Agenda

for

163rd OCC Meeting

Date: 15.11.2019
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

Eastern Regional Power Committee

Agenda for 163rd OCC Meeting to be held on 15th November, 2019 at Puri, Odisha

Item no. 1: Confirmation of minutes of 162nd OCC meeting of ERPC held on 22.10.2019

The minutes of 162nd OCC meeting were uploaded in ERPC website and circulated vide letter dated 05.11.2019 to all the constituents.

Members may confirm the minutes.

PART A : ER GRID PERFORMANCE

Item no. A1: ER Grid performance during October, 2019

The average consumption of Eastern Region for October - 2019 was 399 Mu. Eastern Region energy consumption reached a monthly maximum of 437 Mu on 18th October - 2019. Total Export schedule of Eastern region for October - 2019 was 2186.5 Mu, whereas actual export was 2029 Mu.

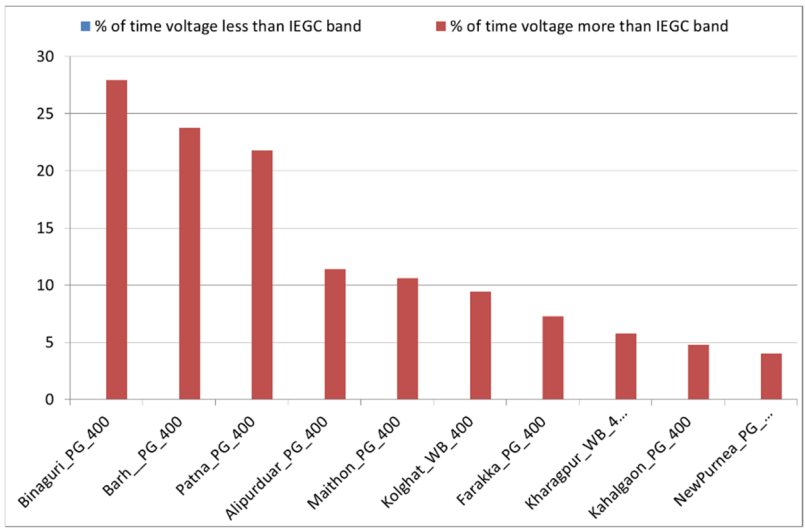
ERLDC may present the performance of Eastern Regional Grid covering the followings:

1. **Frequency profile**
2. **Over drawal/under injection by ER Entities**
3. **Performance of Hydro Power Stations during peak hours**
4. **Performance of ISGS during RRAS**
5. **Reactive Power performance of Generators**
6. **Restricted Governor /Free Governor Mode Operation of generators in ER**
7. **Over Voltage issue in ER substations**

On the onset of winter, reduced demand in Eastern Region resulted reduction in loading of various 400 kV and 765 kV lines. As a result, voltage at various 400 and 765 kV substations has been increased. As per ERLDC SCADA data, overvoltage has been observed in 400 kV buses at Binaguri, Barh, Patna, Alipurduar, Maithon, Kolaghat, Farakka, Kharagpur, Kahalgaon and New Purena for the month of October 2019 as shown below:

As a precautionary measurement, following measures may be taken to deal with high voltage problem.

1. Planned outage of B/R and switchable L/R may be prohibited during high voltage condition.
2. Generating units may be advised to absorb reactive power during high voltage condition as per their reactive power injection/absorb capability limit. As per ERLDC SCADA data, reactive power absorption was not satisfactory for Barh, Kolaghat and Sagardighi.
3. Idle charging of long EHV transmission line may be avoided in high voltage condition.



Member may discuss.

Item no. A2: Oscillation at Mangedchu Power Plant on 15-10-19

On 15th Oct 2019, Low frequency oscillation of 0.016 Hz was observed in the Mangedchu Power plant. The Oscillation (Fluctuation) has started at 13:38 hrs and ended at 15:01 hrs and then again started at 17:12 hrs and ended at 17:45 hrs. The frequency indicates that the oscillation is probably due to Governor issue as such low frequency indicates issue with governing system. The associated PMU and SCADA snapshot is attached.

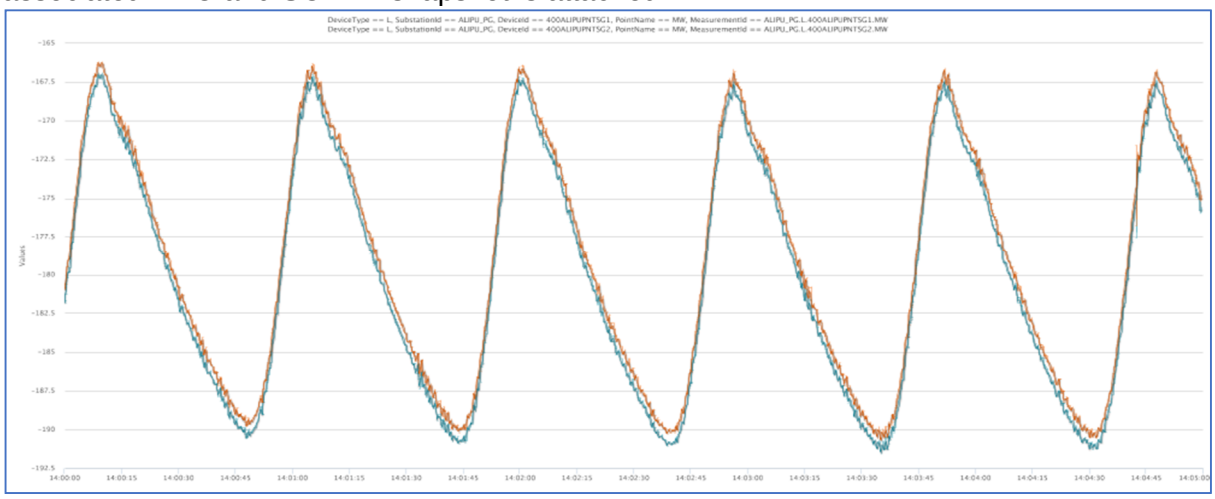


Fig : PMU plot for Active power of 400 kV Alipurdwar-Mangdechu ckts (Puatsangchu ckt) from Alipurdwar end

Bhutan NLDC and Mangdechu Power plant may kindly provide the following details :

1. Reason for severe oscillation observed at the power plant
2. Governor tuning status

Item no. A3: Pan India Oscillation on 28-10-19

A widespread oscillation was observed at 19:52 hrs on 28-10-2019 Pan India. Based on PMU data, Maximum oscillation is observed in near ER-NER boundary (Muzaffarpur, Kisangani, Binaguri, Alipurduar, Rangpo, Teesta 3,Bongaigaon, Agartala, Nehu). Mode of low frequency oscillation was 0.52 Hz and it has low damping in tune of 0.4 % (Snapshot of Oscillation Monitoring engine attached). The source of oscillation could not be identified so far.

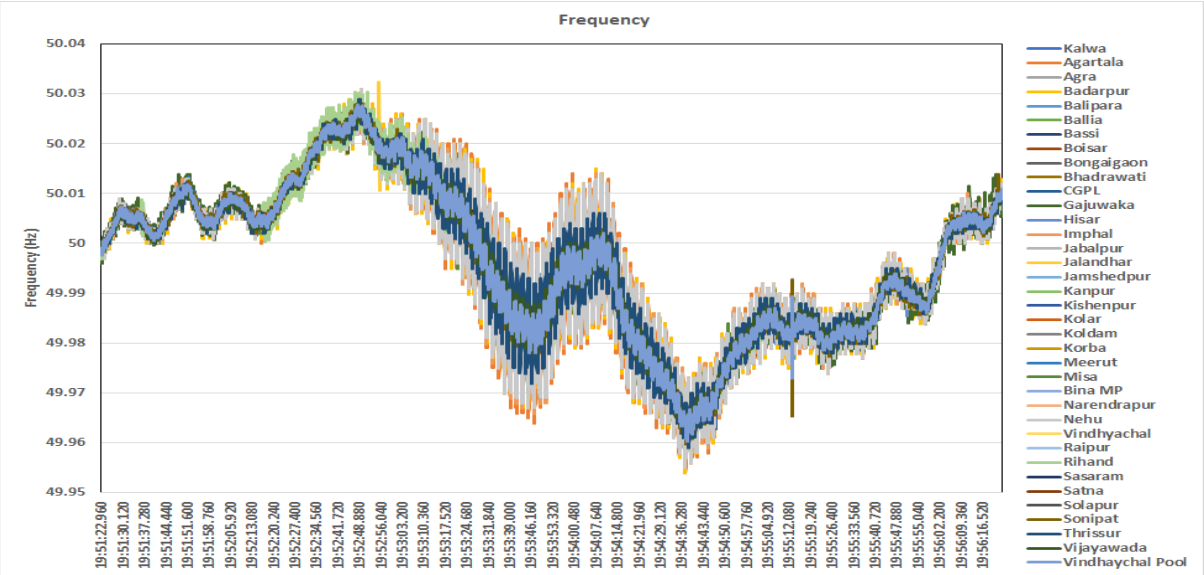


Figure : All India Frequency Data from PMU indicating Pan India Oscillation with high Magnitude at ER-NER boundary buses.

All Generating Power Plant may kindly intimate :

1. Whether any issue observed or any controller mal-function in any of the power plant during the period ?
2. PSS tuning to be taken up by all the power plants (Tuning Plans to be submitted in line with IEGC and CEA/CERC regulation)

PART B: ITEMS FOR DISCUSSION

Item No. B.1: Presentation on latest technology in transmission augmentation by Sterlite Power

Sterlite power vide letter dated 25th October 2019 informed that they had taken up several complex projects of Transmission corridor Upgrading/ Uprating with the latest technology minimizing the impact of "Time, Space & Money" for reputed utilities in India and globally.

They had implemented several challenging uprating and upgrading projects for various utility across the country. They have been in constant touch with Projects, Planning and the O&M team in various utilities for identifying pain areas in transmission line augmentation in and across the country. They discussed at length about the latest technologies in power conductors as well as solutions in the area of uprating and upgradation of lines along with mitigation road map of power congestion challenges.

Sterlite requested for a slot to share their experience in this forum.

Sterlite may give a presentation.

Item No. B.2: Outage of important transmission lines

1. 400 kV Kishenganj-Patna D/C lines:

In 162nd OCC, Powergrid informed that one circuit of 400 kV Kishenganj-Patna D/C line would be restored through ERS by December 2019. Powergrid added that permanent restoration of both the circuits of 400 kV Kishenganj-Patna D/C lines would be completed by March 2020.

