Agenda

for

128th OCC Meeting

Date: 23.12.2016

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700 033

Eastern Regional Power Committee

Agenda for 128th OCC Meeting to be held on 23rd December, 2016 at ERPC, Kolkata

PART A

Item no. 1: Confirmation of minutes of 127th OCC meeting of ERPC held on 28.11.2016

The minutes of 127th OCC meeting were uploaded in ERPC website and circulated vide letter dated 07.12.2016 to all the constituents.

Members may confirm the minutes.

PART B: ITEMS FOR DISCUSSION

(Items to be discussed as listed in "Part A")

Item No. B.1: Commissioning of new transmission elements in Eastern Region

In 118th OCC, it was informed that the network diagram of eastern region needs to be updated on regular basis on account of commissioning of new elements in the CTU as well as STU networks.

OCC advised all the constituents to update the list of newly commissioned power system elements to OCC on monthly basis so that ERLDC/ERPC can update the network diagram on regular basis.

The list of new Transmission Elements commissioned/charged during **November, 2016** as informed by ERLDC is given below:

1. 400kV Kharagpur-Chaibasa-II was charged for the first time at 23:30 HRS of 10/11/16.
2. Two Nos. of 400kV bays associated with 400kV Kharagpur-Chaibasa-D/C at Kharagpur were charged for the first time at 00:09Hrs of 11.11.16 and 17:18Hrs of 12/11/16 and respectively.
3. 400kV Jamshedpur-Rourkela-II was LILOed successfully at Chaibasa and 400kV Jamshedpur-Chaibasa-II and 400kV Chaibasa-Rourkela-II were charged for the first time at 23:28 HRS of 19/11/16 and 00:16 Hrs of 20.11.16 respectively.
4. 400kV Bus-II at Nabinagar was charged for the first time at 19:44 Hrs of 24.11.16.
5. 765kV Angul-Srikakulam -II along with Switchable Line Reactor (3X80MVAR) at both end were charged for the first time at 11:20 Hrs of 27.11.16.
6. 500MVA, 765/400kV Spare ICT at Angul (in place of ICT-III, B-ph) was charged for the first time at 11:38 Hrs of 27.11.16.

Other constituents may update.

Item No. B.2: 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. The latest status as updated in 34th TCC/ERPC is as given below:

SN	Name of Constituent	Name of Project	Date of approval from PSDF	Target Date of Completion	Amount approved (in Rs.)	Amount drawn till date (in Rs.)	Status as updated in 126th OCC
1	WBSETCL	Renovation & up-gradation of protection system of 220 kV & 400 kV Substations in West Bengal	31-12-14		120.67 Cr	11.04 Cr.	95 % Supply Completed
2	WBSETCL	Transmission System lmprovement of WBSETCL					
3	OPTCL	Renovation & Up-gradation of protection and control systems of Sub-stations in the State of Odisha in order to rectify protection related deficiencies.	11.05.15	10.05.17	162.5 Cr.	***4.91 Cr.+14.63 Cr***	*Another contract for Rs. 41.11 Cr awarded*
4	ERPC	Creation & Maintenance of web based protection database and desktop based protection calculation tool for Eastern Regional Grid	17.03.16		20 Cr.	4.94 Cr.	1st milestone-submission of DPR completed 2nd milestone part completed-Operational load flow studies 7th milestone preponed and completed-32 licenses of setting calculation tool software
5	BSPTCL	Renovation and up-gradation of 220/132/33 KV GSS Biharsharif,Bodhgaya, Fatuha, Khagaul Dehri-on-sone & 132/33 Kv GSS Kataiya	11/5/2015	Feb'2017	64.22 crore	1.219 crore	Project is on going
6		Installation of capacitor bank at different 35 nos. of GSS under BSPTCL	5/9/2016		18.88 crore		Approved (triparty agreement among NLDC, Govt. of Bihar & BSPTCL is in under process)
7		Renovation & up-gradation of protection and control system of 12 nos. 132/33 KV GSS under BSPTCL.					Recommendation of appraisal committee is awaited. Estimated cost 54.69 crore.
8	*DVC*	*Renovation and upgradation of control & protection system and replacement of Substation Equipment of 220/132/33 kV Ramgarh Substation*			*25.96*		*Approved by Ministry of Power*
9		*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*			*140*		*Appraisal committee has recommended. It will be placed in next monitoring Committee meeting.*
10	*WBPDCL*	*Implementation of Islanding scheme at Bandel Thermal Power Station*					*Appraisal committee has recommended. It will be placed in next monitoring Committee*
		Upgradation ofProtection and SAS			*26.09*		*Approved by Ministry of Power*
11	*OHPC*	*Renovation and up-gradation of protection and control system of OHPC*					*Some clarifications are asked by sub-group committee. The reply is awaited.*

34th TCC/ERPC accorded post facto approval to the following three schemes of ERPC for submission to PSDF Appraisal Committee:

1) Training for Power System Engineers
2) Training on Integration of Renewable Energy resources
3) *Training on Power market trading at NORD POOL Academy for Power System Engineers of Eastern Regional Constituents*

In 127th OCC, CE, NPC informed that the DPR from ERPC on training projects will be placed in the next Appraisal Committee meeting.

Other constituents may update.

Item No. B.3: OPERATIONAL LOAD FLOW STUDY FOR OFF-PEAK PERIOD (WINTER LEAN PERIOD),

In 124th OCC, after detailed deliberation, OCC decided that all constituents should provide the relevant data for off-peak load flow study for two instances:

- 13:00hrs on 27th August, 2016 &
- 03:00hrs on 28th August, 2016

OCC advised all the constituents to update the Network Data format with network augmentation from 31st May 2016 to 31st of August 2016 in the given format.

In 126th OCC, PRDC presented the status of the data received for 27th & 28th August, 2016 and the following information was shared by M/s PRDC:

i) Data availability from WB was scanty. WBSETCL representative committed to give the data
ii) ERLDC SCADA data for off peak times considered appeared to be on the higher side.
iii) It was suggested that off peak load of a different day may be considered and load may be apportioned among states based on SCADA data of 27/08/2016 at 13:00 Hrs. or 28/08/2016 at 03:00 Hrs. However, it may not be possible to match SCADA line flows.
iv) After much deliberation members decided that the off peak load flow study will be carried out with load generation scenario of 27/08/2016 at 13:00 hours as per the generation demand scenario data given by ERLDC on 4th. October 2016.
v) The data for 28/08/2016 at 03:00 Hrs. will not be considered as off peak condition as the regional demand is at this hour is very high
vi) It was also decided that a second study on off peak load flow may be carried out in winter for a better estimation of light load scenario
vii) PRDC will interact with respective SLDCs to collect remaining data for operational load flow.

Further, PRDC informed that 27th & 28th August, 2016 the total regional demand figures are almost equals to peak load scenario of previous study and it cannot be treated as off-peak scenario.

OCC felt that another set of data may be collected during lean winter for simulation of off-peak load flow scenario.

Further, OCC advised PRDC to complete the study with the data of 27th & 28th August, 2016.

It is proposed that 28th & 29th December, 2016 may be considered for the lean winter period off-peak load flow study & all constituents are requested to provide the relevant data for off-peak load flow study.

In 127th OCC, PRDC informed that the detailed report of load flow study on data of 26th & 28th August, 2016 will be submitted to ERPC secretariat by next week.

Further for lean off-peak load flow study, OCC finalized the date and time as follows

- *13.00 Hrs of 28th December,2016.*
- *02:00-03.00 Hrs of 29th December,2016*

GM, ERLDC informed that the overvoltage phenomenon is predominant in the month of January. So, the off-peak study may also be carried out for January so that a proper overvoltage scenario can be obtained.

After discussion OCC decided that another study for January,2017 may also be done apart from the December study.

Members may decide. PRDC may update on OLF study.

Item No. B.4: Preparation of Load Generation Balance Report (LGBR) of ER for 2017-18.

As per the IEGC under Clause 5.7.4 of Principal Regulations, first amendment in 2012 under sub-Regulation (a), (b), (c) and (d) states that

a) "The RPC Secretariat shall be primarily responsible for finalization of the Annual Load Generation Balance Report (LGBR) and the annual outage plan for the following financial year by **31st December of each year**. The LGBR shall be prepared by the respective RPC Secretariat for Peak as well as Off-peak scenarios".

b) "Each SLDC shall submit LGBR for its control area, for Peak as well as Off-Peak scenario, by **31st October** for the next financial year, to respective RPC Secretariat".

c) "RPC Secretariat shall then come out with draft LGBR and draft outage plan for the next financial year by **30th November** of each year for the regional grid taking …."

d) "The outage plan shall be finalized in consultation with NLDC and RLDCs. The final LGBR after considering comments/observations of the stakeholders shall be prepared by RPC Secretariat by **31st December of each year**. The……"

So, the planning of maintenance of generating units of various generating companies of the region as well as outage of transmission system on annual basis in respect of Eastern Region for the year 2017-18 is to be finalised by **31st December, 2016**. To facilitate the preparation of LGBR of Eastern Region by ERPC Secretariat within the above schedule period, the following data/ information for the year **2017-18** in respect of the constituents/ generators of Eastern Region is required:

State and Central Sector Generators/ IPPs/CPPs

i) The unit wise and station wise monthly energy generation proposed from existing units during 2017-18 (thermal/hydro/RES).
ii) Annual maintenance programme for each of the generating units (thermal and hydro both).
iii) Generating units under R&M/ long outage indicating date of outage and reasons of outage and expected date of return (thermal and hydro both).
iv) Partial and forced outage figures (in %) of generating units for the last 3 years.
v) Month wise peak demand (MW) – restricted and unrestricted peak demand.
vi) Month wise energy requirement (in MU).
vii) Schedule of commissioning of new generating units during 2017-18 and unit-wise monthly generation programme (in MU).
viii) Allocation of power from new generating units.

CTU / STU / Powerlinks / ENICL/CPTC/PKTCL

Month wise annual planned outage of transmission systems (Transmission lines 220kV and above/ICTs/Reactors/other elements).

It is therefore requested to please send the above information (as applicable) on or before **31.10.2016** for compilation of data and preparation of **LGBR of ER for the year 2017-18.**

Information should be submitted in the form of soft copy through email (mail ID: **rpc.erpc@gov.in / mserpc-power@nic.in**).

In 126th OCC ERPC requested all concerned members to submit the data by first week of November, 2016.

Till date the requisite information has been received from CESC, NHPC (Teesta & Rangit), WBPDCL, NTPC,JUSNL & Odisha.

Other utilities (BSPHCL/BSPTCL, DVC, WBSEDCL/WBSETCL, Sikkim, IPPs) may submit the data for LGBR.

Item No. B.5: Consideration of STU lines as ISTS lines

In line with 34th TCC decision, ERPC and ERLDC conducted the load flow study using WebNet software for first three quarters of validated data. Summary of the results for percentage utilization of the transmission line by STU to meet the own demand is given at **Annexure-B.5.**

Balance (100 - utilization of the transmission line by the STU) is the ISTS power flowing through the line.

Members may decide.

Item No. B.6: Charging of 132KV Patratu(DVC) - Patratu(JSEB) tie line and Kolaghat(DVC) - Kolaghat(WBSETCL) tie line--DVC

It has been observed that 132KV, Patratu(DVC) - Patratu(JSEB) tie line and Kolaghat(DVC) - Kolaghat(WBSETCL) tie line are out since long. These lines are made on request to facilitate any shut-down/ maintenance purpose.

But, inter-state tie lines are meant for stability of any state network irrespective any power flow through it as per sec 40(a) of Elec Act 2003. It is learnt that at Kolaghat S/s of WBSETCL, all three ATRs have already been replaced and are all in service. DVC is supplying around 138MVA load to WBSEDCL between Burdwan S/s to Kharagpur S/s of DVC and it has been felt necessary that Kolaghat - Kolaghat tie be kept in service for reliability of power supply to WBSEDCL and stability of the grid. Similarly, Patratu(DVC) - Patratu(JSEB) tie line be also kept in service to obviate the low voltage problem at Patratu and North-karanpura S/s of DVC and stability of grid as well.

DVC and WBSETCL may discuss.

Item No. B.7: Ratification of projected Demand and generation for POC transmission charges and loss calculations for Q4(2016-17)

The projected Demand and Generation of ER constituents to be considered in the base case for POC transmission charge and loss calculations for Q4(Jan,17-Mar,17) are attached at **Annexure-B.7** for ratification by the constituents.

In 127th OCC, ERLDC requested all the constituents to furnish the POC data to NLDC with a copy to ERLDC.

Members may kindly go through and confirm the data.

Item No. B.8: Finalizing the methodology for computation of TTC, ATC and TRM—Agenda by NRCE

A sub-group of National Reliability Council for Electricity (NRCE) constituted for the purpose of determination of TCC, ATC and TRM and to suggest a clear methodology for the calculation. A meeting of this sub-group was held on 19th September, 2016 and sought the following information from the RPCs.

NRCE sub group felt that distribution of nodal MW and MVAR is important for computation of TTC. Advised RPCs to take up the issue with all the states to submit the accurate data at all generation and demand nodes of the power system in the state. Constituent wise peak and off-peak data of generation and demand is attached at **Annexure-B.8**.

In 127th OCC, constituent members advised to verify the node data and submit node wise (both peak & off-peak) data for the 3rd month in advance so that a realistic calculation of TCC,ATC,TRM will be possible.

Members may update.

Item No. B.9: Persistent under-generation in NTPC plants

It has been observed that NTPC stations(specially FSTPP/KhSTPP) in ER are resorting to persistent under-generation with no generation increase even after issual of messages. At times even when the full DC was scheduled, NTPC has continued under-generation and has hence failed to demonstrate DC even after messages from ERLDC Control room. Also, in several occasions, there was failure in achieving scheduled generation even when schedule of the NTPC stations was increased vide Regulation Up Ancillary services. It may be noted that the above matters had already been brought to the notice of the OCC forum in the 123rd OCC meeting and it was confirmed that NTPC would need to follow the schedule strictly. However, NTPC has continued such under-generation and in case of failure to generate uptoDC(when full DC is scheduled), NTPC is resorting to downward revision of DC stating reasons as wet coal,etc. Instances depicting above violations would be presented by ERLDC for discussions/suggestions and for conclusion regarding the corrective actions. It may be noted that in case of such continued under-generation, ERLDC may be constrained to resort to classifying such cases as incorrect declaration of DC and proceed as per Clauses of 6.4.19 and 6.4.20 of IEGC. ERLDC may also be compelled to file a petition before CERC in this regard.

In 125th OCC, NTPC explained that the under generation is because of wet coal in the monsoon periods.

OCC took serious note of under generation by NTPC stations of Eastern Region and advice NTPC to strictly follow the schedule. After detail discussion it was decided that ERLDC will monitor the performance of NTPC stations for 15 days and even if the generation does not improve, ERLDC may file a petition before CERC.

