Agenda

for

37th TCC Meeting

of

EASTERN REGIONAL POWER COMMITTEE

Date: 16th March, 2018

Venue: Goa

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EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 37TH TCC MEETING

Date: 16th March, 2018 **Place: Goa**

ITEM NO.A1:	CONFIRMATION OF THE MINUTES OF 36TH TCC MEETING

The minutes of the 36th TCC meeting held on 13th September, 2017 at Bhubaneswar were circulated vide letter no. ERPC/TCC&Committee/14/2017/2692-2757 dated 30th October, 2017.

No comments have been received from constituent members on the minutes of the meeting.

Members may confirm the minutes of 36th TCC meeting.

PART B: ITEMS FOR DISCUSSION

ITEM NO. B1:	Status of projects funded under PSDF schemes

In the PSDF review meeting, it was advised to RPCs to monitor the status of all the projects funded by PSDF. Therefore, constituents are requested to update the status of projects which are being funded by PSDF in the desired format.

A. Projects approved:

SN	Name of Constituent	Name of Project	Date of approval from PSDF	Target Date of Completion	PSDF grant approved (in Rs.)	Amount drawn till date (in Rs.)	Latest status
1	WBSETCL	Renovation & up-gradation of protection system of 220 kV & 400 kV Substations in W. Bengal	31-12-14	April 2018	108.6 Cr	18.26 Cr.	100 % Supply is Completed 92% Erection is completed
2		Renovation & modernisation of transmission system for relieving congestion in Intra-State Transmission System.	22-05-17	19 months from date of release of 1st instalment	43.37	Nil	Agreement signed. Bank A/c opened & PFMS mapping is in process.
3		Installation of switchable reactor at 400kV & shunt capacitors at 33kV	22-05-17	25 months from date of release of 1st instalment	70.13	Nil	Agreement signed. Bank A/c opened & PFMS mapping is in process.
4	WBPDCL	Implementation of Islanding scheme at Bandel Thermal Power Station	*10.04.17*	*March 2018*	1.39 Cr		Award placed to ABB. Material delivery by Dec, 17. Most of the materials have reached the site and the installation would commence soon.

5		Upgradation of Protection and SAS			23.48		Approved by Ministry of Power. Fresh tendering is in progress.
6	OPTCL	Renovation & Up-gradation of protection and control systems of Sub-stations in the State of Odisha in order to rectify protection related deficiencies.	10.05.15	10.05.17	162.5 Cr.	16.25 Cr + 8.91 Cr	Total contract awarded for Rs. 51.35 Cr
7		Implementation of OPGW based reliable communication at 132kV and above substations	15.11.2017		25.61 Cr.		
8	OHPC	Renovation and up-gradation of protection and control system of 4 nos. OHPC substations.		*U.Kolab-March 19 Balimela-Feb 2019 U.Indravati-Jan 19 Burla-Nov 2018, Chiplima Dec 2018*	*22.35 Cr.*		Tendering under progress.
9	BSPTCL	Renovation and up-gradation of 220/132/33 KV GSS Biharshariff, Bodhgaya, Fatuha, Khagaul, Dehri -on-sone & 132/33 kV GSS Kataiya	11/5/2015	31.03.2018	64.22 crore	23.68 crore	Project is on going. Contract awarded for Rs.71.37 Cr till date.
10		Installation of capacitor bank at different 35 nos. of GSS under BSPTCL	5/9/2016	12th March 2019	18.88 crore	Nil	Work awarded for 9 nos of GSS.
11		Renovation & up-gradation of protection and control system of 12 nos. 132/33 KV GSS under BSPTCL.	02.01.17	31st March 2018	49.22 Cr.		Kept on hold. Revised DPR may be submitted.
12	JUSNL	Renovation and up-gradation of protection system	*September 2017*	*138.13 crores*			Approved by Appraisal Committee. LOA will be issued to PRDC in March 2018.
13	DVC	Renovation and upgradation of control & protection system and replacement of Substation Equipment of 220/132/33 kV Ramgarh Substation	02.01.17	01.06.2019	25.96 Cr	2.596 Crore on 01.06.2017	Work awarded for 28.07 Cr.
14		Renovation and upgradation of control & protection system including replacement of substation equipment at Parulia, Durgapur, Kalyaneshwari, Jamshedpur, Giridih, Barjora, Burnpur, Dhanbad and Burdwan Substation of DVC	27.11.17	24 Months from the date of release of fund.	140.5 Cr.	1st installment of 14.05 Cr. received on 21.12.2017	Work awarded for 6.45 Cr.
15	POWERGRID	Installation of STATCOM in ER		June 2018	*630.28 Cr*	*63.028 Cr*	work is in progress, eexpected to complete by June 2018
16	ERPC	Creation & Maintenance of web based protection database and desktop based protection calculation tool for Eastern Regional Grid	17.03.16	Project is alive from 30th October 2017	20 Cr.	4.94 Cr. + 9.88 Cr.	1) Protection Database Project has been declared 'Go live' w.e.f. 31.10.17. 2) Pending training on PDMS at Sikkim and 3rd training on PSCT has been also completed at ERPC Kolkata.
17a	ERPC	Training for Power System Engineers					The proposal was approved by Appraisal Committee. The proposal was sent to CERC. CERC has sought some queries from the Appraisal
17b		Training on Power market trading at NORD POOL Academy for					

		Power System Engineers of Eastern Regional Constituents					Committee. The matter shall be taken up by the Appraisal Committee during its next meeting.

B. Projects under process of approval:

SN	Name of Constituent	Name of Project	Date of Submission	Estimated cost (in Rs.)	Latest status
1	Sikkim	Renovation & Upgradation of Protection System of Energy and Power Department, Sikkim.	09-08-17	68.95 Cr	Scheme was examined by TSEG. Inputs sought from entity.
2		Drawing of optical ground wire (OPGW) cables on existing 132kV & 66kV transmission lines and integration of leftover substations with State Load Despatch Centre, Sikkim	09-08-17	25.36 Cr	Scheme was examined by TSEG. Inputs sought from entity.
3	JUSNL	Reliable Communication & Data Acquisition System upto 132kV Substations.	23-08-17	102.31 Cr	Scheme was examined by TSEG. Inputs sought from entity.
4	OPTCL	Installation of 125 MVAR Bus Reactor along with construction of associated bay each at 400kV Grid S/S of Mendhasal, Meramundali & New Duburi for VAR control & stabilisation of system voltage	28-08-17	31.94 Cr	Scheme was examined by TSEG. Inputs sought from entity.

C. Projects recently submitted:

SN	Name of Constituent	Name of Project	Date of Submission	Estimated cost (in Rs.)	Latest status
1	WBPDCL	Implementation of Integated system for Scheduling, Accounting, Metering and Settlement of Transactions (SAMAST) system in West Bengal	22-12-17	25.96 Cr	
2	OPTCL	Implementation of Automatic Demand Management System (ADMS) in SLDC, Odisha	22-12-17	3.26 Cr	

TCC may note.

ITEM NO. B2:	**Performance of Hydro Power Stations in ER including Hydro Power Stations in Bhutan**

CEA vide letter dated 18.07.17 informed that POSOCO had carried out operational analysis of various hydro stations in the country and observed that despite 40.6 GW of peaking hydro capacity, only about 33 GW peak generation is available on all India basis. According to POSOCO, this is on account of a number of hydro stations, particularly in state sector, not being operated in peaking mode. In order to examine the above observation, a Sub-committee has been constituted by the MoP under Chairperson, CEA with Heads of POSOCO, NHPC, SJVN & THDC as members and Director (H), MoP as the Member Convenor. The Sub-Committee has held three meetings with the concerned hydro generating stations and concluded that there is scope for about 2000 MW additional power generation from hydro stations during peak hours.

It has been desired by the Chairperson that the matter of utilization of hydro stations in peaking mode be made a regular agenda item for discussion at the monthly OCC meetings while

discussing operational planning for the month ahead and analyzing the operation in the previous month.

ERLDC has been regularly presenting the performance of hydro generators of Eastern Region in monthly OCC meetings.

ERLDC may elaborate.

Members may please discuss.

ITEM NO. B3:	Restricted Governor /Free Governor Mode Operation of generators in ER

Vide CERC order dated 31st July 2017 in Petition No. 84/MP/2015, the Commission directed the following:

Section 23 "

a) Considering the fact that further measures have been put in place to facilitate desirable primary response, the Commission, starting from the month of September, 2017 shall be closely watching the primary response of ISGSs as reported by POSOCO/NLDCs. At the State level, SLDCs shall report the frequency response of intra-State generators to the concerned SERCs.
b) NLDCs and SLDCs through the assistance of POSOCO shall start the process of selecting independent third parties capable of undertaking periodic checkups to monitor the RGMO/FGMO response. To start with, selected independent third parties shall be sent to the generating stations which are not providing the desired RGMO/FGMO response. Independent Third Parties shall ensure that the generator has not, in any way, prevented/disabled the governor from providing the desired response. In case, even after enabling the governors, units are not able to provide the desired response as per the provisions of the Grid Code, third parties, based on the submissions of the generators, shall bring out the technical constraints, if any, which limit the primary response of the units.
c) All ISGSs are directed to provide primary response compulsorily in terms of Regulation 5.2 (f), (g), (h) and (i) of the Grid Code failing which we would not hesitate in initiating action under Section 142 of Electricity Act, 2003 for not providing desired RGMO/FGMO response without any valid reasons. "

Section 24

"….. The Committee (on implementation of FGMO / primary response) has also recommended that there is no requirement for granting any exemption even to LMZ units from operation under RGMO/FGMO with manual intervention."

"… has the option of either expediting the R&M of old units which shall include installation of new EHG governors capable of providing adequate primary response or to go in for retrofit of mechanical governors for adopting RGMO features or to operate on FGMO with manual intervention…"

The latest status of the RGMO/FGMO of ER generators is enclosed in **Annexure-B3**.

To comply with this order, ERLDC has been sending the primary response of all ISGS/IPP in the region to NLDC. Reports from all RLDCs are, in turn, compiled by NLDC and submitted to the Hon'ble Commission.

The issue was discussed in OCC meetings, OCC advised SLDCs to monitor performance of the intra-State generators and send the report to the concerned SERCs.

TCC may note.

A. RGMO/FGMO performance of ISGS/IPPs in the Eastern Region

Governor responses for following events were discussed in OCCs during the month of Aug-2017 to Jan-2018.

- On 16.08.17,at 12:18 Hrs, 400 kV Rangpo-Teesta (III) line tripped on B-N fault resulting in generation loss of 879 MW and 100 MW in Teesta and Dikchu stations respectively.
- On 25.10.2017, at 19:33 hrs, Due to loss of evacuation lines, Unit-I & II at TPCIL(660 MW each) in southern region got tripped.
- On 30.10.17,at 21:37 Hrs, 400 KV TPCIL-Nellore PS ckt-1 tripped due to failure of Station transformer LA, Ckt-2 was under maintenance, Due to Loss of evacuation path generation loss of 1260 MW occurred
- On 12.11.17 at 07:14 Hrs, All lines from Talwandi Sabo tripped,Due to Loss of Evacuation path at Talwandi Sabo generation loss of 1097 Mw.
- On 09-12-17, 12:58 Hrs, TBC breaker blasted at 400 kV Padghe S/S. All emanating feeders from Padghe tripped and about 1400MW load was thrown off.
- On 10.01.2018 at 17:34Hrs, Due to Loss of Evacuation path 1050 MW Generation loss occurred at Teesta-III, Dikchu,Tashding. Frequency changed from 50.02 Hz to 49.96 Hz.
- On 30.01.2018 at 10:46Hrs, Due to Fault at Korderma S/s , Generation loss of 1250 Mw & Load Loss of 350 Mw occurred at Koderma & Bokaro S/S. Frequency changed from 49.90 Hz to 49.84 Hz.

Response of most of the units is unsatisfactory, except Teesta-V and Balimela.

ERLDC may elaborate. TCC may discuss.

ITEM NO. B4:	**Implementation of Automatic Demand Management Scheme (ADMS)**

Regulation 5.4.2 (d) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010 (Grid Code) provides for implementation of demand management schemes by State Load Despatch Centre through their respective State Electricity Boards/Distribution Licensees. This is a basic measure towards ensuring grid security. Due to non-implementation of this scheme so far, CERC vide order dated 31-12-15 on **Petition No. 5/SM/2014** had directed all constituents as follows:

"However, considering the request of the respondents to grant time to implement ADMS, we grant time till **30.6.2016** to the respondents to implement ADMS, failing which they will be liable for action under Section 142 of the Act for noncompliance of the Regulation 5.4.2 (d) of

the Grid Code and order of the Commission. RLDCs are directed to submit the report in this regard by 31.8.2016."

The issue was discussed in OCC & Project Review Meetings and decided to include ADMS in the new SCADA system project under ULDC. While discussing the issue in detail, it emerged that this feature can be implemented in ER constituent systems (WB, DVC, BSPTCL, JUSNL and Sikkim), upto 33 kV side as the telemetry of 33kV side has also been included in the SCADA project just implemented.

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 25 MW	Implemented on 17.06.2016	
3	Bihar	F <49.7 AND deviation > 12 % or 150 MW	3 months Feeders identified. Communication healthiness needs to be checked.	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	9 Months RTU installation is in progress	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.	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			No information furnished by Sikkim

In 142nd OCC, members 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.

TCC may discuss.

ITEM NO. B5:	Implementation of Automatic Generation Control

For better frequency control by utilisation of spinning reserves, CERC vide order no 11/SM/2015 dated 13-10-2015 has approved introduction of AGC in the country. A pilot implementation at Dadri TPS in NR is already operating successfully. However, it is now required to introduce AGC on regional basis considering each region as a control area.

In Eastern Region, it is therefore necessary to identify a power station for participation in AGC, based on several enabling factors such as healthiness of generator control system, availability of wideband communication with ERLDC etc.

In 142nd OCC meeting, NTPC informed that they are in the process of formulating a plan to implement AGC at recently commissioned station Barh STPS-II. Unit #4 & 5 of Barh STPS are being considered for AGC implementation. However, the work involved would require 6-7 months for implementation. Moreover, at present complete wideband communication with Barh STPS-II is not yet established.

NTPC may elaborate. Members may discuss.

ITEM NO. B6:	Reliable evacuation of power from hydro stations in Sikkim

In the coming monsoon, the total hydropower that would be generated from the hydro stations in Sikkim would be of the order of 2100MW (excluding overload capacity of 110%). Unless 400kV Rangpo-Kishanganj D/C line is commissioned by end of April-2018, it would not be possible to evacuate the power through the existing 400kV Rangpo-Binaguri D/C line, which has a limit of 1700MW.

In 2017, due to non-availability of 400kV Rangpo-Kishanganj D/C line, the total power has to be evacuated through 400kV Rangpo-Binaguri D/C line. As a result, hydro generation of all Sikkim IPPs was curtailed.

The latest status of 400kV Rangpo-Kishanganj D/C line as on 22nd February 2018 as received from TPTL is as follows:

Items	Total Qty (a)	Cumulative Progress till 15.02.18 (b)	Progress made during the week (16.02.18-22.02.18) (c)	Balance Qty as on 22.02.2018 (d) =a-b-c	Target date for completion of the balance Qty	ROW issue, if any, with location
Foundation	590 Locs.	565 nos.		25 nos.	6 nos. by Mar'18	19 locations under ROW / Forest
Tower Erection	590 Nos.	545 nos.	3	42 nos.	23 nos. by Apr'18	
Stringing	213.5 Km	169.25 Km	1.76	42.49 Km	34.09 km by Jun'18	8.4 km under ROW/ Forest

It seems 400kV Rangpo-Kishanganj D/C line would not likely be available for evacuation of hydro power during coming monsoon.

This is for information and necessary advice.

TCC may discuss.

A. Status of 400kV Dikchu- Rangpo S/C line

TPTL informed that 400kV Dikchu- Rangpo line-I is completed but could not be charged due to ROW near tower no. AP 36A in vicinity of church.

Due to the unavailability of statutory electrical clearance, some part of the Elim Church in East Sikkim at tower no. 36A needs to be dismantled. An agreement has been reached with Church authorities for demolition of part of church on 18.11.2017 with the help of Government of Sikkim. Government of Sikkim has given the letter ref no 317/DCE/2018 regarding settlement of claims of ELIM Church, on 13.01.2018. Based on Demand note issued by District Collector - East Sikkim, TPTL has deposited compensation amount on 24.01.2018 with DC- East Sikkim.

Demolition of 41 nos. houses coming under ROW of Transmission Line is to be done by District Authority for which payment has been made.

TCC may note.

ITEM NO. B7:	PSS tuning of Eastern Region generators

In 2007, based on a system study by IIT Mumbai, it was proposed that the following units to be equipped with PSS devices:

1. Kolaghat stage II 400 kV U#4.5.6. (201MW each) of WBPDCL;
2. Farakka U#4, 5 (500MW each)of NTPC;
3. U.Kolab 4 units (80 MW each) of OHPC;
4. Budge Budge U# 1,2,(250 MW) of CESC Ltd.

Thereafter, PSS tuning of all units were carried out with the help of BHEL Service Manager, Shri K. Partha Sarathi in the presence of Prof. Kulkarni, IIT Mumbai except Budge Budge units.

PSS tuning of Budge-Budge unit 1&2 of CESC had been subsequently carried out on 28th &29th July, 2015.

In 142nd OCC, members opined that ER system has grown considerably since and a number of generating stations has been added to the grid. The system study needs to be carried at prevailing system conditions and PSS tuning should be done accordingly. It was informed that this also one of the recommendations of the Enquiry Committee of 2012 Grid Disturbance.

TCC may decide.

ITEM NO. B8:	Persistent over drawl by West Bengal and Odisha

It has been observed that since October 2017, Odisha and West Bengal have been over-drawing from grid which, at times, exceeded 500 MW. The issue was discussed a number of times in monthly OCC meetings and both the constituents were requested to adhere to the drawal schedule from the grid.

Continuous over-drawal by both Odisha and West Bengal showed that there is deficit in their respective system. It was suggested that they should meticulously balance the demand and supply in their respective system, if necessary, by entering into bilateral contract or other mode of procurement of power. They should not lean on the regional grid to bridge the difference between demand and supply. It would be in the interest of both of these constituents that they exercise strict control over their drawl and adhere to the grid norms.

With the onset of summer, system demands of Odisha and West Bengal system are expected to increase further. The problem would be compounded with the planned and unplanned outage of thermal units and depleting water reservoir level of Odisha. If the present trend of over-drawal continues, this would further aggravate the situation.

ERLDC may elaborate. TCC may discuss.

ITEM NO. B9:	Flexible Operation of thermal power stations- Identification of pilot projects

Central Electricity Authority vide letter dated 16th February 2018 informed that a special Task Force was constituted under IGEF Sub-Group-I for enhancing the flexible operation of existing coal-fired power plants. The Committee has recommended for implementation of measures for 50%, 40% and 25% minimum load in thermal power stations. The measures for 50% minimum load operation requires no investment or minimal investment. (Report is available on CEA website under TRM division)

Subsequently, a meeting was held under the Chairmanship of Member (Thermal) on 8th February 2018 where in it was decided that 55% minimum load operation would be implemented nationwide in first phase. Further, six units, comprising of two units of NTPC and one unit each from DVC, GSECL, APGENCO, MSPGCL, would be taken up for 55% minimum load operation on pilot basis as 55% minimum load operation in line with the CERC notification dated 6th April 2016 and 5th May 2017 (IEGC 4th Amendment).

In 142nd OCC Meeting, NTPC informed all the units of NTPC were capable of 55% minimum load operation.

DVC informed that they were planning to implement at DSTPS.

DVC may update.

TCC may note.

ITEM NO. B10:	Issues of SPS associated with tripping of any pole of HVDC Talcher-Kolar

During synchronization of NEW grid with SR grid, to limit the surplus power likely to be wheeled to SR through ER and WR, in the event of single or bi-pole outage of 500 kV Talcher-Kolar HVDC, arrangement for 600 MW generation reduction in ER (200 MW each at SEL, GMR and JITPL) by sending digital signals from Talcher STPS was made, apart from the pre-existing reduction/tripping of TSTPS-II generation.

To implement this SPS, signal is transmitted from Talcher to the concerned generating stations.

The SPS needs to be reviewed in view of the following:

A. **Availability of new high capacity AC transmission elements in ER, SR and WR:** A number of new high capacity transmission elements have been commissioned in ER, SR and WR after implementation of the SPS. Since 765kV Angul-Srikakulam D/c line is available, the chances of wheeling of surplus power from ER to SR via WR are limited.

B. **Sending SPS signal to Vedanta (SEL):** after removing LILO of Rourkela-Jharsuguda at SEL, this link is no more available. In view of removal of 400kV Rourkela-Jharsuguda LILO at SEL, PLCC link for sending SPS signal to Vedanta/Sterlite may be re-established either via Jharsuguda or via Meramandali or via Angul.

C. **Continuous receipt of generation back down signal on shutdown of HVDC Talcher-Kolar single pole:** The SPS could not be taken back into service as there was continuous receipt of backing down signal at the respective generator ends. Hence, the SPS had to be kept by-passed throughout the shutdown period even though Pole-II was in service.

In 63rd PCC, Talcher, NTPC has raised several issues related to SPS at Talcher.

PCC advised Talcher, NTPC to send the details to ERLDC and ERPC. PCC decided to discuss the SPS related issues in a special meeting with NLDC, ERLDC, NTPC and POWERGRID.

TCC may discuss.

ITEM NO. B11:	Reactive Power Capability Testing of Power Plants

Reactive performances of the units are being regularly monitored in every OCC of Eastern Region. Performance of many power plants has improved over the time which helped in maintaining better voltage profile throughout the grid.

However, the testing of reactive power capability of many units has been pending for a long time and the response from concerned units is very poor in this regards. It is high time that the reactive tests on pending units are done in time bound manner, so that the reactive capability of units, particularly the leading p.f. zone, can be known and utilized to the maximum extent for maintaining better voltage profile.

To start with, the testing schedule of following units/plants which are located in high voltage prone area may be finalized.

- Adhunik TPS(both units) –Yet to be confirmed by Adhunik
- JITPL(both units) – After the emergent inspection of OEM(BHEL). In 142nd OCC meeting JITPL informed that testing of U-1 had already been done in 2017. JITPL is requested to share the results of the test.
- Barh TPS – Planned in November 2017 (yet to be done, due to vibration problem)
- Raghunathpur – Planned in December 2017 (yet to be done)
- GMR (Three units) – yet to be tested

ERLDC may elaborate.

TCC may discuss.

ITEM NO. B12:	Web based Protection Database and Desktop based Protection setting calculation tool for Eastern Regional Grid, under PSDF Funding

After grid disturbances in 2012, Ministry of Power had constituted a 'Task Force on Power System Analysis under Contingencies' in December 2012. Task Force strongly recommended creation & maintenance of protection data base under RPCs.

After detailed deliberations in PCC meetings, the issue was placed in 29th ERPC Meeting.

29th ERPC decided to implement the above scheme and authorised Member Secretary, ERPC to:

i) Proceed for tendering etc. and to do the needful for final implementation of the scheme
ii) Place application to PSDF funding

The funding of the work on Creation of Protection Database in Eastern Region from PSDF has been approved by PSDF Appraisal Committee on 17th March 2017.

The project has been implemented by PRDC and declared **Go Live** on 31st October 2017. Training on PDMS organised at ERPC, Odisha, Bihar, WBSETCL, Jharkhand, Sikkim and DVC. The following activities have been completed after declaring the project Go Live:

- Data Collection of Newly Commissioned Stations in Eastern Region
- Training on Protection Database (MiP-PDMS) and Protection Setting Calculation Tool at Sikkim from 8th January 2018 to 10th January 2018.
- Third Phase of MiP-PSCT Training Program at ERPC Kolkata from 5th February 2018 to 9th February 2018
- Network and Database updation of Eastern Region Substations in MiP-PDMS and MiP-PSCT.
- Support for MiP-PSCT and MiP-PDMS users of ERPC Constituents

As per the current payment disbursement status the partial payment is pending under following milestones:

1. Milestone 6 : Populating all ERPC constituent data along with SLD : This activity is completed on 31/10/2017 for which ten percent payment is pending that amounts to Rs.13,29,916 (without TDS).

2. Milestone 8 : Completion of Training Program : As per tender document the project scope includes 35 days of training schedule out of which 33 days have been covered by February 2018. Fifty percent payment is pending under this milestone which amounts to Rs.33,24,789 (without TDS).

In 64th PCC, members approved and referred to TCC for further concurrence.

TCC may approve.

ITEM NO. B13:	**Cyber Security in Power Sector.**

Cyber security has become an area of key concern across the economy especially in areas of critical infrastructure and essential services such as the energy and power sectors. IT Division, CEA is conducting Region-wise meetings with power utilities to create awareness on how to identify Critical Information Infrastructure (CII) and prepare organizational Cyber Crisis Management Plan (CCMP).

CEA may give a presentation.

A. Improved telecom Infrastructure for cyber security

In 142nd OCC, ERLDC informed that, in line with Enquiry Committee Recommendation, cyber security audit is being conducted on regular basis for SCADA system installed at ERLDC and SLDC as well but cyber security audit for telecom infrastructure installed in Eastern Region is not being carried out.

OCC advised all the constituents to conduct the cyber security audit on telecom infrastructure installed in Eastern Region. It is further advised that compliance / mitigation of the points observed during the audit should also be completed for improvement of the telecom infrastructure in ER.

ERLDC may elaborate. TCC may note.

ITEM NO. B14:	**Training and Certification of System Operator**

In line with Enquiry Committee Recommendation of 2012 Grid Disturbance, training and certification of system operators need to be given focused attention. Sufficient financial incentives need to be given to certified system operators so that system operation gets recognized as specialized activity.

In 142nd OCC meeting, members updated the status of certification as follows:

State	Status of certification of system operator
SLDC, West Bengal	Operators will appear for certification in March 2018
SLDC, Odisha	Complied
SLDC, DVC	Complied
SLDC, Jharkhand	4 operators were certified
SLDC, Bihar	Training has been completed but yet to appear in exam for certification
SLDC, Sikkim	No information received

TCC may guide.

ITEM NO. B15:	Procurement of WEB-NET-USE Software for ER Constituents

The PoC Inter-State Transmission Charges and losses are published by CERC on Quarterly basis. A better understanding of the PoC Charges can be developed using "WEB-NET-USE" software which is developed by IIT Mumbai. GRIDCO, Odisha has contacted IIT Mumbai for procurement of the software. It was learnt that this software can be procured from I.I.T. Mumbai at the rate of **Rs 32.2Lakhs plus applicable Taxes, per year, up to 10 logins**. Thus 10 DICs can use the software simultaneously.

CTU is presently raising PoC Bills to all beneficiaries every month. Since the said software is highly essential for developing the understanding of the PoC regime, GRIDCO has suggested that the same should be procured by CTU from IIT Mumbai and hand over the same to ERPC for distribution among the beneficiaries of Eastern Region.

OCC agreed and referred to 37th TCC.

TCC may decide.

ITEM NO. B16:	Inadequacy of DVC transmission system (220kV and below) for meeting its own demand

The total load of DVC system is catered by the 220/132kV ATRs at Jamshedpur, CTPS, DTPS, Kalyaneswari , Giridih, Koderma and Ramgarh. The ATRs at CTPS, Kalyaneswari and DTPS remain heavily loaded and tripping of any ATR is likely to trigger cascade tripping and loss of major load in DVC system. Moreover, during shutdown or forced outage of 220kV Jindal-Jamshedpur tie or nil generation at Bokaro-B, the only 315MVA, 400/220kV ICT at Bokaro-A gets severely overloaded. In the event of loss of 400kV Bokaro-A-Koderma D/C line, the Bokaro-A station has little chance of survival as the existing 315MVA, 400/220kV ICT at Bokaro is insufficient to evacuate the station generation. It has also been observed that, during low generation at CTPS-B, the 220kV Bokaro-B – CTPS-B D/C line gets heavily overloaded and (n-1) security criteria is not satisfied.

In view of the aforesaid facts, DVC needs to expedite strengthening of its transmission system for achieving long term adequacy and till such time, to cope with the rising demand, suitable

load / generation rejection schemes may be urgently implemented to automatically shed load/generation with tripping of associated line / ATR.

ERLDC may elaborate and DVC may respond.

ITEM NO. B17:	Communication link between NLDC Bhutan to Back up NLDC India (ERLDC)

Real time data communication between NLDC Bhutan main and Back up NLDC India located at ERLDC, Kolkata is down since 15th September 2017. Due to this, ERLDC is not getting real time SCADA data of Tala HPS, Chukha HPS, Malbase S/s and Dagachu HPS. The matter has been informed to NLDC Bhutan on several occasions but the communication link is yet to be restored. NLDC Bhutan is requested to restore the real time SCADA data communication at the earliest.

Bhutan may update.

ITEM NO. B18:	Insulator replacement of 220kV Chukha-Birpara D/c line

In 60th PCC meeting, POWERGRID explained that the 220kV Chukha-Birpara D/c line is in lightning prone area. The line was repeatedly getting tripped due to insulator failures. POWERGRID has informed that line insulators of part of the line which is belongs to POWERGRID have been replaced with polymer insulators. As a result, failure of insulators of this portion during lightning had been reduced. However, the line is getting tripped due to failure of porcelain insulators in 39.8 km stretch which is belongs to Bhutan.

In 138th OCC, DGPC informed that BPC is the owner of part of the line which is belongs to Bhutan. They have already replaced porcelain insulators of 7 to 8 towers with polymer insulators.

In 141st OCC, BPC representative informed that supply order had been placed for insulator replacement and the material would be delivered by January, 2018. The replacement of insulators would be completed by April, 2018.

BPC may update.

ITEM NO. B19:	Repair/Rectification of tower at location 79 of 132kV Rangpo-Melli D/c line and Chuzachen(Rangpo)-Gangtok transmission lines

POWERGRID had informed that their patrolling team had observed bent in part of tower no. 79 of 132kV Rangpo-Melli D/c line and Chuzachen(Rangpo)-Gangtok transmission lines which may further degrade the condition of tower.

In 137th OCC, POWERGRID informed that tower no. 79 of 132kV Rangpo-Melli D/c line and Chuzachen(Rangpo)-Gangtok transmission lines falls under the jurisdiction of Energy & Power Department, Govt. of Sikkim.

In 141st OCC meeting, Sikkim informed that works relating to rectification of the tower had been taken up with M/s Gati. The work would be completed by 2nd week of February 2018.

POWERGRID and Sikkim may update.

ITEM NO. B20:	Status of construction of Chuzachen bays at Rangpo S/s.

Construction of bays at Rangpo S/s meant for evacuation of power from Chuzachen has been undertaken by Department of Power, Govt of Sikkim, under consultancy with POWERGRID.

In 35th TCC, Sikkim informed that retendering work was in progress.

Sikkim assured that they would commission the bay within the target date i.e. December, 2017.

In 19th SCM, Sikkim informed that the work has been awarded and commissioning is expected by March, 2018.

In 36th TCC, Sikkim informed that the work has been awarded and commissioning is expected by March, 2018.

Sikkim may update. TCC may guide.

ITEM NO. B21:	Erection and commissioning of 2 nos. of 220 kV line bays at KBUNL

Despite of several requests and reminders, KBUNL is not taking up this work seriously and it appears that the initiatives of KBUNL for construction of bay, which is essential for making available second circuit with Samastipur(New) and Motipur are far from satisfactory and the work is yet to start. Presently 220 KV KBUNL- Samastipur (new) (D/C) & 220 KV KBUNL - Motipur (D/C) tr. lines have only one 220 KV bays each at KBUNL end since long & due to this one circuit each from KBUNL to Samastipur (new) & KBUNL to Motipur remain unutilised. Due to unavailability of these bays at KBUNL end, BSPTCL is facing difficulties for synchronising 220 KV line at KBUNL and also unable to shift loading of Biharsharif(PG)-Begusarai D/C T/L on MTPS for off loading of Biharsharif(PG) ICTs and in case of any contingency occurs at DMTCL(D)-Motipur D/C T/L, MTPS-Motipur S/C T/L also tripped at overloading. It is evident that the transmission infrastructure developed by BSPTCL in North Bihar could not be fully utilized causing limitations in power flow as well as power interruption.

The unavailability of bays at KBUNL is affecting the evacuation of power from KBUNL (Generating Station 2*110 MW+2*195MW). So, keeping these lines in loop at KBUNL will enhance the quality, reliability and stability of system. KBUNL may begin the construction and complete commissioning of 2nd bay in minimum possible time in order to avoid crisis arisen due to unforeseen outage of Biharsharif(PG) and DMTCL(Darbhanga).

