AGENDA

FOR

176th OCC MEETING

Date:19.02.2021

Eastern Regional PowerCommittee

14, Golf Club Road, Tollygunge

Kolkata:700033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 176TH OCC MEETING TO BE HELD ON 19.02.2021(FRIDAY) AT 10:30 HOURS

PART – A

ITEM NO. A.1: Confirmation of minutes of 175th OCC Meeting held on 20th January 2021 through MS Teams.

The minutes of 175th Operation Sub-Committee meeting held on 20.01.2021 circulated vide letter dated 03.02.2021.

Members may confirm the minutes of 175th OCC meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Outage of Important Transmission System.

1. 400 kV Barh-Motihari D/C and 400 kV Motihari -Gorakhpur D/C lines.

In the 175th OCC meeting, DMTCL submitted that the work for pile foundations were completed at all locations, whereas at 02 nos. (at 26/0 & 26/3) locations the work for pile cap is under progress.

DMTCL informed thatthe works are in progress at all fronts and both the lines would get restored by 2nd week of March'21.

Regarding non-availability of SCADA data of Motihari, DMTCL submitted that the same has not been rectified yet. They informed that they are pursuing the issue with the vendor i.e. M/S ABB for early restoration. They also informed that the SCADA data would get restored once the 400 kV lines from Motihari get restored to its present configuration.

It was informed that the OPGW work of 400 kV Barh-Motihari lines would be started after permanent restoration of the lines.

DMTCL vide e-mail dated 11thFebruary, 2021 updated the progress of Barh-Motihari and Barh-Gorakhpur D/C lines which is given in **Annexure B.1**.

DMTCL may update.

2. Reconductoring work of 400 kV Rangpo-Binaguri D/C lines.

In the 175th OCC meeting, Powergrid informed that around 80 kms reconductoring work has been completed in total out of 110 kms, and the remainingportions which are left mainly consists of major power line crossings.

They also informed that the work will be completed within two months subject to availability of shutdown.

Powergrid was advised to submit the plan for the shutdowns schedule for balance power line crossings at the earliest so that it could be allowed in the lean hydro season to the extent possible and the reconductoring work of these crossings would be completed as per the schedule to be finalized during OCC Shut Down Meeting in February 2021.

Powergrid may update.

3. 400KV/220KV 315 MVA ICT-3 at Malda S/s.

400KV/220KV 315 MVA ICT-3 at Malda is under continuous shutdown from 04-01-21 for upgradation of 315MVA ICT# 3 at Malda by 500MVA ICT under ERSS – XVII-B.

Powergrid may update.

4. 132KV-Rangit-Rangpo-1 and 132KV-Rangpo-Gangtok-2.

132KVRangir-Rangpo-1 and 132KV-Rangpo-Gangtok-2 is under continuous shutdown from 12-12-20 for rectification of Multi circuit tower at loc-21 which got bent due to landslide during monsoon.

Power Grid may update.

5. 400 kV Maithon- Maithon RB D/C

400KV Maithon-Maithon RB D/C is under continuous shutdown from 12-01-21, for re-conductoring work.

Powergrid may update.

6. 132kV Sagbari –Melli.

In the 174th OCC meeting, Sikkim informed that 132kVMelli-Sagabari S/C is under outage because of faulty breaker issue at Sagabari end. Sikkim informed that 132 kV Sagabari S/s is under DISCOM jurisdiction.

OCC opined that restoration of 132 kV Melli-Sagabari S/C line is very important to ensure reliable supply to Sikkim during contingencies.

OCC advised SLDC Sikkim to take up the issue with DISCOM for rectification of the circuit breaker at Sagabari end of 132 kV Melli-Sagabari S/C line.

In the 175th OCC meeting, SLDC, Sikkim informed that they have taken up the issue with their DISCOM and informed that the circuit breaker issue will be resolved within two weeks.

Sikkim may update.

7. Main bay of Dikchu ICT.

Main Bay 405 connecting Dikchu ICT to Main Bus-2 remains out of service from 19th Feb' 20.

In the 174th OCC meeting, Dikchu informed that the work orders have been placed with the OEM. The materials would be procured by the end of Jan 2021 and the work would be completed by the end of Feb 2021.

Dikchu may update.

8. 400 KV main bay of Patna-1 at Kishanganj S/s.

The said bay remains out of service due to problem in Y-ph CB mechanism from 10/04/20.

In the 175th OCC meeting, Powergrid informed that the work has not been started yet due to unavailability of service engineer from China.

OCC advised Powergrid to take up the issue with their corporate office, for early resolution.

Powergrid may update.

9. 400KV New Purnea-Gokarna & 400KV New Purnea-FSTPP.

In the 175th OCC meeting, Powergrid informed that the line has already been restored.

Regarding PLCC work of 400 kV New Purnea-Farakka S/C, they informed that LOA has already been placed for new data card to be replaced at 400 kV Farakka end. The PLCC channel will be restored by Feb'21.

Powergrid may update.

ITEM NO. B.2: Shutdown proposal of generating units for the month of March, 2021.

Generator unit shutdown schedule for March' 2021 is given in the table.

System	Station	Unit	Capacity (MW)	Period (as per LGBR 2020-21)		No. of Days	Reason
				From	To		
TVNL	Tenughat TPS	2	210	10.03.21	31.03.21	22	AOH
DVC	Mejia TPS	6	250	01.03.21	26.03.21	26	BOH

In the 175th OCC meeting, NTPC representative stated that they wanted to avail the shutdown of FSTPS U#1 (200 MW) in the month of March,2021.

WBSEDCL representative did not agree with the proposal due to onset of Summer and upcoming elections in the state.

OCC decided to discuss the shutdown proposal of FSTPS U#1 (200 MW) in the next OCC meeting of Feb'21.

Members may update.

ITEM NO. B.3: Repeated tripping of 132 kV Chuzachen – Rangpo – 1 with same fault location

During January 2021, 132 kV Chuzachen-Rangpo-1 tripped repeatedly due to B phase to earth fault at the almost same fault location. ERLDC vide mail dated 15th January 2021 advised Sikkim STU and Sikkim SLDC to find the root cause of repeated tripping and take action to reduce the no of tripping. Tripping incident of 132 kV Chuzachen – Rangpo – 1 in the last 3 months is shown below.

Element Name	Tripping Date	Tripping Time	Reason	Revival Date	Revival Time
132KV-CHUZACHEN-RANGPO-1	27-01-2021	15:01	B_N, 12.28 KM, 1.362 kA (Chuzachen) B_N, 5.2 kA, 2.872 KM (Rangpo)		
132KV-CHUZACHEN-RANGPO-1	25-01-2021	14:21	B-N , 2.9KM , F/C-4.2KA FROM RANGPO	26-01-2021	18:56
132KV-CHUZACHEN-RANGPO-1	25-01-2021	13:42	B-N , 2.9KM , F/C-4.2KA FROM RANGPO B-N,FD 12.36KM,F/C 2.25KA FROM CHEP	25-01-2021	14:16
132KV-CHUZACHEN-RANGPO-1	22-01-2021	15:08	Rangpo: Z1, B-N, 2.925 KM, 4.479 KA	24-01-2021	14:53
132KV-CHUZACHEN-RANGPO-1	22-01-2021	14:04	B-N, Chuzachen: 12.43 KM, ; Rangpo: 2.92 km, Fc= 4.32 kA, Z-1	22-01-2021	14:54
132KV-CHUZACHEN-RANGPO-1	21-01-2021	13:50	B - N FAULT , FAULT 4.9 KA , Z1 2.9 KM (RANGPO)	21-01-2021	15:00
132KV-CHUZACHEN-RANGPO-1	15-01-2021	13:54	Rangpo: B-N, 3km, 1kA; Chuzachen: B-N, 12.7km, 0.8kA.	15-01-2021	14:56
132KV-CHUZACHEN-RANGPO-1	13-01-2021	14:53	Rangpo: B_N, 2.874 KM, 5.3 kA, Chuzachen: B_N, FD-12.25 Km	13-01-2021	15:41
132KV-CHUZACHEN-RANGPO-1	31-12-2020	09:47	B-N,Z1 3.01 KM 5.809 KA FROM RANGPO B-N,15.69 KM 2.452 KA FROM CHUZACHEN	31-12-2020	10:32
132KV-CHUZACHEN-RANGPO-1	27-12-2020	08:30	Rangpo-B-N FD-3.3km FC-6.37kA Chuzachen-B-N, FD-15km FC-2.9kA	27-12-2020	09:16
132KV-CHUZACHEN-RANGPO-1	05-11-2020	13:01	B-N , Z-1, 5.98KA, 2.77KM AT rangpo end	05-11-2020	14:34

In 99th PCC Meeting held on 12.02.2021, the agenda was placed for discussion. PCC referred the issue to OCC for discussion as Sikkim representative were not present in the meeting.

Sikkim may explain.

ITEM NO. B.4: Frequent Tripping of units of APNRL.

It has been observed that units of APNRL have tripped frequently in recent past. Such frequent tripping impacts load generation balance in real time & compromises reliable supply of power to its beneficiaries.

In the 175th OCC meeting, APNRL informed that they are looking into the issue of frequent tripping of units, for resolving the various issues they are planning to take shutdown of Unit#1 in July'21 and for unit#2 it would be taken care which is under shutdown at present.

OCC noticed that many of the trippings are due to problem in ash evacuation system. APNRL informed that they are also looking into the ash evacuation problem and the present Unit #2 will be taken on bar after rectification of this issue.

OCC advised APNRL to share the action plan/measures to address the frequent tripping of their units at the earliest.

APNRL may update.

ITEM NO. B.5: Review of System Protection Scheme (SPS) of HVDC Talcher-Kolar Bipole-NLDC.

In the 175th OCC meeting, ERLDC explained the logic for revised SPS scheme through a presentation. The logic in brief is given below:

- 400 kV Talcher-Meramundali Line current logic would have three Imax settings out of which one will be active depending on the season.
- The Imax current settings have been calculated based on thermal ratings of the lines.
- This Talcher-Meramundali Current logic would be ANDed with existing Talcher-Kolar HVDC SPS logic.

