भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
पूर्वी क्षेत्रीय विद्युत समिति
Eastern Regional Power Committee
14, गोल्फ क्लब रोड, टालीगंज, कोलकाता-700033
Tel. No.: 033-24239651, 24239658 FAX No.:033-24239652, 24239653 Web: **www.erpc.gov.in**

NO. ERPC/EE/OPERATION/2022/ 694. **DATE: 29.08.2022**

To

As per list enclosed.

Sub: Minutes of 194th OCC Meeting held on 23.08.2022 (Tuesday) virtually through MS Teams Platform- reg.

Sir,

Please find enclosed minutes of 194th OCC Meeting held on 23.08.2022 virtually through MS Teams Platform for your kind information and necessary action. The same is also available at ERPC website (www.erpc.gov.in).

Observations, if any, may please be forwarded to this office at the earliest.

This issues with the approval of Member Secretary.

Regards,

Yours faithfully,

29.VIII.22

(A. De)
EE(Opération)

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CC:

Chief Engineer, OPM, CEA	Chief Engineer, NPC, CEA	ASSISTANT SECRETARY, ERPC

MINUTES
OF
194th OCC MEETING

Date: 23.08.2022
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700033

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 194TH OCC MEETING HELD ON 23.08.2022 (TUESDAY) AT 10:30 HRS

Member Secretary, ERPC chaired the 194th OCC meeting. Welcoming all the participants to the meeting, he outlined the performance of ER Grid during July-2022 in brief. He highlighted the following points:

- *In July-2022, energy consumption of ER was 17,500 MU which was 14.2% more than that of July'2021.*
- *In July -2022, Peak demand of ER was 26609 MW which was 5.8 % more than that of July'2021.*
- *During July -2022, 73.8 % of time, grid frequency was in IEGC Band (49.90Hz-50.05Hz).*
- *All India thermal PLF during July, 2022 was 59.3 %. However, in Eastern Region Thermal PLF was 71.7%. Southern TPS generating station of CESC achieved a PLF of 100.7%.*
- *As per LGBR 2022-23, total 300 MW thermal capacity was scheduled for planned maintenance in September-2022.*
- *During the month of July-2022, following new transmission elements have been commissioned:*

  1) 400kV Reconductoring of Maithon RB-Maithon D/C Line- By PGCIL
  2) 220 kV Karmnasa (New)-Pusauli (BSPTCL) D/C line- By BSPTCL
  3) 220 kV Raxaul (New)-Gopalganj D/C Line – By BSPTCL
  4) 220 kV Saharsa (new) – Begusarai D/C Line – By BSPTCL
  5) 220 kV LILO of Budhipadar-Tarkeraat S/C at Bamra - By OPTCL

- *As far as coal stock position is concerned, many of the power stations of Eastern Region are still reeling under coal shortage. He advised thermal power plants to build up their coal stock as per their normative requirement and to import at least 10% of their coal requirement for blending.*
- *He further advised all the concerned stake holders to furnish the relevant data for preparation of LGBR for the FY 2023-24 at the earliest.*

PART – A

ITEM NO. A.1: Confirmation of Minutes of 193rd OCC Meeting held on 20th July 2022 through MS Teams online platform.

The minutes of 193rd Operation Coordination sub-Committee meeting held on 20.07.2022 was circulated vide letter dated 17.08.2022.

Members may confirm the minutes of 193rd OCC meeting.

Deliberation in the meeting

Members confirmed the minutes of 193rd OCC meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B.1: Reliability of transmission system for safe and unrestricted evacuation of power from Tala HEP

400kV Tala Binaguri-1 line has been out since 4th June 2021 due to flashover in outdoor cable termination and 400kV Tala Binaguri-2 has been out since 17th March 2022 Fire outbreak at R-Phase of XLPE cable termination at Tala Hydro plant.

It is noted that only two number of 400 kV twin moose lines (thermal limit equals 874 MV A each) for evacuation of Tala generation are in service. The generation of Chukha hydro plant is also indirectly shared by 400kV Tala-Binaguri-3 (via Malbase). Last year the generation from Tala was approx. 1100 MW in the end of May. The generation of complete Tala hydroelectric plant during May -Sep 2021 is enclosed. The high generation was sustained till September end. It is requested to kindly share the anticipated generation from Tala HEP in the ensuing months of June - September 2022.

Under the circumstances, unless the other two 400kV lines from Tala to Binaguri are restored, availability of only two number of 400 kV lines for evacuation of approx. 1100 MW may lead to violation of N-1 reliability criteria. Any contingency involving N-1-1 may cause complete blackout of Tala hydro plant which would eventually lead to spillage of water and loss of generation.

In the 192nd OCC meeting, Bhutan representative submitted that OEM experts had arrived on 16.06.2022 and the consignment shipped from Germany is expected to reach Kolkata by 28.06.2022.

He further submitted that once the materials are received, both the lines are expected to be synchronized by 15.07.2022.

OCC advised Bhutan to expedite the restoration work of both the 400 KV Tala – Binaguri lines.

In the 193rd OCC meeting, Bhutan representative submitted that 400 KV Tala – Binaguri circuit-2 was synchronized on 13th July 2022. Regarding progress of restoration of 400 KV Tala – Binaguri circuit-1, it was informed that all the necessary materials had reached the site and the work is expected to be completed by 23rd July 2022 and the line would be charged by 25th July 2022.

He further submitted that a mail regarding obtaining necessary clearance by Bhutan SLDC from NLDC and ERLDC before charging of the line had also been given and thereby requested ERLDC to coordinate the same in order to avoid any unnecessary delays.

Bhutan may update.

Deliberation in the meeting

Bhutan representative submitted that the work of 400 KV Tala – Binaguri circuit-1 was completed on 24th July 2022 and the line was charged on the same day at 23:30 hrs.

Further, frequent tripping of circuit-1 is being observed due to repeated failure of insulators, snapping of conductors, etc.

OCC advised Bhutan to ensure the healthiness of the said line and take necessary actions to avoid any further tripping.

ITEM NO. B.2: Ensuring Reliability of Barauni Generating Station (2X250 MW).

220 kV Barauni TPS (2 X 250 MW) is connected with grid via 220 kV Barauni-Begusarai D/C, 220 kV Barauni-Mokama-Biharshariff D/C and 220 kV Barauni-Hajipur D/C. Out of these 220 kV

Barauni-Hajipur one circuit is at present out on tower collapse and expected by 22-25 July 2022 as per Bihar SLDC. The availability of Barauni power plant is equally important from the Pan-India resource adequacy point of view. However, Barauni power plant experienced a total blackout due to loss of evacuation path on three occasions in last three months. One meeting was convened by ERLDC on 12 July 2022 to discuss these events. Members from Bihar SLDC, BSPTCL CRITL, BGCL, NTPC Barauni, NTPC Patna RHQ and ERPC participated in the discussion.

Following major issues emerged during the discussion of events:

1. Non-availability of bus bar protection at 220 kV as well as 132 kV levels at 220/132 kV Begusarai, 220/132 kV Hajipur and 220/132 kV Bihar Sharif substations of BSPTCL
2. Lack of protection coordination causing unwanted tripping during 132 kV faults at the 220/132 kV Begusarai substation. (Non-direction backup protection time setting is lower compared to IDMT characteristics of 220/132 kV ICTs)
3. Equipment failure (Jumper snapping, CT failure) at 220/132 kV Begusarai substation.
4. Concern by NTPC on Load carrying capacity of 220 kV ACSR Zebra conductor for 220 kV Barauni-Begusarai D/C (Limit provided is 175 MW/Ckt) while conductors are rated for 210-220 MW/ckt.
5. Keeping 220 kV Bihar Sharif-Mokama D/C open for loading control on 220 kV Barauni-Begusarai D/C
6. Restoration of 220 kV Barauni-Hajipur one circuit which is out on tower collapse.

Following are the major outcome of the meeting discussion for short-term and long-term measures:

Short term measures

1. Restoration of 220 kV Barauni-Hajipur circuit which is out on tower collapse by **23-25 July 2022 (As per SLDC Bihar)**
2. SLDC to carry out following study
   a. Condition-1 all 6 outgoing line from BTPS is available
      i. Check N-1
      ii. Suggest network reconfiguration required or not
      iii. Design SPS if required
   b. Condition-2 220 kV Barauni-Hajipur S/C is out

      i. Check N-1
      ii. Suggest network reconfiguration required or not
      iii. Design SPS if required
3. SLDC to check the possibility of load segregation at 220 kV Begusarai substation to reduce loading on 220 kV Barauni- Begusarai D/C.
4. For any generation reduction requirement for SPS designed by SLDC, NTPC Barauni to check HP-LP bypass scheme and its feasibility.

5. To avoid a total blackout of Barauni NTPC to check and share the feasibility of house load operation.
6. Protection reviews and audit of Begusarai and O&M rectification

Long term measures

1. SLDC to intimate target date for commissioning of 220 kV Saharsha Begusarai D/C.
2. SLDC to carry out study to decide the operating network configuration considering commissioning of 220 kV Saharsha Begusarai D/C.

In the 193rd OCC meeting, SLDC Bihar representative submitted that the load study in PSSE software had been carried out and some minor changes were observed. Based on the study report of load flow, the decision regarding whether to keep the 220 KV Biharshariff-Mokama D/C line open or not would be taken. The detailed study report would be shared with ERPC and ERLDC by 21st July 2022.

Feasibility study of bus segregation at 220 KV Begusarai substation to reduce loading on 220 KV Barauni-Begusarai D/C line is under progress and the detailed report would be shared with ERPC and ERLDC shortly.

Further, designing of SPS and load trimming scheme is also under consideration by O&M department.

Regarding conversion of 220 KV Barauni-Begusarai D/C line to HTLS, it was informed that the project team had already been intimated and decision regarding the same is awaited.

Regarding commissioning of 220 KV Saharsha-Begusarai D/C line, it was informed that, SLDC Bihar would apply for code by 21st July 2022 for charging of the circuit.

NTPC Barauni representative submitted that the bus bar protection at Barauni S/s is available and in operating condition.

Upon enquiring about the left-out job of restoration of Barauni-Hajipur circuit, NTPC Barauni representative submitted that, 7 nos. of foundations have been made for strengthening of 2 nos. of towers which had collapsed in 2019. Upon physical inspection it was found that the materials had been mobilized to the site and the work is under progress. Work permit has been applied from 21st to 25th July regarding restoration of towers.

OCC advised NTPC Barauni to monitor the progress of work and extend any possible help to restore the Barauni-Hajipur circuit at the earliest.

OCC further raised serious concern over non-availability of bus bar protection at 220 kV as well as 132 kV levels at 220/132 kV Begusarai, 220/132 kV Hajipur and 220/132 kV Bihar Sharif substations of BSPTCL and directed to submit the implementation plans regarding the same latest by 25th July 2022 to ERPC and ERLDC for further discussion in PCC meeting.

NTPC Barauni representative raised a concern regarding strengthening of remaining vulnerable towers.

OCC advised NTPC Barauni and Bihar to identify the towers which are in vulnerable condition so that strengthening work could be carried out in a proactive approach. Further, Bihar was advised to submit the reports of all the study/analysis by to ERPC & ERLDC 21st July 2022.

In the 46th TCC and ERPC meeting, Bihar representative submitted the following:

- One circuit of 220 kV Barauni-Hajipur, which is out on tower collapse, is expected to be restored by 15th August'2022.
- Strengthening work of 220 kV Barauni-Begusarai D/C has been planned and it would take one month for completing the same. After strengthening work, load carrying capacity will be 200 MW/circuit.
- Process for reconductoring work (to HTLS) of 220 KV Barauni-Begusarai D/C line has already been initiated and it would take around 1 year to complete the reconductoring work.
- BSPTCL representative updated that out of twelve substations where bus-bar protection is not available, proposal for ten no of substations has been sent for funding through PSDF. For Biharshariff S/s, there is space constraint and the bus-bar protection can be implemented after construction of new control room building.

Bihar may update the latest status of implementation of the above points.

Deliberation in the meeting

Bihar representative submitted that the 220 KV Barauni-Hajipur circuit-1 was charged at 10:58 hrs. on 19th August 2022.

He further added that out of the 29 nos. of towers of 220 KV Barauni-Begusarai D/C line, jumper tightening work of 15 towers had been completed. Jumper tightening work in remaining locations would be started from 29th August 2022 and is expected to be completed by the end of August 2022.

On query, he informed that jumper tightening work in the 220 KV Barauni-Begusarai D/C lines would merely reduce the instances of conductor snapping rather than increasing the load carrying capacity of the lines. The maximum rating of the line would be around 160 MW/ckt on a continuous basis.

OCC advised NTPC to give update about the load carrying capacity of the 220 KV Barauni-Begusarai D/C lines after jumper tightening work.

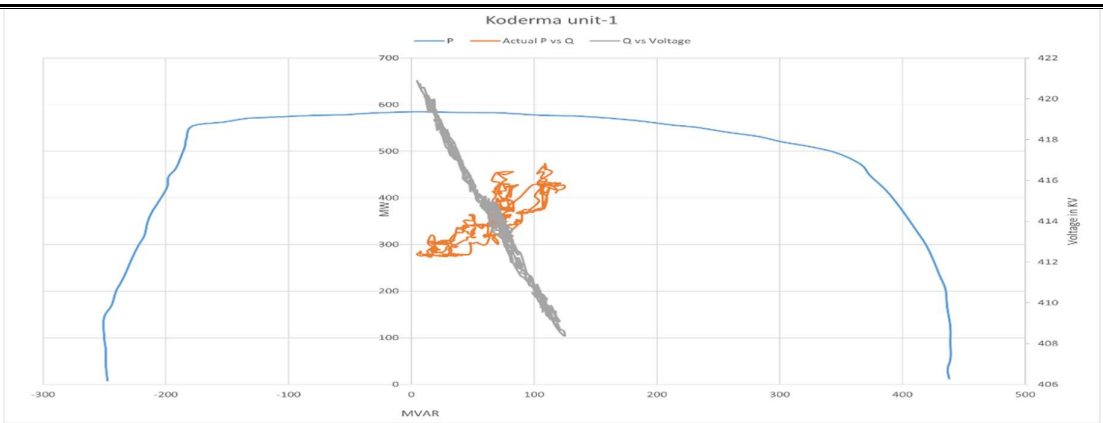
Regarding reconductoring work (to HTLS) of 220 KV Barauni-Begusarai D/C line, Bihar representative submitted that the estimate for the same is under preparation and would be submitted by 26th August 2022.

On query, NTPC representative submitted that as of now the 220 KV Biharshariff-Mokama D/C line is in closed condition.

ITEM NO. B.3: MVAR injection during high voltage seasons.

On 16th August, 2022 it was observed that voltage of both the Koderma units were injecting MVAR when voltage was above the acceptable limits.

Plot of the reactive performance of the Koderma units as per ERLDC is given below:



Therefore, Koderma power plant was requested to absorb MVAR as per their capability and maintain voltage well below 420 kV at Koderma bus so that all the nearby bus voltage remain within IEGC band. So, all other generating stations are also requested to absorb MVAR at the time of high voltage to maintain the bus voltages within acceptable limit in view of upcoming winter season.

DVC may update.

Deliberation in the meeting

DVC representative submitted that as per the communication received by Koderma Powerhouse, the dynamic AVR which is generally kept in auto mode did not operate during that period. Necessary tuning of DAVR would be done during shutdown of the unit.

ERLDC representative was of the view that adjustment of set-point may rectify the above issue and advised DVC to implement the same.

ERLDC representative further emphasized that the issue of generating units injecting MVAR during high voltage conditions which would be more frequent during upcoming winter season.

OCC advised all the generating stations to maximize their MVAR absorption during high voltage conditions as per their capability curves.

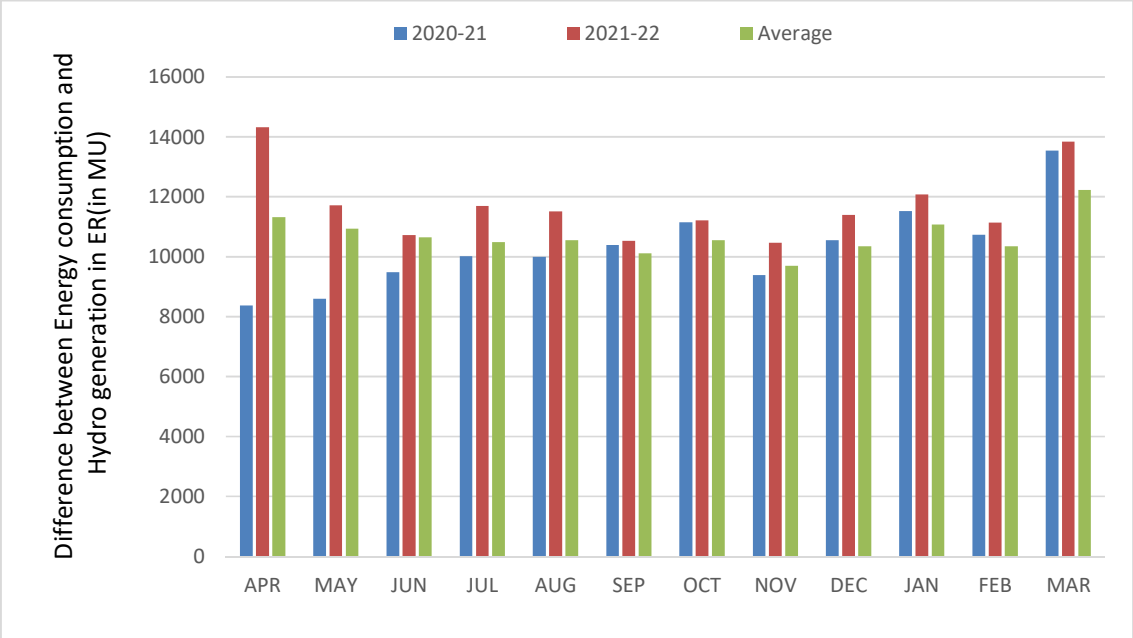
ITEM NO. B.4: Declaration of high demand/low demand season for 2023-24.

Regulation 42 of CERC (Terms and Conditions of Tariff) Regulations, 2019, pertaining to computation and payment of capacity charge for thermal generating stations, contains the following provisions: “The capacity charge shall be recovered under two segments of the year, i.e. High Demand Season (period of three months) and Low Demand Season (period of remaining nine months), and within each season in two parts viz., Capacity Charge for Peak Hours of the month and Capacity Charge for Off Peak Hours of the month” “The number of hours of “Peak” and “Off-Peak” periods during a day shall be four and twenty, respectively. The hours of Peak and Off-Peak periods during a day shall be declared by the concerned RLDC at least a week in advance. The High Demand Season (period of three months, consecutive or otherwise) and Low Demand Season (period of remaining nine months, consecutive or otherwise) in a region shall be declared by the concerned RLDC, at least six months in advance: Provided that RLDC, after duly considering the comments of the concerned stakeholders, shall declare Peak Hours and High Demand Season in such a way as to coincide with the majority of the Peak Hours and High

Demand Season of the region to the maximum extent possible"

As per IEGC, hydro generating station is must run during high hydro season in order to reduce water spillage condition. Hence need for availability of thermal generating stations will be more when demand is high and support from hydro generation is low. In order to find out high and low demand season for 2023-24, difference between energy consumption and hydro generation in Eastern Region for 2020-21, 2021-22 and average of previous five years (i.e. 2017-18, 2018-19,

2019-20, 2020-21 & 2021-22) are shown below.



As per above chart, difference between energy consumption and hydro generation in Eastern

Region was high during following months:

- 2020-21*: Oct-20, Jan-21, Mar-21
- 2021-22: Apr-21, Jan-22, Mar-21
- Average of last five years: January, March and April

*Due to COVID related lockdown, energy consumption was low during March – June 2020

As observed from the trend of past five years, ***April-2023, May-2023 and March -2024*** is hereby proposed for considering ***"high demand" seasons for 2023-24.***

Members may discuss.

Deliberation in the meeting

ERLDC representative submitted that in the months of March 2021 and April 2021, the demand met was maximum. Although, the difference of energy consumption and hydro generation in the above-mentioned graph for the month of January 2022 is higher than that of May 2021, but maximum demand was met in the month of May 2021 in comparison to January 2022. Moreover, due to considerable amount of hydro generation in ER in the month of May 2021 in comparison to that of January 2022, the difference was further narrowed down.

Odisha representative submitted that the months of April, May and June may be considered as high demand season as the months belong to summer season wherein the hydro generation would be very minimal.

Bihar representative submitted that the months of July, August and September are the high demand seasons as per their previous trends.

OCC was of the view that as per the energy consumption pattern of the previous years, it has been noticed that the growth rate of demand of energy for the month of June is higher than that of March. Further, in case of lesser hydro-generation in the month of June, there would be more stress on the thermal generation.

Therefore, April 2023, May 2023 and June 2023 would be considered as high demand season for FY 2023-24.

ITEM NO. B.5: Requirement of cold spares for ICTs in Eastern Region to meet any exigency.

As per CEA guidelines for availability of spares and inventories for power transmission system (transmission lines & substation/switchyard) assets, adequate cold spare for ICTs has to be maintained at regional as well as state level. Key guidelines for determining spare as per the guidelines are provided below:

- At present PGCIL along with multiple ISTS licensee is operating and maintaining most of the Inter-State Transmission System (ISTS) assets The transmission lines of above power utilities are spread across more than one states in the country.

- Regional level spare: For regional power utilities (PGCIL & Transmission licensees), the spare at regional level would be required for these assets. These spares should be increased, optimized and limited to double the quantities mentioned for State Level based on transmission line assets in that region in order to avoid unnecessary storage of inventories.

- State level spare: The spares at 'State level' can be maintained at a centralized location which could be conveniently accessed to meet the emergency requirement of various substations/switchyards spread across the State.

- Requirement of state level: ICT and Shunt Reactor: One number single phase/three-phase unit of each rating, as applicable

- Utility for State level spare: If there are five or more substations/switchyards (of same voltage class) of a utility in a State, the 'State Level' spares shall be maintained by the utility.

