
- Load and net load (load-generation) curve for all the season (Summer, Monsoon, Winter).

7. Agenda-6: Assessment of quantum of Secondary & Tertiary Reserve Capacity & Information Exchange

In compliance with Regulations 30(11) and 30(12) of the IEGC, NLDC has prepared a "Detailed Procedure for Assessment of Quantum of Secondary & Tertiary Reserve Capacity, along with Information Exchange and Timelines ".

https://posoco.in/wp-content/uploads/2024/02/Detailed-Procedure-for-Assessment-of-quantum-of-Secondary-Tertiary-Res_.pdf

NLDC, in coordination with RLDCs and SLDCs, is responsible for estimating the quantum of reserve requirements on a year-ahead, three-day-ahead, day-ahead, and real-time basis.

SLDCs are required to furnish data in the specified formats (RAS1 and RAS2).

8. Agenda-7: Methodology for calculation of FRO of intra-state entities

In compliance with Reg. 30 Clause (10) (f) of CERC (IEGC) Regulations, 2023, NLDC has notified FRO of regional entity generating stations and state control areas, which is available at following link: https://grid-india.in/en/download/assessment-of-frequency-response-obligation-of-each-control-area-for-fy-2024-25_rev-1_02-04-2024/?wpdmdl=57714.

1. SLDCs have proposed different methodologies to assign FRO to its intra-state entities. These are given below:

Method-I. FRO allotted to a state control area to be distributed **only among the intra-state generating stations** giving due **consideration to generation within the state control area**

and details as given in Table 4 under sub-clause(g) of Reg. 30 Clause (10) of CERC (IEGC) Regulations, 2023. The FRO in MW/Hz shall be calculated as:

$$FRO = \left(\frac{Average\ Generation\ of\ individual\ generating\ station}{Sum\ of\ Avg.generation\ of\ all\ considered\ generating\ stations}\right) X\ FRO\ alloted\ to\ state\ control\ area$$

Method-II. FRO allotted to a state control area to be **distributed among the intra-state generating stations and load**, giving due **consideration to generation and load within the state control area** and details as given in Table 4 under sub-clause(g) of Reg. 30 Clause (10) of CERC (IEGC) Regulations, 2023. The FRO in MW/Hz shall be calculated as:

$$FRO = \left(\frac{Average\ Generation\ of\ individual\ generating\ station}{Sum\ of\ Avg.generation\ of\ all\ considered\ generating\ stations + Average\ Demand\ of\ State\ Control\ Area}\right) X\ FRO\ alloted\ to\ state\ control\ area$$

Method-III. FRO allotted to a state control area to be distributed **among the intra-state generating stations and load** giving due **consideration to generation within the state control area** and details as given in Table 4 under sub-clause(g) of Reg. 30 Clause (10) of CERC (IEGC) Regulations, 2023. The demand response to be considered equal to the maximum 4% of Average Demand per Hz.

$$FRO = \left(\frac{Average\ Generation\ of\ individual\ generating\ station}{Sum\ of\ Avg.generation\ of\ all\ considered\ generating\ stations}\right) X (FRO\ alloted\ to\ state\ control\ area - Demand\ Response\ (= 4\%\ of\ Avg.Demand\ per\ Hz))$$

Method-IV. FRO allotted to a state control area to be distributed **only among the intra-state generating stations** giving due **consideration to generation and load within each control area across the All-India grid** and details as given in Table 4 under sub-clause(g) of Reg. 30 Clause (10) of CERC (IEGC) Regulations, 2023. The FRO in MW/Hz shall be calculated as:

$$FRO = \left(\frac{Average\ Generation\ of\ individual\ generating\ station}{Sum\ of\ Avg.generation\ and\ Avg.Demand\ of\ all\ control\ areas}\right) X\ Minimum\ All\ India\ Target\ FRC$$

Esteemed members may please deliberate to arrive at a common methodology

9. Agenda-8: "My-SCED" project for implementation of SCED at the State level

A pilot project on Security Constrained Economic Despatch Pan-India covering 52 thermal ISGS with 58 GW capacity was operationalized by GRID-INDIA starting 1st April 2019. A robust, integrated SCED software application was developed in-house, which runs every 15 minutes on 24x7 basis to optimize the all-India variable cost of generation, while fulfilling grid security constraints. The pilot has been expanded w.e.f. 1st June 2020, opening participation to all willing generators. Security constraints have been strengthened with incorporation of bidirectional Available Transfer Capability (ATC) and counter dispatch for correcting inter-regional ATC violations. Generator minimum and maximum evacuation limits have been introduced for addressing local security violations. For ensuring that

generators do not see any ramp violation in schedules when they are excluded, soft landing feature has been developed and introduced. For handling of different SCED stop under different scenarios, scheduled and emergency stop functionalities have been developed.