Further it was advised that while finalizing the logic the provision for bypassing of 400 kV Talcher-Meramundali line loading logic should be kept to mitigate the planned shutdown of these lines.

NTPC informed that they are ready to implement the revised SPS logic at their end. They added that the ground return mode determination by the SPS logic would be same as it was in the existing logic.

ERLDC informed that for determination of ground return mode condition using the existing logic involves a delay of around 75 sec. They viewed that the time delay can be reduced if a specific signal indicating ground return mode is made available at TSTPS, NTPC end.

Powergrid informed that exclusive signal for ground return mode is not available at their end.

After detailed deliberation OCC agreed to implement the revised SPS logic with ground return mode condition determined as per the existing logic in place.

NTPC informed that the SPS logic will be implemented at their end within one month once the scheme gets finalized.

OCC advised NTPC that after implementation of SPS, the testing of SPS need to be planned and completed.

Regarding issue of non-availability of pole-2 ground recovery signal at NTPC end, OCC advised Powergrid to resolve the issue by Feb'21.

NTPC & Powergrid may update.

ITEM NO. B.6: Review of System Protection Scheme (SPS) designed for NEW-SR grid integration: - NLDC.

The existing SPS on NEW-SR corridor (for 765 kV Solapur-Raichur lines) were implemented during the synchronization of SR grid with NEW grid in the year 2014. Over the years, SR grid has been integrated with NEW grid through many inter-regional lines apart from 765 kV Solapur-Raichur. The newly commissioned HVDC Raigarh (WR)-Puglur (SR) Bipole is very soon expected to be in operation which will further strengthen the network connecting Southern Region.

In the 175th OCC meeting, ERLDC informed that a draft SOP has been prepared and submitted to NLDC for finalization of the same. They explained the various actions to be taken depending on the real time scenario to restore 765 kV Angul-Srikakulam D/c.

They further added that NLDC in co-ordination with RLDCs and SLDCs would take appropriate actions as required depending on the real time scenario.

OCC advised ERLDC to discuss and finalize the draft SOP in consultation with NLDC and submit the same for further discussion.

NLDC & ERLDC may update.

ITEM NO. B.7: Monthly Data on Category-wise consumption of electricity in states.

The data of category-wise consumption of electricity in the states/UTs, are being frequently referred to by CEA and Ministry of Power. In this regard, as advised by Member(GO &D), GM division of CEA has advised the following:

- The monthly data of category-wise consumption of electricity in the states/UTs may be discussed in the OCC meeting on regular basis with comparative analysis of the same for corresponding monthly data of previous years.
- In case the utilities have reservations on submitting unaudited data then the same may be mentioned in the data itself that these data are unaudited. In that case the data so received would be used only for the purpose of trend analysis and would not be used in any report of CEA.

Members may discuss.

ITEM NO. B.8: Preparation of FTC procedure by state SLDCs in line of NLDC approved FTC procedure—ERLDC

Consolidated first time procedure for the first time charging of any transmission & generating elements with the grid, is available in the ERLDC website under Document > First time charging tab or "http://erpc.gov.in/wp-content/uploads/2020/07/168th-OCC-minutes-final-merged.pdf" link.

This First time Charging (FTC) procedure applies to

1. All the generating station those are regional entities (as defined in IEGC)
2. Power system elements belongs to 400kV level and above irrespective of ownership
3. 220 kV lines emanating from ISGS /ISTS substations
4. Inter-Regional/ Interstate/Transnational transmission lines irrespective of voltage level/ownership
5. HVDC links/poles irrespective of ownership
6. FACTS devices (TCSC/FSC/STATCOM/SVC)
7. Station Transformers (STs) connected at generating stations etc.

However, intrastate 220 kV lines and bellow are not included in this procedure. For safe, secure and reliable operation of the power system, all lines need to be allowed to interconnect with the Power system as per a defined procedure.

Before integration of any new element, RLDC need to carry out detail system integration study which requires different technical parameter for network modeling of the new element.

In view of above, all SLDCs are requested to develop one first time charging procedure or adopt the same procedure practiced at RLDCs for first time integration of any 220 kV and below intra-state new transmission & generating elements including RE generators.

Members may discuss.

ITEM NO. B.9: Data for preparation of National Electricity Plan (NEP) 2022-27 and 2027-32.

Sub-committee 8 on "Transmission Planning" was constituted by the Committee for preparation of National Electricity Plan (NEP) 2022-27. The first meeting of the sub-Committee was held on 27.10.2020 wherein CEA requested STUs/Discoms to furnish the relevant data pertaining to their state within 30 days as per the format.

All states are requested to submit the relevant details to CEA with a copy to ERPC for preparation of the transmission planning. The relevant details as per the format may be send to the following mail addresses:

- cea-pspa1@gov.in
- mserpc-power@nic.in

WBSETCL, CESC and DVC have submitted the relevant details for preparation of NEP for 2022-27 and 2027- 32.

In the 175th OCC meeting, BSPTCL, OPTCL & JUSNL informed that the relevant information would be submitted within Jan'21.

OCC advised Sikkim also to submit the aforesaid details, if any to CEA by Jan'21.

BSPTCL, OPTCL, JUSNL and Sikkim may update.

ITEM NO. B.10: Short Term and Long-Term Transmission Plan for Intra state Constraints in Orissa-- ERLDC

Based on January 2020-2021 Base case and real-time data, the following constraints have been observed in the State network which does not satisfy N-1 reliability criteria. The details are given below:

Transmission Lines having N-1 Reliability Issue	Present Actual Loading Observed (MW)	Loading observed in Simulation (MW)	Sensitivity of N-1 on Parallel Element	Action Plan by STU and SLDC	Remarks and Details from SLDC/STU
220 kV Rourkela-Tarkera D/C (Loading is low in Real time with High Injection by Vedanta)	24	120	80 %	OPTCL	
220 kV Vedanta-Buddhipadar D/C (High Loading in Injection by Vedanta)	155-160	0	100%	OPTCL	
220 kV Buddhipadar-Lapanga D/C (High loading in injection by Vedanta)	120-140	16	67 %	OPTCL	

In the 174th OCC meeting, ERLDC informed that the N-1 criteria are not being satisfied when the injection from Vedanta is above 130 or 140 MW.

OCC advised Odisha to submit the action plan for removing the constraints in above lines to ERPC and ERLDC.

In the 175th meeting, OCC advised SLDC Odisha to submit their comments to ERLDC/ERPC secretariat within a week.

OPTCL may update.

ITEM NO. B.11: Issue related to PLCC channel of 400 kV Teesta III-Kishanganj Line-TUL

TUL vide email dated 16.02.21 informed that the issue of faulty channel-1 of PLCC for 400 kV Teesta III-Kishanganj Line could not be resolved even after replacement and tuning of frequency cards with new one. The alarm in the PLCC still persists in Kishnaganj end & Teesta-III end.

TUL may explain. Members may discuss.

PART C: ITEMS FOR UPDATE

ITEM NO. C.1: ER Grid performance during January'2021.

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month January- 2021 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)
381	401 MW 29-01-2021	20094 MW 18-01-2021; 18:15	11952 MW 02-01-2021; 14:21	354 7	3353

ERLDC may present Performance of Eastern Regional Grid.

ITEM NO. C.2: Primary Frequency Response Testing of Generating Units—ERLDC.

In the 173rd OCC Meeting, NTPC informed that Farakka has already planned to carry out the teston1st of Feb 2021.Kahalgaon is planning to carry out test after 15th Jan 2021 and BRBCL is planning to carry out the test after Dec 2020.

MPL informed that they have placed the order with Siemens and the dates for testing would be finalized in coordination with ERLDC and Siemens.

OCC further, advised all the other Generators, especially the Hydro-Electric Plants to plan the Primary Frequency Response Testing in the winter season.

A presentation on Primary Frequency Response Testing was given by M/s Siemens on 11.12.2020.

NTPC Kahalgaon informed that they had already placed the PO with M/s Solvina for Primary Frequency Response Testing and it is expected that the testing will be done in the second fortnight of Jan-2021 as confirmed by the agency.

In the 175th OCC meeting, ERLDC updated the primary frequency response testing schedule of the generators received by them.

The list is enclosed at **Annexure C.2**.

Respective Generators may update.

ITEM NO. C.3: Testing of Primary Frequency Response of state generating units by third party agency--ERLDC

In the 171stOCC Meeting, OCC advised all the SLDC's to prepare the action plan for their state generators and submit the details to ERPC and ERLDC at the earliest.

DVC vide e-mail dated 6th Oct 2020 informed that the Primary Frequency Response Testing may be carried out for the following generating units:

Sl. No.	Name of the Units	Capacity (MW)
1	BTPS-A	500
2	CTPS Unit #7&8	2X250
3	DSTPS Unit#1&2	2X500
4	KTPS Unit # 1&2	2X500
5	MTPS Unit # 3 to 8	2 X 210 MW +2 X 250 MW + 2X 500 MW
6	RTPS Unit # 1 & 2	2 X 600 MW

However, at present the Primary Frequency Response Testing may not be possible for the following units of DVC:

Sl. No.	Name of the Units	Capacity (MW)	Remarks
1	BTPS-B U#3	210	The Governing system is of the Hydro-mechanical type and the Control system is a Solid-state Hardware/Relay based system.
2	DTPS U#4	210	The Governing system is of the Hydro-mechanical type and the Control system is a Solid-state Hardware/Relay based system
3	MTPS Unit # 1&2	2X210	C & I system of Unit 1 & 2 are originally supplied with a Solid-state Hardware-based system for SG & TG Package which is lacking in scalability and flexibility and the BOP Package is supplied with a primitive DCS system.

In the 173rd OCC Meeting, OPGC informed that for unit # 3 & 4, the order has been placed with M/s Siemens and approval is in process.

OHPC informed that in concurrence to a meeting held with SLDC Odisha, they have planned to carry out the test at one unit of Indravati.

West Bengal informed that they are in discussion with their generators to carry out the primary Frequency response Testing.

DVC informed that both the agencies M/s Siemens & M/s Solvina have agreed to carry out the testing at pre agreed rates, terms & conditions.

In the 175th OCC meeting, SLDC, Bihar informed that BTPS is already coordinating with M/s Slovina regarding the primary frequency test.