- Spare at state level by utility having spread in different states: If any utility has five or more substations/switchyards (of same voltage class) spread across different States, spare recommended for 'State Level' shall be maintained for these cluster of substations/switchyards at one or more appropriate locations in any of these States.

- Higher spare for areas having higher probability of damage with natural disaster events: The quantities of spares specified shall be applicable to transmission lines and substations / switchyards in all areas including cyclone / whirlwind / tornado prone areas. However, higher quantity of spares (for some spare items) shall be kept for cyclone / whirlwind / tornado prone areas as indicated in guideline.

- Support between utilities for sharing of spare and associated commercial mechanism:

There may be cases, where the extent of damage is so much that specified minimum quantum of spares/inventories may be inadequate in meeting the eventuality. In such cases, support from central power utilities (PGCIL/NTPC/DVC etc.)/transmission licensees/neighboring State utilities may be requested. The financial modalities for providing spares to other utility shall be mutually decided between the utilities.

- Replenishment of Consumed spare: Replenishment of the consumed mandatory spares shall be made at the earliest but in any case, not later than six months from the date of its consumption depending on the criticality of equipment component/material.

With a significant rise in state demands and regional demand along with the number of ICTs, it would be desirable to have an adequate spare to improve reliability and resilience in case of any exigency. Recently, a substantial delay in restoration of damaged ICTs in eastern region has been observed.

Thus, maintaining adequate regional and state level cold spare is important. Table 1-4 provides various details for deciding the requirement of regional and state level cold spare in Eastern region.

Table 1: State wise ICTs at various voltages in ER

State Wise ICT	315 MVA 400/220 kV	500 MVA 400/220 kV	315 MVA 400/132 kV	200 MVA 400/132 kV	270 MVA 400/132 kV	250 MVA 400/220 kV	1500 MVA 765/400 kV	255 MVA 765/132 kV	Cold Spare Availability
Bihar	6	27	3	15			5		
Jharkhand	15	6				1	2		
Sikkim	5				1				
Odisha	30	5					8	2	
West Bengal	38	5					4		

Table 2: Utility wise ICTs detail at various voltage level in ER

Utility	315 MVA 400/220 kV	500 MVA 400/220 kV	315 MVA 400/132 kV	200 MVA 400/132 kV	270 MVA 400/132 kV	250 MVA 400/220 kV	1500 MVA 765/400 kV	255 MVA 765/132 kV	Cold Spare Availability
PGCIL	47	27	3				15		
Other ISTS (NKTL, PMJTL, PMTL, DMTCL)		8		2			4		
IPP (Dikchu)					1				
NTPC/NPGC/BRBCL	4			9				2	
WBSETCL/WBPDCL/CESC	22			4					
OPTCL/SEL	11	2							
DVC	10								
BGCL		4							
JUSNL/TTPS		2				1			

Table 3: Utility wise number of substations with ICTs in ER

Utility Substation with ICTs	Number of Substation
PGCIL ERTS 1	15
PGCIL ERST 2	8
PGCIL Odisha	10
WBSETCL	5
WBPDCL	2
OPTCL	5
BGCL	2
DVC	5
JUSNL	1
ISTS (NKTL/DMTCL/PMTL/PMJTL)	7
NTPC	7

Table 4: Spread of substations of various utilities in different states

State	PGCIL ERTS 1	PGCIL ERTS 2	PGCIL Odisha	DVC	WBSETCL	OPTCL	Other ISTS	BGCL	JUSNL	NTPC	Others
Bihar	9						4	2		4	
Jharkhand	6			3			1		1		
Sikkim		1									
Odisha			10			5				2	1
West Bengal		6		2 + 1 (MTPS)	5		2			1	2

In the 192nd OCC meeting, ERLDC representative submitted that as per the CEA guidelines, maintenance of adequate spares at State level as well as at Regional level had to be ensured.

ERPC representative submitted that as per the CEA guidelines, the inventory of spares should be digitized and reports of the same should be submitted to CEA on half-yearly basis.

OCC advised all the states to digitize the inventory of spares and submit the report to CEA with a copy to ERPC on half yearly basis.

Further, ERLDC was advised to make a standard format mentioning the date of procurement of ICTs, date of COD of ICTs, declared age of ICTs, remaining life etc and circulate among the concerned utilities.

OCC advised all the concerned utilities to follow the guidelines and submit the report on availability of spares ERPC and ERLDC at the earliest.

Further, Powergrid representative raised a concern regarding diverting the spares from ISTS pool to the states which may pose reliability issues and thereby requested the states to maintain a pool for cold spare ICTs.

MS, ERPC was of the view that the pool of cold spare ICTs may be maintained by a central agency like Powergrid. In case of any requirement of spare ICT on emergency basis by any utility, the same may be provided and the commercial modalities may be decided mutually. Further, to

avoid any reliability issues arising out of insufficient spares for the existing ISTS systems, the required optimum number of cold spare ICTs to be maintained by Powergrid may be enhanced which may be put up for approval subsequently.

In the 193rd OCC meeting, Powergrid Odisha representative submitted that 500 MVA and 160 MVA ICT are under procurement which would be placed at Pandiabili and Baripada S/s respectively and cater to the requirement of Odisha. A 315 MVA ICT was recently used in Jeypore S/s. After detailed cost benefit analysis, decision regarding procurement of 315 MVA ICT would be approved.

Powergrid ER-II representative submitted that a 500 MVA ICT is under procurement which would be located at Maithon or Subhashgram. 315 MVA spare ICT (released after augmentation) is available at Durgapur and Malda S/s. one 160 MVA spare ICT is available at Siliguri and one 50MVA ICT was available at Gangtok which was used recently.

Powergrid ER-I representative submitted that regional spare is available at Jamshedpur and Biharshariff S/s. The spare available at Jamshedpur was utilized at Chaibasa. One 315 MVA

spare is available at Mujaffarpur S/s. one 160 MVA spare ICT of 220/132 KV is available at Purnea. Further, approval has been taken regarding procurement of one 500 MVA and one 160 MVA spare ICT at Pusauli and Daltonganj respectively.

OPTCL representative submitted that a 315 MVA spare ICT was available at Duburi S/s which was utilized in Meramundali S/s. Procurement of one 500 MVA spare ICT is under progress which would be located at new Duburi S/s. One 500 MVA ICT is available at Meramundali B. Regarding 315 MVA spare ICT, discussions are going on for procuring the same.

SLDC DVC representative submitted that one 315 MVA ICT would be replaced by 500 MVA ICT which would be kept as spare and will be located at Ramkanali S/s.

OCC was of the view that a detailed representation highlighting the ICTs under procurement and ICTs available at present would be prepared by ERLDC, based on which decision regarding maintaining pool of spares and procurement of spares would be anticipated.

Present Situation of spare ICTS as per update in 193rd OCC Meeting

Utility	500 MVA 400/220 kV	315 MVA 400/220 kV	160 MVA 220/132 kV
PGCIL ERTS 1	1: Under procurement; will be put at Sasaram	1: Muzaffarpur (released with ICT upgradation) 1: Bihar Sharif 1 : Under Procurement	1: Purnea 1: Daltonganj
PGCIL ERTS 2	1 : Under procurement will be put at either Malda or Shubhasgram	1 : Malda (released with ICT upgradation) 1: Durgapur (released with ICT upgradation)	1 : Silliguri
PGCIL Odisha	1: Under procurement and will be put at Pandiabili	1: Will be procured	1 : Baripada
OPTCL	1: Under procurement	Under discussion with management	Not available
DVC	Not available	1 will be spare in future as per new approved plan	Not available
WBSETCL	No detail	No detail	Not available

- **For 43 numbers of 400/220 kV 500 MVA ICTs:** 3 regional and 1 state spare are under procurement

- **For 94 numbers of 400/220 kV 315 MVA ICTs:** 3 old and 1 new is available and 2 are under procurement

- **For 220/132 kV 160 MVA ICTs:** 4 regional spares are available.

Members are requested to update the status regularly.

Deliberation in the meeting

OCC advised all the members to update the status of spares, if any, to ERPC and ERLDC on regular basis.

ITEM NO. B.6: Availability of ERS in the Eastern Region and update on the status by various utilities including inter-state and intra-state transmission licensees.

In line with CEA guidelines for the availability of spares and inventories for power transmission system (transmission lines & substation/switchyard) assets 2020 and the CEA disaster management plan for power sector 2021, adequate ERS is required to be maintained in ER grid for early restoration of transmission line due to any tower collapse. The Eastern region is prone to cyclones, Norwester/Kalbaisakhi localized storms, hilly terrain with landslides, floods, changes in river course, substation flooding, etc. due to which each year tower collapse occurs causing forced outages of transmission lines. This necessitates adequate ERS maintenance by various utilities in the eastern region for early restoration.

Present status available at ERLDC on ERS as collected during cyclone Yaas in 2021 is provided in the attached table. All transmission utilities are requested to kindly update the ERS availability and any ERS which are already engaged.

Status Update by: PGCIL ERTS 1, PGCIL ERST 2, PGCIL Odisha, WBSETCL and OPTCL (if any ERS is already engaged then same may be put as remarks)

Utility to provide details of available ERS in the attached format:

- State-level: BSPTCL, BGCL, DVC, JUSNL, Sikkim power department (SPD)
- ISTS: Indigrid (OGPTL, PKTCL, ENICL), PGCIL Subsidiaries (CBPTCL, PMTL, PMJTL), Powerlink Transmission limited (PTL), DMTCL, Adani transmission (ATL, NKTL), TPTL

In the 192nd OCC meeting, TPTL representative submitted that they would provide the details by the end of June 2022.

DVC representative submitted that procurement of 7 nos. (Combination of suspension and tension) of ERS is under progress. Further, pile and structures (2 nos.) at Putki and Maithon are available as immediate remedial measures up to 220 KV level.

West Bengal representative submitted that 10 nos. of ERS towers which can be used at all levels are available out of which 6 nos. have been used. Of the remaining, 3 nos. are tension towers and 1 is suspension tower.

OPTCL representative submitted that they would provide the details shortly.

JUSNL representative submitted that 8 nos. of ERS are available which could be used for up to 220 KV levels.

Bihar representative submitted that 36 nos. of ERS (for 220 KV and 132 KV level) are available and all are engaged at present.

OCC advised all the ISTS licensees, SLDC's and Subsidiaries to submit the updated details of ERS to ERLDC at the earliest.

The details have been received from OPTCL, PGCIL ERTS-1, ATL, PGCIL Odisha, PGCIL ERTS-2, PTL, ENICL, OGPTL, PKTCL. The details are awaited from WBSETCL, TPTL, BSPTCL, JUSNL and Sikkim Power Department. The utilities are requested to share the details at the earliest.

Present status available at ERLDC on ERS as collected during July 2022 is provided in the

attached table.

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
1	OPTCL	400 kV	14 + 18 procured and in transit (arrive by Sept 2022)	Mancheswar grid - 4 nos. (high Tech)	Can be used for both suspension and Tension
				Mancheswar store - 8 nos. (high tech)	
				Mancheswar store - 2 nos. (Lindsey)	
		220 kV	42	Budhipadar - 14 nos. (Lindsey)	
				Mancheswar grid - 14Nos. (Lindsey)	
				Chatrapur - 14 nos. (Lindsey)	
2	PGCIL ERTS 1	765 kV - 24 sets	24 Sets	GAYA	15 Suspension & 9 Tension tower
		400 KV - 30 sets	30 Sets	Jamshedpur, Purnea, Lakhisarai	Total 20 nos. Suspension & 10 nos. Tension ERS towers
3	Adani transmission limited (ATL)	400 KV	1 set (12 Column). Nos of ERS towers shall depend on line configuration, type of tower and extension of towers. Approximate 6 suspension towers/ set for 400kV D/C twin conductor.	Central India (Koradi, Maharashtra)- **48 Hours**	Modular aluminum guyed towers- Suspension tower
4	PGCIL (Odisha)	400 KV ERS -	3	Rourkela	Suspension - 2 & Tension-1

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
		3			
		765 KV ERS - 24	24	Rengali	Suspension - 15 & Tension-9
5	PGCIL ERTS 2	400 KV	1 Set (consisting of 10 towers) -400 KV Voltage level	Durgapur	7 Set-Suspension 03 Set-Tension
6	WBSETCL	400, 220, 132 kV	05+05set (can be used with 400/220/132 kV level) 6 used for Durgapur -asansol line diversion. 4 available	at Arambagh & Gokarno	Can be used for both suspension and Tension
7	TPTL		MoU with PGCIL Tie up with Supreme Industry in progress	-	-
8	CBPTCL		No ERS	PTC does not own any ERS, however, in case of any such requirement for deployment of ERS, CPTC has an existing agreement with POWERGRID for deployment of ERS.	-
9	PMTL	-	No ERS	-	-
10	PMJTL	765 kV	NO ERS	-	-

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
11	PTL	400 kV	07 towers set ERS structures suitable for Twin Moose Configuration 400 or 220 kV.	Siliguri (W.B.)	Lindsey Manufacturing Company Ltd USA Model 600
			07 towers set ERS structures suitable for Twin Moose Configuration 400 or 220 kV.	Muzaffarpur (Bihar)ER1	
12	Indigrid (ENICL, OGPTL & PKTCL)	400 KV & 765 KV Line	765 KV- 6 Sets / 400 KV- 8 Sets	Siliguri, WB.	For 765 KV- 4 Suspension & 2 Tension. For 400 KV- 6 Suspension & 2 Tension.
13	DMTCL	400 kV Lines	Arrangement of ERS with M/s Supreme Engineering at Kolkata.	Can be Dispatched in 2–3-weeks periods	-
14	BSPTCL	220 kV & 132 kV	38 ERS which can be used for 220 and 132 kV	18 Towers in use for 132 kV Kishanganj-Barsoi ckt 4 towers for 220 kv BTPS-Hazipur ckt 4 towers for 220 kV Bodhgaya- Chandauti Purnea : 1 Dehri on sone: 2 Sultanganj: 2 Fatuah: 2 Muzaffarpur : 4	Can be used for both suspension and Tension

Sl	Utility	voltage levels	Number of ERS towers available	Location of ERS situated	Type of ERS (Suspension/ Tension/ any other)
15	BGCL	-	No ERS	No ERS	-
16	JUSNL	220 kV	Total 8 ERS	Hatia: 3 Jamshedpur: 2 Dumka: 3	Details awaited
17	DVC	400 kV and 220 kV	400 kV: 7 (under procurement) 220 kV: 2 set Pilon structure	400 kV: **Under procurement** 220 kV: 1 at putki and 1 at Maithon	-
18	Sikkim Power Department		Details awaited	Details awaited	Details awaited

In the 193rd OCC meeting, TPTL representative submitted that they do not have any ERS towers of their own. In this regard, discussion for signing a MoU with PGCIL is under progress and tie up with M/s Supreme Engineering has also been initiated.

WBSETCL representative submitted that 10 nos. of ERS towers are available which could be used at all the voltage levels. Out of 10 nos., 6 nos. are used for Durgapur-Asansol line and 4 nos. are available. Procurement of additional 6 nos. of ERS towers (which could be used both under suspension and tension) is under planning stage.

Bihar representative submitted the status of ERS towers which is mentioned below.

Location	Status	Usage	Type	Quantity
Kishanganj-Barsoi Line	engaged	220/132 KV	Suspension/Tension	18
BTPS-Hajipur Line	engaged	220/132 KV	Suspension/Tension	4
Bodh Gaya-Chandauti	to be engaged	220/132 KV	Suspension/Tension	4
Purnea	**Spare**	220/132 KV	Suspension/Tension	**1**
Dehri	**Spare**	220/132 KV	Suspension/Tension	**2**
Fatuha	**Spare**	220/132 KV	Suspension/Tension	**3**
Mujaffarpur	**Spare**	220/132 KV	Suspension/Tension	**4**
Sultanganj	**Spare**	220/132 KV	Suspension/Tension	**2**
Total				**38**

OCC was of the view that many lines of BGCL and other new sub-stations like Mokama, Hajipur, etc. in Bihar fall under the coverage of river corridor and advised Bihar to keep provisions of ERS towers for those lines.

Members may update.

Deliberation in the meeting

OCC advised all the constituents to update the status of ERS towers on a regular basis with ERPC and ERLDC.

ITEM NO. B.7:	**Draft Central Electricity Authority (Flexible Operation of Thermal Power Plants) Regulations, 2022 and associated draft procedure by NLDC.**

CEA has notified Draft Central Electricity Authority (Flexible operation of thermal power plants) Regulations, 2022. They have asked for comments by 26th August 2022.

Highlights of draft regulation:

- Applicable to all coal and lignite-based thermal power plants and load despatch centres.
- Objective of regulation is to mandate necessary retrofitting of thermal generators to support flexible operation to facilitate dispatch of must run generators like renewables
- This includes measures to reduce technical minimum, now termed as MPL (Minimum Power Level) , increase the ramp rates and optimize the start-up of the power plants
- Units throughout their service life shall be considered for flexible operation.
- Beforehand assessment for Suitability for start/stops, deep load following (Ramps), condition assessment and required upgradation for flexible operation need to be done.
- Load despatch can schedule flexible plants to support the operation of must-run stations.
    - All thermal plants up to minimum power levels of 55 % (Within 1 year)
    - All thermal plants up to minimum power levels of 40% with condition that (Within 3 years based in consultation with OEM)
        - Coal-based thermal plant: Minimum loading/unloading rate shall be 3 %/minute above MPL
        - Supercritical and ultra-super-critical units: Minimum loading/unloading rate shall be 5 %/minute above MPL
- All thermal plants to achieve the requirements should go for technical feasibility studies in consultation with the concerned Original Equipment Manufacturers/ Qualified Consultants
- All Thermal power plants to implement the necessary modifications as per this regulation.
- Any deviation from the limits prescribed under these Regulations shall be brought before the Authority on case-to-case basis by the thermal power plants for exemption, if any.

In view of the same, all thermal power plants in the eastern region should check their feasibility of operation at 55% and 40% status including ramping capability in consultation with OEM. For this ISGS, IPPs, Intra-state SGS and IPPs may also explore associated testing of their respective units at lower levels in consultation with OEM as a pilot project. This activity has been earlier done successfully on various ISGS/IPP power plants. Further, all are requested to submit comments.

It is also informed that Tamil Nādu is doing two-shift operations of Mettur and Tuticorin units to accommodate RE. They are taking units out between 0800-1100 hours and bringing them back between 1445-1815 hours.

Members may discuss.

Deliberation in the meeting

NTPC representative submitted that all its units are able to run at 55% load capacity without any oil support.

DVC representative submitted that they are able to achieve the minimum load capacity of 55% in case of 500 MW and 600 MW units provided the coal quality is good. The lower capacity units are ball and tube mill type for which necessary permission from CEA and ERPC would be taken prior to testing of minimum load capacity.

WBPDCL representative submitted that the technical minimum for their units is different and varies depending upon their unit capacity. He further submitted that in general a minimum load capacity of 75% is maintained for all their units but due to deteriorated coal quality, at times it becomes difficult to maintain the load capacity especially for Kolaghat units.

WBPDCL was advised to send the detailed report on technical minimum of their units to ERPC at the earliest.

OCC advised all the generating units to submit their comments on draft CEA regulations, 2022 of Flexible Operation of Thermal Power Plants to CEA within the stipulated time period. Further, all the generating stations were also advised to submit the reports to ERPC & ERLDC on the present minimum load achieved by them against the designed technical minimum.

ITEM NO. B.8: Outage of Important Transmission System.

B8.1. 132kV Sagbari–Melli.

Sikkim vide mail dated 09.06.2021 updated the following status:

1) In loc 82,83 & 84 we have low ground clearance which need hill cutting but if needed TL can be charged after putting temporarily barbed wire fencing.
2) In loc 98-99 a house had been constructed just below the line and warning had been issued to the owner for not to do vertical extension of the house till any such arrangement is made.
3) In loc 116 &117 land owner demanding for intermediate tower and not allowing for us to clear the jungles.
4) Loc 128 is in dilapidated condition due to sinking effect posing threat to lives and properties. Local public are asking to shift the tower in safe place before restoration of supply in the TL.
5) 80% of jungle clearance has been completed and remaining 20% is in Forest area most of it is under west district and waiting for permission from Forest department.
6) The delay in obtaining permission for following trees in forest land is that it cannot be ascertained whether FCA clearance during construction of TL was obtained as the record is not available either in power department or in DFO Office. Regarding this it had been told by ERPC that once obtaining environment clearance at the time of construction there need not to take permission for further clearance of ROW from Forest dept and this matter is been conveyed to the Forest department but they informed us as per Forest Act of Sikkim state permission has to be obtained for fresh felling with payment of compensation. File for approval is being send to conservator of Forest from DFO on 10/6/2021.

In the 191st OCC Meeting, Sikkim representative submitted that the 132 KV Sagbari-Melli line would be charged within 6 months.

In the 46th TCC meeting, Sikkim representative updated the following:

1. Tower foundation work is going on in loc 128.
2. Other issues have been resolved.
3. The line is expected to get restored by October-22.

Sikkim may update.

Deliberation in the meeting

Sikkim representative was not present during the discussion.

B8.2. 440/220kV 315 MVA ICT 2 at Meramundali:

400KV/220KV 315 MVA ICT 2 at Meramundali tripped on 21-02-2021 due to fire hazard at Meramundali SS. The ICT is under outage since then. Meramundali S/S is serving the important load of the Odisha. Long outage of an ICT at such crucial S/S may hamper the reliability of the Grid.

In the 190th OCC meeting, OPTCL representative submitted that all the erection works had been completed except those of header pipes due to probable mismatch in them. The work would be completed after the new header pipes are received.

Further, two phases of nitrogen purging have been completed and the third is under progress.

The commissioning work would be completed by 15th May 2022.

In the 191st OCC Meeting, OPTCL representative submitted that 4 nos. of matching short pieces are yet to be received from OEM. The work would be completed after the materials are received.

In the 192nd OCC meeting, OPTCL representative submitted that the erection work of short-pieces had been completed. The work is expected to be completed by first week of July 2022.