As such target dates for the start and completion of the above works may kindly be got ensured from KBUNL.

In 140th OCC, KBUNL informed that tender has been floated and the work will be awarded in December 2017. The work will be completed by March 2018.

In 142nd OCC, it was informed that the work would be awarded by end of April 2018.

KBUNL may update.

TCC may discuss.

ITEM NO. B22:	Outstanding issues towards charging of 220kV Biharsharif-Tenughat line at 400 kV level

POWERGRID vide letter dated 18.01.2017 informed that the scope of POWERGRID for charging the 220kV Biharsharif-Tenughat line at 400 KV level is construction of
(a) 01 no. bay and 0.8Km 400 KV transmission line for termination at Biharsarif S/s (PG)
(b) 5 nos. bays including Erection, Testing & Commissioning of OSM Equipments (i.e. 2 x 250 MVA ICTs, 50 MVAR L/R) at Tenughat end of TVNL.

The issue was discussed in 35th & 36th TCC Meetings.

In 36th TCC, POWERGRID informed that Biharshariff end is ready for charging. TVNL informed that TVNL end would be ready by November 2017.

36th TCC advised ERPC Secretariat to convene a separate meeting as per the decision of special meeting held on 2nd March, 2017 at ERPC Kolkata.

Accordingly, a special meeting was convened on **14th December, 2017** at ERPC Kolkata. The minutes are placed at **Annexure-B22**. In the meeting, the followings emerged:

- TVNL informed that one 250 MVA, 400/220kV ICT was charged from 220kV side along with the line reactor which is charged as bus reactor.
- POWERGRID informed that scope of POWERGRID under deposit work of TVNL has been almost completed except old ICT. The scope of POWERGRID under deposit work of JUSNL at Biharshariff has been completed except stringing of one span due to non availability of shutdown.
- Director (Projects), BSPTCL informed that after charging of 220kV Biharsharif-Tenughat line at 400 kV level, the power availability at 220kV bus at Biharshariff will reduce. Since 400/220kV ICTs at 400kV Biharshariff S/s were already overloaded, there will be a constraint to draw power from 400kV Biharshariff. He requested to expedite the installation of 4th ICT (500MVA, 400/220kV ICT) at Biharshaff which was already approved in standing committee.
- ED, ERLDC informed that due to charging of 220kV Biharsharif-Tenughat line at 400 kV level, Bihar drawl at 220kV bus will be affected and problems in 220kV system may be aggravated specially during summer peak load.
- POWERGRID informed that commissioning of 4th ICT at Biharshaff will take one and half year.
- Director (Projects), BSPTCL informed that argumentation of 315 MVA, 400/220kV ICT of Pasauli with 500 MVA may be differed and the same 500MVA ICT may be utilised at Biharshaff.

- POWERGRID informed that the same may be done subjected to availability of bay equipment at other places and it would take around 6 to 7 months.

A) Strengthening of Line

- It was informed that that 220 kV Tenughat- Biharsharif line is in very bad shape and need strengthening before charging at 400 kV level. The ground clearance might not meet the safety clearance requirement for 400kV level between some spans. It was further informed that line spans were very long and there might be a requirement of installation of new towers.
- It was emerged that the line was jointly maintained by JUSNL and BSPTCL as per their respective geographical area. The line has total 506 towers out of which JUSNL is looking after 290 towers and rest 216 towers are being maintained by BSPTCL.
- JUSNL and BSPTCL were advised to do survey of their respective portion of the line and assess the requirements like ground clearance, sag etc for charging the line at 400kV level. A report on the assessment may be submitted by March 2018.
- JUSNL/TVNL informed that they will face problem in power evacuation during strengthening of 220 kV Tenughat- Biharsharif line due to outage.
- POWERGRID was advised to expedite 220kV TVNL-Govindpur line so that TVNL power can be evacuated during outage of 220 kV Tenughat- Biharsharif line.

It was agreed that before charging of Tenughat- Biharsharif line at 400 kV level separate meeting(s) will be convened by ERPC Secretariat with JUSNL, TVNL, BSPTCL, PGCIL & ERLDC to settle other operational and commercial issues.

POWERGRID/JUSNL/TVNL may update.

ITEM NO. B23:	Issues related to associated / downstream systems

WEST BENGAL

1. **2 nos. 220 KV line bays at Subhashgram (PG) s/s**: Bays are ready and idle charged under ERSS-VIII due to non readiness of 220 KV D/C Subhashgram – Baruipur Tr. line and associated bays at Baruipur. Order recently placed by WBSETCL and expected completion by December 2018. Program for readiness of lines for utilisation of above bays to be confirmed by WBSETCL.

2. **6 nos. 220 KV bays at Rajarhat GIS substation under ERSS-V -** 02 no. bays of 220 KV will be utilized through LILO of 01 ckt of 220 KV Jeerat New Town Tr. line (WBSETCL) at Rajarhat. (Scope -02 nos. tower, 700 mtr stringing); Program for readiness of lines for utilisation of above bays to be confirmed by WBSETCL. Construction activity of 220 kV line bays was completed. Due to public agitation, work is stopped from January' 2017 to till date. Even the security guard of POWERGRID was advised to vacate the premise on 17.01.17 by local police for safety of lives. Severe damage of Panels, cables etc have been done by the miscreants during unmanned period. It may take 3-4 months for completion of 220 kV line bays (damaged by miscreants)

after clearance for re-commencement of the work at Rajarhat S/S by State Govt. administration.

ODISHA

1. **4 nos. 220 KV bays at Bolangir S/S :**Out of total 4 nos. 220 KV line bays, 2 nos. are commissioned during Feb'16 and 2 nos. are pending due to unavailability of 220 KV lines of OPTCL. Program for utilisation of balance 2 bays to be confirmed by OPTCL.

2. **6 nos. 220 KV bays at Pandiabil GIS:** Pandiabil (PG) substation is ready for commissioning since July '16. DOCO held up due to non-readiness of 220 KV lines of OPTCL. OPTCL to confirm plan for readiness of the lines for utilization of 6 nos. 220 KV line bays. Readiness of 220 KV Feeders by OPTCL critical for downstream power flow from Pandiabil (PG) S/S.

3. **4 nos. 220 KV bays at Keonjhar S/S:** Utilisation of total 4 nos. 220 KV line bays is pending due to unavailability of 220 KV lines of OPTCL. Program for readiness of lines for utilisation of above bays to be confirmed by OPTCL.

In 36th TCC OPTCL informed that at Pandiabil, 2 no. bays already utilized and 2 no. bays awaiting for approval of ERLDC. In 142nd OCC, OPTCL updated the completion schedule of inter-connecting system as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**2x315MVA 400/220kV Bolangir S/s**	
a.	LILO of one circuit of Sadeipalli-Kesinga220 kV D/C line at Bolangir S/S	*Only 7 towers left (Severe ROW problem).* ***By June, 2018.***
2.	**400/220kV Pandiabil Grid S/s:**	
a.	Pratapsasan(OPTCL)-Pandiabil(PG) 220 kV D/C line	By Mar, 2018.
3.	**400/220 kV Keonjhar S/S**	
a.	Keonjhar (PG)-Keonjhar (OPTCL) 220 kV D/C line	By Mar, 2018.
b.	Keonjhar (PG)-Turumunga(OPTCL) 220kV D/C line	By 2019.

JHARKHAND

JUSNL has finalised their downstream of 220 KV & 132 KV TL to evacuate the power from Daltonganj (PG) S/S. 400/220Kv Daltonganj (PG) S/S under ERSS III & 220/132 KV Daltonganj (PG) S/S under ERSS XVII are ready. The following downstream work would be constructed by JUSNL to match for drawl of power from 220 KV & 132 KV level from Daltonganj (PG) :

Eastern Region System Strengthening Scheme III :

- Daltonganj (POWERGRID) – Latehar 220Kv D/C
- Daltonganj (POWERGRID) – Garhwa 220kV D/c

Eastern Region System Strengthening Scheme XVII:

- Daltonganj (POWERGRID) – Daltonganj (JUSNL) 132kV D/C
- Daltonganj (POWERGRID) – Chatarpur/Lesliganj132kV D/c

Contingent plan:

The contingent arrangement for the evacuation of power from Daltonganj Substation shall be connecting through existing 220kV D/C Daltaonganj-Latehar (presently charged at 132 kV) line passes through Daltonganj SS (PG), which require the diversion, at a distance of about 1km from Daltonganj(PG) only & It is to be disconnected when the original 132kV line from Daltonganj(PG) to Daltonganj(JUSNL) become ready by M/s R S Infra Private Limited.

JUSNL requested to expedite the transmission line of 220 kV & 132 kV for normalization of the system as required.

The issue was placed in 35th CCM meeting held on 02.08.201 and CCM referred the issue to TCC.

In 142nd OCC, JUSNL updated the latest status as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**Daltonganj 400/220/132kV S/s:**	
a.	Daltonganj (POWERGRID) – Latehar 220kV D/c	By Dec, 2017. Forest clearance is pending, it will take time.
b.	Daltonganj (POWERGRID) – Garhwa 220kV D/c	May, 2018. Forest clearance is pending, it will take time.
C	Daltonganj (POWERGRID) – Daltonganj (JUSNL) 132kV D/c	Dec, 2018. Forest clearance is pending, it will take time.
d	Daltonganj (POWERGRID) – Chatarpur/Lesliganj 132kV D/c	Matching with S/s, Forest clearance is pending, it will take time.

Charging of ICTs at Daltanganj SS

POWERGRID vide letter dated 10.02.2018 informed that Daltangunj SS of POWERGRID is ready for charging in all respect and both 400KV Sasaram - Daltangunge line has already been charged on 31.01.2018.

Further CTU has advised for charging of 220/132 kV ,160MVA ICT-1 & 400/220 kV, 315 MVA ICT-1 of Daltonganj SS from 132kV side (through charging from 132 kV Dalatonganj Daltonganj Line -I of JUSNL). Accordingly the following elements will be charged at Daltonganj SS:

1) 132kV Line bay no. 106 (Daltonganj Line-1 bay) along with 132kV Main Bus
2) 220/132 kV 160MVA ICT-1 through 132 kV bay no. 102
3) 220 kV Bus-1 & 2 through charging bay no. 201 & 211
4) 400/220 kV 315MVA ICT-1 through 220kV bay no. 203
5) 80 MVAR Bus Reactor

After 24 hours charging of ICTs on no-load, it will be synchronized from 400kV side " or " Alternatively if synchronisation is not possible, charging of 220/132 kV, 160MVA ICT-1 &

400/220 kV, 315 MVA ICT-1 from 400KV side along with the 132KV line simultaneously for power flow in radial mode.

In 142nd OCC Meeting, POWERGRID and JUSNL agreed to settle the issues bilaterally in a separate meeting at Daltanganj on 26th February 2018 and above elements would be charged as per the plan.

JUSNL vide mail dated 27th February 2018 informed that revised plan of the charging of elements at Daltonganj SS. As per the revised plan, the elements would be charged during 6th March 2018 to 9th March 2018.

Members may discuss.

ITEM NO. B24:	O&M agreement between BSPTCL and POWERGRID

The following 132 kV and 220 kV bays of M/s BSPTCL has been constructed by POWERGRID under BSPTCL consultancy project:

1. 2 nos. 132 kV bays at Banka for Sultanganj line : Commissioned on 15.07.2015.
2. 2 nos. 220 kV bays at Gaya for Sonenagar line: Commissioned on 03.09.2016.
3. 1 no. 220 kV bay at Patna for Sipara line: Tentative date of commissioning 28.02.2018.

POWERGRID has been maintaining the above bays since commissioning and therefore, agreement for maintenance of above 132 kV and 220 kV bays at Banka, Gaya and Patna need to be enforced between POWERGRID and M/s BSPTCL.

The draft copy of O&M agreement has already been submitted to the Chief Engineer (Proj./BSPTCL vide our letter dated 03.01.2017 but the signing of agreement could not be materialised.

POWERGRID may explain. BSPTCL may update.

ITEM NO. B25:	Installation of PMUs in Eastern Region under URTDSM project

In URTDSM project Phase-I, 78 substations and 306 PMUs are envisaged for Eastern Region. LOA for installation of PMUs in Eastern Region under URTDSM project was awarded to M/s Alstom on 15th January 2014. The contract has to be completed in all respect within 24 months from the award. Substation wise updated status as furnished in 142nd OCC by POWERGRID is given at **Annexure-B25**.

POWERGRID vide letter dated 27th February 2018 informed the status of implementation as follows:

- Supply is completed for 74 substations with 286 PMUs
- Installation and commissioning work is completed for 62 substations with 246 PMUs
- 43 substations with 191 PMUs have already been integrated
- Installation and commissioning work is on hold for following stations:

Sl. No.	Power Plant	Utility	Installation and commissioning status	Remarks
1	IBEUL, Jharsuguda	Ind Barath Power Energy	On hold	Permission Awaited
2	Jindal, Angul	JITPL	On hold	Permission Awaited
3	Monnet, Angul	Monnet	On hold	Permission Awaited
4	Patratu	NTPC	On hold	Front not ready

In 141st OCC, it was informed that Monnet station is not coming up in near future.

OCC advised POWERGRID to take the custody of the material delivered at Monnet.

In 142nd OCC, POWERGRID informed that the installation could not be done at Jindal, Angul due to space constraint. In the meeting, JITPL representative agreed to resolve the issues.

POWERGRID informed that air-conditioning and lighting arrangement in PDC control room at SLDC-Howrah was not yet provided by WBSETCL for PDC installation. The requirement of air-conditioning and lighting in PDC control room at SLDC-Howrah was intimated to WBSETCL during survey on November-2014 but the same is not yet provided. The matter has also been discussed in 20th SCADA O&M meeting held on 15th December-2018 wherein WBSETCL intimated that the same would be done on priority.

TCC may discuss.

ITEM NO. B26:	**Status of bus-bar protection at important 220 kV Sub-stations**

It has been observed that at many 220 kV substations particularly that of STUs, bus-bar protection is either not commissioned or non-functional. The non-availability / non-functionality of bus bar protection, results in delayed, multiple and uncoordinated tripping, in the event of a bus fault. This, in turn, not only results in partial local black out but also jeopardises the security of interconnected national grid as a whole. The matter was also pointed out during the third party protection audit which is being carried out regularly. A list of such important 220 kV sub-stations as per the first third party audit is placed in the meeting.

In 64th PCC, members updated the status as follows:

Bus Bar Protection not available (record as per third party protection audit)				
Sl No	**Name of Substation**	**Bus Bar protection status**	**Date of audit**	**Present Status**
Bihar				
1	220 kV Bodhgaya	Not available	28-Dec-12	*There is no space available for busbar protection*

Jharkhand				
1	220 kV Chandil	Not available	29-Jan-13	*LBB available*
2	220 kV Tenughat	Not available	12-Apr-13	
DVC				
1	220 kV Jamsedpur	Not available	10-Apr-13	*Bus bar protection will be commissioned under PSDF.*
West Bengal				
1	220 kV Arambah	Not available	24-Jan-13	*Relay available at Site and it would be installed in March 2018.*
2	220 kV Jeerat	Not available	20-Dec-12	*The scheme will be in service from 1st week of March 2018 after testing.*

64th PCC advised DVC to install numerical bus bar protection at 220kV Bokaro, Kalyaneswari, Chandrapura, MTPS and Durgapur S/s to improve the reliability. The latest status is placed below:

DVC		
1	220kV Kalyaneswari	*Covered under PSDF.*
2	220kV Durgapur	*Covered under PSDF.*
3	220kV Bokaro	
4	220kV Chandrapura	
5	220kV MTPS	

DVC may place their action plan for 220kV Bokaro, Chandrapura and MTPS.

ITEM NO. B27:	**Replacement of old RTUs in Eastern Region for reporting of RTU/SAS to backup control centres- POWERGRID**

35th ERPC advised ERLDC to convene a separate meeting a form a committee with CTU/POWERGRID as nodal agency for assessment of old RTUs of Central Sector and further necessary action on replacement. Subsequently, two meeting were held at ERLDC,Kolkata on 09th June-2017 and 4th August-2017. The report has been finalized by the committee based on the suggestions received from the various committee members.

In 36th TCC/ERPC meeting, ERPC approved the proposal of replacement of RTU as submitted by the Committee constituted as per advice of ERPC. The scope of Replacement of RTUs in Eastern Region is enclosed at **Annexure-B27**.

It is proposed to implement the above as 'Upgradation of SCADA/RTUs/SAS in Central Sector stations and strengthening of OPGW network in Eastern Region' through tariff basis. **Investment made by POWERGRID on this project shall be recovered through tariff.**

In 142nd OCC, POWERGRID informed that they are going to use the same technical specification of RTU as mentioned in the approved report. In the meeting, POWERGRID confirmed that with the completion of replacement/up-gradation of RTU / SAS, the existing

problem of inability of dual reporting of each sub-station to both the control Centre (ERLDC main as well as ERLDC backup located at New Delhi) and multiple RTU / SAS in a single sub-station will be resolved.

In 142nd OCC, members approved the proposal and referred to TCC for further concurrence.

TCC may approve.

ITEM NO. B28:	Reliable Communication Scheme under Central Sector for Eastern Region

In line with the status of Implementation of Enquiry Committee Recommendations under clause no: 9.15.2 under Network visualization, the last mile fibre availability to all central sector stations were discussed in 20th SCADA O & M meeting held on 15th December 2017 at ERLDC, Kolkata wherein it was pointed out that POWERGRID has already taken approval for last mile fibre connectivity for some stations mainly GMR, JITPL & Ind Bharat etc. in 36th TCC/ERPC meeting held on 13th/14th September 2017 at Bhubaneshwar. Status of last mile fibre connectivity for central sector stations which are still not having fibre connectivity, required for real time SCADA system & AGC, as mentioned below may also be planned.

ISGS	SL NO	NAME OF THE STATION	DISTANCE BETWEEN THE NEAREST COMMUNICATION NODE TO THE UNIT CONTROL ROOM	NEAREST COMMUNCATION NODE	Fiber layed (Y/N)	End Equipment (Y/N)	Availabilty Upto SAS/RTU	Distance Between Gen. and SAS for AGC	Distance Between SAS & Communication Equip.
NTPC	1	FARAKKA STPS	2500M	.....NA.....	Y	Y	N	100M	2400M
	2	BARH STPS	2000M		Y	Y	N	1500M	500M
	3	KAHALGAON STPS	1500M		Y	Y	N	1450M	60M
	4	BRBCL NABINAGAR	81.65KM+1000M	SASARAM (PGCIL)	N	N	N	1000M	
	5	TALCHER STPS	660M	.....NA.....	Y	Y	N	650M	10M
	6	DARLIPALLY STPS	810M	JHARSGUDA (SUNDERGARH)	Y	Y	Y	800M	10M
NHPC	7	RANGIT HPS	600M	.....NA.....	Y	Y	N	580M	20M
	8	TEESTA -V HPS	520M		Y	Y	N	500M	20M
IPP HYDRO	9	DIKCHU HPS	32.67KM+550M	RANGPO (PGCIL)	N	N	N	550M	
	10	TEESTA-III HPS	46.28KM+1800M	RANGPO (PGCIL)	N	N	N	1800M	
	11	JORETHANG HPS	27KM+300M	RANGPO (PGCIL)	N	N	N	300M	
	12	CHUZACHEN HPS	21KM+350M	RANGPO (PGCIL)	N	N	N	350M	
	13	TASHIDING HEP	8KM	New Melli	N	N	N	10M	
IPP THERMAL	14	JINDAL ITPL	85KM+1000M	ANGUL (PGCIL)	N	N	N	1000M	
	15	GMR TPS	30KM+800M	ANGUL (PGCIL)	N	N	N	800M	
	16	IND BHARAT EUL	65KM+700M	JHARSGUDA (SUNDERGARH)	N	N	N	700M	
	17	ADHUNIK PNRL	300M	.....NA.....	Y	Y	N	290M	10M
	18	MPL	31.5KM+1500M	MAITHON (PGCIL)	Y	Y	N	1500M	
	19	OPGCL	220M	.....NA.....	Y	Y	Y	200M	20M
NTPC/ JUSNL	20	Lalmatia	79KM+	Farakka	N	N	N		

It is requested that POWERGRID may take up the matter and implement the same at the earliest.

POWERGRID may respond. TCC may discuss.

ITEM NO. B29:	Issuance of Trail and Operation Certificate (TOC) for DSTPS-RTPS OPGW link by DVC

In 19th SCADA O & M meeting held on 7th April 2017 at ERLDC, Kolkata, POWERGRID had informed that they were not able to complete the OPGW work in DSTPS – RTPS in DVC Sector under Microwave Replacement Package due to severe ROW issue. POWERGRID further informed that they had mobilized the team several times but work could not be completed due to heavy ROW / compensation issues related to TL construction resulting non-completion of 2 nos. OPGW drum (approx. 9 Km) out of total 69.182 Km. POWERGRID again informed that this issue was discussed in various forums but the solution could not be provided by DVC. DVC informed that they are not able to resolve the issue as this was an old ROW / compensation issue related to TL construction. OPGW work in this link could not be completed due to ROW/Compensation issues since September-2013.

In 36th ERPC meeting, matter was deliberated and DVC informed that they would try to resolve ROW issues by 31st October-2017. Otherwise they would provide the necessary certificate.

In 20th SCADA O&M meeting held on 15th December-2017, POWERGRID informed that DVC had not yet issued TOC for this link. DVC confirmed that they will issue TOC and request for a letter from POWERGRID. POWERGRID issued the request letter on 20.12.2017. However, Trail and Operation Certificate is yet to be issued by DVC.

POWERGRID may elaborate.

DVC may update.

ITEM NO. B30:	Implementation of 5-Minute Scheduling, Metering, Accounting and Settlement in Eastern Region-- metering issues

The 15-minute scheduling, metering, accounting and settlement system has been implemented in India in 2002-2003 with genesis in the CERC order on Availability Based Tariff (ABT) mechanism. Government of India (GoI) has set the Renewable Energy (RE) target of 175 GW by 2022. The need for implementing a 5-minute scheduling and settlement at the Inter State level is being felt considering the variability of load and renewable especially considering increasing RE penetration in the coming years. Worldwide, it has been recognized that shorter settlement period such as 5-minute scheduling and settlement offered a lot of advantages, particularly in terms of reduction in the requirement of reserves, robust price discovery and bringing out the value of flexibility.

Technical Committee of Forum of Regulators appreciated the need to move to 5-minute scheduling and settlement and formed a Sub-Group to examine the issue.

The Sub-Group in its meetings decided as below:

- All RPCs may discuss the 5-minute scheduling and settlement
- NPC to follow up the status of amendment of metering standards with CEA and also place the required amendments as agenda item in the next NPC meeting.

- CTU to facilitate collection of the region-wise data on type, vintage and location of existing meters along with proposed procurement process.
- Need for capacity building for better forecasting and scheduling - SLDCs to coordinate with RLDCs/NLDC. Interactive sessions may be organized at different RPCs for generation of ideas and solutions.
- In view of SAMAST implementation, the states who are about to implement the intrastate accounting and settlement system could leapfrog and go for scheduling and settlement at 5- min interval.

In 36th CCM, ERLDC representative gave a presentation on the Implementation of 5-Minute Scheduling, Metering, Accounting and Settlement including the metering issues in the Eastern Region.

However, during the presentation it was felt that the 5-Minute Scheduling involves lots of intricacies as well as challenges. Therefore, ERPC secretariat suggested ERLDC to give a presentation before TCC.

ERLDC may give the presentation.

TCC may discuss.

ITEM NO. B31:	**Additional 0.5% ROE for early completion of 400 kV D/C(Quad) Nabinagar II – Gaya Transmission line along with bays**

In the 36th CCM, POWERGRID had informed that 400 kV D/C(Quad) Nabinagar II – Gaya Transmission line along with 2 nos. associated bays at Gaya substations under "Associated Transmission System for Nabinagar-II TPS(3x660MW) is going to be charged on **28.02.2018**.

As per the Investment Approval, the commissioning schedule of the project is **38 months** from the date of Investment Approval. The date of Investment Approval is **02.04.2016. H**ence the assets are to be commissioned in the progressive manner upto June 2019 and put under commercial operation w.e.f. 01.06.2019 against which the above asset is anticipated to be commissioned and put under commercial operation by **28.02.2018.**

There is no time overrun form schedule date of commissioning as given in the investment approval. As the asset is commissioned with-in time frame of CERC Regulation 2014-19 additional **ROE 0.5 % may be allowed.**

In 36th CCM, POWERGRID elaborated the issue to members. POWERGRID explained that the Commissioning of 400 kV D/C(Quad) Nabinagar II – Gaya Transmission line along with bays is satisfying the various clauses of tariff order 2014-19.

As per clause 24 (iii) (which was reproduced below):

'*additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid'*

After detailed deliberation, no consensus could be arrived regarding additional ROE of 0.5% .

It was decided to refer the issue to the TCC.

TCC may guide.

ITEM NO. B32:	Payment/Receipt Status from various pool accounts in ER

1) Payment of Deviation Charge – Present Status

The status of Deviation Charge payment as on 06.02.2018 is enclosed at **Annexure – B32**. The current principal outstanding Deviation Charge of BSPHCL & JUVNL is ₹ 12.45 Cr & ₹ 12.30 Cr respectively considering bill up to 21.01.2018. Moreover, interest amounts of ₹ 12.16 Lacs and ₹ 22.45 Lacs (as on 31.01.2018) are also payable by BSPHCL & JUVNL respectively due to delay payment of DSM charges. ERLDC had already issued many reminders to BSPHCL & JUVNL to liquidate the entire Deviation charges.

Further SIKKIM and IBEUL had not paid deviation charges to the Pool in FY 2017-18.

In 36th Commercial Sub-Committee Meeting, ERLDC informed that BSPHCL had partially liquidated their dues and the present outstanding stood around ₹ 10 Cr. The outstanding against JUVNL is also around ₹10 Cr. The interest amount outstanding is around ₹12.16 Lacs and ₹ 22.45 Lacs against BSPCHCL and JUVNL respectively.

As per the decision taken in 36th CCM, ERPC secretariat has already written letters to the concerned constituents for liquidation of their dues within 10 days.

ERLDC may update the latest status.

2) Disbursement of Interest due to delayed payment of deviation charges.

ERLDC had received/recovered interest amount of Rs. 1.43 Cr from BSPHCL and Rs. 1.14 Cr from JUVNL towards interest due to delayed payment of deviation charges in FY 2017-18. Similarly, an amount of ₹28,476 towards interest was recovered from APNRL for FY-2016-17. Same amount was paid towards deviation Charges to the receiving constituents and Ancillary services. Final settlement of delayed payment Interest would be done at the end of 2017-18.

Outstanding deviation charges including interest for all the ER constituents (except Vedanta of ₹ 3, 51,637 towards interest) along with Inter-regional Pool during FY 2016-17 are fully settled.

In 36th CCM, ERLDC requested intervention of GRIDCO for resolution of issues related to Vedanta as it is now an embedded entity of the GRIDCO. GRIDCO representative requested ERLDC to write a letter to Vedanta with a copy to GRIDCO so that the issue could be taken up with appropriate authorities.

ERLDC/ GRIDCO may update.

ITEM NO. B33:	Opening of LC by ER constituents for Deviation Charges Payments

Clause 10 (4) of CERC Deviation Settlement Mechanism and related matters Regulations, 2014 vide notification No. L-1/132/2013/CERC dated 6th January, 2014 to be implemented from 17.02.2014.

As intimated by ERLDC, the details of LC amount required to be opened in 2017-18 by ER constituents is given in **Annexure – B33**. Letters to this effect has already been issued by ERLDC to the defaulting entities viz, GMR, IBEUL, JUVNL & JITPL. GMR, IBEUL & JUVNL has not opened/renewed the LC. JITPL LC is going to expire on 08.02.18. Rest of the constituents to whom LC were required to open/recoup the LC, have opened/recoup the LC.

In 36th CCM, ERLDC informed that GATI & SIKKIM had opened their LC.

JUVNL, GMR and Ind-Barath were not present in the meeting.

JUVNL, GMR and Ind-Barath may please intimate the latest status.

ITEM NO. B34:	Meter related Issues

Some of the meter related issues are mentioned below. Due to the meter related issue energy accounting and its validation is being affected.

Issue	Location	Meter No	Line	Responsibility	Problem Since	Remarks
Erroneous data	1.Sundergarh PG	ER-1062-A	765 KV Dharamjaygarh Line-1	PGCIL	15.01.18	Less recording around 10-15%
	2. Patna PG	ER-1232-A	LV side of 500 MVA ICT-3	PGCIL	15.02.18	50 % High Recording
	3. EM Bypass (CESC)	ER-1121-A & ER-1126-A	220 KV Subhasgram(PG) D/C	WB/PG	Charging of Line	Time drift of 14 Hrs since SEM Installation.
	4. Motihari BSPTCL	ER-1256-A & ER-1258-A	132 KV Motihari DMTCL D/C	BSPTCL	Charging of Line	Recording 50 % Less
Non receipt of Data	1. Birpara (WB)	NP-6489-A	132 KV Birpara PGCIL-1	WBSETCL	Almost 3 month	As Informed by WBSETCL Meter is not working
	2.Subhashgram (WB)	ER-1127-A & ER-1003-A	220 KV Subhasgram(PG) D/C	WBSETCL	Charging of Line	Meter is installed in 1st week of Feb 2018 but data is not being sent from WBSETCL
	3. New Town(CESC)	ER-1001-A	220 KV Subhasgram(PG) S/C	WBSETCL	Charging of Line	
	4. Bantala(CESC)	ER-1009-A	220 KV Subhasgram(PG) S/C	WBSETCL	Charging of Line	

ERLDC may explain. PGCIL/BSPTCL/WBSETCL may please update.

Reverse Polarity of meter

Following meters installed at different Locations are connected in Wrong/Reverse Polarity since installation of meters which needs to be corrected. The matter has already been informed to respective Sub stations through e-mail and telephonically.

Location	SEM S. No	Line	Responsibility	Present Status
Jamtara(JUVNL)	NP-6110-A	132 KV Jamtara-Maithon	JUVNL/PGCIL	Same
Raxaul(BSPTCL)	ER-1248-A ER-1249-A	132 KV Raxaul-Motihari DMTCL D/C Line	BSPTCL/PGCIL	Same
Darbhanga(DMTCL)	ER-1272-A ER-1273-A	400 KV Darbhanga DMTCL-Muzafarpur D/C Line	DMTCL/PGCIL	Same

The above issue was last discussed in 36th CCM held on 13.02.18. Wrong Polarity may lead to wrong computation of Injection as well as drawl of respective Utilities.

BSPTCL/JUVNL/DMTCL may correct the Polarity of the meters at their end.

PGCIL/ WBSETCL may please further update the status.

ITEM NO. B35:	Implementation of Automatic Meter Reading in Eastern Region

The implementation of AMR 3rd phase for 37 locations was last discussed in 36th TCC/ERPC meeting held on 13.09.17 & 14.09.17 and it was informed by PGCIL that all 37 locations has been integrated to AMR. There are few locations Like Balimela, Lakisarai(PG), Gyalesing(Sikkim), Sagbari, TUL, Alipurduar, Atri&Samangara wherein AMR is yet to be integrated.

The list of 16 new locations with 68 Meters & 25 existing locations with 68 meters to be implemented in AMR**.**

Presently we are receiving data from 125 locations out of total 147 locations through AMR. The latest status of data receipt from the locations as below:

- Number of meters for which AMR has been commissioned-820 meters/163 DCUs
- Number of Meter & locations as per LOA/Phase-I 458 meters/97 locations.
- Number of Meter & locations as per LOA/Phase-II 198 meters/19 locations.
- Number of Meter & locations as per LOA/Phase-III 249 meters/37 locations.
- Number of meters for which data is received: 690
- Number of locations for which data is received: 125 locations
- Number of DCUs online-130 DCU
- Number of DCUs offline-33 DCU

After the phase-wise completion of AMR for the locations commissioned, some of the utilities have been asked to discontinue the sending of the weekly SEM data through mail. However, in case of an emergency or communication failure, as the case may be, the utilities may download the data through DCD/Laptop and send it by mail. As such, DCD is required to be kept in

charged condition. Of late, there have been issues with the GPRS communication/DCU for around 10 locations.

In 36th CCM, ED, ERLDC lauded POWERGRID for successful completion of the 3rd phase of AMR project .Now all the meters are reporting ERLDC through AMR which, in turn, reduces a lot of difficulties faced by drifting and time correction by the meters.

Presently ERLDC have been receiving data from 125 locations out of total 147 locations through AMR.

PGCIL/ ERLDC may please further update the status.