DVC informed that the matter is being taken up by their operation team.

SLDC West Bengal informed that the relevant document and vendor names collected form ERLDC has been intimated to the generators.

OCC advised all the SLDCs to coordinate with their generators and submit the unit wise schedule for primary frequency response testing.

Members may update.

ITEM NO. C.4: PSS tuning of Generators in Eastern Region.–ERLDC.

The PSS tuning activity is mandatory in line with IEGC and CEA regulations. The Procedure of PSS tuning for helping utilities in getting this activity carried out has been approved in 171st OCC Meeting and shared with all concerned utilities. List of units where PSS tuning activities is pending is given at **Annexure C4**.

In the 175th OCC meeting, ERLDC informed that PSS tuning at Chuzachen HEP has been completed in Jan'21.

OCC advised all generators to submit their plan for PSS tuning to ERLDC/ERPC secretariat at the earliest.

Members may update.

ITEM NO. C.5: Operationalizing Bus splitting at Biharshariff—ERLDC.

In the 172nd OCC Meeting, OCC advised Bihar to share the plan for load trimming scheme with ERLDC at the earliest.

OCC decided to put the Biharshariff bus splitting scheme in service on 12th Nov 2020.
In the 173rd OCC Meeting, ERLDC informed that bus splitting scheme was put in operation on 18th November 2020 and the bus coupler was closed on 19th November 2020.

Bihar informed that uneven power flow through the ICTs was observed and they are in process of implementation of load trimming scheme.

OCC advised Bihar to send their queries, if any to ERPC and ERLDC within a week. OCC also advised Bihar to implement the load trimming scheme to avoid unwanted tripping of the transformers on overload.

Thereafter, BSPTCL submitted the following Load trimming Scheme based on internal discussion:

(A) By using a Bay Control Unit(BCU) to make logical tripping command by using Digital Input and Digital Output. This will be more technical and sophisticated way of implementation.

(B) By extending the tripping command to 220 KV Double Circuit Biharsharif-Fathua transmission line along with tripping of 500 MVA TRF-04 at Bihharsharif (PG).Fathua will avail power from Patna(PG) and Gaurichak without any load restriction.

In implementation of scheme under option (A) will take significant time (At least 18 Months),as such decision has been taken to implement option (B).Apart from implementation of scheme under option (B) following 132/33 KV GSS shall be shifted on other GSS which are having power source other than Biharsharif GSS.

(1)Hathidah GSS shall be shifted on Lakhisarai GSS.

(2) Wazirganj GSS shall be shifted on Khizirsarai GSS

Based on the inputs some queries were raised by ERLDC which are provided below for discussion:

1. BCU based SPS logic implementation may need more explanation. In general, multiple element input and status based SPS require PLC based SPS scheme as implemented in most of the schemes.
2. Present option B proposes 500 MVA ICT 4 tripping based SPS rather than 315 MVA ICT 2 (ICT which can overload in certain loading condition) which is the prime objective. The SPS logic of overloading of ICT 2 above 315 MVA would be more apt as it will consider the criteria and will also avoid any unnecessary tripping of 220 kV Bihar Sharif -Fatuah D/C with 500 MVA ICT 4 tripping when its outage is not causing any overload on ICT 2 as per demand scenario. BSPTCL is advised to review the scheme.
3. Bihar SLDC may share the impact of the 132kV load shifting and their sensitivity on the ICT loading after split bus condition to ensure their impact.
4. Whether the issue of simultaneous 400/220 kV ICT 1 and 3 tripping on 400 kV line faults observed in the past due to wiring /old relay issue has been resolved by BSPTCL?
5. Any plan by STU for controlling 220 kV Fault level Bihar Sharif also needs to be submitted.

In the 175th OCC meeting, BSPTCL informed that all the electromechanical relays of 400/220 kV ICTs at Biharsharif S/s has been replaced with numerical relays.

They further added that, their O&M team is doing analysis regarding the load tripping scheme and the same will be shared with ERLDC shortly.

OCC advised to finalize and implement load tripping scheme so that bus splitting scheme can be operationalized at the earliest. It also advised BSPTCL to submit their comments on the queries raised by ERLDC within a week.

BSPTCL submitted a MOM dated 04.02.21 in this regard which is annexed as Annexure-C5.

BSPTCL may update.

ITEM NO. C.6: Updated Operating Procedure of Eastern Region, 2020.

The Operating Procedure of every region must be updated and revised annually by the concerned RLDC, in compliance to section 5.1(f) of the IEGC. The procedure is finalized and uploaded at ERLDC website by

20- 07-2020, taking into consideration comments received till 18-07-20. To discuss the revised operating procedure of Eastern Region, one special meeting was held on27-11-2020.

Based on the deliberation in the meeting, operating procedure of Eastern Region has been revised and the final procedure was shared with all regional utilities vide mail dated 04-01-2021. The final procedure is also uploaded on the ERLDC website.

In the 175th OCC meeting, OCC advised all the utilities to go through the revised operating procedure and submit their final observation/comments if any, by January' 21.

Powergrid vide mail dated 1st Feb'21 submitted their observation on Operating Procedure. The same is attached at Annexure- C6.

Members may discuss.

ITEM NO. C.7: Status of UFRs healthiness installed in Eastern Region.

In the 175th OCC meeting, OCC advised all the constituents to send the UFR healthiness data on monthly basis to ERPC.

UFRs healthiness status has been received from WBSETCL, JUSNL & BSPTCL.

Members may update.

ITEM NO. C.8: Status of Islanding Schemes healthiness installed in Eastern Region.

In 108th OCC meeting, respective constituents agreed to certify that the islanding schemes under their control area are in service on monthly basis.

Details received from the constituents are as follows:

Sl. No	Name of Islanding Scheme	Confirmation from Generator utilit	Confirmation from Transmission Utility end
1	CESC as a whole Islanding		
2	BkTPS Islanding Scheme		Healthy
3	Tata Power Islanding Scheme, Haldia	Healthy	Healthy
4	Chandrapura TPS Islanding Scheme, DVC	Not in service	
5	Farakka Islanding Scheme, NTPC	Healthy	
6	Bandel Islanding Scheme, WBPDCL	Healthy	Healthy

In the 175th OCC meeting, JUSNL informed that 220 kV Lalmatia-Godda line has been charged recently. They added that the islanding scheme will be reviewed based on this change in network configuration.

Members may update.

ITEM NO. C.9: Review of Islanding Scheme in EasternRegion--ERLDC

a. Islanding Scheme of CPPs.

In line with power plant and system, a mail has also been sent for review of islanding scheme of CPP. However, input is received only from WBSLDC.

In the 175th OCC meeting, OCC advised all SLDCs to coordinate with the CPPs under their control area jurisdiction and intimate the changes occurred in islanding schemes of

CPPs, if any, to ERLDC.

SLDC Odisha may update.

ITEM NO. C.10: Review of Over Current Settings of Lines having HTLS Conductor— ERLDC

In 220 kV and 132 kV network many lines are re-conductored with HTLS conductor. However it is being observed that for some line(s) overcurrent setting modification is not done accordingly. This is leading to underutilization of asset below their thermal limit. Relay setting should not restrict the load ability of transmission line below its thermal loading limit or stability loading limit. The list of some of the lines having HTLS conductor is as follows:

ii. 132kVJeerat-Dharampur-1
iii. 132kVJeerat-Dharampur-2
iv. 132kV-Bidhannagar-Ukhara-1
v. 132kV-Bidhannagar-Ukhara-2
vi. 132kVTitagarh-Dharampur-1
vii. 132kVTitagarh-Dharampur-2
viii. 132kV-Baharampur-Gokarna-1
ix. 132kV-Baharampur-Gokarna-2
x. 132kV Malda-Malda-1
xi. 132kV Malda-Malda-2
xii. 220kV Bakreswar-Saidaipur-1
xiii. 220kV Bakreswar-Saidaipur-2
xiv. 220kV-Patna-Khagaul-2
xv. 220kV-Patna-Khagaul-3

It is requested that all transmission licensees who have uprated their lines with HTLS conductor may furnish following data

Sl No	Name of line which is re-conductored	Thermal loading limit of line(Amps)	Thermal loading limit of End equipment(Amps)	Over Current Setting of line (Amps)

In the 175th OCC meeting, OCC advised respective utilities to review the overcurrent settings for the lines whereinup gradation of linesare being done with HTLS conductor.

ERLDC informed that this is important for ATC/TTC calculation of the utilities.

OCC advised utilities to go through the list of the lines and update the same in case of any addition to the list.

Members may update.

ITEM NO. C.11: Transfer capability determination by thestates.

Latest status of State ATC/TTC declared by states for the month of April-2021

Sl No	State/Utility	TTC (MW)		RM(MW)		ATC Import (MW)		Remark
		Import	Export	Import	Export	Import	Export	
1	BSPTCL	5150	--	103	--	5047	--	Feb-21
2	JUSNL	1544	--	56	--	1488	--	May-21
3	DVC	1355	2995	65	51	1290	2944	Feb-21
4	OPTCL	2251	1432	74	54	2177	1378	Dec-20
5	WBSETCL	5140	--	400	--	4740	--	Mar-21
6	Sikkim	315	--	2.44	--	315.56	--	Feb-21

Declaration of TTC/ATC on SLDC Website

Sl No	SLDC	Declared on Website	Website Link	Constraint Available on Website	Type of Website Link
1	BSPTCL	Yes	http://www.bsptcl.in/ViewATCTTCWeb.aspx?GL=12&PL=10	Yes	Static Link-Table
2	JUSNL	Yes	http://www.jusnl.in/pdf/download/ttc_atc_nov_2020.pdf	Yes	Static link – pdf file
3	DVC	Yes	https://application.dvc.gov.in/CLD/atcttcmenu.jsp#	Yes	Static Link-Word file
4	OPTCL	Yes	https://www.sldcorissa.org.in/TTC_ATC.aspx	Yes	Static Link-pdf file
5	WBSETCL	Yes	http://www.wbsldc.in/atc-ttc	No (Not updating)	Static Link-Table
6	Sikkim	No	__	No	No link

It is necessary to highlight that the ATC/TTC declaration on website need to be updated in timely manner. It is suggested that along with PDF copies, a tabular format may also kindly be provided so that it can be utilized for preparing ERLDC portal on State ATC/TTC. **In addition, ATC/TTC may be declared three months in advance and periodically reviewed based on any shutdown causing leading to any constraint.**

In the 175th OCC meeting, *Odisha SLDC informed that the ATC/TTC details up to March'21 have been sent to ERLDC.*

ERLDC requested all the constituents to update the ATC/TTC data in their website in a tabular form and also to put a suitable link on their respective website so that the data can fetched easily.