In 126th OCC, ERLDC presented the SCADA data for NTPC generating stations and explained that the problem of under-generation was continuing even after the advice by 125th OCC.

ERLDC informed that NTPC was consistently declaring high DC, and whenever they were asked to demonstrate DC, they were revising their schedule immediately. Therefore, this could be taken as a failure of DC demonstration.

NTPC explained that there was significant improvement in the schedule compared to last month. They had still some technical problems, which they are trying to address.

OCC took serious note of the situation and advised NTPC to strictly follow the schedule.

OCC advised ERLDC to monitor the performance of NTPC stations till 31st October, 2016 and advised ERLDC to file a petition before CERC if NTPC fails to adhere the schedule.

In 127th OCC, ERLDC informed that significant improvement has been observed in performance of NTPC units. It was informed that a little deviation was there for some NTPC units (FSTPS St-I & II) during peak time to which NTPC assured to take necessary measures.

ERLDC/NTPC may update.

Item No. B.10: Status of UFRs healthiness installed in Eastern Region

UFR Healthiness Certification for the month of November, 2016 has been received from BSPTCL, OPTCL, JUSNL, WBSETCL, CESC and DVC.

33kV Raytar feeder at 132kV Rajgir is not in service and 33kV Silao has been considered as UFR feeder. BSPTCL amy update the UFR feeders list.

BSPTCL may update.

Item No. B.11: Healthiness of SPS existing in Eastern Region

Chuzachen, NTPC, Vedanta, & CESC have submitted the healthiness certificate for the month of November, 2016.

GMR, JITPL, Powergrid-Odisha & Powergrid ER-II may submit the healthiness certificate for November, 2016.

Respective members may update.

Item No. B.12: Status of Islanding Schemes of Eastern Region

B10.1. Status of commissioned Islanding Schemes in Eastern Region

At present, the following islanding schemes are in service:

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

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

The healthiness certificate for Islanding Scheme for November, 2016 has been received from CTPS, DVC, BkTPS, Tata Power and CESC.

Members may note.

B10.2. FSTPS Islanding Scheme, NTPC

In 123rd OCC, NTPC informed that cable laying completed and interfacing is pending. Interfacing will be done after completion of the PLCC installation work by PGCIL at JUSNL sub-stations.

In 125th OCC, Powergrid informed that PLCC installation work has been completed and commissioning is under progress.

In 126th OCC Powergrid informed that the PLCC installation work has been completed and commissioning will be done by 1st week of November, 2016.

NTPC informed that after the commissioning of PLCC, they may require another 30-40 days to complete the cable termination and integration work. After the completion of installation work a special meeting may be convened to co-ordinate the complete implementation of the Islanding scheme.

OCC decided that a special meeting may be convened in after the completion of all installation and cable termination work by NTPC so that the Islanding scheme could be commissioned by December, 2016.

In 127th OCC, Powergrid informed that the work under the scope of JUSNL has been completed.

NTPC informed that the integration of cables at their end is going on and it may take another one month to complete it.

OCC decided that a special meeting may be convened after the completion of cable termination work by NTPC

NTPC/Powergrid may update.

B10.3. Bandel Islanding Scheme, WBPDCL

In 33rd TCC, WBPDCL informed that DPR has been submitted to NLDC on 22-06-2016 for funding from PSDF.

In 124th OCC, it was informed that PSDF appraisal committee meeting will be held in September, 2016.

Subsequently, PSDF Secretariat vide mail dated 07.10.2016 informed that the Scheme was examined on 28.09.2016 and has sought some clarification from WBPDCL.

In 126th OCC WBPDCL was advised to submit the reply to PSDF Secretariat at the earliest so that the project may be considered in next Appraisal Committee meeting.

WBPDCL informed that they are preparing the reply to the queries and they may require some information from WBSLDC (WBSETCL). OCC advised WBPDCL to prepare the reply in co-ordination with WBSLDC and submit to PSDF Secretariat at the earliest with a copy to ERPC.

In 127th OCC, WBPDCL informed that clarification has been submitted.

It was informed that the Appraisal committee has recommended. It will be placed in next Monitoring Committee

WBPDCL may update the latest status.

Item No. B.13: Restoration of PLCC system of important lines

In 119th OCC, JUSNL informed that the following:

a) In 220 KV Chandil –Santaldih line auto-reclosure has been enabled and termination done in PLCC panels at Chandil end but due to non-availability of PLCC panels at Santaldih(WBPDCL) end the A/R and PLCC scheme could not be activated.
b) In 220 KV Ramchandrapur-Joda line auto-reclosure has been enabled and termination done in PLCC panels at Ramchandrapur end but due to non-availability of PLCC panels at Joda (OPTCL) end the A/R and PLCC scheme could not be implemented.

Further, it was informed that JUSNL is ready to share their standby PLCC panels (BPL make) with WBPDCL (for Snataldih end) and OPTCL (for Joda end) to complete the PLCC schemes of both the above lines.

In 34th TCC, WBPDCL informed that PLCC panels will be delivered by November, 2016 and installation of the panels will be completed by December, 2016.

OPTCL informed that purchase order has been placed to BPL and supply is expected by December, 2016.

JUSNL/OPTCL/WBPDCL may update.

Item No. B.14: Concerned members may update the latest status.

B.14.1: Commissioning of 400 kV Ind-Bharath to Jharsuguda D/C (dedicated line)

In 126th OCC, Ind-Bharath informed that the CEA inspection for the line has been completed on 17.10.16 and PLCC work is In progress. They are expected to complete the line in all respect by first week of November, 2016.

OCC advised IBEUL to submit all the clearances (CEA clearance etc.) along with completion of line and communication system so that a special meeting could be convened before starting the commercial power transaction from IBEUL for final consideration of all aspects.

In 34th TCC, it was informed that construction of line has been completed but CEA clearance is still awaited.

IBEUL may update.

B.14.2: Status of construction of 400 kV Sterlite-Jharsuguda D/C sections

In 34th TCC, Vedanta explained the status of construction with a presentation. Updated status along with the target date is given below:

Activities	Nos	Status as on 15-Nov-16	Target completion	Remarks
Tower Foundation	64	60	30-Dec-16	4 DD+30 tower foundation concrete: volume increased from 742 m3 to 1118 m3
Tower Erection	64	43	10-Feb-17	757 MT balance tower material to be erected.(DD+30 is 7)
Stringing /OPGW Cabling & Testing	20.5 Km	One stretch completed. Another four are under progress.	28-Feb-17	Stringing can be started only after harvesting. i.e. Dec-16.
Sub station Bay	2	Equipment Erection, Cable	31-Dec-16	CR Panel errection, cabling & termination to be done,

		Trench, Earthing Completed		Testing to be carried out. CEA inspection to be done post completion
Statutory clearances	-	-	15-Mar-17	CEA inspection of line to be done Report generation to be done.
Line & Bay Charging	-	-	25-Mar-17	ERLDC clearance for line charging after attending CEA report punch points

Vedanta informed that significant progress has been made in last 5 months and the line will be commissioned by March, 2016. Vedanta requested to extend the removal of the LILO till March, 2017 as final commitment.

OPTCL added that since Vedanta has made substantial progress during last 5 months and the dead line for removal of the LILO may be extended till February, 2017.

TCC agreed and advised Vedanta to submit a fresh undertaking in affidavit form to CTU and ERPC stating that the dedicated line will be completed by 28.02.2017 with no further extension. Failing which, CTU/ERLDC is authorized to open the LILO with effect from 01.03.2017.

In 127th OCC, Vedanta updated that 43 towers erection have been completed.

OCC advised Vedanta to submit the affidavit as per the decision of 34th TCC latest by 30.11.2016.

OCC also advised Vedanta to complete the line by February,2017 as decided by ERPC. Vedanta assured.

Vedanta vide mail dated 16th December, 2016 updated the latest status. The latest status is enclosed at **Annexure-B.14.2**.

Vedanta may update.

B.14.3: Status of Bus Splitting schemes in Eastern Region

A. Bus Splitting of Powergrid Sub-stations

As per decision of Standing Committee of ER CTU was entrusted to do Bus splitting at 400 kV Maithon, Durgapur & Biharsariff S/Ss or ER. The latest status on the same are:

- 400 kV Maithon ---Completed
- 400 kV Durgapur--Completed
- 400 kV Biharshariff—Foundation work has been completed but shutdown are yet to be received to complete the work.

In 34th TCC, Powergrid informed that they have applied for bus shutdown of 400kV biharsharff S/s for 28h November, 2016. OCC has already concurred the shutdown but BSPTCL is yet to give the clearance.

BSPTCL allowed the shutdown from 28th November, 2016. ERLDC assured that on real time consideration the same will be concurred without further deliberation in OCC.

TCC advised Powergrid & BSPTCL to take the shutdown in coordination with ERLDC.

In 127th OCC, Powergrid informed that they are availing shutdown from 28.11.16.

Powergrid/BSPTCL may update.

B.14.4: 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 package awarded, expected to be completed by November, 2016.
- Transformer package and Shunt reactor– have been awarded.

In 127th OCC, NTPC informed that the bus splitting will be completed by December, 2018.

NTPC may update.

B.14.5: 11KV Auxiliary power supply of 400KV Berhampore Powergrid Substation.

In 34th TCC, WBSEDCL informed that the construction of dedicated line has been delayed due to ROW issues. The same has been resolved now and the construction of dedicated line will be completed by December, 2016.

WBSEDCL added that cable needs to be laid out for highway crossing for which cost estimate will be given to Powergrid within a week.

Powergrid agreed to do the payment after receiving the estimate.

WBSEDCL assured that on receipt of deposit from Powergrid all efforts will be made to resolve the issue on reasonable time.

In 127th OCC, Powergrid informed that they have received the estimate and the deposits will be made shortly.

WBSEDCL/Powergrid may update.

B.14.6: 220 kV inter-connecting lines of OPTCL with 400/220 kV Bolangir (PG), Keonjhar & Pandiabil S/s

PGCIL has already commissioned the 2x315MVA 400/220kV Bolangir S/s by LILOing of 400kV Meramandali-Jeypore S/C line and 400/220 kV Keonjhar S/s with an objective of supplying power from ER grid to its adjoining areas in Odisha.

In 126th 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 Mar, 2017.***
b.	LILO of one circuit of Katapalli-Sadeipalli220 kV D/C line at Bolangir S/S	Charged on 04.05.16
2.	**400/220 kV Keonjhar S/S**	

a.	Keonjhar (PG)-Keonjhar (OPTCL) 220 kV D/C line	By 2017.
b.	Keonjhar (PG)-Turumunga(OPTCL) 220kV D/C line	By 2019.
3.	**400/220kV Pandiabil Grid S/s: Expected by June'16**	
a.	Pratapsasan(OPTCL)-Pandiabil (PG) 220 kV D/C line	Dec, 2017.
b.	LILO of one circuit of Atri-Puri (Samangara) 220 kV D/C line at Pandiabil (PG)	December, 2016

OPTCL may update.

B.14.7: 220 kV inter-connecting lines of JUSNL with 2x315 MVA, 400/220 kV sub-stations at Chaibasa, Daltonganj & Dhanbad

In 125th OCC, JUSNL updated the latest status as follows:

Sl. No.	Name of the transmission line	Completion schedule
1.	**Chaibasa 400/220kV S/s**	
a.	Chaibasa (POWERGRID) – Chaibasa (JUSNL) 220kV D/c	Completed.
b.	Chaibasa (POWERGRID) – Ramchandrapur (JUSNL) 220kV D/c	December, 2016
2.	**Daltonganj 400/220/132kV S/s: Expected by Mar'17**	
a.	Daltonganj (POWERGRID) – Latehar 220kV D/c	By 2017.
b.	Daltonganj (POWERGRID) – Garhwa 220kV D/c	Matching with S/s
C	Daltonganj (POWERGRID) – Daltonganj (JUSNL) 132kV D/c	Matching with S/s
D	Daltonganj (POWERGRID) – Chatarpur/Lesliganj 132kV D/c	Matching with S/s
3.	**Dhanbad 400/220 kV S/s: Awarded under TBCB**	
a.	Dhanbad – Dhanbad (Govindpur) (JUSNL) 220kV D/c	Matching with S/s

JUSNL may update.

B.14.8: 220 kV inter-connecting lines of WBSETCL with 400/220 kV, 2x315 MVA Alipurduar & 2x500 MVA Rajarhat sub-stations

In 126th OCC, *WBSETCL updated the latest status as follows:*

Sl. No.	Name of the transmission line	Completion schedule
1.	**2x315MVA, 400/220kV Alipurduar sub-station**	
a.	Alipurduar (POWERGRID) – Alipurduar (WBSETCL) 220kV D/c (***Twin moose***)	**Mar, 2017**
2.	**2x500MVA, 400/220kV Rajarhat West Bengal S/S- Expected by Oct, 2016**	
a.	Rajarhat-N. Town-3 (WBSETCL) 220 kV D/C line	Matching
b.	Rajarhat-N. Town-2 (WBSETCL) 220 kV D/C line	*June, 2018*
c.	Rajarhat- Barasat (WBSETCL) 220 kV D/C line	*June, 2018*

WBSETCL may update.

Item No. B.15: Third Party Protection Audit

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	37	68.52
NTPC	16	14	87.50
NHPC	1	1	100.00
DVC	40	26	65.00
WB	68	27	39.71
Odisha	59	38	64.41
JUSNL	34	16	47.06
BSPTCL	16	5	31.25
IPP (GMR, Sterlite and MPL)	5	5	100.00

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

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

OCC advised all specially JUSNL and BSPTCL to send the revised DPRs at the earliest after clarifying the queries if any.

In last meeting, OCC advised all the constituents to comply the pending observations at the earliest.

Members may comply.

2. Schedule for 2nd Third Party Protection Audit:

The latest status of 2nd Third Party Protection audit is as follows:

1)	Jeerat (PG)	Completed on 15th July 2015
2)	Subashgram (PG)	Completed on 16th July 2015
3)	Kolaghat TPS (WBPDCL)-	Completed on 7th August 2015
4)	Kharagpur (WBSETCL) 400/220kV -	Completed on 7th August 2015
5)	Bidhannagar (WBSETCL) 400 &220kV	Completed on 8th September, 2015
6)	Durgapur (PG) 400kV S/s	Completed on 10th September, 2015
7)	DSTPS(DVC) 400/220kV	Completed on 9th September, 2015
8)	Mejia (DVC) TPS 400/220kV	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

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.

Members may note.

Item No. B.16: Inspection of Under Frequency Relays (UFR)

In 124th OCC, DVC informed that the UFR relays will be delivered by August, 2016 and the UFRs at 220/132/33 KV Ramgarh S/s will be replaced by next month.