ITEM NO. B36:	**Implementation of 4th Phase AMR in Eastern Region**

Already 249 Meters were integrated under 3rd Phase of AMR system across Eastern Region as per LOA placed upon M/S. TCS. Now certain new locations and few new feeders at existing locations, also came within this period which need to be integrated now. Accordingly ERLDC has provided the list of SEM's against location wise (Attached as **Annexure-B36.1**). In total approx. 150 SEM's need to be integrated under 4th phase of integration.

Going by the previous LOA and standard escalation of component price on Year to Year basis a tentative cost estimate prepared which is attached as **Annexure-B36.2** for reference. Total cost estimate comes to **Rs. 93,56,948/- (Rs. Ninety three lacs fifty six thousand nine hundred forty eight only).**

Considering the implementation of 4th phase AMR, it is proposed to finalize the contract with M/S. TCS on Single Tender basis. However, exact value will be intimated afterwards when negotiation will be completed with TCS.

In addition to above, discussion is already going on with M/S TCS regarding quantity variation of the existing contract for execution of at least few meters immediately with same rate of existing LOA. On finalization of the issue, exact quantities of SEM & cost implication for quantity variation will be intimated.

In 142nd OCC, members approved the procurement and decided to apportion the cost among the beneficiaries in the ratio of central sector allocation.

OCC has referred to TCC for further concurrence.

TCC may approve.

ITEM NO. B37:	**Agenda by POWERGRID**

1) Non Opening of LC requisite amount of LC :

Following constituents are required to enhance/ extend LC towards Payment Security Mechanism, as per CERC Regulations:

Amount (in Cr.)

Sl No.	Present Value of LC	Value of LC Required
North Bihar Power Distribution Company Limited(NBPDCL)	**9.73**	**29.00**
South Bihar Power Distribution Company Limited(SBPDCL)	**8.89**	**40.00**
Ind-Bharat Energy (Utkal) Limited	**--**	**20.68**

Non-availability of LC for requisite value and validity as per CERC Regulations is causing serious problem for POWERGRID to comply with the provisions of CERC Regulations and Loan Covenants.

In 36th CCM, BSPHCL/BSPTCL representatives were not present.

Members decided to take up this agenda in TCC meeting.

POWERGRID may explain.

BSPHCL/BSPTCL may update.

2) Payment of Outstanding dues more than 60 days :

Amount(in Cr.)

Sl No	Total Outstanding dues	Outstanding due more than 60 days
Vedanta Ltd.	**23.81**	**23.81**
GMR Kamalanga Energy Ltd.	**16.11**	**9.52**
Navabharat Power Pvt. Limited	**8.56**	**8.56**
Jindal India Thermal Power Limited	**12.41**	**12.41**
Monnet Power Company limited*	**10.70**	**10.70**
LancoBabandh Power Private Limited	**6.46**	**6.46**
Ind-Bharat Energy (Utkal) Limited	**179.41**	**165.61**
Damodar Valley Corporation(DVC)	**146.27**	**128.83**
West Bengal State Electricity Distribution Company Ltd.(WBSEDCL)	**93.04**	**8.03**
GRIDCO Ltd	**23.26**	**23.26**
Total	**520.03**	**397.19**

*The Bills/Letters to their Generation unit at Angul, Odisha& Registered office, Greater Kailash,New Delhi. They have refused to acknowledge.

In 36th CCM, DVC informed that there was a petition before APTEL regarding the LTA dispute.

WBSEDCL requested for the breakup of total outstanding dues.

It was decided to discuss in TCC meeting.

Concerned members may update the latest status.

3) O&M Charges of POWERGRID

POWERGRID is doing 400 KV Bay O&M of M/s JITPL at Angul and M/s Indbarath at Sundargarh Sub Stations with Consultancy charges. In spite of several communications, these 02 agencies are not timely paying the Bay O&M Consultancy charges to POWERGRID.

The following are the pending payments to be received by POWERGRID as per bills raised up to the Qtr ending Mar'18.

Sl No	Name of Agency	POWERGRID Sub Station	Total 400 KV Bays	Payment against Bay O&M charges	Pending interest charges	**Total Pending Payment in lakhs**
01	M/s JITPL	ANGUL	04	52.91	52.38	**105.29**
02	M/s Indbarath	SUNDRGARAH	04	88.0		**88.0**

JITPL and Ind-Barath may respond.

4) List of Assets commissioned by POWERGRID.

List of Assets commissioned by POWERGRID is enclosed in **Annexure-B37.**

Members may note.

ITEM NO. B38:	**Non-Opening of LC of requisite value-Agenda by NHPC**

All the beneficiaries are intimated that the calculation sheet of LC for F.Y 2017-18 have been sent which is based upon 105% of average billing w.e.f Jan'2016 to Dec'2016. All the concerned beneficiaries are requested to enhance the existing LC or open the new LC of requisite value before31st March'2017 and same should be valid up to 31st March '2018.

NBPDCL, SBPDCL and JBVNL have not yet provided the LC of requisite amount and requested to open L.C amounting to Rs.6.85 Crs, Rs 9.07 Crs and Rs.8.47 Crs respectively at the earliest beingstatutory requirements as per PPA.

In 36th CCM, NBPDCL, SBPDCL and JBVNL were not present.

NHPC may elaborate.

TCC may discuss.

ITEM NO. B39:	**Augmentation of 400/220kV ICT capacity at Maithon, Patna, Sasaram, Biharshariff**

ICTs of (1X315+1X500) MVA capacity exists at Maithon, Patna and Sasaram. In the peak period, the total power catered by each of the sub-stations is high enough to cause tripping of the parallel 315MVA ICT, if the 500MVA ICT trips. Similarly, if one out of the 3X315 MVA ICTs at Biharshariff trips, the other two ICTs are also likely to trip on overload.

The 315 MVA ICTs at Patna and Sasaram are already planned to be replaced by 500MVA ICTs while a 500MVA ICT is scheduled to be added each at Maithon and at Biharshariff.

19th SCM approved the 3rd 500 MVA ICT at Patna for fulfilling the (n-1) criterion and in view of load growth at Patna area.

CTU informed that in view of changed scenario at first the 3rd 500 MVA ICT will be commissioned at Patna and after that the 2nd 315 MVA ICT will be replaced with 500 MVA ICT.

In 36th TCC, POWERGRID informed the status as follows:

S. No.	*Name of the Substation*		*Status*
1	*Patna*	*Argumentation of 315 MVA ICT with 500 MVA ICT*	*will be replaced in first quarter of 2018-19*
		New 500 MVA 3rd ICT	*Award is yet to be placed*
2	*Maithon*	*Installation of new 500 MVA 3rd ICT*	*Installed in October 2017*
3	*Biharshariff*	*Installation of new 500MVA 4th ICT*	*under awarding stage*
4	*Sasaram*	*Argumentation of 315 MVA ICT with 500 MVA ICT*	*will be done in 4th quarter of 2017-18.*

POWERGRID may update.

ITEM NO. B40:	**Priority-based commissioning of bus reactor for control of high voltage during lean periods**

The latest status updated in OCC Meetings is given below:

S.N.	Reactor	Status
1	125 MVAR Bus reactor of Jamshedpur	Charged on 1st December 2017
2	125 MVAR Bus reactor of Biharshariff	
3	Additional bus-reactor of 125 MVAR capacity at Beharampur.	*Commissioning expected by April'18.*
4.	125 MVAR Bus reactor of Subashgram	*Under tendering stage*

POWERGRID may update.

ITEM NO. B41:	Status of Transmission projects approved in various meetings

The status as updated in 36th TCC/ERPC meeting on transmission projects approved to various meetings is given below:

Sl No.	Scheme	ERPC/SCM Meeting	Latest status
1.	Modification of 132 kV Bus arrangement at 220/132 kV Birpara S/s of POWERGRID from existing single main & transfer bus scheme to double main scheme.	28thERPC Meeting	POWERGRID informed that the work under progress and expected commissioning by Nov'18.
2.	Change in proposed the Associated 765 kV System Strengthening Scheme in ER	28thERPC Meeting, 18th SCM	Under TBCB
3.	Retrofitting of pilot wire protection of 132 kV Purnea (PG) – Purnea (BSPHCL) feeders	26thERPC Meeting	*POWERGRID informed that the scheme was covered in the scheme of modification of 132 kV Bus arrangement at 220/132 kV Purnea S/S of POWERGRID under GIS package. The work has been awarded and expected to be completed by Mar'17.*
4.	Transmission System for immediate evacuation of power from North Karanpura STPP (3x660 MW) to Chandwa and Gaya Pooling stations ofPOWERGRID	25thERPC Meeting	*T/L is under TBCB, POWERGRID informed that Investment approval accorded in Feb'17 BOD. Commissioning of Chandwa is expected in Sep'17, commissioning of Gaya is expected in Sept'19.*
5.	Augmentation of transformation capacity at the existing 400/220 kV Jamshedpur (PG) &Sasaram (PG)S/S	25thERPC Meeting	*POWERGRID informed that for Sasaram- 1st ICT commissioned, 2nd ICT supply expected by June'17. Design review under progress due to*
6.	Establishment of 220 kV MTPS (Extn.) – Muzaffarpur (PG) D/C line (3rd& 4thCircuits)	25thERPC Meeting	*Bay construction at Muzaffarpur completed in consultancy works. To be commissioned in March'17.*
7.	Procurement of 110 MVAR, 765 kV Single Phase spare Reactor unit at Sasaram	25thERPC Meeting	*POWERGRID informed that the work has been awarded on March, 2015 and expected to be delivered by May' 2017.*
8.	Establishment of Gazol 220/132 kV S/S in Malda by LILO of Malda-Dalkhola 220 kV D/C line of POWERGRID	25thERPC Meeting	Not pertaining to POWERGRID
9.	Modification of 132 kV Bus arrangement at 220/132 kV Purnea S/S ofPOWERGRID	25thERPC Meeting	*POWERGRID informed that the scheme will be implemented by Mar'17.*
10.	Single phase spare converter transformer units of 1x234MVA for pole 1 and 1x201.2 MVA for pole 2 at 2x500 MW HVDC Back-to-Back station at Gazuwaka (one for eachpole)	25thERPC Meeting	*NIT completed. Tender evaluation in process.*

11.	GIS bays for 400 kV, 125 MVAR Bus Reactor at Baripada	24th ERPC Meeting	*POWERGRID informed that the work has been awarded and expected to be completed by 3rd qtr of 2017-18.*
12.	Eastern Region Strengthening Scheme-XV; Construction of Farakka—Baharampur 400kV D/C (HTLS) line and Subsequent modification of LILOs	17th SCM & 30th ERPC	*Work awarded and construction of line under progress, expected completion by 2nd Qtr. 2017-18.*
13.	Installation of 3rd 400/220 kV ,1 x3l 5 MVA ICT at Durgapur & New Siliguri Substation	17th SCM & 30th ERPC	*NIT done in Sept'16.Investment approval on Feb'17 BOD. Completion schedule-28 months.*
14.	Commissioning of 2xl60 MVA, 220/132 kV Auto transformer at Daltonganj substation along with 4 number of 132 kV	17th SCM & 30th ERPC	*Award placed, work under Progress, expected commissioning by Nov'17.*
15.	Extension of under construction 400kV D/C Latehar-Essar lines up to 400kV Chandwa Pooling station(PG), under the scope of JUSNL	17th SCM & 30th ERPC	JUSNL to inform
16.	Establishment of 2x500 MVA 400/220kV sub-station at Dhanbad by LILO of both circuits of Ranchi-Maithon RB 400 kV D/C line at Dhanbad	17th SCM & 30th ERPC	Under TBCB
17.	Construction of 6 no. 400 kV line bays and bus splitting (765 kV & 400kV) arrangement at Jharsuguda (Sundargarh) as GIS	17th SCM & 30th ERPC	*Award placed. 2 no's 400kV bays by July'17 & balance by April'19.*
18.	Reconductoring of Maithon RB-Maithon 400 kV D/C line with HTLS conductor	17th SCM & 30th ERPC	*NIT held on 20.12.16 . LOA expectedby April'17.*
19.	Construction of North Karanpura— Gaya 400 kV D/c & North Karanpura -Chandwa (Jharkhand) Pooling Station 400 kV D/c	17th SCM & 30th ERPC	*T/L is under TBCB, POWERGRID informed that Investment approval accorded in Feb'17 BOD. Commissioning of Chandwa is expected in Sep'17, commissioning of Gaya is expected in Sept'19.*
20.	LILO of both circuits of Rourkela-Raigarh 400kV D/c (2nd line) at Jharsuguda on multi circuit towers for about 17 km	18th SCM & 34th ERPC	
21.	Installation of 400/220 kV, 1x500 MVA ICT at Gaya S/s (400kV bay in AIS and 220kV bay in GIS)	18th SCM & 34th ERPC	
22.	Replacement of 400/220kV, 2x315MVA ICTs at Malda S/s with 400/220kV, 2x500 MVA ICTs	18th SCM & 34th ERPC	
23.	Installation of 3rd 400/220kV, 1x315MVA ICT at New Siliguri S/s: to be sourced from pool of spare ICTs (400kV bay in GIS and 220kV bay in AIS)	18th SCM & 34th ERPC	
24.	Installation of 3rd 400/220kV, 1x315 MVA ICT at Durgapur S/s: to be sourced from pool of spare ICTs	18th SCM & 34th ERPC	
25.	Installation of 400/220kV, 2x315MVA ICTs at Jeypore S/s (one each in parallel to the existing ICTs): to be sourced from pool of spare ICTs.	18th SCM & 34th ERPC	

26.	Installation of 400/220kV, 2x315MVA ICTs at Rourkela S/s (one each in parallel to the existing ICTs): to be sourced from pool of spare ICTs	18th SCM & 34th ERPC	
27.	Bypassing arrangement of LILO of Meramundali – Bolangir/Jeypore 400kV S/c line and LILO of one circuit of Talcher – Meramundali 400 kV D/c line at Angul	18th SCM & 34th ERPC	
28.	installation of 400/220kV, 500MVA ICT (4th) at Biharsharif S/s	18th SCM & 34th ERPC	
29.	Establishment of 400/220/132kV, 2x500MVA + 2x200MVA new S/s at Sitamarhi	18th SCM & 34th ERPC	
30.	2x125MVAr, 420kV bus reactors along with bays	18th SCM & 34th ERPC	
31.	Darbhanga – Sitamarhi (New) 400kV D/c (Triple Snowbird) line	18th SCM & 34th ERPC	
32.	Sitamarhi (New) – Motihari 400kV D/c (Triple Snowbird) line	18th SCM & 34th ERPC	
33.	Establishment of 400/220/132kV, 3x500MVA + 3x200MVA new S/s at Chandauti	18th SCM & 34th ERPC	
34.	2x125MVAr, 420kV bus reactors along with bays	18th SCM & 34th ERPC	
35.	LILO of both circuits of Nabinagar-II – Gaya 400kV D/c (Quad) line of POWERGRID at Chandauti (New)	18th SCM & 34th ERPC	
36.	Establishment of 400/220/132kV, 2x500MVA + 2x200MVA new S/s at Saharsa	18th SCM & 34th ERPC	
37.	2x125MVAr, 420kV bus reactors along with bays	18th SCM & 34th ERPC	
38.	LILO of Kishanganj – Patna 400kV D/c (Quad) line of POWERGRID at Saharsa (New)	18th SCM & 34th ERPC	
39.	Installation of 400/132kV, 315MVA (3rd) ICT at Motihari substations of Essel Infra	18th SCM & 34th ERPC	
40.	Installation of 400/132kV, 315MVA (3rd) ICT at Banka and Lakhisarai substations of POWERGRID	18th SCM & 34th ERPC	
41.	Reconductoring of Rangpo – Siliguri 400kV D/c Twin Moose line with Twin HTLS conductor along with suitable modification in line bay equipment at both ends	18th SCM & 34th ERPC	

42.	Conversion of fixed line reactor at Purnea end of Kishanganj – Purnea 400kV D/c line to switchable line reactor	18th SCM & 34th ERPC	
43.	a) Nabinagar-II – Gaya 400kV D/c line with Quad moose conductor (b) Nabinagar-II – Patna 400kV D/c line with Quad moose conductor (c) Additional 1x1500MVA, 765/400kV ICT at Gaya	18th SCM & 34th ERPC	
44.	Derang - Angul 400 kV D/C line along with two 400kV line bays at Angul S/s	18th SCM & 34th ERPC	
45.	Installation of 400/220kV, 500MVA ICT (3rd) at Maithon	18th SCM & 34th ERPC	
46.	Replacement of existing 50MVA, 220/132 kV ICT at Malda with new 160 MVA, 220/132 kV ICT	18th SCM & 34th ERPC	
47.	Installation of 420kV, 1x125MVAR bus reactor at Subhasgram S/s of POWERGRID	18th SCM & 34th ERPC	
48.	Provision of 765kV, 80MVAr single phase spare reactor at Ranchi (New) substation of POWERGRID	19th SCM	
49.	Baharampur (India) – Bheramara (Bangladesh) 2nd 400kVD/c line	19th SCM	
50.	conversion of 50MVAR (3x16.67 MVAR) bus reactor at Farakka to switchable line reactor to be installed in one circuit of Farakka – Baharampur 400kV D/c line as	19th SCM	
51.	Additional 400/220kV, 500MVA ICT (3rd) along with associated bays at Patna.	19th SCM	
52.	Bypassing Durgapur – Farakka (150km) 400kV D/c and Farakka – Kahalgaon (95km) 400kV 1st D/c (ckt-1 & 2) lines outside the switchyard so as to form Durgapur – Kahalgaon 400kV D/c line to limit fault level at Farakka generation switchyard.	19th SCM	
53.	Installation of 4th 220/132kV, 160MVA ICT at Rangpo	19th SCM	
54.	LILO of 2nd circuit of Teesta III – Kishanganj 400kV D/c (Quad) line at Rangpo with Twin HTLS conductor	19th SCM	
55.	400kV multi circuit tower/line at Rangpo end for termination of LILO of both circuits of Teesta III – Kishanganj 400kV D/c (Quad) line at Rangpo.	19th SCM	

POWERGRID may update.

PART C: ITEMS FOR INFORMATION

The following items are placed before TCC for noting and compliance:

ITEM NO. C1 :	Phasing Plan for implementation of new Environmental Norms for Thermal Plants, issued by MOEF&CC

A committee headed by Chairperson, CEA was constituted by Ministry of Power; Govt. of India vide Office Order No. FU-1/2015-IPC dated 21.09.2016 for preparing a phasing plan for implementation of new environmental norms issued by MoEF & CC in December 2015 regards to SPM, Sox & NOx emissions. The 1st & 2nd meeting of committee was held on 21.10.2016 and 13.12. 2016 respectively.

A special meeting was convened on 13.02.2017 at ERPC, Kolkata wherein a quarter wise tentative plan for installation of FGD has been prepared for the thermal units of Eastern Region and the same was updated in consultation with all ER constituents**.**

Further the thermal units, which are not in a position to install FGDs due to non-availability of space and would not be able to meet new SOx emission norms are required to be phased out. In the meeting held on 14th March 2017, between Secretary (P) and Secretary (MoEF&CC), it was decided that CEA would prepare the plan for phasing out the aforesaid. Subsequently, a special meeting was convened on 24.03.2017 at ERPC, Kolkata and a phasing out plan has been prepared in consultation with all utilities including RLDCs.

The Region wise lists of phasing plan for implementation of new environmental norms were prepared by RPC's and consolidated by TPE&CC Division, CEA. Some further modification in the phasing plan was also carried out as per communication from the respective State Governments /PSUs/IPP's. The phasing plan was submitted to MoP which was further submitted to MoEF& CC.

Subsequently, a meeting between Secretary (Power) and Secretary (MoEF& CC) was held at New Delhi on 01.09.2017 to discuss the implementation plan. It was decided that implementation plan must be restricted to 31.12.2022.

Therefore, members may go through the existing phasing plan for their respective plants/units for ESP Upgradation and FGD installation in consultation with concerned Power utilities, SLDC & POSOCO and freeze the implementation plan within 31.12.2022.

In 36th TCC, CE, CEA informed that the existing phasing plan needs to be revised to complete the implementation plan within 31.12.2022.

A separate meeting was held at ERPC, Kolkata on 27th February 2018. Minutes of the meeting are available on ERPC website.

The Final Phasing Plan as received from CEA is given in Annexure-C1.

ITEM NO. C2 :	Status of Installation of STATCOM in Eastern Region

In the 15th meeting of SCM it was agreed to install STATCOM in combination with mechanically switched Reactors (MSR) and Capacitors (MSC) and co-ordinated control mechanism of MSCs and MSRs at Ranchi, Rourkela, Jeypore and Kishanganj substations in Eastern Region.

The matter was again discussed in the 28th ERPC/TCC meeting held on 12th -13th September, 2014 at Goa, wherein, it was decided that POWERGRID may go ahead with implementation of the STATCOM project in Eastern Region with debt – equity ratio of 70:30 funding. The debt part should be refunded through PSDF and Equity Component (30%) to be funded by POWERGRID to be recovered through regulated tariff mechanism. CTU should initiate the process of availing fund from PSDF.

POWERGRID updated the latest status as follows:

Sl No	Location /Sub-Station of POWERGRID in ER	STATCOM - Dynamic Shunt Controller (MVAr)	Mechanically Switched Compensation Sl. (MVAr)		Latest status
			Reactor (MSR)	Capacitor (MSC)	
1	Rourkela	±300	2x125		*Expected to complete by Mid Feb. 2018*
2	Kishanganj	±200	2x125		*70% civil work completed. 30% switchyard equipment supplied. Expected to complete by December 2018*
3	Ranchi(New)	±300	2x125		*80% civil work completed. All switchyard equipment, reactors and 3 transformers supplied.* *Expected to complete by April 2018*
4	Jeypore	±200	2x125	2x125	*Expected to complete by June 2018*

ITEM NO. C3 :	Black-start and restoration procedure of Eastern Region

The black-start and restoration plan for Eastern Region has been updated in compliance to Section 5.8(a) of the IEGC.

The draft black start and restoration procedure of Eastern Region was circulated to all regional entities of the region through mail on 19-01-18 for their observations / comments. Based on feedback received from some of the constituents, the procedure has been updated and emailed to concerned utilities vide letter no. ERLDC/RP/2018/SS/ 5846 dated 30-01-17.

ITEM NO. C4 :	Bus Splitting operation of 400kV Maithon Sub-station

ERLDC vide mail dated 8th January 2018 informed that split-bus mode operation of Maithon 400kV S/stn was implemented w.e.f. 12:23 Hrs of 05-01-18, by opening the sectionalizing CBs between bus sections A and B. Disposition of line/ICTs are as follows:

Sl No	Maithon – B (Bus 2 & 4)	Maithon-A (Bus 1 & 3)
1	400 kV Maithon- MPL D/C	2 x 500 MVA 400/220kV ICT
2	400 kV Maithon Ranchi	400 kV Maithon-Mejia I & II
3	400 kV Maithon-Raghunathpur	400 kV Maithon-Gaya D/C
4	125 MVAR B/Reactor-2	400 kV Maithon-Kahalgaon-II
5	400 kV Maithon-Parulia (Durgapur) D/C	400 kV Maithon-Jamshedpur
6	400 kV Maithon-Kahalgaon -I	125 MVAR B/Reactor-1
7	400kV Maithon – Mejia-III	

Power flow before and after the bus spilitting are enclosed at **Annexure-C4**.

In 141st OCC, ERLDC informed that there is significant reduction in the fault level and placed the fault level details before and after the bus splitting as follows:

FAULT LEVEL	BEFORE		AFTER	
	3 PHASE MVA	3 PHASE CURRENT(KA)	3 PHASE MVA	3 PHASE CURRENT(KA)
MAITHON-A	32067	46.286	16350.08	23.6
MAITHON-B	32067	46.286	24926.944	35.98

ITEM NO. C5 :	Bus Splitting of Kahalgaon STPS Stage I&II, NTPC

In 24th ERPC meeting held on 27.04.2013, ERPC advised NTPC to go ahead with the bus-splitting scheme as it is a technical requirement for safe, secure operation of the grid.

In 32nd TCC, NTPC informed that they are going ahead with the implementation of Bus Splitting of Kahalgaon STPS Stage I&II and the implementation is expected to be completed by December, 2018.

In 126th OCC, NTPC has given the present status as follows:

- 400/132kV Switchyard package - bid opened on 14.03.16. Awarded on 04.05.2016.
- Site levelling – Site levelling work has been completed.
- Transformer package and Shunt reactor– have been awarded.

In 35th TCC, NTPC informed that the work is in progress as per the schedule and the bus splitting will be completed by December, 2018.

In 140th OCC, NTPC informed that Bus reactor is at site and Banka line I & II would be shifted by March 2018. Bus splitting would be implemented by December, 2018.

ITEM NO. C6 :	FSTPS Islanding Scheme, NTPC

In 137th OCC, NTPC informed that Farakka unit #3 is also interfaced with Farakka islanding scheme during overhauling. The FSTPS islanding scheme is in service with U#1&3.

ITEM NO. C7 :	Payment/Receipt Status from various pool accounts in ER

1) Reactive Energy Charges – Present Status.

The updated position of Receipt/Payment of Reactive Energy Charges in the pool as on 06.02.2018 (considering bill up to 21.01.2018) is indicated in **Annexure – C7.1.** The total outstanding receivable on account of Reactive charges from WBSETCL/WBSEDCL is ₹ 2.56 Cr, from GRIDCO is ₹ 41.18 Lac & from SIKKIM is ₹1.77 Lac.

Out of the above amount of ₹ 2.56 Cr w.r.o WBSTCL/WBSEDCL, reactive amount receivable from WBSEDCL prior to 04.01.2016 is ₹ 1.82 Cr (prior to Suo-moto order dated 21.07.2016 of the Hon'ble WBERC in the matter of case no: SM-14/16-17) which is long pending and not cleared yet.

In 36th CCM, ERLDC informed the Reactive amount receivable by the ER Reactive Pool from WBSETCL/WBSEDCL prior to 04.01.2016 is ₹ 1.82 Cr has been pending for a long time. ERLDC requested for early liquidation of the amount.

WBSETCL/WBSEDCL informed they are unable to come to a consensus on this matter of sharing of Reactive energy charges between them for the outstanding dues prior to 04.01.2016.

After the notification of WBERC order, there are no outstanding for the period starting from 04.01.2016. However, as the order is silent for the period prior to 04.01.2016. As a result, WBSEDCL was unable to get resolve the issue.

2) RRAS Account ----Present Status.

The updated position of Payments to the RRAS Provider(s) from the DSM pool and Payments by the RRAS Provider(s) to the DSM pool as on 06.02.2018 (considering bill up to 21.01.2018) is indicated in **Annexure – C7.2**. So far ₹ 208.7 Cr have been settled under RRAS in ER during FY 2017-18.

3) Congestion account - Present Status

The status of congestion charge payment after full settlement is enclosed at **Annexure –C7.3.**

4) Status of PSDF

An amount of Rs 17.59 Cr from Reactive account have been transferred to PSDF after 35th Commercial sub-committee meeting held on 02.08.17. With this the total amount of Rs 939.3 Cr has been transferred to PSDF so far. No amount from Deviation pool has been transferred to PSDF A/c since 29.06.16 and surplus amount in deviation pool is being utilized for settlement of RRAS Bill. The break up details of fund transferred to PSDF (till 06.02.18) is enclosed in **Annexure-C7.4.**

ITEM NO. C8 :	Reconciliation of Commercial Accounts

1) Reconciliation of Deviation Accounts.

At the end of 3rd quarter of 2017-18, the reconciliation statement (Period: 01.10.17 to 31.12.17) has been issued by ERLDC on 08.01.18 and statements had been sent to the respective constituents and also uploaded the same at ERLDC website at http://erldc.org/Commercial-ER/Constituents/Reconciliation_17_18/. The constituents were requested to verify /check the same & comments if any on the same were to be reported to ERLDC by 31.01.2018. The status of reconciliation is enclosed in **Annexure-C8.1.**

BSPHCL, JUVNL, DVC, SIKKIM, GMR, TPTCL (DAGACHU) & JLHEP (DANS Energy) have not signed reconciliation statement for last two or more quarter of 2017-18.
Further NHPC, JITPL, BRBCL & TASHIDING have not signed reconciliation statement for 3rd Quarter of 2017-18.

IBEUL & Teesta-III have not yet signed any reconciliation statement since becoming regional entity. Further BSPHCL, DVC & GMR have not signed reconciliation statement for 3rd Quarter of 2016-17.

Above constituents are once again requested to submit the signed reconciliation statement at the earliest. If the confirmation is not received within 2 weeks from the date of issuance of the letters the statements issued by ERLDC will be deemed to have been reconciled.

In 36th CCM, ERLDC informed that the reconciliation statements had been sent to the respective constituents and the same was also uploaded at ERLDC website. However, most of the constituents have not signed reconciliation statement for last two or more quarters of F.Y 2017-18.

BSPHCL, JUVNL, SIKKIM, GMR, TPTCL, JLHEP, BRBCL & TASHIDING did not attend the meeting.

ERLDC informed that DVC & BRBCL have reconciled the statement for pending quarters.

NHPC representative sent the reconciliation statements on 12/02/2018 for the last two quarters. Remaining constituents were requested to submit the reconciliation statements at the earliest.

2) Reconciliation of Reactive Account

At the end of 3rd quarter of 2017-18, the reconciliation statement (Period: 01.10.17 to 31.12.17) has been issued by ERLDC on 09.01.18 and statements had been sent to the respective constituents and also uploaded the same at ERLDC website (www.erldc.org). Constituents were requested to verify /check the same & comments if any on the same were to be reported to ERLDC.

In 36th CCM, GRIDCO & WBSETCL have reconciled the Reactive Account statements.

SIKKIM representative was absent.

3) Reconciliation of RRAS Account

At the end of 3rd quarter of 2017-18, the reconciliation statement (Period: 01.10.17 to 31.12.17) has been issued by ERLDC on 09.01.18 and statements had been sent to the respective constituents (NTPC and BRBCL) and also uploaded the same at ERLDC website (www.erldc.org). NTPC & BRBCL has already reconciled the RRAS Account.

4) Reconciliation for STOA payments made to SLDC / STU:

The reconciliation statements of STOA payments for Quarter-I(Apr-17 to Jun-17), Quarter-II(Jul-17 to Sep-17) and Quarter-III(Oct-17 to Dec-17) of 2017-18 have been sent to the DVC, OPTCL and WBSETCL for checking at their end and confirmation.

WBSETCL is yet to confirm for Quarter-II and Quarter-III of 2017-18. DVC and OPTCL is yet to confirm for Quarter-III of 2017-18.

As per clause 15.1 of CERC approved STOA bilateral procedure since the confirmations have not been received within 2 weeks from the date of issuance of the letters the statement issued by ERLDC have been deemed to be reconciled.

In 36th CCM, WBSETCL informed that they would check reconciliation statements of STOA payments and revert back soon. DVC & OPTCL informed that they would get reconciliation completed at the earliest.

5) Reconciliation for payments received from STOA applicants:

The reconciliation statements of STOA payments for Quarter-I(Apr-17 to Jun-17), Quarter-II(Jul-17 to Sep-17) and Quarter-III(Oct-17 to Dec-17) of 2017-18 have been sent to CESC,GMRKEL, JITPL, JUVNL, SAIL-RSP, TSFAP Bamnipal, TSFAP Joda, TSL Kalinganagar,MPL and WBSEDCL for checking at their end and confirmation.

- CESC, JITPL, TSFAP Joda and TSFAP Bamnipal has confirmed for the entire period.
- GMRKEL and MPL are yet to confirm for Quarter-III of 2017-18.
- JUVNL is yet to confirm for Quarter-II and Quarter-III of 2017-18 .
- SAIL-RSP is yet to confirm for Quarter-I, Quarter-II and Quarter-III of 2017-18.
- TSL Kalinganagar is yet to confirm for Quarter-I and Quarter-II of 2017-18.
- WBSEDCL is yet to confirm for Quarter-II of 2017-18.

As per clause 15.1 of CERC approved STOA bilateral procedure since the confirmations have not been received within 2 weeks from the date of issuance of the letters the statement issued by ERLDC have been deemed to be reconciled. The details is attached in the **Annexure-C8.5.**

Since there is a serious audit objection on non-signing of DSM, Congestion and STOA reconciliation statement it is once again requested that all regional pool members may check and sign the statement sent by ERLDC.

In 36th CCM, JUVNL, GMR & MPL representative were not present.

ERLDC informed that WBSEDCL has confirmed the statement on 12.02.2018.

All beneficiaries were requested to get the statements reconciled so that audit issues could be avoided.