Members may update.

ITEM NO. C.12: Mock Black start exercises in Eastern Region –ERLDC.

Mock black start date for financial year 2020-21 is as follows:

Sl. No	Name of Hydro Station	Schedule	Tentative Date	Schedule	Tentative Date
		Test-I		Test-II	
1	U. Kolab	Last week of Oct 2020		Second Week of Feb 2021	
2	Balimela	Second week of Nov 2020		First Week of March 2021	
3	Rengali	Second week of Nov 2020	*Done on 23rd Nov 2020*	First Week of March 2021	
4	Burla	Second week of Nov 2020		First Week of March 2021	
5	U. Indravati	Last week of Oct 2020		Second Week of Feb 2021	
6	Maithon	Third Week of Nov 2020		First Week of March 2021	
7	TLDP-III	Second week of Nov 2020		Second Week of Feb 2021	
8	TLDP-IV	Third Week of Nov 2020		First Week of March 2021	
9	Subarnarekha	Second week of Nov 2020		Second Week of Feb 2021	***Done on 12th Feb'21***
10	Teesta-V	Third Week of Nov 2020		Third Week of March 2021	
11	Chuzachen	Second week of Nov 2020		First Week of March 2021	
12	Teesta-III	Third Week of Nov 2020		First Week of March 2021	
13	Jorethang	Third Week of Nov 2020		First Week of March 2021	
14	Tasheding	Second week of Nov 2020		First Week of March 2021	
15	Dikchu	Second week of Nov 2020		Second Week of Feb 2021	

Members may update.

ITEM NO. C.13: Guidelines for Availability of Spares and Inventories for Power Transmission System (Transmission Lines & Substation/Switchyard) Assets.

PSETD division of CEA vide letter dated 03.02.2021 informed that guidelines for Availability of Spares and Inventories for Power Transmission System (Transmission Lines & Substation/Switchyard) Assets have been formulated after consultation with various stakeholders.

The guidelines have been prepared to have uniform practice in maintaining mandatory spares at different levels by power utilities across the country to meet any eventuality like electrical failure/mechanical damage of assets, natural disaster etc. The guidelines are available are available at CEA website at the link:
http://cea.nic.in/reports/others/ps/psetd/Spare_Guidelines.pdf.

Members may note.

PART D: OPERATIONAL PLANNING

ITEM NO. D.1: Anticipated power supply position during March 2021.

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of February 2021 were prepared by ERPC Secretariat on the basis of LGBR for 2019-20 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc. is enclosed at Annexure D.1**.**

Members may update.

ITEM NO. D.2: Major Generating Units/Transmission Element outages/shutdown in ER Grid (as on 13.01.2021).

(a) Outage of major Thermal Generating stations

S.No	Station	Agency	Unit No	Capacity MW	Reason(s)	Outage Date
1	KOLAGHAT	WBPDCL	1	210	ESP REPAIR & MAINTENANCE	07-Jun-2018
2	KOLAGHAT	WBPDCL	2	210	ESP & ASH HANDLING REPAIR & MAINTENANCE	26-Dec-2019
3	BOKARO'B'	DVC	3	210	BOILER TUBE LEAKAGE	21-Oct-2020
4	BARAUNI TPS	BSPHCL	6	110	ROTOR FAULT	09-Nov-2020
5	WARIA TPS	DVC	4	210	TAKEN OUT OF BAR DUE TO NON RECEIPT OF ENVIRONMENTAL CLEARANCE	31-Dec-2020
6	MPL	MPL	1	525	ANNUAL OVER HAULING	12-Jan-2021
7	MEJIA TPS	DVC	8	500	ANNUAL OVER HAULING	18-Jan-2021
8	KHSTPP	NTPC	3	210	BOILER TUBE LEAKAGE	31-Jan-2021
9	GMR 3	GMR-Infra	3	350	ANNUAL OVERHAULING	02-Feb-2021
10	GMR	GMR-Infra	2	350	GENERATOR SEAL OIL SYSTEM PROBLEM	05-Feb-2021

11	STERLITE	SEL	1	600	TURBINE VIBRATION	07-Feb-2021
12	FSTPP	NTPC	2	200	BOILER TUBE LEAKAGE	08-Feb-2021
13	KHSTPP	NTPC	5	500	BOILER TUBE LEAKAGE	08-Feb-2021
14	DPL	WBPDCL	7	300	BOILER TUBE LEAKAGE	10-Feb-2021

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.

Generators/ constituents are requested to update the expected date of revival of the units.

(b) 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
1	BARAUNI TPS	BIHAR	BSPHCL	7	110	RSD/ LOW SYSTEM DEMAND	28-May-2020
2	KOLAGHAT	WEST BENGAL	WBPDCL	3	210	RSD/LOW SYSTEM DEMAND	13-Jun-2020
3	KOLAGHAT	WEST BENGAL	WBPDCL	5	210	RSD/LOW SYSTEM DEMAND	15-Dec-2020
4	KOLAGHAT	WEST BENGAL	WBPDCL	6	210	RSD/LOW SYSTEM DEMAND	03-Feb-2021

(c) Hydro Unit Outage Report: -

Sl No.	Station	State	Agency	Unit No	Capacity	Reason(s)	Outage Date
1	BURLA HPS/HIRAKUD I	ODISHA	OHPC	6	37.5	R & M WORK	16-Oct-2015
2	BALIMELA HPS	ODISHA	OHPC	1	60	R & M WORK	05-Aug-2016
3	BURLA HPS/HIRAKUD I	ODISHA	OHPC	5	37.5	R & M WORK	25-Oct-2016
4	BALIMELA HPS	ODISHA	OHPC	2	60	R & M WORK	20-Nov-2017
5	BURLA HPS/HIRAKUD I	ODISHA	OHPC	1	49.5	R & M WORK	14-Mar-2018
6	BURLA HPS/HIRAKUD I	ODISHA	OHPC	7	37.5	ANNUAL MAINTENANCE	06-Dec-2019
7	U.KOLAB	ODISHA	OHPC	3	80	TURBINE GUIDE BEARING PROBLEM	07-Jan-2020
8	BALIMELA HPS	ODISHA	OHPC	5	60	STATOR EARTH FAULT	13-Dec-2020
9	RENGALI HPS	ODISHA	OHPC	5	50	ANNUAL MAINTENANCE WORK	16-Dec-2020

10	INDRAVATI	ODISHA	OHPC	3	150	ANNUAL MAINTENANCE WORK	28-Dec-2020
11	BALIMELA HPS	ODISHA	OHPC	4	60	OIL LEVEL DROP IN GENERATOR THRUST BEARING OIL BATH	31-Dec-2020
12	CHUZACHEN	SIKKIM	GATI	1	55	ANNUAL OVERHAULING	01-Feb-2021
13	CHUZACHEN	SIKKIM	GATI	2	55	ANNUAL OVERHAULING	01-Feb-2021

It is seen that about 792MW hydro capacities in Odisha is under forced outage / planned outage in the period of peak monsoon and therefore not available for providing the much needed peaking support during evening peak. SLDC / OHPC may please indicate restoration plan of the units.

(d) Line long outage report:

SL NO	Transmission Element / ICT	Agency	Outage DATE	Reasons for Outage
1	400 KV IBEUL JHARSUGUDA D/C	IBEUL	29/04/18	TOWER COLLAPSE AT LOC 44,45
2	220/132 KV 100 MVA ICT I AT LALMATIA	FSTPP/JUSNL	22/01/19	FAILURE OF HV SIDE BREAKER
3	220 KV PANDIABILI - SAMANGARA D/C	OPTCL	03/05/19	49 NOS OF TOWER COLLAPSED.AS REPORTED BY SLDC OPTCL, TOTAL 60 NOS OF TOWER IN BETWEEN 220KV PANDIABILI – SAMANGARA LINE IN WHICH 48 NOS TOWERS FULLY DAMAGED AND 12 NOS TOWERS PARTIALLY DAMAGED. WORK UNDER PROGRESS. PRESENTLY CHARGED FROM PANDIABILLI END (LOC 156) TO LOC 58
4	400 KV MOTIHARI(DMTCL)-GORAKHPUR-I	POWERGRID/DMTCL	13/08/19	LINE SWITCHED OFF DUE TO ANTICIPATED TOWER COLLAPSE AT LOC 27/0(132) DUE TO CHANGE OF COURSE OF GANDAK RIVER.TOWER COLLAPSED REPORTED AT LOC 27/0(132) ON 15/08/19 AT 07:00 HRS. 400KV BARH -GORAKHPUR 1 CHARGED AT 18:57 HRS ON 05.02.20 AS INTERIM