MS, ERPC submitted that Powergrid had repeatedly changed their schedule of restoration of the line. He advised Powergrid to give a report on restoration schedule committed till date in chronological order along with the reason for changing the scheduled dates.

He added that a Committee would visit the site once again in 2nd week of November 2019 to assess the situation.

2. 400 kV Purnea-Biharshariff D/c lines:

In 161st OCC, ENCIL informed that they were planning for the permanent restoration of the line using special high-performance conductor (HPC with ACCC conductor) between tower AP46/9A and AP47/1. 400 kV Purnea-Biharshariff D/c would be restored by end of November 2019.

In 162nd OCC, ENICL informed that 400 kV Purnea-Biharshariff D/c would be restored by 30th November 2019.

MS, ERPC submitted that ENICL had repeatedly changed their schedule of restoration of the line. He advised ENICL to give a report on restoration schedule committed till date in chronological order along with the reason for changing the scheduled dates.

He added that a Committee would visit the site once again in 2nd week of November 2019 to assess the situation.

3. 400 kV Barh-Motihari D/C and 400 kV Barh-Gorahkpur D/C lines

In 161st OCC, ERLDC informed that 400 KV Gorakhpur –Motihari(DMTCL) –D/C were out since 13/08/2019 on tower collapse at LOC 27/0 and 400 KV Barh–Motihari(DMTCL) –D/C were out since 04/09/2019 on tower collapse at LOC 26/0.

After detailed deliberation, it was emerged that one circuit of 400 KV Barh–Motihari(DMTCL) –D/C line could be restored as 400 KV Barh–Motihari(DMTCL) line and other circuit could be directly connected to Gorakhpur as 400 KV Barh-Gorakhpur line so that Barh STPS generation could be evacuated safely.

Subsequently it has been reported that on 7th Oct 2019 tower no 25/5 of Motihari-Barh got collapsed due to which temporary restoration of 400kV Barh-Motihari line as planned, now seems in-feasible.

Under the circumstances POWERGRID is requested to furnish a detailed plan for restoration of 400kV Barh – Gorakhpur D/C (by passing the LILO point) on urgent basis to maintain reliability of ER – NR inter regional corridor and safe evacuation of Barh STPS power.

Restoration plan submitted by DMTCL as follows:

Activity	Start Date	End Date	Days
Design for foundation including all studies	Initiated	30-Sep-19	Completed
Vendor for foundation work	Initiated	15-Nov -19	Final Negotiation
Access road preparation# & Mobilization	15-Nov-19	15-Dec-19	
Foundation Work completion (Motihari- Gorakhpur -3 Foundations)	15-Dec-19	30-April -20	120
Tower Erection (3 tower erection)	5-May-20	20-June-20	45
Foundation Work completion (Motihari- Barh – 3 foundations)	25-Jan-20	25-May-20	120
Tower Erection (3 tower erection)	30-May-20	15-July-20	45
Stringing (Motihari- Gorakhpur) 2.8 kms	21-June-20	31-July-20	40
Stringing* (Motihari- Barh) 2.7 kms	16-July-20	25-Aug-20	40

Note:
1. Above Schedule is subject to safe and favorable working conditions especially water depth in river; any changes from the above shall be intimated to ERPC and ERLDC
2. # Access road preparation and readiness is very critical for mobilization of Hydraulic rigs
3. Support from RLDC required for ensuring that the Motihari SS (which is Available) is back charged on periodic basis to ensure that there is no need for refiltration and resulting delays once the lines are ready for commissioning

Members may update.

Item No. B.3: Data for preparation Load Generation Balance Report (LGBR) of ER for the year 2020-21

As per the IEGC, RPC Secretariat is responsible for finalization of the Annual Load Generation Balance Report (LGBR) for Peak as well as Off-peak scenarios and the annual outage plan for the respective region

To facilitate the preparation of LGBR of Eastern Region by ERPC Secretariat within the schedule period, the following data/information for the year **2020-21** in respect of the constituents/utilities of Eastern Region is urgently required:

i) The unit wise and station wise monthly energy generation proposed from existing units during 2020-21 (thermal/hydro/RES).
ii) Annual maintenance programme for each of the generating units (thermal and hydro both).
iii) Generating units under R&M / long outage indicating date of outage and reasons of outage and expected date of return (thermal and hydro both).
iv) Partial and forced outage figures (in %) of generating units for the last 3 years.
v) Month wise peak demand (MW) – restricted and unrestricted peak demand.
vi) Month wise off-peak demand (MW).
vii) Month wise energy requirement (in MU).
viii) Month wise & source wise power (both MU & MW) purchase and/or sale plan.
ix) Schedule of commissioning of new generating units during 2020-21 and unit-wise monthly generation programme (in MU).
x) Allocation of power from new generating units.
xi) Month wise and annual planned outage of transmission system (Transmission lines 220kV and above / ICTs / Reactors/ other elements.

Information may please also be submitted in the form of soft copy through email (mail ID: **mserpc-power@nic.in / erpcjha@yahoo.co.in**).

In 161st OCC, all the utilities were advised to plan the load and generation properly for peak & off-peak of the year 2020-21 and submit the plan to ERPC.

NTPC requested to decide off peak months for better planning of their unit shutdown.

Based on the past few years data demand is less during November to March.

OCC advised NTPC to plan the overhauling of their units accordingly.

Till date, the data had been received from CESC, NHPC, GMR, MPL, OHPC, WBPDCL, Jharakhand, Bhutan Tala, CHPS and KHPS. The data is yet to be received from following constituents:

- *BSPHCL*
- *OPTCL*
- *NTPC: FSTPP, KhSTPS, TSTPS, TTPS, MTPS-II, BRBCL, NSTPS and Darlipalli*
- *APNRL*
- *JITPL*
- *Sikkim*
- *DVC: Details of demand*
- *Mangdichu HPS, Bhutan*

The LGBR Meeting for preparation of draft LGBR for 2020-21 is scheduled to be held at 11:00 hrs on 19th December 2019.

Members may furnish the pending data.

Item No. B.4: Declaration of high demand / low demand season for 2020-21--ERLDC

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"

An exercise has been done for identification of high demand season for Eastern Region for 2016-17, 2017-18, 2018-19 and 2019-20 (as per draft LGBR for 2019-20). The months with the highest net energy met in Eastern Region are as below:

Year	Months with highest net energy met
2016-17	April, July, August
2017-18	September, March, August
2018-19	August, July, June
2019-20 (LGBR)	August, September, July

Based on the detailed analysis, it is observed that net energy met by Eastern Region is high in the months of July, August and September. **Therefore, the months of July, August and September are selected as high demand season for the year of 2020-21 for the Eastern Regional Grid** and same has been posted in ERLDC's website as well as communicated to all SLDCs vide letter no ERLDC/SO/148-Op.Cor./2595-2602 dated 01st October 2019. As no comments have been received from any constituent till date, so July, August and September are selected as high demand season for the year of 2020-21 for Eastern Region.

In 162nd OCC, ERLDC submitted that an exercise has been done for identification of high demand season for Eastern Region for 2016-17, 2017-18, 2018-19 and 2019-20 (as per draft LGBR for 2019-20). Based on the detailed analysis, it is observed that net energy met by Eastern Region is high in the months of July, August and September. Therefore, the months of July, August and September are selected as high demand season for the year of 2020-21 for the Eastern Regional Grid and the same has been posted in ERLDC's website as well as communicated to all SLDCs vide letter no ERLDC/SO/148-Op.Cor./2595-2602 dated 01st October 2019. As no comments have been received from any constituent till date, so July, August and September are selected as high demand season for the year of 2020-21 for Eastern Region.

ERLDC clarified that peak (Max 4 hours) and off-peak hours (rest 20 hours) can be declared 7 days in advance.

ERLDC added that if a generating station's major share allocation is in the other region, that region's demand pattern has to be considered by the station for its availability determination.

MS, ERPC submitted that high demand/low demand seasons are based on Regional demand pattern rather than constituent wise demand pattern. If any constituent has any fruitful suggestions, it can be forwarded to ERLDC by 31st October 2019. But the final decision in this regard will be taken by ERLDC.

Thereafter, ERLDC informed that DVC and West Bengal have communicated their own seasonal demand patterns. However, based on analysis of demand data for last three years, it is observed that Eastern Region as a whole has maximum energy consumption during the period July to September, as already indicated earlier. Therefore **July, August and September** would be considered as the high demand season for the year 2020-21.

Members may confirm.

Item No. B.5: Auxiliary power consumption by Powergrid Substations--GRIDCO

As per decision of Special meeting on this issue held at ERPC on 10.07.2018, drawal of auxiliary power through tertiary winding by Powergrid substations shall be treated as drawal by Powergrid from the DISCOM (s). For this, Powergrid shall approach the concerned DISCOM(s) and shall complete all the necessary formalities to become a consumer of the concerned DISCOM.

Powergrid is not becoming the consumer of DISCOM Utility as a result of which, GRIDCO/DISCOM(s) are unable to realize the revenue from Powergrid , where as GRIDCO is paying for the said quantum of energy consumed by Powergrid since October, 2017.

This issue has already been discussed in the monthly Power System Operational Co- ordination Committee (PSOC) meeting convened by SLDC, Odisha several times. Powergrid did not attend these meetings. DISCOMs stated that that they are not receiving proper response from the Powergrid to regularize the consumer issue.

In 161st OCC, Powergrid informed that Odisha DISCOMs are charging for registration and security fees. Powergrid observed that these fees are not payable by Powergrid as Discoms don't have to construct any infrastructure for this power. In other states, Powergrid had not paid these charges.

GRIDCO informed that DISCOMs were raising the bills as per the OERC regulations.

After detailed deliberation, it was decided that the issue would be discussed with DISCOMs in Odisha in November 2019 OCC meeting wherein the Discoms of Odisha would be invited to attend.

Members may discuss.

Item No. B.6: Facilitating Soot Blowing Operation at TSTPS--NTPC

NTPC informed that Unit#l of TSTPS tripped due to sudden dislodging of ash. As the unit was running at technical minimum because of low SG, soot blowing could not be carried out to dislodge the accumulated ash. It is to be noted that, soot blowing in Stage-1 units are to be done in every shift to control dislodge the accumulated ash due to horizontal design of regenerative heaters. As the units are running at technical minimum load for longer duration, soot blowing could not be carried .but thereby increasing the probability of unit tripping.