The schedules of beneficiaries are not changed on account of SCED. Buyers or beneficiaries continue to pay the charges for the scheduled energy directly to the generating stations participating in the SCED. Gains from the SCED process shall be accumulated into the "SCED Account" and are being shared with generating stations and their beneficiary states. For any increment in the generation schedule on account of SCED, the participating generator is paid from the 'SCED Account' at the rate of its energy charge or SCED Compensation Charge declared upfront by the generator. For any decrement in the generation schedule on account of SCED, the participating generator pays to the 'SCED Account' at the rate of energy charge or SCED Compensation Charge, as applicable. The net savings shall be shared between the beneficiaries or buyers and the generating stations as per a gain sharing mechanism. Part load compensation for a reduction in the schedule on account of SCED is paid from the savings in the SCED Account.

National Load Despatch Centre (NLDC) has prepared and submitted several detailed feedback reports to CERC covering various aspects of the SCED operation. With the implementation of Indian Electricity Grid Code 2023 from 1st October 2023 onwards, SCED has moved from pilot phase and is now an inherent part of the scheduling and despatch process. In addition to SCED, the IEGC-2023 also contains provisions for Security Constrained Unit Commitment (SCUC), which has been implemented from April 2024 onwards.

As of August 2024, a total of 52 plants with installed capacity of 63420 MW form part of the SCED optimization. Around ₹4000 crores national savings have been done through SCED since April 2019. These savings have been transparently shared between the generating stations and beneficiaries transparently. All the accounts and records are available in public domain.

A rough estimation of the potential of intra-state SCED by Grid-India is valued at around ₹4000 crores per annum at the all-India level, which roughly translates to 0.5%-0.7% of the annual variable production cost. More than the savings, the intangible benefits that are provided by SCED implementation hold vital importance –

a. SCED is an advanced application to merit order despatch (MOD) as it simultaneously factors constraints viz., ramp rates, energy charges, load generation balance, transfer capability margins, and any other limits needed. SCED is also superior to MOD in handling congestion and retrieving the marginal cost information.
b. Optimization algorithm used in SCED justifying and covering any inefficiency in manual load despatch decision.
c. Improved automation for facilitating SCED
d. SCED implementation also gives by products such as the improved reporting infrastructure through customized charts, tables, and duals (shadow prices) of the constraints, which would be helpful for the senior management in taking policy level decisions.

e. Strict gate closures timelines can be implemented, which can open new doors for Ancillary Services, flexibility initiatives, efficient grid management considering high penetration of renewables.

Implementation of Intra-state SCED has huge potential of economic savings and therefore, a new collaborative project titled “My-SCED” is proposed by FOLD. In this project, FOLD welcomes all the interested states to take initiatives for implementing SCED in-house customized at the state level. Each State may kindly create a dedicated group constituting of executives/officers from these preferable backgrounds-

- Scheduling and Despatch – for facilitating scheduling changes
- Market operations and regulatory aspects
- Computer Science, IT, Communication – for facilitating data exchange, and developing portals, cybersecurity.
- Heads, contracts/procurement departments – for facilitating any procurement requirements or changes in the existing scheduling software, although SCED algorithm can be preferably developed in-house

The following activities are proposed to be taken up during the “My-SCED” project –

i. Technical support through online workshops
ii. Interactions with national and international experts
iii. Shared resources, publications folders, and sample code directories would be made available
iv. Short deputations of resource personnel for training/brainstorming
v. Regular progress tracking will be done through FOLD secretariat. The intra-state SCED project may be targeted to be completed in a time bound fashion at all the interested states by 2025

The information regarding the nominated officers may be provided to FOLD Secretariat at the earliest by the interested states through Head of SLDC.

FOLD Secretariat