				ARRANGEMENT BYPASSING LILO PORTION OF MOTIHARI.
5	400 KV MOTIHARI(DMTCL)-GORAKHPUR-II	POWERGRID/DMTCL	13/08/19	EARLIER RECONFIGURED BARH - GOROKPUR # II AGAIN LILOED BACK AT MOTIHARI AND THE PORTION BEYOND MOTIHARI SHALL BE TERMED AS 400 KV MOTIHARI(DMTCL)-GORAKHPUR-II
6	400 KV BARH-MOTIHARI(DMTCL) - I	POWERGRID/DMTCL	04/09/19	TOWER COLLAPSE AT LOCATION 26/0 AND 25/5. 400KV BARH -GORAKHPUR 2 CHARGED AT 10:06 HRS ON 31.01.20 AS INTERIM ARRANGEMENT BYPASSING LILO PORTION OF MOTIHARI. 400KV BARH -GORAKHPUR 1 CHARGED AT 18:57 HRS ON 05.02.20 AS INTERIM ARRANGEMENT BYPASSING LILO PORTION OF MOTIHARI.
7	220/132 KV 100 MVA ICT 3 at CHANDIL	JUSNL	30/04/20	ICT BURST AND DAMAGED AFTER FIRE REPORTED
8	132 KV NEW KISHANGANJ - BARSOI S/C	BSPTCL	02/07/20	OUT DUE TO HEAVY SOIL EROSION AT LOC NO 140 AND 141 BY RIVER KANKAI. LINE CHARGED AS 132 KV PURNEA (PG) - BARSOI W.E.F 21.07.20 AT 19:05 HRS TEMPORARILY BY SUITABLE JUMPER ARRNGEMENT AT THE CROSSING POINT OF 132 KV KISANGANJ(NEW) - BARSOI AND 132 KV PURNEA(PG) - KISANGANJ (OLD).
9	132KV-PURNEA (PG)-KISHANGANJ(OLD) S/C	BSPTCL	02/07/20	OUT DUE TO HEAVY SOIL EROSION AT LOC NO 140 AND 141 BY RIVER KANKAI. LINE CHARGED AS 132 KV PURNEA (PG) - BARSOI W.E.F 21.07.20 AT 19:05 HRS TEMPORARILY BY SUITABLE JUMPER ARRNGEMENT AT THE

				CROSSING POINT OF 132 KV KISANGANJ(NEW) - BARSOI AND 132 KV PURNEA(PG) - KISANGANJ (OLD).
10	220kV BARAUNI-HAJIPUR Ckt-1	BSPTCL	28/09/19	TOWER COLLAPSE AT LOCATION 38 & 39. CKT-2 IS ON ERS SINCE 13.01.2020.
11	400KV-BINAGURI-RANGPO-1	PGCIL	01/11/20	RE-CONDUCTORING WORK FROM TWIN MOOSE TO HTLS.
12	400KV-BINAGURI-RANGPO-2	PGCIL	01/11/20	RE-CONDUCTORING WORK FROM TWIN MOOSE TO HTLS.
13	800KV HVDC ALIPURDUAR-AGRA-POLE-IV	PGCIL	20/11/20	VOLTAGE REGULATION, AT ALIPURDUAR, 422 KV/419 KV
14	800KV HVDC ALIPURDUAR-AGRA-POLE-III	PGCIL	25/12/20	POWER FLOW DIRECTION REVERSAL (NR-NER)
15	400KV/220KV 315 MVA ICT 3 AT MALDA	PGCIL	04/01/21	UPGRADATION OF 315MVA ICT# 3 AT MALDA BY 500MVA ICT UNDER ERSS – XVII-B.
16	400KV-MAITHON-MAITHON RB-1	PGCIL	09/01/21	RE-CONDUCTORING WORK
17	400KV-MAITHON-MAITHON RB-2	PGCIL	12/01/21	RE-CONDUCTORING WORK
18	765 KV ANGUL-JHARSUGUDA-4	PGCIL	03/02/21	VOLTAGE REGULATION; JHARSUGUDA: 799/790KV, ANGUL: 781/774KV
29	220KV-NEW PURNEA-MADHEPURA-1	BSPTCL	24/01/21	VOLTAGE REGULATION
20	400KV-ALIPURDUAR (PG)-JIGMELLING-1	PGCIL	22/01/21	VOLTAGE REGULATION AS REQUESTED BY BHUTAN/CHANGEOVER DONE FROM CKT 2
21	400KV-BINAGURI-TALA-4	PGCIL/ Bhutan	03/02/21	VOLTAGE REGULATION; BINAGURI:412/410 KV. LATER SHUTDOWN AVAILED BY BHUTAN FOR AMP WORKS AT 11:15 HRS ON 08.02.2021
22	765KV-JHARSUGUDA-RAIPUR PS (DURG)-2	PGCIL	04/02/21	VOLTAGE CHANGE: J'GUDA: 798/792 KV, 414/413 KV.
23	400KV-BINAGURI-TALA-2	PGCIL/ Bhutan	07/02/21	VOLTAGE REGULATION AT BHUTAN END.

(Reported as per Clause 5.2(e) of IEGC)

Transmission licensees/ Utilities are requested to update expected restoration date & work progress

regarding restoration regularly to ERLDC/ERPC 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 ERLDC/ERPC regularly.

Members may update.

ITEM NO. D.3: Commissioning of new units and transmission elements in Eastern Grid in the month of January 2021.

The details of new units/transmission elements commissioned in the month of January-2021 based on the inputs received from beneficiaries:

SL. No.	Element Name	Owner	Charging Date	Charging Time	Remarks
1	400KV/220KV 315 MVA ICT 1 AT INDRAVATI HEP along with associated bays	OHPC	04.01.21	17:01	Replacement of CB
2	400KV-NEW DUBURI-TSL-1	OPTCL	19.01.21	17:50	
3	765 kV Bus Reactor Bank -1 (3 X 110 MVAR along with associated Main Bay-701 and Tie Bay- 702}	PMJTL	23.01.21	15:32	
4	765 kV New Ranchi-Medinipur Transmission Line-1 along with Switchable Line Reactor (3 X 80MVAR +Spare. 01 X 80 MVAR) and associated bays at Medinipur SS (Bay no 703 & 703R).	PMJTL	23.01.21	15:05	
5	765 kV New Ranchi-Medinipur Transmission Line-2 along with Switchable Line Reactor (3 X 80 MVAR +Spare, 01 X 80 MV AR) and associated bavs at Medinipur SS (Bay no-706 & 706R)	PMJTL	24.01.21	10:20	
6	220KV Subhasgram-Baruipur D/C	WBSETCL	28.01.21	20:25(CKT-I) 20:26(CKT-II)	
7	Main bays of (Bay No 407 & 410) 400 kV Subhashram- Jeerat D/C at Subhasgram	PGCIL	29.01.21	18:03	
8	400 kV Main Bay (415) of Binaguri - Bongaigaon -2 at Binaguri SS	PGCIL	29.01.21	15:58	

Members may update.

ITEM NO. D.4: UFR operation during the month of January 2021.

Frequency profile for the month is as follows:

Month	Max (Date/Time)	Min (Date/Time)	% Less IEGC Band	% Within IEGC Band	% More IEGC Band
January, 2021	50.24; 14-01-2021; 18:01hrs.	49.70; 30-01-2021; 05:11hrs	4.86	76.12	19.04

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

Members may note.

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Annexure-B.1

Weekly Update - DMTCL LILO restoration status

by Darbhanga-Motihari Transmission Company Limited

11th February 2021

Weekly update (05th to 11th February 2021)

- **Current status of Temporary arrangement** – Power flow upto ~360 MW to North Bihar region through temporary restored Barh-Motihari line

- **Status of Permanent restoration**

  - All the tower foundations are completed including chimneys in first week of Feb-21. Further, with the deployment of extra manpower tower erection work at both the locations 26/0 and 26/3 is in progress *(site pictures are attached in slide 4-5 for reference)*. Final quad stringing work (pilot paving out) is in progress for Gorakhpur line – Gopalganj end. Tower wise update for work progress is shared in next slide.

  - Tentative shut down will be required for permanent restoration from 3rd and 4th week of Feb 2021, which will be intimated to ERPC and ERLDC as and when required.

  - As per the MHA notification dated 27.01.2021, the guidelines issued by MHA for surveillance, containment and caution in relation to Covid-19 in November-20 is going to be in force upto 28.02.2021 *(Order attached in slide 4 for reference)*

  - All efforts are being made to expedite the work progress and to complete the balance restoration/ strengthening work as soon as possible

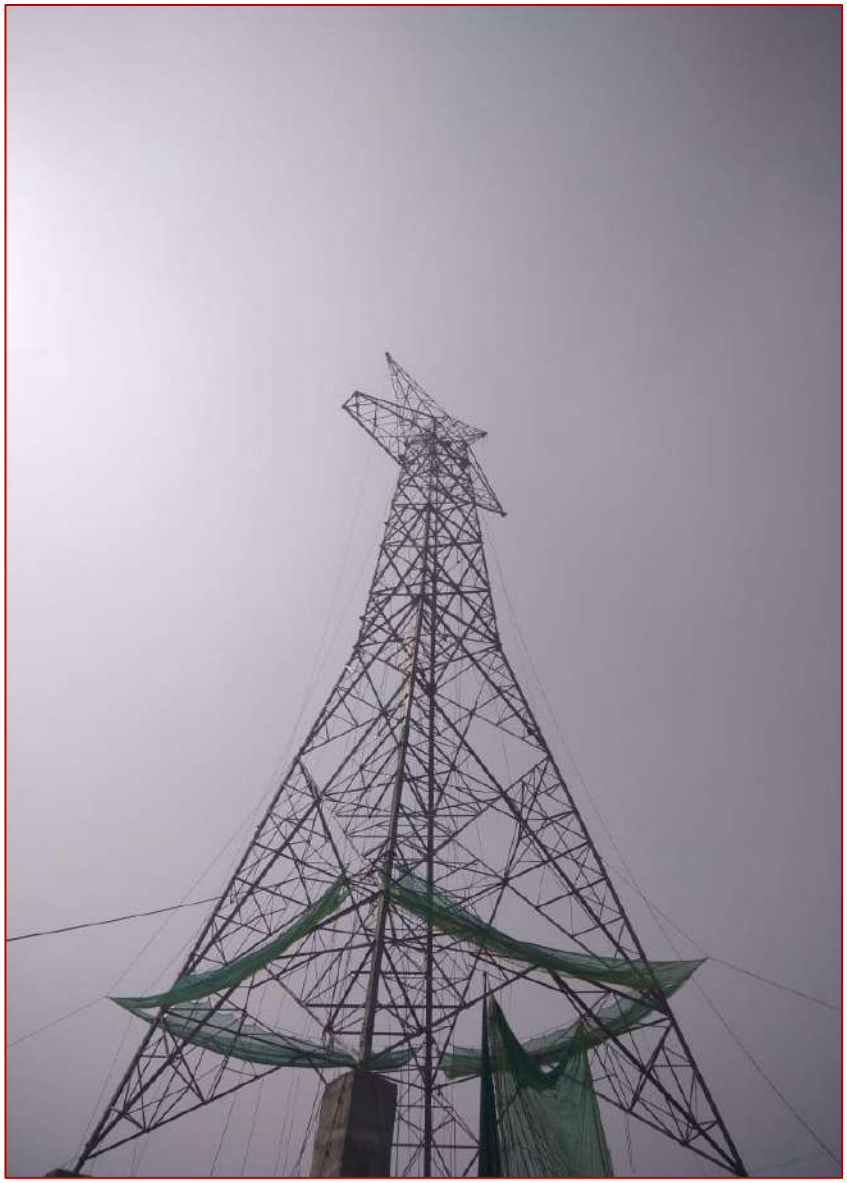
Current status of restoration work

Tower No.	Current Status	Remarks
Barh-Motihari Line		
25/1 (G)	Completed	…..
25/2 (G)	Completed	…..
25/3 (G)	Completed	…..
26/0 (G)	All piles and pile cap + Chimney completed	Tower erection work in progress
26/3 (A)	All piles and pile caps work completed	Tower erection and stringing to be done
26/4 (A)	Completed	
Motihari-Gorakhpur Line		
26/1 (G)	Completed	----
26/2 (G)	Completed	…..
26/3 (G)	All piles and pile cap + Chimney completed	Tower erection in progress
27/0 (R)	Completed	----
27/3 (A)	Completed	----
27/4 (A)	Completed	----

Pictures of site work progress

Tower erection in progress at loc 26/3

Pictures of site work progress



Tower erection work in progress at location 26/0

sekura

Safe. Secure. Sustainable.