In the 193rd OCC meeting, OPTCL representative submitted that erection works had been completed and filtration work is under progress which are delayed due to heavy rain. All the pre-commissioning tests have been completed and based on the results of the filtration works the final testing would be done followed by clearance of Electrical Inspector.

OPTCL may update.

Deliberation in the meeting

OPTCL representative submitted that the first time charging of 400/220 KV 315 MVA ICT-2 was done on 19th August 2022 and subsequent loading was done on 21st August 2022.

ITEM NO. B.9: Ensuring N-1 reliability criteria at 400/220 KV Subhashgram (PG) S/s.

400/220 kV Subhashgram (PG) substation is feeding to the major load centers in south Bengal. At present 5 numbers of 400/220 kV ICTs (4x315 MVA+1x500 MVA) having a total transformation capacity of 1760 MVA is installed at Subhashgram. However, total loading through ICTs is crossing 1500 MW on daily basis. It is pertinent to note that N-1 security criteria for ICTs is

satisfied till the total drawl remains below 1300 MW. On exceeding the said limit, tripping of a single ICT may overload the four other ICTs which can lead to their cascade tripping, resulting in total black out of Subhashgram (PG) Substation feeding to extensive areas of South-24 parganas and Kolkata (CESC). In addition, 220 KV network connecting Rajarhat, Jeerat, Barasat, Kasba and adjoining stations can possibly trip on overload.

In this regard, a meeting was convened on 10.05.2022 by MS ERPC to discuss on the issue of violation of n-1 reliability criteria for 400/22 kV ICTs at Subhashgram (PG) S/s. In the meeting, it was agreed that an SPS will be implemented at Subhashgram (PG) considering the same load which are identified for 220 kV Subhashgram-EMSS D/C contingency.

In the 191st OCC Meeting, CESC representative submitted that a meeting was convened with Powergrid on 18.05.2022 to finalize the logic of the SPS scheme.

CESC representative submitted that as per the logic, SPS would operate when one of the transformers trips leading to simultaneous overloading of any other transformer. The quantum required for load shedding would be decided by ERLDC control room on real time basis and further intimated to CESC control room.

CESC representative further stated that an IN/OUT Selector Switch will be installed at EMSS for activating/deactivating the SPS Scheme. ERLDC Control Room will advise CESC Control Room for enabling the SPS Scheme when the loading of the ICTs at Subhashgram S/S will not satisfy N-1 Reliability Criterion and the Scheme needs to be disabled by CESC Control Room as per advice from ERLDC Control Room whenever the combined loading of the ICTs comes down within the limit of N-1 Reliability Criterion of the ICTs. This would prevent any unwanted supply interruption in Kolkata city due to maloperation of the scheme following low IR in the secondary circuit and likewise.

ERPC representative was of the view that in case of operation of SPS the load shedding quantum should be triggered automatically instead of manual intervention.

OCC opined that a separate meeting would be convened to finalize the scheme and determine the load shedding quantum.

In this regard, a meeting was convened on 10.06.2022 between ERLDC, POWERGRID ERTS-II and CESC. In the meeting ERLDC proposed that after tripping of any one ICT and overload in the remaining transformer going above 110 % for 5 second then SPS shall operate and requisite load shedding of 200 MW to be done to reduce the loading of other available ICTs immediately within

110% of their rated loading (if required, additional load shed may be done manually to restrict the ICT loading to 100% on instruction from ERLDC).

In the 192nd OCC meeting, CESC representative submitted that the electromechanical backup O/C relays of ICT – 3 & 4 would be replaced by the numerical relays during shutdown of the ICTs.

OCC advised Powergrid to submit the shutdown plan for the said ICTs at the earliest.

Further, OCC advised to implement the SPS scheme finalized as per the meeting held on 10.06.2022.

In the 193rd OCC meeting, Powergrid representative submitted that O/C relays of ICT – 3 & 4 have already been replaced during shutdown.

The testing would be carried out by taking shutdown before the SPS becomes operational.

CESC requested to carry out the shutdown for testing of SPS on 31st July 2022.

Regarding installation of additional ICT at Subhashgram, CESC representative submitted that discussions at appropriate level are under progress among WBSEDCL, WBSETCL and CESC representatives.

OCC advised CESC to submit the details of discussion to ERPC and ERLDC.

West Bengal SLDC representative submitted that the LILO scheme of Subhashgram-Haldia line at Laxmikantpur was passed in the Standing Committee meeting held in Siliguri in 2019 wherein all the concerned utilities had agreed. In the recent meeting conducted between the representatives of CESC, West Bengal and HEL on 19th July 2022, it was informed that HEL has shown concern regarding obtaining clearance from OEM (Chinese manufacturer of units). Due to the prevailing situation of lockdown in China, another one month would be required for providing the necessary operational clearance.

Further, due to the above connectivity, concern regarding tripping of new Laxmikantpur-Subhashgram D/C line during adverse weather conditions was raised by HEL wherein due to dis-balance in load and generation, situation of blackout may arise for units of HEL.

West Bengal representative submitted that with the above LILO scheme, tripping of both the circuits of Subhashgram-HEL would result in a lesser probability of fault. Also, as the circuits of new Laxmikantpur are of HTLS conductors, evacuation of Power would be easy during low loads.

HEL agreed to share the above feedback with OEM for which one month of time would be required to reach to a conclusion. The commercial and regulatory issues of CESC could not be discussed in the meeting held on 19th July'2022.

OCC opined that the issue may be referred to upcoming 46th TCC & ERPC Meetings.

The reliability of Subhashgram PG was discussed in the 46th TCC & ERPC meetings. In the meeting it was deliberated that there is an urgent requirement for installation of 6th 400/220 KV, 500 MVA ICT at Subhashgram (Powergrid) S/s. On request of West Bengal, CESC agreed to bear the cost associated with the installation of the said ICT and its future maintenance. Further, CESC requested Powergrid to execute the project on deposit work basis.

CESC and Powergrid may update regarding the technicalities of the new ICT installation and timeline for completion of the aforesaid work.

Deliberation in the meeting

CESC representative submitted that communication regarding the technicalities of new ICT installation is yet to be received from Powergrid.

Powergrid representative submitted that decision in this regard would be taken by their corporate office and they would submit the details as and when it is received.

ERLDC advised Powergrid for applying requisition of shutdown regarding implementation of SPS scheme.

ITEM NO. B.10: Endangering Grid connectivity, security & stability of 400 KV Sundargarh-Raigarh LILO Ckt – 3 & 4 at tapping points near Sundergarh by M/s Vedanta Ltd, Jharsuguda along with violation of Grid discipline.

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.

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, without completion of direct connectivity for Powergrid, in above-mentioned LILO lines.

M/s Vedanta has dismantled all towers of LILO portion except 2 nos. of towers near each tapping point and left these 4 towers without any routine maintenance/watch & ward activity. At present there is no back support at tower no-VL2 and VL5. As there is no watch and ward and routine maintenance work theft of tower members on these towers have become rampant, subsequently weakening the strength of towers which may lead to collapse of existing Vedanta towers as well as Powergrid towers, resulting interruption of power transfer between Eastern and Western Grid.

In this regard, the authority of M/s Vedanta has been informed many times verbally as well as in written communication for replenishment of all missing/hanging members and to provide backstay (back support) for keeping the tower in safe condition and also to take urgent action for direct connectivity of both LILO points.

Inspite of these correspondences and discussions with M/s Vedanta Ltd., since dt. 04.03.2019, neither any action has been taken nor any permanent connectivity solution has been implemented. The said LILO lines are in severe danger zone and power flow will be affected as stated.

In the 192nd OCC meeting, Vedanta representative submitted that approval for execution of order had been taken from higher authority and the order would be placed in the month of July 2022. Subsequent to that the work would be completed by taking shutdown.

In the 193rd OCC meeting, Vedanta representative submitted that necessary approval had been taken from their commercial department and the order would be placed by the end of July 2022.

Powergrid Odisha representative requested Vedanta to share the updates if any, with GM Sundergarh S/s.

Vedanta may update.

Deliberation in the meeting

Vedanta representative was not present during the discussion.

Powergrid Odisha representative submitted that no update regarding placement of order is available with them.

ITEM NO. B.11: Ensuring healthiness of ADMS.

Automatic demand management scheme (ADMS) is already commissioned in West Bengal, DVC and Jharkhand. Logic for ADMS is as implemented in these states is as follows.

Sl No	State/Utility	Logic for ADMS operation	Implementation Date	Total Load connected in ADMS logic
1	Jharkhand	System Frequency < 49.9 Hz AND Deviation > 12 % or 25/50/75 MW. Block I, II & III feeders will be selected for load shedding depending on the O/D.	In service from 21st August 2019.	Total 90 MW
2	DVC	F <49.9 Hz AND deviation > 12 % or 150 MW	In service from 17.06.2016.	Total 281 MW
3	West Bengal	F <49.7 AND deviation > 12 % or 150 MW	In service from 25.11.16.	Total 225 MW

ADMS in WB

In the 191st OCC meeting ERLDC intimated that ADMS criteria was satisfied for 38 number of occasions for WB, out of which on 26 no of occasions no relief was observed. Further as desired in the meeting, ERLDC shared the detailed data with WB SLDC vide mail dated 20.05.2022 for analysis from their end. The response from WBSLDC is still awaited. In the month of May, the ADMS criteria satisfied for one occasion which is given below.

Date	Time Period	Frequency	Deviation (MW)
18.05.22	23:08-23:17	49.6	261

However, no information is received regarding operation of ADMS in West Bengal in May-2022 also.

In the 192nd OCC meeting, West Bengal SLDC representative submitted that due to defective multi-functional modules the 33 KV feeders under ADMS scheme did not trip. Also, majority of the 33 KV S/s are having alternating sources. The ADMS primarily being designed in view of the primary source might not have any effect in case the S/s is under secondary source as around 75% of sub-stations were having dual source. Further, planning is being done to bring more number of sub-stations under the purview of ADMS.

He further raised a concern regarding identifying the source of a 33 KV S/s as they are not having

any idea about the network or contact with the sub-stations.

In the month of June-22 the ADMS criteria satisfied for the following occasions in West Bengal which is given below.

Date	Time period	Frequency	Deviation
02-06-2022	14:38:00	49.53	293.85
04-06-2022	05:26:00	49.66	322.99
13-06-2022	15:26:00	49.68	336.91
13-06-2022	23:06:00	49.65	323.93

In the 193rd OCC meeting, West Bengal SLDC representative submitted that load relief per block in the ADMS scheme was enhanced to 80 MW from 50 MW. Number of blocks has also been increased to 5.

Block 1, 2, 3 of ADMS operated on 18.05.2022. ADMS did not operate on 02.06.2022 even after the conditions were satisfied and communication with M/s Chemtrol has already been made and their feedback is awaited. ADMS operated on 13.06.2022. On various occasions ADMS did not operate due to frequency condition not being satisfied.

ERLDC requested West Bengal SLDC to communicate with their control room during ADMS operation.

In July 2022, ADMS criteria did not fulfill for any instance in West Bengal.

West Bengal may update.

Deliberation in the meeting

ERLDC representative submitted that the details regarding non operation of ADMS for the month of June 2022 is yet to be received.

OCC advised West Bengal to submit the details to ERLDC at the earliest.

ADMS in Jharkhand

In 191st OCC meeting, Jharkhand representative submitted that ADMS did not operate due to unhealthy communication with some of the sub-stations. OCC advised Jharkhand to take necessary steps in order to ensure healthy communication links. In the month of May-2022 also the criteria for operation of ADMS of Jharkhand were satisfied for around 459 instances from 01.05.2022 to 29.05.2022 but no information received regarding operation of ADMS in Jharkhand.

Jharkhand representative submitted that ADMS could not operate due to non-functioning of RTU. Monitoring of instances is being carried out by M/s Chemtrol for resolving the above issue.

In the month of Jun-2022 also the criteria for operation of ADMS of Jharkhand were satisfied for around 211 instances from 01.06.2022 to 30.06.2022. Details of instances where ADMS criteria was satisfied were shared with Jharkhand SLDC vide mail dated 13th July 2022.

In the 193rd OCC meeting, Jharkhand representative submitted that communication with some substations is yet to be established due to which ADMS command is not being executed at several instances.

ERLDC representative advised Jharkhand to identify the issues with the feeders and share the detailed report at the earliest.

In the month of Jul-2022 also the criteria for operation of ADMS of Jharkhand were satisfied for around 211 instances from 01.07.2022 to 31.07.2022. Details of instances where ADMS criteria was satisfied were shared with Jharkhand SLDC vide mail dated 08th August 2022.

Jharkhand may update the status of ADMS at present.

Deliberation in the meeting

Jharkhand representative submitted that ADMS operated on few instances. Further, issues regarding operation of ADMS are still persisting, like some of the feeders are still not included in ADMS due to communication issues and pending SCADA interfacing in the newly installed RTUs.

OCC advised Jharkhand to submit the details of feeders to ERPC and ERLDC at the earliest. OCC further advised Jharkhand to give the details of feeders where communication issues are persisting.

ADMS in DVC

From 01st May, 2022 to 29th May, 2022 the criteria for operation of ADMS of DVC satisfied for 27 instances. The instance where the ADMS operation criteria fulfilled for DVC is given below:

Date & Time	Actual	Schedule	Overdraw
10-05-2022 18:31	-1547.6	-1723.58	175.9801025
11-05-2022 23:08	-1703.76	-1862.36	158.5952148
12-05-2022 18:36	-979.208	-1688.25	709.0393677
12-05-2022 18:55	-966.517	-1686.62	720.1029663
12-05-2022 19:15	-969.002	-1685.16	716.1547241
13-05-2022 16:15	-1549.81	-1754.85	205.0428467
18-05-2022 00:34	-1545.75	-1717.43	171.6845703
18-05-2022 14:47	-1152.62	-1588.37	435.7495117
18-05-2022 15:20	-1099.14	-1682.37	583.2293701
18-05-2022 19:25	-1171.19	-1388.06	216.8713379
18-05-2022 20:52	-1233.5	-1460.37	226.8729248
18-05-2022 21:19	-1129.82	-1484.3	354.4798584
18-05-2022 22:13	-1197.49	-1491.99	294.503418
19-05-2022 00:04	-1050.62	-1341.16	290.5428467

19-05-2022 01:12	-1091.18	-1342.65	251.470459
19-05-2022 02:17	-1057.03	-1294.08	237.0560303
19-05-2022 22:34	-1194.79	-1479.35	284.5646973
20-05-2022 00:25	-1318.74	-1523.04	204.2976074
24-05-2022 14:56	-515.263	-1246.56	731.2921753
24-05-2022 15:13	-1386.67	-1588.74	202.0670166
24-05-2022 15:19	-1439.28	-1675.74	236.46521
25-05-2022 15:45	-1645.17	-1879.83	234.6580811
26-05-2022 23:06	-1675.16	-1893.13	217.9715576
27-05-2022 21:18	-1638.27	-1804.25	165.9812012
27-05-2022 23:06	-1339.91	-1701.38	361.4691162
28-05-2022 00:11	-1472.82	-1733.48	260.6611328
28-05-2022 22:29	-1636.55	-1786.7	150.1556396

However, no information was received from DVC regarding the operation of ADMS. In the 191st OCC meeting, OCC advised DVC to share the SCADA data and simulation report with ERPC and ERLDC. However, the report from DVC is still awaited.

In the 192nd OCC meeting, DVC representative submitted that detailed report of ADMS operation would be shared within a week.

For the month of June-222 the criteria for operation of ADMS of DVC satisfied for 66 instances. The instance where the ADMS operation criteria fulfilled for DVC has been shared with DVC SLDC vide mail dated 13.07.2022.

In the 193rd OCC meeting, DVC representative submitted that due to communication related issues ADMS could not operate during the month of May 2022. After rectification, the ADMS is operational since 21st June 2022. The feeder wise details would be shared with ERLDC shortly.

For the month of July-222 the criteria for operation of ADMS of DVC satisfied for 9 instances which is given below.

Date	Actual	Schedule	Deviation
02-07-2022	-1089.92	-1283.54	193.6249
03-07-2022	-1580.31	-1738.71	158.4049
03-07-2022	-1764.27	-1938.37	174.1011
03-07-2022	-1836.64	-2067.95	231.3053
16-07-2022	-1792.58	-1971.46	178.8876
18-07-2022	-1554.84	-1732.19	177.3541
19-07-2022	-1727.83	-2009.84	282.0076

19-07-2022	-1794.6	-2019.88	225.2808
27-07-2022	-1478.36	-1672.16	193.8031

The instance where the ADMS operation criteria fulfilled for DVC has been shared with DVC SLDC vide mail dated 08.08.2022.

DVC may update the status of ADMS at present.

Deliberation in the meeting

ERLDC representative submitted that the report shared by DVC did not have the relevant details regarding ADMS operation.

OCC advised DVC to share the feeder wise details with ERLDC by the end of August 2022.

ADMS in Odisha

From 19.07.2022 to 31.07.2022 the criteria for operation of ADMS of Odisha satisfied for the following instances:

	Actual	Schedule	Overdraw
26-07-2022 13:37	2591.15	2214.15	377.01
26-07-2022 14:10	2740.94	2348.51	392.43
26-07-2022 14:33	2547.64	2389.38	158.25
26-07-2022 14:41	2660.65	2389.38	271.27
27-07-2022 19:23	2197.79	2036.77	161.02
28-07-2022 02:28	2843.50	2615.48	228.02
28-07-2022 19:24	2344.47	2131.34	213.13
28-07-2022 20:34	2327.29	2126.32	200.98
28-07-2022 21:15	2344.60	2121.77	222.83
30-07-2022 19:41	2529.75	2340.74	189.01

The logic considered is:
1. System Frequency < 49.9 Hz
2. Odisha over-drawl > 150 MW

The instance where the ADMS operation criteria fulfilled for Odisha has been shared with Odisha SLDC vide mail dated 16.08.2022.

Odisha may update the status of ADMS at present and provide the detailed logic of ADMS implemented.

Deliberation in the meeting

ERLDC representative submitted that ADMS logic considered by Odisha is not available with them. So, they considered the below logic:

1. *System Frequency < 49.9 Hz*
2. *Odisha over-drawl > 150 MW*

Odisha representative submitted that as per their logic, the ADMS would operate when all the three conditions are satisfied simultaneously.

1. *System Frequency < 49.9 Hz*
2. *Odisha over-drawl > 150 MW*
3. *Discom over-drawl > 50 MW*

Time delay considered for the above operation is 5 min which would be changed to 3 min.

OCC advised Odisha to share the details of instances where ADMS operated, with ERLDC.

Upon enquiring SLDC Odisha, whether unit tripping of Sterlite is also accounted for in the overdrawl of Discoms or not, it was informed that generation of Odisha (hydro generation) is increased during unit tripping of Sterlite.

Further, he added that tripping of unit-2 of Sterlite will reduce the quantum of schedule of Discoms thereby satisfying the overdrawl criteria.

ERLDC representative requested Odisha to inform about the instances of operation of ADMS to ERLDC control room and configure the SCADA data of Discoms at ERLDC end.

ITEM NO. B.12: Commissioning status of ADMS.

Automatic demand management scheme (ADMS) is already commissioned in West Bengal, DVC and Jharkhand. However, for Bihar and Odisha it is yet to be implemented, the last status as confirmed in the earlier meeting is as follows.

Sl No	State/Utility	Logic for ADMS operation	Implementation status/target
1	Bihar	F <49.7 AND deviation > 12 % or 150 MW	1st week of May 2022.
2	Odisha	1. System Frequency < **49.9** Hz 2. Odisha over-drawl > 150 MW 3. Discom over-drawl > 50 MW	15th May 2022.

Bihar and Odisha may share the present status of implementation and share the reason for delay in implementation if any.

Bihar representative submitted that ADMS would be operational by 1st week of May 2022.

In the 191st OCC Meeting, Bihar representative submitted that ADMS would be operational by last week of May 2022.

SLDC Odisha representative submitted that out of 88 stations, work has been completed in 69 stations and is expected to be operational by 24th June 2022.

In the 192nd OCC meeting, SLDC Bihar representative submitted that as per the simulation which was carried out on 26.05.2022 in presence of M/s Chemtrol, it was found that the feeders tripped manually from the remote end but not through the communication for automatic tripping.

Further, consent of DISCOM has been taken for testing of ADMS in the last week of June 2022.

SLDC Odisha representative submitted that the ADMS would be commissioned by the end of June 2022.

In the 193rd OCC meeting, Bihar representative submitted that the testing of ADMS had already started from 20th July 2022 by M/s Chemtrol. After successful completion of the tests, ADMS would be operational.

Odisha representative submitted that the ADMS is in operation since 19th July 2022.

OCC advised Odisha and Bihar to submit the list of feeders under ADMS operation to ERPC and ERLDC.

Bihar may update the status of the implementation of ADMS scheme.

Deliberation in the meeting

Bihar representative submitted that ADMS testing was successfully carried out on 22nd July 2022.

The detailed report on list of feeders and scheme of ADMS would be shared with ERLDC shortly.

ITEM NO. B.13: List of lines of Eastern Region violating N-1 security criteria.