A Minimum load of 400MW /unit is required to be maintained during the Operation of wall blowers and long retractable soot blowers to prevent disturbance in the furnace and improve the reliability. Therefore, station requires a schedule of 750MW for Stage-1 Units at least for a period of 6 hours daily to carryout soot-blowing Operation.

Members may discuss.

Item No. B.7: Implementation of Automatic Generation Control in Eastern Region--ERLDC

In compliance to CERC's direction in order dated 06/12/2017 in petition no 79/RC/2017, AGC was commissioned in NTPC Barh on 01st August 2019 and operationalized since 23rd August, 2019.

Vide order dated 28th August 2019, CERC in Petition No.: 319/RC/2018 directed that all the ISGS stations whose tariff is determined or adopted by CERC shall be AGC-enabled and the ancillary services including secondary control through AGC be implemented as per the following direction:

I. All thermal ISGS stations with installed capacity of 200 MW and above and all hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC are directed to install equipment at the unit control rooms for transferring the required data for AGC as per the requirement to be notified by NLDC. NLDC shall notify the said requirements within one month of this order.
II. All such ISGS stations whose tariff is determined or adopted by CERC shall have communication from the nearest wide band node to the RTU in the unit control room.
III. The Central Transmission Utility (CTU) is directed to have communication availability from NLDC/ RLDCs to the nearest wide band node/ switchyard for the generating stations in a redundant and alternate path ensuring route diversity and dual communication.
IV. The NLDC is also directed to commission the required communication infrastructure.
V. The expenditure as a result of compliance of the above directions may be claimed as per relevant regulations or provisions of the PPA.
VI. The NLDC is directed to monitor implementation of the above directions so that all the ISGS stations whose tariff is determined or adopted by CERC are AGC-enabled within six months of this order.
VII. The framework regarding compensation for AGC support and deviation charges as stipulated in the Commission's Order in Petition no. 79/RC/2017 dated 06.12.2017 shall apply to the five pilot projects as also to other ISGS as and when they are AGC enabled. This arrangement shall remain in place till the relevant regulations inter alia on compensation for AGC services are framed by the Commission.
VIII. NLDC/RLDCs are allowed to operate the AGC system for enabling the signals to the power plants at the earliest.
IX. All new thermal ISGS stations with installed capacity of 200 MW and above and hydro stations having capacity exceeding 25 MW excluding the Run-of-River Hydro Projects irrespective of size of the generating station and whose tariff is determined or adopted by CERC shall mandatorily have the capability to provide AGC support.

In 161st OCC, all the ISGS stations were advised to implement the AGC within 6 months as per the above CERC order.

In 162nd OCC, WBPDCL submitted that Bakreswar TPP is planning to implement AGC but there is no clarity on the source from where to receive the AGC control signal (from SLDC/ERLDC). This aspect needed to be clarified first.

In the meeting, it was clarified that AGC signal for intra-state generating stations would be generated by the concerned SLDC and the relevant communication path is to be established between SLDC to plant. For ISGS stations, the AGC signal would be sent from NLDC.

OCC advised SLDC, WB to establish the required hardware for generating AGC signal at SLDC.

DVC submitted the plan for implementation of AGC at Mejia unit#8 as follows:

- *Finalization of technical specification, vendors and estimation: 30th November 2019*
- *NIT 31th January 2020*
- *Order placement 30th March 2020*
- *Commissioning of AGC 31st July 2020*

OPGC and SLDC, Odisha agreed to submit their plan by 1st week of November 2019.

All concerned plants may please ensure taking necessary action for arranging the communication (through redundant and alternate paths) from the existing nearest wideband communication node to their unit control rooms through two fiber optic cables, in coordination with CTU. It may please be noted that all the ISGS stations whose tariff is determined by or adopted by CERC should be AGC-enabled before 28th February 2020, as per order of CERC.

Members may update.

Item No. B.8: Testing and Calibration of Special type Energy Meter--ERLDC

Availability Based Tariff, Interface Meters (Special Energy Meters) have been installed by CTU at the points of interconnection with Inter-State Transmission System (ISTS) for the purpose of energy accounting and billing. As per Central Electricity Authority (CEA) notification no. 502/70/CEA/DP & D dated 17.03.2006, all interface meters shall have to be tested at least once in five years using NABL accredited mobile laboratory or at any accredited laboratory. In this regard Clause 18(1) (b) of CEA (Installation and Operation of Meters) Regulations, 2006 state that:

Quote……

All interface meters shall be tested at least once in five years. These meters shall also be tested whenever the energy and other quantities recorded by the meter are abnormal or inconsistent with electrically adjacent meters. Whenever there is unreasonable difference between the quantity recorded by interface meter and the corresponding value monitored at the billing center via communication network, the communication system and terminal equipment shall be tested and rectified. The meters may be tested using NABL accredited mobile laboratory or at any accredited laboratory and recalibrated if required at manufacturer's works.

……Unquote

Presently, POWERGRID have installed about 1310 nos. of Special Energy meters of 0.2 class accuracy in 765/400/220/132kV substations at about 189nos of locations in Eastern Region covering states of Orissa, West Bengal, Sikkim, Bihar and Jharkhand.

Out of 1310 no of meters installed in ER, around 768 meters (all L&T make) at 157 locations are more than five years old. Moreover Testing and calibration of around 307 Interface meters in ER was last carried out in year 2013 i.e more than 6 years ago. A list of 140 no of meters which are severely drifted in time is already communicated to POWERGRID for replacement and accordingly, replacement work has started. In view of the above, remaining 628 meters may be tested and calibrated as per the provision of aforesaid regulation. Further Time correction of meters of drifted meters may also be done (under testing and calibration).

In 162nd OCC, Powergrid submitted that out of 768 L&T meters, 140 would be removed from service by November 2019. Testing will be done for the remaining meters and the detailed plan for the same including cost of testing would be submitted in the upcoming OCC.

Powergrid clarified that in case of any abnormal results found during the testing, those L&T meters would be replaced by Genus meters and the defective L&T meters would be sent for calibration.

Powergrid may update.

Item No. B.9: Up gradation proposal of CTS Sub-stations (Malda, Dalkhola, Siliguri & Birpara) under ER-II--Powergrid

In all four Substations of CTS, control & protection system was supplied by M/S. UE, which is completely obsolete from market and at present there is no support or spare available for the same make relay. As such it is very much prudent to change the entire control & protection panels to increase the reliability.

All CTS S/S has crossed useful life of 25 Years (All above mentioned S/S are commissioned in the year 1986-87) as per CERC norms. Due to ageing many tit-bit items are replaced time and again but as a considerable time has crossed a major revamp are required, mainly in C&R panels due to age old technology, for all above stations for maintaining reliability in the system. Accordingly a detailed investigation and probabilities are checked by internal teams of POWERGRID involving engineering and other concerned departments.

For Birpara & Siliguri, already 132 KV systems are converted to GIS and no augmentation is required. However for both stations, although outdoor equipment's are changed in different up gradation scheme, original C&R panels are yet to be replaced. For both stations distributed control (Kiosk based control) / De-centralized SCADA envisaged, without changing out door equipment's. Cost involvement for both stations in this method will be approx. 5.0 Crore each.

For Dalkhola, as it is switching station, and existing control room has got enough place for housing new panels, centralised SCADA with only new relay panels are envisaged. However, some old equipment's also required to be replaced like CB, Isolators etc. Cost involvement for Dalkhola up gradation will be approx. 10.5 Crore.

For Malda S/S, 132 KV is already approved for conversion in GIS. However, the existing switching scheme for 400kV & 220kV Switchyards is DMT type and continuously in operations since 1986. Although the present practice is to have one & half CB scheme but due to space constraints, DMT scheme is in place and it is very known factor that maintenance of Pantograph isolators are tedious and also require bus shut down for any maintenance. Again, any bus bar protection operation in DMT will result element outage which may affect reliable operation.

Accordingly there are 03 probable solutions are envisaged for Malda S/S:-

A. Complete conversion of existing 400 KV & 220 KV AIS to GIS with conversion of DMT scheme to 1½ CB (At 400 KV)- Cost involvement will be around 80.0 Crores. This option will enable space for installation of another 400/220 KV ICT & Lines (02 more). Also it will increase reliability as per connectivity.

B. Conversion of 400 KV AIS to GIS with conversion of DMT scheme to 1½ CB & implementing distributed control for 220 KV- Cost involvements will be around 64.0 Crores.

C. Complete conversion of existing 400 KV & 220 KV AIS to Distributed Control AIS system (De-centralised SCADA)- In this method scheme will be remain DMT for 400 KV and only existing C&R panels will be replaced by distributed control (Kiosk method). Cost for this method will be around 19.5 Crores.

As this all four S/S are quite important in terms of Eastern Grid & existing C&R panels and schemes are really old, it require revamp.

Members may please discuss.

Item No. B.10: Issue of trial operation/completion certificate by ERLDC for Alipurduar-Punasangchu OPGW link--Powergrid

The OPGW work in Alipuduar-Punasangchu link (64 Km) alogwith communication equipment was completed for India Portion on 28.03.2019. POWERGRID requested ERLDC to issue Trial Operation Certificate/Completion certificate for India Portion of Alipurduar-Punasangchu link. ERLDC vide their letter dtd 24.09.2019 intimated that the certificate can be issued after transfer of data & voice through this link. But the work is completed by POWERGRID for Indian Portion (with transmission line) and the link could not be established due to pending work in Bhutan side. Accordingly it is requested to issue the trail operation/completion certificate by ERLDC for Alipurduar-Punasangchu link (India Portion).

Members may discuss

Item No. B.11: Non-commissioning of PMUs under URTDSM System--Powergrid

Under URTDSM project, 12 nos. PMUs could not be commissioned due to various reason as mentioned below:

a. Bankruptcy/admin. issue : 2 PMUs (IPPs - Monnet & IndBharat)

b. Non-availability of comn link : 8 PMUs (GMR IPP & JITPL IPP)
: 2 PMUs at Tenughat

c. Substation not ready : 3 PMU at Patratu

In 1st TeST meeting held on 24.10.2019, the issue was discussed and POWERGRID requested for short-closing of the pending erection/commissioning activities of PMU in above sites.