In 125th OCC, DVC informed that the UFR relays are in transit and the UFRs at 220/132/33 KV Ramgarh S/s will be replaced by next month.

In 127th OCC, *DVC informed that the UFR relays at 220/132/33 KV Ramgarh S/s will be replaced by December, 2016.*

DVC may update the status.

The proposed UFR audit schedule for second quarter of 2016-17 is placed below:

Sl No	Proposed Date	Substation/feeder inspected by the sub-group
1	Dec , 2016	220/132/33 KV Sampatchak of BSPTCL
2		132/33 KV Purnea of BSPTCL
4	Jan, 2017	220/132/33 KV Kalyaneswari of DVC
5	Feb 2017	220/132/33 KV New Bishnupur of WBSETCL
6		132/33 KV Old Bishnupur of WBSETCL
7	Mar 2017	BRS (Liluah S/Stn.) of CESC

Members may decide.

Item No. B.17: Preparation of crisis management plan for Cyber Security in Power Sector in line with CERT-IN.

The activity of the preparation of Crisis Management Plan for countering the cyber attacks and its implementation including the Mock Drills, audits etc. is being monitored by CEA regularly in line with crisis management plant of Ministry of Power. Power Utilities (including generation, transmission & distribution utilities) of eastern region are to furnish regularly the updated status to on the same to Chief Engineer, Distribution Planning & Development Division, CEA.

NTPC communicated their activity of the preparation of Crisis Management Plan for countering the cyber attacks vide letter dated 2nd August, 2013.

In 113th OCC, Member Secretary informed that during interaction with consultants of Grid Study Committee, NLDC agreed that they will plan for conducting workshops on crisis management plan for Cyber Security and few workshops will also be held in Eastern Region.

CESC vide letter dated 22.08.15 had furnished their status of the preparation of Crisis Management Plan (CMP) for Cyber attacks in their system.

Members may note and comply.

Item No. B.18: Certification through BIS as per IS 18001:2007 to all generating/ transmission units.

In 84th OCC meeting all constituents were requested to interact with BIS with intimation to ERPC and get certified as per CEA direction.

In 85th OCC NTPC informed that, NTPC-Farakka has been certified with IS 18001. Other constituents including OHPC requested to interact with BIS with intimation to ERPC and get certified as per CEA direction. The matter is getting reviewed by highest authorities with top priority.

In 88th OCC NTPC informed that, all NTPC stations in Eastern Region are certified with IS 18001. NHPC informed that, Teesta is also certified with IS 18001. After that, OHPC and CESC informed that their stations are certified with IS18001.

In 104th OCC, WBPDCL informed that Bandel TPS is certified with IS 18001.

OPTCL vide letter No. TB-SO-MISC-9/2010/1914 dated 20.12.2014 had proposed to go for IS 18001:2007 certification as per direction of CEA.

In 113th OCC, CESC informed that Budge-Budge Generating station (3x250 MW) has renewed their certification of BS 18001:2007.

In 121st OCC, it was informed that Kolaghat Generating station of WBPDCL has also received certification of IS 18001:2007 from BIS on 29.04.2016.

In 124th OCC, WBPDCL informed that Bakreswar Generating station is also received certification of IS 18001:2007 from BIS.

Members may note and update the status.

Item No. B.19: FORMULATION OF A SKILL PLAN FOR POWER SECTOR BASED ON THE ASSESSED SKILL GAP IN THE SECTOR

CEA vide letter dated 04.07.16 intimated that a meeting on the above subject was held in the Ministry of Power, New Delhi on 1st July,2016. The meeting was Chaired by the Additional Secretary Shri B.P.Pandey. Power Sector Skill Council (PSSC) made a presentation on the subject. The meeting was attended by the representatives of BEE, PSUs, CEA, PGCIL, NPTI, PFC etc.

The main emphasis made by the Additional Secretary are as follows:

- The Report has to be submitted by PSSC by 10th of July, 2016 clearly indicating the needs of training and sill gaps in power sector.
- All the data captured, analysis made and other facts in the draft skill plan have to be validated by CEA before finalization of the Report.

In this regard officials from PSSC may visit various formations of CEA and / or circulate the Draft Report for obtaining the relevant inputs and validation of the data gathered by them. Chairperson CEA has been appraised of the same.

Further to this, MoP vide their letter No.7/5/2015-T&R dated 01.07.2016 have sought information in the matter. Based on the letter of MoP a proforma has been prepared. It is requested that the relevant information pertaining to the sector/sub-sector as per the attached proforma (Attached at **Annexure-B.19**) may please be sent to CEA (by mail: ceahrd@gmail.com).

124th *OCC advised all the constituents to send the relevant information as per the proforma.*

Constituents may note and comply.

Item No. B.20: Energy Generation data management from Renewable Energy Sources

RES development Division, CEA has been receiving monthly generation details and installed capacity of Renewable Energy Sources from respective SLDCs and other authorized agencies. Some discrepancies has been found in the data as received by CEA and MNRE.

Constituents are requested to reconcile/confirmed the correct information at the earliest.

In 120th OCC, all the SLDCs were advised to submit the data to CEA as per the format given in **Annexure- B.20** with a copy to ERPC Secretariat.

In 121st OCC, SLDC West Bengal and SLDC Odisha informed that they have submitted the relevant data to CEA.

SLDCs may update.

Item No. B.21: Compilation of data for meeting Renewable Energy targets of 175 GW by 2020 -- Reference from MNRE

CEA vide letter dated 29.03.16 has referred Ministry of Power letter no. 23/2/2005-R &R(Vol-XI), dated 22.03.2016 & MNRE letter dated 02.03.2016 regarding compilation of data for meeting Renewable Energy targets of 175 GW by 2020.

In 120th OCC, Concerned State Utilities /Generating companies are requested to submit data of their respective control areas.

Members may update.

Item No. B.22: Reporting of Energy generated from renewable resources on daily basis--- ERLDC

Government of India has set an ambitious target to achieve 175 GW of renewable generation by year 2022. Renewable energy sources(RES) development division of CEA alongwith MNRE is continuously monitoring the progress in installation of renewable resources and also collecting actual generation data on monthly basis. However the energy injected from the renewable generating plants into the grid also needs to be monitored on daily basis and incorporated in the reports by NLDC, to determine the correct percentage of energy mix for whole country on any particular day. Thus the renewable generators/ concerned SLDC may furnish following data on daily basis:

a) Grid connected RES whose scheduling and metering is done as regional entity :

   Maximum/Time and energy injected(MWh) for the previous day (from the SEM meters on a daily basis till the AMR is commissioned/working)

b) Grid connected RES which is under state purview:

   Maximum/Time and energy injected(MWh) for the previous day. Concerned SLDCs to compile station wise / connection point wise energy injected into the state grid and send it RLDC on a daily basis.

The above data may be sent by mail to erldc.cal@gmail.com positively by 01:00hrs of the day i.ro data for the previous day. This is essential as the power supply report has to be sent by early morning hours for the previous day.

In 126th OCC, ERLDC informed that the data for renewable generation on daily basis is required from the constituents.

SLDC Odisha informed that generation data for renewable energy sources connected at 132 kV is possible but at lower voltage level connected to the distribution network is difficult to get. Moreover, the data on monthly basis is possible instead of daily basis.

WBSEDCL informed they will look into the matter and submit the renewable generation data to ERLDC.

OCC advised all the respective constituents to submit the data along with their comments, if any.

In 127th OCC, ERLDC informed that though they have received some data, but generation data on daily-basis is yet to be furnished by the respective generators.

OCC advised all the respective constituents to look into the matter and make possible to submit the data on daily-basis.

All SLDCs may kindly update.

Item No. B.23: Data of Peak Demand – Submission of hourly power cut data

The peak demand met figure calculated by CEA is a part of the monthly Power Supply Postion Report prepared by CEA, based on the data provided by five Regional Power committee (RPCs), who in turn collect the data from State / UTs and RLDCs. As per the present methodology being adopted for calculation of States /Regional peak demand met, the figure of peak demand met at any time in the month is taken as peak demand met for the month. For all India monthly peak demand met, the sum of five regional peaks met, which may occur at different points of time is taken.

The above methodology has been reviewed and it has been decided with the approval of Chairperson, CEA that Peak demand Met and Peak Demand in the country should be based on hourly all India demand data. The matter was taken up with POSOCO for getting the hourly data of peak demand met for each month in respect of all the regions in the country in the first week of following month and they have assured to furnish the same. To calculate the demand, data of hourly scheduled and unscheduled power-cuts / load shedding is also required, which is not available with POSOCO.

It is, therefore, requested that hourly figures of scheduled/ unscheduled power cuts/load shedding data may be collected from States / UTs and the same may be sent to CEA every month as per above schedule in the enclosed format, in spread sheet, so that hourly figures of peak demand can be calculated and incorporated in Power Supply Position report.

This data for a month may kindly be sent in the first week of each month, along with PSP data, starting from the data for the month of February, 2015. The format for sending the data of hourly scheduled and unscheduled power-cuts / load shedding has already been circulated.

In 110th OCC meeting, OCC advised all the concerned utilities (BSPTCL, JUSNL, OPTCL, WBSETCL & Sikkim) to send the data of hourly scheduled and unscheduled power-cuts / load shedding by mail to mserpc-power@nic.in latest by first week of each month.

For the month of November, 2016 data has been received from DVC, WBSETCL, CESC.

JUSNL OPTCL, BSPTCL, may furnish the data.

Item No. B.24: Recovery Procedures of ER Constituents – ERLDC

As per IEGC clause 5.8 (b) “Detailed plans and procedures for restoration after partial/total blackout of each user’s/STU/CTU system within a Region, will be finalized by the concerned

user's/STU/CTU in coordination with the RLDC. The procedure will be reviewed, confirmed and/or revised once every subsequent year".

In 117th OCC, ERLDC informed that all STUs have to develop their own restoration plan and procedure of their state in coordination with ERLDC/ERPC.

If such restoration plans are already available, it may be shared with ERLDC.

The restoration procedure received from all the state constituents except Bihar.

Bihar and ERLDC may update.

Item No. B.25: Transfer capability determination by the states -- Agenda by NPC

In order to ensure, safe and secure operation of the grid, the states should carry out the power system study for operational planning and power transfer capability through their respective transmission links with the rest of the grid.

It was decided in the NPC meeting that to begin with, power system study for assessment of operational limits / power transfer capability for each state will be done by the concerned RLDC in association with concerned SLDC. Monthly TTC /ATC will be uploaded by the SLDCs at their respective websites and also communicated to concerned RLDC & NLDC subsequently.

In 120th OCC, DVC informed that they are providing the monthly TTC/ATC on their website.

WBSETCL informed that they are calculating the TTC/ATC but their website is under construction.

Bihar and OPTCL agreed to implement.

JUSNL informed that they are unable to compute the TTC/ATC for their state.

OCC advised JUSNL to interact with ERLDC to get acquainted with the ATC/TTC calculation.

In 33rd TCC Meeting, respective members updated the status as follows:

- All the states are computing TTC/ATC except Sikkim and JUSNL.
- DVC is calculating and uploading in DVC website.
- BSPTCL is calculating and uploading through a link in BSPHCL website.
- WBSLDC is calculating but they could not upload due to non-readiness of website.
- OPTCL is calculating and uploading in website.

TCC felt that grid operator should have the information on how much power they can export and import and they should restrict to that figures in order to avoid major grid disturbances.

Accordingly, TCC advised all the constituents to place the details in monthly OCC meetings till they upload the information in their respective websites.

TCC advised JUSNL to send their representatives to ERLDC so that they could get acquainted with the ATC/TTC calculation procedure. Representative from JUSNL informed that they are ready to send three officers to ERLDC, the names of officers would be shared in tomorrow's ERPC meeting.

123rd OCC advised all the SLDCs to mention the constraints along with ATC/TCC figures.

124th OCC advised all the SLDCs to mention the constraints along with ATC/TCC figures.

In 126th OCC, OCC *advised all the SLDCs to mention the constraints along with ATC/TCC figures.*

WBSETCL vide mail dated 2nd December, 2016 informed that SLDC, WBSETCL website is functional and they are updating ATC, TTC figures from November 2016.

WB, SLDC has uploaded monthly Import TTC/ATC figures for October, November and December 2016.

In 127th OCC, DVC assured to upload within a week.

OCC advised all the SLDCs to calculate ATC/TTC for Dec-16/Jan-17 and submit it in next OCC meeting.

SLDC, Odisha submitted the ATC/TTC figures for January, 2017.

DVC and JUSNL submitted the ATC/TTC figures for December, 2016.

Members may update.

Item No. B.26: Run-back scheme of Sasaram 500MW HVDC B-t-B converter -- ERLDC

It is understood that the following run–back schemes are functional for the 500 MW B-t-B HVDC converter at Sasaram:

1. Tripping of any circuit of 400kV Biharshariff-Sasaram D/C line – reduction of HVDC power order to 250 MW
2. Tripping of both circuits of 400kV Biharshariff-Sasaram D/C line – complete blocking of the HVDC converter.

In this connection it is stated that the above run-back conditions were relevant when 400kV Biharshariff-Sasaram D/C line was the only AC source on the East side bus. However, at present due to existence of 765kV Sasaram-Fatehpur 765kV line along with 765/400kV Sasaram ICT, there would be no loss of AC voltage of the 400kV East bus, even if both circuits of Biharshariff-Sasaram 400kV D/C line trip.

It is to mention that on 19-12-16, the HVDC Sasaram power order had to be reduced to 250MW when 400kV Biharshariff-Sasaram-I was taken under planned shutdown. Thereafter, at 12:43 Hrs, the other 400kV circuit Biharshariff-Sasaram-II tripped due to transmission of DT signal from Biharshariff to Sasaram leading to complete blocking of the converter. However, such blocking was unwarranted as the 765kV Sasaram-Fatehpur line together with the 765/400kV ICT at Sasaram was still in service.

It is therefore suggested that the existing run-back scheme may be activated only when Sasaram 765/400kV ICT or Sasaram-Fatehpur 765kV line is under outage and bypassed under normal conditions. The scheme may be further reviewed when at least two units of Nabinagar TPS commence firm generation.

Members may discuss.

Item No. B.27: Reasons for demand –supply gap and its variation -- Agenda by NPC

It was deliberated in the 4th NPC meeting that monthly power supply position prepared & published by CEA based on the data furnished by the states reflected shortages in almost all the states. However, a number of those states intimated adequate availability of power. This meant that the deficit / shortage in such states was actually not the deficit in true sense but demand - supply gap due to reasons other than shortage of power. The other reasons for the demand - supply gap could be inadequate availability of power, transmission constraint, distribution

constraint, financial constraint etc. The reason for demand –supply gap needed to be clearly mentioned to reflect true picture of power supply position in different states and also to invite attention of various agencies including policy makers to the specific problem areas in the power sector for suitable solution.