The list of such lines for which necessary planning needs to be done to make the system N-1 secure are given below:

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
Transmission Constraint in Odisha Network				

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
1	i. 220 kV Budhipadar-Lapanga D/C, ii. 220 kV Budhipadar Vedanta D/C iii. 220 kV Rourkela-Tarkera D/C	SPS available only for 220 kV Rourkela-Tarkera D/C. However, even with SPS N-1 criteria is not satisfied for all the conditions. **Action Required**:- Load trimming scheme needs to be planned	1. Reconductoring of 220 kV Rourkela-Tarkera D/C with HTLS. 2. 220 kV Rourkela-Tarkera second D/C 3. Shifting of Vedanta from 220 kV to 400 kV	**OPTCL to provide a target date for Long term measures**
2	i. 220 kV Lapanga-Katapalli D/C , ii. 220 kV Katapali-New Bargarh-Sadepalli (New Bolangir) S/C iii. 220 kV Katapali-Bolangir (PG)- S/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	Odisha to share long-term remedial action to make the system N-1 secure.	**OPTCL to provide a target date for Long term measures**
		Transmission Constraint in West Bengal Network		
3	i. 220 kV Waria-Bidhan Nagar D/C ii. 220 kV Waria-Mejia D/C	Opening of 220 kV Waria-Bidhan Nagar D/C as and when required	400/220kV, 315MVA (3rd) ICT at Bidhannagar	Target Date 2022-23. **WBSETCL may update the present Status**
		Transmission Constraint in DVC Network		
4	**i. 220 kV DSTPS-Waria D/C***	No SPS is Available. **Action Required:-** SOP/SPS/Load trimming scheme needs to be planned for the time being	i. 220 kV Connectivity at 400 kV Mejia-B ii. LILO of 220 kV Mejia-A and Barjora at Mejia-B	**DVC may update the target date**

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
5	ii. 220 kV Maithon-Dhanbad D/C, iii. 220 kV Maithon-Kalyaneshwari D/C	No SPS is Available. **Action Required:-** SOP/SPS/Load trimming scheme needs to be planned for the time being	iii. 220 kV Connectivity at 400 kV Mejia-B iv. 220 kV Connectivity at 400 kV RTPS	**DVC may update the target date**
*** The N-1 violation of 220 kV DSTPS- Waria D/C or DSTPS ICT 1&2 may result in large-scale disturbance, impacting an area between Durgapur and Maithon. To avoid any such mishap DVC needs to plan and implement an SPS on an urgent basis. Further, the long term measure also needs to be implemented in time bound manner.**				
Transmission Constraint in Jharkhand Network				
6	220 kV Maithon Dumka D/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	i. LILO of 1st circuit of 220kV Dumka – Govindpur D/c line at Dhanbad	Target Date 2023. **Jharkhand may update the target date**
Transmission Constraint in West Bengal Network				
6	i. 220 kV Rajarhat-Newtown AA3 D/C, ii. 220 kV Subhasgram -EMSS D/C	SPS is Available for both the Ckts	1. 220 kV Rajarhat-Newtown AA3 D/C line with HTLS. 2. No Strenthing planned for 220 kV Subhasgram-EMSS D/C	1. Target Date November 2022 for recondutoring **WBSETCL may update the present Status**
7	i. 220 kV Subhasgram (PG) – Subhasgram (WB) D/C ii. 220 kV Subhasgram (WB)-Lakshmikantpur D/C	SPS Available for 220 kV Subhasgram (PG) – Subhasgram (WB) D/C	i. 220 kV Subshagram – Baruipur D/C ii. 400/132 kV Substation at Lakshimikantpur.	i. Line antitheft charged from Subhasgram end ii. Lakshimikantpur tareget date is December 2024 **WBSETCL may update the present Status**
Transmission Constraint in Bihar Network				

Sl. No	Name of Element	Short Term Measures	Long term Measures	The target date for long term measures
8.	220 kV Darbhanga-Darbhanga(BH) D/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	Bihar to share long-term remedial action to make the system N-1 secure.	**Bihar to provide a target date for Long term measures**
9.	220 kV Muzzafarpur-Hazipur D/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	1. 220 kV Muzzafarpur-Amnour D/C	**Bihar to provide a target date for Long term measures**
10.	220 kV Gaya Bodhgaya D/C	No SPS Available. **Action Required:-** SPS/Load trimming scheme needs to be planned	1. 220 kV Gaya Bodhgaya Second D/C	**Bihar to provide a target date for Long term measures**

In the 193rd OCC meeting, ERLDC representative submitted that outage of DSTPC ICTs or DSTPS Waria D/C line may create a large scale disturbance.

DVC representative submitted that the contracts for connectivity between MTPS 220 KV to 400 KV and RTPS connectivity have already been awarded and the work is expected to be completed by December 2023. The 400 KV bus connectivity would extend some relief in case of evacuation problem from 220 KV bus due to MTPS generation.

Under long-term measures, programs for augmentation of DSTPS ICT and DSTPS-DTPS HTLS is under progress. Necessary approval from ERPC and CTU has already been taken in this regard.

Moreover, Parulia (PG)-Parulia (DVC) line has already been given to Powergrid for HTLS connectivity. After the HTLS connectivity, possibilities of switching-off of DSTPS ICT may be explored. Further, possibilities of bus-splitting at MTPS may also be worked out.

ERLDC representative requested DVC to maintain some minimum generation in Mejia. DVC representative submitted that Mejia unit-6 would be synchronized by 21st July 2022.

ERLDC representative was of the view that as per the study undergone by them, closing of

Bidhannagar-Waria circuit would not cater to the generation loss issues and advised DVC to explore the possibilities of bus splitting and connectivity to 400 KV of MTPS and RTPS.

Members may discuss.

Deliberation in the meeting

OCC advised all the utilities to update the status of short term and long term measures, if any, to

be taken to make the system N-1 secure to ERPC and ERLDC.

ITEM NO. B.14: ICT Constraints violating N-1 security criteria.

The list of ICTs which are not N-1 complaint are given below:

Sl. No	Name of ICT	Short Term Measures	Long term Measures	The target date for long term measures
ICT Constraint in West Bengal Network				
1	i. 400/220 kV 2 X 315 MVA ICTs at Gokarna & ii. 400/220 kV Sagardighi 1 X 315 MVA ICTs	SPS Available for Gokerno ICTs **Action Required**:- Load trimming scheme needs to be planned for Sagardighi	i. 3rd ICT at Gokerno	Target Date Dec-22 **WBSETCL may update the present Status**
2	i. 400/220 kV ICT-1 & 2 at Bidhannagar	No SPS Available **Action Required**:- SPS needs to be planned	i. 400/220kV 315MVA (3rd) ICT at Bidhannagar	Target Date 2022-23 **WBSETCL may update the present Status**
ICT Constraint in ISTS Network				
3	i. 400/220 kV Ranchi 2 X 315 MVA ICTs	SPS Available	i. 3rd 500 MVA ICT at Ranchi	**POWERGRID may update the target date**
ICT Constraint in DVC Network				
4	i. 400/220 kV Bokaro A 2 X 315 MVA ICTs	No SPS Available **Action Required**:- SPS needs to be planned	i. Upgradation with 500 MVA ICTs	**DVC may update target date**
5	**i.400/220 kV ICT-1 & 2 at DSTPS ***	No SPS Available **Action Required**:- SPS needs to be planned	i. Upgradation with 500 MVA ICTs	**DVC may update target date**
ICT Constraint in Odisha Network				
6	i. 400/220 kV New Duburi 2 X 315 MVA ICTs	No SPS Available **Action Required**:- SPS needs to be planned	i) 3rd ICT at New Duburi	**Odisha may update the target date**

In the 193rd OCC meeting, ERLDC representative submitted that outage of DSTPC ICTs or DSTPS Waria D/C line may create a large scale disturbance.

DVC representative submitted that under long-term measures, programs for augmentation of DSTPS ICT is under progress. Necessary approval from ERPC and CTU has already been taken in this regard.

Moreover, Parulia (PG)-Parulia (DVC) line has already been given to Powergrid for HTLS connectivity. After the HTLS connectivity, possibilities of switching-off of DSTPS ICT may be explored.

Members may update.

Deliberation in the meeting

OCC advised all the utilities to update the status of short term and long term measures, if any, to be taken to make the system N-1 secure to ERPC and ERLDC.

ITEM NO. B.15: Islanding Schemes in Eastern Region.

B15.1. Implementation of Islanding Schemes in Eastern Region

In the meeting held on 28th December 2020 and chaired by the Hon'ble Minister of State (IC) it was directed that islanding schemes should be implemented for all major cities of the country considering all the strategic and essential loads. Subsequently, in line with the direction given in the meeting, the subject matter was discussed in PCC meeting of ERPC and it was finalized that new islanding scheme would be implemented for capital city of Patna & Ranchi.

I. Patna Islanding Scheme:

In the 45th TCC Meeting, following was decided:

a) A Technical Committee comprising of the members from BSPTCL, SLDC Bihar, and participating generator, Powergrid, ERLDC and ERPC may be constituted for finalizing the Islanding Scheme.

b) CESC may also be included in the Committee for any technical expertise.

c) The Committee may consult OEM/Vendor as and when required for any inputs.

d) The Committee may submit its report by 15th May'2022. TCC advised the concerned constituents to give their nominations latest by 31st March'2022.

In this regard, ERPC vide letter no. ERPC/Operation/IS/2022/97 dated 18.04.2022 constituted a Technical Committee based on the nominations received for finalizing Patna Islanding Scheme.

In the 190th OCC meeting, Committee submitted that the first meeting was convened on 19th April 2022 and the second meeting is scheduled to be held by 1st week of May 2022. The report would be submitted by 15th May 2022.

In the 46th TCC & ERPC meetings ERPC Secretariat representative stated that as per the direction of 45th ERPC, technical committees were constituted and the matter was discussed in several meetings of the committee.

The deliberation of the committee in brief is as follows:

Patna Islanding Scheme:

Based on the steady state as well as dynamic study result of Patna Islanding scheme, the scheme is found to be stable for all the extreme scenarios.

The islanding system will be formed with one unit of NPGCL and corresponding loads of Patna city as enumerated in the study report.

Committee recommends for a centralized monitoring unit which would monitor & initiate action to balance load generation of the islanding system.

Also, an islanding study shall be done in detail considering the actual models of the governor & excitor of the unit, various control loops of the plant considering influences from speed and pressure control loop in consultation with OEM.

Preparation of detailed project report may be initiated by Bihar based on the preliminary study report of the committee & the DPR shall include provision of detailed study in it.

After deliberation, TCC opined that for detailed study by OEM, NTPC has to take initiatives & advised NTPC to take up the matter with OEM for carrying out detailed study of the proposed islanding scheme in a time bound manner. NTPC agreed to it.

TCC advised Bihar to initiate the process of DPR preparation & advised all the concerned stakeholders to coordinate for providing relevant inputs for preparation of DPR.

Bihar may update.

Deliberation in the meeting

NTPC representative submitted that they would submit the detailed study report shortly.

II. Ranchi Islanding Scheme:

In the 45th TCC Meeting, following was decided:

a) A Technical Committee comprising of the members from JUSNL, SLDC Jharkhand, and participating generator, Powergrid, ERLDC and ERPC may be constituted for finalizing the Islanding Scheme.

b) CESC may also be included in the Committee for any technical expertise.

c) The Committee may consult OEM/Vendor as and when required for any inputs.

d) The Committee may submit its report by 15th May'2022. TCC advised the concerned constituents to give their nominations latest by 31st March'2022.

In this regard, ERPC vide letter no. ERPC/Operation/IS/2022/97 dated 18.04.2022 constituted a Technical Committee based on the nominations received for finalizing Ranchi Islanding Scheme.

In the 190th OCC meeting, Committee submitted that the first meeting was convened on 19th April 2022 and the second meeting is scheduled to be held by 1st week of May 2022. The report would be submitted by 15th May 2022.

In the 46th TCC & ERPC meetings ERPC Secretariat representative stated that as per the direction of 45th ERPC, technical committees were constituted and the matter was discussed in several meetings of the committee.

The deliberation of the committee in brief is as follows:

Ranchi Islanding Scheme:

Due to proposed upgradation of 220 kV Tenughat-PTPS line at 400 kV level and terminating the line at 400 kV PVUNL S/s for supplying start up power to PVUNL, there will not be connectivity between the participating generator (Tenughat) and Load center of Ranchi.

As the timeline of interim arrangement as well as the final network configuration is not clearly spelt out, members opined that the discussion related to Ranchi Islanding Scheme may be kept in abeyance.

JUSNL representative updated that upgradation & termination work of Tenughat-PTPS is under progress and it is expected that work will be completed by October 2022. He further informed that this interim arrangement has been made in order to provide start up power as well as evacuation path for PUVNL unit which is expected to be commissioned by Feb-24.

Jharkhand may update.

Deliberation in the meeting

Ranchi Islanding Scheme would be discussed after commissioning of PVUNL units.

In addition to above new islanding schemes, the following schemes have already been finalized and under different stage of implementation:

III. Chandrapura Islanding Scheme:

The scheme detail in brief is as follows:

- The CTPS-B islanding scheme is to de designed with two units of CTPS-B (2x250 MW) generating station as participating generator and connected loads at CTPS, Putki, Biada, Nimiaghata & Patherdih. The estimated off-peak and peak load in the proposed islanding system is 280 MW & 420 MW respectively.

- The islanding frequency for CTPS-B islanding system was decided as 48.4 Hz.

In the 190th OCC meeting, DVC representative submitted that 3 bids were received which were opened on 18th April 2022. He further submitted that the technical evaluation is under progress and the commercial evaluation would be completed by the end of April 2022.

In the 192nd OCC meeting, DVC representative submitted that the order would be placed by the end of June 2022.

*I*n the 193rd OCC meeting, DVC representative submitted that the order had been placed to M/s Siemens on 14th July 2022. The expected timeline for completion of work is 9 months due to semi-conductor issues.

DVC may update.

Deliberation in the meeting

OCC advised DVC to submit the details of progress of work to ERPC.

IV. IB-TPS Islanding Scheme:

The scheme was finalized in the special Meeting on Islanding Scheme of IB-TPS held at ERPC, Kolkata on 12th December 2018.

In special meeting held on 06.08.2021, OPGC representative informed that work order had been placed on OEM (M/s BHEL) for implementation of the Islanding scheme at IB TPS units.

OPGC was also advised to take up the issue with their highest authority as well as with the OEM for expediting the implementation of islanding scheme.

In the 190th OCC meeting, OPTCL representative submitted that the installation, commissioning, and testing of DTPC at both Budhipadar and OPGC end was completed.

OPGC representative submitted that end to end signal testing and wiring from switchyard to relay panel had been completed. The testing would be done during shutdown or outage of the units.

In the 192nd OCC meeting, OPTCL representative submitted that the testing would be done during shutdown activity.

In the 193rd OCC meeting, Odisha representative submitted that the testing would be carried out in the 1st week of August 2022.

OPTCL may update.

Deliberation in the meeting

OPTCL representative submitted that the testing would be carried out during the end of August 2022.

ITEM NO. B.16: Reliable Power Supply to Lalmatia/Godda/Dumka areas of JUSNL

B16.1. Restoration of 220kV Farraka-Lalmatia S/C line

The 220 kV Farakka-Lalmatia S/C was out of service since April 2021 due to tower collapse. The 220/132/33 kV Lalmatia substation is relying on only 132 kV lines. At present the local load at 220 kV Dumka and Godda S/S were being radially fed from 400/220 kV Maithon S/S through 220 kV Maithon-Dumka D/C and 220 kV Dumka-Godda D/C.

In 181st OCC Meeting, JUSNL representative submitted that they had got a letter from NTPC on 19th July '21 regarding anti-theft charging of the220kV Farraka-Lalmatia S/C line at 33kV level. Earlier the antitheft charging of the line was done at 11kV level but incidents of thefts have been reported in some portion of the conductor.

Further, Jharkhand representative requested NTPC to submit the details of the 33kV lines passing below 220kV Farakka-Lamatia T/L. He added that as per information obtained from their

JUSNL Discom part, the 33kV lines are mostly connected with 11kV feeders and due to this it would be difficult to charge the Farakka-Lalmatia line at 33kV level in Pakur area.

NTPC representative informed that they had charged the line up to loc no.241 but in between loc no.76-82 only the top conductor was in charged condition and the bottom rest were not; because of this theft might have happened in that portion. He further added that they had already isolated the section from loc no.76-82, whereas up to loc no.76 the line is in charged Condition and from loc no.82-241 the line needs to be charged.

ERPC advised NTPC and Jharkhand to explore the possibility of antitheft charging at 33kV level first and if that is not feasible then charging at 11kV can be assessed.

In the meeting held on 10th August 2021 by the Hon'ble Secretary, Ministry of Power, Government of India, ECL was directed to handover the FLTS assets on "as is where is basis" to JUSNL, the Operation and Maintenance whereof as was with the NTPC is also to be transferred to the JUSNL without any further delay and latest by 20th August 2021. Further JUSNL was directed to comply with all other directions of the CERC's order dated 21.07.2020, after the transfer of the FLTS from ECL.

In the 182nd OCC meeting, JUSNL representative submitted that the tripartite agreement for taking over of FLTS as well as O&M of FLTS is in process and the same would be done after getting the consent from the competent authority by 4th week of August'2021.

In the 191st OCC Meeting, JUSNL representative submitted that the order would be placed by 31st May'2022.

In the 192nd OCC meeting, JUSNL representative submitted that the price part was opened on 17.06.2022 and the price was found to be higher than the estimated cost. Decision is being taken in this regard and the order would be placed within 20 days.

In the 193rd OCC meeting, JUSNL representative submitted that they have requested their Energy Dept. for necessary approval regarding additional budget and any decision regarding the same is still awaited.

OCC referred the issue to the upcoming 46th TCC & ERPC meetings.

In the 46th TCC & ERPC meetings, Jharkhand representative submitted that the tendering work for the rectification of the said line has been completed and they are in process of sanction of fund for placing the order.

Jharkhand may update.

Deliberation in the meeting

JUSNL representative submitted that requisition for sanctioning of funds from Govt. of Jharkhand is in process and is expected to be approved in the first week of September 2022.

ITEM NO. B.17: Replacement/Calibration of Special Energy Meters – NTPC Talcher Odisha.

In the 192nd OCC meeting, NTPC Talcher representative requested Powergrid to provide the calibration certificates of 8 nos. of solar meters issued in the year 2020.

OCC advised Powergrid to take up the matter with NTPC Talcher and issue the calibration certificates at the earliest.

NTPC vide letter dated 13.07.2022 submitted that, as per the regulation, Special Energy Meters that are provided in various feeders for commercial purpose needs to be calibrated once in five years. The Calibration of feeders connected to Eastern region at TSTPS premises has been carried out between 19.09.2013 to 04.10.2013. Previously this was also raised many times in OCC meeting of ERPC. After deliberation in 171st OCC meeting, TSTPS received 8 Nos SEM Meters for Solar plant from PGCIL however the calibration certificate is not yet provided.

As per discussion in 192nd OCC meeting, PGCIL has provided the test certificate of the meters, which may not be accepted as calibration Certificate. Additionally, necessary action may be taken by PGCIL to replace the other (47 Nos) energy meters of TSTPS at the earliest. Requisition of meters from TSTPS is given on 28.05.22 to PGCIL.

In the 193rd OCC meeting, NTPC representative submitted that requisition was given to Powergrid for providing calibration certificates of 8 nos. of solar energy meters. The reports given by Powergrid are factory test reports and have no calibration validity date mentioned in them. Further, these reports are not acceptable under Solar Clean Development Mechanism.

Powergrid representative submitted that as decided in a meeting, since cost for calibration of meters was equivalent to the new meters, it was decided to replace the meters in case of any deviation beyond acceptable limit. Further, new meters are available with factory test reports and not with calibration reports.

OCC was of the view that factory test reports can be considered equivalent to calibration reports and advised NTPC to furnish them under CDM.

NTPC Talcher may update.

Deliberation in the meeting

NTPC Talcher representative submitted that as per CEA guidelines, the energy meters are required to be calibrated in every 5 years. The calibration certificates are also required by the auditors. In this regard, the factory test reports of 8 nos. of solar energy meters would expire in 2023.

Also, requisition for replacement of 47 nos. of energy meters of TSTPS which were last calibrated in 2013, had also been submitted to Powergrid.

Upon enquiring about the healthiness of the 47 nos. of meters, it was informed by ERLDC that the meters are error free and no deviations are being observed as of now.

Powergrid representative agreed to provide the meters and submitted that as per present practice, meters are being replaced in case of problems being encountered with the meters. In order to replace the meters upon expiry of calibration date, availability of sufficient meters has also to be ensured. Powergrid further requested NTPC Talcher to submit the details of 47 nos. of meters which are to be replaced.

ITEM NO. B.18: Updated Operating Procedure of Eastern Region 2022.

As per IEGC 5.1(f) A set of detailed operating procedures for each regional grid shall be developed and maintained by the respective RLDC in consultation with the regional entities for the guidance of the staff of RLDC.

Accordingly, ERLDC has updated the Operating Procedure of the Eastern Region. Draft version of same was circulated with all the utilities of ER vide mail dated 14th July 2022 seeking comments if any by 19th July 2022. The same can also be accessed through the following link

https://app.erldc.in/Content/Upload/System%20Study/Operating%20Procedure/Draft%20ER%20Operating%20Procedure_Jul-2022-R1.pdf

The major changes are detailed below:

Sl No	Changes Made	Reason for Change
1	Short Term Open Access Procedure & Online portal for Short term Open Access Updated	All STOA shifted to NOAR portal wef 1st-May-2022
2	Link of regional weather summary page updated.	Change in website link
3	Cyber Security Chapter added	New Chapter added as per Cyber security requirement in Control centers
4	List of feeders to be disconnected in case of priority-wise ISTS feeders to be disconnected in case of overdrawal and when the frequency is below 49.4 Hz and no UFR relief has been observed is shown in Annexure 2.6	As per the decision taken in 190th OCC meeting
5	List of Hot spare unit of Transformer and hot spare unit of Reactor updated	As per information received from utilities
6	Present operating condition of Angul LILO Bypass Scheme updated	As per operational requirement
7	Closing scheme of Teesta 3-Dikchu circuit during peak hours deleted	Not relevant post-LILO of 400 kV Teesta-III- Kishanganj at Rangpo
8	Standard Operating Procedure for cyclonic event management in the eastern region added	As per CEA report on cyclone resilient Robust electricity transmission and distribution infrastructure in the Coastal areas
9	Annexure updated	As per changes in system where ever applicable

In the 193rd OCC meeting it was decided that final operating procedure shall be published after incorporating all the comments from the utilities up to 194th OCC meeting. However no comment has been received from the utilities except JITPL. The comment of JITPL has been discussed and resolved with JITPL. Accordingly ERLDC is going ahead with the publication of final operating procedure of Eastern Region for the year 2022.

Members may note.

Deliberation in the meeting

Members noted.

ITEM NO. B.19: Demand forecasting by SLDC/RLDC.