As there is no change in status even after long period of waiting, pending completion of above, POWERGRID may be given go-ahead for submitting tariff petition based on the supply and works carried out in actual for the above-mentioned 12 nos. PMUs at 06 nos. sites.

Members may discuss.

Item No. B.12: Sabotage of towers of 800kV HVDC Biswanath Chariali-Agra Transmission Line in Distt. Kishenganj--Powergrid

In ±800 kV HVDC Biswanath chariali -Agra Transmission line all four Legs and main bracing members of Tower Loc. No. 1619 (A+O), and 1618 (C+O) had been cut by criminals near Village - Ratua, Block- Potia, P.S- Paharkatta , Dist- Kishanganj. These tower locations have become vulnerable and may collapse any time resulting into huge national loss.

For rectification of the said tower, the line need to be shifted first to ERS towers and thereafter after rectification of damaged towers shall be shifted from ERS to normal tower .For carrying out the said job , the complete shutdown of HVDC line will be required as per following:

i) 15 days shutdown will be required for shifting of line from normal tower to ERS in the last of week of November-19 .
ii) 10 days shutdown will be required for shifting the line from ERS to normal tower after rectification of damaged towers in last week of December.

Members may discuss

Item No. B.13: Permission for OPGW laying in TLDP-NJP OPGW link under Fiber Optic Expansion Project (Additional Requirement)--Powergrid

In 27th ERPC meeting, OPGW laying on TLDP-NJP was approved based on advice of NLDC. Accordingly, tendering has been carried out and work order has been placed on party by POWERGRID. Tower schedule of 220KV TLDP-NJP TL has been provided by WBSETCL. However, they are yet to confirm towards the starting of work , permission of laying OPGW on 220KV TLDP-NJP TL & nomination of WBSETCL representative to issue the PTW.

The matter was also discussed in 24th SCADA O&M held on 14.08.2019 wherein WBSETCL intimated that they will look into the matter. But till date no response received from WBSETCL. WBSETCL to extend co-ordination in line with the agreement and approvals in ERPCs.

OCC requested WBSETCL to give permission to work for laying OPGW in 220kV TLDP-NJP line at the earliest.

Members may discuss.

Item No. B.14: Deemed Availability of Transformers/Reactors during changing over of hot spare in place of other unit--Powergrid

In some of the POWERGRID stations, hot spare 1-ph Transformer/Reactor were installed to cater for urgent requirement. In case of problem in any one 1-ph unit of the Transformer/reactor, we can take the hot spare into service and minimize the outage of all 3-ph units. In order keep these hot spare Transformer/Reactor healthy, they must be rotated and taken into service at least once in 4 to 6 months. Accordingly it is proposed for the following general practice of rotation of hot spare:

1. On six monthly basis, spare Transformer/Reactor shall be taken into service and one of the main Transformer/Reactor shall be taken out of service. Thereafter all Transformers/Reactors shall be rotated on six monthly basis.
2. In case of any opportunity/shutdown, spare Transformer/Reactor can be taken into service if such opportunity is available between 4 to 6 months of charging of Transformer/Reactor.

During above rotation/changeover, main Transformer/Reactor is to be taken out of service for 2-4 hrs. As the proposed rotation/changeover of hot spare Transformer/Reactor is for ensuring its healthiness at all times, it is proposed that the outage period of the rotation/changeover of hot spare Transformer/Reactor may be treated as deemed available.

Powergrid may explain.

Item No. B.15: Conversion of Line Reactor as Bus reactor with NGR bypass Scheme - ERLDC

A mail was circulated by ERLDC for collecting the switchability information of the Line reactors and the availability of the required NGR bypass arrangement for converting the line reactor to Bus reactor. So far following response received from the corresponding owner:

1. 400 kV Kishanganj-Darbhanga D/C at Darbhanga end (owned by ATL) – Switchable but no NGR by pass arrangement.
2. 400 kV Barh-Motihari D/C at Barh end (Owned by Barh) – Switchable but no NGR by pass arrangement.

All the other utilities are requested to submit the details at the earliest so that RLDC can do operational planning for better reactive power management.

Also Barh and ATL are request to do necessary by pass arrangement of NGR as early as possible so that during winter season these resources could be used for maintaining better voltage profile in the grid.

Members may discuss.

Item No. B.16: Ratification of Demand and Generation for calculation of POC of Q-4 2019-20--ERLDC

The projected Demand and Generation of ER constituents to be considered in the base case for POC transmission charge and loss calculations for Q4 of FY 2019-20 is given in **Annexure-B16** comments and verification.

Members may confirm.

Item No. B.17: Additional agenda

PART C: ITEMS FOR UPDATE

Item no. C.1: Status of UFRs healthiness installed in Eastern Region

UFR Healthiness Certification for the month of October 2019 has been received from OPTCL, CESC, WBSETCL, DVC, BSPTCL and JUSNL.

Members may note.

UFR Inspection Report of BSPTCL substations on 22.08.2019:

The ERPC UFR inspection group visited 132/33kV Digha, 132/33kV Mithapur and 132/33kV Gaighat substations of BSPTCL for UFR Audit on 22.08.2019. The team physically inspected the feeders which are connected with UFRs at the above sub-stations. The report of the inspection is furnished below:

Sl. No.	Name of the substations	Feeder connected with UFR	Voltage rating	Adopted UFR setting	Tested initiated frequency	UFR make
			(kV)	(Hz)	(Hz)	
1	132/33kV Digha	Pataliputra	33	49.0	49.0	AREVA Micom P127
2		Excise Colony	33	49.2	-	RMS 2H34K2
3		Digha-I	33	48.6	-	RMS 2H34K2
4		Digha-II	33	48.6	-	RMS 2H34K2
5	132/33kV Mithapur	Pesu-IV	33	48.8	48.8	AREVA Micom P142
6		Pesu-V	33	48.8	48.8	AREVA Micom P142
7	132/33kV Gaighat	Saidpur	33	48.6	48.59	SEL-351A
8		City Feeder	33	48.6	48.59	SEL-351A

The above UFR setting were tested with help of Secondary injection Kit owned by BSPTCL. During the inspection, the followings were observed:

Substation	Observation
132/33 kV Digha	For 33 kV Pataliputra feeder, the UFR is provided with direct trip wiring and the relay tripped at desired frequency. **For all other three feeders, The UFR relays were not working as the relays got burned due to some DC fault in substation.**
	33 kV Excise colony feeder consists of emergency loads like supply to Airport & Hospital etc.
132/33 kV Mithapur	The UFRs are provided with direct trip wiring and tripped at desired frequency.
	33 kV Pesu-V feeder was charged on no-load. It was found that the feeder was being used only in case of contingency.
132/33 kV Gaighat	The UFRs are provided with direct trip wiring and tripped at desired frequency

In 161st OCC, Bihar was advised to review the UFR feeders as per the revised system configuration and suggested to shift the UFRs to unimportant radial loads.

Bihar may explain.

Item no. C.2: Status of Islanding Schemes healthiness installed in Eastern Region

At present, the following islanding schemes are in service:

1. CESC as a whole Islanding Scheme, CESC
2. BkTPS Islanding Scheme, WBPDCL
3. Tata Power Islanding Scheme, Haldia
4. Chandrapura TPS Islanding Scheme, DVC
5. Farakka Islanding Scheme, NTPC
6. Bandel Islanding Scheme, WBPDCL

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

The healthiness certificate for Islanding Scheme for October, 2019 has been received from CTPS, DVC,NTPC, West Bengal,JUSNL, WBPDCLand CESC.

Members may note.

Item no. C.3: Healthiness of SPS existing in Eastern Region

The Status of healthiness certificate for October, 2019 is given below:

Sl. No.	Name of the SPS	Healthiness certificate received from	Healthiness certificate not received from
1.	*Talcher HVDC*	*NTPC,GMR,*	*JITPL, Powergrid,*
2.	SPS in CESC system	*CESC*	*Nil*

Members may update.

Item no. C.4: Implementation of Automatic Demand Management Scheme (ADMS)-ERLDC

The latest status along with proposed logic as follows:

Sl No	State/Utility	Logic for ADMS operation	Implementation status/target	Proposed logic (if different from under implementation logic)
1	West Bengal	F <49.7 AND deviation > 12 % or 150 MW	Implemented on 25.11.16	F <49.9 AND deviation > 12 % or 150 MW
2	DVC	F <49.7 AND deviation > 12 % or 150 MW	Implemented on 17.06.2016	
3	Bihar	F <49.7 AND deviation > 12 % or 150 MW	They would place the order to Chemtrol for implementation.	F <49.9 AND deviation > 12 % or 150 MW
4	Jharkhand	1. System Frequency < 49.9 Hz AND deviation > 12 % or 25 MW 2. System Frequency < 49.9 Hz AND deviation > 12 % or 50 MW 3. System Frequency < 49.9 Hz AND deviation > 12 % or 75 MW	In service from 21st August 2019.	Condition 1: Block I feeders will be selected for load shedding Condition 2: Block I & II feeders will be selected for load shedding Condition 3: Block I, II & III feeders will be selected for load shedding

5	Odisha	1. System Frequency < 49.9 Hz 2. Odisha over-drawl > 150 MW 3. DISCOM over-drawl > (40 MW)	10 Months Sent for PSDF approval. It was informed that tender for the work has been floated.	Logic 2 and 3 is AND or OR, in case it is AND then ADMS may not operated when discom are in schedule but GRIDCO is overdrawing due to less generation at state embedded generators
6.	Sikkim			Sikkim informed that they have submitted a proposal to PSDF Committee for installation of OPGW cables which is under approval stage. Sikkim added that ADMS scheme would be implemented after installation of OPGW.

In 142nd OCC, it was opined that uniform logic should be implemented for all the states. OCC decided to review the logic of ADMS after implementation of the scheme by all the states.

In 161st OCC, BSPTCL informed that installation of ADMS had been completed and the testing would be done by 15th November 2019.

Members may update.

Item no. C.5: Review of the PSS Tuning of Generators in Eastern Region --ERLDC

On 31st January 2019, PSS Tuning Meeting was held at ERPC. All generating utilities were advised to complete the PSS tuning of their plant at earliest for improvement of damping in the grid during transients. In addition, the tuning reports have also to be submitted to ERLDC/ERPC for their validation.