It was agreed by all the RPCs to advise the states in their respective regions to intimate broad break-up of demand –supply gap due to various reasons, or at least, the main reason(s) for demand supply in each month.

In 126th OCC advised all the constituents to comply.

Members may update.

Item No. B.28: Long outage of important transmission elements

a) Non availability of Line Reactor-1 of 400KV Malda-Purnea D/C

In 123rd OCC, Powergrid informed that order has been placed for Reactor-1 and it will be commissioned by September, 2016.

In 127th OCC, Powergrid informed that it will be commissioned by December, 2016.

Powergrid may update.

b) 400kV Meramundali-Mendhasal S/C

Tower collapsed near Mendhasal at 3 Locs, viz.Locs.180,181 & 182.

In 123rd OCC, OPTCL informed that tower 181 and 182 were restored. Restoration of tower 180 will take time due to water logging and the tower would be restored by September, 2016.

In 124th OCC, OPTCL informed that restoration of tower 180 will take time due to water logging and the tower would be restored by December, 2016.

In 127th OCC, OPTCL informed that the line will be restored by December, 2016.

OPTCL may update.

c) 220kV Gaya-Dehri

Tower collapsed at loc. No275 from Gaya end.

In 122nd OCC, BSPTCL informed that the line will be in service after 4 months.

In 127th OCC, BSPTCL informed that the line will be in service by 5th December, 2016.

BSPTCL may update.

d) 400kV Patna-Kishengunj D/C

Tower collapsed at Loc.51.

Powergrid informed that due to water logging problem the work is getting delayed however work is expected to be completed by 15th October, 2016.

In 125th OCC, Powergrid informed that line will be restored by 15th October, 2016.

In 127th OCC, Powergrid informed that line will be restored by July, 2017.

Powergrid may update.

e) 400kV Purnea-Biharshariff D/C(under outage wef 23/08/16)

Three Nos.Tower(mid river) collapsed.

In 126th OCC, ENICL informed that the final assessment is under progress. The same will be submitted to ERPC and ERLDC.

In 127th OCC, ENICL informed that line will be restored by June, 2017.

ENICL may update.

f) Main bay of 315MVA ICT at Farakka(Tie element-400kV FSTPP-Malda-I)

The main bay is under s/d for upgradation wef 06/05/16.Powergrid may update stating status of the upgradation.

In 125th OCC, Powergrid informed that Bus-I end is ready and will be charged, Bus-II end is bypassed and will be ready for charge after getting shutdown.

In 126th OCC, Powergrid informed that Bus-I has been charged, but Bus-II could not be completed due to non-availability of line shutdown.

In 127th OCC, Powergrid informed that they have completed their part of work.

NTPC informed that the bay will be in service by December, 2016.

Powergrid/NTPC may update.

g) 50MVAR Bus Reactor-I at Farakka (alongwith main and tie bays)

Under shutdown wef 31/05/16 for dismantling from old bay and re-installation in new bay in the dia of FSTPP GT#3.

In 125th OCC, Powergrid informed that reactor will be charged by end of October, 2016.

In 126th OCC, Powergrid informed that reactor will be charged by November, 2016.

In 127th OCC, Powergrid informed that they are waiting for shutdown. NTPC informed that the reactor will be charged by December, 2016.

Powergrid may update.

h) Tie bay of 125MVAR Bus reactor and 400kV Indravati-Indravati and Indravati(PG):

Under outage wef 18/03/16 due to R-Ph pole bursting of Tie CB. Due to non-availability of the tie bay, the Buses are coupled only via the tie bay of 400kV Rengali-Indravati and 400kVIndravati-Jeypore at Indravati and any outage of the lines would result in decoupling of the Buses.

In 125th OCC, Powergrid informed that main CB has some problem which will be taken care by OHPC/OPTCL.

In 126th OCC, OPTCL informed that a CB is being shifted from Mendhasal for replacement of the subjected CB. The installation work will be completed by November,2016.

In 127th OCC, OPTCL informed that the CB is yet to be transported to the site from Mendhasal.

Powergrid/OHPC may update.

i) 220 kV Waria – Bidhannagar-II

The line is under outage wef 20.08.16 due to collapse of one no of tower collapse.

In 127th OCC, DVC informed that the line restoration will take another 2 months.

DVC may update.

j) 315MVA ICT-I at Meramundali

The ICT is under outage wef 12/11/16 due to damage after B-ph LA blasting.

OPTCL may update.

k) 220kV Meramundali-Bhanjanagar-I

The line is under outage w.e.f 25/11/16 for conductor replacement work. OPTCL may furnish the details of conductor replacement being done and the expected date of restoration.

OPTCL may update.

Item No. B.29: Update on status of telemetry

CERC vide order dated 28.02.2016 on Petition No. 007/SN/2014 directed NLDC and respective RLDCs to update the status of telemetry every month at their respective websites and take up the issue of persistent non-availability of data from Generating Stations/substations at RPC meetings for appropriate action.

In 120th OCC, ERLDC informed that every month they were updating the status and posting at ERLDC website.

In 126th OCC, ERLDC presented the updated telemetry status and informed that every month they were posting the updated status at ERLDC website.

OCC advised all the respective constituents to ensure the availability of telemetry data to ERLDC.

In 127th OCC, all the respective constituents were advised to ensure the availability of telemetry data to ERLDC. The updated status is enclosed at ***Annexure- B.29****.*

Members may update.

Item No. B.30: Interruption of real time data due to all control centres in ER

There was a total failure of real time SCADA data to all control centres from 05:53 Hrs of 08-August-16. As an interim arrangement, real time SCADA data was restored on 10-August-16 at 03:19Hrs. The root cause was yet to be arrived and fixed.

In 124th OCC, Powergrid informed that there was some problem in Patna SLDC due to which one ICCP link failed which caused the interruption of data.

OCC advised Powergrid to provide redundancy for communication equipment system / route diversity of communication link / redundancy at both the control centres. Powergrid was also advised to submit a report on the incident and action taken.

In 125th OCC, Powergrid submitted the report and OCC advised all the constituents to go through the report and give their feedback, if any.

In 126th OCC, it was raised that in case of failure of ICCP link/other communication equipment, the data availability needs to be assured at Back-up control centres.

OCC advised Powergrid to submit in 34th TCC their detail plan for data redundancy in case of failure of any one communication system at either of the control centres (Main & Back-up).

34th TCC felt that in case of failure of ICCP link/other communication equipment, the data availability needs to be assured at Main as well as Back-up control centres.

Powergrid informed that the alternate communication path was not available for SLDCs and ERLDC. Powergrid added that backup equipment is available and alternate communication path can be planned.

TCC advised to convene a special SCADA meeting to discuss the issue and report back.

Members may note.

Item No. B.31: Installation of PMUs in Eastern Region under URTDSM project

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. The status of implementation may be informed since PMU data is very much important to real time shift operator for analyzing the security of the grid.

In 124th OCC, it was informed that out of 247 PMUs 46 have been installed.

OCC advised Powergrid to submit a report on latest status of implementation and advised to update the status on every OCC.

*In 126th OCC, Powergrid submitted the latest status which is given at **Annexure- B.31**.*

OCC advised POWERGRID to share the future installation and substation visit schedule with the members.

POWERGRID may update the status.

Item No. B.32: Status of Disturbance Recorder, Stand alone Event Logger and Time Synchronization equipment.

The status of DR/EL and GPS as updated in previous OCCs is enclosed at **Annexure-B.32**.

Constituents are also requested to furnish their list of new DR/EL which are not included in the list.

Members may update.

Item No. B.33: Status of Emergency Restoration System (ERS Towers) for Eastern Region constituents

The latest status of Emergency Restoration System (ERS towers) as well as the future plan of procurement was given at **Annexure- B.33**.

Members may update the latest status.

Item No. B.34: Non-commissioning of PLCC / OPGW and non-implementation of carrier aided tripping in 220kV and above lines.

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 Autorecloser facility is not yet implemented. Based on the trippings 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	400 KV ANGUL -TALCHER	02.06.16	B-N FAULT	PGCIL	NTPC		
2	400 KV BIHARSARIFF-VARNASI-I	07.06.16	B-N FAULT	PGCIL	PGCIL		
3	400KV BIHARSARIFF - BANKA-II	12.06.16	Y - N FAULT	PGCIL	PGCIL		
4	220KV SASARAM-SAHUPURI	12.06.16	B - N FAULT	PGCIL	UPTCL		
5	400 KV TALA -BINAGURI -IV	13.06.16	B - N FAULT	Durk Green	PGCIL		
6	400 KV KODERMA-BOKARO-I	14.06.16	B-N FAULT	DVC	DVC		
7	400 KV FARAKKA-KAHALGAON-IV	15.06.16	R-N FAULT	NTPC	NTPC	Yes	Yes and operated last on dated 28.09.2016.
8	400 KV MUZAFFARPUR-BIHARSARIFF-II	17.06.16	Y-N FAULT	PGCIL	PGCIL		
9	400 KV MERAMUNDALI-NEWDUBRI - I	20.06.16	B-N FAULT	OPTCL	OPTCL		
10	400KV PATNA-BALIA-II	21.06.16	B-N FAULT	PGCIL	PGCIL		
11	400KV PATNA-KISHANGANJ-II	21.06.16	Y-N FAULT	PGCIL	PGCIL		
12	400KV PATNA-BALIA-I	21.06.16	R-N FAULT	PGCIL	PGCIL		

13	220KV BUDIPADAR-KORBA-II	23.06.16	Y-N FAULT	OPTCL	CSEB		
14	400 KV ARAMBAGH - BIDHANNAGAR	02.07.16	Y-N FAULT	WBSETCL	WBSETCL		
15	400 KV FARAKKA-DURGAPUR-I	06.07.16	Y-N FAULT	NTPC	PGCIL	Yes	Yes and operated last on 19.07.2016 & 06.11.2016
16	400 KV NEW RANCHI - CHANDWA - I	13.07.16	B-N FAULT	PGCIL	PGCIL		
17	220 KV TSTPP-RENGALI	17.07.16	EARTH FAULT	NTPC	OPTCL		
18	220KV BUDIPADAR-RAIGARH	21.07.16	EARTH FAULT	OPTCL	PGCIL		
19	400 KV KOLAGHAT-KHARAGPUR	03.08.16	Y-N FAULT	WBPDCL	WBSETCL		
20	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.
21	400 KV PURNEA-MUZAFARPUR-I	03.08.16	R-N FAULT	PGCIL	PGCIL		
22	400 KV GAYA - CHANDWA -II	04.08.16	B-N FAULT .	PGCIL	PGCIL		
23	220 KV MUZAFFARPUR - HAZIPUR - II	10.08.16	B-N FAULT	PGCIL	BSPTCL		
24	220 KV ROURKELA - TARKERA-II	11.08.16	B-N FAULT	PGCIL	OPTCL		
25	220 KV CHANDIL-SANTALDIH	25.08.16	R-N FAULT	JUSNL	WBPDCL		
26	400 KV MPL-RANCHI-II	02.09.16	R-N FAULT	MPL	PGCIL		
27	220 KV BIHARSARIF-TENUGHAT	07.09.16	B-N FAULT	BSPTCL	TVNL		
28	400KV MERAMANDALI-STERLITE-II	10.09.16	Y-N FAULT	OPTCL	SEL		
29	220 KV RAMCHANDRAPUR - CHANDIL	22.09.16	B-N FAULT	JUSNL	JUNSL		
30	400KV SEL - MERAMUNDALI-I	22.09.16	B-N FAULT	SEL	OPTCL		
31	400 KV KOLAGHAT - CHAIBASA	28.09.16	B-N FAULT	WBPDCL	PGCIL		

34th TCC advised all the respective members to update the above list along with the last tripping status in next PCC meeting.

TCC further advised all the constituents to give the latest status of PLCC of other 220kV and above lines under respective control area.

TCC advised to review the status of above in lower forums report back in next TCC.

Respective members may update the status.

Item No. B.35: Non-commissioning / non-functional status of bus-bar protection at important 220 kV Sub-stations

It has been observed that at many 220 kV substations particularly that of STU, 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. Constituents are required to meet the audit compliance and commission or made bus –bar protection functional where ever it is not available. A list of such important 220 kV sub-stations as per the first third party audit is placed in the meeting.

In 34th TCC, members updated the status as follows:

Bus Bar Protection not availble (reccord as per third party protection audit)

Bihar				
Sl No	**Name of Substation**	**Bus Bar protection status**	**Date of audit**	**Present Status**
1	220 kV Bodhgaya	Not available	28-Dec-12	*Single bus and there is no space available for busbar protection*
Jharkhand				
1	220 kV Chandil	Not available	29-Jan-13	*LBB available*
2	220 kV Ramchandrapur	Not available	29-Jan-13	*Functional from October 2013*
3	220 kV Tenughat	Not available	12-Apr-13	
DVC				
1	220 kV Jamsedpur	Not available	10-Apr-13	*Single bus. Bus bar will be commissioned under PSDF.*
Odisha				
1	220 kV Mermandali	Not functional	30-Dec-12	*Commissioned in Mar 2015*
West Bengal				
1	220 kV Arambah	Not available	24-Jan-13	
2	220 kV Jeerat	Not available	20-Dec-12	
3	220 kV Kolaghat	Not available	19-Dec-12	*Commissioned in May 2014*
4	220 kV Howrah	Not available	26-Mar-13	
Powergrid				
1	220 kV Silliguri	Not available	30-Mar-13	*Commissioned in Mar 2016*
2	220 kV Bolangir	Not available	31-Mar-13	*Commissioned in April 2013*

TCC further advised all the constituents to give the latest status of Bus Bar protection of other 220KV S/S under respective control area.

TCC advised to review the status of above in lower forums report back in next TCC.

Members may update.

Item No. B.36: Pollution mapping for Eastern Region

The Pollution Mapping work in ER was started with on-site measurement of ESDD and NSDD.

OCC advised all the respective constituents to coordinate with Powergrid for online filling of measurement data.

The updated status as updated by constituents & as intimated by Powergrid vide mail dated 19.10.16 is as given below:

	Scope (no. of locations)	Installed Locations	Number of locations where the results for 1st set of Measurements submitted	No. of locations where the results for 2nd set of Measurements submitted	Number of locations where the results for 3rd set of Measurements submitted	Number of locations where the results for 4th set of Measurements submitted
JUSNL	67	27	21	19	13	3
BSPTCL	59	52	52	40	4	0
WBSETCL	73	68	43	3	2	0
OPTCL	164	102	102	90	79	0
SIKKIM POWER	12	9	6	6	0	0
POWERGRID ER1	99	99	99	47	0	0
POWERGRID ER2	40	40	40	40	17	0
POWERGRID ODISHA	42	42	42	42	40	0

It is requested to submit the fourth and balance third set measurement result at the earliest.

Further, the schedule for measurement as informed vide letter dated 20.01.2016 & mail dated 21.01.2016 are as follows.