ITEM NO. C9 :	**STU and SLDC Transmission &Operating charges**

1) State Transmission Utility Charges and Losses applicable for STOA for FY 2017-18

As available with ERLDC the STU charges and losses to be considered for STOA for FY 2017-18are as follows:

Name of STU	**Intra-State Transmission Charges**	**TRANSMISSION LOSS (For Embedded entities)**
WBSETCL	*	3.10%
DVC	Rs. 80 / MWh	2.68%
OPTCL	Rs. 62.5 / MWh	3.50%
JUSNL	*	#
BSPTCL	*	#
SIKKIM	*	#

* Indicates rates yet to be furnished by concerned State Utilities. Transmission Charges for use of state network shall be Payable @ Rs.80 per MWh as per subsequent Amendment regulation 2009-dated 20.05.2009.
# Not yet intimated by the State Utility.

2) State Load Despatch Centre Operating Charges for STOA for FY 2017-18

Name of SLDC	**SLDC Operating Charge**
West Bengal	**
DVC	**
Odisha	Rs. 2000
Jharkhand	**
Bihar	**
SIKKIM	**

** Indicates rates yet to be furnished by concerned State Utilities. Operating charges at the rate of Rs 1000/-, per day or part of the day for each bilateral transacti on for each of the Regional Load Despatch Centre involved and at the rate of Rs 1000/- per day or part of the day for each State Load Despatch Centre involved shall be payable by the applicant as per subsequent Amendment regulation 2009-dated 20.05.2009.

In 36th CCM, WBSETCL intimated that intra-state transmission charges for West Bengal are Rs 1,63,374.36 ₹/MW/Month for LTAand Rs 1361.45 ₹/MW/Day for STOA charges as per the latest WBERC regulation.

WBSLDC informed that the SLDC charges are 1.5% of transmission charges and 0.5% of transmission charges for Renewable Energy Sources.

ERLDC requested constituents to inform immediately regarding revision of transmissionloss, Intra state transmission charges, Operating charges of SLDC, etc through letter/email.

Further, it was emphasized in the meeting that there should be uniformity in the tariff pattern throughout the country issued by the state commission and central commission either in MWHr or in Rs/MW.

ITEM NO. C10 :	**Procurement of new SEMs**

In 30th ERPC meeting procurement of 965 no of SEM's and 110 nos of Laptop/DCD (in 111th OCC meeting) was approved. Further 31st TCC/ERPC approved the cost sharing mechanism of expenditure on SEM's and DCD/Laptops along with POWERGRID overhead charges @ 15% to be shared by the beneficiaries constituents of Eastern Region in proportional to the share allocation for the month in which the proposal was approved in the ERPC meeting.

In 35th CCM held at ERPC on 02.08.17, PGCIL informed that in 1st phase, 300 meters and 40 laptops with software had been supplied by M/s Genus so far.

Out of 300 meters delivered so far, around 200 meters is already installed/ replaced at different locations in ER. Time drifted meters/Elster meters are to be replaced by Genus meters phase wise.

In 36th CCM, POWERGRID assured that, after delivery of the second lot of Genus meters by the end of the March,2018, action for time correction of heavily drifted meters and implementation of the AMR project be started.

ITEM NO. C11 :	**Time correction of SEMs in Eastern Region – Replacement of heavily drifted SEMs**

The issue was discussed in 35th TCC/ERPC meetings and it was felt that the meters with severe drift greater than 10 min need to be replaced first and if replacement is done with Genus then readings are to be collected manually using Laptop till interfacing with AMR is completed. 35th ERPC advised POWERGRID to replace the 10% of the heavily drifted SEMs with new Genus make meters in Phase-I. Subsequently drifted meter replacement work of Phase –I for 24 meters have been completed.

As per decision taken in 134th OCC meeting, another 10% heavily drifted meter list was prepared by ERLDC and given to POWERGRID for replacement. In 141st OCC it was informed that all the Phase-II meters have been replaced. Since issue of integration of Genus meter is already resolved, It was also decided that list of meters to be replaced in next phase may be prepared.

Accordingly List of drifted meters to be replaced in Phase-III is placed at **Annexure-C11**.

In 36th CCM, POWERGRID assured that, after delivery of the second lot of Genus meters by the end of the March, 2018, action for time correction of heavily drifted meters and implementation of the AMR project be started.

ITEM NO. C12 :	Non-submission of weekly SEM readings by Tuesday noon from non-AMR Locations/ faulty AMR locations/ Genus meter locations

As per IEGC (effective from 3.5.2010) Sub-clause-22 of Clause-6.4 (demarcation of responsibilities), all concerned utilities in whose premises SEMs are installed shall take weekly meter readings and transmit the same to RLDC by Tuesday noon for timely issuance of Deviation account Bill. Significant improvement in timely receipt of SEM data has been seen after AMR implementation at various locations and most of the meter data is being received by Tuesday. Recently Genus meters are installed at many locations in Eastern Region and integration of Genus meter in AMR is under progress, data of Genus meters from those locations which are yet to be integrated in AMR are being sent manually. It was also gathered that if concerned person responsible for data downloading is on Leave or not available, meter data is not being sent from those substations.

However general trend of receipt of meter data in last few months is as below:

By Wednesday or later: Birpara, Baripada, Pandiabili, NTPC Farakka, WBSETCL (North Bengal, PPSP, Kharagpur) & SIKKIM

In 36th CCM, constituents were requested to send the data on time.

WBSETCL assured to do the needful to get the meter readings to ERLDC on time.

ERLDC informed that due to non-integration of Genus meters in AMR, some of the streamlined stations were also going in default mode.

ITEM NO. C13 :	Integration of Genus Make meter in AMR

In Eastern Region, order for procurement of 965 no of SEM's was placed with M/s Genus Power. First Lot of the meters have already been delivered by Genus and 24 meters of Genus make meter has been installed in different substation in ER. Issue of Integration of Genus make meters in AMR system was discussed in different fora of ERPC since March,2017. In 36th ERPC meeting POWERGRID informed that a meeting would be held on 20th September 2017 wherein the interfacing issues would be resolved by M/s TCS and M/s Genus.

In 137th OCC, POWERGRID informed that a meeting would be held at RHQ Kolkata on 25th September 2017 wherein the interfacing issues would be discussed and resolved by M/s TCS and M/s Genus.

In 25th September 2017 meeting, it was agreed by all concerned that GENUS will implement the required changes at meter level within 15th October 2017 to resolve the pending issues related to Integration of Genus meter with AMR.

In 138th OCC, POWERGRID informed that integration of Genus meters with AMR is pending because time block identification problem. This problem will be resolved through software by TCS on payment basis within 15 days.

In 139th OCC, POWERGRID informed that integration of Genus meters with AMR will be completed within 20 days. POWERGRID added that additional financial implication of 10 Lakhs (approx) has been taken into consideration as per LOA.

In 140th OCC, POWERGRID informed that the integration issues of Genus meters with AMR have been resolved.

ITEM NO. C14 :	**Third Party Protection Audit and UFR Audit in Eastern Region**

1. 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	27	39.71
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 POWERGRID are related to PLCC problems at other end.*

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

TCC may note.

2. Status of 2nd Third Party Protection Audit:

2nd Third Party Protection Audit for Sub-stations of Eastern Region has been started from July, 2015. Till date (31st Jan 2018) the audit team has completed two nos 765kV, 32 nos of 400 kV, 4 nos 220kV and 11 nos 132kV Sub-stations. The list is enclosed at **Annexure-C14.2**.

The list of observations for the above sub-stations is already available at ERPC website (www.erpc.gov.in). Respective constituents are requested to comply and submit the report to ERPC for regular update.

TCC may note.

3. UFR audit report of OPTCL substations visited on 02.01.2018 & 05.01.2018

The ERPC UFR inspection group visited 220/132/33kV Jayanagar, 132/33kV Sunabeda and

220/132/33kV Terubali substations of OPTCL for UFR Audit on 02.01.2018 & 05.01.2018. During the inspection, it was found that load (average 0.2 MW & peak 0.5 MW) of 33kV Laxmipur feeder is almost negligible compared to the desired load of 8 MW as per the UFR feeder list submitted by SLDC, Odisha.

The report is enclosed at **Annexure-C14.3**.

In 141st OCC, OPTCL was advised to change 33kV Laxmipur feeder with suitable feeder of desired load.

ITEM NO. C15 :	**Status of PLCC system installed in Eastern Region**

According to CEA technical standard for construction of electric plants and electric lines - Clause 43(4) (c), transmission line of 220 KV and above should have single-phase auto-reclosing facility for improving the availability of the lines. However, from the tripping details attached June-August, 2016 it is evident that the some of 220kV above Inter & Intra-Regional lines do not having auto-reclose facility either at one end or at both ends. Out of these for some of the lines even PLCC/OPGW is not yet installed and carrier aided protection including Auto re-closer facility is not yet implemented. Based on the tripping of June- August, 2016 and PMU analysis a list of such lines has been prepared and as given below:

List of line where auto reclose facility is not available(Information based on PMU data analysis)

S. No	**Transmission Lines name**	**Date of Tripping**	**Reason of Tripping**	**Owner Detail**		**Present Status**	
				End-1	**End-2**	**OPGW/PLCC Link available**	**AR facility functional**
1	220KV BUDIPADAR-KORBA-II	23.06.16	Y-N FAULT	OPTCL	CSEB	PLCC available	will be activated in consultation with Korba
2	220 KV TSTPP-RENGALI	17.07.16	EARTH FAULT	NTPC	OPTCL		by March 2018
3	220KV BUDIPADAR-RAIGARH	21.07.16	EARTH FAULT	OPTCL	PGCIL	PLCC defective	
4	400 KV KOLAGHAT-KHARAGPUR	03.08.16	Y-N FAULT	WBPDCL	WBSETCL		1 ckt resolved
5	220 KV FARAKKA-LALMATIA	03.08.16	B-N FAULT.	NTPC	JUNSL	Yes	Old Relay and not functional. 7-8 months required for auto re-close relay procurement.

6	220 KV MUZAFFARPUR - HAZIPUR - II	10.08.16	B-N FAULT	PGCIL	BSPTCL		Voice established. For carrier required shutdown
7	220 KV ROURKELA - TARKERA-II	11.08.16	B-N FAULT	PGCIL	OPTCL	OPGW available	Expected to install protection coupler by Jan 17
8	220 KV BIHARSARIF-TENUGHAT	07.09.16	B-N FAULT	BSPTCL	TVNL		
9	220KV Bidhannagar-Waria-II			WBSETCL	DVC		
10	220KV Jamshedpur-Jindal-SC						

OPTCL:

1. 220kV Rengali(PG)-Rengali S/Y (Proposal for Commn. in OPGW is pending): *PSDF appraisal committee accepted the proposal*
2. 220kV Indravati(PG)-Indravati(PH) (Proposal for Commn. in OPGW pending): *PSDF appraisal committee accepted the proposal*
3. 132kV Baripada(PG)-Baripada (Tendering in Progress for OPGW): *Contract awarded*
4. 132kV Baripada(PG)-Rairangpur (Tendering in Progress for OPGW): *Contract awarded*

BSPTCL:

1. 220kV Purnea (PG)-Madhepura line
2. 220 kV Biharshariff- Begusarai line *commissioned*
3. 220 kV Biharshariff- Bodhgaya line

Work is in progress expected to be by December 2017.

4. 220kV MTPS-Motiari line
5. 220KV Madhepura-New Purnea D/C — Auto recloser is out of service at Madhepura
6. 220KV Muzaffarpur-Hajipur D/C line — Auto recloser is out of service at Hazipur
7. 220KV FSTPP-Lalmatia-1 — Auto recloser is out of service at Lalmatia
8. 220KV Patna-Khagaul-SC — Auto recloser is out of service at Khagual

ITEM NO. C16 :	**Final list of links executed/to be executed under Fiber Optic Communication System in lieu of existing Unified Load Despatch & Communication (ULDC) Microwave links in Eastern Region**

In August, 2008, DoT intimated that 2.3 to 2.4 GHz frequency band presently being used for MW communication is to be allocated for Broadband Wireless Access (BWA.) services as per GOI guidelines. Hence, the users of 2.3 – 2.4 GHz are required to vacate the said band. Considering the importance of the matter the issue was deliberated between the Ministry of Power and Ministry of Communication & IT at the level of Additional Secretaries on 4th Nov. 2008. Based on the deliberations held in the meeting, it was decided to vacate the 2.3 – 2.4 GHz frequency band being used for ULDC MW links and to establish FO based communication system in lieu of existing MW links. The issue has also been discussed with constituents at SCADA O&M committee meeting and Technical Coordination Committee

(TCC) meeting of Eastern Regional Power committee (ERPC) held on 23rd Sept,2008 and 20thNovember 2008 respectively. Subsequently, the constituents of Eastern Region have agreed in principle for implementation of FO based communication network in order to release the MW frequencies in the time schedule agreed with DoT during the ERPC meeting held on 10th - 11th April 2009.

It may be mentioned that after commissioning of ER-ULDC project, considerable number of EHV substations and power plants have been commissioned but the wideband network has not been expanded, therefore, constituents during the discussions for finalization of FO network have expressed the need for implementation of some of the additional FO links other than needed for replacement of the MW links. In the central sector also the number of substations have come up after commissioning of ER-ULDC Project, but only few wideband nodes have been added. Hence there is a need to increase the wideband nodes in the Central Sector. Accordingly, the FO network has been finalized taking this aspect into consideration.

PGCIL vide mail dated 15th February 2018 communicated the final list of links which has been executed/to be executed along with associated communication equipments under the project. The list is enclosed at **Annexure-C16**.

ITEM NO. C17 :	**Final list of links executed/to be executed under Fiber Optic Communication System in ER under Expansion of Wideband Communication Network in ER**

In the 17th ERPC meeting, it was deliberated that with fast growing expansion of Power System and considering the technological requirement such as Special Protection Scheme, Phasor Measurement unit etc., it would not be possible to meet the Communication requirement for such applications through PLCC system. Further, in order to facilitate the voice and data connectivity of POWERGRID stations with RLDCs in accordance with IEGC and also considering technological requirement referred above, need of existing wideband communication system is felt essential. This will facilitate connectivity of other users with data collection points on CTUs system as envisaged in IEGC.

Accordingly, POWERGRID proposed a scheme of fibre optic based communication network in Eastern Region for providing voice and data connectivity of all central sector stations in Eastern Region Power Committee(ERPC). The proposal was discussed and approved in 15th and 17th TCC/ERPC meeting held in Sep, 2010 and March ,2011.

PGCIL vide mail dated 15th February 2018 communicated the final list of links executed/to be executed along with associated communication equipments under this project. The list is enclosed at **Annexure-C17**.

ITEM NO. C18 :	**Updated Operating Procedure of Eastern Region**

In compliance to section 5.1(f) of the IEGC, the Operating Procedure of Eastern Region has been updated taking into consideration relevant changes in the regional power system as well as that of IEGC and related CERC regulations, till 30-06-2017.

Soft copy of the procedure was emailed to all stakeholders of Eastern Region on 07-07-2017 vide ERLDC letter dated ERLDC/SS/OP/2017/1673.

Main revisions / updating have taken place in the chapters on Frequency Management, Voltage Management, Periodic Reports and Event Information, Network Security and Congestion Management, Scheduling and Dispatch Procedure, Metering and Settlement System and in all Annexure.

As no comments / observations have been received till date, the procedure has been finalized and uploaded in ERLDC website.

ITEM NO. C19 :	**Rectification of bend tower of 220kV Rangpo-New Melli D/C line affected due to Land-slide near to Rangpo S/S**

POWERGRID informed that severe land-slide has occurred and almost entire stretch between Loc No. 2(located in top of hill) &Loc No.-1(located in bottom of hill) of 220kV D/C Rangpo-New Melli TL has slided down. Location No.-1(Multi-Ckt D-Type Tower with Strengthened X-arm) is situated just outside the boundary of POWERGRID Rangpo SS. For carrying out the necessary rectification works on urgent basis, POWERGRID has requested for long shut down of the line. Since this is the only line for evacuation of power for Tashiding and Jorethang, these stations would not be able to generate any power during the above shut down.

A special meeting was held on 11th December, 2017 at ERPC, Kolkata wherein Powergrid informed that the land slide had resulted in bending of Stub in B & C leg along with main leg and lower bracing member causing severe damage to the tower. Therefore complete shutdown of 220kV D/C Rangpo-New Melli line is required for rectification of the tower No.1 near to Rangpo S/s. However, after detailed analysis for squeezing the timelines and with the best efforts by POWERGRID, the estimated time to complete the work would be 20-25 days.

POWERGRID availed the shutdown of 220kV Rangpo-New Melli-1 and 220kV Rangpo-Tashiding SC from 18th January 2018 to 1st February 2018 and rectified the damaged tower at location no. 01.

ITEM NO. C20 :	**Updated status on SCADA telemetry**

CERC order (7/SM/2014) dated 29.01.2016 regarding the telemetry CERC at sl. no. 18 of their order have mentioned that

"*NLDC and respective RLDC are directed to up-date the status of telemetry every month at their web-site and persistent non-availability of data from the generating stations/sub-stations be taken up in RPC meetings for appropriate direction and action*".

Accordingly, ERLDC is preparing the monthly telemetry status in the prescribed CERC format every month and it is being uploaded it in ERLDC website;http://erldc.org/telemetry.aspx

33rd TCC advised all the constituents to go through the ERLDC website on regular basis and take appropriate action to make the data available to ERLDC.

The latest status of data/telemetry is enclosed at **Annexure-C20.**

ITEM NO. C21 :	HIGHLIGHTS & GRID PERFORMANCE FOR THE PERIOD FROM AUG' 2017 TO JAN' 2018

A) Real time operation:

During the period under review, power supply position in the region was as under:

	AUG-16	SEP-16	OCT-16	NOV-16	DEC-16	JAN-17	AUG-17	SEP-17	OCT-17	NOV-17	DEC-17	JAN-18
Avg Frq. (Hz)	50.00	50.00	50.00	49.99	49.99	50.00	49.99	49.97	49.97	49.96	49.98	49.98
Pk Dmd (MW)	18900	19168	19634	18799	17502	18100	20187	21015	21078	18422	17769	18844
Energy Consum. (MU/day)	388	390	381	332	325	341	412	435	406	348	346	346
ISGS Gen (MU)	4999	4567	4750	3967	3864	3799	5066	4697	4605	4200	4007	4078
Region Gen (MU)	14829	14280	14961	12903	12920	13067	15316	14913	14044	12566	13141	14069
% increase in Reg Gen.							3.3%	4.4%	-6.1%	-2.6%	1.7%	7.7%

B) System Operational Discipline during the period from Aug-17 to Jan-18

i) The month-wise energy drawls of ER constituents were as given hereunder:

	AUG-17		SEP-17		OCT-17		Nov-17		DEC-17		JAN-18	
	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT
BSPHCL	2236.3	2269.7	2357.9	2350.9	2235.6	2255.2	1711.6	1740.8	1798.7	1795.2	2088.5	2091.4
JUVNL	510.0	518.2	509.8	533.8	473.0	492.5	427.4	451.7	418.8	430.8	438.6	462.4
DVC	-717.9	-659.8	-748.5	-707.0	-529.9	-436.5	-784.1	-727.3	-1118.2	-1140.3	-1076.2	-1103.8
OPTCL	776.5	838.0	998.9	1098.8	1162.6	1318.5	962.6	1122.4	909.6	1046.7	758.1	851.0
WBSETCL	1624.2	1714.8	1518.7	1580.8	1241.2	1329.8	752.9	830.8	512.0	573.7	471.3	520.4
SIKKIM	36.3	33.1	35.0	33.3	36.6	38.3	40.7	46.8	47.8	47.9	52.9	48.5

A) Frequency & Voltage

i) Frequency profile for the period during **Aug-17 to Jan-18** is given hereunder. The frequency mostly remained within the allowable range for the entire period

Month	% of time for which frequency			
	<49.9	**49.9-50.05**	**> 50.05**	**IEGC band 49.9-50.05**
AUG-17	7.31	76.90	15.78	76.90
SEP-17	11.77	78.50	9.73	78.50
OCT-17	13.60	77.21	9.19	77.21

Nov-17	16.91	73.53	9.56	73.53
DEC-17	12.86	73.86	13.28	73.86
JAN-18	11.07	78.01	10.92	78.01

ii) Maximum and minimum voltages recorded at some important 765/400 kV sub-stations were as follows:

	AUG-17		SEP-17		OCT-17		Nov-17		DEC-17		JAN-18	
SUB-STATION/	MAX.	MIN	MAX.	MIN	MAX.	MIN	MAX.	MIN	MAX.	MIN	MAX.	MIN
POWER STN.	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)	(KV)
(765 KV) NEW RANCHI	801	767	797	768	798	769	800	772	799	767	792	758
MUZAFFARPUR	415	380	414	380	417	385	415	391	417	389	417	388
BINAGURI	421	391	418	397	425	399	434	404	426	399	425	399
JEERAT	421	383	422	378	427	381	431	387	431	394	432	397
MAITHON	420	405	419	404	420	403	423	408	421	407	421	403
BIHARSHARIFF	418	395	418	394	419	397	420	401	421	400	421	399
JAMSHEDPUR	432	416	433	415	434	416	432	417	429	410	426	409
ROURKELA	420	408	420	407	419	408	421	408	422	407	420	404
JEYPORE	424	385	419	384	418	387	425	383	426	380	424	367
MERAMUNDALI	419	406	420	407	420	407	418	408	419	407	419	405
SASARAM	424	401	425	393	410	386	410	384	410	384	433	410
SUBHASHGRAM	429	382	426	379	432	382	436	391	434	397	432	396

D) Constituent-wise demand met is given below:

		AUG-16	**SEP-16**	**OCT-16**	**NOV-16**	**DEC-16**	**JAN-17**	**AUG-17**	**SEP-17**	**OCT-17**	**Nov-17**	**DEC-17**	**JAN-18**
BSPHCL	AVG MAX DMD(MW)	3431	3354	3493	3466	3364	3535	3934	4219	4236	3655	3840	4209
	MU/DAY	71	69	70	64	62	65	79	86	82	65	65	75
JUVNL	AVG MAX DMD(MW)	1069	1058	1099	1101	1105	1138	1172	1141	1121	1110	1114	1169
	MU/DAY	22	22	23	23	24	24	24	25	23	23	24	25
DVC	AVG MAX DMD(MW)	2465	2548	2601	2426	2443	2543	2522	2663	2585	2607	2747	2865
	MU/DAY	59	62	62	59	59	62	63	66	64	65	68	71
ODISHA	AVG MAX DMD(MW)	3921	3885	3765	3558	3509	3575	3917	4002	4147	3612	3709	3884
	MU/DAY	78	77	72	67	65	68	81	87	87	71	71	76
W. BENGAL	AVG MAX DMD(MW)	7817	7964	7806	6601	6336	6632	8098	8253	7584	6767	6462	6635
	MU/DAY	158	160	153	119	114	123	161	171	149	123	117	125

E) Inter-regional energy exchange during the review period were as follows: (Figures in MU)

Region	AUG-17		SEP-17		OCT-17		Nov-17		DEC-17		JAN-18	
	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT	SCH	ACT
NER	105.2	557.2	38.2	463.2	-70.0	378.5	-109.8	338.4	-18.8	483.3	80.9	180.0
SR	637.3	787.1	288.1	338.6	-220.6	227.5	466.0	943.8	769.7	905.8	487.2	918.6
WR	-34.8	-886.5	-30.2	-1020.8	369.3	-1114.4	619.0	-843.4	363.9	-639.5	322.0	-437.7
NR	1670.8	1658.2	1405.8	1667.4	1346.9	1572.8	1185.9	1337.6	1263.7	1356.0	1536.8	1521.4
TOTAL	2378.5	2115.9	1701.8	1448.5	1425.6	1064.4	2161.2	1776.5	2378.5	2105.7	2426.9	2182.3

F) Reservoir levels of important hydro stations in ER during review period (as on last day of the month) is given below:

STATION	MDDL/	AUG-17	SEP-17	OCT-17	Nov-17	DEC-17	JAN-18
	FRL						
BURLA	590/630 FT	619.45	630.00	629.29	628.08	626.97	624.02
BALIMELA	1440/ 1516 FT	1480.10	1479.50	1486.70	1483.90	1479.20	1467.80
RENGALI	109.7/ 123.5 MTR	120.90	122.92	123.26	123.00	122.68	122.25
U. KOLAB	844/ 858 MTR	851.67	852.60	854.06	853.98	853.79	853.05
INDRAVATI	625/ 641 MTR	635.14	635.97	636.45	636.12	635.90	635.24
MACHKUND	2685/ 2750 FT	2735.50	2744.80	2748.80	2748.85	2747.45	2745.95

G) IMPORTANT EVENTS :

1) 400kV Barh- Motihari Ckt-II (LILO of 400kV Barh-GorakhPur II at Motihari) charged for the first time at 19:20Hrs 01/08/17.
2) 200MVA ICT I at Motihari S/Stn charged for the first time at 20:52Hrs of 01/08/17.
3) 125 MVAR Bus Reactor I & II at Rengali charged for the first time at 20:40Hrs and 21:12Hrs of 01/08/17 respectively.
4) 125 MVAR Bus Reactor I & II at Motihari S/Stn charged for the first time at 00:08Hrs and 16:35 hrs of 02/08/17 and 03/08/17 respectively.
5) 132kV Motihari-Bettiah I & II charged for the first time at 12:20Hrs and 12:21Hrs of 04/08/17 respectively.
6) 132Kv Motihari-Motihari (BSPHCL) II charged for the first time at 15:41hrs of 04/08/17.
7) 200MVA ICT II at Motihari S/Stn charged for the first time at 18:09Hrs of 06/08/17.
8) 400kV Gorakhpur- Motihari ckt-I (LILO of 400kV Barh-Gorakhpur-I at Motihari) charged for the first time at 12:14Hrs of 07/08/17.
9) 400kV Barh- Motihari ckt-I (LILO of 400kV Barh Gorakhpur-I at Motihari) charged for the first time at 15:55hrs of 07/08/17.
10) 80MVAR Bus Reactor at New Chanditala S/Stn charged for the first time at 19:07Hrs of 18/08/17.
11) 400kV RTPS-Ranchi Ckt.-II & III charged for the first time at 19:37hrs and 19:40Hrs of 28/08/17 respectively.
12) 400kV Kharagpur-New Chanditala I & II Charged for the first time at 15:21 hrs. of 06/09/17 and at 15:33 hrs. of 07/09/17 respectively.

13) 315 MVA, 400/220/33 kV ICT # II at New Chanditala charged for the first time at 17:05 hrs. of 15/09/17.

14) 132 kV Baripada - Jaleswar charged for the first Time at 18:48 hrs. of 23/09/17.

15) 132 kV Baripada- Bhograi first time charged at 18:54 hrs. of 25/09/17.

16) Tashiding Unit I & II (2 X 48.5 MW) (Shiga Energy, Sikkim IPP) has been declared under COD at 0:00 hrs of 18/10/17.

17) 220 KV New Melli-Tashiding ckt (SIKKIM) charged for the first time at 17:34 hrs of 12/10/17.

18) 500MVA ICT-II at Maithon (old 315MVA Replacement) charged for the first time at 18:42 hrs of 13/10/17.

19) 132kV Motihari-Raxual-I & II Charged for first time at 12:31 hrs of 20/10/17 and at 12:44 hrs of 18/10/17 respectively.

20) 220kV Tashiding-Rangpo (SIKKIM) charged for first time at 18:22 hrs of 30/10/17.

21) 400kV Jharsuguda-Veedanta I & II (Sterlite) charged for the first time at 18:27 hrs and at 18:53 hrs of 06/11/2017 respectively.

22) 500MVA ICT II at Pandiabili charged for the first time at 15:46Hrs of 17/11/17. Previously it was charged on 12/07/2016 but it was failed on 21/09/16 due to internal fault. Then the ICT was replaced and first time charged at 15:46 hrs of 17/11/17.

23) 125 MVAR Bus Reactor at Jamshedpur first time charged on 15/11/2017.

24) 125 MVAr B/R III at Jamshedpur (PG) charged for the first time in parallel with 50 MVAr BR I at 18:12 hrs of 02/12/17.

25) 400/220 kV, 315 MVA ICT # 3 at Jamshedpur (PG) charged for first time at 17:43 hrs of 11/12/17.

26) 400 kV Jharsuguda – IB_OPGC # I & II charged for first time at 19:05 hrs and at 18:53 hrs respectively of 19/12/17.

27) 220 kV Atri - Pandiabili # II charged and loaded for the first time at 18:53 hrs of 19/12/17.

28) 220 kV Samagara - Pandiabili # II charged and loaded for the first time at 19:33 hrs of 19/12/17.

29) 400/220 kV, 315 MVA ICT # 3 at New Chanditala (WBSETCL) charged for first time at 16:09 hrs. of 20/12/17.

30) 400kV Raigarh – Jhasuguda 4 (LILO of 400kV Rourkela- Raigarh 4 at Jhasuguda) charged for first time at 00:18 hrs of 31/12/17.

31) 400kV Jharsuguda-Rourkela-IV (LILO of 400kV Rourkela Raigarh IV at Jharsuguda) line charged for first time at 17:06 hrs of 02/01/18.

32) 125MVAR Bus reactor at Rourkela (replacement of old 50MVAR Bus Reactor) charged for first time at 0:16 hrs of 05/01/18.

33) 400kV Jharsuguda-Rourkela-III (LILO of 400kV Rourkela Raigarh II at Jharsuguda) line charged for first time at 22:19 hrs of 05/01/18.

34) 400kV Jharsuguda-Raigarh-III (LILO of 400kV Rourkela Raigarh II at Jharsuguda) line charged for first time at 22:25 hrs of 05/01/18.

35) 400kV Sasaram-Daltonganj-II (PG) charged for first time at 23:32 hrs of 31/01/18.

36) 63MVAr line Reactor of 400kV Sasaram-Daltonganj-II at Daltonganj side, charged for first time at 23:32 hrs of 31/01/18.