Thank You

Sekura Energy Ltd. Is a portfolio company of Edelweiss Infrastructure Yield Plus

DMTCL is a subsidiary of Sekura Energy Ltd.

The Management System of Sekura Energy Ltd. and DMTCL has been approved by Lloyd's Register to: ISO14001:2015, ISO 45001:2018

Annexure-C2

Sr. No	Station	Generating Unit	Capacity (MW)	Fuel Type	Testing utility	Test schedule	Remarks
1	TALCHER STAGE 2	3	500	Coal	M/s Solvina India Pvt. Ltd	Unit 3 - 5: 23-11-2020 to 28-11-2020	Testing for unit 6 yet to be conducted
2		4	500	Coal			
3		5	500	Coal			
4		6	500	Coal			
5	Farakka	1	200	Coal		01-02-2021 to 10-01-2021	Scheduled
6		3	200	Coal			
7		4	500	Coal			
8		5	500	Coal			
9		6	500	Coal			
10	Kahalgaon	1	210	Coal			
11		5	500	Coal			
12		6	500	Coal			
13		7	500	Coal			
14	Daripalli	1	800	Coal			
15	TSTPP	1	500	Coal			
16		2	500	Coal			
17	Barh	4	660	Coal			
18		5	660	Coal			
19	Adhunik	1	270	Coal			
20		2	270	Coal			
21	BRBCL	1	250	Coal			
22		2	250	Coal			
23	NPGC	1	660	Coal			
24	Teesta V	1	170	Hydro		07-01-2021 - 08-01-2021	Testing completed
25	Teesta III	1	200	Hydro		30-01-2021 - 10-02-2021	Scheduled
26		2	200	Hydro			
27		3	200	Hydro			
28		4	200	Hydro			
29		5	200	Hydro			
30		6	200	Hydro			
31	Dikchu	1	48	Hydro		Unit#1: 6th & 7th April' 21 Unit#2: 8th & 9th April' 21	Scheduled
32		2	48	Hydro			
33	MPL	1	525	Coal	M/s Siemens Ltd.	11th – 20th March 2021	Scheduled
34		2	525	Coal			
35	GMR	1	350	Coal			
36		2	350	Coal			
37	JITPL	1	600	Coal			
38		2	600	Coal			

Annexure-C4

Power Plant	Unit No	Type of Exciter	Exciter Model and Vendor	PSS tuned (Yes/No)	PSS in Service (Yes/No)	Last PSS Tuning Date	Whether Done in Last 3 Years	Report Submitted (Yes/No)	Whether Next to be planned	Planned Next PSS Tuning
West Bengal										
Kolaghat-WBPDCL	1	Static	BHEL	No	Yes	Long Back	No	No	Yes	DAVR Order Place for replacement after that PSS tuning
Kolaghat-WBPDCL	2	Static	BHEL	No	Yes	Long Back	No	No	Yes	DAVR Order Place for replacement after that PSS tuning
Kolaghat-WBPDCL	3	Static	BHEL	No	Yes	Long Back	No	No	Yes	DAVR Order Place for replacement after that PSS tuning
Sagardighi-WBPDCL	2	Static	ABB Unitrol 5000	No	No	Long Back	No	No	Yes	Order to be placed
DPL	7	Static (through Carbon Brush)	Unitrol F 5000 ABB	No	No	N.A	No	Not App	Yes	
DPL	8	Brushless	WBS NO CE/0800-SH8-48-01 BHEL	No	Yes	No	No Detail	No	Yes	
PPSP	1	Thyristor type, full bridge	Digital AVRTOSATEX100, Vendor- Toshiba	No	Yes	2009	No	Not App.	Yes	
PPSP	2	Thyristor type, full bridge	Digital AVRTOSATEX100, Vendor- Toshiba	No	Yes	2009	No	Not App.	Yes	
PPSP	3	Thyristor type, full bridge	Digital AVRTOSATEX100, Vendor- Toshiba	No	Yes	2009	No	Not App.	Yes	

PPSP	4	Thyristor type, full bridge	Digital AVRTOSATEX100, Vendor- Toshiba	No	Yes	2009	No	Not App.	Yes	
TLDP III	4 x 33								Yes	
TLDP IV	4 X 44								Yes	
CESC										
Budge Budge-CESC	1	Static	R-R Industrial Controls Limited	Yes	Yes	2015	No	Yes	Yes	2021-22
Budge Budge-CESC	2	Static	R-R Industrial Controls Limited	Yes	Yes	2015	No	Yes	Yes	2021-22
DVC										
Bokaro A1	500 MW	Brushless	BHEL	No	Yes	2015	No	No	Yes	Jun-20
Bokaro B 210 MW	3						No Detail		Yes	Jun-20
Mejia-DVC	4	STATIC	BHEL	Yes	Yes	2009	No	Not App	Yes	
Raghunathpur-DVC	1	Brushless	Unitrol F 5000	No	No		No Detail	Not App	Yes	Feb-21
Raghunathpur-DVC	2	Brushless	Unitrol F 5000	No	No		No Detail	Not App	Yes	Jun-21
Koderma-DVC	1	Brushless	BHEL	Yes	Yes	2013	No	No	Yes	May-20
Waria	4	STATIC	BHEL	Yes	Yes	2008	No		Yes	Apr-20
ISGS										
Kahalgaon NTPC	1	Semi-Static	ABB 6800	Yes	Yes	Dual	Yes	Yes	Yes	Submitted plot does not show damping clearly so Retuning is suggested
Kahalgaon NTPC	2	Semi-Static	ABB 6800	Yes	Yes	Dual	Yes	Yes	Yes	Submitted plot does not show damping clearly so

										Retuning is suggested
Kahalgaon NTPC	3	Semi-Static	ABB 6800	Yes	Yes	2016	Yes	Yes	Yes	Submitted plot does not show damping clearly so Retuning is suggested
Kahalgaon NTPC	4	Semi-Static	BHEL	Yes	Yes	2015	No	Yes	Yes	Submitted plot does not show damping clearly so Retuning is suggested
Kahalgaon NTPC	6	Brushless	BHEL	Yes	Yes	2009	No	Yes	Yes	Apr-20
Talcher Stage 2	3	Brushless	BHEL	Yes	Yes	2016	Yes	Yes	Yes	
Talcher Stage 2	4	Brushless	BHEL	Yes	Yes	No Details	No Details	No	Yes	
Talcher Stage 2	5	Brushless	BHEL	Yes	Yes	No Details	No Details	No	Yes	
Talcher Stage 2	6	Brushless	BHEL	Yes	Yes	2016	Yes	Yes	Yes	
Barh NTPC	1								Yes	Mar-20
Barh NTPC	2								Yes	Mar-20
Teesta V	1	Static	ALSPA P320 Alstom	Yes	Yes	2008	No	Yes	Yes	Mar-20
Teesta V	2	Static	ALSPA P320 Alstom	Yes	Yes	2008	No	Yes	Yes	Mar-20
Teesta V	3	Static	ALSPA P320 Alstom	Yes	Yes	2008	No	Yes	Yes	Mar-20
BRBCL	1	Brushless	BHEL	No	Yes	Vendor to Do	No		Yes	Submitted plot does not show damping clearly so Retuning is suggested

BRBCL	2	Brushless	BHEL	Yes	Yes	2019	Yes	Yes	Yes	
BRBCL	2	Brushless	BHEL			Vendor to Do	No		Yes	
BRBCL	3	Brushless	BHEL	No	Yes	Vendor to Do	No		Yes	
KBUNL	1					2019	No		Yes	
KBUNL	2						No		Yes	
KBUNL	3						No		Yes	
KBUNL	4						No		Yes	
Rangit	3 x 20						No		Yes	
IPP										
Jorethang	1	Static	ALSPA CONTOGEN V3 P320 AVR, VENDOR - ALSTOM	Yes	Yes	2015	No	Yes	Yes	Mar-20
Jorethang	2	Static	ALSPA CONTOGEN V3 P320 AVR, VENDOR - ALSTOM	Yes	Yes	2015	No	Yes	Yes	Mar-20
Chuzachen HEP	1	Static	P320 AVR, ALSTOM	Yes	Yes	2013	No	Yes (issue with Time scale)	Yes	Dec-20
Chuzachen HEP	2	Static	P320 AVR, ALSTOM	Yes	Yes	2013	No	Yes (issue with Time scale)	Yes	Dec-20
ADHUNIK	1	Brushless	ST5B	Yes	YES	2013	No	No	Yes	Jul-20
ADHUNIK	2	Brushless	ST5B	Yes	YES	2013	No	No	Yes	Jul-20
JITPL	1	Brushless	BHEL	Yes	Yes	2016	Yes	Yes	Yes	