Measurement Schedule		
4th set	*5th set*	*6th set*
21st -30th Sep 2016	*21st -31st Jan 2017*	*21st -31st May 2017*

OCC advised all the constituents to complete the measurements as per the schedule.

Members may update.

Item No. B.37: Mock Black start exercises in Eastern Region – ERLDC

i) <u>The status of black start exercises</u>

The schedule of the proposed black-start exercises for F.Y 2016-17 is as follows:

Sl no	Name of Hydro Station	Schedule	Tentative Date	Schedule	Tentative Date
		Test-I		Test-II	
1	U.Kolab	Last week of May, 2016	*Completed on 16th July 2016*	Last Week of January 2017	
2	Maithon (To be tested in islanded mode)	1st week of June 2016		1st Week of February 2017	
3	Rengali	2nd week of June 2016	*Completed on 23rd Sept, 2016*	Last week of November 2016	
4	U. Indarvati	3rd week of June 2016	*Completed on 16th July 2016*	2nd week of February 2017	
5	Subarnarekha	1st week of October 2016	*Completed on 19.10.16*	1st week of January 2017	
6	Balimela	3rd week of October 2016	*Completed on* 29.11.16	1st week of March 2017	
7	Teesta-V	2nd week of Nov 2016		Last week of February 2017	
8	Chuzachen	Last Week of May 2016	***Dec, 2016 (after consent from Sikkim)***	January 2017	
9	Burla	Last Week of June 2016	*Completed on 28.07. 2016*	Last week of February 2017	
10	TLDP-III	1st Week of June 2016		2nd Week of January 2017	
11	TLDP-IV	Last Week of June 2016	*Completed on 17*.11.16	1st Week of February 2017	

WBSETCL vide letter dated 27.09.16 on the issue of exemption from Black Start mode and RGMO operation of Purulia Pump Storage Project (PPSP), communicated the system modification around PPSP and requested for conducting studies regarding the Black start at PPSP with the proposed connectivity with all reactors as per the direction of CERC.

In 34th TCC, WBSETCL informed that black start exercise can be conducted after commissioning of new 400kV PPSP S/s with 80 MVAR reactor.

WBSEDCL informed that they have contacted OEM Toshiba for feasibility of black start and OEM required to conduct a simulation with CEA recommendations.

TCC advised WBSEDCL/WBSETCL to submit the status to CERC.

127th OCC advised OHPC and WB SLDC to submit a report on blackstart exercise of Balimela and TLDP-IV respectively.

Further, WBSEDCL informed that they have filed a petition before CERC on 30th September, 2016 for extension of six months.

Members may update.

ii) Testing of DG sets meant for Black start

Test run report of DG sets for blackstart has been received only from Odisha hydro units. The test run reports of other machines may be sent to erldc.cal@gmail.com and erldcoutage@gmail.com.

Constituents may kindly ensure compliance.

Item No. B.38: Restoration Procedure For Eastern Regional Grid- updating for 2016

The Restoration Procedure for ER has been updated and draft copy of the same was emailed to all constituents on 09-12-16 with the request to furnish their suggestions and comments by 15-12-16, for finalization. Major modifications incorporated in the procedure are:

- Restoration plan added for newly commissioned/ synchronized power plants
- Mock Blackstart Procedure for Rengali, Burla, U.Kolab, TLDP, Chujachen HEP added
- All annexures updated

The draft would be considered as final, in case no comments are received by 15-12-16.

Members may update.

Item No. B.39: Restricted Governor /Free Governor Mode Operation of generators in ER

The latest status of units of ER under RGMO is available at ERPC website (http://www.erpc.gov.in/) under Operation>Important data.

In 108th OCC, ERLDC informed that the RGMO/FGMO response of the generators needs monitoring on continuous basis.

OCC advised ERLDC to intimate the event of sudden drop in frequency to the generators and requested all generators to provide the RGMO/FGMO response data to ERLDC during the said incidents.

In 115th OCC, ERLDC informed that for effective monitoring of unit wise governor response, ERLDC proposes to create a web-group wherein SCADA data recorded by ERLDC following an event of sudden load-generation imbalance would be posted within 2-3 days of occurrence of the event. The login id and password to access the web-group would be duly intimated by ERLDC to all concerned.

Coordinators from all the concerned generating stations would post the unit wise MW response as recorded at their respective ends, for a period +/- half-an-hour of the instant, within two days of posting by ERLDC. For the purpose of analysis, wherever significant variation would be observed w.r.t. to SCADA data, generator`s data would be adopted for detailed analysis.

In this connection, SLDCs of E. Region are requested to extend cooperation by coordinating with nodal officers of generators under their respective jurisdiction, in data collection and posting in webgroup.

OCC requested all the constituents to provide their respective e-mails which can be added to the web group.

E-mails can be provided by all SLDCs, Hydro generators of having capacity 10 MW & above and Thermal generators of having capacity 200 MW & above.

SLDCs will co-ordinate with their IPPs of 10 MW & above Hydro generation and 200 MW & above Thermal generation.

Thereafter, ERLDC informed that one web group was formed for sharing governor response of various generators in ER. The url of the group is

https://in.groups.yahoo.com/neo/groups/er_gov_respons/info

ERLDC requested to send email ids where invitation will be sent. Yahoo mail ids are preferable.

In 118th OCC, it was informed that WBSETCL, JUSNL, Bihar, NTPC and NHPC are yet to join the group.

OCC advised all the other constituents to join the web group at the earliest by providing their e-mail ids (preferably yahoo ids).

In 125th OCC, ERLDC explained that the frequency response of none of the ER generators is giving full response (i.e. 70-100 %) however, some of the generators (FSTPS, KhSTPS, BkTPP) are giving responses below 37 % which is not at par.

OCC requested all the generators to look into the matter and share their governor response with ERLDC.

*In 126thOCC requested all the generators to look into the matter and share their governor response with ERLDC in the group (**https://in.groups.yahoo.com/neo/groups/er_gov_respons/info**). Members may also send their request for joining the group to **erldcprotection@gmail.com**.*

ERLDC had uploaded the unit wise responses in the group "er_gov_respons@yahoogroups.co.in." i.r.o the following events for monitoring of RGMO response of generator:

(1) 765 kV Lalitpur-Fatehabad and Unit 2 at Lalitpur tripped at 15:39 hrs. Unit#1 was then immediately backed down and was running under house load and at 15:45 hrs Unit 1 also tripped. Lalitpur went under black out. Total generation loss and load loss was approximately 1200 MW and 90 MW respectively.

In 127th OCC, ERLDC informed that the response of ER utilities have been uploaded in the webgroup. All the constituents are requested to verify their respective responses and revert back if there is any mismatch in their end data.

All constituents agreed.

ERLDC had uploaded the unit wise responses in the group "er_gov_respons@yahoogroups.co.in." i.r.o the following events for monitoring of RGMO response of generator:

a. Due to multiple tripping at Dadri at 10:50 hrs of 10.11.2016, 1450 MW generation loss took place causing frequency fall from 50.02 to 49.95Hz.
b. On 30.11.16 at 06:02 Hrs all running units in Anpara generation complex tripped due to tripping of 400kV Anpara-Sarnath D/C. Generation loss of 2300 MW and frequency fall from 50.16 to 49.92Hz.

ERLDC may update.

In 123rd OCC, ERLDC added that this is the best time to put all the generators in RGMO/FGMO mode as the grid frequency is stable and almost close to 50 Hz.

OCC decided that all the generators should put RGMO/FGMO in service from 15th August, 2016.

All generators agreed.

In 124th OCC, DVC informed that all units are in RGMO.

WBPDCL informed that Santaldih U#5 is in RGMO from 16th Aug 2016 and U#6 will be kept in RGMO after overhauling. WBPDCL added that other units are old and not capable to run in RGMO.

In such cases, OCC advised the respective generators to approach CERC for exemption.

In 125th OCC, ERLDC explained that there is not much improvement in the frequency response of ER generators.

WBPDCL clarified that KTPS units cannot be put into FGMO/RGMO as these units are not having Electro Hydraulic Governor (EHG) system.

In 126th OCC, OCC requested WBPDCL to put Santaldih (U#6) and Sagardighi units on FGMO/RGMO.

In 127th OCC, WBPDCL informed that Santaldih (U#6) in now under FGMO/RGMO and they have tried to implement FGMO/RGMO in Sagardighi units also but it was unsuccessful.

Members may update.

Item No. B.40: Reactive Power performance of Generators

In 125th OCC, ERLDC informed that the performance of Teesta-III, DSTPS, Mejia-B and APNRL need improvement.

Generating stations have been monitored for certain sample dates in the month of November,16.

Power Plant	**Max and Min Voltage observed for Nov 16 (KV)**	**Date for monitoring (Nov 16)**
Farakka STPS	420,408	5,17
Khalgaon STPS	415,404	5,17
Talcher STPS	409,399	10,13
Teesta	423,392	2,10
Bakreshwar TPS	415,401	4,16
Kolaghat TPS	421,398	13,20
Sagardighi TPS	--	--
MPL	420,410	14,21
Mejia-B	--	--
DSTPS	422,410	5,23
Adhunik TPS	423,405	5,27
Sterlite	423,410	7,10
Barh	--	--
JITPL	--	--
GMR	414,402	9,13

HEL	--	
Kodarma	424,405	13,16

ERLDC may present the reactive performance.

a) Schedule for reactive capability tests

The following was status of regarding reactive capability testing:

a. Adhunik TPS(both units) –Yet to be confirmed by Adhunik
b. DSTPS (Unit#2 only pending) – done
c. Koderma TPS Unit#1 -- done on 08.08.2016
d. JITPL(both units) – Procedure given. Not yet done
e. Barh TPS – In June 2016
f. Raghunatpur (both units)
g. GMR (Three units)
h. *Haldia TPS (Unit #4)*

Members may update.

Item No. B.41: Collapse of One no Tower in 400KV D/C(Quad) Patna – Kishanganj TL due to river encroachment.

Due to unprecedented flash flood in Kankai river, one number of tower at location no.51(DD+18) of 400Kv Patna-Kishanganj D/C line near village Simalbari, Distt. Kishanganj, Bihar had collapsed on 26.07.2016 at about 12:00 hrs. The site of collapsed tower is fully submerged with water and very difficult to reach at the affected site.

Further the committee constituted to investigate the cause of collapse of tower and to suggest the remedial measures consisting of expert members of Powergrid and CEA, Delhi they are not in a position to even visit the affected site due to severe flow of water in the Kankai River. The entire area is inundated with water. The flood situation in that area is worsen due to incessant rain in Nepal. The restoration of the said line shall be taken after receding the water at site.
In view of the above the said outage period may be treated as force majeure condition i.e beyond the control of Powergrid and outage shall be excluded for the purpose of availability up-to Feb'17.

In last CCM, Members agreed to the force majeure nature of the event as recommended in OCC. It was decided that the progress of construction could be monitored in subsequent OCC meetings for consideration of outage time.

In 34th TCC, Powergrid informed that in addition to the tower collapse due to flash flood in Kankai river at location 51(DD+18), two number towers at location 128 F/O(DD+25) and 128 G/O(DD+25) had also collapsed due to unprecedented flash flood in Ganga river near Begusarai.

Chairperson TCC opined that any deemed availability of transmission lines due to force majeure put costs to the beneficiaries and such cases must be scrutinized carefully before certification. Member Secretary assured that all force majeure events needing deemed availability certification were discussed in detail in OCC meetings. In future also due care would be taken and progress of construction closely monitored.

Powergrid submitted the detailed report along with the action plan for restoration of the line. The same is placed at ***Annexure- B.41****.*

Members may discuss.

Item No. B.42: Collapse of four ENICL towers in Ganga river of 400kV Punea-Biharshariff line 1& 2 due to heavy flooding on 23rd August ,2016 at 06:51 Hrs

Due to unprecedented flash flood in Ganga river, One tower at location 47/1 situated in the main stream of the river (at the Ganga river crossing near Begusarai) has apparently uprooted collapsed and washed away. Adjacent three towers (47/2,47/0 and 46/9) are severely damaged. The area is still unapproachable as it is completely submerged into water and flow of the water is very high. The site of collapsed tower is fully submerged with water and very difficult to reach at the affected area. The entire area is inundated with water. The flood situation in that area is worsen due to incessant rain in Nepal. The restoration of the said line shall be taken immediately after receding the water at site. In view of the above, ENICL requested that the said outage of the line may be treated as force majeure condition i.e. beyond the control of ENICL.

In last CCM, Members agreed to the force majeure nature of the event as recommended in OCC. It was decided that the progress of construction could be monitored in subsequent OCC meetings for consideration of outage time.

In 34th TCC, Chairperson TCC opined that any deemed availability of transmission lines due to force majeure put costs to the beneficiaries and such cases must be scrutinized carefully before certification. Member Secretary assured that all force majeure events needing deemed availability certification were discussed in detail in OCC meetings. In future also due care would be taken and progress of construction closely monitored.

In 127th OCC, ENICL informed that the detailed report along with the action plan for restoration of the line will be submitted shortly.

ENICL vide mail dated 02.12.16 submitted the report which is placed at ***Annexure- B.42****.*

Members may decide.

Item No. B.43: Continuous tripping in 400kV Binaguri-Bongaigaon and 220kV CHPC-Birpara sections.

Repeated tripping of 400kV Binaguri-Bongaigaon sections and 220kV CHPC-Birpara-I & II have been observed in the recent past.

In 48th PCC, Powergrid explained that it is a lightening prone area and repeated faults are being occurred due to insulators failure.

Powergrid informed that they will replace the porcelain insulators with polymer insulators up to Bhutan boarder.

In 34th TCC, Bhutan representative informed that new insulators for Bhutan portion of 220kV CHPC-Birpara line have been purchased and replacement work will be completed within 4 to 5 months.

Powergrid also informed that the insulator replacement for 220kV CHPC-Birpara line will be completed by December 2016.

Powergrid also informed that insulator replacement for critical sections of 400kV Binaguri-Bongaigaon line-I & II will be done by February 2017 and complete replacement will be done by April, 2017.

ERLDC informed that ENCIL has to take appropriate action to minimise the trippings of 400kV Binaguri-Bongaigaon line-III & IV and ENCIL has been informed about the issue.

TCC advised to appraise the issue to ENCIL for taking necessary action to minimise the trippings.

127th OCC advised ENICL to take necessary action at the earliest and submit the their action plan for reducing the tripping in future.

ENICL agreed to submit their action plan at the earliest.

ENICL may place their action plan to reduce the trippings.

Item No. B.44: Installation of SEMs at KBUNL MTPS Stg-II.