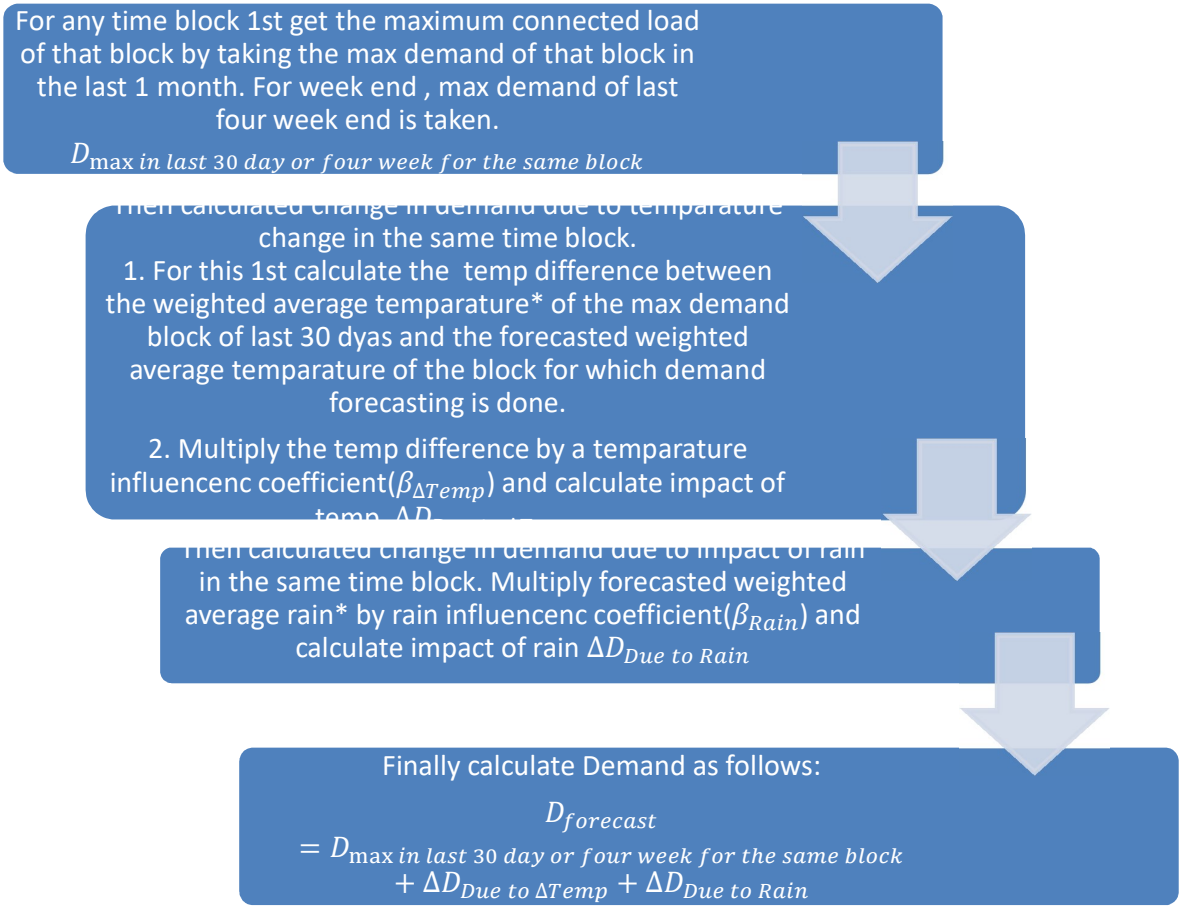
As per IEGC, Each SLDC shall carry out its own demand estimation from the historical data and weather forecast data from time to time. Further in the draft IEGC 2022 it has been mandated to carry out demand forecasting at different time horizon by SLDC/RLDC and compute the forecast error. ERLDC is carrying out week ahead demand forecasting for all the states as well as the region on every Friday for the next Saturday to Friday and the same is being circulated to SLDCs. Further ERLDC is carrying out Day Ahead Demand forecasting.

From 01.09.2022 ERLDC is proposing to carry out Rolling Week Ahead Forecast every day for the next seven days. The forecasts shall be available in ERLDC website in the following link: https://erldc.in/forecasting/ . All the states are also requested to carry out the load forecasting and make the data available to RLDC for better estimation of forecast.

The detail method of forecasting is detailed below:
Load forecasting is an important part of resource adequacy planning for operational planning horizon. Short term Load forecast is an involved task and depends on many factors:

1. Weather condition mainly temperature, rain and humidity
2. Day of the week
3. Special day like
4. Price in the Day ahead and real time market etc.

Determining accurate correlation of electricity demand with different factors as mentioned above is extremely difficult. Human intervention makes it more difficult to predict. However, for operational purpose simplified forecasting methodology is developed by ERLDC and the details of the methodology are as follows:

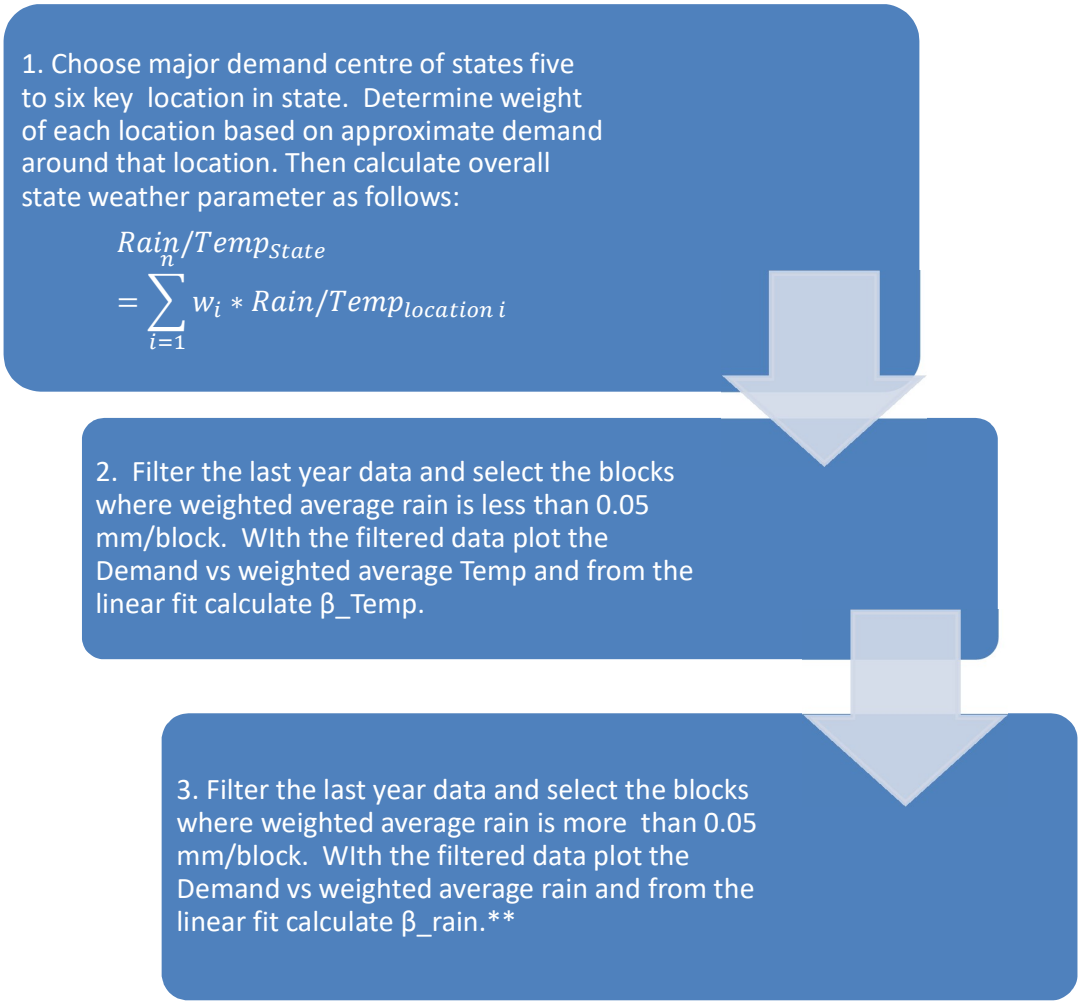


* Weighted average rain/temp calculation are shown in the next section

• **Method for calculating $\beta_{\Delta Temp}$ & β_{rain}**

The influence of Temperature and rain on demand is not completely decoupled. Also, the influence on demand in any block depends on the nature of the demand mix during that block. i.e proportion of residential, commercial, and industrial load. For example, during sudden rain and temperature fall, mainly residential load is reduced whereas the commercial and industrial load are hardly changed. Again, due to sustain rain fall and lowering of temperature along with residential, commercial load also reduce little bit due to lesser energy consumption by the Air conditioning systems. The relationship between the demand and temperature and rain has different nonlinearities and saturating effect as well. However, for simplicity these non-linear relations are divided into piecewise linear relationship. Also, the impact depends on geographical location. Now as we have to calculate the Demand of whole state, therefore multiple location inside state is chosen and based on demand density around that point different weight is decided.

For calculating $\beta_{\Delta Temp}$ & β_{rain} last year same month actual block wise demand, rain fall, and temperature data are taken.



** Saturation boundary and break point between different linear zone are calculate based on visual inspection as these are one time activity during a month.

Members may discuss/note.

Deliberation in the meeting

ERLDC representative gave a brief presentation on demand estimation from the historical data and weather forecast data.

Odisha representative submitted that wind factor may also be taken into account in the above methodology for determining the electricity demand.

SLDC Odisha was advised to submit the load forecasting data considering temperature, rain and wind factor to ERLDC.

Further, all the SLDCs were also advised to carry out the demand forecasting by making use of the above methodology.

ITEM NO. B.20: Additional Agenda-Integration of (Interface Energy Meter) IEMs into SCADA/EMS system for telemetry of meter data to SLDCs.

The existing SEMs are having two communication ports, which can function independently for fetching the SEM data. The optical port is being used for fetching the weekly DSM data through Common Meter Reading Instrument (CMRI), for accounting purpose. The other RS 232 port available remains unused, the online real time data can be fetched from the existing SEM through the unused RS 232 port. This arrangement does not require additional meters or new communication facilities and therefore no additional cost is involved.

Members may discuss.

Deliberation in the meeting

ERPC representative submitted that the above proposal was discussed in the special meeting of NPC held on 24th June 2022 wherein it was discussed that the spare RS 232 or RS-485 ports may be used for fetching the SEM data and extending it to the SCADA terminal of SLDCs. Cyber security compliance has to be ensured while doing so. Also, the SEM data would only be used for operational planning and deviation management in real time scenario and shall not be used in raising any commercial disputes.

As per the minutes of the NPC meeting, the above scheme has to be implemented on pilot basis in each of the regions. The scheme would be implemented in 2 sub-stations in each region, 1 old and 1 new, in the standby meters to ascertain the feasibility of integration with RTUs.

Powergrid representative submitted that stability of meter has to checked in case of simultaneous communication of data from optical port and spare port.

ERLDC representative requested that the meters which are not connected with AMR may be selected for implementation on pilot basis.

OCC advised Powergrid to implement the above scheme on pilot basis in a meter not connected with AMR first and simultaneously study the technicalities of carrying out the scheme in AMR connected meters.

ITEM NO. B.21: Additional Agenda – Errors with Energy meters of 220 KV and 400 KV feeders - Bhutan.

Erratic readings with the energy meters of 220kV Malbase -- Birpara Feeder, 220kV Chhukha -- Birpara Feeder - 1 and 400kV Tala -- Siliguri Feeder -1, which are narrated below:

1. Erratic functioning of SEM of 220kV Malbase-Birpara Feeder No. 3

The Genus make SEM of 220kV Malbase - Birpara feeder is consistently showing error more than the permissible limit since its installation in April 2022. Therefore, energy accounting is being done by considering the energy recorded by check energy meter.

2. Erratic reading of the main energy meter of the 220kV Chhukha - Birpara Feeder No. 2

During the JEMR on 1st August 2022, it was observed that the energy meter of the 220kV Chhukha- Birpara Feeder --2 at Birpara end was showing erratic reading. 'Therefore, the energy

accounting for the month of July 2022 had to be carried out by considering the reading of check energy meter.

3. Erratic reading of the main energy meter of the 400kV Tala - Siliguri Feeder No. 1

During the JEMR on August 01, 2022, the energy meter reading for the main energy meter of 400kV Tala- Siliguri Feeder No. 1 at Siliguri end as provided by Powergrid was observed to be erratic and not correct. Therefore, the energy accounting for the month of July 2022 had to be carried out by considering the reading of check energy meter. The issues with the energy meters as narrated above are provided in detail in the **Annexure B.21**.

Since energy meters are used for billing of energy exported to PTC, and any error or malfunctioning of the energy meters shall create serious issue with the energy billing. Therefore, Powergrid is requested to immediately look into the issue of above energy meters and replace them at the earliest if found defective or malfunctioning with intimation to this office.

Bhutan May update.

Deliberation in the meeting

Bhutan representative briefly explained the issue faced by them.

Powergrid representative informed that they had already communicated with M/s Genus regarding the issue.

OCC advised Powergrid to take up the matter with M/s Genus and rectify the meters at the earliest.

PART C: ITEMS FOR UPDATE

ITEM NO. C.1: ER Grid performance during July 2022

The average and maximum consumption of Eastern Region and Max/Min Demand (MW), Energy Export for the month July-2022 were as follows:

Average Consumption (MU)	Maximum Consumption (MU)/ Date	Maximum Demand (MW) Date/Time	Minimum Demand (MW) Date/Time	Schedule Export (MU)	Actual Export (MU)
550.5	576.9 MU 19-07-2022	26586 MW, 19-07-2022 22:58 Hrs.	19394 MW, 01-07-2022 at 17:39 Hrs.	3139	2921

ERLDC may highlight the performance of the ER grid.

Deliberation in the meeting

The highlight of ER grid performance was given in the 194th OCC meeting.

ITEM NO. C.2: Primary Frequency Response of generating units in ER.

Frequency response characteristics (FRC) have been analysed pan India in the event of sudden frequency change that occurred in the month of Jul 2022. The details of these events and the overall response of the Eastern region have been summarized in Table below.

Event	Frequency Change	ER FRC
Event - 1: Solar generation loss of around 3507 MW at Rajasthan solar generation complex of Northern region happened on dated 09th-july-2022 at 13:42 Hrs. As reported at around 13:42 hrs. due to multiple tripping at 765/400/220kV Bikaner(PG), solar generation drop of around 3507 MW observed in Rajasthan solar generation complex .	**50.09 Hz to 49.692 Hz.**	**24.2 %**

Members may note.

Deliberation in the meeting

Members noted.

ITEM NO. C.3: Review of implementation of PSDF approved projects of ER.

In 10th NPC meeting held on 09.04.2021, RPCs were advised take up the matter for improvement of the fund disbursement and expeditious implementation of the sanctioned projects under PSDF.

In view of the above, status review of the projects being executed under PSDF funding in Eastern Region would be carried out on regular basis for expediting the projects. All the constituents are

requested to furnish/update the status of their respective project in every month.

Concerned utilities may update the present status of the project as given in the **Annexure-C.3**.

193rd OCC advised all the utilities to update the status of project to the ERPC Secretariat.

Respective utilities may update.

Deliberation in the meeting

OCC advised all the utilities to update the status of project to the ERPC Secretariat.

ITEM NO. C.4: Status of implementation of AGC as a pilot project in States.

In 42nd TCC, DVC intimated that AGC shall be implemented in unit 7 and 8 of Mejia as per the given schedule by 31st July 2020.

WBPDCL informed that they have already collected offer from Siemens for implementation of

AGC and they are awaiting the concurrence from SLDC.

SLDC, WB informed that they are not in a position to implement AGC unless a clear direction is given by WBERC. Further, implementation of intra state DSM is a prerequisite for implementation of AGC in the states.

It was decided to request CERC to include this as an issue in the agenda for discussion in the meeting of Forum of Regulators.

OCC advised SLDC Odisha and OPGC to interact with Barh NTPC & ERLDC to get the technical specifications & the procedure for implementation of AGC.

In the 183rd OCC meeting, OPGC representative informed that work order has been issued to M/s Siemens for implementation of AGC. The work would be carried out during the unit shutdown which is scheduled from 18.10.2021.

State	Station/Unit	Deliberation in 184th OCC Meeting
DVC	Mejia unit#7 &8	DVC representative informed that NIT is to be floated.
Odisha	Unit#3 of OPGC	OPGC vide email dated 25th Oct'21 informed that some additional data is needed from SLDC Odisha and after getting the same AGC would be implemented.

In the 185th OCC meeting, DVC representative informed that the NIT for implementation of AGC will be floated by 9th December 2021.

OPGC representative was not present during the discussion.

In the 186th OCC meeting, DVC representative informed that the NIT would be floated by 31st December 2021.

In the 187th OCC meeting, OPGC and DVC representative were not present during the discussion.

In the 188th OCC meeting, DVC representative informed that NIT was floated on 29th December 2021 and the bid opening would be done on 19th February 2022.

OPGC representative was not present during the discussion.

In the 190th OCC meeting, DVC representative submitted that NIT would be re-floated due to some issues in the payment terms.

SLDC Odisha representative submitted that the order has been place to M/s Siemens for AGC implementation and the feasibility test would be conducted on 3rd May 2022.

DVC and Odisha may update.

Deliberation in the meeting

OCC advised the respective utilities to update the status of AGC implementation at the earliest.

ITEM NO. C.5: Primary Frequency Response Testing of ISGS Generating Units

In the 180th OCC meeting, ERLDC representative informed that as per communication received form GMR and JITPL PFR testing has been scheduled by Siemens in August'21.

MPL representative submitted that they would carry out the PFR testing in the month of July'21.

In the 181st OCC meeting, ERLDC representative informed that PFR testing of MPL got postponed due to some technical issue. He further informed that PFR testing is going on in APNRL and that of NPGC and BRBCL is scheduled in the last week of July'21 and 1st week of August'21 respectively.

In the 182nd OCC meeting, ERLDC representative submitted that During July – August 2021, PFR testing has been conducted at the following generating units:

1. Adhunik TPS Unit 1 & 2
2. BRBCL TPS Unit 2 & 3
3. Nabinagar STPS Unit 1
4. Kahalgaon STPS Unit 1

In the 183rd OCC meeting, ERLDC representative updated that PFR testing for Unit# 1 & 2 of GMR had been completed.

In the 185th OCC meeting, ERLDC representative informed that PFR testing of Dikchu is being carried out.

In the 187th OCC Meeting, OCC advised all the members to provide the updated status of PFR testing, if any, to ERPC and ERLDC.

In the 188th OCC meeting, ERLDC representative informed that updated status of PFR testing

was received from MPL.

The updated status is enclosed at **Annexure-C.4**.

Members may update.

Deliberation in the meeting

OCC advised all the members to provide the updated status of PFR testing, if any, to ERPC and ERLDC.

ITEM NO. C.6: Testing of Primary Frequency Response of State Generating units by third party agency.

In the 171st OCC 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-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 +2 X 250 + 2X 500
6	RTPS Unit # 1 & 2	2 X 600

In the 185th OCC meeting, OHPC representative informed that testing of Primary Frequency Response of all the units of Rengali and Indravati will be done by the end of December 2021.

WBPDCL representative informed that they will place the order in the month of December 2021.

In the 186th OCC Meeting, OHPC representative informed that the testing of Primary Frequency Response of all the units of Rengali and Indravati would be done by the 2nd week of January 2022.

DVC representative informed that the bid opening had been done on 22nd December 2021.

In the 187th OCC meeting, OHPC and DVC representatives were not present during the discussion.

In the 188th OCC meeting, It was informed that PFR testing of all the 3 units of Budge-Budge are scheduled from 26th Feb 2022 to 3rd March 2022.

OHPC representative submitted that PFR testing of all the units of Rengali (5 units) and Indravati (4 units) would be carried out by M/s Solvina from 20th March 2022 onwards.

DVC representative informed that the work order for PFR testing has been placed.

Generating units may update.

Deliberation in the meeting

OCC advised all the SLDCs to update the status of PFR testing to ERPC and ERLDC.

ITEM NO. C.7: PSS tuning of Generators in Eastern Region

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.

In the 186th OCC Meeting, Teesta –V representative informed that the PSS tuning would be conducted in the last week of January 2022.

It was informed in the OCC that PSS tuning of Rongnichu and Chuzachen had been completed.

DVC representative informed that PSS tuning of RTPS unit-1 & 2 would be done in the month of March 2022.

BRBCL representative informed that PSS tuning of BRBCL unit-1 has also been completed.

In the 187th OCC meeting, OCC advised ERLDC to send the updated status of PSS tuning to ERPC.

The updated schedule for PSS tuning of the units is attached at **Annexure-C.6**.

Generators may update.

Deliberation in the meeting

OCC advised all the generators to update the status of PSS tuning to ERPC and ERLDC.

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

Members may update the status of UFR healthiness installed in Eastern Region.

Members may update.

Deliberation in the meeting

Members noted.

ITEM NO. C.9: Status of Islanding Schemes healthiness installed in Eastern Region.

As per the decision taken in the meeting held on 8th July 2021 and chaired by member (GO&D), CEA, data in prescribed formats may be submitted by concerned utilities to RPCs on monthly basis to certify the healthiness of the Islanding Schemes.

a. Format - I for RLDC/SLDCs

S.NO	Name of Islanding Scheme	Healthiness of Communication channel

b. Format - II for Generating Station

S.NO	Name of Islanding Scheme	Healthiness of Islanding Relay	Healthiness of Communication channel

c. Format - III for Transmission Utility/DISCOMs

S.NO	Name of Islanding Scheme	Elements considered for tripping to from Island	For communication-based tripping logic Of feeders	For UFR based tripping logic of feeders	
			Healthiness of Communication channel	Healthiness of PT Fuse and status of DC supply to UFR relay*	Healthiness of Relay#

* Where dedicated UFR relay have been installed for tripping of the feeders under Islanding scheme

Where UFR functions have been enabled within backup protection relay of the line.

d. Format - IV for collecting Relay details of the Islanding scheme.