JITPL	2	Brushless	BHEL	Yes	Yes	2016	Yes	Yes	Yes	
GMR	1	Static	ABB-Unitrol	Yes	Yes	2013	No	Yes	Yes	Dec-20
GMR	2	Static	ABB-Unitrol	Yes	Yes	2013	No	Yes	Yes	Dec-20
GMR	3	Static	ABB-Unitrol	Yes	Yes	2013	No	Yes	Yes	Dec-20
Orissa										
IB TPS	1	Static	Model: Unitrol 5, BHEL	Yes	Yes	2011	No	No	Yes	Mar'2021
IB TPS	2	Static	Model: Unitrol 5, BHEL	Yes	Yes	2012	No	No	Yes	Mar'2021
Upper Indravati	1	Static (ST) Digital	Fuji Electric Co. Japan	Yes	No	2015	No	No	Yes	
Upper Indravati	2	Static (ST) Digital	Fuji Electric Co. Japan	Yes	No	2015	No	No	Yes	
Upper Indravati	3	Static (ST) Digital	Fuji Electric Co. Japan	Yes	No	2000	No	No	Yes	
Upper Indravati	4	Static (ST) Digital	Fuji Electric Co. Japan	Yes	No	2001	No	No	Yes	
Balimela	1 (60 MW)	Under R & M							Yes	
Balimela	2 (60 MW)	Under R & M							Yes	
Balimela	3 (60 MW)	Not Provided	Not Provided	No	No	Not tuned	No	No	Yes	
Balimela	4 (60 MW)	Not Provided	Not Provided	No	No	Not tuned	No	No	Yes	
Balimela	5 (60 MW)	Not Provided	Not Provided	No	No	Not tuned	No	No	Yes	
Balimela	6 (60 MW)	Not Provided	Not Provided	No	No	Not tuned	No	No	Yes	
Balimela	7 (75 MW)	Static	Not Provided	No	No	Not tuned	No	No	Yes	
Balimela	8 (75	Static	Not Provided	No	No	Not	No	No	Yes	

	MW)					tuned				
Upper Kolab	1	Static	Unitrol BHEL	Yes	Yes	2007	No	No	Yes	
Upper Kolab	2	Static	Unitrol BHEL	Yes	Yes	2007	No	No	Yes	
Upper Kolab	3	Static	Unitrol BHEL	Yes	Yes	2007	No	No	Yes	
Upper Kolab	4	Digital Static	Unitrol BHEL(Max-DNA Software)	Yes	Yes	2007	No	No	Yes	
Rengali	1	Digital Static	Unitrol BHEL	Yes	Yes	Not tuned	No	No	Yes	
Rengali	2	Digital Static	Unitrol BHEL	Yes	Yes	Not tuned	No	No	Yes	
Rengali	3	Digital Static	Unitrol BHEL	Yes	Yes	Not tuned	No	No	Yes	
Rengali	4	Digital Static	Unitrol BHEL (Max-DNA Software)	Yes	Yes	Not tuned	No	No	Yes	
Rengali	5	Static	Unitrol BHEL	No	Yes	Not tuned	No	No	Yes	
Sterlite	1									
Sterlite	2									
Sterlite	3									
Sterlite	4								Yes	
Jharkhand										
Tenughat	1	Static	Unitrol D	Yes	Yes	2017	Yes	No		
Tenughat	2	Static	Unitrol D	Yes	Yes	2017	Yes	No		
Subarnrekha	2 X 65									
Bihar										

BTPS	6 (110)									
BTPS	7 (110)									
BTPS	8									
BTPS	9									
Bhutan										
Tala	1	Static	ABB Unitrol (M/D)	No	Yes			No		
Tala	2	Static	ABB Unitrol (M/D)	No	Yes			No		
Tala	3	Static	ABB Unitrol (M/D)	No	Yes			No		
Tala	4	Static	ABB Unitrol (M/D)	No	Yes			No		
Tala	5	Static	ABB Unitrol (M/D)	No	Yes			No		
Tala	6	Static	ABB Unitrol (M/D)	No	Yes			No		
Chukha	1	Static	BHEL	No	Yes	2005	No	No	Yes	
Chukha	2	Static	BHEL	No	Yes	2005	No	No	Yes	
Chukha	3	Static	BHEL	No	Yes	2005	No	No	Yes	
Chukha	4	Static	BHEL	No	Yes	2005	No	No	Yes	
Mangdechu	1	Static	BHEL	No	Yes			No		
Mangdechu	2	Static	BHEL	No	Yes			No		
Mangdechu	3	Static	BHEL	No	Yes			No		
Mangdechu	4	Static	BHEL	No	Yes			No		

Minutes of the Meeting held at BSPTCL, Patna on dated 04.02.2021

Member Present:-

O&M , BSPTCL

1. Sri Satya Narayan Kumar, CE (O&M)
2. Sri B. N. Singh, ESE (O&M)
3. Sri Rambabu Singh, ESE (O&M/CRITL)

SLDC (BSPTCL)

1. Sri A. K. Chaudhary, CE (System Operation)
2. Smt. Sweta, ESE (SLDC)
3. Sri Deepak Kumar Ram, EEE (SLDC)
4. Sri Gagan Kumar , EEE(SLDC)

STU , BSPTCL

1. Sri Ravi Shankar Prasad , ESE/STU

A meeting was arranged in the chairmanship of Director (Operation) on 04.02.2021 in the presence of SLDC , O& M and CRITL wing of BSPTCL regarding discussion on queries raised by ERLDC related operationalzing Bus-Spilitting at Biharsharif(PG).

ERLDC QUERY	REMARKS
1. BCU based SPS logic implementation may need more explanation. In general multiple element input and status based SPS require PLC based SPS scheme. This would be first to come across on BCU based SPS?	BSPTCL is exploring the scope of PLC based SPS scheme as suggested.
2. Present option B proposes 500 MVA ICT 4 tripping based SPS rather than 315 MVA ICT 2 (ICT which can overload in certain loading condition) which is the prime objective. The SPS logic of overloading of ICT 2 above 315 MVA would be more apt as it will consider the criteria and will also avoid any unnecessary tripping of 220 kV Bihar Sharif –Fatuha D/C with 500 MVA ICT 4 tripping when its outage is not causing any overload on ICT 2 as per demand scenario	BSPTCL has agreed to consider 315 MVA ICT 2 based SPS instead of 500 MVA ICT 4. CRITL is working on it and under observation before implementation.
3. SLDC may share the impact of the 132 kV load shifting and their sensitivity on the ICT loading after split bus condition to ensure their impact.	Annexure enclosed
4. Whether the issue of ICT 1 and 3 tripping observed in the past due to wiring /old relay issue has been resolved ?	Resolved
5.Any plan by P&E for controlling 220 kV Fault level.	ERLDC may be requested to perform joint load flow study of Bus-Splitting arrangement with SLDC as LV Side of 400/220Kv ICTs of 400/220KV Biharsharif (PG) S/S is directly connected to 220 KV Bus at Biharsharif (BSPTCL) S/S. The highest fault level current observed at 220KV Level, (as received from field) till now is 27.50KA. Plan to reduce fault current at 220KV level may be prepared after joint load flow study.

04.02.21
EEE1/SLDC

04/02/21
EEE2/SLDC

ESE/SLDC

04.02.2021
ESE/CRITL

ESE/O&M

4/2/21
ESE/STU

CE(O&M)

CE(S/O)

Load Details at GSS Biharsharif on dtd. 18.11.2020			
Sl.No.	Name of Feeder	Load at 10:00hrs (In MW)	Load at 12:00hrs (In MW)
1	220 kV Biharsharif-PGCIL 1	73	negative 4.70
2	220 kV Biharsharif-PGCIL 2	76	139
3	220 kV Biharsharif-PGCIL 3	78	negative 3.45
4	220 kV Biharsharif-PGCIL 4	121	224
5	220 kV Biharsharif-TTPS T/L	133	152
6	220 kV Biharsharif- Mokama ckt-1	32	85
7	220 kV Biharsharif- Mokama ckt-2	32	85
8	220 kV Biharsharif- Fathua ckt-1	63	59
9	220 kV Biharsharif- Fathua ckt-2	63	59
10	220 kV Biharsharif- Khijarsarai ckt-1	57	26
11	220 kV Biharsharif- Khijarsarai ckt-2	57	26
12	150 MVA Transformer No.01 (220/132kV)	60	54
13	150 MVA Transformer No.02 (220/132kV)	60	54
14	150 MVA Transformer No.03 (220/132kV)	60	54
15	132KV Baripahari ckt-1	38	30
16	132KV Baripahari ckt-2	38	30
17	132KV Hathidah	7	negative 4
18	132KV Barh	19	16
19	132KV Rajgir	16	15
20	132KV Nalanda	19	16
21	132KV Ekangarsarai	22	14
22	132KV Hulasganj	20	18
23	132KV Sheikhpura ckt-1	0	0
24	132KV Sheikhpura ckt-2	0	0
25	132KV Warisaliganj	17	20
26	132KV Sheikhpursarai	0	0
27	132KV Nawada	0	0
28			
29			
30			
31			

पावरग्रिड
POWERGRID

पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

Ref No: ER-II/KOL/AM/ERPC/ **Date: 01.02.2021**

To
Member Secretary
ERPC, Kolkata

Sub: Observation for the revised operating procedure submitted by ERLDC in 175th OCC.

Dear Sir,

This is in reference to subject mentioned agenda point of 175th OCC. Already a detailed meeting convened by ERPC on the subject matter held in 27.11.2020 and subsequently MOM published by ERPC for further change in procedure. However, after going through the details of the procedure it is observed that many things which are discussed in the meeting or mentioned in MOM not properly incorporated and may cause operational difficulty in future.

A detailed observation are enclosed in annexure. It is our humble request that procedure must be simplified for ease of carrying out the activities as any delay accompanies with financial implications. Specifically, normal charging after returning of Shut down, First time charging should not be complicated and may please be looked into for necessary changes in operating procedure.

In view of above, I request your kind intervention in the subject matter please.