For Drawl of startup power & injection of Infirm/firm Power from 2X195 MW KBUNL MTPS Stg-II, SEM is required to be installed. As per CEA Metering regulation, Special Energy meter on GTs, STs, all 220 KV Outgoing Feeder along with 220/132 KV Transformers at KBUNL end are to be installed by PGCIL. Meanwhile KBUNL has already installed same type energy meter (L&T Make ER-300P) in all commissioned bays as well as GT, ST and ICT. KBUNL had requested PGCIL to use the existing meters till the installation of new meters by PGCIL. The above matter was discussed in 126th OCC wherein it was decided that existing meter at KBUNL will be used for Drawl/Injection of KBUNL till PGCIL install new meter. Accounting of drawl/Injection of KBUNL will be done as per the Minutes of Special meeting for "Issues related to scheduling of KBUNL Stg-II" held on 26.05.2016 at ERPC.

In 126th OCC and last CCM, ERLDC requested KBUNL representatives to complete the metering requirements at MTPS end as well as BSPTCL end before availing start up power by MTPS Stg-II. Following are the line where meter was required to be installed at BSPTCL end.

1. 220KV MTPS-Gopalganj Ckt-1 & 2
2. 220KV MTPS-Begusarai Ckt-2
3. 220KV MTPS-Darbhanga Ckt-1

PGCIL & KBUNL may update.

PART C:: OPERATIONAL PLANNING

Item no. C.1: Shutdown proposal of transmission lines and generating units for the month of January'17

Members may finalize the Shutdown proposals of the generating stations for the month of January'17 as placed at **Annexure-C.1**.

Powergrid vide mail 14th December, 2016 placed the shutdown for polymer insulator replacement. The list is enclosed at **Annexure-C.1.1.**

ERLDC may place the list of line shutdown. Members may confirm.

Item no. C.2: Anticipated power supply position during January'17

The abstract of peak demand (MW) vis-à-vis availability and energy requirement vis-à-vis availability (MU) for the month of January'17 were prepared by ERPC Secretariat on the basis of Provisional LGBR for 2015-16 and feedback of constituents, keeping in view that the units are available for generation and expected load growth etc. is **at Annexure-C.2**.

Members may confirm.

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

(i) Generating units:

Generating Station	UNIT NO	CAP(MW)	REASONS FOR OUTAGE	OUTAGE DATE
TALCHER	2	500	ANNUAL MAINTAINANCE	21-Nov-16
KOLAGHAT	5	210	OVER HAULING	23-Oct-16
RAGHUNATHPUR	1	600	PLANNED MAINTENENCE	7-Dec-16
BAKRESWAR	4	210	MAINT. WORK	27-Nov-16
JITPL	2	600	DUE TO LOW SCHEDULE	30-Nov-16
GMR	1	350	COAL SHORTAGE	12-Dec-16
FARAKKA	1	200	BOTTOM ASH PROBLEM	16-Dec-16
MEJIA	3	210	STATOR EARTH FAULT	4-Dec-16
MEJIA	4	210	DESYNCHRONIZED DUE	5-Nov-16
BOKARO B	3	210	DESYNCHRONIZED DUE	10-Aug-16
BOKARO B	1	210	BOILER TUBE LEAKAGE	8-Nov-16
RAGHUNATHPUR	2	600	BOILER TUBE LEAKAGE	6-Nov-16
KODERMA	1	500	ECONOMIZER TUBE	28-Sep-16
BUDGE-BUDGE	1	250	HIGH TURBINE VIBRATION	27-Sep-16
DPL	8	250	BOILER TUBE LEAKAGE	2-Nov-16
KOLAGHAT	1	210	DESYNCHRONIZED DUE	7-Nov-16
KOLAGHAT	4	210	DESYNCHRONIZED DUE	27-Nov-16
BAKRESWAR	3	210	OVER HAULING	1-Nov-16
TENUGHAT	2	210	MAINT. WORK	7-Nov-16
DSTPS	1	500	BOILER TUBE LEAKAGE	13-Dec-16

(ii) Transmission elements

Name of the Line/Element	Outage	Reason
400 KV MEERAMANDALI- MENDHASAL S/C	23/05/16	TOWER COLLAPSED NEAR TO MENDHASAL,LOC NO 180,181,182.

220 KV GAYA-DEHRI-D/C	27/05/16	TOWER COLLAPSED AT LOC NO 275 FROM GAYA END.
400 KV PATNA-KISHANGANJ D/C	26/07/16	TOWER COLLAPSED AT LOC NO 51
400 KV BIHARSARIFF-PURNEA-I	23.08.16	Three numbers of tower are badly damaged at location 46/9, 47/0 & 47/1 (In the mid of river Ganga).
400 KV BIHARSARIFF-PURNEA-II	23.08.16	
220KV WARIA - BIDHANNAGAR-II	10.09.16	LINE UNDER B/D
315 MVA ICT-I AT MEERAMUNDALI	12.11.16	UNDER B/D DUE TO FAILURE OF B PHASE LA
400KV SASARAM-VARANASI	11.11.16	FOR PLCC COMMISSIONING WORK WITH NR

Members may update.

Item no. C.4: Status of commissioning of generating station and transmission elements

New generating units:

S.No.	Power Plant	Plant Size	Expected date

New transmission elements:

Sl No.	Name of Element	Expected date
1	400kV Rajarhat-Purnea D/C (with LILO of one circuit each at Farakka and Gokarno)	
2	Augmentation of 400kV Farakka-Malda D/C with HTLS conductor	
3	400kV Ind-Bharath-Jharsuguda D/C	
4	400kV Talcher-Bramhapur-Gazuwaka D/C	
5	400kv Talcher-Rourkella(2nd D/C-Quad)	
6	400kV Sterlite-Jharsuguda D/C	
7	765kv Anugul-Srikakulum D/C	
8	400kV Sasaram-Daltonganj D/C &Daltonganj S/Stn	
9	400 kV Ranchi-Raghunathpur D/C	
10	220 kV TLDP-IV – NJP ckt-2	
11	220 kV Bidhansai-Cuttack D/C	
12	220kV Gola- Ranchi	

Members may update.

PART D:: OTHER ISSUES

Item no. D.1: UFR operation during the month of November'16

System frequency touched a maximum of 50.27Hz at 22:01Hrs of 17/11/16 and 18:02Hrs of 27/11/16 and a minimum of 49.72Hz at 17:38Hrs of 26/11/16. Accordingly, no report of operation of UFR has been received from any of the constituents.

Members may note.

Item no. D.2: Non-compliance of directions issued by SLDC

Vide clause no 5.5.1.(c)(h) of IEGC, non-compliance of SLDC directions by SEB/Distribution licenses/bulk consumers to curtail overdrawal are to be reported to ERLDC for incorporating the same in weekly report to be prepared and published by ERLDC.

All SLDCs are to inform ERLDC the instances of non–compliance of SLDC directions by SEB/Distribution licenses/bulk consumers to curtail overdrawal, within two days after the day of operation.

No report from any constituent has yet received. Hence, ERLDC would be considering 'Nil' report for all constituents for November'16.

Members may note.

Item no. D.3: Grid incidences during the month of November, 2016

Sl no	Disturbance Place	Date	Time	Generation loss (MW)	Load loss (MW)	Remark	Category
1	Gopalgunj & Darbhanga (BSPTCL)	01/11/16	10:58	NIL	320	220 kV MTPS Darbhanga & 220 kV MTPS Gopalgunj were hand tripped due to fire hazards at MTPS s/s. 220 kV MTPS - MZF D/C survived along with running units and local load	GD1
2	Bokaro (DVC)	20/11/16	7:50	180	150	220 kV Ramgarh D/C, 220 kV CTPS D/C, 220 kV Jamshedpur D/C and Bokaro unit #1 tripped Y-phase breaker burst of 220 kv Bokaro B-Ramgarh-II at Bokaro end	GD1
3	Meramundali	12/11/16	23:11	Nil	Nil	At 23:11 hrs, 400/220 kV ICT - I at Meramundali tripped on both side due to bursting of B phase bushing. At same time 400 kV Meramundali – Kaniha and 400 kV Meramundali – Angul - I tripped from Meramundali end on B-N, D/P. All feeders connected to 220 kV bus I tripped for this incident.	GD1

Members may note.

Item no. D.4: Any other issues.

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Annexure-B5

Utilization of Transmission line

WBSETCL lines

Sl	Name of Line	Percentage utilization to meet West Bengal Demand		
		Quarter 1 2016-17	Quarter 2 2016-17	Quarter 3 2016-17
1	132 kV Birpara(PG)-Birpara-I	99.2%	94.4%	99.3%
2	132 kV Birpara(PG)-Birpara-II	99.2%	94.4%	99.3%
3	132 kV NJP-NBU-I	98.6%	99.2%	98.1%
4	132 kV NJP-NBU-II	98.6%	99.2%	98.1%
5	132 kV Malda(PG)-Malda-I	99.9%	99.9%	99.9%
6	132 kV Malda(PG)-Malda-II	99.9%	99.9%	99.9%
7	400 kV Kharagpur-Baripada	Natural ISTS		
8	220 kV Santaldhi-Chandil	Natural ISTS		
9	220 kV Waria-Bidhannagar-I	Natural ISTS		
10	220 kV Waria-Bidhannagar-II	Natural ISTS		
11	132 kV Rangit-Rammam	75.0%	70.0%	72.7%
12	220 kV Subhasgram(PG)-Subhasgram-I	98.6%	98.0%	97.6%
13	220 kV Subhasgram(PG)-Subhasgram-II	98.6%	98.0%	97.6%
14	400 kV Parulia-Bidhannagar-I	74.2%	67.8%	59.2%
15	400 kV Parulia-Bidhannagar-II	74.2%	67.8%	59.2%
16	220 kV Dalkhola(PG)-Dalkhola-I	99.7%	99.8%	99.8%
17	220 kV Dalkhola(PG)-Dalkhola-II	99.7%	99.8%	99.8%
18	132 kV Kurseong-Rangit	Part of ISTS		
19	132 kV Kurseong-Silliguri	Part of ISTS		
20	220 kV Subhasgram(PG)-Bantala	98.5%	98.3%	98.0%
21	220 kV Subhasgram(PG)-New Town	96.8%	96.6%	96.0%

DVC lines

Sl	Name of Line	Percentage utilization to meet DVC Demand		
		Quarter 1 2016-17	Quarter 2 2016-17	Quarter 3 2016-17
1	Raghunathpur-DSTPS D/C	14.4%	20.4%	15.2%
2	Raghunathpur-Ranchi (quad) D/C	14.2%	10.7%	20.5%
3	LILO of Maithon(PG)-Ranchi(PG) line at RTPS	Part of ISTS		
4	Termination segment at DSTPS of Jamsedpur PG line	Part of ISTS		

Annexure-B5

OPTCL lines

Sl	Name of Line	Percentage utilization to meet Odisha Demand		
		Quarter 1 2016-17	Quarter 2 2016-17	Quarter 3 2016-17
1	400 kV Indravati-Indravati(PG)	34.4%	31.4%	35.7%
2	400 kV Regali-Keonjhar	15.2%	13.7%	18.2%
3	400 kV Keonjhar-Baripada	15.2%	13.7%	18.2%
4	400 kV Baripada-Khargpur	Natural ISTS		
5	220 kV Balimela-U.Sileru	Natural ISTS		
6	220 kV Jeypore-Jaynagar D/C	6.5%	5.3%	10.7%
7	220 kV Budhipadar-Korba D/C	Natural ISTS		
8	220 kV Tarkera-Bisra D/C	75.7%	71.1%	80.7%
9	220 kV Joda-Ramchandrapur	Natural ISTS		
10	220kV Joda-Jindal	0.2%	0.4%	0.5%
11	220 kV Jindal-Jamsedpur	Natural ISTS		
12	220 kV Rengali-Rengali(PG)	46.4%	38.8%	44.7%
13	220 kV Rengali PH- TSTPS	83.8%	79.9%	86.3%
14	220 kV TTPS-TSTPS	53.2%	44.5%	52.2%
15	220 kV TSTPS-Meramundali	42.2%	23.3%	33.1%
16	220 kV Baripada-Balasore	92.8%	91.3%	93.7%
17	132 kV Joda-Kendposi	Natural ISTS		
18	132 kV Baripada-Rairangpur	99.7%	99.8%	88.7%
19	132 kV Baripada-Baripada(PG)	99.4%	99.7%	99.5%

Annexure- B.7

DEMAND FORECAST USING PAST 3 YEARS DATA ((Jan 2017 - Mar 2017)

										1	2	3	4		
	2013-14			2014-15			2015-16								
	Jan-14	Feb-14	Mar-14	Jan-15	Feb-15	Mar-15	Jan-16	Feb-16	Mar-16	2013-14 Average	2014-15 Average	2015-16 Average	Projected Demand for (Jan 2017 - Mar 2017) before normalization	Data given by DICs	Comments
Bihar	2,018	2,090	2,115	2,602	2,830	2,874	3,484	3,278	3,419	2,074	2,769	3,394	4,065		
DVC	2,550	2,485	2,441	2,467	2,320	2,393	2,421	2,381	2,473	2,492	2,393	2,425	2,370	2645	As per data given by DVC
Jharkhand	984	972	1,044	1,018	1,016	1,007	1,117	1,102	1,153	1,000	1,014	1,124	1,170		
Odisha	3,200	3,440	3,672	3,364	3,525	3,892	3,739	3,931	4,091	3,437	3,594	3,920	4,133	4150	As per data given by GRIDCO
West Bengal	6,237	6,303	7,294	6,317	6,721	7,332	6,240	6,858	7,443	6,611	6,790	6,847	6,985		
Sikkim	80	80	85	83	83	77	109	109	109	82	81	109	118		
Eastern Region	**14,082**	**14,499**	**15,598**	**15,373**	**15,892**	**16,932**	**17,011**	**17,030**	**18,024**						

Notes

1. Projections are based on the past 3 years' monthly Peak Demand Met data available on the website of CEA
2. The above projections are being done for financial year 2016-2017 (Q4) i.e Jan 2017 to Mar 2017
3. Projections are being done based on the forecast function available in MS Office Excel
4. In case of the re-organized states of Andhra Pradesh and Telangana Maximum Demand is divided in the ratio 53.89% for Telangana and 46.11% for Andhra Pradesh for FY 2012-13 and 2013-14. This is as per letter No.CE/COMML./APPCC/DE-COMML/POC-DATA-15-16/D.No/15 dtd. 09.10.15 as received from APTRANSCO.
4. CEA Reports can be accessed from the following links:

http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-03.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-02.pdf
http://www.cea.nic.in/reports/monthly/powersupply/2016/psp_peak-01.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2015_03.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2015_02.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2015_01.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2014_03.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2014_02.pdf
http://www.cea.nic.in/reports/monthly/gm_div_rep/power_supply_position_rep/peak/Peak_2014_01.pdf

Generation Projection (Jan 2017 - Mar 2017)