The following format may be used to get Relay details of the Islanding scheme:

S.NO	Description	UFRs-for load relief (A)	df/dt -for load relief (B)	Relay for Island creation(C)
1	Relay location (S/s name)			
2	Relay make & model			
3	Frequency setting of the relay (at which load shedding is envisaged)			
4	Feeder name (voltage level and source-destination name) signaled by the			

	Islanding Relay for separation /load shedding/separation from outside grid			
5	Quantum of load relief due to tripping of feeder (as per state's peak of previous year)			
6	Quantum of load (Min, Avg, Max in MW) on the feeder (as per state's peak of previous year)			

e. Format - V for Contact details of all Nodal Officer

Utility Name &Location	Name	Designation	Organization	Email ID	Mobile No.

It was deliberated in the 186th OCC meeting that except West Bengal all the entities are sending the report as per the new format.

In the 192nd OCC meeting, it was informed that except for West Bengal all entities are sending the report as per the new format.

Members may update.

Deliberation in the meeting

Members noted.

ITEM NO. C.10: Latest Status of States ATC/TTC declared by States for the month of September-2022.

To harmonize the ATC/TTC calculation methodology and timeline One to one meeting and hands on training with each SLDC was conducted in the month of Sep-21 and Oct-21. As per the common agreed procedure and timeline ATC/TTC calculation in three months advance and reconciliation of the TTC/ATC figure for the upcoming month between RLDC and SLDC has started from month Dec-21. Reconciled ATC/TTC figures for **September-2022** are as follows:

Sl No	State/Utility	TTC (MW)		RM(MW)		ATC Import (MW)		Remark
		Import	Export	Import	Export	Import	Export	
1	BSPTCL	7150	--	143	--	7007	--	Sep-22
2	JUSNL	1672	--	56	--	1616	--	Sep-22
3	DVC	1945	3729	66	52	1879	3677	Sep-22

4	OPTCL	3519	1744	135	60	3384	1684	Sep-22
5	WBSETCL	5793	--	450	--	5343	--	Sep-22
6	Sikkim	170	--	2.18	--	167.82	--	May-22

As per the agreed philosophy the status of month wise ATC/TTC submission is as follows:

State / Month	Bihar	Jharkhand	DVC	Odisha	West Bengal	Sikkim
Aug-22	Submitted	Submitted	Submitted	Submitted	Submitted	Pending
Sep-22	Submitted	Submitted	Submitted	Submitted	Submitted	Pending
Oct-22	Submitted	Submitted	Pending	Pending	Submitted	Pending
Nov-22	Submitted	Submitted	Pending	Pending	Submitted	Pending
Dec-22	Pending	Pending	Pending	Pending	Submitted	Pending

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	https://power.sikkim.gov.in/atc-and-ttc	No (Not updating)	Static Link-Excel file

All the states having net export schedule should declare their export TTC. In view of the same West Bengal is once again requested to share export TTC.

It is observed that from Odisha and Sikkim submission of ATC/TTC and base case are not regular. All the states are once again requested to share ATC/TTC in timely manner.

Further it is noted that ATC declared by Bihar SLDC is much lower than the allocation given to them. While schedule as well as actual interchange Odisha violated its ATC in the month of June-2022.

In the 192nd OCC meeting, ERLDC representative submitted that the ATC/TTC figures declared by Bihar was much below their allocation.

All the states having net export schedule should declare their export TTC. In view of the same West Bengal is once again requested to share export TTC.

It is observed that from Odisha and Sikkim submission of ATC/TTC and base case are not regular. All the states are once again requested to share ATC/TTC in timely manner.

Further it is noted that ATC declared by Bihar SLDC is much lower than the allocation given to

them.

Deliberation in the meeting

OCC advised all the States to update the ATC/TTC values in a timely manner.

ITEM NO. C.11: Mock Black start exercises in Eastern Region

Mock black start date for financial year is as follows:

Sl. No	Name of Hydro Station	Schedule of Mock Black Start	Actual Date of Test	Schedule of Mock Black Start	Actual Date of Test
		Test-1		Test-2	
1	U. Kolab	June-2022		Jan-2023	
2	Balimela	July-2022		Feb-2023	
3	Rengali	June-2022	27-June-2022	Jan-2023	
4	Burla	July-2022	23-June-2022	Feb-2023	
5	U. Indravati	May-2022	25-May-2022	Jan-2023	
6	Maithon	June-2022		Feb-2023	
7	TLDP-III	Oct-2022		Jan-2023	
8	TLDP-IV	Oct-2022		Feb-2023	
9	Subarnarekha	Aug-2022		Jan-2023	
10	Teesta-V	Sep-2022		Feb-2023	
11	Chuzachen	Oct-2022		Jan-2023	
12	Teesta-III	April-2022	08-April-2022	Feb-2023	
13	Jorethang	Oct-2022		Jan-2023	
14	Tashiding	Oct-2022		Feb-2023	
15	Dikchu	Oct-2022		Jan-2023	
16	Rongnichu	Oct-2022		Feb-2023	

In the 192nd OCC meeting, SLDC Odisha representative submitted that the mock black start exercise of Burla would be carried out on 23.06.2022. Mock black start of Rengali would be carried out on 1st week of July 2022.

DVC representative submitted that upgradation work is under progress due to issues in the governing system. Detailed timeline would be submitted to ERPC and ERLDC.

Members may update.

Deliberation in the meeting

OCC advised all the utilities to update the status of Mock Black Start exercise, if any, to ERPC and ERLDC.

PART D: OPERATIONAL PLANNING

ITEM NO. D.1: Anticipated power supply position during September 2022

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of September 2022 provided at Annexure D.1 were prepared by ERPC Secretariat on the basis of LGBR for 2022-23 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc.

Members may update.

Deliberation in the meeting

*The updated anticipated power supply position for the month of September is provided at **Annexure D.1**.*

ITEM NO. D.2: Shutdown proposal of generating units for the month of September 2022

Generator unit shutdown schedule for September' 2022 is given in the table:

Proposed Maintenance Schedule of Thermal Generating Units of ER in the month of SEP' 2022

System	Station	Unit No.	Capacity (MW)	Period (as per LGBR 2022-23)		No. of Days	Reason	Remarks
				From	To			
WBPDCL	Sagardighi TPS	1	300	20.09.2022	29.09.2022	10	PG Test	

Additional:

- GMR Kamalanga Energy Limited vide Letter dated 04.04.2022 has intimated that Capital Overhauling of Unit-1 (350 MW) will be conducted from 15.06.2022 to 24.07.2022 (40 Days). However, as per the LGBR 2022-23, the maintenance of said unit is scheduled from 01.11.2022 to 15.12.2022 (45 Days).

- NTPC Talcher vide letter dated 12.08.2022 requested for shutdown of unit-2 from 09.08.2022 to 22.09.2022 (45 days) due to hotspot in GT Bus duct, which is extended for planned overhauling.

Members may update.

Deliberation in the meeting

*The approved maintenance schedule of Thermal Generating Units of ER for the month of Sep 2022 is provided at **Annexure D.2**.*

GMR representative submitted that they are planning to take the shutdown of unit-1 from 15th September 2022.

OCC advised GMR to take the shutdown of unit-1 in the month of November 2022 or December 2022.

DVC representative submitted that they are planning to take the shutdown of DSTPS unit-1 from 25th August 2022.

ERPC representative submitted that as per MoP directive, shutdown of generating units would not be allowed in the month of September 2022. In case of any urgency, respective generators may approach MoP for approval of the same.

ITEM NO. D.3: Major Generating Units/Transmission Element outages/shutdown in ER Grid (as on 15.08.2022)

a) Thermal Generating Stations outage report:

SL No	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	BARAUNI TPS	BIHAR	NTPC	7	110	Excessive chemical deposits on Turbine blades(turbines need to be opened for assessment of the extent of deposits and the repairs required to address the issue of High First Stage pressure in HP Turbine)	19-Feb-2022
2	KOLAGHAT	WEST BENGAL	WBPDCL	6	210	Initially out on Low furnace pressure, now under overhauling from 21/07/2022	05-Jul-2022
3	NABINAGAR(BRBCL)	BIHAR	NTPC	3	250	Annual Overhauling	09-Jul-2022
4	BARAUNI TPS	BIHAR	NTPC	6	110	Initially unit tripped on flame failure but later, problem found in condenser.	14-Jul-2022
5	IB.TPS	ODISHA	OPGC	2	210	Annual Overhauling	15-Jul-2022
6	MEJIA TPS	DVC	DVC	1	210	Initially unit taken out in STATOR EARTH FAULT, later it is in annual overhauling from 28/07/2022	16-Jul-2022
7	STERLITE	ODISHA	SEL	1	600	Capital Overhauling	18-Jul-2022
8	DPL	WEST BENGAL	WBPDCL	7	300	Poor coal stock	02-Aug-2022
9	GMR 3	ODISHA	GMR-KEL	3	350	Poor coal stock	05-Aug-2022
10	BARH	BIHAR	NTPC	1	660	Due to high vibration in Turbine Bearing-11	07-Aug-2022

						and Oil leakages from Bearing-10	
11	TSTPP	ODISHA	NTPC	2	500	Taken out due to generator bus duct hotspot, later shutdown extended for unit overhauling for 45 days.	09-Aug-2022
12	WARIA TPS	DVC	DVC	4	210	Ash pond became full	10-Aug-2022
13	FSTPP	WEST BENGAL	NTPC	3	200	Boiler tube leakage	11-Aug-2022
14	IB.TPS	ODISHA	OPGC	1	210	Maintenance of IPSV(Intermediate pressure stop valve)-1	14-Aug-2022
15	KHSTPP	BIHAR	NTPC	2	210	Annual Overhauling	14-Aug-2022
16	SANTALDIH TPS	WEST BENGAL	WBPDCL	6	250	Annual Overhauling	15-Aug-2022
17	STERLITE	ODISHA	SEL	2	600	Air preheater tripped	15-Aug-2022
18	MEJIA TPS	DVC	DVC	3	210	Stator earth fault	15-Aug-2022

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:

S. NO	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	KHSTPP	BIHAR	NTPC	5	500	Under Reserve Shutdown	15-Aug-2022

b) Hydro Unit Outage Report:

S. NO	STATION	STATE	AGENCY	UNIT NO	CAPACITY (MW)	REASON(S)	OUTAGE DATE
1	RENGALI HPS	ODISHA	OHPC	3	50	Damage of GT	26-Nov-2021
2	BALIMELA HPS	ODISHA	OHPC	3	60	The unit taken out under R & M for 18 months.	08-Jul-2022
3	BALIMELA HPS	ODISHA	OHPC	4	60	The unit taken out under R & M for 18 months.	08-Jul-2022
4	TEESTA STG III HEP	SIKKIM	TUL	6	200	Oil Pressure Unit (OPU) tank's oil temperature high	15-Aug-2022

d) Long outage report of transmission lines (As on 16.08.2022):

Transmission Element / ICT	Outage From	Reasons for Outage
220 KV PANDIABILI - SAMANGARA D/C	03.05.2019	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
220/132 KV 100 MVA ICT 3 AT CHANDIL	30.04.2020	ICT BURST AND DAMAGED AFTER FIRE REPORTED
400KV/220KV 315 MVA ICT 2 AT MEERAMANDALI	21.02.2021	FIRE HAZARD
400KV/220KV 315 MVA ICT 4 AT JEERAT	09.04.2021	VERBALLY CONFIRMED BY WB THAT NEW TRANSFORMER PROCUREMENT UNDER PIPELINE AND SHALL BE REPLACED IN THE NEAR FUTURE.
220KV-FSTPP-LALMATIA	21.04.2021	THREE TOWER COLLAPSED NEAR LALMATIA
400 KV IBEUL JHARSUGUDA D/C	29.04.2018	TOWER COLLAPSE AT LOC 44,45
220/132 KV 100 MVA ICT II AT LALMATIA	22.01.2019	FAILURE OF HV SIDE BREAKER
400KV MAIN BUS - 2 AT DIKCHU	05.05.2021	REPEATED SPURIOUS BUSBAR PROTECTION OPERATION
400KV/220KV 315 MVA ICT 1 AT INDRAVATI (PH)	24.03.2022	CONTROL & RELAY PANEL OF ICT BURNT.
220KV-ALIPURDUAR (PG)-ALIPURDUAR(WB)-1	14.07.2022	S/D TAKEN FOR RELAY TESTING PURPOSES, COULD NOT BE RETURNED DUE TO B-PH CB LOCKOUT
220KV-GAYA(PG)-BODHGAYA-3	31.07.2022	LINE TRIPPED ON DISTANCE PROTECTION
220KV-GAYA(PG)-BODHGAYA-4	01.08.2022	LINE TRIPPED ON DISTANCE PROTECTION

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.

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

Members may update.

Deliberation in the meeting

Members noted.

ITEM NO. D.4: Commissioning of new units and transmission elements in Eastern Grid in the month of July-2022

The details of new units/transmission elements commissioned in the month of July-2022 based on the inputs received from beneficiaries:

GENERATING UNITS							
SL. NO	Location	OWNER/UNIT NAME	Unit No/Source	Capacity added (MW)	Total/Installed Capacity (MW)	DATE	Remarks
NIL							
ICTs/ GTs / STs							
SL. NO	Agency/Owner	SUB-STATION	ICT NO	Voltage Level (kV)	CAPACITY (MVA)	DATE	Remarks
NIL							
TRANSMISSION LINES							
SL. NO	Agency/Owner	LINE NAME		Length (KM)	Conductor Type	DATE	Remarks
1	Bihar	220 kV-Saharsa(PMTL)-Begusarai (BSPTCL) D/C		93.200	ACSR	26-Jul-22	Line first charged at 17:55 Hrs (total length 93.2 km)
LILO/RE-ARRANGEMENT OF TRANSMISSION LINES							
SL. NO	Agency/Owner	Line Name/LILO at		Length (KM)	Conductor Type	DATE	Remarks
NIL							
BUS/LINE REACTORS							
SL. NO	Agency/Owner	Element Name		SUB-STATION	Voltage Level (kV)	DATE	Remarks
NIL							
HVDC /AC Filter bank / FACTS DEVICE associated System							
SL. NO	Agency/Owner	Element Name		SUB-STATION	Voltage Level (kV)	DATE	Remarks
NIL							

Members may update.

Deliberation in the meeting

Members noted.

ITEM NO. D.5: UFR operation during the month of July 2022.

Frequency profile for the month as follows:

Month	Max (Date/Time)	Min (Date/Time)	Less IEGC Band (%)	Within IEGC Band (%)	More IEGC Band (%)
June, 2022	50.3 Hz on 14.07.2022 at 13:14 Hrs.	49.42 Hz on 18.07.2022 at 19:20 Hrs.	7.83	73.45	18.72

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

Members may note.

Deliberation in the meeting

Members noted.

****

Annexure B.21

འབྲུག་སྟར་འབྱུང་གློག་མེ་ལས་འཛིན་ཚད།
Druk Green Power Corporation Limited
(a dhi company)

འབྲུག་སྟར་འབྱུང་གློག་མེ་ལས་འཛིན་ཚད།
DrukGreen

No. DGPC/O&MD/23/2022/546 August 10, 2022

Mr. Partha Ghosh
Chief Manager (AM)
ERTS-II,
POWERGRID India Ltd.
Kolkata

Sub: Errors with Energy Meters of 220kV and 400kV Feeders

Sir,

We have observed the erratic readings with the energy meters of 220kV Malbase – Birpara Feeder, 220kV Chhukha – Birpara Feeder – 1 and 400kV Tala – Siliguri Feeder -1, which are narrated below:

i) Erratic functioning of SEM of 220kV Malbase – Birpara Feeder No. 3

The Genus make SEM of 220kV Malbase - Birpara feeder is consistently showing error more than the permissible limit since its installation in April 2022. Therefore, energy accounting is being done by considering the energy recorded by check energy meter.

ii) Erratic reading of the main energy meter of the 220kV Chhukha – Birpara Feeder No. 2

During the JEMR on 1st August 2022, it was observed that the energy meter of the 220kV Chhukha- Birpara Feeder – 2 at Birpara end was showing erratic reading. Therefore, the energy accounting for the month of July 2022 had to be carried out by considering the reading of check energy meter.

iii) Erratic reading of the main energy meter of the 400kV Tala - Siliguri Feeder No. 1

During the JEMR on August 01, 2022, the energy meter reading for the main energy meter of 400kV Tala – Siliguri Feeder No. 1 at Siliguri end as provided by POWERGRID was observed to be erratic and not correct. Therefore, the energy accounting for the month of July 2022 had to be carried out by considering the reading of check energy meter. The issues with the energy meters as narrated above are provided in detail in the Annexure enclosed.

Since energy meters are used for billing of energy exported to PTC, and any error or malfunctioning of the energy meters shall create serious issue with the energy billing. Therefore, POWERGRID is requested to immediately look into the issue of above energy meters and replace them at the earliest if found defective or malfunctioning with intimation to this office.

Yours faithfully,

(Yeshi Tenzin)
Director, O&MD

Copy to :

1. General Manager, Transmission Department, BPC, Thimphu

Druk Green Power Corporation Limited
Operation and Maintenance Department
CORPORATE OFFICE: Post Box 1351, Thimphu, Bhutan. PABX +975 2 336410/4 Fax +975 2 336417 www.drukgreen.bt

2. HoP, THP, Rinchentshe
3. HoP, CHP, Chhukha
4. Mr. Harish Saran, Executive Director, PTC India Ltd., New Delhi for kind information.
5. Member Secretary, ERPC, 14, Golf Club Road, Tollygunge, Kolkata.

ANNEXURE

Following issues have been observed in the energy meters of 220kV Malbase – Birpara Feeder, 220kV Chhukha – Birpara Feeder – 1 and 400kV Tala – Siliguri Feeder -1

i) Erratic functioning of SEM of 220kV Malbase – Birpara Feeder No. 3

Based on the decision of the 181st OCC Meeting, POWERGRID has sent 2 Nos. Genus make SEM for replacing the old L&T make check energy meters of 220kV Malbase - Birpara and 400kV Malbase – Siliguri feeders.

During consultation with POWERGRID, ERLDC and Genus officials by Sub-station Incharge, Malbase, it was instructed to install the SEM directly as it was already tested and programmed at your end. Accordingly, the energy meter bearing Sl. No. ER-2120-A was installed in the 220kV Malbase-Birpara feeder and the energy meter bearing Sl. No. ER-2121-A was installed in the 400kV Malbase-Siliguri feeder on April 15, 2022.

The percentage error observed between the main and check energy meter of 220kV Malbase – Birpara feeder after the installation of Genus SEM are as below:

April, 2022 – 0.68%
May, 2022 – 6.42%
June, 2022 – 1.06%
July 01-15, 2022 – 15.92%
July, 2022 – 0.81%

The percentage error of the main energy meter was cross examined by comparing the reading of the Malbase and Birpara end and was found to be within permissible limit. The report submitted by Incharge, Malbase Sub-station, BPC is enclosed herewith.

From the error observed in the check energy meter (Genus) of the 220kV Malbase- Birpara feeder, it is concluded that the SEM is functioning erratically. This is also to inform that the SEM of the 400kV Malbase-Siliguri feeder is functioning properly and the error are in permissible limit.

ii) Erratic reading of the main energy meter of the 220kV Chhukha – Birpara Feeder No. 2

During the JEMR on 1st August 2022, it was observed that the energy meter of the 220kV Chhukha- Birpara feeder – 2 at Birpara end had shown erratic reading as below:

Previous month (1.7.2022, 12:30 Hrs BST) reading was 1368310.50 Wh
Reading of this (1.8.2022, 12;30 Hrs BST) reading was 21805.90 Wh

The final reading on August 01, 2022 is lower than the initial reading of July 01, 2022 and is erratic data. It is also to inform that, considering the amount of energy that has been transacted during the month from CHP end and received at Birpara end via check meter, the time for the energy meter counter overflow has not reached. The details of the energy recorded by the main and check energy meters at Chhukha end and by the check energy meters at Birpara end are as below:

Main energy meter at CHP end - 47.114000MU
Check energy meter at CHP end - 47.105508 MU
Check energy meter at Birpara end - 46.333280 MU

For the energy billing purpose for the month of July 2022, the energy readings from the check energy meter has been considered.

From the erratic reading observed in the main energy meter at Birpara end, POWERGRID is kindly requested to replace the energy meter at the earliest so that there are no issues with the energy billing in case the check energy meter too gets non-functional.

This is also to inform you that the erratic functioning of the main energy meters of 220kV Chhukha – Birpara Feeder 1 & 2 occurred previously too during June-July 2021. The same was also discussed during the 181st OCC Meeting held on July 22, 2022 and POWERGRID has agreed to look into the issue and check the energy meter display.

iii) Erratic reading of the main energy meter of the 400kV Tala - Siliguri Feeder No. 1

During the JEMR for the month of July 2022 (August 01, 2022, 12.30 Hrs BST), the energy meter reading for the main energy meter of 400kV Tala – Siliguri Feeder No. 1 at Siliguri end as provided by POWERGRID was observed to be erratic (192.70 kWh). This energy meter reading did not match with the previous reading (1099345.9 Wh) which was last recorded on June 04, 2021. The 400kV Tala-NSLG Feeder-1 was under shutdown since June 4, 2021 due to the damaged Y-phase outdoor cable termination and charged for the first time on June 24, 2022 upon completing the replacement of the Y-phase outdoor termination.

The reading given was verified with the check energy meter's energy and did not matched.

Given below is the energy meter readings of the above said feeder from January, 2021 till July 2022.