In line with this ERLDC has communicated to following utilities in view of the recent oscillation observed during various events:

Generating Power Plant	**Remarks**	**Status of Action Plan to be informed to OCC**
All Units of DVC Generating Plant	Oscillation Observed at DSTPS on 24th April 2019 and other Oscillation events in the past.	DVC gave consilidated plan for its units in 162nd OCC
All Units of OPGC and OHPC, Sterlite	PSS are tuned long back and in many units PSS have not been tuned but are in service.	No Details on PSS tuning Plan shared.
Sikkim Hydro Complex (Teesta3, Teesta 5, Chujachen, Dikchu, Tashiding, Jorethang)	In view of Oscillation during the 16th April 2019 events and changes in Network configuration in Sikkim hydro Complex with augmentation of lines	Teesta3: PSS Tuned on 21-21 Oct 2019. Dikchu: To be done on 22 Oct 2019 after necessary shutdown approval. Jorethang: Jan 2020 Chujachen and Tashiding: Feb 2020 Teesta 3 : March 2020
MPL Plant	Due to Change in Network configuration during to bus splitting at Maithon.	MPL Unit-2: 14th June-2019 in the AOH. MPL Unit-1: Planned in the AOH on Nov-2019.
APNRL Plant	Oscillation with Low Damping during transient and switching observed at the plant.	APNRL will Tune in Nov 2019 as per 162nd OCC
Farakka NTPC Power Plant	With Augmentation of new lines and changes in network configuration	NTPC has not yet submitted the details.

	with upcoming bus split at Kahalgaon.	
NPJC/BRBCL/KBUNL NTPC Power Plant	The new units have been commissioned however there are no details on the PSS tuning activity in line with Indian Electricity Grid Code and CEA Grid Connectivity Standards	BRBCL has submitted PSS tuning details only for Unit 2. For other units' details to be submitted by NTPC.
GMR	Was done in 2013 and retuning is required with change in the network at Angul.	Plan not yet submitted
Sterlite 4 X 600 MW	Due to network changes.	Plan not yet submitted (Orissa SLDC)

Members may update.

Item no. C.6: Transfer capability determination by the states

Latest status of State ATC/TTC declared by states for the month of February-2020

Sl No	State / Utility	TTC import(MW)		RM(MW)		ATC Import (MW)		Remark
		Import	Export	Import	Export	Import	Export	
1	BSPTCL	5300	--	100	--	5200	--	Jan-20
2	JUSNL	1136	--	29	--	1107	--	Feb-20
3	DVC	1446	3358	63	50	1383	3308	Feb-20
4	OPTCL	2606	722	85	60	2521	662	Feb-20
5	WBSETCL	3811	--	400	--	3411	--	Nov-19
6	Sikkim	295	--	2.5	--	292.5	--	Dec-19

As per the "Detailed Procedure for Relieving Congestion in Real Time Operation" Following has also been mandated for monitoring of Congestion in Real Time :

1. As all SLDCs of Eastern region are now declaring ATC/TTC, so, now it would be desirable to have the display for Eastern region where ATC/TTC calculated by states will be monitored in real time with actual drawal. Status of ATC/TTC Weblinks maintained by SLDCs is given below :

SLDC	ATC/TTC Weblink
Orissa	Dynamic Link for each month (Static Location for All months ATC/TTC to be kept for easy access)
Jharkhand	Web Link to be prepared by SLDC
Sikkim	Web Link to be prepared by SLDC

2. Utility wise present status of declaration of assumptions and LGBR used for ATC/TTC calculation and constraints in arriving at the TTC/ATC value based on the available online information are as follows**:**

SLDC	ATC/TTC Review
West Bengal	Constraints and Load/gen Assumption needs to be mentioned
Bihar	Constraints and Load/gen Assumption needs to be mentioned
Sikkim	Constraints and Load/gen Assumption needs to be mentioned

In 162nd OCC, OCC advised all the SLDCs to provide/display the ATC/TTC figures in their respective websites along with the actual flows in their websites import / export in real time. The assumptions for TTC/ATC calculations and limiting constraint details should also be made available.

West Bengal and Bihar informed that they are placing the details of constraints and load/gen assumption details for recent months.

ERLDC may explain. Members may update.

Item no. C.7: Mock Black start exercises in Eastern Region – ERLDC

Mock black start date for financial year 2019-20 is as follows:

Sl no	Name of Hydro Station	Schedule	Tentative Date	Schedule	Tentative Date
		Test-I		Test-II	
1	U.Kolab	Last week of May, 2019	Done on 19th July 2019	Last Week of January 2020	
2	Maithon	1st week of June 2019	Taken up only after replacing the governing systems of the units	1st Week of February 2020	
3	Rengali	2nd week of June 2019	Done on 27th June 2019	Last week of November 2020	
4	U. Indarvati	3rd week ofJune 2019	Done on 7th November 2019	2nd week of February 2020	
5	Subarnarekha	1st week of October 2019	Done 20th August 2019	1st week of January 2020	
6	Balimela	3rd week of October 2019	Done on 17th July 2019	1st week of March 2020	*Dec 2019*
7	Teesta-V	2nd week of May 2019	During winter	Last week of February 2020	
8	Chuzachen	Last Week of Dec 2019		Last week of February 2020	
9	Burla	Last Week of June 2019	Done on 20th July 2019	Last week of February 2020	December 2019
10	TLDP-III	1st Week of June 2019	November-19	2nd Week of January 2020	
11	TLDP-IV	Last Week of June 2019	December-19	1st Week of February 2020	
12	Teesta-III	Last Week of Oct 2019		First Week of March 2020	
13	Jorthang	First Week of May 2019		First Week of Feb 2020	
14	Tasheding	2nd Week of May 2019		2nd Week of Feb 2020	
15	Dikchu	Sep 2019		3rd Week of Feb 2020	

Members may update.

Item no. C.8: Mock Blackstart and controlled separation exercise at Teesta III--ERLDC

As per IEGC each blackstart capable power plant needs to demonstrate its blackstart capability twice every year. Further as per the schedule the mock black start of Teesta-III is scheduled in the end of October 2019. Thus to carryout mock black start exercise with radial load of Bihar at Kishanganj and nearby substations a two steps procedure is proposed.

Step-1:- Controlled separation of one running unit at Teesta-III with loads at Kishanganj (Bihar) for formation of Island

A controlled island will be formed in first step by taking some local load at 220 kV Kishanganj (Bihar), this requires bus split arrangement at Teesta-III, 400 kV/220 kV Kishanganj (PG) and 220 kV Kishanganj(Bihar). Once island is formed, system is expected to run in islanded mode for 15-20 minutes. After Tessta-III unit will be switched off resulting in collapse of island.

Step-2:- Blackstart of one unit at Teesta-III and extension of power to Kishanganj
Then after tripping the machine blackstart needs to be initiated from DG set and after successful synchronisation of one of the unit power will be extended to the loads of already created island, the island may be operated with the loads for 15-20mins, before synchronising with grid at 400 kV Kishanganj(PG)

Teesta III is a pelton turbine so it may operate on any load. However, Minimum requirement of 20 MW has been known by telephonic conversation with station personnel.

In 162nd OCC, ERLDC informed that it is a preliminary scheme, the detailed scheme would be prepared and it will be circulated to concerned utilities. The scheme would be finalized after receiving the suggestions from concerned utilities.

Members may discuss.

Item no. C.9: Summary of Status Update on Previous agenda items in OCC

OCC	Agenda	Decision	Status Update
152	**Item No. B3: Installation of PMUs for observation of the dynamic performance of STATCOMs**	Powergrid informed that M/s GE had agreed to supply and install of 4 no's PMUs for 4 STATCOMs in the Eastern Region within the quantity variation clause under the existing URTDSM Project.	In 159th OCC Meeting Powergrid informed that the work would be completed by 15th August 2019. Powergrid informed that material supplied at Ranchi and Kishanganj were damaged. New material would be supplied by November 2019. **Powergrid May update**
155	**C.22: Collection of modeling data from Renewable as well as conventional energy generators: ERLDC**	OCC advised all the constituents to submit the details of renewable power plants of 5 MW and above.	157th OCC advised all the SLDCs to submit the details to ERPC and ERLDC. Format along with an explanation for collection of Wind and Solar Data has been shared by ERLDC to all SLDC. **Bihar/ West Bengal and Orissa are having Solar Plant with more than 5**

			MW capacity. However, details have not yet been received in terms of modeling data.
156	**Low frequency Oscillation at MTDC BNC-ALP-Agra**	OCC Advised ERTS-2 to submit the analysis report to ERLDC/ERPC	159th OCC Powergrid informed that the issue was referred to ABB, Sweden. The report is yet to be received from ABB. **PGCIL may update on Report submission to OCC.**
156	**Item no. C.20: Updated Black Start and Restoration procedure of State--ERLDC**	Bihar, Jharkhand, DVC, West Bengal and Orissa have submitted the updated restoration procedure.	Restoration procedure form Sikkim is yet to be received. Mail has been given by ERLDC to SLDC for early submission.
156	**Item No. B.12: Status of Auto-Reclosure on Lines from Tala and Chukha Hydro Power Plant (Bhutan)**	DGPC informed that an Expert Committee was constituted to enable the autorecloser for transmission lines connected to Tala and Chuka hydro stations. The Committee had recommended for implementation of the autorecloser at Tala and Chuka. DGPC added that they are planning to implement the autorecloser scheme for the transmission lines connected at Chuka by May 2019. Based on the experience gained, they would implement the autorecloser scheme for the transmission lines connected at Tala.	In 159th OCC meeting DGPC informed that they are implementing autorecloser at Tala also. The A/R is implemented at Binaguri end and there have been various cases where successful A/R has occurred at Binaguri but due to no A/R attempt Tala has a blackout in June 2019. In addition, in month of Aug also many times 400 kV lines successfully reclosed from Binaguri end. The experience on 220 kV Chukha-Birpara in the form of successful A/R has been observed on 25th June 2019. DGPC has informed that after the deliberation in their group, they would be implementing the A/R at Tala by the end on August 2019. **DGPC may kindly appraise the status of A/R on lines from Tala and Malbase.**
160 OCC	**Bypassing arrangement of LILO of 400kV Lines at Angul**	Powergrid informed that bypass arrangement would be completed by end of August 2019.	Powergrid informed that the bypassing arrangement would be completed by

		OPTCL informed that 2nd circuit of 400kV Meramundali-Mendhasal line would be commissioned by end of August 2019.	**November 2019.**

Members may update.