				Generation declared Commercial from 1st Apr '16 to 30th Sep'16					Generation declared/expected to be declared Commercial from 1st Oct'16 to 31st Dec'16								
Sl. No.	Entities	Region	Projections based on 3 Years Data	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	Bus Name	Unit No.	Installed Capacity	Gen. considered	Sub Total	TOTAL	Comments From DICs /Others (if any)	Figure as per Comments/PoC Data	Projected Generation before normalization w.r.t projected All India Peak Demand	To be Considered in the Basecase (After Normalisation with Forecasted All India Peak Demand Met)
			(MW)			(MW)	(MW)	(MW)			(MW)	(MW)	(MW)	(MW)			(MW)	
1	**West Bengal**	ER	4740											4740			4740	0
2	**Odisha**	**ER**	2981											2981	As per GRIDCO	3418	3418	0
3	**Bihar**	**ER**	154											154			154	0
4	**Jharkhand**	**ER**	480											480			480	0
5	**Sikkim**	**ER**	0											0			0	0
6	**Chujachan**	**ER**	91											91			91	0
7	**DVC**	**ER**	3734											3734	As per data given by DVC	3309	3309	0
8	**Durgapur Steel**	**ER**																
9	**Koderma TPP**	**ER**																
10	**MPL**	**ER**	1019											1019			1019	0
11	**Sterlite**	**ER**	690											690			690	0
12	**Teesta**	**ER**	536											536	AS per NHPC	510	536	0
13	**Kahalgaon**	**ER**	2195											2195			2195	0
14	**Farakka**	**ER**	1940											1940			1940	0
15	**Talcher**	**ER**	980											980			980	0
16	**Rangeet**	**ER**	64											64	AS per NHPC	61	64	0
17	**Corporate Power**	ER												0			0	0
18	**Adhunik Power**	ER	345											345			345	0
19	**Barh**	ER	1189											1189			0	0
20	**Kamalanga TPP (GMR)**	ER	733											733			0	0
21	**JITPL**	ER	1085											1085			1085	0
22	**Jorethang**	ER	69											69			69	0
23	**Bhutan**	**ER**	303											303			303	0
24	**Raghunathpur**	**ER**		Raghunathpur TPP	1	600	393	785						785			785	0
				Raghunathpur TPP	2	600	393											
25	**Bokaro TPS Extn.**	**ER**		Bokaro A TPS Extn	1	500	327	327						327			327	0
	TOTAL		**23327**					**1113**						**24439**			**22530**	**0**

Note:

1. Projections are based on monthly maximum injection in the last 3 years from actual metered data.
2. Generation forecast has been done based on the following criteria
(i) If there is an increasing trend then last year average generation has been considered
(ii) Otherwise average of past three year average generation has been considered
3. In case of new generators where past data was not available following has been assumed
(i) 0.8 plf for hydro generators
(ii) 0.7 plf for thermal generators.
(iii) 0.3 plf for gas stations
4. In case of the re-organized states of Andhra Pradesh and Telangana Generation is divided in the ratio 53.89% for Telangana and 46.11% for Andhra Pradesh for FY 2012-13 and 2013-14.
This is as per letter No.CE/COMML./APPCC/DE-COMML/POC-DATA-15-16/D.No/15 dtd. 09.10.15 as received from APTRANSCO.

Bus Number	Bus Name	Pload (MW)	Qload (Mvar)	IPload (MW)	IQload (Mvar)	YPload (MW)	YQload (Mvar)	Distributed Gen (MW)	Distributed Gen (Mvar)
261000	MAHCHND 132.00	59.8497	8.75	0	0	0	0	0	0
261001	PURULIAW 132.00	70.2594	10.272	0	0	0	0	0	0
261002	SANTLDI 132.00	0	2.432	0	0	0	0	0	0
261003	HOWRAH 1 132.00	41.7392	21.36	0	0	0	0	0	0
261005	KOLAGHAT 132.00	50.7414	7.419	0	0	0	0	0	0
261006	BANDEL 1 132.00	0	0	0	0	0	0	0	0
261007	RISHRA 1 132.00	121.0008	17.689	0	0	0	0	0	0
261008	ADSPTGR 132.00	135.3123	19.782	0	0	0	0	0	0
261009	DHRMPUR 132.00	76.765	11.223	0	0	0	0	0	0
261010	KALYANI 132.00	53.3441	7.798	0	0	0	0	0	0
261011	RANGHT 1 132.00	78.0652	11.412	0	0	0	0	0	0
261012	ASOKNGR 132.00	75.4637	11.032	0	0	0	0	0	0
261013	SALTLAKE 132.00	87.1747	12.743	0	0	0	0	0	0
261014	KASBA 1 132.00	97.5821	14.266	0	0	0	0	0	0
261015	SONARPR 132.00	68.9569	10.082	0	0	0	0	0	0
261016	JOKA1_A 132.00	13.0101	1.901	0	0	0	0	0	0
261017	JEERAT1 132.00	100	50	0	0	0	0	0	0
261020	KHARAGPR 132.00	37.7313	5.516	0	0	0	0	0	0
261021	SAITHIA1 132.00	81.9681	11.982	0	0	0	0	0	0
261022	SATGCHA1 132.00	63.7515	9.319	0	0	0	0	0	0
261023	TITAGARH 132.00	118.3981	17.308	0	0	0	0	0	0
261024	KATWA 1 132.00	78.0652	11.412	0	0	0	0	0	0
261025	DBGRM 1 132.00	62.4524	9.13	0	0	0	0	0	0
261026	RGNTGNJ 132.00	81.9681	11.982	0	0	0	0	0	0
261027	DPL1 132.00	0	32.996	0	0	0	0	0	0
261028	LILUAH1 132.00	102.7864	15.026	0	0	0	0	0	0
261029	HINDMTR1 132.00	0	10.42	0	0	0	0	0	0
261030	BRHMPR1 132.00	111.8924	16.357	0	0	0	0	0	0
261031	BOLPUR1 132.00	93.6769	13.695	0	0	0	0	0	0
261032	FALTA 1 132.00	76.765	11.223	0	0	0	0	0	0
261033	HIJLI 132.00	63.7515	9.319	0	0	0	0	0	0
261034	HIJLITRN 132.00	27.91	9.174	0	0	0	0	0	0
261035	RAIGUNJ 132.00	63.7515	9.319	0	0	0	0	0	0
261036	ARAMBAG1 132.00	70.2594	10.272	0	0	0	0	0	0
261037	UKHRA 132.00	65.054	9.51	0	0	0	0	0	0
261038	MALDAW1 132.00	110.5922	16.168	0	0	0	0	0	0
261039	DALKOLA1 132.00	32.5281	4.757	0	0	0	0	0	0
261040	NBU1 132.00	102.7864	15.026	0	0	0	0	0	0
261041	BIRPRAW1 132.00	16.913	2.474	0	0	0	0	0	0
261042	HALDIA1 132.00	44.2358	6.466	0	0	0	0	0	0
261043	MONGURI1 132.00	85.8711	12.555	0	0	0	0	0	0
261044	GOKARN1 132.00	61.1511	8.94	0	0	0	0	0	0
261045	BISNUPUR 132.00	46.8396	6.847	0	0	0	0	0	0
261046	CKROAD 132.00	83.2695	12.174	0	0	0	0	0	0
261047	BANKURA 132.00	48.1398	7.038	0	0	0	0	0	0
261048	EGRA 132.00	88.4749	12.935	0	0	0	0	0	0
261049	LKNTAPUR 132.00	105.3879	15.407	0	0	0	0	0	0
261051	MIDNAPR 132.00	83.2695	12.174	0	0	0	0	0	0
261052	BALICHK1 132.00	46.8396	6.847	0	0	0	0	0	0
261053	PINGLA1 132.00	117.0979	17.119	0	0	0	0	0	0

261054	RAINA1 132.00	78.0652	11.412	0	0	0	0	0	0
261055	TRKSWR1 132.00	49.4412	7.228	0	0	0	0	0	0
261056	ULBRIA1 132.00	93.6769	13.695	0	0	0	0	0	0
261057	BSRHAT1 132.00	80.6657	11.793	0	0	0	0	0	0
261058	BONGA1 132.00	61.1511	8.94	0	0	0	0	0	0
261059	KRSNGR1 132.00	104.0866	15.217	0	0	0	0	0	0
261060	BARASAT1 132.00	147.0221	21.494	0	0	0	0	0	0
261061	MANKAD1 132.00	58.5484	8.559	0	0	0	0	0	0
261062	RAMPUR1 132.00	68.9569	10.082	0	0	0	0	0	0
261063	KHNYAN1 132.00	33.8261	4.945	0	0	0	0	0	0
261064	CHNDTLA1 132.00	48.1398	7.038	0	0	0	0	0	0
261065	BANTALA1 132.00	106.687	15.597	0	0	0	0	0	0
261066	DOMJUR1 132.00	101.4839	14.837	0	0	0	0	0	0
261067	FCI 132.00	2.791	0.917	0	0	0	0	0	0
261068	TAMLUK1 132.00	58.5484	8.559	0	0	0	0	0	0
261069	DHTRIGRM 132.00	40.3351	5.897	0	0	0	0	0	0
261070	FRAKKA1 132.00	37.2666	0	0	0	0	0	0	0
261071	DHULIAN1 132.00	39.0315	5.706	0	0	0	0	0	0
261072	KHJURIA1 132.00	37.2666	0	0	0	0	0	0	0
261073	SAMSI1 132.00	62.4524	9.13	0	0	0	0	0	0
261074	BLURGHT1 132.00	35.1286	5.136	0	0	0	0	0	0
261078	NJP1(W) 132.00	58.5484	8.559	0	0	0	0	0	0
261079	ALIPRDR1 132.00	45.5371	6.658	0	0	0	0	0	0
261080	2ND MILE 132.00	18.606	6.115	0	0	0	0	0	0
261081	AMTALA 132.00	63.7515	9.319	0	0	0	0	0	0
261082	ASANSL1 132.00	88.0526	25.712	0	0	0	0	0	0
261083	NBSNPR1 132.00	33.8261	4.945	0	0	0	0	0	0
261084	NHALDIA1 132.00	66.3565	9.702	0	0	0	0	0	0
261085	JNGIPARA 132.00	20.8182	3.044	0	0	0	0	0	0
261086	BRSINGHA 132.00	59.8497	8.75	0	0	0	0	0	0
261087	BARJORA 132.00	25.5956	7.671	0	0	0	0	0	0
261088	BELMRWB 132.00	19.5169	2.853	0	0	0	0	0	0
261089	N TOWN1 132.00	62.4524	9.13	0	0	0	0	0	0
261090	COCHBHR 132.00	104.0866	15.217	0	0	0	0	0	0
261091	GANGRPR 132.00	48.1398	7.038	0	0	0	0	0	0
261092	BIGHATI 132.00	31.2268	4.565	0	0	0	0	0	0
261093	CHALSA 132.00	24.72	3.614	0	0	0	0	0	0
261094	CONTAI 132.00	76.765	11.223	0	0	0	0	0	0
261097	LEBONG 132.00	26.0214	3.805	0	0	0	0	0	0
261098	LALGOLA 132.00	28.6218	4.184	0	0	0	0	0	0
261100	JHARGRM 132.00	67.6567	9.891	0	0	0	0	0	0
261101	RAGNTHPR 132.00	16.913	2.474	0	0	0	0	0	0
261103	NJP 1 132.00	61.1511	8.94	0	0	0	0	0	0
261107	SALTLAKE_GIS132.00	70.2594	10.272	0	0	0	0	0	0
262011	GOKORNO2 220.00	0	23.51	0	0	0	0	0	0
262020	BANTALA 220.00	67.6567	22.349	0	0	0	0	0	0
264007	PPSP 400.00	0	0	0	0	0	0	0	0
271000	PRKST GI 132.00	94.5057	26.786	0	0	0	0	0	0
271001	PRKLN GI 132.00	26.8775	7.864	0	0	0	0	0	0
271002	BBD BAG 132.00	74.563	21.132	0	0	0	0	0	0
271004	CHAKMIR 132.00	34.6811	9.828	0	0	0	0	0	0
271006	MAJERHAT 132.00	93.6392	25.227	0	0	0	0	0	0
271007	JADVPUR 132.00	78.0333	22.934	0	0	0	0	0	0

271008	SRS 132.00	194.3206	55.075	0	0	0	0	0	0
271009	BOT GDN 132.00	59.8257	16.954	0	0	0	0	0	0
271010	EST CAL 132.00	45.0839	12.777	0	0	0	0	0	0
271012	TRS 132.00	34.6811	9.828	0	0	0	0	0	0
271013	NCGS 132.00	204.8262	58.051	0	0	0	0	0	0
271014	BRS 132.00	75.4294	21.297	0	0	0	0	0	0
271014	BRS 132.00	16.4735	4.668	0	0	0	0	0	0
271015	PRKLN 1 132.00	39.0166	11.14	0	0	0	0	0	0
271016	TRS 1 132.00	127.358	36.816	0	0	0	0	0	0
271016	TRS 1 132.00	43.4424	21.211	0	0	0	0	0	0
271017	EST CAL1 132.00	30.3489	8.601	0	0	0	0	0	0
271019	KASB CES 132.00	147.3966	42.593	0	0	0	0	0	0
271020	RIS_CESC 132.00	20.7874	2.482	0	0	0	0	0	0
272000	EM_CESC 220.00	194.4736	30.624	0	0	0	0	0	0