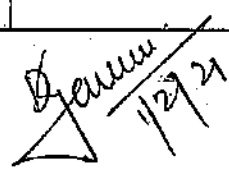
Thanking you

D.K.Javeri
CGM (AM)/ERTS-II

Enclosure:- Annexure-I.

Comments of POWERGRID on Draft Operating Procedure of ERLDC

Clause 3.7	In case of any requirement, ERLDC will issue specific instruction for STATCOM to change their setpoint based on anticipated event to provide grid support.	Specific instructions may be issued on case to case basis, but Broad guidelines to be issued for assisting RLDC operators in changing the set points of STATCOM. General guidelines for enabling set points for all the STATCOMs to be mentioned specifically. Matter referred earlier but not incorporated completely in revised procedure.
Clause 3.8	During conditions of high voltage in the grid, the switchable filter banks installed at the HVDC terminal stations shall be switched off wherever feasible in consultation with the NLDC and at the terminal substations. Reactive power documents of ER may be referred for HVDC filter bank switching as per Mono/Bi-polar pole, Power order, RVO etc.	HVDC filter banks are switched by HVDC controller as per Power Order requirements. Manual switching of HVDC filter banks for voltage control may to be avoided and used only in case extreme necessity. Moreover HVDC filtes are specifically meant for HVDC system only, for controlling AC system voltage only, for controlling AC system voltage, Other means like Reactors/Line switching are generally to be followed. Matter referred earlier but not incorporated completely in revised procedure.
Clause 3.9.1	The bus reactor be switched in	Guidelines for switcing in/out for 765kV B/R to be also mentioned. Further the specified voltage band guidelines are not being followed by RLDC Operators.(Eg. Rajarhart it is observed that the reactor, even taken into service at 400-405kV band and numerous switching done in a short period.) Follwing line to be omitted " following specific steps would be taken by the respective grid substation/generating station at their own, with intimation to ERLDC, unless specifically mentioned by ERLDC/SLDCs. "
Clause 3.2.1.a	Checking possiblity of rerouting /change of power flow on HVDC terminals so that loading on parallel EHV network can be altered that may result in reduction in voltage.	To be shifted before the Filter Switching action. Filter switching & rerouting of HVDC power flow to be segregated.
Chapter 5 Clause 5.6.2 Clause 5.6.4 Clause 5.6.7	Outage Planning Procedure	Already after several discussion the outage procedure has been finalized in 162nd OCC. However the proposed procedure is not matching with the finalized one.No separate procedure required. Only reference to the approved procedure may be made and Approved procedure to be attached. Clause 5.6.2 Informations are being asked in D-4 day, same to be changed to D-3 12:00hrs. further other clauses maybe suitably modified as per 162nd OCC. Clause 5.6.7 If no consent/approval/concurrence/comment is received by this time, the request of shutdown shall be revised suitably. Clause 5.6.4 to be omitted. Based upon discussion on 27.11.2020, probable changes are not incorporated completely.
Clause 5.5.9	Similarly, if owner of transmission lines is different from bay owner, then both asset owner should apply combined outages to minimise outage period.	The outage may be allowed subject to system condition. To combinely apply outage is not possible in wake of different organizational norms, resource mobilisation, weather suitability etc. Matter has been discussed in detail during meetting of 27.11.2020, and it is detailed that, maintenance activity involves certain procedures which can not be clubbed at all times. Effort is already given by POWERGRID for completion of the AMP activity at the same time but not possible all times as resources/requirements are different. Not incorporated in revised operating procedure.
Cluase 5.5.11	Reason of availing any outage should be comprehensive and time duration of outages should be reasonable. Indenting agency shall submit patrolling report, site photographs, substation diagrams and weather condition well before availing the shutdown.	Only in case of emergency outage, any findings/observations, site photographs will be shared, which is already done,only after availing the outage. AS per MOM dated 27.11.20, such details are not required for availing regular/planned S/D.



Clause 5.5.14	Vide clause 5.7.4 (g) of IEGC ERLDC is authorised to defer any planned outage in case of any of the following taking into account the statutory requirements:	Planned shutdown involves resource allocation and mobilisation, manpower management etc and cancellation of S/D results into huge financial loss and therefore should be deferred only in case of extreme necessity. Keeping in view, RLDC shall provide the reason for decline of outage along with supporting system study, Contingency Analysis results to the indenting utility. Matter also discussed in 27.11.2020 meetting but not incorporated properly.
Clause 6.5.6	Single pole auto-reclose facility on 400 kV/220 kV lines should always be in service. ERLDC's approval would be required for taking this facility out of service.	No approval required from RLDC. Only information requires to be sent prior to taking AR out of service. This is in accordance with IEGC 5.6.2/b. In general as off now we intimate the same for planned outages, but if any such outages require emergency intervention the same shall be intimated only. Matter also discussed in 27.11.2020 meetting but not incorporated properly.
Clause 6.7.1.1 and 6.7.1.2	FTC of ISTS elements.....Detailed Technical Specifications to be sumitted by utilities	As per clause 6 of MOM dated 27.11.20, such details are not mandatory for FTC, however, as we witnessed time and again, the same details asked and various elements commissionning delayed for the subject issue. Standard NLDc charging documents also does not include the same. As such, for FTC/Trail run certificate process, the same may be removed and incorporated in revised procedure please.
Clause 6.7.2.3	In addition to these documents, charging instructions, details of approval of the transmission scheme from the Standing Committee / CTU, availability of line reactors as per approved scheme, approval for changes in the approved scheme, technical parameters of the transmission element required for network modeling shall be	This is an interaction between RLDC and CTU/STU, this shall not cause any delay in first time charging of element belonging to transmisison utility. Matter also discussed in 27.11.2020 meetting but not incorporated properly.
Clause 6.7.2.6	All attempts would be made by the real time operating personnel at the ERLDC to facilitate charging and commissioning of the new element at the earliest, subject to availability of real time data and favourable system conditions ensuring system reliability and security.	Please refer, Clause 6.7.2.2, Certain signals which are not possible to provide should not feature in the standard integration list of SCADA. Matter discussed in length in the meetting of 27.11.2020.
6.7.4.4	In case of an inter-regional element, both the respective RLDCs would be involved and a copy of the communications may be forwarded to NLDC also in such cases.	Communication to NLDC shall be done by RLDC since its an internal communication. Matter also discussed in 27.11.2020 meetting but not incorporated properly.
7.4.4.3.	Patrolling Report of Transmission line tripped under fault	Healthiness certificate(Certification by Tr.licensee in mail/letter, not covering any format) shall be provided to RLDC. Patrolling report does not pertain to system operation requirements, thus not required.No statute mandates submission of patrolling report. DR, EL and operational data is mandated and same shall be submitted as already done. Matter also discussed in 27.11.2020 meetting but not incorporated properly.

ANNEXURE D1

ANTICIPATED POWER SUPPLY POSITION FOR THE MONTH OF MARCH-21

SL.NO			PARTICULARS	PEAK DEMAND IN MW	ENERGY IN MU
	1		BIHAR		
		i)	NET MAX DEMAND	5300	2810
		ii)	NET POWER AVAILABILITY- Own	639	238
		iii)	Central Sector+Bi-Lateral	4950	2245
		iv)	SURPLUS(+)/DEFICIT(-)	289	-347
	2		JHARKHAND		
		i)	NET MAXIMUM DEMAND	1400	860
		ii)	NET POWER AVAILABILITY- Own Source	236	127
		iii)	Central Sector+Bi-Lateral+IPP	928	507
		iv)	SURPLUS(+)/DEFICIT(-)	-182	-226
	3		DVC		
		i)	NET MAXIMUM DEMAND	3100	2080
		ii)	NET POWER AVAILABILITY- Own Source	5311	3160
		iii)	Central Sector+MPL	511	253
		iv)	Bi- lateral export by DVC	2271	1690
		v)	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	451	-357
	4		ODISHA		
		i)	NET MAXIMUM DEMAND	4200	2604
		ii)	NET POWER AVAILABILITY- Own Source	3668	1863
		iii)	Central Sector	1986	947
		iv)	SURPLUS(+)/DEFICIT(-)	1454	206
	5		WEST BENGAL		
5.1			WBSEDCL		
		i)	NET MAXIMUM DEMAND	7825	3875
		ii)	IPCL DEMAND	84	62
		iii)	TOTAL WBSEDCL's Energy Requirement (incl.B'Desh+Sikkim+IPCL)	7914	3941
		iv)	NET POWER AVAILABILITY- Own Source	4681	1930
		v)	Contribution from DPL	465	207
		vi)	Central Sector+Bi-lateral+IPP&CPP+TLDP	2671	1335
		vii)	EXPORT (TO B'DESH & SIKKIM)	5	4
		viii)	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	-97	-469
5.2			CESC		
		i)	NET MAXIMUM DEMAND	1820	855
		ii)	NET POWER AVAILABILITY- Own Source	750	501
		iii)	FROM OTHER SOURCE (INCL. IPP/CPP-29-30 MU/M)	530	54
		iv)	IMPORT FROM HEL	540	300
		v)	TOTAL AVAILABILITY OF CESC	1820	855
		vi)	SURPLUS(+)/DEFICIT(-)	0	0
	6		WEST BENGAL (WBSEDCL+DPL+CESC) (excluding DVC's supply to WBSEDCL's command area)		
		i)	NET MAXIMUM DEMAND	9729	4792
		ii)	NET POWER AVAILABILITY- Own Source	5896	2638
		iii)	CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL	3741	1689
		iv)	SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXP.	-92	-465
		v)	SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXP.	-97	-469
	7		SIKKIM		
		i)	NET MAXIMUM DEMAND	113	58
		ii)	NET POWER AVAILABILITY- Own Source	2	2
			- Central Sector	184	76
		iii)	SURPLUS(+)/DEFICIT(-)	73	20
	8		EASTERN REGION		
		i)	NET MAXIMUM DEMAND	23374	11062
		ii)	BILATERAL EXPORT BY DVC	2271	1524
		iii)	EXPORT BY WBSEDCL	5	3
		iv)	NET TOTAL POWER AVAILABILITY OF ER (INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL)	28105	13745
		v)	ENERGY SURPLUS(+)/DEFICIT(-) OF ER AFTER EXPORT (v = iv - i -ii - iii)	2455	-1152