****

ANNEXURES

Annexure-B3

Details of stations/Units required to operate under RGMO/FGMO as per IEGC							Whether operating under RGMO	indicate in case of status is not available
Name of State	Type	Name of Uitlity	Sector (CS/SS/Private)	Name of Station	Name of Stage/ Unit	Installed capacity (MW)		
JHARKHAND	Thermal	TVNL	SS	Tenughat	1	210	No	Difficulties in implementing RGMO & exemption not
			SS		2	210	No	
	Hydro	JSEB	SS	Subarnrekha	1	65	Yes	
			SS		2	65	Yes	
WEST BENGAL	Termal	WBPDCL	SS	Bandel TPS	1	82.5	No	
			SS		2	82.5	No	
			SS		3	82.5	No	
			SS		4	82.5	No	
			SS		5	210	No	
			SS	Santaldih	5	250	No	Unit#6 could not be implemented because of some technical problem
			SS		6	250	No	
			SS	Kolaghat	1	210	No	Nil
			SS		2	210	No	Nil
			SS		3	210	No	Nil
			SS		4	210	No	Nil
			SS		5	210	No	Nil
			SS		6	210	No	Nil
			SS	Bakreshwar	1	210	Yes	
			SS		2	210	Yes	
			SS		3	210	Yes	
			SS		4	210	Yes	
			SS		5	210	Yes	
			SS	Sagardighi	1	300	No	Without OEM support it is not possible to put in FGMO/RGMO. At present OEM support is not
			SS		2	300	No	
	Hydro		SS	PPSP	1	225	Yes	In 134th OCC WBPDCL informed that the units are in RGMO/FGMO mode
			SS		2	225	Yes	
			SS		3	225	Yes	
			SS		4	225	Yes	
	Thermal	CESC	SS	Budge-Budge	1	250	Yes	
			SS		2	250	Yes	
			SS		3	250	Yes	
			SS	Haldia	1	300	Yes	
			SS		2	300	Yes	
	Thermal	DPL	SS	DPL	7	300	Yes	
Orissa		OPGC	SS	IB TPS	1	210	No	Not adequate response in RGMO
			SS		2	210	No	
	Hydro	OHPC	SS	Burla	1	49.5	No	
			SS		2	49.5	No	
			SS		3	32	No	
			SS		4	32	No	
			SS		5	37.5	No	
			SS		6	37.5	No	
			SS		7	37.5	No	
			SS	Balimela	1	60	No	
			SS		2	60	No	
			SS		3	60	No	
			SS		4	60	No	
			SS		5	60	No	
			SS		6	60	No	
			SS		7	75	No	
			SS		8	75	No	
			SS	Rengali	1	50	No	
			SS		2	50	No	
			SS		3	50	No	
			SS		4	50	No	
			SS		5	50	No	
			SS	Upper Kolab	1	80	No	
			SS		2	80	No	
			SS		3	80	No	
			SS		4	80	No	
			SS		1	150	No	

			SS	Indravati	2	150	No	
			SS		3	150	No	
			SS		4	150	No	
			64					
Central Sector	Thermal	DVC	CS	Bokaro-A	1	500	No	RGMO will be service once the unit comes in CMC mode of operation. It will be done shortly in presence of BHEL experts.
			CS	Bokaro-B	3	210	No	Not possible due to non availability of Electro hydraulic governing. The units will be decommissioned shortly.
			CS	CTPS	3	140	No	Not possible due to non availability of Electro hydraulic governing. The units will be decommissioned shortly.
			CS		7	250	Yes	
			CS		8	250	Yes	
			CS	DTPS	4	210	No	Not possible due to non availability of Electro hydraulic governing. The units will be decommissioned shortly.
			CS	Mejia	1	210	No	Not possible due to non availability of Electro
			CS		2	210	No	
			CS		3	210	No	Action has been initiated to put in RGMO, but testing is not yet completed.
			CS		4	210	Yes	
			CS		5	250	Yes	
			CS		6	250	Yes	
			CS	Mejia - B	7	500	Yes	
			CS		8	500	Yes	
			CS	DSTPS	1	500	Yes	
			CS		2	500	Yes	
			CS	KODERMA	1	500	Yes	
			CS		2	500	Yes	
			CS	RTPS	1	600	Yes	
			CS		2	600	Yes	
	Hydro		CS	Panchet	1	40	No	RGMO mode of operation
			CS		2	40	No	would not be possible for
	Thermal	NTPC	CS	Farakka STPP-I	1	200	Yes	
			CS		2	200	Yes	
			CS		3	200	Yes	
			CS	Farakka STPP-II	1	500	Yes	
			CS		2	500	Yes	
			CS	Farakka-U#6		500	Yes	Kept in RGMO mode from April, 2014
			CS	Kahalgoan STPP	1	210	Yes	
			CS		2	210	Yes	
			CS		3	210	Yes	
			CS		4	210	Yes	
			CS		5	500	Yes	
			CS		6	500	Yes	
			CS		7	500	Yes	
			CS	Talcher STPP Stg-I	1	500	Yes	
			CS		2	500	Yes	
			CS	Barh	5	660	Yes	
			CS	Barh	6	660	Yes	
	Hydro	NHPC	CS	Teesta HEP	1	170	Yes	
			CS		2	170	Yes	
			CS		3	170	Yes	
			42					
	Thermal	IPP	PS	Maithon RB TPP	1	525	Yes	
			PS		2	525	Yes	
			PS	Sterlite	1	600	Yes	
			PS		2	600	Yes	
			PS		3	600	Yes	
			PS		4	600	Yes	
			PS	Adhunik Power	1	270	Yes	

			PS	Adhunik Power	2	270	Yes	
IPP	Hydro	IPP	PS	JLHEP	1	48	No	(RoR project with 3 hours pondage)
			PS		2	48	No	
			PS	Chujachen HEP	1	49.5	No	(RoR project with 3 hours pondage)
			PS		2	49.5	No	
			PS	Teesta Urja	1	200	No	could be put in RGMO mode but because of transmission evacuation constraint RGMO/FGMO is disabled
			PS		2	200	No	
			PS		3	200	No	
			PS		4	200	No	
			PS		5	200	No	
			PS		6	200	No	
			PS	Dikchu	1	48	No	(RoR project with 3 hours pondage)
			PS		2	48	No	

Eastern Regional Power Committee

Minutes of Special Meeting on issues related to charging of 220kV Biharsharif-Tenughat line at 400 kV level held on 14th December, 2017 at ERPC, Kolkata

Shri J. Bandyopadhyay, Member Secretary, ERPC, at the outset, welcomed Director (Projects), BSPTCL and all the other participants from Powergrid, ERLDC, JUSNL and TVNL in the meeting. He informed that this special meeting was convened as per the decision of 36th TCC on issues related to charging of 220kV Biharsharif-Tenughat line at 400 kV level. The following issues were discussed:

- TVNL informed that one 250 MVA, 400/220kV ICT was charged from 220kV side along with the line reactor which is charged as bus reactor.
- Powergrid informed that scope of POWERGRID under deposit work of TVNL has been almost completed except old ICT. The scope of POWERGRID under deposit work of JUSNL at Biharshariff has been completed except stringing of one span due to non availability of shutdown.
- Director (Projects), BSPTCL informed that after charging of 220kV Biharsharif-Tenughat line at 400 kV level, the power availability at 220kV bus at Biharshariff will reduce. Since 400/220kV ICTs at 400kV Biharshariff S/s were already overloaded, there will be a constraint to draw power from 400kV Biharshariff. He requested to expedite the installation of 4th ICT (500MVA, 400/220kV ICT) at Biharshaff which was already approved in standing committee.
- ED, ERLDC informed that due to charging of 220kV Biharsharif-Tenughat line at 400 kV level, Bihar drawl at 220kV bus will be affected and problems in 220kV system may be aggravated specially during summer peak load.
- Powergrid informed that commissioning of 4th ICT at Biharshaff will take one and half year.
- Director (Projects), BSPTCL informed that argumentation of 315 MVA, 400/220kV ICT of Pasauli with 500 MVA may be differed and the same 500MVA ICT may be utilised at Biharshaff.
- Powergrid informed that the same may be done subjected to availability of bay equipment at other places and it would take around 6 to 7 months.

A) Line termination at TVNL end

- TVNL informed that Powergrid may terminate the line at 400kV bays at TVNL
- Powergrid clarified that termination of the line is not in their scope of work. Moreover the line is belongs to JUSNL hence they cannot terminate without JUSNL concurrence.
- TVNL was advised to make an agreement with JUSNL for termination of the line and convey the same to Powergrid to do the needful.

B) Charging of 2nd 250 MVA ICT at TVNL

- It was informed that the 2nd 250 MVA ICT at TVNL should be commissioned prior to charging of the line at 400kV level for complete evacuation of TVNL generation.

- TVNL informed that Powergrid is implementing Nitrogen based fire fighting system additionally which needs consent from BHEL.

- TVNL was advised to settle the issue with BHEL and convey to Powergrid.

C) Strengthening of Line

- It was informed that that 220 kV Tenughat- Biharsharif line is in very bad shape and need strengthening before charging at 400 kV level. The ground clearance may not meet the safety clearance requirement for 400kV level between some spans. It was further informed that line spans are very long and there may be a requirement of installation of new towers.

- It was emerged that the line was jointly maintained by JUSNL and BSPTCL as per their respective geographical area. The line has total 506 towers out of which JUSNL is looking after 290 towers and rest 216 towers are being maintained by BSPTCL.

- JUSNL and BSPTCL were advised to do survey of their respective portion of the line and assess the requirements like ground clearance, sag etc for charging the line at 400kV level. A report on the assessment may be submitted by March 2018.

- JUSNL/TVNL informed that they will face problem in power evacuation during strengthening of 220 kV Tenughat- Biharsharif line due to outage.

- Powergrid was advised to expedite 220kV TVNL-Govindpur line so that TVNL power can be evacuated during outage of 220 kV Tenughat- Biharsharif line.

D) O&M of 220kV Tenughat- Biharsharif line

- JUSNL informed that the line is being maintained by JUSNL & BSPTCL jointly and JUSNL suggested that O & M of the line may be taken over by any one constituent

- Director (Projects), BSPTCL informed that they cannot maintain the Jharkhand portion because of high dense forest area. If JUSNL wants to take over the line then JUSNL may come up with a proposal.

- JUSNL and BSPTCL were advised to discuss the issue bilaterally and settle.

E) System Study

- Director (Projects), BSPTCL suggested that a system study needs to be done with the existing/future network to assess the advantage of upgrading 220 kV Tenughat-Biharsharif line at 400kV level

It was agreed that before charging of Tenughat- Biharsharif line at 400 kV level separate meeting(s) will be convened by ERPC Secretariat with JUSNL, TVNL, BSPTCL, PGCIL & ERLDC to settle other operational and commercial issues.

Meeting ended with vote of thanks to the chair.

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PMU Installation and commissioning status of ER as on 12.01.2018

Annexure-B25

S.No	Region	State	Sub-Station	Owner/ Utility	S/S type	PMU	TOTAL PANEL QTY	PMU Delivery status	Cable Delivery status	Erection	Cable laying	CT/PT/DI termination	Commissioning	Integration	SAT	Remarks
			78			296	175	74	75	66	65	64	64	43	60	
1	ER-II	West Bengal	Arambagh	WBSETCL	CR	3	1	Yes	Yes	done	done	done	done	done	done	
2	ER-II	West Bengal	BAKRESHWAR TPS	WBSETCL	CR	4	1	Yes	Yes	done	done	done	done	done	done	
3	ER-II	West Bengal	Bidhannagar	WBSETCL	CR	3	1	Yes	Yes	done	done	done	done	done	done	
4	ER-II	West Bengal	JEERAT	WBSETCL	CR	2	1	Yes	Yes	done	done	done	done	done	pending	SAT pending as customer didn't agree to witness SAT.
57	ER-II	West Bengal	Alipurduar	Powergrid	CR	6	7	Yes	Yes	partially done	partially done	partially done	partially done	Pending	pending	Work started on 22.12.2016. 4 PMU panels and network panel installed. Rest 2 PMU panels could not be erected because location not finalised. Cable laying and termination at PMU panel completed for 6 feeders. CT/PT interfacing pending due to unavailability of shutdown. PGCIL is asking to take DI points from field, which is not in scope. Work is held up. Team demobilised.
6	ER-II	West Bengal	KASBA	WBSETCL	CR	3	1	Yes	Yes	done	done	done	done	done	done	
7	ER-II	DVC	DSTPS	DVC	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
67	ER-I	BIHAR	BANKA	Powergrid	Kiosk	4	5	Yes	Yes	done	done	done	done	Pending	pending	SAT pending.
9	ER-II	DVC	MEJIA-B	DVC	CR	2	1	Yes	Yes	done	done	done	done	done	done	Integrated on 07.12.2016
45	ER-II	Jharkhand	Bokaro TPS	DVC	CR	1	1	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mtrs.
11	ER-II	DVC	Raghunathpur TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	done	done	
33	Odisha	Orissa	Bolangir	Powergrid	CR+Kiosk	2	3	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
13	ER-II	DVC	Bokaro	DVC	CR	2	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.06.2016
14	ER-II	DVC	CTPS(Chanderpura)	DVC	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mtrs.
78	ER-I	Bihar	Barauni PP	Bihar	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	Substation deleted.
16	Odisha	Orissa	MENDHASAL	OPTCL	CR	2	1	Yes	Yes	done	done	done	done	done	done	
17	Odisha	Orissa	MERAMANDALI	OPTCL	CR	6	2	Yes	Yes	done	done	done	done	done	done	
18	Odisha	Orissa	RENGALI	OPTCL	CR	2	1	Yes	Yes	done	done	done	done	done	done	Integrated on 22.06.2017
37	Odisha	Orissa	GMR	GMR	Kiosk	3	4	Yes	Yes	done	done	done	done	Pending	pending	SDH Panel not commisioned, powergrid supervision required for SAT activity
20	Odisha	Orissa	BALIMELA(H)	OPTCL	CR	3	1	Yes	Yes	done	done	done	done	done	done	
21	ER-II	West Bengal	Durgapur	Powergrid	CR	5	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 30.05.2016.
15	Odisha	Orissa	Budhipadar	OPTCL	CR	10	0	No	Yes	pending	pending	pending	pending	pending	pending	Manufactured, waiting for FAT. Will be dispatched after FAT.
23	Odisha	Orissa	Indrawati	Powergrid	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
24	Odisha	Orissa	Indrawati HPS	OPTCL	CR	1	1	Yes	Yes	done	done	done	done	done	done	Team deployed in substation. Permission for panel installation & cable laying given but no work permission in existing control panel is given. Team was idle for more than. 10 days.
25	Odisha	Orissa	JEYPORE	Powergrid	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
26	ER-II	West Bengal	MAITHON	Powergrid	CR	7	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 21.06.2016.
27	ER-II	West Bengal	MALDA	Powergrid	CR	2	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.06.2016
28	Odisha	Orissa	Rengali	Powergrid	Kiosk	2	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 04.05.2016
29	Odisha	Orissa	ROURKELA	Powergrid	Kiosk	5	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 21.04.2016
30	ER-II	West Bengal	Binaguri	Powergrid	CR	7	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 28.07.2016

PMU Installation and commissioning status of ER as on 12.01.2018

S.No	Region	State	Sub-Station	Owner/ Utility	S/S type	PMU	TOTAL PANEL QTY	PMU Delivery status	Cable Delivery status	Erection	Cable laying	CT/PT/DI termination	Commissioning	Integration	SAT	Remarks
31	ER-II	West Bengal	SUBHASHGRAM	Powergrid	Kiosk	2	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 22.06.2016
32	Odisha	Orissa	Baripada	Powergrid	CR	3	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 30.01.2017.
75	ER-I	Jharkhand	Jharkhand Pool (Chan	Powergrid	Kiosk	4	1	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mts.
34	Odisha	Orissa	ANGUL	Powergrid	Kiosk	10	11	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.03.2017.
35	Odisha	Orissa	Keonjhar	Powergrid	CR	2	3	Yes	Yes	done	done	done	done	done	done	PMU integrated on 18.01.2017.
36	Odisha	Orissa	Jharsuguda	Powergrid	Kiosk	8	9	Yes	Yes	done	done	done	done	done	done	PMU integrated on 29.07.2016
74	ER-I	Bihar	Kishanganj (karandegh	Powergrid	CR	4	1	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mts.
8	ER-II	DVC	Kodarma TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	Pending	done	SDH panel does not exist.
39	ER-II	West Bengal	Baharampur	Powergrid	CR	2	3	Yes	Yes	done	done	done	done	done	done	PMU integrated on 10.05.2016
40	ER-II	West Bengal	Birpara	Powergrid	CR	4	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 15.07.2016.
41	ER-II	DVC	CTPS B	DVC	CR	3	1	Yes	Yes	done	done	done	done	done	done	mom/sat signature pending from powergrid end.
42	ER-II	DVC	KALYANESWARI	DVC	CR	4	1	Yes	Yes	done	done	done	done	done	done	PMU integrated on 02.01.2017.
43	ER-II	DVC	PARULIA	DVC	CR	5	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 21.02.2017.
44	ER-II	West Bengal	Purulia PSP	WBSETCL	CR	2	1	Yes	Yes	done	done	done	done	done	done	
66	ER-I	BIHAR	LakhiSarai	Powergrid	Kiosk	4	5	Yes	Yes	done	done	done	done	Pending	done	SAT completed. Integration planed
46	ER-II	West Bengal	Durgapur TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	done	done	
73	ER-I	Jharkhand	Daltonganj	Powergrid	Kiosk	2	3	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Site on-hold as Substation is under construction.
22	ER-II	West Bengal	FARRAKA	NTPC	CR	5	2	Yes	Yes	done	done	done	done	pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mtrs.
54	Odisha	Orissa	Ind barath	Ind barath	Kiosk	1	1	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited
10	ER-II	DVC	Maithon RB TPS	DVC	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Work started on 04.07.2016. Panel shifted. Team demobilised due to access issue and panel location issue. Team deputed again 18th August, I&C done, integration pending due to communication break with control center.
51	Odisha	Orissa	Jindal	JITPL	CR	2	1	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited
5	ER-II	West Bengal	Kolaghat TPS	WBSETCL	CR	4	1	Yes	Yes	done	done	done	done	done	done	
52	Odisha	Orissa	Monnet	Monnet	CR	1	1	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited
55	ER-II	Sikkim	New Melli	Powergrid	CR	0	0	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Substation deleted.
76	ER-I	Jharkhand	Patratu	Jharkhand	CR	3	1	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	Permission awaited.
53	Odisha	Orissa	Strelite	Strelite	CR	3	1	Yes	Yes	done	done	done	done	pending	done	SDH not commisioned
48	Odisha	Orissa	TALCHER	NTPC	CR	5	2	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited
58	ER-II	West Bengal	Rajarhat	Powergrid	CR	2	1	Yes	Yes	done	pending	pending	pending	Pending	pending	Site on-hold. Work withheld due to localite agitation issue.
59	ER-I	Jharkhand	JAMSHEDPUR	Powergrid	CR	6	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 14.02.2017
60	ER-I	BIHAR	Kahalgaon(KHSTPP)	NTPC	CR	6	2	Yes	Yes	done	done	pending	pending	Pending	pending	Work on-hold. NTPC asked to use Armoured cable. Out of scope. Team idemobilized from site. Site assumed as closed as per PRM in Kolkatta.
61	ER-I	BIHAR	Purnea	Powergrid	CR	6	2	Yes	Yes	done	done	done	done	done	done	PMU integrated on 13.04.2017

PMU Installation and commissioning status of ER as on 12.01.2018

S.No	Region	State	Sub-Station	Owner/ Utility	S/S type	PMU	TOTAL PANEL QTY	PMU Delivery status	Cable Delivery status	Erection	Cable laying	CT/PT/DI termination	Commissioning	Integration	SAT	Remarks
62	ER-I	BIHAR	PATNA	Powergrid	Kiosk	6	7	Yes	Yes	done	done	done	done	done	done	PMU integrated on 11.04.2017
63	ER-I	Jharkhand	RANCHI	Powergrid	Kiosk	12	13	Yes	Yes	done	done	done	done	done	done	
64	ER-I	BIHAR	SASARAM(Pusauli)	Powergrid	CR+Kiosk	9	3	Yes	Yes	done	done	done	done	done	done	
65	ER-I	BIHAR	BARH	NTPC	CR	4	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
12	ER-II	DVC	MEJIA	DVC	CR	5	2	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mtrs.
38	ER-II	Sikkim	RANGPO	Powergrid	CR	4	1	Yes	Yes	done	done	done	done	Pending	done	S/S couldn't be integrated because distance between PMU panel and SDH is more than 100 mtrs.
68	ER-I	Jharkhand	Chaibasa	Powergrid	Kiosk	4	5	Yes	Yes	done	done	done	done	done	done	
69	ER-I	BIHAR	765kv Gaya	Powergrid	Kiosk	11	12	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.02.2017
70	ER-I	Jharkhand	765/400kV Ranchi (N)	Powergrid	Kiosk	8	9	Yes	Yes	done	done	done	done	done	done	PMU integrated on 24.02.2017
71	ER-I	Bihar	Biharshariff	Powergrid	CR	9	3	Yes	Yes	done	done	done	done	done	done	
72	ER-I	Bihar	MUZAFFAPUR	Powergrid	CR	5	2	Yes	Yes	done	done	done	done	done	done	
49	ER-II	Sikkim	TEESTA	NHPC	CR	1	1	Yes	Yes	done	done	done	done	done	pending	SAT pending due to no supervision
77	ER-I	Jharkhand	Tenughat	Jharkhand	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	SDH panel not commisioned
19	Odisha	Orissa	U.KOLAB	OPTCL	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication Link not available.
56	ER-II	Sikkim	TT Pool	Powergrid	CR	0	0	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Substation deleted.
50	Odisha	Orissa	Uttara	Powergrid	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	Communication link from s/s to ERLDC not available.
47	Odisha	Orissa	TTPS(Talcher)	OPTCL	CR	3	1	Yes	Yes	pending	pending	pending	pending	pending	pending	Permission awaited

ER PMU site activity Summary:

Sl. No.	Region	Utility	As per approved BOQ		Supplied		Installed		Commissioned		Integrated to ERLDC/ SLDC	
			No. of Substations	No. of PMU	S/S	PMU	S/S	PMU	S/S	PMU	S/S	PMU
1	ER-I	Powergrid	15	94	15	94	14	92	14	92	10	76
2	ER-I	NTPC	2	10	2	10	2	10	1	4	0	0
3	ER-I	Jharkhand	2	5	2	5	1	2	1	2	0	0
4	ER-I	Bihar	0	0	0	0	0	0	0	0	0	0
	ER-I	**Total**	**19**	**109**	**19**	**109**	**17**	**104**	**16**	**98**	10	76
1	ER-II	Powergrid	10	41	10	42	9	35	8	33	7	29
	ER-II	NHPC	1	1	1	1	1	1	1	1	1	1
2	ER-II	NTPC	1	5	1	5	1	5	1	5	0	0
3	ER-II	DVC	13	37	13	37	13	37	13	37	7	22
4	ER-II	WBSETCL	7	21	7	21	7	21	7	21	7	21
	ER-II	**Total**	**32**	**105**	**32**	**106**	**31**	**99**	**30**	**97**	**22**	**73**
1	Odisha	Powergrid	10	38	10	38	10	38	10	38	6	30
2	Odisha	OPTCL	8	29	7	19	6	16	6	16	5	14
3	Odisha	NTPC	1	5	1	5	0	0	0	0	0	0
4	Odisha	IPP	5	10	5	10	2	6	2	6	0	0
	Odisha	**Total**	**24**	**82**	**23**	**72**	**18**	**60**	**18**	**60**	**11**	**44**
	ER	**Total**	**75**	**296**	**74**	**287**	**66**	**263**	**64**	**255**	**43**	**193**

A. Replacement of RTUs and Upgradation of SAS:

Replacement of existing S-900 and C264 RTUs installed in ULDC phase-I along with upgradation of RTU/SAS/ Remote Operation RTUs for dual reporting to both Main ERLDC & Backup ERLDC over IEC 60870-5-104 Protocol and lack of maintenance support due to non-availability of spares.

S.n	Region	Name of Substations	Remarks
1	ER-II	Durgapur	RTU to be replaced
2	ER-II	Malda	RTU to be replaced
3	ER-II	Binaguri	RTU to be replaced
4	ER-II	Siliguri220	RTU to be replaced
5	ER-II	Birpara	RTU to be replaced
6	ER-II	Subhasgram	RTU to be replaced
7	ER-II	Dalkhola	RTU to be replaced
8	ER-II	Gangtok	RTU to be replaced
9	ER-II	Maithon	RTU to be replaced
10	ER-II	Berhampore	Hardware/License upgradation
11	ER-II	Rangpo	Hardware/License upgradation
12	ER-II	NewMelli	Hardware/License upgradation
13	ER-I	Biharsharif	RTU to be replaced
14	ER-I	Jamshedpur	RTU to be replaced
15	ER-I	Purnea 400	RTU to be replaced
16	ER-I	Purnea 220	RTU to be replaced
17	ER-I	Sasaram HVDC	RTU to be replaced
18	ER-I	Muzaffarpur	RTU to be replaced
19	ER-I	Patna	SAS to be replaced
20	ER-I	Banka	Hardware/License upgradation
21	ER-I	Lakhisarai	Hardware/License upgradation
22	ER-I	Ranchi	SAS to be replaced
23	ER-I	New Ranchi	Hardware/License upgradation
24	ER-I	Chaibasa	Hardware/License upgradation
25	ER-I	Gaya	Hardware/License upgradation
26	ER-I	Sasaram 765	Hardware/License upgradation
27	ER-I	Ara	Hardware/License upgradation
28	Odisha Projects	Jeypore	RTU to be replaced
29	Odisha Projects	Baripada	RTU to be replaced
30	Odisha Projects	Indravati	RTU to be replaced
31	Odisha Projects	Rourkela	RTU to be replaced
32	Odisha Projects	Rengali	RTU to be replaced
33	Odisha Projects	Angul	Hardware/License upgradation
34	Odisha Projects	Jharsuguda	Hardware/License upgradation
35	Odisha Projects	Bolangir	Hardware/License upgradation
36	Odisha Projects	Keonjhar	Hardware/License upgradation
37	Odisha Projects	Pandiabili	Hardware/License upgradation
38	Odisha Projects	Talcher HVDC	Hardware/License upgradation

B. Implementation of BCU based Substation Automation System at Purnea 220 KV, Ara 220 KV, Birpara220KV, Siliguri220KV, Sasaram S/s in addition to the replacement of RTUs for data reporting to ERLDC through single RTU/SAS as per advice of ERLDC.

C. Replacement of DCPS for replacement of old DCPS commissioned in ULDC phase-I:

Following old DCPS & UPS in 18 nos. Central Sector locations is decided to be replaced:

Sr. No.	Location	Item
1	Durgapur	UPS
2	ERLDC, Kolkata	2x4 kw DCPS with parallel operation
3	Durgapur	
4	Kanchanpur	
5	Barkot	
6	Jamui	
7	Maldah	
8	Siliguri 400	
9	Jamshedpur	
10	Siliguri 220	
11	Rengali	
12	Birpara	
13	Rourkela	
14	Purnea 220	
15	Indravati	
16	Muzaffarpur	
17	Biharsharif	
18	Sasaram HVDC	

D. Laying of OPGW in the second circuit of following links commissioned in ULDC Phase-I:

S/n	**Name of links**	**Length (Km)**
1	Rourkela-Talcher	171
2	Durgapur-Jamshedpur	175
3	Durgapur-Farakka	150
4	Biharsharif-Sasaram	193
5	Biharsharif-Kahalgaon	202
6	LILO portion of Biharsharif-Balia at Ara	12
	Total	**903**

Annexure - B32

SUMMARY OF DEVIATION CHARGE RECEIPT AND PAYMENT STATUS

BILL UPTO 21.01.18 (Week -42 of 2017 - 18)

Last Payment Disbursement Date - 06.02.18

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
WR	15.21672	0.00000	213162.74086	210724.58745	-2422.93669
SR	59662.79325	57664.69530	1949.69432	1996.29043	2044.69406
NER	82221.57044	83846.32536	4167.45508	4167.45508	-1624.75492
NR	35679.32904	34580.00968	6579.51941	5345.94081	-134.25924
BSPHCL	11440.77354	10109.05911	86.21581	0.00000	1245.49862
JUVNL	7905.13157	6671.62753	2.81650	0.00000	1230.68754
DVC	7984.81596	7984.81596	2738.95914	2717.70495	-21.25419
GRIDCO	17976.13416	17650.87223	499.59727	1374.61594	1200.28060
WBSETCL	21857.97255	21471.94062	0.00000	19.21540	405.24733
SIKKIM	451.12768	0.00000	569.14621	242.21842	124.19989
NTPC	7772.20372	7735.62777	56.81036	69.14964	48.91523
NHPC	0.00000	0.00000	2147.45370	2106.41421	-41.03949
MPL	120.39243	100.21070	471.41211	471.41211	20.18173
STERLITE	0.00000	0.00000	0.00000	0.00000	0.00000
APNRL	307.80879	152.42236	201.89761	0.00000	-46.51118
CHUZACHEN (GATI)	42.43510	42.43504	320.47820	319.95746	-0.52068
NVVN (IND-BNG)	279.39906	256.30819	241.70377	244.38748	25.77458
JITPL	393.23110	393.24229	719.37103	708.43739	-10.94483
GMR	148.75835	47.76643	1543.33169	1496.20680	53.86703
IND BARATH	92.45858	0.00000	0.00000	0.00000	92.45858
TPTCL(DAGACHU)	1789.16796	1729.07440	36.08101	36.24336	60.25591
JLHEP (DANS ENERGY)	575.24233	520.71137	199.75178	199.72818	54.50736
BRBCL(NABINAGAR)	191.81421	209.81556	850.02373	853.22229	-14.80279
NVVN (IND-NEPAL)	944.26766	927.78670	382.64592	392.10200	25.93704
HVDC SASARAM	2.33430	2.33430	98.27192	97.10608	-1.16584
HVDC-ALIPURDUAR	0.90856	0.90856	88.63301	82.43488	-6.19813
TEESTA-III(TUL)	1036.14766	1036.12766	1310.95066	1308.91624	-2.01442
DIKCHU	53.96014	53.96016	517.56329	516.17818	-1.38513
Tashiding (THEP)	73.81559	51.06203	61.69695	61.69695	22.75356
OPGC	0.03626	0.00000	0.00000	0.00000	0.03626
Pool Balance	0.00000	649.69506	-4616.73798	0.00000	3967.04292
Addl Deviation charge	13272.34130	20906.84774	0.00000	0.00000	-7634.50644
IRE	0.00000	0.00000	118.68184	0.00000	-118.68184
VAE	0.00000	0.00000	11232.52739	0.00000	-11232.52739
TOTAL	**259019.24671**	**253239.13931**	**245738.69259**	**235551.62173**	

% Realization **97.77** **As on** **06.02.18**

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

"- ve" Payable by ER pool "+ ve" Receivable by ER pool

Annexure - B33

Current Status of Letter of Credit (LC) amount against UI charges for ER constituents

Figures in Lacs of Rupees

Sl No	ER Constituents	No. of weeks in which Deviation Charge payable	No of times payment was delayed during 2015-16	Total Deviation charges payable to pool during 2016-17	Average weekly Deviation Charge liability	LC Amount	Due date of expiry	Remarks
		(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	BSPHCL	44	44	10288.28725	194.11863	213.53049	16.11.2018	Opened for 213.53049 Lac
2	JUVNL	45	45	12078.12053	227.88907	250.67797	**Already expired on 31.01.2018**	**Reminder issued on 29.01.18**
3	SIKKIM	6	6	43.59053	0.82246	0.90471	07.03.2018	Opened for 1.60277 Lacs
4	APNRL	31	31	514.12213	9.70042	10.67046	31.05.2018	Opened for ₹ 10.67046 Lacs
5	CHUZACHEN	6	5	24.43612	0.46106	0.50716	31.03.2018	Opened for ₹ 0.50716 Lacs
6	JITPL	18	3	1304.7548	24.61802	27.07982	**About to expire on 08.02.2018**	**Reminder issued on 05.02.18**
7	GMR	12	4	367.39848	6.93205	7.62525	**Not Opened**	Letter issued on 22/08/17
8	IND-BARATH	48	36	96.68933	1.82433	2.00676	**Not Opened**	Letter issued on 04/01/18
9	TPTCL	45	3	1287.684311	24.29593	26.72552	31.03.2018	Opened BG for ₹ 26.72552 Lacs
10	JLHEP	27	24	346.25598	6.53313	7.18644	24.09.2018	Opened for 7.18644 Lacs
11	BRBCL	48	3	343.15334	6.47459	7.12205	31.03.2018	Opened for ₹ 7.12205 Lacs
12	NVVN(IND-NEP)	36	5	419.02891	7.90621	8.69683	26.09.2018	Opened for ₹ 8.69683 Lacs
13	TEESTA-III(TUL)	3	3	109.40403	2.06423	2.27065	21.09.2018	Opened for 2.27065 Lacs

Annexure-B36.1

List of Meter & Location for AMR 4th Phase

S.No	MAKE	Meter Serial No	LOCATION
1	L&T	NP-7885-A	LAKHISARAI(PG)
2	L&T	NP-7886-A	
3	L&T	NP-7429-A	
4	L&T	NP-7429-A	
5	L&T	NP-7887-A	
6	L&T	NP-7430-A	
7	L&T	NP-7888-A	
8	L&T	NP-7431-A	
9	ELSTER	NR-4451-A	ALIPURDUAR(PG)
10	ELSTER	NR-4452-A	
11	ELSTER	NR-3717-A	
12	ELSTER	NR-4622-A	
13	ELSTER	NR-4625-A	
14	ELSTER	NR-4447-A	
15	ELSTER	NR-4446-A	
16	ELSTER	NR-3725-A	
17	ELSTER	NR-4617-A	
18	ELSTER	NR-3716-A	
19	ELSTER	NR-3718-A	
20	GENUS	ER-1104-A	
21	GENUS	ER-1146-A	
22	GENUS	ER-1005-A	
23	GENUS	ER-1006-A	
24	GENUS	ER-1002-A	
25	GENUS	ER-1004-A	
26	ELSTER	ER-1295-A	KISHANGANJ(BSPTCL)
27	GENUS	ER-1158-A	
28	GENUS	ER-1156-A	
29	GENUS	ER-1157-A	
30	GENUS	ER-1287-A	NPGC(BSPTCL)
31	GENUS	ER-1282-A	
32	GENUS	ER-1052-A	OPGC
33	GENUS	ER-1063-A	
34	GENUS	ER-1027-A	
35	GENUS	ER-1112-A	
36	GENUS	ER-1026-A	
37	GENUS	ER-1030-A	
38	GENUS	ER-1053-A	
39	GENUS	ER-1066-A	
40	GENUS	ER-1068-A	
41	GENUS	ER-1060-A	
42	ELSTER	NR-3714-A	TEESTA-III
43	ELSTER	NR-3715-A	
44	ELSTER	NR-4450-A	
45	ELSTER	NR-3720-A	
46	ELSTER	NR-4623-A	
47	ELSTER	NR-3719-A	
48	ELSTER	NR-4456-A	
49	ELSTER	NR-4618-A	
50	ELSTER	NR-4454-A	
51	ELSTER	NR-4453-A	
52	GENUS	ER-1250-A	MOTIHARI(BSPTCL)
53	GENUS	ER-1245-A	
54	GENUS	ER-1286-A	MOTIPUR(BSPTCL)
55	GENUS	ER-1288-A	
56	GENUS	ER-1111-A	ATRI(GRIDCO)
57	GENUS	ER-1007-A	
58	GENUS	ER-1248-A	RAXAUL(BSPTCL)
59	GENUS	ER-1249-A	
60	GENUS	ER-1113-A	SAMANGARA(GRIDCO)
61	GENUS	ER-1073-A	
62	GENUS	ER-1223-A	SAMASTIPUR(BSPTCL)
63	GENUS	ER-1121-A	EMSS(CESC)
64	GENUS	ER-1126-A	
65	GENUS	ER-1227-A	BETIAH(BSPTCL)
66	GENUS	ER-1173-A	
67	GENUS	ER-1116-A	BHOGRAI(GRIDCO)
68	GENUS	ER-1114-A	JALESWAR(GRIDCO)