Item no. C.10: Transmission Constraint in the 220 kV System in Eastern Region—ERLDC

Constituents	**Constraint list**	**Issues based on ATC/TTC case submission by States**	**Action Plan by Utilities/ SLDC**
West Bengal, DVC	220 kV Waria-Bidhan Nagar D/C	N-1 Contingency	
CESC, PGCIL	220 kV Shubhasgram-EMSS D/C	N-1 Contingency	
WBSETCL, PGCIL	220 kV Newtown-Rajarhat D/C	N-1 Contingency	
WBSETCL	220 kV Howrah-New-Chanditala D/C	N-1 Contingency	
DVC, PGCIL	220 kV Durgapur (PG)-Parulia D/C	N-1 Contingency	
Jharkhand, PGCIL	220 kV Hatia-Ranchi D/C	N-1 Contingency	
Bihar	220 kV Mujaffarpur-Hazipur D/C	N-1 Contingency	A New 400/220/132 kV sub-station at Chhapra(2x500+2x200 MVA) has been proposed to meet the nearby growing power demand. The 220 kV connectivity of the proposed GSS as follow:- • Chapra(new)-Amnour DCDS • Chhapra(new)-Goplaganj DCDS
Bihar	220 kV Hazipur-Amnour D/C	N-1 Contingency	
Bihar, PGCIL	220 kV Patna-Sipara T/C	N-1 Contingency	Two nos. of 400/220/132 kv Jakkanpur GSS and Naubarpur GSS are proposed in nearby area which is already approved in 13th Plan
Bihar, PGCIL	220 kV Khagaul-Sipara S/C	Overlaod of 220 kV Khagaul-Sipara	Already resolved by addition of 02 mor lines i.e. 220 kV Khagaul-Patna(PG) D/C (Ckt 2 &3)
Bihar	220 kV Bodhgaya-Gaya D/C	N-1 Contingency	A new 400/220/132 kV sub-station at Chandauti has been

			proposed with connectivity at 220 kV by LILO of both circuits of Gaya(PG)-Sonenagar(new)

OCC advised all the utilities to share their short term and long term action plans to remove the constraint to ERLDC. However till date action plan from none of the constituent is received.

Input received from BSPTCL vide letter dated 06-November-2019 are as shown above. All proposed action plans are long term in nature. Further the time line for the implementation of action plan is missing.

DVC, JUSNL, WBSETCL and CESC may update.

Item no. C.11: Monitoring of Next Six-Month New Element Integration in OCC and Its Update on Monthly Basis --ERLDC

It has been observed that many elements are getting interconnected into the system and beforehand details are not available with the system operator resulting in difficulty in carrying our operational planning activity. In view of this, as a regular agenda all ISTS and ISGS/IPP to update the OCC regarding any new elements at 220 kV and above which will be integrated in next six month with the grid. For State Grid, SLDC will be submitting the details on behalf of its intrastate Generation and transmission system. The format is given below:

Transmission Elements	Agency/ Owner	Scheme (ERSS/ TBCB/ Standing Committee/State	Schedule Completion	Projected Month for Completion	Issue Being Faced

In previous several OCC, Transmission licensees and SLDCs are requested to submit RLDC/RPC following details on monthly basis

- List of transmission element /generators of State and ISTS licensees synchronised in the last month.
- List of transmission element /generators expected to be synchronised during next month or in near future

Some SLDCs are submitting the list of intrastate and interstate line on regular basis, however transmission element /generators expected to be synchronised during next month or in near future is not submitted by any SLSC/Transmission licensee to RLDC/RPC.

In 162nd OCC, OCC advised all the constituents, SLDCs and ISTS licensees to submit the details the list of transmission elements / generators already synchronized / charged in the previous month as well as those expected to be commissioned in the near future (as per the format specified) to ERLDC

Members may update.

Item no. C.12: Operationalization of 400 kV Durgapur Bus Splitting Scheme

The following decisions were taken in 161st OCC meeting:

- As suggested by ERLDC, all the ICTs at Durgapur PG shall be kept in service to meet the Puja demand.
- However, ERLDC shall take necessary decision on real time basis keeping in view the security and reliability of the grid.

- DVC shall carry out a detailed study on power flow pattern through the ICTs with present and future network condition and submit the details to ERPC and ERLDC for further deliberation.
- Separate meeting with representatives from Powergrid, CTU, DVC, WBSETCL, ERLDC and ERPC shall be convened at ERPC for further course of action.

In 162nd OCC, DVC was advised to carry out a detailed study on power flow pattern through the ICTs with the present and future network condition and submit the details to ERPC and ERLDC at the earliest for further deliberation. Thereafter, a separate meeting with representatives from Powergrid, CTU, DVC, WBSETCL, ERLDC and ERPC shall be convened at ERPC to decide further course of action for both short term and long term.

OCC decided that existing arrangement will be continued till further decision on this issue takes place in the above meeting.

Thereafter, ERLDC informed that with split bus arrangement at 400kV Durgapur it has been observed that

1. Power flow through 220kV Durgapur(PG)-Parulia(D) D/C cannot be controlled if all three 400/220kV ICTs are kept in service, along with 220kV Waria – Bidhannagar D/C

2. WBSETCL is aggrieved if 220kV Waria – Bidhannagar D/C is kept off in order to control power flow through 220kV Durgapur(PG)-Parulia(D) D/C

3. If either 400/220kV ICT-2 or ICT-3 is kept off (to control power flow through 220kV Durgapur(PG)-Parulia(D) D/C) , then the other 400/220kv ICT gets heavily loaded.

In view of the above constraints experienced in real time operation, Durgapur(PG) S/Stn is now being operated without sectionalizing the 400kV buses 1 & 3 and 2 & 4 and all the three 400/220 kV ICTs are in service, parallel to each other. Further, one circuit of 220kV Waria – Bidhannagar D/C line is also in operation.

Members may update.

Item no. C.13: 400 kV Split Bus operation of 400 kV Kahalgaon Substation --ERLDC

In the 158th OCC meeting, Bus split operation of 400 kV Kahalgaon substation has been discussed. NTPC has informed that the 400 kV Bus split is ready for operationalization in all aspects. NTPC and PGCIL have informed that the group setting for revised protection setting has been implemented w.r.t. Bus split arrangement at remote ends. OCC decided to monitor the power flows after putting the Durgapur bus splitting in service and further decision on putting the Kahalgaon bus splitting scheme in operation would be reviewed in next OCC Meeting.

The Durgapur Bus split trial has been demonstrated in 159th and 160th OCC meeting and results and power flow was presented to the members. It was observed that there is no constraint on the 400 kV network during normal bus split operation of Durgapur substation.

With these experiences of 400 kV Durgapur Bus split, it is desired that 400 kV Kahalgaon Bus split may be operationalized.

In 161st OCC, NTPC has informed that the 400 kV Bus split is ready for operationalization at 400 kV Kahalgaon. But two ICTs are to be erected at 400 kV Kahalgaon and the ICTs are yet to be delivered.

NTPC requested other constituents to spare the ICTs temporarily for an interim arrangement at 400 kV Kahalgaon.

Members may update.

Item no. C.14: Reconductoring work of 400 kV Rangpo-Binaguri D/C lines

In 162nd OCC, Powergrid informed that SPS at Rangpo is ready and it can be put in service as and when required.

Powergrid explained that reconductoring work of both 400 kV Rangpo-Binaguri D/C lines would take 1 year time approximately and they are ready to take shutdown of both the circuits from 01.11.2019.

ED, ERLDC advised Powergrid to complete the reconductoring work of one circuit by end of February 2019. He added that after February 2019, shutdown of both lines is not possible in view of the likelihood of rise in hydro generation in Sikkim.

MS, ERPC submitted that there is a need for reviewing the progress of the work by field visit. In this regard a Committee shall be formed comprising the members from ERPC Secretariat, ERLDC, WBSETCL, PGCIL, TVTPL etc. The Committee will visit the site and check the preparedness of the work. Also, periodic inspection will be done to assess the progress of the work.

Powergrid may update.

PART D:: OPERATIONAL PLANNING

Item no. D.1: Anticipated power supply position during December 19

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of December 19 were prepared by ERPC Secretariat on the basis of LGBR for 2019-20 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc. is at **Annexure-D.1**.

Members may confirm.

Item no. D.2: Shutdown proposal of transmission lines and generating units for the month of December19

NTPC vide mail dated 5th November 2019 intimated that **unit 3 of FSTPS** would be under shutdown from **6th December 2019 to 31st December 2019** for overhauling.

NTPC vide mail dated 8th November 2019 informed that in view of major modification of Unit 4 Boiler, the date for shutdown has been extended from schedule date (10th November 2019) to 25.11.2019 on the request of M/s BHEL.

Therefore, **Unit4 of Barh STPS** shall be taken under shut down since **25.11.2019 at 00:00 hrs for Boiler Modification and Overhauling for 80 days.**

Dikchu vide mail dated 2nd November 2019 informed that **Dikchu H.E.P, Unit-1** will be shut down from **16th Dec' 19 to 6th Jan' 20** for annual maintenance purpose.

Shutdown for **Unit-2** will be taken for annual maintenance from **20th Jan' 20 to 10th Feb' 20**.

Generator shutdown for December 19:

System	Station	Unit	Capacity (MW)	Period		No. of Days	Reason
				From	To		
DVC	Mezia TPS	1	210	11.12.19	15.01.20	21	COH (Blr-RLA,Turb-RLA,Gen.)
Odisha	IB TPS	3	660	01.12.19	25.12.19	25	AOH
WBPDCL	Bandel TPS	2	60	25.12.19	31.12.19	7	Boiler License renewal
	SgTPS	4	500	20.12.19	26.12.19	7	Boiler License renewal
DPL	DPPS	8	250	23.12.19	31.01.20	9	BTG OH
CESC	BUDGE-BUDGE	3	250	02.12.19	19.12.19	18	Not Specified
	Titagarh TPS	3	60	12.12.19	26.12.19	15	Not Specified
		4	60	27.12.19	30.12.19	4	Not Specified
HEL	Haldia Energy Limited	1	300	21.12.19	03.02.20	11	AOH
NTPC	TSTPP-1	1	500	01.12.19	04.01.20	31	AOH

ERLDC may place the list transmission line shutdown discussed on 13th November 2019 through VC.

Members may confirm.