Month	Main Energy Meter reading	Check Energy Meter reading	Remarks from JEMR
Jan-21	1055948.5	11.535376	
Feb-21	1062464.5	17.932751	
Mar-21	1064177.8	19.650397	
Apr-21	1073056.7	28.548322	
May-21	1096526.9	52.074062	
Jun-21	1099345.9	54.898176	
Jul-21	1099345.9	54.898176	
Aug-21	1099345.9	54.898176	
Sep-21	1099345.9	54.898176	
Oct-21	1099345.9	54.898176	
Nov-21	1099345.9	54.898176	
Dec-21	1099345.9	54.898176	

Jan-22	1099345.9	54.898176	Line under outage. Creeping of Check meter observed as the reading provided was 54.912762Wh which is not considered.
Feb-22	1099345.9	54.898176	Line under outage. Creeping of Check meter observed as the reading provided was 54.915945Wh which is not considered.
Mar-22	1099345.9	54.898176	Line under outage. Creeping of Check meter observed as the reading provided was 54.915945Wh which is not considered.
Apr-22	1099345.9	54.898176	Line under outage. Creeping of Check meter observed as the reading provided was 54.917144Wh which is not considered.
May-22	1099345.9	54.898176	Line under outage. Creeping of Check meter observed as the reading provided was 54.928101Wh which is not considered.
Jun-22	1099345.9	54.898176	Line under outage. Creeping of Check meter observed as the reading provided was 54.928101Wh which is not considered.
Jul-22	192.7	55.126094	The present Main Energy meter reading is erratic in comparison with the previous reading (1099345.9) and the energy accounted is not matching with the Check meter energy. Therefore, check meter reading will be used for the billing purpose.

% Error of Main & Check Meter for 220kV Birpara Feeder at Malbase Substation

Background

As per the 181st OCC meeting, POWERGRID proposed for replacing the old L&T-make check energy meters with Genus make SEM and accordingly, package of 2Nos of Genus Make SEM was received on 02.04.2022 at Division Office, SMD, Phuentsholing. After consultation with POWERGRID, ERLDC and Genus officials from India, we were instructed to install the SEM directly as it was already tested and programmed at their end.

On 15.04.2022 after seeking the shutdown of 220kV Malbase- Birpara feeder, SEM was installed and installation report was submitted to related stakeholders for information.

On 01.05.2022, JEMR for the month of April, 2022, there was percentage error +0.68% on Main and Check energy meter.

Similarly on 01.06.2022, JEMR for the month of May, 2022, percentage error of -6.42% was indicated which more than permissible limit of ± is 0.6% and we have intimated with related stakeholders vide message no. 97, that the meter will be kept under observation and check the changes during the next JEMR i.e. on 01/07/2022.

As on the JEMR of 01.07.2022, the percentage error was reduced to +1.06% which is drastic improvement of the error but still beyond permissible limit of ± is 0.6% which gives indication that it would improve further. Therefore observation duration was extended till the next JEMR i.e. 01.08.2022 and communicated to the stakeholders vide message no. 98.

However the as stated in the messages, the Main meter energy at Malbase end & Birpara end is also cross examined and found within the permissible limit.

Action Taken/Observations

Aside daily observations, we took JEMR on the mid of the June month i.e. on 15/06/2022 and observed that the percentage error was reduced to -0.96 %(Copy attached).

At the same time, 4 hours Energy data compiled at Malbase end for the above feeder was sent to CHP upon their request for analysis and feedbacks.

Similarly, we have conducted JEMR on a mid-month of July, 2022, i.e. 15/07/2022 and percentage error shoot up to -15.92 %.(Copy attached)

Conclusion/Way Forward

The % error of energy between main meter at Malbase End and Birpara end is also cross examined and found within permissible limit and it is as detailed in the message no. 97 & 98 by which it indicates that the Main meter is functioning normally.

The new Check Meter was installed about two months ago and from the above observations, it is concluded that the SEM is functioning erratically.

It is suggested that, after consensus from the relevant stakeholders, we need to test and calibrate the SEM or replace the SEM; whichever deems necessary at the earliest.

Completed by;

Kelzangla

Substation Head

400kV Malbase Substation

BHUTAN POWER CORPORATION
TRANSMISSION DEPARTMENT
SUBSTATION MAINTENANCE DIVISION, PHUENTSHOLING
400/220/66/11kV MALBASE SUBSTATION

JEMR for the month of April 2022 taken on 01/05/2022 AT 12:30 HOURS (BST)

Sl. No.	Details of Unit / Line / Transformer / Feeder			Energy Meter details						Initial Reading	Final Reading	Difference	MF	Energy in kWh	Net en
	Name	CTR	PTR	Type	Sl. No.	CTR	PTR	Unit	Direction						
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)=(12)-(11)*	*(14)*	*(15)=(13)*(14)*	*(16)=E*
1	400kV Malbase - Tala line	2,000	3,636.36	Main	83779200	1,000	3,636.36	MWh	Export	115.563	115.600	0.0370	2.00	0.07	-151
									Import	767484.981	836377.216	68892.24		137784.47	
		2,000	3,636.36	Main	83779200	2,000	3,636.36	MWh	Export	115.600	116.618	1.02	1.00	1.02	
									Import	836377.216	850011.854	13634.64		13634.64	
		2,000	3,636.36	Check	NP-5100-A	2,000	1	Wh	Net	46474	25623.4	20850.60	7,272.72	151640575.63	151
2	400kV Malbase - Siliguri line	1,000	3,636.36	Main	83779242	1,000	3,636.36	MWh	Export	346690.909	437551.522	90,860.61	1.00	90860.61	95(
									Import	144038.945	144042.464	3.52		3.52	
		2,000	3,636.36	Main	83779242	2,000	3,636.36	MWh	Export	437551.522	441790.690	4239.17	1.00	4239.17	
									Import	144042.464	144043.563	1.10		1.10	
		1,000	3,636.36	Check	NP-5869-A	1	1	Wh	Net	19685.500	94747.100	24938.30	3,636.36	90684636.59	
		2,000	3,636.36	Check	ER-2121-A	1	1	Wh	Export	69.400	650.200	580.80	7,272.72	4223995.78	94
									Import	0.100	0.100	0.00		0.00	
3	400/220/33 kV Autotransformer #1 (400kV Side)	1,000	3,636.36	Main	83779257	1,000	3,636.36	MWh	Export	261359.636	316254.254	54894.618	1,000.00	54894618.00	548
									Import	2245.854	2247.309	1.455		1455.00	
		1,000	3,636.36	Check	NP-5095-A	1	1	Wh	Net	3439.20	18564.10	15124.90	3,636.36	54999581.36	54
4	400/220/33 kV Autotransformer #1 (220kV Side)	800	2,000	Main	38779246	800	2,000	MWh	Export	2229.200	2230.816	1.616	1,000.00	1616.00	54
									Import	254432.352	308923.024	54490.672		54490672.00	
		800	2,000	Check	NP-5098-A	1	1	Wh	Net	17783.00	83619.40	34163.50	1,600.00	54661600.00	54(
5	220kV Malbase - Chhukha line	800	2,000	Main	N-68006829	800	2,000	MWh	Export	9256.00	9256.00	0.00	1,000.00	0.00	-49
									Import	5767917.00	5816956.00	49039.00		49039000.00	
		800	2,000	Check	NP-5096-A	1	1	Wh	Net	1203.40	70475.10	30728.20	1,600.00	49165120.00	-49
6	220kV Malbase - Birpara line	800	2,000	Main	83779204	800	2,000	MWh	Export	592625.00	594600.00	1975.00	1,000.00	1975000.00	-70
									Import	417474.00	426485.00	9011.00		9011000.00	
		800	2,000	Check	NP-5867-A	1	1	Wh	Net	84533.70	84331.70	202.00	1,600.00	323200.00	70
		800	2,000	Check	ER-2120-A	1	1	Wh	Export	0.00	91.30	91.30		146080.00	
									Import	0.00	4316.80	4316.80		6906880.00	
7	220kV Malbase - Samtse line	800	2,000	Main	N-68006841	800	2,000	MWh	Export	812883.61	818878.30	5994.69	1,000.00	5994690.00	59
									Import	369.056	369.072	0.02		16.00	
		800	2,000	Check	NP-5097-A	1	1	Wh	Net	87059.60	90805.70	3746.10	1,600.00	5993760.00	59
8	220kV Malbase - Singhigaon line	800	2,000	Main	83779201	800	2,000	MWh	Export	493379.57	546167.10	52787.53	1,000.00	52787530.00	52
									Import	119.227	119.227	0.00		0.00	
		800	2,000	Check	NP-5099-A	1	1	Wh	Net	78821.20	11919.10	33097.80	1,600.00	52956480.00	52
9	50/63MVA, 220/66 kV Transformer-I (220kV side)	300	2,000	Main	N-83779241	300	2,000	MW	Export	344965.00	361621.00	16656.00	1,000.00	16656000.00	16
		300	2,000	Check	N-83779249	300	2,000	MW	Net	344911.00	361565.00	16654.00	1,000.00	16654000.00	16
10	50/63MVA, 220/66 kV Transformer-II (220kV side)	300	2,000	Main	N-83779260	300	2,000	MWh	Export	346532.00	363296.00	16764.00	1,000.00	16764000.00	16
		300	2,000	Check	N-83779250	300	2,000	MWh	Net	346271.00	363040.00	16769.00	1,000.00	16769000.00	16
11	50/63MVA, 220/66 kV Transformer-III (220kV side)	300	2,000	Main	N-83779221	300	2,000	MWh	Export	367176.00	385229.00	18053.00	1,000.00	18053000.00	18
		300	2,000	Check	N-83779245	300	2,000	MWh	Net	367242.00	385192.00	17950.00	1,000.00	17950000.00	17

Note:

1. The check meter bearing sl.no ER-2120-A, Genus made was installed for 220kV Birapara feeder.
2. The check meter bearing sl.no ER-2121-A, Genus made was installed for 400kV Siliguri feeder.
3. Main meter CTR for 400kV Tala feeder changed in Meter on 27/04/2022, henceforth MF shall be 1.
4. Since there was change in polarity connection, 4.9Wh may be considered as Import instead of Export in final accounting, due to which the % error is as shown above.
5. The check meter bearing sl.no NP-5098-A, for 400/220 ICT (LV) check meter cycle was completed.
6. The check meter bearing sl.no NP-5097-A, for 400kV Siliguri Feeder check meter cycle was completed.
7. The check meter bearing sl.no NP-5099-A, for 220kV Singhigoan Feeder check meter cycle was completed.
8. The check meter bearing sl.no NP-5096-A, for 220kV Chukha Feeder check meter cycle was completed.

Readings jointly recorded by:

01/05/2022

(Representative of TD)
Kelzangla, Head
400kV Malbase Substation

(Representative of THP)
Sushil Adhikari, EE

Date 01.05.2022

Message No. 96

From: 400/220/66/11kV Malbase Substation, Pasakha, Bhutan

To,

The In charge Siliguri C/R, Chukha C/R& Tala C/R, Birpara C/R.

Note:

1. The check meter bearing sl.no ER-2120-A, Genus made was installed for 220kV Birapara feeder.

2. The check meter bearing sl.no ER-2121-A, Genus made was installed for 400kV Siliguri feeder

3. Main meter CTR for 400kV Tala feeder changed in Meter on 27/04/2022, henceforth MF shall be 1.

4. Since there was change in polarity connection, 4.9Wh may be considered as Import instead of Export in final accounting, due to which the % error is as shown above.

BHUTAN POWER CORPORATION
TRANSMISSION DEPARTMENT
SUBSTATION MAINTENANCE DIVISION, PHUENTSHOLING
400/220/66/11kV MALBASE SUBSTATION

JEMR for the month of May 2022 taken on 01/06/2022 AT 12:30 HOURS (BST)

Sl. No.	Details of Unit / Line / Transformer / Feeder			Energy Meter details						Initial Reading	Final Reading	Difference	MF	Energy in kWh	Net energy in kWh
	Name	CTR	PTR	Type	Sl. No.	CTR	PTR	Unit	Direction						
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)=(12)-(11)	(14)	(15)=(13)*(14)	(16)=Export-Import
1	400kV Tala - Malbase Line	2,000	3,636.36	Main	83779200	2,000	3,636.36	MWh	Export	116.618	116.618	0.00	1,000.00	0.00	159711391.00
									Import	850011.854	9723.345	159711.39		159711391.00	
		2,000	3,636.36	Check	NP-5100-A	2,000	1	Wh	Net	25623.4	3635.8	21987.60	7,272.72	159909658.27	159909658.27
2	400 kV Malbase - Siliguri Line	2,000	3,636.36	Main	83779242	2,000	3,636.36	MWh	Export	441790.690	535850.181	94059.49	1.00	94059.49	94059491.00
									Import	144043.563	144043.563	0.00		0.00	
		2,000	3,636.36	Check	ER-2121-A	1	1	Wh	Export	650.200	13541.100	12890.90	7,272.72	93751906.25	93751906.25
									Import	0.100	0.100	0.00		0.00	
3	400/220/33 kV Autotransformer #1 (400kV Side)	1,000	3,636.36	Main	83779257	1,000	3,636.36	MWh	Export	316254.254	334588.690	18334.436	1,000.00	18334436.00	18334436.00
									Import	2247.309	2247.309	0.000		0.00	
		2,000	3,636.36	Main	83779257	1,000	3,636.36	MWh	Export	334588.690	357365.927	22777.237	2,000.00	45554474.00	45554474.00
									Import	2247.309	2247.309	0.000		0.00	
		1,000	3,636.36	Check	NP-5095-A	1	1	Wh	Net	18564.10	23613.20	5049.10	3636.36	18360345.28	18360345.28
		2,000	3,636.36	Check	NP-5095-A	1	1	Wh	Net	23613.20	29889.10	6275.90	7,272.72	45642863.45	45642863.45
4	400/220/33 kV Autotransformer #1 (220kV Side)	800	2,000	Main	38779246	800	2,000	MWh	Export	2230.816	2230.816	0.000	1,000.00	0.00	63504352.00
									Import	308923.024	372427.376	63504.352		63504352.00	
		800	2,000	Check	NP-5098-A	1	1	Wh	Net	83619.40	43817.50	39801.90	1,600.00	63683040.00	63683040.00
5	220kV Malbase - Chhukha line	800	2,000	Main	N-68006829	800	2,000	MWh	Export	9256.00	9258.00	2.00	1,000.00	2000.00	-41194000.00
									Import	5816956.00	5858152.00	41196.00		41196000.00	
		800	2,000	Check	NP-5096-A	1	1	Wh	Net	70475.10	44660.60	25814.50	1,600.00	41303200.00	-41303200.00
6	220kV Malbase - Birpara line	800	2,000	Main	83779204	800	2,000	MWh	Export	594600.00	598286.00	3686.00	1,000.00	3686000.00	-1273000.00
									Import	426485.00	431444.00	4959.00		4959000.00	
		800	2,000	Check	ER-2120-A	1	1	Wh	Export	91.30	2370.50	2279.20	1,600.00	3646720.00	-1354720.00
									Import	4316.80	7442.70	3125.90		5001440.00	
7	220kV Malbase - Samtse line	800	2,000	Main	N-68006841	800	2,000	MWh	Export	818878.30	825130.75	6252.45	1,000.00	6252450.00	6250152.00
									Import	369.072	371.370	2.30		2298.00	
		800	2,000	Check	NP-5097-A	1	1	Wh	Net	90805.70	94710.40	3904.70	1,600.00	6247520.00	6247520.00
8	220kV Malbase - Singhigaon line	800	2,000	Main	83779201	800	2,000	MWh	Export	546167.10	596588.98	50421.88	1,000.00	50421880.00	50421880.00
									Import	119.227	119.227	0.00		0.00	
		800	2,000	Check	NP-5099-A	1	1	Wh	Net	11919.10	43531.40	31612.30	1,600.00	50579680.00	50579680.00
9	50/63MVA, 220/66 kV Transformer-I (220kV side)	300	2,000	Main	N-83779241	300	2,000	MW	Export	361621.00	377599.00	15978.00	1,000.00	15978000.00	15978000.00
		300	2,000	Check	N-83779249	300	2,000	MW	Net	361565.00	377542.00	15977.00	1,000.00	15977000.00	15977000.00
10	50/63MVA, 220/66 kV Transformer-II (220kV side)	300	2,000	Main	N-83779260	300	2,000	MWh	Export	363296.00	379106.00	15810.00	1,000.00	15810000.00	15810000.00
		300	2,000	Check	N-83779250	300	2,000	MWh	Net	363040.00	378855.00	15815.00	1,000.00	15815000.00	15815000.00
11	50/63MVA, 220/66 kV Transformer-III (220kV side)	300	2,000	Main	N-83779221	300	2,000	MWh	Export	385229.00	402173.00	16944.00	1,000.00	16944000.00	16944000.00
		300	2,000	Check	N-83779245	300	2,000	MWh	Net	385192.00	402135.00	16943.00	1,000.00	16943000.00	16943000.00

Note:
1. Main meter CTR for 200MVA ICT changed from 1000 to 2000 on date 9/05/2022.
2. The Main meter bearing sl.no 83779200 , for 400kV Tala Feeder cycle was completed.

01/06/2022

(Representative of TD)
Kelzangla, Head
400kV Malbase Substation

(Representative of THP)
Sushil Adhikari, EE

(Represent
Sonam Yt

Date 01.06.2022

Message No. 97

From: 400/220/66/11kV Malbase Substation, Pasakha, Bhutan

To,

The In charge Siliguri C/R, Chukha C/R& Tala C/R, Birpara C/R.

Note:

1. The Main meter bearing sl.no 83779200, for 400kV Tala Feeder main meter cycle was completed.

2. Main meter bearing Sl.no 83779257, 200MVA ICT CT ratio has been upgraded from 1000 to 2000.

3. The percentage error for the main and check meter of 220kV Birpara feeder at Malbase end was 6.42% and beyond permissible value of ±0.6%, however the main meter reading between Birpara end and Malbase end as follow:

Malbase End: 1.273 MU (main meter reading)

BHUTAN POWER CORPORATION
TRANSMISSION DEPARTMENT
SUBSTATION MAINTENANCE DIVISION, PHUENTSHOLING
400/220/66/11kV MALBASE SUBSTATION

JEMR taken on 15/06/2022 AT 12:30 HOURS (BST) to check the Error of 220kV Birpara Feeder

Sl. No.	Details of Unit / Line / Transformer / Feeder			Energy Meter details						Initial Reading	Final Reading	Difference	MF	Energ
	Name	CTR	PTR	Type	Sl. No.	CTR	PTR	Unit	Direction					
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)=(12)-(11)*	*(14)*	*(15)=(
6	220kV Malbase - Birpara line	800	2,000	Main	83779204	800	2,000	MWh	Export	598286.00	604007.00	5721.00	1,000.00	5721
									Import	431444.00	432608.00	1164.00		1164
		800	2,000	Check	ER-2120-A	1	1	Wh	Export	2370.50	5924.40	3553.90	1,600.00	5686
									Import	7442.70	8175.90	733.20		1173

Note:

(Representative of TD)
Kelzangla, Head
400kV Malbase Substation

(Representative of THP)
Sushil Adhikari, EE

BHUTAN POWER CORPORATION
TRANSMISSION DEPARTMENT
SUBSTATION MAINTENANCE DIVISION, PHUENTSHOLING
400/220/66/11kV MALBASE SUBSTATION

JEMR for the month of June 2022 taken on 01/07/2022 AT 12:30 HOURS (BST)

Sl. No.	Details of Unit / Line / Transformer / Feeder			Energy Meter details						Initial Reading	Final Reading	Difference	MF	Energy in kWh
	Name	CTR	PTR	Type	Sl. No.	CTR	PTR	Unit	Direction					
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)=(12)-(11)	(14)	(15)=(13)*(14)
1	400kV Tala - Malbase Line	2,000	3,636.36	Main	83779200	2,000	3,636.36	MWh	Export	116.618	116.909	0.29	1,000.00	291.00
									Import	9723.345	303703.854	293980.51		293980509.00
		2,000	3,636.36	Check	NP-5100-A	2,000	1	Wh	Net	3635.8	63156.7	40479.00	7,272.72	294392432.88
2	400 kV Malbase - Siliguri Line	2,000	3,636.36	Main	83779242	2,000	3,636.36	MWh	Export	535850.181	807123.636	271273.46	1.00	271273.46
									Import	144043.563	144043.636	0.07		0.07
		2,000	3,636.36	Check	ER-2121-A	1	1	Wh	Export	13541.100	50784.800	37243.70	7,272.72	270863001.86
									Import	0.100	0.100	0.00		0.00
	400/220/33 kV Autotransformer #1 (400kV Side)	2,000	3,636.36	Main	83779257	1,000	3,636.36	MWh	Export	357365.927	367437.527	10071.600	2,000.00	20143200.00
									Import	2247.309	2247.454	0.145		290.00
		2,000	3,636.36	Check	NP-5095-A	1	1	Wh	Net	29889.10	32663.90	2774.80	7,272.72	20180343.46
4	400/220/33 kV Autotransformer #1 (220kV Side)	800	2,000	Main	38779246	800	2,000	MWh	Export	2230.816	2254.784	23.968	1,000.00	23968.00
									Import	372427.376	392516.480	20089.104		20089104.00
		800	2,000	Check	NP-5098-A	1	1	Wh	Net	43817.50	31244.90	12572.60	1,600.00	20116160.00
5	220kV Malbase - Chhukha line	800	2,000	Main	N-68006829	800	2,000	MWh	Export	9258.00	9258.00	0.00	1,000.00	0.00
									Import	5858152.00	5948866.00	90714.00		90714000.00
		800	2,000	Check	NP-5096-A	1	1	Wh	Net	44660.60	87835.50	56825.00	1,600.00	90920000.00
6	220kV Malbase - Birpara line	800	2,000	Main	83779204	800	2,000	MWh	Export	598286.00	609685.00	11399.00	1,000.00	11399000.00
									Import	431444.00	432932.00	1488.00		1488000.00
		800	2,000	Check	ER-2120-A	1	1	Wh	Export	2370.50	9437.10	7066.60	1,600.00	11306560.00
									Import	7442.70	8380.80	938.10		1500960.00
7	220kV Malbase - Samtse line	800	2,000	Main	N-68006841	800	2,000	MWh	Export	825130.75	830145.10	5014.35	1,000.00	5014350.00
									Import	371.370	372.520	1.15		1150.00
		800	2,000	Check	NP-5097-A	1	1	Wh	Net	94710.40	97840.30	3129.90	1,600.00	5007840.00
8	220kV Malbase - Singhigaon line	800	2,000	Main	83779201	800	2,000	MWh	Export	596588.98	644411.01	47822.03	1,000.00	47822030.00
									Import	119.227	119.410	0.18		183.00
		800	2,000	Check	NP-5099-A	1	1	Wh	Net	43531.40	73515.10	29983.70	1,600.00	47973920.00
9	50/63MVA, 220/66 kV Transformer-I (220kV side)	300	2,000	Main	N-83779241	300	2,000	MW	Export	377599.00	392834.00	15235.00	1,000.00	15235000.00
		300	2,000	Check	N-83779249	300	2,000	MW	Net	377542.00	392776.00	15234.00	1,000.00	15234000.00
10	50/63MVA, 220/66 kV Transformer-II (220kV side)	300	2,000	Main	N-83779260	300	2,000	MWh	Export	379106.00	394619.00	15513.00	1,000.00	15513000.00
		300	2,000	Check	N-83779250	300	2,000	MWh	Net	378855.00	394372.00	15517.00	1,000.00	15517000.00
11	50/63MVA, 220/66 kV Transformer-III (220kV side)	300	2,000	Main	N-83779221	300	2,000	MWh	Export	402173.00	418769.00	16596.00	1,000.00	16596000.00
		300	2,000	Check	N-83779245	300	2,000	MWh	Net	402135.00	418730.00	16595.00	1,000.00	16595000.00

Note:
1. The Check meter bearing sl.no NP-5100-A for 4000kV Tala Feeder cycle was completed.
2. The Check meter bearing sl.no NP-5096-A for 220kV Chukha Feeder cycle was completed.