16 New Locations with 68 Meters

S.No	MAKE	Meter Serial No	LOCATION
69	GENUS	ER-1290-A	APNRL
70	GENUS	ER-1135-A	BERHAMPORE(PG)
71	GENUS	ER-1140-A	
72	GENUS	ER-1265-A	BIHARSHARIFF(PG)
73	GENUS	ER-1108-A	BINAGURI(PG)
74	GENUS	ER-1102-A	
75	GENUS	ER-1076-A	
76	GENUS	ER-1128-A	
77	GENUS	ER-1125-A	
78	GENUS	ER-1106-A	BIRPARA(PG)
79	GENUS	ER-1109-A	
80	GENUS	ER-1110-A	
81	GENUS	ER-1071-A	DALKHOLA(PG)
82	GENUS	ER-1072-A	
83	GENUS	ER-1166-A	DARBHANGA(DMTCL)
84	GENUS	ER-1263-A	GAYA(PG)
85	GENUS	ER-1170-A	
86	GENUS	ER-1297-A	JAMSHEDPUR(PG)
87	GENUS	ER-1215-A	
88	GENUS	ER-1043-A	KHARAGPUR(WB)
89	GENUS	NR-4615-A	KISHANGANJ(PG)
90	GENUS	NR-4434-A	
91	GENUS	ER-1293-A	
92	GENUS	ER-1296-A	
93	GENUS	ER-1159-A	
94	GENUS	ER-1154-A	
95	GENUS	ER-1143-A	MALDA(PG)
96	GENUS	ER-1150-A	
97	GENUS	ER-1008-A	MEJIA(DVC)
98	GENUS	ER-1031-A	
99	GENUS	ER-1055-A	MIRAMUNDALI(GRIDCO)
100	GENUS	ER-1054-A	
101	GENUS	ER-1165-A	MOTIHARI(DMTCL)
102	GENUS	ER-1167-A	
103	GENUS	ER-1122-A	MPL
104	GENUS	ER-1123-A	
105	GENUS	ER-1124-A	
106	GENUS	ER-1129-A	
107	GENUS	ER-1226-A	MUZAFFARPUR(PG)
108	GENUS	ER-1299-A	NABINAGAR(BRBCL)
109	GENUS	ER-1292-A	
110	GENUS	ER-1294-A	
111	ELSTER	NR-4620-A	NEW MELLI(PG)
112	ELSTER	NR-4621-A	
113	GENUS	ER-1099-A	PANDIABILI(PG)
114	L&T	NP-8052-A	
115	GENUS	ER-1175-A	PURNEA(PG)
116	GENUS	ER-1176-A	
117	GENUS	ER-1298-A	RAMCHANDARPUR(PG)
118	GENUS	ER-1020-A	RENGALI(PG)
119	GENUS	ER-1028-A	ROURKELA(PG)
120	GENUS	ER-1029-A	
121	GENUS	ER-1012-A	SUNDERGARH(PG)
122	GENUS	ER-1093-A	
123	GENUS	ER-1100-A	
124	GENUS	ER-1019-A	
125	GENUS	ER-1118-A	
126	GENUS	ER-1022-A	
127	GENUS	ER-1021-A	
128	GENUS	ER-1023-A	
129	GENUS	ER-1117-A	
130	GENUS	ER-1119-A	
131	GENUS	ER-1062-A	
132	GENUS	ER-1067-A	
133	GENUS	ER-1061-A	
134	GENUS	ER-1070-A	
135	GENUS	ER-1065-A	
136	GENUS	ER-1064-A	

25 Existing Locations with 68 Meters

Annexure-B36.1

List of Meter & Location for AMR 4th Phase

S.No	MAKE	Meter Serial No	LOCATION
1	L&T	NP-7885-A	LAKHISARAI(PG)
2	L&T	NP-7886-A	
3	L&T	NP-7429-A	
4	L&T	NP-7429-A	
5	L&T	NP-7887-A	
6	L&T	NP-7430-A	
7	L&T	NP-7888-A	
8	L&T	NP-7431-A	
9	ELSTER	NR-4451-A	ALIPURDUAR(PG)
10	ELSTER	NR-4452-A	
11	ELSTER	NR-3717-A	
12	ELSTER	NR-4622-A	
13	ELSTER	NR-4625-A	
14	ELSTER	NR-4447-A	
15	ELSTER	NR-4446-A	
16	ELSTER	NR-3725-A	
17	ELSTER	NR-4617-A	
18	ELSTER	NR-3716-A	
19	ELSTER	NR-3718-A	
20	GENUS	ER-1104-A	
21	GENUS	ER-1146-A	
22	GENUS	ER-1005-A	
23	GENUS	ER-1006-A	
24	GENUS	ER-1002-A	
25	GENUS	ER-1004-A	
26	ELSTER	ER-1295-A	KISHANGANJ(BSPTCL)
27	GENUS	ER-1158-A	
28	GENUS	ER-1156-A	
29	GENUS	ER-1157-A	
30	GENUS	ER-1287-A	NPGC(BSPTCL)
31	GENUS	ER-1282-A	
32	GENUS	ER-1052-A	OPGC
33	GENUS	ER-1063-A	
34	GENUS	ER-1027-A	
35	GENUS	ER-1112-A	
36	GENUS	ER-1026-A	
37	GENUS	ER-1030-A	
38	GENUS	ER-1053-A	
39	GENUS	ER-1066-A	
40	GENUS	ER-1068-A	
41	GENUS	ER-1060-A	
42	ELSTER	NR-3714-A	TEESTA-III
43	ELSTER	NR-3715-A	
44	ELSTER	NR-4450-A	
45	ELSTER	NR-3720-A	
46	ELSTER	NR-4623-A	
47	ELSTER	NR-3719-A	
48	ELSTER	NR-4456-A	
49	ELSTER	NR-4618-A	
50	ELSTER	NR-4454-A	
51	ELSTER	NR-4453-A	
52	GENUS	ER-1250-A	MOTIHARI(BSPTCL)
53	GENUS	ER-1245-A	
54	GENUS	ER-1286-A	MOTIPUR(BSPTCL)
55	GENUS	ER-1288-A	
56	GENUS	ER-1111-A	ATRI(GRIDCO)
57	GENUS	ER-1007-A	
58	GENUS	ER-1248-A	RAXAUL(BSPTCL)
59	GENUS	ER-1249-A	

16 New Locations with 68 Meters

S.No	MAKE	Meter Serial No	LOCATION
69	GENUS	ER-1290-A	APNRL
70	GENUS	ER-1135-A	BERHAMPORE(PG)
71	GENUS	ER-1140-A	
72	GENUS	ER-1265-A	BIHARSHARIFF(PG)
73	GENUS	ER-1108-A	BINAGURI(PG)
74	GENUS	ER-1102-A	
75	GENUS	ER-1076-A	
76	GENUS	ER-1128-A	
77	GENUS	ER-1125-A	
78	GENUS	ER-1106-A	BIRPARA(PG)
79	GENUS	ER-1109-A	
80	GENUS	ER-1110-A	
81	GENUS	ER-1071-A	DALKHOLA(PG)
82	GENUS	ER-1072-A	
83	GENUS	ER-1166-A	DARBHANGA(DMTCL)
84	GENUS	ER-1263-A	GAYA(PG)
85	GENUS	ER-1170-A	
86	GENUS	ER-1297-A	JAMSHEDPUR(PG)
87	GENUS	ER-1215-A	
88	GENUS	ER-1043-A	KHARAGPUR(WB)
89	GENUS	NR-4615-A	KISHANGANJ(PG)
90	GENUS	NR-4434-A	
91	GENUS	ER-1293-A	
92	GENUS	ER-1296-A	
93	GENUS	ER-1159-A	
94	GENUS	ER-1154-A	
95	GENUS	ER-1143-A	MALDA(PG)
96	GENUS	ER-1150-A	
97	GENUS	ER-1008-A	MEJIA(DVC)
98	GENUS	ER-1031-A	
99	GENUS	ER-1055-A	MIRAMUNDALI(GRIDCO)
100	GENUS	ER-1054-A	
101	GENUS	ER-1165-A	MOTIHARI(DMTCL)
102	GENUS	ER-1167-A	
103	GENUS	ER-1122-A	MPL
104	GENUS	ER-1123-A	
105	GENUS	ER-1124-A	
106	GENUS	ER-1129-A	
107	GENUS	ER-1226-A	MUZAFFARPUR(PG)
108	GENUS	ER-1299-A	NABINAGAR(BRBCL)
109	GENUS	ER-1292-A	
110	GENUS	ER-1294-A	
111	ELSTER	NR-4620-A	NEW MELLI(PG)
112	ELSTER	NR-4621-A	
113	GENUS	ER-1099-A	PANDIABILI(PG)
114	L&T	NP-8052-A	
115	GENUS	ER-1175-A	PURNEA(PG)
116	GENUS	ER-1176-A	
117	GENUS	ER-1298-A	RAMCHANDARPUR(PG)
118	GENUS	ER-1020-A	RENGALI(PG)
119	GENUS	ER-1028-A	ROURKELA(PG)
120	GENUS	ER-1029-A	
121	GENUS	ER-1012-A	
122	GENUS	ER-1093-A	
123	GENUS	ER-1100-A	
124	GENUS	ER-1019-A	
125	GENUS	ER-1118-A	
126	GENUS	ER-1022-A	
127	GENUS	ER-1021-A	

25 Existing Locations with 68 Meters

60	GENUS	ER-1113-A	SAMANGARA(GRIDCO)		128	GENUS	ER-1023-A	SUNDERGARH(PG)	
61	GENUS	ER-1073-A			129	GENUS	ER-1117-A		
62	GENUS	ER-1223-A	SAMASTIPUR(BSPTCL)		130	GENUS	ER-1119-A		
63	GENUS	ER-1121-A	EMSS(CESC)		131	GENUS	ER-1062-A		
64	GENUS	ER-1126-A			132	GENUS	ER-1067-A		
65	GENUS	ER-1227-A	BETIAH(BSPTCL)		133	GENUS	ER-1061-A		
66	GENUS	ER-1173-A			134	GENUS	ER-1070-A		
67	GENUS	ER-1116-A	BHOGRAI(GRIDCO)		135	GENUS	ER-1065-A		
68	GENUS	ER-1114-A	JALESWAR(GRIDCO)		136	GENUS	ER-1064-A		

Approximate cost for integrating 150 new meters with AMR (by taking 20% escalation from the AMR Phase-2 PO (LOA Ref # ER-II/KOL/CS/I-1352/P-1398 Dated 27.10.2016**))**

Supply Portion

SL No.	Line Item	Unit	Qty (Old LOA)	New Qty	Unit Price in old LOA	New Unit price (20% escalation)	Total Price
1	Supply of all required hardware along with Accessories	per SEM	249	150	874	1048.8	157320
2	Armored RS-485 Cable	mtr	14000	8500	90	108	918000
3	PVC pipes of ISI make min dia 50 mm or higher	mtr	16148	3700	84	100.8	372960
4	Data Concentrator Unit	no	37	22	90000	108000	2376000
5	MOXA Converter	no	37	27	4091	4909.2	132548.4
						Total	**3956828.4**

Service Portion

SL No.	Line Item	Qty (Old LOA)	New Qty	Unit Price in old LOA	New Unit price (20% escalation)	Total Price
1	Installation , Testing and commissioning Including integration with ERLDC / customization Cost for works of Implementation of Automatic Meter Reading (AMR) for SEM in Eastern Region At Data Center	249	150	5858	7029.6	1054440
2	Installation , Testing and commissioning Including integration with ERLDC / customization Cost for works of Implementation of Automatic Meter Reading (AMR) for SEM in Eastern Region At Sub Station	249	150	7500	9000	1350000
3	Laying of Armored RS-485 cable in PVC pipe	14000	8500	22.9	27.48	233580
					Total	**2638020**

AMC Portion

SL No.	Line Item	Qty (Old LOA)	New Qty	Unit Price in old LOA	New Unit price (20% escalation)	Total Price
1	Comprehensive AMC for all hardware /software/ Equipment installed under this project for 1st year After warranty (per SEM) -KIOSK type Sub Station	249	150	3306	3967.2	595080
2	Comprehensive AMC for all hardware /software/ Equipment installed under this project for 2nd year After warranty (per SEM) -KIOSK type Sub Station	249	150	3637	4364.4	654660
3	Comprehensive AMC for all hardware /software/ Equipment installed under this project for 3rd year After warranty (per SEM) -KIOSK type Sub Station	249	150	4001	4801.2	720180
4	Comprehensive AMC for all hardware /software/ Equipment installed under this project for 4th year After warranty (per SEM) -KIOSK type Sub Station	249	150	4401	5281.2	792180
					Total	**2762100**

Total cost for Supply	3956828
Total cost for Service	2638020
Total cost for AMC	2762100
Total	**9356948**

Date of Commercial Operation(DOCO) of the Asstes

Annexure-B37

A	Split Bus arrangment for various substation in Eastern Region	DOCO	Approved Cost	Standing Committee Reference	RPC Meeting Reference	Sharing of Charges
01	Split Bus arrangment with tie line breaker for 400kV Biharsharif Substation	15/05/17	Rs.135.16 Cr.(including IDC of Rs.5.14 Cr.).	SCM meeting of ER on 20.09.10.	15th ERPC meeting on 28.09.10	As per New Sharing methodology of PoC
B	**Eastern Region Strengthening Scheme-VII**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	2nos 400kV line bays at Purulai PPSP(New) of West Bengal	26/07/17	Rs.71.35 Cr.(including IDC of Rs.3.96 Cr.).	SCM meeting of ER on 08.02.12	21st ERPC Meeting at Kolkata on 21.04.14	As per New Sharing methodology of PoC
C	**Eastern Region Strengthening Scheme-IX**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	Installation of 2x125MVAR Bus Reactor and associated 400kV bays at Rengali Sub station	03/08/17	Rs.196.58 Cr.(including IDC of Rs.10.65 Cr.).	SCM meeting of ER on 05.01.13.	22nd ERPC Meeting on 25.08.12 & 24th ERPC meeting on 27.04.13	As per New Sharing methodology of PoC
02	Installation of 125 MVAR Bus Reactor in parallel with existing 50 (3x16.67) MVAR Bus Reactor at Biharsharif S/S using existing 400kV reactor bay.	13/10/17				
03	Replacement of 1 no. of 1x315 MVA,400/220 kV ICT with 1x500 MVA,400/220kV ICT(2nd) at Maithon Substation	25/10/17				
04	Installation of 125 MVAR Bus Reactor after replacing existing 50 MVAR Bus Reactor II at Jamshedpur S/S using existing 400kV reactor bay	17/11/17				
05	Installation of 125 MVAR Bus Reactor in parallel with existing 50 MVAR Bus Reactor I at Jamshedpur S/S using existing 400kV reactor bay	03/12/17				
D	**Transmission System for Development of Pooling Station in Northern Region Part of West Bengal and Transfer of Power from BHUTAN to NR/WR**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	LILO of 220kV D/C Birpara-Salakati Transmission line along-with associated bays at HVDC terminal at Alipurdwar	21/09/17	Rs.4404.57 Cr.(including IDC of Rs. 383.38 Cr.).	6th, 8th , 10th , 11th, & 16th SCM meeting of ER on 22.06.06,05.11.07,14.09.09,20 .09.10&02.05.14 respectively.	-	As per New Sharing methodology of PoC
02	315 MVA 400/220/332kV ICT-II along-with assocaited bays at HVDC terminal at Alipurdwar	21/09/17				
03	LILO of 400kV D/C Binaguri(Siliguri)-Bongaigaon Transmission line(quad) along-with associated bays at HVDC terminal at Alipurdwar	21/09/17				
04	315 MVA 400/220/332kV ICT-I along-with assocaited bays at HVDC terminal at Alipurdwar	21/09/17				
05	125 MVAR Bus Reactor-I(BR-I) along-with assocated bays at HVDC terminal at Alipurdwar	21/09/17				
06	125 MVAR Bus Reactor-II(BR-II) along-with assocated bays at HVDC terminal at Alipurdwar	21/09/17				
07	800kV Multi terminal HVDC Agra-Alipurduar-Biswanath Chariali Pole-3 at Agra & APD along-with associated bays	21/09/17				
08	800kV Multi terminal HVDC Agra-Alipurduar-Biswanath Chariali Pole-4 at Agra & APD along-with associated bays	21/09/17				
E	**Eastern Region Strengthening Scheme-XII**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	1 no. 500 MVA Single Phase Spare unit of 765/400kV ICT(Cold Spare) for Eastern Region to be stationed at Angul Sub-station	25/09/17	Rs.522.29 Cr.(including IDC	2nd 2013 SCM meeting of ER	25th ERPC meeting on 21.09.13	As per New Sharing

02	Shifting of 1x315 MVA, 400/220kV ICT from any suitable location (after replacement by 1x500 MVA ICT) and install it at Jamshedpur 400/220Kv Substation as 3rd ICT along-with associated bays	16/12/17	of Rs.33.24 Cr.).	on 27.08.13.	25th ERPC meeting on 21.09.13	methodology of PoC
F	**Eastern Region Strengthening Scheme-III**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	Installation of 1x500 MVA 400/220kV ICT-II and associated bays at Pandiabili GIS Substation	19/11/17	Rs. 1512.08 Cr. (including IDC of Rs. 96.92 Cr.).	08/11/2008 at Bhubaneswar	Special(9th) ERPC meeting on 30/12/2008 & 10th ERPC meeting on 11/04/2009 at Port Blair	As per New Sharing methodology of PoC
G	**POWERGRID works associated with common transmission system for Phase II Generation Projects in Odisha**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	2nos 400kV GIS Line bays at Jharsuguda(Sundargarh) Substation for termination of OPGC(IBTPS)-Jharsuguda(Sundargarh) 400 Kv D/C Line(Line under TBCB)	22/11/17	Rs. 844.64 Cr. (including IDC of Rs. 50.27 Cr.).	16th SCM meeting of ER on 02.05.14 & 17th SCM of ER on 25.05.15	24th ERPC meeting on 27.04.13 & 30th ERPC meeting on 20.06.15	As per New Sharing methodology of PoC
02	Split Bus arrangement at 400 Kv Bus at Sundargarh Substation with GIS	22/11/17				
H	**Eastern Region Strengthening Scheme-XIV**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
01	Modification of 132kV bus arrangement including switchgear to Double Main(DM) Scheme with GIS at 220/132kV Birpara Substation	31/10/17	Rs. 167.01 Cr. (including IDC of Rs. 10.09 Cr.).	16th SCM meeting of ER on 02/05/2014 at NRPC, New Delhi	26th ERPC meeting on 18.01.14 & 27th ERPC meeting on 31.05.14	As per New Sharing methodology of PoC
I	**Establishment of Communication System under Expension/Upgradation of SCADA/EMS system at SLDC of Eastern Region (DVC)**	**DOCO**	**Approved Cost**	**Standing Committee Reference**	**RPC Meeting Reference**	**Sharing of Charges**
a)	**31 nos. OPGW Fibre Optic Cable on EHV Transmission Line links**					
01	Howrah (DVC)-Belmuri	10/10/17				
02	MTPS A-Barjora	10/10/17				
03	Durgapur(DVC)-Mejia	10/10/17				
04	Durgapur - Parulia	10/10/17				
05	DTPS - Jamuria	10/10/17				
06	DTPS - Kalipahari	10/10/17				
07	Burddwan – DTPS(Waria)	10/10/17				
08	Belmuri-Burdwan	10/10/17				
09	DTPS(Waria)-ASP	10/10/17				
10	CTPS-Baida	10/10/17				
11	CTPS-Purulia	10/10/17				

Annexure-C1

FGD PLANNED- ER

Sr. No.	Developer	Name of Project	Sector	State	Region	Prime Mover	Unit No	Total Capacity	DT-of COMMISSIONING (MM/DD/YYYY)	Age in years	Type of Fuel	FGD Phasing Plan for Implementation (MM/DD/YYYY)	ESP Phasing plan for implementation (MM/DD/YYYY)	Remarks
1	NTPC	BARH II	Central Sector	Bihar	ER	Steam	4	660	**20/11/2013**	4	COAL	9/30/2021		FGD POSSIBLE
2	NTPC	BARH II	Central Sector	Bihar	ER	Steam	5	660	**04/03/2015**	2	COAL	3/31/2022		FGD POSSIBLE
3	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	Steam	1	210	**31/03/1992**	25	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
4	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	Steam	2	210	**17/03/1994**	23	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
5	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	Steam	3	210	**24/03/1995**	22	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
6	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	Steam	4	210	**18/03/1996**	21	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
7	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	Steam	5	500	**31/03/2007**	10	COAL	12/31/2022		FGD POSSIBLE
8	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	Steam	6	500	**16/03/2008**	9	COAL	12/31/2022		FGD POSSIBLE
9	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	Steam	7	500	**31/07/2009**	8	COAL	12/31/2022		FGD POSSIBLE
10	NTPC	NABI NAGAR TPP	Central Sector	Bihar	ER	Steam	1	250	**20/03/2016**	1	COAL	12/31/2021		FGD POSSIBLE
11	NTPC	NABI NAGAR TPP	Central Sector	Bihar	ER	Steam	2	250	**04/04/2017**	0	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
12	NTPC & Bihar	MUZAFFARPUR TPS	Central Sector	Bihar	ER	Steam	3	195	**31/03/2015**	2	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
13	NTPC & Bihar	MUZAFFARPUR TPS	Central Sector	Bihar	ER	Steam	4	195	**24/03/2017**	0	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
14	Adhunik Power&Natural Resourc	MAHADEV PRASAD STPP	Private Sector	Jharkhand	ER	Steam	1	270	**19/11/2012**	5	COAL	6/30/2022		FGD POSSIBLE
15	Adhunik Power&Natural Resourc	MAHADEV PRASAD STPP	Private Sector	Jharkhand	ER	Steam	2	270	**29/03/2013**	4	COAL	6/30/2022		FGD POSSIBLE
16	D.V.C	BOKARO `A` TPS	Central Sector	Jharkhand	ER	Steam	1	500	**22/03/2016**	1	COAL	6/30/2022	6/30/2022	FGD POSSIBLE
17	D.V.C	CHANDRAPURA(DVC)	Central Sector	Jharkhand	ER	Steam	7	250	**04/11/2009**	8	COAL	12/31/2022		FGD POSSIBLE
18	D.V.C	CHANDRAPURA(DVC)	Central Sector	Jharkhand	ER	Steam	8	250	**31/03/2010**	7	COAL	12/31/2022		FGD POSSIBLE
19	D.V.C	KODARMA TPP	Central Sector	Jharkhand	ER	Steam	1	500	**20/07/2011**	6	COAL	12/31/2021		FGD POSSIBLE
20	D.V.C	KODARMA TPP	Central Sector	Jharkhand	ER	Steam	2	500	**15/02/2013**	4	COAL	12/31/2021		FGD POSSIBLE
21	TATA Power Co.	JOJOBERA TPS	Private Sector	Jharkhand	ER	Steam	2	120	**02/01/2001**	16	COAL	12/31/2021		FGD POSSIBLE
22	TATA Power Co.	JOJOBERA TPS	Private Sector	Jharkhand	ER	Steam	3	120	**02/01/2002**	15	COAL	12/31/2021		FGD POSSIBLE
23	TATA Power Co. MPL	MAITHON RB TPP	Private Sector	Jharkhand	ER	Steam	1	525	**01/09/2011**	6	COAL	9/30/2021		FGD POSSIBLE
24	TATA Power Co.MPL	MAITHON RB TPP	Private Sector	Jharkhand	ER	Steam	2	525	**24/07/2012**	5	COAL	6/30/2022		FGD POSSIBLE
25	TenughatVN Ltd	TENUGHAT TPS	State Sector	Jharkhand	ER	Steam	1	210	**14/04/1994**	23	COAL	12/31/2020	12/31/2020	FGD POSSIBLE
26	TenughatVN Ltd	TENUGHAT TPS	State Sector	Jharkhand	ER	Steam	2	210	**10/10/1996**	21	COAL	12/31/2020		FGD POSSIBLE
27	GMR	KAMALANGA TPS	Private Sector	Odisha	ER	Steam	1	350	**29/03/2013**	4	COAL	12/31/2021		FGD POSSIBLE
28	GMR	KAMALANGA TPS	Private Sector	Odisha	ER	Steam	2	350	**28/09/2013**	4	COAL	12/31/2021		FGD POSSIBLE
29	GMR	KAMALANGA TPS	Private Sector	Odisha	ER	Steam	3	350	**21/03/2014**	3	COAL	9/30/2021		FGD POSSIBLE
30	Ind barath	IND BARATH TPP	Private Sector	Odisha	ER	Steam	1	350	**25/02/2016**	1	COAL	3/31/2022	3/31/2022	FGD POSSIBLE
31	JIPL	DERANG TPP	Private Sector	Odisha	ER	Steam	1	600	**10/04/2014**	3	COAL	3/31/2021		FGD POSSIBLE
32	JIPL	DERANG TPP	Private Sector	Odisha	ER	Steam	2	600	**24/01/2015**	2	COAL	3/31/2021		FGD POSSIBLE
33	NTPC	TALCHER STPS	Central Sector	Odisha	ER	Steam	1	500	**19/02/1995**	22	COAL	12/31/2022		FGD POSSIBLE
34	NTPC	TALCHER STPS	Central Sector	Odisha	ER	Steam	2	500	**27/03/1996**	21	COAL	12/31/2022		FGD POSSIBLE
35	NTPC	TALCHER STPS	Central Sector	Odisha	ER	Steam	3	500	**21/02/2003**	14	COAL	12/31/2022		FGD POSSIBLE
36	NTPC	TALCHER STPS	Central Sector	Odisha	ER	Steam	4	500	**25/10/2003**	14	COAL	12/31/2022		FGD POSSIBLE
37	NTPC	TALCHER STPS	Central Sector	Odisha	ER	Steam	5	500	**13/05/2004**	13	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
38	NTPC	TALCHER STPS	Central Sector	Odisha	ER	Steam	6	500	**06/02/2005**	12	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
39	OPGCLtd	IB VALLEY TPS	State Sector	Odisha	ER	Steam	1	210	**02/06/1994**	23	COAL	9/30/2021	9/30/2021	FGD POSSIBLE
40	OPGCLtd	IB VALLEY TPS	State Sector	Odisha	ER	Steam	2	210	**22/10/1995**	22	COAL	9/30/2021	9/30/2021	FGD POSSIBLE
41	Sterlite Energy Ltd	STERLITE TPP	Private Sector	Odisha	ER	Steam	2	600	**29/12/2010**	6	COAL	3/31/2022		FGD POSSIBLE
42	C.E.S.C. Pvt.	BUDGE BUDGE TPS	Private Sector	West Bengal	ER	Steam	1	250	**16/09/1997**	20	COAL	12/31/2022		FGD POSSIBLE
43	C.E.S.C. Pvt.	BUDGE BUDGE TPS	Private Sector	West Bengal	ER	Steam	2	250	**06/03/1999**	18	COAL	12/31/2022		FGD POSSIBLE

44	C.E.S.C. Pvt.	BUDGE BUDGE TPS	Private Sector	West Bengal	ER	Steam	3	250	**29/09/2009**	8	COAL	12/31/2022		FGD POSSIBLE
45	C.E.S.C. Pvt.	SOUTHERN REPL. TPS	Private Sector	West Bengal	ER	Steam	1	68	**10/04/1991**	26	COAL	3/31/2022		FGD POSSIBLE
46	C.E.S.C. Pvt.	SOUTHERN REPL. TPS	Private Sector	West Bengal	ER	Steam	2	68	**12/08/1990**	27	COAL	12/31/2021		FGD POSSIBLE
47	D.P.L.	D.P.L. TPS	State Sector	West Bengal	ER	Steam	6	110	**03/07/1985**	32	COAL	3/31/2022	3/31/2022	FGD POSSIBLE
48	D.P.L.	D.P.L. TPS	State Sector	West Bengal	ER	Steam	7	300	**24/11/2007**	10	COAL	6/30/2022	6/30/2022	FGD POSSIBLE
49	D.P.L.	D.P.L. TPS EXT.	State Sector	West Bengal	ER	Steam	8	250	**31/03/2014**	3	COAL	3/31/2022	3/31/2022	FGD POSSIBLE
50	D.V.C	DURGAPUR STEEL TPS	Central Sector	West Bengal	ER	Steam	1	500	**29/07/2011**	6	COAL	6/30/2021		FGD POSSIBLE
51	D.V.C	DURGAPUR STEEL TPS	Central Sector	West Bengal	ER	Steam	2	500	**23/03/2012**	5	COAL	6/30/2021		FGD POSSIBLE
52	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	Steam	1	210	**01/03/1996**	21	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
53	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	Steam	2	210	**24/03/1997**	20	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
54	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	Steam	3	210	**25/03/1998**	19	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
55	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	Steam	4	210	**12/10/2004**	13	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
56	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	Steam	5	250	**01/10/2007**	10	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
57	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	Steam	6	250	**31/03/2007**	10	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
58	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	Steam	7	500	**30/09/2010**	7	COAL	9/30/2021	9/30/2021	FGD POSSIBLE
59	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	Steam	8	500	**26/03/2011**	6	COAL	9/30/2021	9/30/2021	FGD POSSIBLE
60	D.V.C	RAGHUNATHPUR TPP	Central Sector	West Bengal	ER	Steam	1	600	**24/08/2014**	3	COAL	3/31/2022		FGD POSSIBLE
61	D.V.C	RAGHUNATHPUR TPP	Central Sector	West Bengal	ER	Steam	2	600	**18/01/2016**	1	COAL	3/31/2022		FGD POSSIBLE
62	M/s Haldia Energy Limited	HALDIA TPP	Private Sector	West Bengal	ER	Steam	1	300	**14/01/2015**	2	COAL	12/31/2022		FGD POSSIBLE
63	M/s Haldia Energy Limited	HALDIA TPP	Private Sector	West Bengal	ER	Steam	2	300	**16/02/2015**	2	COAL	12/31/2022		FGD POSSIBLE
64	Bishagarh Power Co.	India Power TPP	Private Sector	West Bengal	ER	Steam	1	150	**07/06/2017**	0	COAL	3/31/2022		FGD POSSIBLE
65	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	Steam	1	200	**01/01/1986**	31	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
66	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	Steam	2	200	**24/12/1986**	31	COAL	12/31/2022		FGD POSSIBLE
67	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	Steam	3	200	**06/08/1987**	30	COAL	12/31/2022		FGD POSSIBLE
68	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	Steam	4	500	**25/09/1992**	25	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
69	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	Steam	5	500	**16/02/1994**	23	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
70	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	Steam	6	500	**07/03/2011**	6	COAL	12/31/2022	12/31/2022	FGD POSSIBLE
71	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	Steam	1	210	**16/01/1993**	24	COAL	6/30/2022	6/30/2022	FGD POSSIBLE
72	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	Steam	2	210	**13/08/1990**	27	COAL	3/31/2021	3/31/2021	FGD POSSIBLE
73	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	Steam	3	210	**16/12/1985**	32	COAL	9/30/2021	9/30/2021	FGD POSSIBLE
74	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	Steam	4	210	**24/01/1984**	33	COAL	3/31/2022	3/31/2022	FGD POSSIBLE
75	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	Steam	5	210	**28/12/1993**	24	COAL	6/30/2021	6/30/2021	FGD POSSIBLE
76	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	Steam	6	210	**17/03/1991**	26	COAL	12/31/2021	12/31/2021	FGD POSSIBLE
77	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	Steam	1	300	**20/07/2008**	9	COAL	12/31/2020	12/31/2020	FGD POSSIBLE
78	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	Steam	2	300	**21/12/2007**	10	COAL	3/31/2021	3/31/2021	FGD POSSIBLE
79	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	Steam	3	500	**14/12/2015**	2	COAL	3/31/2022		FGD POSSIBLE
80	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	Steam	4	500	**15/12/2016**	1	COAL	3/31/2020		FGD POSSIBLE
81	WBPDC	SANTALDIH TPS	State Sector	West Bengal	ER	Steam	5	250	**07/11/2007**	10	COAL	3/31/2021	3/31/2021	FGD POSSIBLE
82	WBPDC	SANTALDIH TPS	State Sector	West Bengal	ER	Steam	6	250	**29/06/2011**	6	COAL	12/31/2021	12/31/2021	FGD POSSIBLE