1. **Shutdown approval and coordination for Talcher HVDC Substation--Powergrid**

   ERLDC intimated that all outage approval for Talcher HVDC substation of POWERGRID is to be coordinated with SRLDC. SRLDC will be the nodal agency for shutdown matter of Talcher HVDC. In the recent past there was a lot of confusion related to shutdown elements of Talcher HVDC substation. Sometimes SRLDC is also instructing to coordinate with ERLDC and not SRLDC as Talcher HVDC is physically situated in Eastern Region. Due to which there is delay in granting shutdown of elements of Talcher HVDC substations.

   Hence guidelines may be issued with intimation to NLDC and SRLDC for shutdown matter of Talcher HVDC substations. So that there shall not be any ambiguity in granting approval of shutdown and issuing switch off code of elements of Talcher HVDC substation.

Powergrid may explain.

Item no. D.3: Prolonged outage of Power System elements in Eastern Region

(i) Thermal Generating units:

S.No	Station	Owner	Unit No	Capacity	Reason(s)	Outage Date
1	FARAKKA	NTPC	5	500	DESYNCHRONIZED ON SAFETY GROUNDS, LATER ON PUT UNDER ANNUAL OVERHAULING.	18-Oct-19
2	KHSTPP	NTPC	2	210	ANNUAL OVERHAULING	10-Nov-19
3	KOLAGHAT	WBPDCL	1	210	POLLUTION CONTROL PROBLEM	10-May-18
4	CTPS	DVC	3	130	TURBINE BLADE DAMAGE	30-Jul-17
5	BARAUNI	BSPHCL	7	110	MAINTENANCE WORK	3-Nov-19
6	BUDGE BUDGE	WBPDCL	2	250	ANNUAL SURVEY	10-Nov-19
7	TTPS	GRIDCO	5	110	ANNUAL OVERHAULING	9-Nov-19
8	KBUNL STG2	NTPC	1	195	Tripping of unit Auxiliary Bus	3-Nov-19
9	JITPL	JITPL	1	600	HIGH TURBINE VIBRATION	10-Nov-19
10	APNRL	APNRL	2	270	Low vacuum as GSC- control valve unable to maintained turbine gland sealing pressure in positive side even at Control valve 100% open condition	4-Nov-19
11	KOLAGHAT	WBPDCL	3	210	LOW DRUM LEVEL	15-Sep-19
12	KOLAGHAT	WBPDCL	2	210	ESP MAINT. WORK	2-Nov-19
13	KOLAGHAT	WBPDCL	5	210	OVER VOLTAGE PROTECTION TRIP	1-Oct-19

14	BAKRESWAR	WBPDCL	1	210	COAL SHORTAGE	1-Nov-19
15	DPL	WBPDCL	7	300	COAL SHORTAGE	6-Nov-19
16	BOKARO A	DVC	1	500	PROBLEM IN ASH POND	15-Oct-19
17	BOKARO B	DVC	3	210	PROBLEM IN ASH POND	12-Sep-19
18	MEJIA	DVC	2	210	COAL FEEDING PROBLEM	22-Sep-19
19	MEJIA	DVC	3	210	COAL SHORTAGE	25-Oct-19
20	KODERMA	DVC	1	500	PROBLEM IN ASH POND	25-Oct-19
21	STERLITE	GRIDCO	2	600	DUE TO PROBLEM IN OLTC SYSTEM OF Unit Transformer	10-Apr-19
22	BARAUNI	BSPHCL	8	250	LOW FURNACE PRESSURE	9-Nov-19
23	WARIA	DVC	4	210	FLAME FAILURE	9-Nov-19
	Sub Total (SS)			6415		

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

(ii) Hydro Generating units:

Sl. No.	Station	Unit No.	Capacity (MW)	Reason (s) of outage	Outage date
1	Balimela	Unit- 1	60	Renovation & Modernization work (Planned)	05-08-2016
		Unit- 2	60	Renovation & modernization work (Planned).	20-11-2017
2	Burla	Unit-1	49.5	Turbine & Generator coupling cover water leakage (Forced)	14-03-2018
		Unit-5	37.5	Renovation. Modernization & up rating work (Planned)	25-10-2016
		Unit-6	37.5	Renovation, Modernization & up rating work (Planned)	16-10-2016
3	Chiplima	Unit-3	24	Renovation & Modernization work (Planned)	15-10-2015
4	Rengali	Unit-2	50	Capital Maintenance (Planned)	12-12-2018
5	Indravati	Unit- 2	150	Excitation Problem	06-11-2019

It is seen that about 468.5 MW hydro capacities in Odisha is under forced outage / planned outage in the period of peak monsoon and therefore not available for providing the much needed peaking support during evening peak. SLDC / OHPC may please indicate restoration plan of the units.

(iii) Transmission elements

SL NO	Transmission Element / ICT	Agency	Outage DATE	Reasons for Outage
1	220 KV BALIMELA - U' SILERU	OPTCL / APSEB	10-03-2018	LINE ANTITHEFT CHARGED FROM UPPER SILERU ON 17-04-18
2	400 KV IBEUL JHARSUGUDA D/C	IBEUL	29-04-2018	TOWER COLLAPSE AT LOC 44,45

3	400KV NEW PURNEA-BIHARSARIFF(PG)-D/C	ENICL	10-08-2018	TOWER COLLAPSE AT LOC 47/0
4	400 KV PATNA KISHANGANJ- I	POWERGRID	01-09-2018	TOWER COLLAPSE AT LOC 129. PILING DAMAGED
5	400 KV PATNA KISHANGANJ- II	POWERGRID	06-07-2019	EMERGENCY HAND TRIPPED DUE TO FRUSTUM OF LOCATION NO: 129A/0 (A LEG) HAS BEEN EXPOSED ON SOIL EROSION.
6	220 KV PANDIABILI - SAMANGARA D/C	OPTCL	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.
7	400/132 KV, ICT II (200 MVA) AT KAHALGAON	NTPC	02-08-2019	Y PHASE BUSHING BURSTED
8	132 KV KhSTPP-KAHALGAON(BSPTCL)	BSPHCL	23-09-2019	TO RESTRICT LOADING ON 400/132 KV KAHALGAON(NTPC) ICT 1 /LOAD OF KAHALGAON SHIFTED TO NEW SABOUR(GORADIH).
9	400 KV MOTIHARI(DMTCL)-GORAKHPUR-I	POWERGRID/DMTCL	13-08-2019	LINE SWITHED OFF DUE TO ANTICIPATED TOWER COLLAPSE AT LOC 27/0(132) DUE TO CHANGE OF COURSE OF GANDAK RIVER.TOWER COLLAPSED REPORTED AT LOC 27/0(132) ON 15/08/19 AT 07:00 HRS.
10	400 KV MOTIHARI(DMTCL)-GORAKHPUR-II	POWERGRID/DMTCL	13-08-2019	
11	400 KV BARH-MOTIHARI(DMTCL) -I	POWERGRID/DMTCL	04-09-2019	TOWER COLLAPSE AT LOCATION 26/0 AND 25/5
12	400 KV BARH-MOTIHARI(DMTCL) -II	POWERGRID/DMTCL	04-09-2019	
13	765KV JHARSUGUDA-RAIPUR-I	POWERGRID	25-10-2019	OPENED ON OVER VOLTAGE AT JHARSUGUDA
14	220KV MUZAFFARPUR-DHALKEBAR-I	POWERGRID	03-10-2019	LINE KEPT OPEN TO REGULATE VOLATGE AT MUZAFFARPUR
15	765KV-ANGUL-JHARSUGUDA-III	POWERGRID	07-11-2019	OPENED ON OVER VOLTAGE AT JHARSUGUDA
16	220KV BEGUSARAI-NEW PURNEA-I	BSPTCL	13-10-2019	B-N, 5.98kA, 12.6km at NEW PURNEA;Line will not to be charged till: 1)sag/clearance issue is resoved 2)Healthiness certificate from independent third party obtained 3)ensure auto reclosure healthiness.
17	220KV BEGUSARAI-NEW PURNEA-II	BSPTCL	14-10-2019	R-N, 1.93kA, 85.6km A/R successful at NEW PURNEA.Line will not to be charged till: 1)sag/clearance issue is resoved 2)Healthiness certificate from independent third party obtained 3)ensure auto reclosure healthiness.
18	400KV BINAGURI-TALA-II	POWERGRID/BHUTAN	08-11-2019	S/D VAILED FOR CHECKING THE STATUS OF HARDWARE FITTINGS, INSULATORS, CONDUCTORS AND REPLACEMENT OF BROKEN INSULATORS

19	400 KV BINAGURI-RANGPO-1	POWERGRID	01-11-2019	S/D AVAILED FOR RECONDUCTORING WORK TILL 30/11/19
20	400 KV BINAGURI-RANGPO-2	POWERGRID	01-11-2019	

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

** Transmission licensees whose line were out due to tower collapse/ bend, may please update the detail restoration plan and as on date work progress status in OCC.

Also Monthly progress report to be submitted to ERLDC/ERPC till restoration of the element.

Members may update.

PART E::ITEMS FOR INFORMATION

The following agenda items are placed for information and necessary compliance:

Item No. E.1: Submission of data in MERIT Order portal--CEA

CEA vide mail dated 9th July 2019 informed that the MERIT Order portal had been launched on 23rd June, 2017 by Honourable Minister of Power. One of the most important advantages of "Merit" Portal is Transparent information dissemination pertaining to marginal variable cost and source wise purchase of electricity and indication of supply side reliability, adequacy, and cost of power procurement.

However, it has been observed that many of the states are not filling the data regularly and sometimes the data filled varies widely from the data available on the respective RLDCs daily reports.

It is requested that the states may be advised to fill the data regularly and check that correct data is filled on the MERIT Portal.

In 159th OCC, all the SLDCs were advised to fill the correct data in MERIT portal on regular basis.

Item No. E.2: Status of 1st Third Party Protection Audit:

The compliance status of 1st Third Party Protection Audit observations is as follows:

Name of Constituents	Total Observations	Complied	% of Compliance
Powergrid	54	46	85.19
NTPC	16	14	87.50
NHPC	1	1	100.00
DVC	40	26	65.00
WB	68	49	72.06
Odisha	59	42	71.19
JUSNL	34	25	73.53
BSPTCL	16	5	31.25
IPP (GMR, Sterlite and MPL)	5	5	100.00

** Pending observations of Powergridare related to PLCC problems at other end.*

The substation wise status of compliance are available at ERPC website (Observations include PLCC rectification/activation which needs a comprehensive plan).