(Representative of TD)
Kelzangla, Head
400kV Malbase Substation

01/07/2022

(Representative of THF)
Sushil Adhikari, EE

Date 01.07.2022

Message No. 98

From: 400/220/66/11kV Malbase Substation, Pasakha, Bhutan

To,

The In charge Siliguri C/R, Chukha C/R& Tala C/R, Birpara C/R.

Note:

1. The Check meter bearing sl.no NP-5100-A for 400kV Tala Feeder cycle was completed.

2. The Check meter bearing Sl.no NP-5096-A for 220 kV Chukha feeder cycle was completed.

3. The percentage error for the main and check meter of 220kV Birpara feeder at Malbase end was 1.06% and beyond permissible value of ±0.6%, however the main meter reading between Birpara end and Malbase end as follow:

Malbase End: 9.911 MU (main meter reading)

Birpara End: 9.96928 MU (main meter reading)

BHUTAN POWER CORPORATION
TRANSMISSION DEPARTMENT
SUBSTATION MAINTENANCE DIVISION, PHUENTSHOLING
400/220/66/11kV MALBASE SUBSTATION

JEMR taken on 15/07/2022 AT 12:30 HOURS (BST) to check the Error of 220kV Birpara Feeder

Sl. No.	Details of Unit / Line / Transformer / Feeder			Energy Meter details						Initial Reading	Final Reading	Difference	MF	Energ
	Name	CTR	PTR	Type	Sl. No.	CTR	PTR	Unit	Direction					
(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)=(12)-(11)*	*(14)*	*(15)=(*
6	220kV Malbase - Birpara line	800	2,000	Main	83779204	800	2,000	MWh	Export	609685	611949.00	2264.00	1,000.00	226
									Import	432932	434941.00	2009.00		200
		800	2,000	Check	ER-2120-A	1	1	Wh	Export	9437.1	10837.40	1400.30	1,600.00	224
									Import	8380.8	9647.10	1266.30		202

Note:

(Representative of TD)
Kelzangla, Head
400kV Malbase Substation

(Representative of THP)
Sushil Adhikari, EE

Annexure-C.3

POWER SYSTEM DEVELOPMENT FUND

Status of the Projects in Eastern Region

Sl No	State	Entity	Name of the scheme	Grant Approved	Grant sanctioned on	1st Installment grant released on	Completion Schedule	Completion schedule w.r.t date of 1st instalment	Grant aviled so far	Under process of release	Total awards amount of placed of till date	Latest status
1	**Bihar**	**BSPTCL**	Renovation and Upgradation of protection system of substations. (18)	64.22	42135	42506	24	43236	56.04		69.195	90% grant availed on award cost.
2			Installation of Capacitor bank in 20 Nos of Grid Sub Station. (74)	18.882	42618	43550	24	44281	16.99		21.55	
			Total	**83.10**					**73.03**		**90.745**	
5	**Jharkhand**	**JUSNL**	Renovation & Upradation of protection system of Jharkhnad. (161)	138.13	15-Nov-17	28-Mar-19	16	28-Jul-20	114.68	1.01	145.674	90% grant availed on award cost. Project closure is expected by Q-2 of 2021-22.
6			Reliable Communication & data acquisition system upto 132kV Substations ER. (177)	22.36	24-May-19		24					Price bid has been opened. Tender on awarding stage.
			Total	**160.49**					**114.68**		**145.674**	
7	**Odisha**	**OPTCL**	Renovation and Upgradation of protection system of substaions. (08)	162.50	11-May-15	22-Mar-16	24	22-Mar-18	46.04		63.31	Project Completed on Dec-20. Request for release of final 10 % fund has been placed.
8			Implementation of OPGW based reliable communication at 132 kv and above substations. (128)	25.61	15-Nov-17	29-Mar-19	36	29-Mar-22	23.04		51.22	90% grant availed on award cost. Work In Progress
9			Installation of 125 MVAR Bus Reactor along with construction of associated by each at 400kV Grid S/S of Mendhasal, Meramundali & New Duburi for VAR control & stabilisation of system voltage. (179)	27.23	27-Jul-18	1-Apr-19	18	1-Oct-20	8.17		24.5	90% grant availed . Rest work in progress
10			Implementation of Automatic Demand Management System (ADMS) in SLDC, Odisha. (196)	2.93	24-May-19	19-Feb-20	10	19-Dec-20	0.29		0.29	10% grant availed
11			Protection Upgradation and installation os Substation Automatic System (SAS) for seven nos of 220/132/33kV Substations (Balasore, Bidanasi, Budhipadar, Katapali, Narendrapur, New-Bolangir & Paradeep). (209)	29.56	24-May-19	13-Feb-20	18	13-Aug-21	8.87		32.85	30% grant availed. Work in Progress.
12		**OHPCL**	Renovation and Upgradation of protection and control system of OHPC. (109)	22.35	22-May-17	25-May-18	24	25-May-20	14.94		21.25	90% grant availed on award cost.
			Total	**270.18**					**101.35**		**193.42**	
14	**West Bengal**	**WBSETCL**	Installation of switchable reactor & shunt capacitor for voltage improvement. (88)	43.37	22-May-17	22-Jun-18	19	22-Jan-20	33.07		40.83	90% grant availed on award cost. Will get completed by Oct'21
15			Renovation & Modernisation of Transmission System. (87)	70.13	22-May-17	25-Jun-18	25	25-Jul-20	63.12		96.44	90% grant availed on award cost. Will get completed by Mar'22
16			Installation of Bus Reactors at different 400kV Substation within the state of West Bengal for reactive power management of the Grid. (210)	71.74	24-May-19	23-Oct-19	19	23-May-21	39.3		45.62	30% grant availed on award cost. 04 Nos. of Reactors will be commissioned by December 2021. LoA of the 5th Reactor is yet to be placed.
17			Project for establishment of reliable communication and data acquisition at different substation at WBSWTCL. (222)	31.19	24-May-19	23-Oct-19	25	23-Nov-21	3.12			The tender has been been cancelled for OPGW. Re-tendering has to be done.
18			Implementation of Integated system for Scheduling, Accounting, Metering and Settlement of Transactions (SAMAST) system in West Bengal. (197)	10.08	43910		12					10% grant not yet requested
19		**WBPDCL**	Renovation and Modernization of 220/ 132 kV STPS switch yard and implementation of Substaion Automation System. (72)	23.48	5-Sep-16	18-May-17	18	18-Nov-18	21.13		32.09	Target date for completion of project is Sept.'21 subject to availability of S/D & Covid scenario. Request for release for final 10% grant has been placed.
21			Renovation and Modernization of switchyard and related protection system of different power stations (BTPS, BKTPS and KTPS) of WBPDCL (155)	45.16	27-Jul-18	27-Mar-19	12	27-Mar-20	34.52		41.68	Target date for completion of project is Oct'21, subject to availability of S/D & Covid scenario. 90% grant availed on award cost.
			Total	**295.15**					**194.26**		**256.661**	

POWER SYSTEM DEVELOPMENT FUND												
Status of the Projects in Eastern Region												
Sl No	**State**	**Entity**	**Name of the scheme**	**Grant Approved**	**Grant sanctioned on**	**1st Installment grant released on**	**Completion Schedule**	**Completion schedule w.r.t date of 1st instalment**	**Grant aviled so far**	**Under process of release**	**Total awards amount of placed of till date**	**Latest status**
22	**DVC**	**DVC**	Renovation and Upgradation of the protection and control system of Ramgarh Sub Station. (81)	25.96	2-Jan-17	31-May-17	24	31-May-19	22.95	2.57	28.603	90% grant availed on award cost.
23			Renovation and Modernization of control and protection system and replecement of equipment at Parulia, Durgapur, Kalyanewari, Giridhi Jamsedpur, Barjora, Burnpur, Dhanbad and Bundwan substation. (106)	140.50	16-May-17	14-Dec-17	24	14-Dec-19	102.43	0.98	127.684	
			Total	**166.46**					**125.38**		**156.287**	
24	**Sikkim**	**ENPD, Sikkim**	Drawing of optical ground wire (OPGW) cables on existing 132kV & 66kV transmission lines and integration of leftover substations with State Load Despatch Centre, Sikkim. (173)	10.00	24-May-19		18		3.00		20	30% grant availed on award cost
				10.00					**3.00**		**20.00**	
26	**ERPC**	**ERPC**	Creation and Maintenance of web based protection database management. (67)	20.00	17-Mar-16	28-Jun-16	18	28-Dec-17	14.83		16.48	Project Completed
27			Study Programme on power trading at NORD POOL Academy for Power System Engineers of Eastern Region. (122)	5.46	27-Jul-18	27-Mar-19	13	27-Apr-20	4.61		5.37	
28			Traning Program for Power system Engineers of various constituents of Eastern Region. (117)	0.61	27-Jul-18	11-Apr-19	24	11-Apr-21	0.54		0.60888	90% grant availed on award cost.
			Total	**26.07**					**19.98**		**22.45888**	
			GrandTotal	**1,011.46**					**631.68**		**885.25**	

Annexure-C.5

Date of PFR testing scheduled /completed for generating stations in ER

Sr. No	Station	Generating Unit	Test schedule	Remarks
1	TALCHER STAGE 2	3	Unit 3 - 5: 23-11-2020 to 28-11-2020	Testing for unit 6 yet to be conducted
2		4		
3		5		
4		6		
5	Farakka	2	01-02-2021 to 10-01-2021	Testing completed
6		3		
7		4		
8		5		
9		6		
10	Kahalgaon	1	August'21	Testing completed for Unit 1
11		5		
12		6		
13		7		
14	Barh	4	18-02-2021 to 21-02-2021	Scheduled
15		5		
16	Teesta V	1	07-01-2021 - 08-01-2021	Testing completed
17	Teesta III	1	30-01-2021 - 10-02-2021	Testing completed
18		2		
19		3		
20		4		
21		5		
22		6		
23	Dikchu	1	Unit#1: 6th & 7th April' 21 Unit#2: 8th & 9th April' 21	Scheduled
24		2		
25	MPL	1	-	Postponed due to some technical issue
26		2		
27	GMR	1	August'21	Testing Completed
28		2		
29		3		
30	JITPL	1	August'21	Scheduled
31		2		
32		3		
33	NPGCL	1	August'21	Testing Completed

34	BRBCL		1st Week of August'21	Testing Completed
35	APNRL	1&2	July'21-August-21	Testing Completed
36	BBGS	1,2&3	26th Feb 22 - 3rd Mar 22	Scheduled

Power Plant	Unit No	PSS tuned (Yes/No)	PSS in Service (Yes/No)	Last PSS Tuning Date	Whether Done in Last 3 Years	Whether Next to be planned	Planned Next PSS Tuning
West Bengal							
Kolaghat-WBPDCL	3	No	Yes	Long Back	No	Yes	To be done within Jan./Feb. 2022 after DAVR replacement.
Bakreshwar-WBPDCL	2	Yes	Yes	2019	Yes	Yes	PSS tuning to be done during Unit O/H in the month of November-December, 2021
Bakreshwar-WBPDCL	4	Yes	Yes	2019	Yes	Yes	BHEL offer received. PSS tuning to be done within Nov. , 2021
Bakreshwar-WBPDCL	5	Yes	Yes	2019	Yes	Yes	BHEL offer received. PSS tuning to be done within Nov. , 2021
PPSP	1	No	Yes	2009	No	Yes	Dec-21
PPSP	2	No	Yes	2009	No	Yes	Dec-21
PPSP	3	No	Yes	2009	No	Yes	Dec-21
PPSP	4	No	Yes	2009	No	Yes	Dec-21
TLDP III	4 x 33			No Detail	No Detail	Yes	To be updated by WBSEDCL
TLDP IV	4 X 44			No Detail	No Detail	Yes	To be updated by WBSEDCL
DVC							
Raghunathpur-DVC	1	No	No		No Detail	Yes	Will be done after AOH
Raghunathpur-DVC	2	No	No		No Detail	Yes	Jun-21
Waria	4	Yes	Yes	2008	No	Yes	Unit Is out of Service
ISGS							
Kahalgaon NTPC	1	Yes	Yes	2017	Yes	Yes	Apr-21
Kahalgaon NTPC	3	Yes	Yes	2016	Yes	Yes	Jul-21
Kahalgaon NTPC	4	Yes	Yes	2015	No	Yes	Mar-21
Kahalgaon NTPC	6	Yes	Yes	2009	No	Yes	Mar-21
Talcher Stage 2	3	Yes	Yes	2016	Yes	Yes	Nov-21
Talcher Stage 2	4	Yes	Yes	No Details	No Details	Yes	Nov-21
Talcher Stage 2	5	Yes	Yes	No Details	No Details	Yes	Nov-21
Talcher Stage 2	6	Yes	Yes	2016	Yes	Yes	Nov-21
Barh NTPC	1						
Barh NTPC	4			2015		Yes	In Next AOH
Barh NTPC	5			During Unit commissioning		Yes	June 2021 (AOH)
Teesta V	1	Yes	Yes	2008	No	Yes	Nov-21
Teesta V	2	Yes	Yes	2008	No	Yes	Nov-21
Teesta V	3	Yes	Yes	2008	No	Yes	Nov-21
BRBCL	2	Yes	Yes	2019	Yes	Yes	Jun-21

BRBCL	3	No	Yes	Vendor to Do	No	Yes	Jun-21
BRBCL	4	No	Yes	Vendor to Do	No	Yes	To be updated
KBUNL	1	Yes	Yes	2014	No	Yes	2021-22
KBUNL	2	Yes	Yes	2014	No	Yes	2021-22
Rangit	3 x 20			Not Available	No	Yes	To be updated by NHPC
IPP							
ADHUNIK	1	Yes	YES	2013	No	Yes	Mar-21
ADHUNIK	2	Yes	YES	2013	No	Yes	Mar-21
JITPL	1	Yes	Yes	2016	Yes	Yes	Jul-21
JITPL	2	Yes	Yes	2016	Yes	Yes	Jul-21
GMR	1	Yes	Yes	2013	No	Yes	Dec-21
GMR	2	Yes	Yes	2013	No	Yes	Dec-21
GMR	3	Yes	Yes	2013	No	Yes	Dec-21
Orissa							
IB TPS	1	Yes	Yes	2011	No	Yes	Mar'2021
IB TPS	2	Yes	Yes	2012	No	Yes	Mar'2021
Upper Indravati	1	Yes	No	2015	No	Yes	To be updated by OHPC
Upper Indravati	2	Yes	No	2015	No	Yes	To be updated by OHPC
Upper Indravati	3	Yes	No	2000	No	Yes	To be updated by OHPC
Upper Indravati	4	Yes	No	2001	No	Yes	To be updated by OHPC
Balimela	1 (60 MW)			No detail		Yes	To be updated by OHPC
Balimela	2 (60 MW)			No detail		Yes	To be updated by OHPC
Balimela	3 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	4 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	5 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	6 (60 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	7 (75 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Balimela	8 (75 MW)	No	No	Not tuned	No	Yes	To be updated by OHPC
Upper Kolab	1	Yes	Yes	2007	No	Yes	To be updated by OHPC
Upper Kolab	2	Yes	Yes	2007	No	Yes	To be updated by OHPC
Upper Kolab	3	Yes	Yes	2007	No	Yes	To be updated by OHPC
Upper Kolab	4	Yes	Yes	2007	No	Yes	To be updated by OHPC
Sterlite	4 X 600			No detail		Yes	To be updated by SLDC
Jharkhand							
Tenughat	1	Yes	Yes	2017	Yes	Yes	Dec-21
Tenughat	2	Yes	Yes	2017	Yes	Yes	Dec-21
Subarnrekha	2 X 65					Yes	To be updated
Bihar							
BTPS	6 (110)					Yes	To be updated by BSPGCL

BTPS	7 (110)					Yes	To be updated by BSPGCL
BTPS	8					Yes	To be updated by BSPGCL
BTPS	9					Yes	To be updated by BSPGCL
Bhutan							
Tala	1	No	Yes			Yes	To be updated by BPC
Tala	2	No	Yes			Yes	To be updated by BPC
Tala	3	No	Yes			Yes	To be updated by BPC
Tala	4	No	Yes			Yes	To be updated by BPC
Tala	5	No	Yes			Yes	To be updated by BPC
Tala	6	No	Yes			Yes	To be updated by BPC
Chukha	1	No	Yes	2005	No	Yes	To be updated by BPC
Chukha	2	No	Yes	2005	No	Yes	To be updated by BPC
Chukha	3	No	Yes	2005	No	Yes	To be updated by BPC
Chukha	4	No	Yes	2005	No	Yes	To be updated by BPC
Mangdechu	1	No	Yes			Yes	Sep-21
Mangdechu	2	No	Yes			Yes	Sep-21

Annexure D.1

Updated Anticipated Peak Demand (in MW) of ER & its constituents for Sep-22

1	**BIHAR**	**Demand (MW)**	**Energy Requirement (MU)**
	NET MAX DEMAND	6850	3717
	NET POWER AVAILABILITY- Own Sources	550	207
	Central Sector+Bi-Lateral	6500	3894
	SURPLUS(+)/DEFICIT(-)	200	384
2	**JHARKHAND**		
	NET MAXIMUM DEMAND	1650	950
	NET POWER AVAILABILITY- Own Source	410	172
	Central Sector+Bi-Lateral+IPP	995	849
	SURPLUS(+)/DEFICIT(-)	-245	71
3	**DVC**		
	NET MAXIMUM DEMAND	3200	1880
	NET POWER AVAILABILITY- Own Source	5240	3203
	Central Sector+MPL	305	357
	Bi- lateral export by DVC	2400	1580
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	-55	100
4	**ODISHA**		
	NET MAXIMUM DEMAND (OWN)	4500	3300
	NET MAXIMUM DEMAND (In Case of CPP Drawal)	5800	2736
	NET POWER AVAILABILITY- Own Source	3800	2501
	Central Sector	2000	1338
	SURPLUS(+)/DEFICIT(-) (OWN)	233	539
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal)	0	1103
5	**WEST BENGAL**		
5.1	**WBSEDCL**		
	NET MAXIMUM DEMAND	7590	4400
	NET MAXIMUM DEMAND (Incl. Sikkim)	7600	4407
	NET POWER AVAILABILITY- Own Source (Incl. DPL)	5172	2629
	Central Sector+Bi-lateral+IPP&CPP+TLDP	2615	1792
	EXPORT (To SIKKIM)	10	7
	SURPLUS(+)/DEFICIT(-) AFTER EXPORT	186	14
5.2	**CESC**		
	NET MAXIMUM DEMAND	1930	1035
	NET POWER AVAILABILITY- Own Source	830	461
	IMPORT FROM HEL	540	361
	TOTAL AVAILABILITY OF CESC	1370	822
	DEFICIT(-) for Import	-560	-213
	WEST BENGAL (WBSEDCL+CESC+IPCL)		
	(excluding DVC's supply to WBSEDCL's command area)		
	NET MAXIMUM DEMAND	9520	5435
	NET POWER AVAILABILITY- Own Source	6002	3090
	CS SHARE+BILATERAL+IPP/CPP+TLDP+HEL	3155	2153
	SURPLUS(+)/DEFICIT(-) BEFORE WBSEDCL'S EXPORT	-363	-192
	SURPLUS(+)/DEFICIT(-) AFTER WBSEDCL'S EXPORT	-373	-199
6	**SIKKIM**		
	NET MAXIMUM DEMAND	104	47
	NET POWER AVAILABILITY- Own Source	8	3
	Central Sector	211	136
	SURPLUS(+)/DEFICIT(-)	115	92
	EASTERN REGION		
	NET MAXIMUM DEMAND	25318	15329
	NET MAXIMUM DEMAND (In Case of CPP Drawal of Odisha)	26592	14765
	BILATERAL EXPORT BY DVC (Incl. Bangladesh)	1998	1580
	EXPORT BY WBSEDCL TO SIKKIM	10	7
	EXPORT TO B'DESH & NEPAL OTHER THAN DVC	642	462
	NET TOTAL POWER AVAILABILITY OF ER	26776	16323
	(INCLUDING CS ALLOCATION +BILATERAL+IPP/CPP+HEL)		
	SURPLUS(+)/DEFICIT(-)	1448	987
	SURPLUS(+)/DEFICIT(-) (In Case, 600 MW CPP Drawal of Odi	174	1551

ANNEXURE D2

Approved Maintenance Schedule of Thermal Generating Units of ER during 2022-23 in the month of September'2022												
System	Station	Unit No.	Capacity(MW)	Period (as per LGBR 2021-22)		No. of Days	Approved Period		No. of Days	Reason	Whether as per LGBR or not	Remarks
				From	To		From	To				
WBPDCL	Sagardighi TPS	1	300	20.09.2022	29.09.2022	10				PG Test	NO	NOT Availing