27715 MW -82 Units

ESP UPGRADATION PLAN AVAILABLE

S. NO.	Developer	Name of Project	Sector	State	Region	Unit No	Total Capacity	DT-of COMMISSIONING (MM/DD/YYYY)	Age in years	FGD Phasing Plan for Implementation (DD/MM/YYYY)	ESP Phasing plan for implementation (DD/MM/YYYY)	Remarks
1	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	1	210	**31/03/1992**	25	31/12/2022	31/12/2022	FGD POSSIBLE
2	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	2	210	**17/03/1994**	23	31/12/2022	31/12/2022	FGD POSSIBLE
3	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	3	210	**24/03/1995**	22	31/12/2022	31/12/2022	FGD POSSIBLE
4	NTPC	KAHALGAON TPS	Central Sector	Bihar	ER	4	210	**18/03/1996**	21	31/12/2022	31/12/2022	FGD POSSIBLE
5	NTPC	NABI NAGAR TPP	Central Sector	Bihar	ER	2	250	**04/04/2017**	0	31/12/2022	31/12/2022	FGD POSSIBLE
6	NTPC & Bihar	MUZAFFARPUR TPS	Central Sector	Bihar	ER	3	195	**31/03/2015**	2	31/12/2022	31/12/2022	FGD POSSIBLE
7	NTPC & Bihar	MUZAFFARPUR TPS	Central Sector	Bihar	ER	4	195	**24/03/2017**	0	31/12/2022	31/12/2022	FGD POSSIBLE
8	D.V.C	BOKARO `A` TPS	Central Sector	Jharkhand	ER	1	500	**22/03/2016**	1	30/06/2022	30/06/2022	FGD POSSIBLE
9	TenughatVN Ltd	TENUGHAT TPS	State Sector	Jharkhand	ER	1	210	**14/04/1994**	23	31/12/2020	31/12/2020	FGD POSSIBLE
10	Ind barath	IND BARATH TPP	Private Sector	Odisha	ER	1	350	**25/02/2016**	1	31/03/2022	31/03/2022	FGD POSSIBLE
11	NTPC	TALCHER STPS	Central Sector	Odisha	ER	5	500	**13/05/2004**	13	31/12/2022	31/12/2022	FGD POSSIBLE
12	NTPC	TALCHER STPS	Central Sector	Odisha	ER	6	500	**06/02/2005**	12	31/12/2022	31/12/2022	FGD POSSIBLE
13	OPGCLtd	IB VALLEY TPS	State Sector	Odisha	ER	1	210	**02/06/1994**	23	30/09/2021	30/09/2021	FGD POSSIBLE
14	OPGCLtd	IB VALLEY TPS	State Sector	Odisha	ER	2	210	**22/10/1995**	22	30/09/2021	30/09/2021	FGD POSSIBLE
15	D.P.L.	D.P.L. TPS	State Sector	West Bengal	ER	6	110	**03/07/1985**	32	31/03/2022	31/03/2022	FGD POSSIBLE
16	D.P.L.	D.P.L. TPS	State Sector	West Bengal	ER	7	300	**24/11/2007**	10	30/06/2022	30/06/2022	FGD POSSIBLE
17	D.P.L.	D.P.L. TPS EXT.	State Sector	West Bengal	ER	8	250	**31/03/2014**	3	31/03/2022	31/03/2022	FGD POSSIBLE
18	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	1	210	**01/03/1996**	21	31/12/2022	31/12/2022	FGD POSSIBLE
19	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	2	210	**24/03/1997**	20	31/12/2022	31/12/2022	FGD POSSIBLE
20	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	3	210	**25/03/1998**	19	31/12/2022	31/12/2022	FGD POSSIBLE
21	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	4	210	**12/10/2004**	13	31/12/2022	31/12/2022	FGD POSSIBLE
22	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	5	250	**01/10/2007**	10	31/12/2022	31/12/2022	FGD POSSIBLE
23	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	6	250	**31/03/2007**	10	31/12/2022	31/12/2022	FGD POSSIBLE
24	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	7	500	**30/09/2010**	7	30/09/2021	30/09/2021	FGD POSSIBLE
25	D.V.C	MEJIA TPS	Central Sector	West Bengal	ER	8	500	**26/03/2011**	6	30/09/2021	30/09/2021	FGD POSSIBLE
26	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	1	200	**01/01/1986**	31	31/12/2022	31/12/2022	FGD POSSIBLE
27	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	4	500	**25/09/1992**	25	31/12/2022	31/12/2022	FGD POSSIBLE
28	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	5	500	**16/02/1994**	23	31/12/2022	31/12/2022	FGD POSSIBLE
29	NTPC	FARAKKA STPS	Central Sector	West Bengal	ER	6	500	**07/03/2011**	6	31/12/2022	31/12/2022	FGD POSSIBLE
30	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	1	210	**16/01/1993**	24	30/06/2022	30/06/2022	FGD POSSIBLE
31	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	2	210	**13/08/1990**	27	31/03/2021	31/03/2021	FGD POSSIBLE
32	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	3	210	**16/12/1985**	32	30/09/2021	30/09/2021	FGD POSSIBLE
33	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	4	210	**24/01/1984**	33	31/03/2022	31/03/2022	FGD POSSIBLE
34	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	5	210	**28/12/1993**	24	30/06/2021	30/06/2021	FGD POSSIBLE
35	WBPDC	KOLAGHAT TPS	State Sector	West Bengal	ER	6	210	**17/03/1991**	26	31/12/2021	31/12/2021	FGD POSSIBLE
36	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	1	300	**20/07/2008**	9	31/12/2020	31/12/2020	FGD POSSIBLE
37	WBPDC	SAGARDIGHI TPS	State Sector	West Bengal	ER	2	300	**21/12/2007**	10	31/03/2021	31/03/2021	FGD POSSIBLE
38	WBPDC	SANTALDIH TPS	State Sector	West Bengal	ER	5	250	**07/11/2007**	10	31/03/2021	31/03/2021	FGD POSSIBLE
39	WBPDC	SANTALDIH TPS	State Sector	West Bengal	ER	6	250	**29/06/2011**	6	31/12/2021	31/12/2021	FGD POSSIBLE

11020 MW 39 UNITS

Annexure

Name of the Element	Power Flow	
	Before	After
Bus I & III (Maithon A)		
400 KV Maithon-Mejia I,II	27 each (Mejia)	162 each (Maithon)
400 KV Maithon-Kahalgaon II	69 (Maithon)	189 (Maithon)
400 KV Maithon-Jamshedpur	168 (Jamshedpur)	108 (Maithon)
400 KV Maithon-Gaya D/c	228 each (Gaya)	126 each (Gaya)
2*500 MVA ICT at Maithon	374	248
Bus II & IV (Maithon B)		
400 KV Maithon-MPL D/c	360 each (Maithon)	314 each (Maithon)
400 KV Maithon-Raghunathpur	194 (Maithon)	70 (Maithon)
400 KV Maithon-Ranchi	66 (Ranchi)	112 (Ranchi)
400 KV Maithon-Durgapur D/c	36 (Maithon)	112 each (Durgapur)
400 KV Maithon-Kahalgaon I	69 (Maithon)	22 (Kahalgaon)
400 KV Maithon-Mejia III	22 (Mejia)	342 (Mejia)

Changes in 220 KV Network		
220 KV Maithon-Dhanbad D/c	134 each (Dhanbad)	125 each (Dhanbad)
220 KV Maithon-Kalyaneshwari D/c	39 each (Kalyaneshwari)	10 each (Maithon)
220 KV Mejia-Kalyaneshwari T/c	86 each (Kalyaneshwari)	110 each (Kalyaneshwari)
220 KV Kalyaneshwari-CTPS A	65 (CTPS A)	60 (CTPS A)
220 KV Dhanbad-CTPS B	41 each (CTPS B)	30 each (CTPS B)
220 KV CTPS A-CTPS B	195 each (CTPS A)	200 each (CTPS A)

Note: Direction of power flow is towards S/s mentioned in parenthesis

Voltage Changes		Bus I & III		Bus II & IV	
		Bus I	Bus III	Bus II	Bus IV
	Before Splitting	415 KV	417 KV	412 KV	414 KV
	After Splitting	414 KV	411 KV	419 KV	416 KV

Minor voltage difference between connected buses is due to measurement errors

Annexure - C7.1

STATUS OF REACTIVE CHARGES

RECEIVABLE IN ER POOL AS PER PUBLISHED A/C UPTO 21.01.18 (2017 -18)
AS ON 06.02.18

CONSTITUENT	AMOUNT RECEIVABLE IN THE POOL (Rs.)	AMOUNT RECEIVED IN THE POOL (Rs.)	TOTAL OUTSTANDING(Rs.)
BSPHCL	378537	378537	0
JSEB	1137688	1137688	0
DVC	357122	357122	0
GRIDCO	235533541	231414556	4118985
WBSETCL	525917884	500268147	25649737
SIKKIM	502926	325817	177109
TOTAL	763827698	733881867	29945831

Note: (+ve) means payable by utility & (-ve) means receivable by utility

Annexure - C7.2

SUMMARY OF RRAS CHARGE RECEIPT AND PAYMENT STATUS

BILL from 03.04.17 to 21.01.18 (upto Week - 42 of 2017 - 18)
Last Payment Disbursement Date -06.02.18

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
FSTPP STG-I & II	358.99724	357.46082	4910.92856	4874.05035	**-35.34179**
FSTPP STG-III	9.89411	8.15645	641.57757	631.18344	**-8.65647**
KhSTPP STG-I	223.07371	220.14860	2695.00135	2665.46803	**-26.60821**
KhSTPP STG-II	88.10747	88.02270	7708.79661	7632.25068	**-76.46117**
TSTPP STG-I	136.18211	135.92269	327.66223	327.66223	**0.25943**
BARH STG-II	475.35635	463.46420	4387.40998	4316.64479	**-58.87304**
BRBCL (Nabinagar)	16.24978	16.24978	1742.33265	1713.81262	**-28.52003**
TOTAL	**1307.86076**	**1289.42523**	**22413.70895**	**22161.07214**	**-234.20128**

% Realization **98.59** **As on** **06.02.18**

Receivable: Receivable by ER POOL Payable Payable by ER POOL

Received Received by ER POOL Paid Paid by ER POOL

"- ve" Payable by ER pool "+ ve" Receivable by ER pool

Annexure - C7.3

SUMMARY OF CONGESTION CHARGE RECEIPT AND PAYMENT STATUS

Bill upto 07.01.2013
Last Payment Disbursement Date - 13.05.2013

Figures in Rs. Lakhs

CONSTITUENTS	Receivable	Received	Payable	Paid	Outstanding
BSEB	0.67823	0.67823	0.39118	0.39118	0.00000
JSEB	16.37889	16.37889	2.61323	2.61323	0.00000
DVC	0.00000	0.00000	6.24040	6.24040	0.00000
GRIDCO	5.34488	5.34488	0.00000	0.00000	0.00000
WBSETCL	0.00000	7.42249	4.32834	11.75083	0.00000
SIKKIM	0.65609	6.20909	0.00000	5.55300	0.00000
NTPC	6.93152	6.93152	7.42249	7.42249	0.00000
NHPC	0.70445	0.70445	0.05875	0.05875	0.00000
MPL	4.81694	4.81694	0.85169	0.85169	0.00000
STERLITE	7.70504	7.70504	0.00000	0.00000	0.00000
Pool Balance	0.00000	0.00000	21.30996	21.30996	0.00000
TOTAL	**43.21604**	**56.19153**	**43.21604**	**56.19153**	0.00000

% Realization **As on 31.05.2015**

Receivable:	Receivable by ER POOL	Payable	Payable by ER POOL
Received	Received by ER POOL	Paid	Paid by ER POOL

"- ve" Payable by ER pool "+ ve" Receivable by ER pool

Annexure - C7.4

DETAILS OF DISBURSEMENT TO POWER SYSTEM DEVELOPMENT FUND

Sl No	Nature of Amount	Amount transferred to PSDF (Rs in Lac)	Date of Disbursement	Cheque No	Remarks
1	**Opening Balance (upto 31.03.16)**	**86464.58111**			
2	Addl. Dev	83.33978	01.04.16		Addl Dev Charge 15-16
3	Addl. Dev	43.77416	05.04.16		Addl Dev Charge 15-16
4	Addl. Dev	31.83984	07.04.16		Addl Dev Charge 15-16
5	Addl. Dev	52.08622	11.04.16		Addl Dev Charge 15-16
6	Addl. Dev	107.23773	13.04.16		Addl Dev Charge 15-16
7	Addl. Dev	220.15330	19.04.16		Addl Dev Charge 15-16
8	Addl. Dev	76.84824	21.04.16		Addl Dev Charge 15-16
9	Addl. Dev	20.84026	26.04.16		DSM Interest 2014-15(Paid by APNRL)
10	Addl. Dev	10.01920	26.04.16		Addl Dev Charge 16-17
16	Addl. Dev	432.25696	28.04.16		Addl Dev Charge 16-17
17	Addl. Dev	117.08707	02.05.16		Addl Dev Charge 16-17
18	Addl. Dev	41.65418	04.05.16		Addl Dev Charge 16-17
19	Addl. Dev	114.33049	06.05.16		Addl Dev Charge 15-16 & 16-17
20	Deviation Interest	38.50018	06.05.16		Deviation Interest
21	Addl. Dev	35.54178	10.05.16		Addl Dev Charge 16-17
22	Addl. Dev	448.87953	31.05.16		Addl Dev Charge 16-17
23	Addl. Dev	170.51274	29.06.16		Addl Dev Charge 16-17
24	Reactive Charges	530.57497	28.09.16		Reactive Charges_15-16
25	Reactive Charges	1000.00000	26.12.16		Reactive Charges_16-17
26	Reactive Charges	779.39811	14.02.17		Reactive Charges_16-17
27	Reactive Charges	500.00000	29.03.17		Reactive Charges_16-17
28	Reactive Charges	203.61904	26.04.17		Reactive Charges_16-17
29	Reactive Charges	394.80618	30.05.17		Reactive Charges_16-17
30	Reactive Charges	256.53944	28.06.17		Reactive Charges_16-17
31	Reactive Energy Charge	248.26904	31.07.17		Reactive Charges_17-18
32	Reactive Energy Charge	128.44284	29.08.17		Reactive Charges_17-18
33	Reactive Energy Charge	103.22685	26.09.17		Reactive Charges_17-18
34	Reactive Energy Charge	249.14078	31.10.17		Reactive Charges_17-18
35	Reactive Energy Charge	172.20693	30.11.17		Reactive Charges_17-18
36	Reactive Energy Charge	200.00000	15.12.17		Reactive Charges_17-18
37	Reactive Energy Charge	100.00000	05.01.18		Reactive Charges_17-18
38	Reactive Energy Charge	558.45339	06.02.18		Reactive Charges_17-18
	Total	**93934.16034**			

Annexure-C8.1

	2016-17				2017-18		
DSM account Reconciliation Status of ER constituents and Inter Regional							
Name of The Utility	**Q1 (04.07.16)**	**Q2 (03.10.16)**	**Q3 (04.01.17)**	**Q4 (05.04.17)**	**Q1(04.07.17)**	**Q2(09.10.17)**	**Q3(08.01.18)**
Inter Regional							
WR	NO	NO	YES	NO	NO	NO	NO
SR	YES	YES	NO	YES	YES	NO	NO
NER	NO	NO	YES	YES	YES	NO	NO
NR	NO	NO	NO	NO	NO	NO	YES
Intra Regional							
BSPHCL	YES	YES	YES	YES	YES	NO	NO
JUVNL	YES	YES	YES	YES	YES	NO	NO
DVC	YES	YES	YES	YES	YES	NO	NO
GRIDCO	YES	YES	YES	YES	YES	YES	YES
WBSETCL	YES	YES	YES	YES	YES	YES	YES
SIKKIM	YES	YES	YES	NO	NO	NO	NO
NTPC	YES	YES	YES	YES	YES	YES	YES
NHPC	YES	YES	YES	YES	YES	YES	NO
MPL	YES	YES	YES	YES	YES	YES	YES
VEDANTA	NO	NO	NO	NO	N/A	N/A	N/A
APNRL	YES	YES	YES	YES	YES	YES	YES
CHUZACHEN(GATI)	YES	NO	YES	YES	YES	YES	YES
NVVN(Ind-Bng)	YES	YES	YES	YES	YES	YES	YES
NVVN(Ind-Nep)	YES	YES	YES	YES	YES	YES	YES
GMR	YES	YES	YES	YES	YES	NO	NO
JITPL	YES	YES	YES	YES	YES	YES	NO
INBEUL	NO	NO	NO	NO	NO	NO	NO
TPTCL (DAGACHU)	YES	YES	YES	YES	YES	NO	YES
JLHEP(DANS ENERGY)	YES	YES	YES	YES	YES	NO	NO
BRBCL	YES	YES	YES	YES	YES	YES	NO
POWERGRID (ER-I)	N/A	N/A	YES	YES	YES	YES	YES
POWERGRID (ER-II)	N/A	N/A	N/A	N/A	N/A	N/A	NO
TUL (TEESTA-III)	N/A	N/A	N/A	NO	NO	NO	NO
DIKCHU	N/A	N/A	N/A	N/A	YES	NO	YES
SHIGA (TASHIDING)	N/A	N/A	N/A	N/A	N/A	N/A	NO

Note:
(1)The dates in the bracket indicates the date of sending the Reconciliation statements by ERLDC to utilities.
(2) YES Indicates that signed reconciliation statement received by ERLDC
(3) NO Indicates that signed reconciliation statement is not received by ERLDC

Annexure-C8.5

Reconciliation Between Open Access department of ERLDC and SLDCs, STUs

Sl. No.	STUs / SLDCs Name	Apr-17	May-17	Jun-17	Quarter-II(Jul-17-Sep-17)	Quarter-III(Oct-17-Dec-17)
	Date of Issuance	17-May-17	15-Jun-17	14-Jul-17	Oct-17	Jan-18
1	West Bengal - SLDC and STU	YES	YES	YES	NO	NO
2	DVC - SLDC	YES	YES	YES	YES	NO
3	OPTCL-SLDC and STU	YES	YES	YES	YES	NO

ccess department of ERLDC and Applicants

Sl. No.	Applicants Name	Quarter-I(Apr-17-June-17)	Quarter-II(Jul-17-Sep-17)	Quarter-III(Oct-17-Dec-17)
	Date of Issuance	25-07-2017	17-10-2017	16-01-2018
1	Calcutta Electric Supply Company	YES	YES	YES
2	Maithon Power Limited	YES	NA	NO
3	GMR Kamalanga Energy Limited	YES	YES	NO
4	Jindal India Thermal Power Limited	YES	YES	YES
5	Jharkhand State Electricity Board	YES	NO	NO
6	SAIL Rourkela Steel Plant	NO	NO	NO
7	TATA Steel Ferro Alloy Plant Bamnipal	YES	YES	NA
8	TATA Steel Ferro Alloy Plant Joda	YES	YES	NA
9	Tata Steel Limited Kalinganagar	NO	NO	NA
10	West Bengal State Distribution Company Ltd.	YES	NO	NA

Access department of ERLDC and CTU

Sl. No.	STUs / SLDCs Name	Apr-17	May-17	Jun-17	Quarter-II(Jul-17-Sep-17)	Quarter-III(Oct-17-Dec-17)
	Date of Issuance	17-May-17	15-Jun-17	14-Jul-17	13-Oct-17	18-Jan-18
1	CTU(POWERGRID)	YES	NO	YES	YES	NO

Annexure-C11

List of drifted meters to be replaced in Phase-III

SNO	LOCATION	METER SNO	FEEDER NAME	Region
1	JEERAT(WB)	NP-6445-A	400 KV JEERAT (WBSETCL) - BERHAMPORE(PG)	ER-II
2	JEERAT(WB)	NP-6446-A	400 KV JEERAT (WBSETCL) - SUBHASGRAM	ER-II
3	RANCHI(PG)	NP-7853-A	400 KV RAGHUNATHPUR 1	ER-I
4	RANCHI(PG)	NP-7871-A	400 KV RAGHUNATHPUR 2	ER-I
5	ALIPURDUAR(PG)	NR-3716-A	400 KV POLE-3 MAIN BAY-AGRA(NR)	ER-II
6	ALIPURDUAR(PG)	NR-3718-A	400 KV POLE-3 TIE BAY AGRA(NR)	ER-II
7	NEW MELLI(PG)	NR-4620-A	220 KV JORETHANG(JLHEP)-1	ER-II
8	NEW MELLI(PG)	NR-4621-A	220 KV JORETHANG(JLHEP)-2	ER-II
9	TEESTA-III	NR-3714-A	400 KV SIDE OF TEEST-III HEP GT-1	ER-II
10	TEESTA-III	NR-3715-A	400 KV SIDE OF TEEST-III HEP GT-2	ER-II
11	TEESTA-III	NR-4450-A	400 KV SIDE OF TEEST-III HEP GT-3	ER-II
12	TEESTA-III	NR-3720-A	400 KV SIDE OF TEEST-III HEP GT-4	ER-II
13	TEESTA-III	NR-4623-A	400 KV SIDE OF TEEST-III HEP GT-5	ER-II
14	TEESTA-III	NR-3719-A	400 KV SIDE OF TEEST-III HEP GT-6	ER-II
15	TEESTA-III	NR-4456-A	400 KV TEESTA-III - DICKCHU (MAIN)	ER-II
16	TEESTA-III	NR-4618-A	400 KV TEESTA-III - DICKCHU (CHECK)	ER-II
17	TEESTA-III	NR-4454-A	400 KV TEESTA-III - RANGPO (MAIN)	ER-II
18	TEESTA-III	NR-4453-A	400 KV TEESTA-III - RANGPO (CHECK)	ER-II
19	JINDAL (GRIDCO)	NP-6502-A	220KV JAMSHEDPUR (DVC)	ODHISA PROJECT
20	JAMSHEDPUR (DVC)	NP-6010-B	220 KV JINDAL	ER-I
21	GANGTOK(PG)	NP-6026-A	132KV CHUZACHEN(GATI)	ER-II
22	RANGPO(PG)	NP-7958-A	132 KV CHUZACHEN (GATI)	ER-II

2nd Third Party Protection Audit:

2nd Third Party Protection Audit for Sub-stations of Eastern Region has been started from July, 2015. Till date (31st Jan 2018) the audit team has completed two nos 765kV, 32 nos of 400 kV, 4 nos 220kV and 11 nos 132kV Sub-stations. The list of substations is as follows:

1)	400kV Jeerat (PG)	Completed on 15th July 2015
2)	400kV Subashgram (PG)	Completed on 16th July 2015
3)	400kV Kolaghat TPS (WBPDCL)	Completed on 7th August 2015
4)	400/220kV Kharagpur (WBSETCL)	Completed on 7th August 2015
5)	400 &220kV Bidhannagar (WBSETCL)	Completed on 8th September, 2015
6)	400kV S/s Durgapur (PG)	Completed on 10th September, 2015
7)	400/220kV DSTPS(DVC)	Completed on 9th September, 2015
8)	400/220kV Mejia (DVC) TPS	Completed on 11th September, 2015
9)	400/220/132kV Mendhasal (OPTCL)	Completed on 2nd November, 2015
10)	400/220kV Talcher STPS (NTPC)	Completed on 3rd November, 2015
11)	765/400kV Angul (PG)	Completed on 4th November, 2015
12)	400kV JITPL	Completed on 5th November, 2015
13)	400kV GMR	Completed on 5th November, 2015
14)	400kV Malda (PG)	Completed on 23rd February, 2016
15)	400kV Farakka (NTPC)	Completed on 24th February, 2016
16)	400kV Behrampur(PG)	Completed on 25th February, 2016
17)	400kV Sagardighi (WBPDCL)	Completed on 25th February, 2016
18)	400kV Bakreswar (WBPDCL)	Completed on 26th February, 2016
19)	765kV Gaya(PG)	Completed on 1st November, 2016
20)	400kV Biharshariff(PG)	Completed on 3rd November, 2016
21)	220kV Biharshariff(BSPTCL)	Completed on 3rd November, 2016
22)	400kV Maithon (PG)	Completed on 18th May, 2017
23)	132kV Gola (DVC)	Completed on 17th May, 2017
24)	132kV Barhi (DVC)	Completed on 18th May, 2017
25)	132kV Koderma (DVC)	Completed on 18th May, 2017
26)	132kV Kumardhubi (DVC)	Completed on 19th May, 2017
27)	132kV Ramkanali (DVC)	Completed on 19th May, 2017
28)	220kV Ramchandrapur	Completed on 1st June, 2017
29)	400kV Jamshedpur (PG)	Completed on 1st June, 2017
30)	132kV Patherdih (DVC)	Completed on 31st May, 2017
31)	132kV Kalipahari (DVC)	Completed on 30th May, 2017
32)	132kV Putki (DVC)	Completed on 31st May, 2017
33)	132kV ASP (DVC)	Completed on 30th May, 2017
34)	132kV Mosabani (DVC)	Completed on 2nd June, 2017
35)	132kV Purulia (DVC)	Completed on 1st June, 2017
36)	400kV Jaypore(PG)	Completed on 2nd January, 2018
37)	220kV Jeynagar (OPTCL)	Completed on 2nd January, 2018
38)	400kV Indravati (PG)	Completed on 4th January, 2018
39)	400kV Indravati (OHPC)	Completed on 4th January, 2018
40)	220kV Theruvali (OPTCL)	Completed on 5th January, 2018

Annexure-C14.3

UFR Inspection Report of OPTCL substations on 02.01.2018 & 05.01.2018

The ERPC UFR inspection group visited 220/132/33kV Jayanagar, 132/33kV Sunabeda and 220/132/33kV Terubali substations of OPTCL for UFR Audit on 02.01.2018 & 05.01.2018. 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	220/132/33kV Jayanagar	Tentui Khunti	132	48.6	48.6	Alstom Micom P442
2		Boriguma	33	49.0	49.04	AREVA Micom P141
3	132/33kV Sunabeda	Laxmipur	33	49.0	49.02	AREVA Micom P141
4		Nandapur	33	48.6	48.63	AREVA Micom P141
5	220/132/33kV Terubali	Bisam Cuttak	33	49.0	49.0	SEL-751A

The above UFR setting were tested with help of Secondary injection Kit owned by OPTCL. The UFRs are provided with direct trip wiring and tripped at desired frequency. During the inspection, it was found that load (average 0.2 MW & peak 0.5 MW) of 33kV Laxmipur feeder is almost negligible compared to the desired load of 8 MW as per the UFR feeder list submitted by SLDC, Odisha.

Final list of links executed/to be executed under Fiber Optic Communication System in lieu of existing Unified Load Despatch & Communication (ULDC) Microwave links in Eastern Region

Sl no	Link Name	Link Length (Km)
A	**Central Sector**	
1	MTPS (Kati)- Muzaffarpur 400	23.909
2	Durgapur (CS) - Bidhannagar	12.004
3	Maithon-Ranchi	199
4	Hatia-Ranchi 400 (CS)	21.003
5	Sasaram (CS) - Gaya 765 (CS)	149.003
6	Muzzaffarpur - Biharshariff (CS)	129.638
7	ERLDC-Kasba (UGFO)	10.7
B	**BSPTCL Sector**	
1	Samastipur-Baroli	64
2	Samastipur-Hajipur	61
3	Samastipur-Kati	76
4	BTPS-Biharshariff	64
5	Biharshariff-Bodhagaya	80
6	Biharshariff-Fatua	46
7	Fatua-Jhakhanpur	26
8	Jakkanpur-SLDC Patna (UGFO)	6
C	**OPTCL Sector:**	
1	Chainpal-Meramandali	7
2	Talcher (TSTPS)- Meramandali	45
3	Duburi-Meramandali	96
4	Meramandali-Mendhasal	100.593
5	Tarkera- Budhipadhar	109
6	Rourkela-Tarkera	15
7	Mancheswar-Bhubaneswar SLDC	4
8	Bhubaneshwar SLDC-Vidyut Bhawan (Last Mile)	1.5
D	**WBSETCL Sector:**	
1	Bidhannagar- Barjora	25.624
2	Barjora- Bishnupur	42.803
3	Bishnupur- Arambag	50.789
4	Kolaghat TPS- Howrah SLDC	69.207
5	NJP-NBU	14
6	NBU-Binaguri	1
7	Rishra-Bighati	9
8	Bighati-BTPS	23
9	BTPS-Dharampur	18
10	Dharampur-Jeerat	8
11	Arambag- Kolaghat	78.26
12	132 kV Lilua-Rishra	17.03
13	132 kV Howrah- Lilua (WBSETCL)	12.459
14	132 Kv Kasba - Salt Lake (WBSETCL)	22.585
15	LILO at Liluah-Rishra	2.34
16	Saltlake S/s to Abhikshan Bhawan (UGFO)	0.514
17	Vidyut Bhawan to Saltlake GIS (UGFO)	1.03
18	Bidhannagar400-Bidhannagar220	0.91

E	DVC Sector:	
1	132 kV Maithon SLDC - MHPS	1
2	MHPS- 132 kV Kalyaneswari	2
3	220 kV Kalyaneswari - Mejia A	55
4	220 kV Mejia - Waria	34
5	220 kV Waria DTPS - Parulia	21
6	220 kV Parulia - Durgapur	1
7	132 kV Kalyaneswari - CTPS A	87
8	CTPS A - BTPS	32
9	220 kV Ramchandrapur - Chandil	33
10	Mejia A - Mejia B (UGFOC)	4.7
11	400 kV Barhi-KTPS	20.723
12	220 Kv Koderma-KTPS	17.559
13	Bokaro-Ramgarh	54.887
14	Konar-Bokaro	23.733
15	Konar-Barhi	58.455
16	Maithon-Kalyaneshwary	6.854
17	MHPS-Panchet	14.599
18	CTPS 132 kV C/R to CTPS-A 220 kV C/R	0.8
19	Kalyneshwari-Kalipahari	27.91
20	LILO at Raghunathpur	21.83
21	Kodarma TPS-Kodarma 400/220 S/s	0.787
22	BTPS A-BTPS B	1.265
23	Ramgarh220-Ramgarh 132	0.735
24	DSTPS-RTPS	69.182

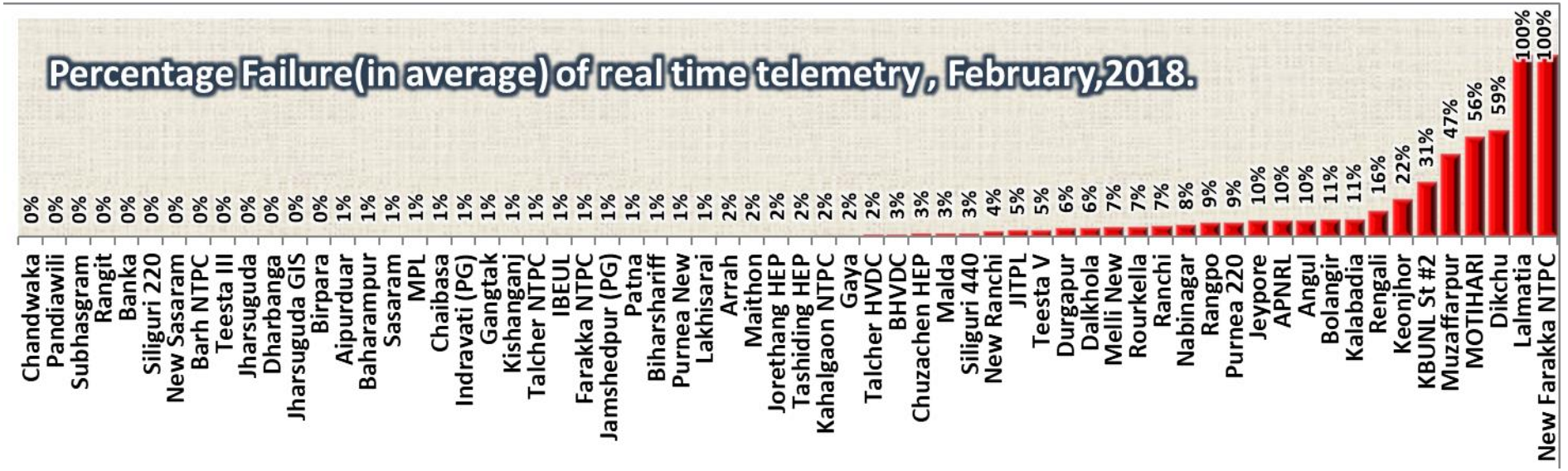
Final list of links executed/to be executed under Fiber Optic Communication System in ER under Expansion of Wideband Communication Network in ER