In 118th OCC, all the constituents were advised to comply the pending observations at the earliest. All the STUs informed that most of the observations are related to funding from PSDF. DPRs have been submitted to PSDF committee.

Item No. E.3: Commissioning of new transmission elements in Eastern Region

The details of new units/transmission elements commissioned in the month of September-2019 based on the inputs received from beneficiaries

SL NO	Element Name	Owner	Charging Date	Charging Time	Remarks
1	400 KV North Karnapura I main bay at Gaya	PGCIL	04-10-2019	18:20	

2	220kv Gokarna-Rejinagar #1 (35.294 KM zebra)	WBSE TCL	21-10-2019	20:37(R) /20:38(G)	220/132/33kv REJINAGAR AIS S/S (by LILOing 220kv Gokarna-Krishnagar D/C)
3	220kv Gokarna-Rejinagar #2 (35.294 KM zebra)	WBSE TCL	21-10-2019	22:55(R) /22:57(G)	
4	220 Krishnagar-Rejinagar #2 (73.00 KM zebra)	WBSE TCL	21-10-2019	20:30(K) /21:01(R)	
5	220 Krishnagar-Rejinagar #1 (73KM ACSR zebra)	WBSE TCL	21-10-2019	21:13(K) /21:44(R)	
6	220/132/33KV 160MVA TR#1	WBSE TCL	22-10-2019	18:50hr	Upto LV cable charged
7	220/132/33KV 160MVA TR#2	WBSE TCL	22-10-2019	19:05hr	Upto LV cable charged
8	765 kV Bus Sectionalizer Bay between Bus II & IV at Jharsuguda	PGCIL	25-10-2019	11:48	

Item No. E.4: UFR operation during the month of October'19

System frequency touched a maximum of 50.31 Hz at 13:03hrs of 23/10/19 and a minimum of 49.67 Hz at 07:07hrs of 24/10/19. Hence, no report of operation of UFR has been received from any of the constituents.

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Annexure-D.1

Anticipated Power Supply Position for the month of
Dec-19

SL.NO		PARTICULARS	PEAK DEMAND MW	ENERGY MU
1		**BIHAR**		
	i)	NET MAX DEMAND	4800	2500
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	406	342
		- Central Sector	3690	1777
	iii)	SURPLUS(+)/DEFICIT(-)	-704	-381
2		**JHARKHAND**		
	i)	NET MAX DEMAND	1440	810
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	341	165
		- Central Sector	804	421
	iii)	SURPLUS(+)/DEFICIT(-)	-295	-224
3		**DVC**		
	i)	NET MAX DEMAND (OWN)	3000	1885
	ii)	NET POWER AVAILABILITY- Own Source	5348	2980
		- Central Sector	490	223
		Long term Bi-lateral (Export)	1684	1253
	iii)	SURPLUS(+)/DEFICIT(-)	1154	64
4		**ODISHA**		
	i)	NET MAX DEMAND	4975	2530
	ii)	NET POWER AVAILABILITY- Own Source	3492	1378
		- Central Sector	1343	642
	iii)	SURPLUS(+)/DEFICIT(-)	-139	-510
5		**WEST BENGAL**		
5.1		**WBSEDCL**		
	i)	NET MAX DEMAND (OWN)	5795	2704
	ii)	CESC's DRAWAL	0	59
	iii)	TOTAL WBSEDCL's DEMAND	5795	2763
	iv)	NET POWER AVAILABILITY- Own Source	4231	1913
		- Import from DPL	414	0
		- Central Sector	2177	1148
	v)	SURPLUS(+)/DEFICIT(-)	1028	298
	vi)	EXPORT (TO B'DESH & SIKKIM)	464	136
5.2		**DPL**		
	i)	NET MAX DEMAND	0	195
	ii)	NET POWER AVAILABILITY	414	188
	iii)	SURPLUS(+)/DEFICIT(-)	414	-7
5.3		**CESC**		
	i)	NET MAX DEMAND	1520	713
	ii)	NET POWER AVAILABILITY - OWN SOURCE	460	363
		FROM HEL	540	258
		Import Requirement	520	92
	iii)	TOTAL AVAILABILITY	1520	713
	iv)	SURPLUS(+)/DEFICIT(-)	0	0
6		**WEST BENGAL (WBSEDCL+DPL+CESC)** **(excluding DVC's supply to WBSEDCL's command area)**		
	i)	NET MAX DEMAND	7315	3612
	ii)	NET POWER AVAILABILITY- Own Source	5105	2465
		- Central Sector+Others	3237	1406
	iii)	SURPLUS(+)/DEFICIT(-)	1028	259
7		**SIKKIM**		
	i)	NET MAX DEMAND	125	61
	ii)	NET POWER AVAILABILITY- Own Source	2	1
		- Central Sector+Others	130	58
	iii)	SURPLUS(+)/DEFICIT(-)	7	-1
8		**EASTERN REGION** **At 1.03 AS DIVERSITY FACTOR**		
	i)	**NET MAX DEMAND**	21024	11397
		Long term Bi-lateral by DVC	1684	1253
		EXPORT BY WBSEDCL	464	136
	ii)	**NET TOTAL POWER AVAILABILITY OF ER (INCLUDING C/S ALLOCATION)**	24389	11857
	iii)	**PEAK SURPLUS(+)/DEFICIT(-) OF ER (ii)-(i)**	1217	-929

Annexure-B16

Generation Projection (Jan 2020 - Mar 2020)

				Generation declared Commercial from 1st Apr'19 to 30th Sep'19					Generation declared/expected to be declared Commercial from 1st Oct'19 to 31st Dec'19								
Sl. No.	Entities	Region	Projections based on 3 Years Data	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	TOTAL	Comments From DICs /Others (if any)	Figure as per Comments/ PoC Data	Projected Generation before normalization w.r.t projected All India Peak Demand
			(MW)			(MW)	(MW)	(MW)			(MW)	(MW)	(MW)	(MW)			(MW)
1	West Bengal	ER	4973											4973			4973
2	Odisha	ER	3350	OPGC Stage-II	4	660	432	432						3782	As per data given by Orrisa	3908	3908
3	Bihar	ER	199											199			199
4	Jharkhand	ER	346											346			346
5	Sikkim	ER	0											0			0
6	Chujachan	ER	95											95			95
7	DVC	ER	5315											5315			5315
8	Durgapur Steel	ER															
9	Koderma TPP	ER															
10	Bokaro TPS	ER															
11	Raghunathpur	ER															
12	MPL	ER	1002											1002			1002
13	Teesta V	ER	536											536			536
14	Kahalgaon	ER	2238											2238			2238
15	Farakka	ER	1972											1972			1972
16	Talcher	ER	959											959			959
17	Rangit	ER	63											63			63
18	Adhunik Power	ER	356											356			356
19	Barh	ER	1274											1274			1274
20	Kamalanga TPP (GMR)	ER	603											603			603
21	JITPL	ER	724											724			724
22	Jorethang	ER	67											67			67
23	Bhutan	ER	278											278			278

Generation Projection (Jan 2020 - Mar 2020)

				Generation declared Commercial from 1st Apr'19 to 30th Sep'19					Generation declared/expected to be declared Commercial from 1st Oct'19 to 31st Dec'19								
Sl. No.	Entities	Region	Projections based on 3 Years Data	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	TOTAL	Comments From DICs /Others (if any)	Figure as per Comments/ PoC Data	Projected Generation before normalization w.r.t projected All India Peak Demand
			(MW)			(MW)	(MW)	(MW)			(MW)	(MW)	(MW)	(MW)			(MW)
24	Teesta-III	ER	1232											1232			1232
25	Dikchu HEP	ER	92											92			92
26	Nabinagar BRBCL	ER	646						Nabinagar BRBCL	4	250	164	164	810			810
27	Tashiding HEP	ER	99											99			99
28	Kanti Bijlee Stg-2 (KBUNL)	ER															0
29	Nabinagar STPS								Nabinagar STPS	1	660	432	432	432			432
30	Darlipalli STPP ST-I								Darlipalli STPP ST-I	1	800	524	524	524			524
	TOTAL		26419											27970			28096

Note:

1. Projections are based on monthly maximum injection in the last 3 years from actual metered data.
2. Generation forecast has been done based on the following criteria
(i) If there is an increasing trend then last year average generation has been considered
(ii) Otherwise average of past three year average generation has been considered
3. In case of new generators where past data was not available following has been assumed
(i) 0.8 plf for hydro generators
(ii) 0.7 plf for thermal generators.
(iii) 0.3 plf for gas stations

DEMAND FORECAST USING PAST 3 YEARS DATA (Jan 2020 - Mar 2020)

										1	2	3	4		
	2016-17			2017-18			2018-19								
	Jan-17	Feb-17	Mar-17	Jan-18	Feb-18	Mar-18	Jan-19	Feb-19	Mar-19	2016-17 Average	2017-18 Average	2018-19 Average	Projected Demand for (Jan2020 - Mar 2020) before normalization	Data given by DICs	Comments
Bihar	3,535	3,543	3,715	4,343	4,346	4,469	4,249	4,126	4,489	3,598	4,386	4,288	4,781		
DVC	2,457	2,570	2,663	2,886	2,758	2,896	2,871	3,098	2,954	2,563	2,847	2,974	3,206		
Jharkhand	1,121	1,165	1,148	1,192	1,175	1,162	1,260	1,264	1,248	1,145	1,176	1,257	1,305		
Odisha	3,896	3,847	3,989	3,931	4,109	4,402	4,198	4,264	4,632	3,911	4,147	4,365	4,595	4307	As per Data given by Odisha
West Bengal	6,078	7,036	7,840	6,357	6,879	8,083	6,538	7,024	6,618	6,985	7,106	6,727	6,681		
Sikkim	91	91	91	94	96	88	106	104	104	91	93	105	110		

Notes

1. Projections are based on the past 3 years' monthly Peak Demand Met data available on the website of CEA
2. The above projections are being done for financial year 2019-2020 (Q4) i.e January 2020-March 2020
3. Projections are being done based on the forecast function available in MS Office Excel
4. CEA Reports can be accessed from the following links:

http://www.cea.nic.in/reports/monthly/powersupply/2019/psp_peak-01.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2019/psp_peak-02.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2019/psp_peak-03.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2018/psp_peak-01.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2018/psp_peak-02.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2018/psp_peak-03.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2017/psp_peak-01.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2017/psp_peak-02.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2017/psp_peak-03.pdf