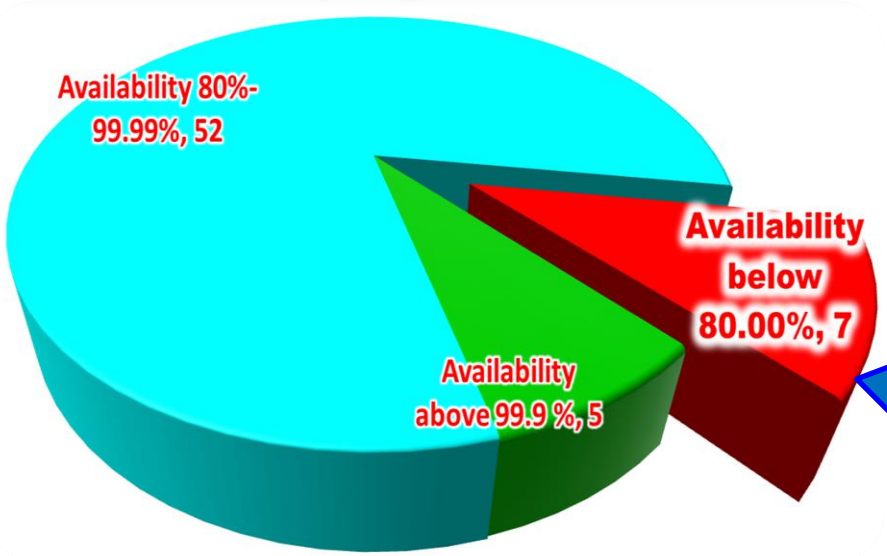
S/n	Link Name	Link Length (Km)
1	Dhalkola-Purnea	40.94
2	Birpara-Siliguri	80.44
3	LILO of Malda-Binaguri at Purnea	58.22
4	Baripada-Jamshedpur	140.91
5	Subhashgram -Jeerat	63.99
6	Bolangir - Jeypore	308.32
7	Bolangir - Angul	200.63
8	Rengali - Keonjhar	100.25
9	Ara -Patna	64.00
10	Ranchi 400 - Ranchi 765	78.00
11	Banka-Kahalgaon	48.95
12	Rangit - Gangtok (upto T-85)	22.00
13	400 KV Purnea S/s to LILO of Malda- Binaguri TL Section (Binaguri Section)	60.50
14	Patna-Barh	92.53
15	Teesta V - TP Rangpo/Binaguri	110.38
16	LILO at Sundargarh (Rourkela-Raigarh)	22.89
17	Angul- Jharsuguda	286.40
18	Uttara-Mendhasal (Pandiabili)	27.797
19	132 KV Rangpo S/s to LILO Siliguri-Gangtok (CS)	3.737
20	New Melli-Rangpo	25.40
21	MPL-Maithon PG	31.50
22	Indravati HPS - Indravati PG	3.79
23	Maithon - Kahalgaon	171.83
24	Biharsharif-Koderma	109.00
25	Siliguri 400 - Kishagunj (Incl LILO)	98.65
26	Baripada- Keonjhar	157.54
27	Dalkhola - Malda	116.15
28	Birpara - Alipurduar	59.184
29	Barh-Kahalgaon	215.22
30	Chandawa-Ranchi	68.31
31	LILO of Biharsharif-Kahalgaon at Lakhisarai	31.63
32	Daltonganj-Sasaram	196.13
33	Dalkhola-Siliguri LILO at Kishanganj (Dalkhola-Kishanganj)	31.09
34	Gaya-Chandwa	117.13
35	Jamshedpur-Chaibasa	47.86
36	Biharsharif-Banka	178.89
37	Purnea400-Purnea220	1.99
38	Punatsangchu- Alipurduar	63.78

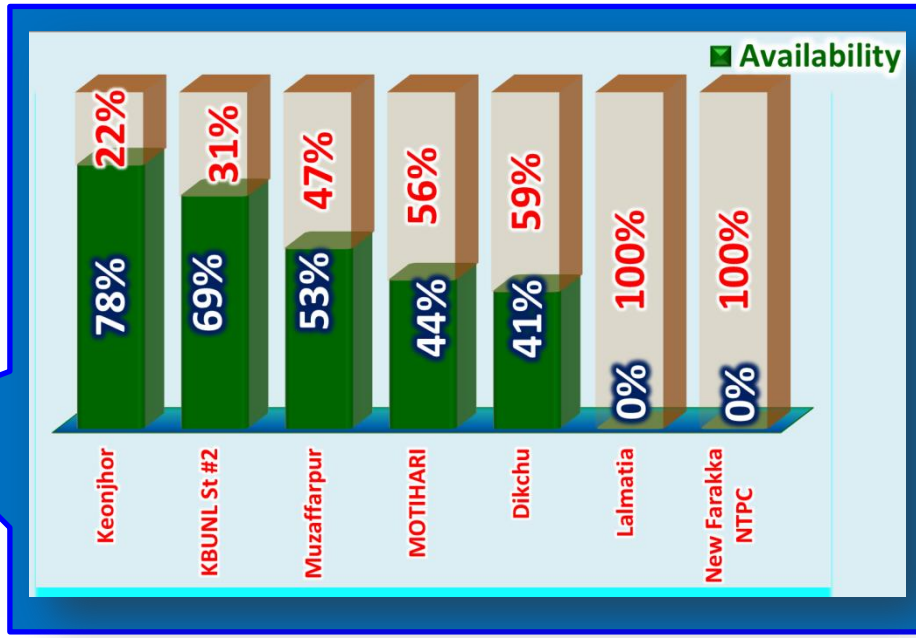
S/n	Link Name	Link Length (Km)
39	Rourkela-Raigarh(Rourkela to LILO at Sundargarh)	123
40	Ranchi-Rourkela	144.97
41	Siliguri-Gangtok	126.064
42	Bongaingaon-Gelephu	55.00

Overview of real time telemetry of Eastern region

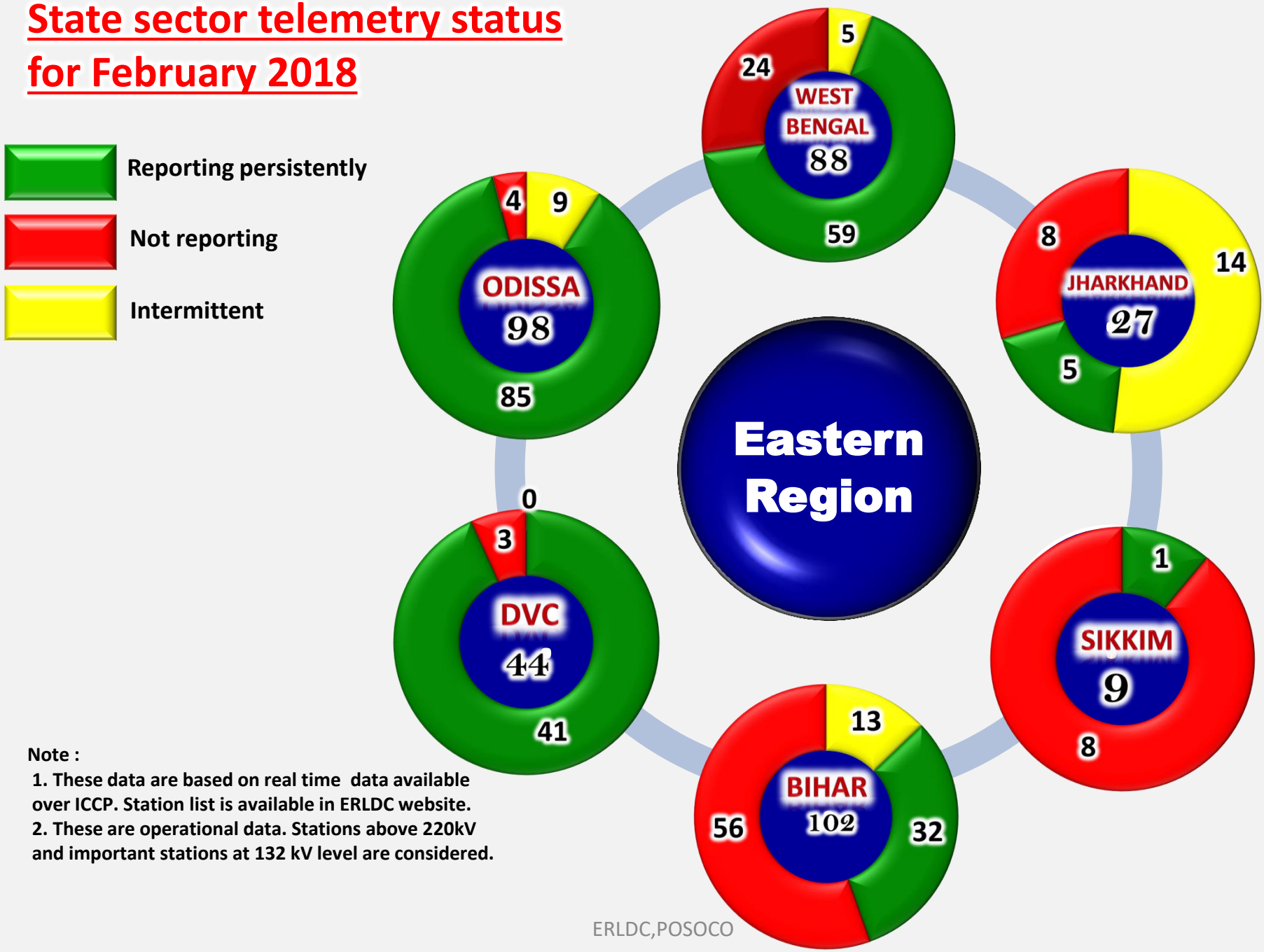
Annexure-C20







State sector telemetry status for February 2018



Note :

1. These data are based on real time data available over ICCP. Station list is available in ERLDC website.
2. These are operational data. Stations above 220kV and important stations at 132 kV level are considered.

Major concerns

- **Prolong outage:**
  - **New Farakka (NTPC) since 09-09-2017.**
  - **Lalmatia(NTPC) since 01-01-2018.**
- **Non availability of Unit side data→**
  - **Farakka STPS (Unit #6).**
  - **GMR (Unit #1, Unit #2, Unit #3)**

BIHAR

List of station having availability higher than 90%

Biharsharif(220kV)	BODH GAYA(220kV)	Darbhanga(220kV)	Hajipur(220kV)	KHAGAUL(220kV)	Madhepura(220kV)
Pusauli(220kV)	Sipara(220kV)	BARH(132kV)	BARIPAHARI(132kV)	BETIAH(132kV)	BIHTA(132kV)
Chhapra(132kV)	DIGHA(132kV)	Hajipur Old(132kV)	Jakkanpur(132kV)	Khagaria(132kV)	Kundra(132kV)
LAKHISARAI(132kV)	Raxaul (132kV)	Sabour(132kV)	Sasaram(132kV)	Shekhpura(132kV)	Sitamarhi(132kV)
Sonenagar(132kV)	Vaishali(132kV)	Valmikinagar(132kV)	Wazirganj(132kV)		

List of station having availability higher than 10% and less than 90%

Fatuha(220kV)	GOPALGANJ(220kV)	Kishanganj new(220kV)	Samastipur new(220kV)	Uda Kishanganj(220kV)	BANJARI(132kV)
Dalsinghsarai(132kV)	DHAKA(132kV)	Dumraon(132kV)	Jagdishpur(132kV)	Jai Nagar(132kV)	KARBIGAHIA(132kV)
Kusheswar Asthan (132kV	Runisaidpur(132kV)	SAHARSA(132kV)	Sherghati(132kV)	Shitalpur(132kV)	SKMCH(132kV)

List of stations having availability (less than 10% or RTU not integarated)

Begusarai(220kV)	DEHRI(220kV)	sonenagar new(220kV)	Arrah(132kV)	Aurangabad(132kV)	Banka(132kV)
Belaganj(132kV)	BIKRAMGANJ(132kV)	BUXAR(132kV)	Chandauti(132kV)	Dhandaha(132kV)	Ekangarsarai(132kV)
Ekma(132kV)	Forbisganj(132kV)	Gaighat(132kV)	Gangwara(132kV)	GOH(132kV)	Harnaut(132kV)
Hathidah(132kV)	HULASGANJ(132kV)	Imamgunj(132kV)	Jahanabad(132kV)	Jamalpur(132kV)	Jamui(132kV)
Jandaha(132kV)	Kahalgaon(132kV)	Karmnasa(132kV)	Karpi(132kV)	Katihar(132kV)	Katra(132kV)
Kishanganj(132kV)	Kochas (Dinara)(132kV)	Koshi(132kV)	Madhubani(132kV)	MASAURHI(132kV)	MASRAKH(132kV)
Mithapur(132kV)	Mohania(132kV)	Motihari(132kV)	Muzaffarpur (Ramdayalu)(132kV)	Nalanda(132kV)	Naugachhia(132kV)
Nawada(132kV)	Pandaul(132kV)	Phulparas (132kV)	Purnea(132kV)	RAFIGANJ(132kV)	Rajgir(132kV)
Ramnagar(132kV)	Samastipur(132kV)	Siwan(132kV)	Sonebarsa(132kV)	Sultanganj(132kV)	Supaul(132kV)
TEHTA(132kV)	Tekari(132kV)				

DVC

List of station having availability higher than 90%

BOKARO A TPS(400kV)	DURGAPUR TPS(400kV)	MEJIA B TPS(400kV)	RAGHUNATHPUR(400kV)	TISCO(400kV)	BARHI(220kV)
BURNPUR(220kV)	CTPS 1(220kV)	CTPS 2(220kV)	CTPS B(220kV)	DHANBAD(220kV)	DURGAPUR(220kV)
HOWRAH(220kV)	JAMSHEDPUR(220kV)	KALYANESWARI(220kV)	MEJIA A TPS(220kV)	MOSABANI(220kV)	PATRATU(220kV)
RAMGARH(220kV)	WARIA TPS(220kV)	ASP(132kV)	BAIDA(132kV)	BARDWAN(132kV)	BARJORA(132kV)
BELMURI(132kV)	CHANDIL(132kV)	GOLA(132kV)	HAZARIBAG(132kV)	JAMURIA(132kV)	KALIPAHARI(132kV)
KODARMA(132kV)	KUMARDHUBI(132kV)	MAITHON HPS(132kV)	NORTH KARANPURA(132kV	PANCHET HPS(132kV)	PARULIA(132kV)
PATHERDIH(132kV)	PURULIA(132kV)	PUTKI(132kV)	RAMGARH(132kV)	RAMKANAL(132kV)	

List of station having availability less than 10%

GIRIDHI(132kV)	KHARAGPUR(132kV)	NIMIAGHAT(132kV)

JHARKHAND

List of station having availability higher than 90%

Chandil(220kV)	Patratu(220kV)	Tenughat(220kV)	Hatia-I(132kV)	Jadugoda(132kV)

List of station having availability higher than 10% and less than 90%

Ramchandrapur(220kV)	Adityapur(132kV)	Chakradharpur(132kV)	Daltonganj(132kV)	Dumka(132kV)	Golmuri(132kV)
Japla(132kV)	Kamdara(132kV)	Kanke(132kV)	Lalmatia(132kV)	Latehar(132kV)	Namkum(132kV)
Noamundi(132kV)	Pakur(132kV)				

List of station having availability less than 10%

Hatia-II(220kV)	Deoghar(132kV)	Garawah(132kV)	Goilkera(132kV)	Jamtara(132kV)	Manique(132kV)
Rajkharsawan(132kV)	Sahebganj(132kV)				

WEST BENGAL

List of station having availability higher than 90%

Arambag(400kV)	Domjur(220kV)	Gokarna 400kv(400kV)	Haldia TPP(400kV)	Howrah(220kV)	Kasba(220kV)
KTPS(400kV)	Lakshmikantapur(220kV)	Midnapur(220kV)	PPSP(400kV)	Satgachia(220kV)	Subhasgram(220kV)
Durgapur(400kV)	Bakreswar(400kV)	Kharagpur(400kV)	Sagardighi(400kV)	CHANDITALA(400kV)	Asansol(220kV)
DPL(220kV)	Durgapur(220kV)	Gokarna(220kV)	Rishra(220kV)	NJP(220kV)	BTPS(132kV)
Liluah(132kV)	Rammam(132kV)	Saltlake(132kV)	Titagarh(132kV)	NBU(132kV)	Ashoknagar(132kV)
Adisaptagram(132kV)	Borjora(132kV)	Bighati(132kV)	Kursiang(132kV)	NPPSP(400kV)	FOUNDRY PARK(220kV)
IPCHL(220kV)	JK NAGAR(220kV)	NEWTOWN3(220kV)	SADAIPUR(220kV)	DHARAMPUR(220kV)	Budge Budge(CESC)(220kV)
Chakmir(CESC)(132kV)	Majherhat(CESC)(132kV)	Southern(CESC)(132kV)	Botanical gurden(CESC)(132kV)	New Coshipur(CESC)(220kV)	rincep street(CESC)(132kV
Parklane(CESC)(132kV)	Titagarh(CESC)(132kV)	BT Road(CESC)(132kV)	Jadavpur(CESC)(132kV)	EM Bypass(CESC)(220kV)	Chakmir(CESC)(132kV)
ast Calcutta(CESC)(132kV	Dum Dum(CESC)(132kV)	Taratala(CESC)(132kV)	BBD Bag(CESC)(132kV)	Belur(CESC)(132kV)	

List of station having availability higher than 10% and less than 90%

STPS(220kV)	Bishnupur(132kV)	Maldah(132kV)	Tcf-2(132kV)	New Bishnupur(220kV)	

List of station having availability less than 10%

Haldia New(220kV)	Jeerat(400kV)	Dalkhola(220kV)	Krishnanagar(220kV)	KLC Bantala(220kV)	Barasat(132kV)
Bongaon(132kV)	Haldia Old(132kV)	Kolaghat(132kV)	Raigunj(132kV)	Sainthia(132kV)	Birpara(132kV)
Chalsa(132kV)	Tcf-1(132kV)	Tcf-3(132kV)	Tarakeswar(132kV)	Alipuduar(132kV)	Gangarampur(132kV)
Joka(132kV)	Kalimpong(66kV)	Hizli(132kV)	TLDP3(220kV)	TLDP4(220kV)	Patuli(CESC)(132kV)

ODISHA

List of station having availability higher than 90%

Mendhasal(400kV)	Meramundali(400kV)	JSPLA(400kV)	GMR(400kV)	Jayanagar(220kV)	Balimela HPS(220kV)
Uper Kolab HPS(220kV)	Theruvalli(220kV)	Indravati HPS(220kV)	Bhanjanagar(220kV)	Narendrapur(220kV)	Bidanasi(220kV)
Chandaka(220kV)	Nayagarh(220kV)	Rengali HPS(220kV)	TTPS(220kV)	NALCO(220kV)	;ali swiching station(22(
Joda(220kV)	Duburi New(400kV)	Duburi Old(220kV)	Paradeep(220kV)	Bhdrakh(220kV)	Balasore(220kV)
Budhipadar(220kV)	IB TPS(220kV)	Tarkera(220kV)	Barkote(220kV)	TATA POWER(220kV)	JSL(220kV)
TSIL(220kV)	VEDANTA(220kV)	JSPL(220kV)	MIL(220kV)	OPTCL (Podia)(220kV)	Sunabeda(132kV)
Machhkund HPS(132kV)	Rayagada(132kV)	Chhatrapur(132kV)	Aska(132kV)	Bhubaneswar (132kV)	Akhusinga(132kV)
Basta(132kV)	Balugaon(132kV)	Khurda(132kV)	Puri(132kV)	Cuttack(132kV)	Choudwar(132kV)
ICCL(132kV)	Chainpal(132kV)	Rairangpur(132kV)	Baripada(132kV)	Jajpur Road(132kV)	Angul(132kV)
Boinda(132kV)	Kendrapara(132kV)	Rourkela(132kV)	Burla HPS(132kV)	Chiplima HPS(132kV)	Sambalpur(132kV)
Rajgangapur(132kV)	Bargarh(132kV)	ARYAN(132kV)	NBVL(132kV)	EMAMI(132kV)	ARATI(132kV)
AISCL(132kV)	IMFFA(132kV)	MINAKHEE(132kV)	OPCL(132kV)	Bolangir Old(132kV)	Bolani(132kV)
Soro(132kV)	Sonepur(132kV)	Anandpur (132kV)	ACC, Bargarh(132kV)	Barpalli(132kV)	Digapahandi(132kV)
Jaleswar(132kV)	Chhend(132kV)	Karanjia(132kV)	Patnagarh(132kV)	Pattamundai(132kV)	Phulbani(132kV)
Kalarangi(132kV)					

List of station having availability higher than 10% and less than 90%

Bolangir New(220kV)	Dhenkanal(132kV)	Kamakhyanagar(132kV)	SHYAM(132kV)	OCLRJ(132kV)	OCL(132kV)
Kesura(132kV)	Parlakhemundi(132kV)	Sundargarh(132kV)			

List of station having availability less than 10%

VISA(220kV)	Kesinga(132kV)	Sijua(132kV)	VEDANTA(LANGIGARH)(132kV)

Details of Eastern Region

A. Telemetry not provided

A.1 Generating Stations

Sl. No.	User Name	Name of Generation Stations	Date of first sysnchonisation	Total Generation Capacity (in MW)	Remarks by constituentes / ERLDC 05/03/2018
1	IPP	400 KV GMR (3X 350 MW)	Apr-13	1050	As per ERLDC guidelines no express voice / VOIP phones.
2		400 JITPL (600 x 2)	Jun-14	1200	Frequent outage of real time data. No alternate data channel and express voice commuincation integrated with ERLDC and its Exchange.
3		IBEUL (2 x 350 MW)	Jul-16	700	No alternate data channel and as per ERLDC guidelines no express voice /VOIP phones provided . Unit sides data not available.
		Total (Non-telemetered stations)	**3**	**2950**	

A.2 Sub - Stations (765 & 400 kV)

Sl. No.	User Name	Name of sub-Stations	Voltage level	Date of first sysnchonisation	Remarks by constituentes / ERLDC 05/03/2018
1	OPTCL	JSPL (Meramundali -400)	400 kV	Sep'10	Status are not reporting.

A.3 Sub - Stations (220 kV & 132 kV)

Sl. No.	User Name	Name of sub-Stations	Voltage level	Target date as per User	Remarks by constituentes / ERLDC 05/03/2018
1	OPTCL	OPTCL CPP : 220 KV BPSL,CONCAST,BSL,JSL,TSIL,VISSA	220 / 132 kV	Dec-13	CONCAST NO DATA , JSL KV,HZ, not available . TSIL NO analog and Status data .BPSL NO Bus Kv and frequency,VISSA -Status data not Available .BSL TRF data is not available.
2		Samangara	220		Data not integrated at SLDC
1	WBSETCL	Foundary Park	220		Data not integrated at SLDC
2		Hura	220		Data not integrated at SLDC
1	JSEB	Hatia New	220 kV	Sept-16	No Data available . Target Missed
2		Japla	132 KV	Sept-16	No Data available . Target Missed
3		Dumka	220 KV	Sept-16	No Data available . Target Missed

B. Telemetry provided but not working / working intermittently

B.1 Generating Stations

Sl. No.	User Name	Name of Generation Stations	Total Generation Capacity (in MW)	Target date as per User	Remarks by constituentes / ERLDC 05/03/2018
1	WBSETCL	TLDP (III) (4x 33)	132	Time Schedule not submitted	Data Not Available
2		TLDP (IV) (2x 40)	80	Time Schedule not submitted	Data not stable
3		Rammam	132	Time Schedule not submitted	Data not stable
4		TCF 1	132	Time Schedule not submitted	Data not stable
5		TCF 2	132	Time Schedule not submitted	Data not stable
6		TCF 3	132	Time Schedule not submitted	Data not stable
7		TLDP 4	220	Time Schedule not submitted	Data not stable
8		TLDP 3	1260	Time Schedule not submitted	Kolaghat Chaibasa (Kharagpur Line 1) line flow and status data not available.
1	JUSNL	220 KV Tenughat (2X 210 MW)	420	Time Schedule not submitted	Status data not Available. Patratu line flow data not reporting since 01/04/16.
2		220 KV Patratu (4x 50 + 2x100 + 4x110)	840	Time Schedule not submitted	No Data available .
1	NTPC	400 kV Farakka : (3x 200 + 2 x 500 MW + 600) Unit-6 LV side MW/MVAR not available	2100	Time Schedule not submitted	Unit-6 LV side MW/MVAR not available since08/03/17.MW/MVAR of Farakka-Kahalgaon 3&4 not reporting since (09/09/2017)
2		BRBCL/Nabinagar TPP (4x250 MW)	1000	Time Schedule not submitted	Communication Link was restored on 15-09-16 but Complete SCADA data yet to be restored.. As per ERLDC guidelines no express voice /VOIP phones provided . Target date 30th Aug 2016.

B.2		Sub - Stations			Remarks by constituentes / ERLDC 05/03/2018
Sl. No.	User Name	Name of sub-Stations	Voltage level	Target date as per User	Data not reporting
1	BSPTCL	Begusarai	220	Target date yet to provide	Data provided but not reporting due problem in PLCC Link
2		DEHRI	220	Target date yet to provide	Data not available
3		sonenagar new	220	Target date yet to provide	Data not available
4		Arrah	132	Target date yet to provide	Data not available
5		Aurangabad	132	Target date yet to provide	Data not available
6		Banka	132	Target date yet to provide	Data not available
7		Belaganj	132	Target date yet to provide	Data not available
8		BIKRAMGANJ	132	Target date yet to provide	Data not available
9		BUXAR	132	Target date yet to provide	Data not available
10		Chandauti	132	Target date yet to provide	Data not available
11		Dhandaha	132	Target date yet to provide	Data not available
12		Ekangarsarai	132	Target date yet to provide	Data not available
13		Ekma	132	Target date yet to provide	Data not available
14		Forbisganj	132	Target date yet to provide	Data not available
15		Gaighat	132	Target date yet to provide	Data not available
16		Gangwara	132	Target date yet to provide	Data not available
17		GOH	132	Target date yet to provide	Data not available
18		Harnaut	132	Target date yet to provide	Data not available
19		Hathidah	132	Target date yet to provide	Data not available
20		HULASGANJ	132	Target date yet to provide	Data not available
21		Imamgunj	132	Target date yet to provide	Data not available
22		Jahanabad	132	Target date yet to provide	Data not available
23		Jamalpur	132	Target date yet to provide	Data not available
24		Jamui	132	Target date yet to provide	Data not available
25		Jandaha	132	Target date yet to provide	Data not available
26		Kahalgaon	132	Target date yet to provide	Data not available
27		Karmnasa	132	Target date yet to provide	Data not available
28		Karpi	132	Target date yet to provide	Data not available
29		Katihar	132	Target date yet to provide	Data not available
30		Katra	132	Target date yet to provide	Data not available
31		Kishanganj	132	Target date yet to provide	Data not available
32		Kochas (Dinara)	132	Target date yet to provide	Data not available
33		Koshi	132	Target date yet to provide	Data not available
34		Madhubani	132	Target date yet to provide	Data not available
35		MASAURHI	132	Target date yet to provide	Data not available
36		MASRAKH	132	Target date yet to provide	Data not available
37		Mithapur	132	Target date yet to provide	Data not available
38		Mohania	132	Target date yet to provide	Data not available
39		Motihari	132	Target date yet to provide	Data not available
40		Muzaffarpur (Ramdayalu)	132	Target date yet to provide	Data not available
41		Nalanda	132	Target date yet to provide	Data not available
42		Naugachhia	132	Target date yet to provide	Data not available
43		Nawada	132	Target date yet to provide	Data not available
44		Pandaul	132	Target date yet to provide	Data not available
45		Phulparas	132	Target date yet to provide	Data not available
46		Purnea	132	Target date yet to provide	Data not available
47		RAFIGANJ	132	Target date yet to provide	Data not available
48		Rajgir	132	Target date yet to provide	Data not available
49		Ramnagar	132	Target date yet to provide	Data not available
50		Samastipur	132	Target date yet to provide	Data not available
51		Siwan	132	Target date yet to provide	Data not available
52		Sonebarsa	132	Target date yet to provide	Data not available
53		Sultanganj	132	Target date yet to provide	Data not available
54		Supaul	132	Target date yet to provide	Data not available
55		TEHTA	132	Target date yet to provide	Data not available
56		Tekari	132	Target date yet to provide	Data not available

1	OPTCL	VISA(220kV)	220KV	Target date yet to provide	Data not available
2		Kesinga(132kV)	132	Target date yet to provide	Data not available
3		Sijua(132kV)	132	Target date yet to provide	Data not Available
4		VEDANTA(LANGIGARH)(132kV)	132	Target date yet to provide	Data not Available
1	JUSNL	Hatia-II(220kV)	220	Target date yet to provide	Data not Available
2		Deoghar(132kV)	132	Target date yet to provide	Data not Available
3		Garawah(132kV)	132	Target date yet to provide	Data not Available
4		Goilkera(132kV)	132	Target date yet to provide	Data not Available
5		Jamtara(132kV)	132	Target date yet to provide	Data not Available
6		Manique(132kV)	132	Target date yet to provide	Data not Available
7		Rajkharsawan(132kV)	132	Target date yet to provide	Data not Available
8		Sahebganj(132kV)	132	Target date yet to provide	Data not Available
1	WBSETCL	Haldia New(220kV)	220	Target yet to be provided	Data not Available
2		Dalkhola(220kV)	220	Target yet to be provided	Data not available
3		Krishnanagar(220kV)	220	Target yet to be provided	Data not available
4		KLC Bantala(220kV)	220	Target yet to be provided	Data not available
5		Barasat(132kV)	132	Target yet to be provided	Data not available
6		Bongaon(132kV)	132	Target yet to be provided	Data not available
7		Haldia Old(132kV)	132	Target yet to be provided	Data not available
8		Kolaghat(132kV)	132	Target yet to be provided	Data not available
9		Raigunj(132kV)	132	Target yet to be provided	Data not available
10		Sainthia(132kV)	132	Target yet to be provided	Data not available
11		Birpara(132kV)	132	Target yet to be provided	Data not available
12		Chalsa(132kV)	132	Target yet to be provided	Data not available
13		Tcf-1(132kV)	132	Target yet to be provided	Data not available
14		Tcf-3(132kV)	132	Target yet to be provided	Data not available
15		Tarakeswar(132kV)	132	Target yet to be provided	Data not available
16		Alipuduar(132kV)	132	Target yet to be provided	Data not available
17		Gangarampur(132kV)	132	Target yet to be provided	Data not available
18		Joka(132kV)	132	Target yet to be provided	Data not available
19		Kalimpong(66kV)	66	Target yet to be provided	Data not available
20		Hizli(132kV)	132	Target yet to be provided	Data not available
21		TLDP3(220kV)	220	Target yet to be provided	Highly Intermittent
22		TLDP4(220kV)	220	Target yet to be provided	Highly Intermittent
23		Patuli(CESC)(132kV)	132	Target yet to be provided	Highly Intermittent
2	POWERGRID	RANCHI	400	Target yet to be provided	Highly Intermittent
4		Muzzaffarpur	400	Target yet to be provided	Highly Intermittent
5		Keonjhor	400	Target yet to be provided	Highly Intermittent
6		Biharshariff	400	Target yet to be provided	Highly Intermittent
1	DVC	GIRIDHI(220kV)	220	Target yet to be provided	Highly Intermittent
2		KHARAGPUR(132kV)	132	Target yet to be provided	Data not stable,Status data not available.
3		NIMIAGHAT(132kV)	132	Target yet to be provided	Data not available
1	Sikkim	Geyzing	132	Target yet to be provided	Data not available
2		LLHP, Gantok	66	Target yet to be provided	Data not available
3		Mamring	66	Target yet to be provided	Data not available
4		Mangan	66	Target yet to be provided	Data not available
5		Namchi	66	Target yet to be provided	Data not available
6		Phudong	66	Target yet to be provided	Data not available
7		Sichey	66	Target yet to be provided	Data not available
8		Tadong	66	Target yet to be provided	Data not available