Odisha

Bus Number	Bus Name	Pload (MW)	Qload (Mvar)	IPload (MW)	IQload (Mvar)	YPload (MW)	YQload (Mvar)	Distributed Gen (MW)	Distributed Gen (Mvar)
251000	JEYNGAR1 132.00	156.9662	8.538	0	0	0	0	0	0
251001	THRUVLI1 132.00	0	3.594	0	0	106.1646	0	0	0
251002	BHNGAR1 132.00	71.3489	3.981	0	0	0	0	0	0
251003	ASKA1 132.00	31.152	6.036	0	0	0	0	0	0
251004	BRHMPUR1 132.00	82.7281	5.393	0	0	0	0	0	0
251005	CHTRSPLT 132.00	49.6364	1.019	0	0	0	0	0	0
251006	CHTRPUR1 132.00	41.363	3.981	0	0	0	0	0	0
251007	CHODWAR1 132.00	169.8633	12.604	0	0	0	0	0	0
251008	CHAIPAL1 132.00	44.4528	3.981	0	0	0	0	0	0
251009	RSP1 132.00	47.748	15.694	0	0	0	0	0	0
251010	TALCHER1 132.00	2.9673	0	0	0	0	0	0	0
251011	ANGUL 132.00	93.3762	4.643	0	0	0	0	0	0
251012	HIRAKUD1 132.00	0	0	0	0	0	0	0	0
251013	BRHMPR-T 132.00	0	0	0	0	0	0	0	0
251014	CHIPLIMA 132.00	29.5655	1.733	0	0	0	0	0	0
251015	JHRSGDA1 132.00	50.6822	3.032	0	0	0	0	0	0
251016	TARKERA1 132.00	130.6078	12.561	0	0	0	0	0	0
251017	JODA1 132.00	153.496	6.498	0	0	0	0	0	0
251018	ROURKELA 132.00	72.4771	7.362	0	0	0	0	0	0
251019	CHANDKA1 132.00	21.2329	5.97	0	0	0	0	0	0
251020	CHNDK(T) 132.00	33	10	0	0	0	0	0	0
251021	DHENKNL1 132.00	42.8102	5.307	0	0	0	0	0	0
251023	TARKESPT 132.00	68.227	22.425	0	0	0	0	0	0
251024	BHADRAK1 132.00	0	9.949	0	0	171.2376	0	0	0
251025	DUBURI 1 132.00	169.8633	15.92	0	0	0	0	0	0
251026	BLANGIR 132.00	116.1483	6.929	0	0	0	0	0	0
251027	BALASOR1 132.00	0	21.889	0	0	53.0833	0	0	0
251028	RAYGADA 132.00	31.1236	0.898	0	0	0	0	0	0
251029	MOHANA 1 132.00	31.1236	1.348	0	0	0	0	0	0
251030	BHBNSWR 132.00	95.5481	9.288	0	0	0	0	0	0
251031	JAJPURD1 132.00	0	8.625	0	0	157.1838	0	0	0
251032	CUTTACK1 132.00	74.4568	7.298	0	0	0	0	0	0
251034	BIDANASI 132.00	74.3141	7.961	0	0	0	0	0	0
251035	NIMAPARA 132.00	74.0891	3.316	0	0	0	0	0	0
251036	PURI 132.00	42.4658	4.643	0	0	0	0	0	0
251037	KURDA(T) 132.00	53.413	17.556	0	0	0	0	0	0
251038	BUDIPATR1 132.00	156.2721	9.095	0	0	0	0	0	0
251039	RJGNGPR 132.00	141.4915	8.662	0	0	0	0	0	0
251040	SMBLPUR 132.00	78.1382	4.765	0	0	0	0	0	0
251041	BROJNAGR 132.00	63.458	20.858	0	0	0	0	0	0
251042	BARGARH 132.00	14.7849	0.867	0	0	0	0	0	0
251043	SANTHLA 132.00	3.78	0.623	0	0	0	0	0	0
251044	KESINGA 132.00	0	4.494	0	0	96.3171	0	0	0
251045	KNDRPRA 132.00	106.1646	5.97	0	0	0	0	0	0
251046	PARADIP 132.00	106.1646	5.97	0	0	0	0	0	0
251047	PLSPONA 132.00	63.3522	3.899	0	0	0	0	0	0
251048	RRNGPUR 132.00	57.0785	1.733	0	0	0	0	0	0
251049	BARIPDA 132.00	44.664	4.271	0	0	0	0	0	0
251050	JALESWR 132.00	28	8	0	0	0	0	0	0
251051	GANJAM 1 132.00	37.0456	1.328	0	0	0	0	0	0
251052	BLUGAON 132.00	96.3171	5.307	0	0	0	0	0	0
251053	KHURDAH 132.00	63.6987	5.97	0	0	0	0	0	0
251054	NRNPUR1 132.00	42.8102	3.594	0	0	0	0	0	0

Odisha

251055	SORO1 132.00	44.4528	3.981	0	0	0	0	0	0
251056	JSINPUR1 132.00	27.794	9.135	0	0	0	0	0	0
251057	RSINPUR1 132.00	106.7244	6.633	0	0	0	0	0	0
251058	NOPATNA1 132.00	30.241	4.267	0	0	0	0	0	0
251059	KHARIAR 132.00	37.2463	2.246	0	0	0	0	0	0
251060	BALSWR(T 132.00	7	2	0	0	0	0	0	0
251062	RGANGPU 132.00	47	14	0	0	0	0	0	0
251063	KATPLI1 132.00	0	8.662	0	0	165.4551	0	0	0
251065	HINDLCO 132.00	25.3443	1.299	0	0	0	0	0	0
251066	NBVLBSSL 132.00	88.9068	3.316	0	0	0	0	0	0
251067	MRMNDL1 132.00	84.9317	8.625	0	0	0	0	0	0
252001	BALIMELA 220.00	9.6921	0.373	0	0	0	0	0	0
252008	JODA2 220.00	29.929	2.848	0	0	0	0	0	0
252010	RENGALI2 220.00	40	2.15	0	0	0	0	0	0
252014	BALASOR2 220.00	40.845	4.25	0	0	0	0	0	0
252017	NAYAGARH 220.00	71.3489	3.834	0	0	0	0	0	0
252018	RENGLPS 220.00	5	2	0	0	0	0	0	0
252019	NRNPUR2 220.00	71.3489	5.274	0	0	0	0	0	0
252020	BARKOT2 220.00	24.368	2.535	0	0	0	0	0	0
252021	CHNDPOS2 220.00	31.618	5.152	0	0	0	0	0	0
252029	JINDAL 220.00	20	4.389	0	0	0	0	0	0
252032	BSSL 220.00	77.8815	9.095	0	0	0	0	0	0

Bihar

Bus Number	Bus Name	Pload (MW)	Qload (Mvar)	IPload (MW)	IQload (Mvar)	YPload (MW)	YQload (Mvar)	Distributed Gen (MW)	Distributed Gen (Mvar)
211000	BODGAYA1 132.00	72.8496	24.465	0	0	0	0	0	0
211001	BHRSHRF 132.00	222.9515	2.777	0	0	0	0	0	0
211002	BARAUNI 132.00	71.1141	8.328	0	0	0	0	0	0
211003	SAMSTPR 132.00	61.4671	18.047	0	0	0	0	0	0
211004	PANDOUL 132.00	136.4232	20.823	0	0	0	0	0	0
211005	MUZZAFARPUR1132.00	104.0184	29.15	0	0	0	0	0	0
211007	CHAPRA 1 132.00	44.9217	12.493	0	0	0	0	0	0
211008	PURNEA 1 132.00	117.8906	58.301	0	0	0	0	0	0
211009	SAHARS 1 132.00	56.7384	15.271	0	0	0	0	0	0
211010	HAZIPUR1 132.00	40.19	11.102	0	0	0	0	0	0
211011	RAFIGNJ 132.00	33.0928	9.717	0	0	0	0	0	0
211012	DUMRAON 132.00	45.3304	13.879	0	0	0	0	0	0
211013	JEHNABD 132.00	42.5512	12.493	0	0	0	0	0	0
211014	JAMALPR 132.00	52.0087	15.271	0	0	0	0	0	0
211015	HATIDAH 132.00	59.1048	16.657	0	0	0	0	0	0
211016	FATUAH 1 132.00	89.0404	14.82	0	0	0	0	0	0
211017	SULTNGJ 132.00	33.0928	9.717	0	0	0	0	0	0
211018	SABOUR 1 132.00	29.1641	5.755	0	0	0	0	0	0
211019	KHAGAUL 132.00	145.7013	77.283	0	0	0	0	0	0
211020	PATNA B 132.00	129.5116	99.946	0	0	0	0	0	0
211021	DEHRI 1 132.00	56.7384	16.657	0	0	0	0	0	0
211022	PATNA 1 132.00	0	0	0	0	0	0	0	0
211023	SONNGAR 132.00	75.6543	35.511	0	0	0	0	0	0
211024	KHLGN_B1 132.00	14.668	6.568	0	0	0	0	0	0
211025	MOTIHRI 132.00	86.8758	22.594	0	0	0	0	0	0
211026	SITAMRI 132.00	89.638	18.561	0	0	0	0	0	0
211027	ARRA(BS) 132.00	56.6609	15.271	0	0	0	0	0	0
211028	RAJGIR 132.00	33.0928	9.717	0	0	0	0	0	0
211030	SIWAN 132.00	40.19	11.102	0	0	0	0	0	0
211031	BETTIA 132.00	70.2988	11.225	0	0	0	0	0	0
211032	RAMNAGAR 132.00	23.6405	6.941	0	0	0	0	0	0
211033	KATIHAR 132.00	40.19	11.102	0	0	0	0	0	0
211034	FORBISGANJ 132.00	50.002	10.773	0	0	0	0	0	0
211035	LAKHISAR 132.00	56.7384	16.657	0	0	0	0	0	0
211036	JAMUI 132.00	35.4623	9.717	0	0	0	0	0	0
211037	BARIPHRI 132.00	134.0956	26.371	0	0	0	0	0	0
211038	GAIGHAT 132.00	96.9294	27.762	0	0	0	0	0	0
211039	KUDRA 132.00	40.562	13.332	0	0	0	0	0	0
211040	KRMNASA 132.00	63.0457	30.051	0	0	0	0	0	0
211042	SIPRA_1 132.00	48.0728	11.508	0	0	0	0	0	0
211045	GPLGNJ1 132.00	98.4193	16.981	0	0	0	0	0	0
211046	DRBHNG1 132.00	82.2632	25.475	0	0	0	0	0	0
211047	SASARAM 132.00	37.8246	11.102	0	0	0	0	0	0
211048	PUSAULI 132.00	4.7277	1.39	0	0	0	0	0	0
211049	MOHANIA 132.00	44.9217	12.493	0	0	0	0	0	0
211050	BARH 132.00	26.0048	6.941	0	0	0	0	0	0
211051	EKANGSR 132.00	7.089	1.39	0	0	0	0	0	0

211052	BIKRMGNJ 132.00	33.0928	9.717	0	0	0	0	0	0
211053	WAZIRGN 132.00	47.4135	1.39	0	0	0	0	0	0
211054	CHANDAUT 132.00	55.1924	18.853	0	0	0	0	0	0
211055	BELAGUN 132.00	11.8208	2.777	0	0	0	0	0	0
211056	TEKARI 132.00	4.7277	1.39	0	0	0	0	0	0
211057	SHETLPR 132.00	9.4533	2.777	0	0	0	0	0	0
211058	KISHNGJ 132.00	98.1717	9.717	0	0	0	0	0	0
211059	BANJARI 132.00	23.6405	6.941	0	0	0	0	0	0
211060	BUXAR 132.00	37.8246	11.102	0	0	0	0	0	0
211061	HULASGN 132.00	4.7277	1.39	0	0	0	0	0	0
211062	SHEKAPR 132.00	30.7356	8.328	0	0	0	0	0	0
211064	VAISHALI 132.00	35.4623	9.717	0	0	0	0	0	0
211065	BANKA 132.00	21.2751	5.552	0	0	0	0	0	0
211073	KATAIYAA 132.00	34.0936	7.347	0	0	0	0	0	0
211074	SUPOUL 132.00	50.002	10.773	0	0	0	0	0	0
212000	BODGAY2 220.00	131.892	27.311	0	0	0	0	0	0
212006	KHAGL2 220.00	150.553	49.484	0	0	0	0	0	0
212010	BEGUSAR 220.00	111.2663	19.435	0	0	0	0	0	0

DVC

Bus Number	Bus Name	Pload (MW)	Qload (Mvar)	IPload (MW)	IQload (Mvar)	YPload (MW)	YQload (Mvar)	Distributed Gen (MW)	Distributed Gen (Mvar)
231000	WARIA 1 132.00	50.025	11.286	0	0	0	0	0	0
231001	PURULIAD 132.00	8.1913	1.847	0	0	0	0	0	0
231003	KOLGHTD 132.00	12.2875	2.775	0	0	0	0	0	0
231004	HOWRAHD 132.00	0	0	0	0	0	0	0	0
231005	BELMURI 132.00	51.2086	11.092	0	0	0	0	0	0
231006	BURDWAN 132.00	93.4702	29.569	0	0	0	0	0	0
231007	PANCHET 132.00	0	0	0	0	0	0	0	0
231008	KALPHRI 132.00	93.4702	22.558	0	0	0	0	0	0
231009	ASP 132.00	61.4452	13.866	0	0	0	0	0	0
232000	WARIA 2 220.00	155.7826	48.231	0	0	0	0	0	0
232002	PARLIAD 220.00	32.9154	3.89	0	0	0	0	0	0
232003	BORJRA2 220.00	153.6182	33.277	0	0	0	0	0	0
232004	BURNPR2 220.00	36.8663	8.32	0	0	0	0	0	0
232006	MEJIA LOAD 220.00	75.9442	16.128	0	0	0	0	0	0
241000	BARHI 1 132.00	50.8115	3.697	0	0	0	0	0	0
241001	BOKARO 1 132.00	0	0	0	0	0	0	0	0
241002	CHNPUR 1 132.00	0	0	0	0	0	0	0	0
241004	MANIQUE 132.00	0	0	0	0	0	0	0	0
241005	JMSDPRD1 132.00	54.6625	32.353	0	0	0	0	0	0
241006	MAITHON 132.00	0	0	0	0	0	0	0	0
241007	PATHRDI 132.00	192.5345	42.522	0	0	0	0	0	0
241009	KLNSWRI 132.00	77.8932	34.201	0	0	0	0	0	0
241010	KUMRDBI 132.00	62.3115	24.96	0	0	0	0	0	0
241011	MOSABNI 132.00	28.6769	6.47	0	0	0	0	0	0
241012	RAMKNLI 132.00	71.6875	17.563	0	0	0	0	0	0
241013	RAMGARH 132.00	186.3893	40.672	0	0	0	0	0	0
241015	PUTKI 132.00	163.8576	36.05	0	0	0	0	0	0
241016	JAM_DV2 132.00	179.8778	43.634	0	0	0	0	0	0
241017	KONAR 132.00	22.5317	4.621	0	0	0	0	0	0
241018	KODARMA 132.00	108.5595	30.504	0	0	0	0	0	0
241019	HAZARIB 132.00	36.8663	7.395	0	0	0	0	0	0
241020	NKARNPU 132.00	55.3019	12.017	0	0	0	0	0	0
241021	NIMAGHT 132.00	30.724	6.47	0	0	0	0	0	0
241022	SINDRI 132.00	32.7711	7.395	0	0	0	0	0	0
241023	GRIDIH 132.00	151.572	33.277	0	0	0	0	0	0
241031	JOJOBE_1 132.00	139.0692	24.678	0	0	0	0	0	0
242007	RAMGAR2 220.00	28.6769	6.47	0	0	0	0	0	0

Jharkhand

Bus Number	Bus Name	Pload (MW)	Qload (Mvar)	IPload (MW)	IQload (Mvar)	YPload (MW)	YQload (Mvar)	Distributed Gen (MW)	Distributed Gen (Mvar)
221000	JAPLA 132.00	14.6456	4.511	0	0	0	0	0	0
221001	CHANDIL1 132.00	114.002	37.471	0	0	0	0	0	0
221002	ADITPUR 132.00	139.1387	41.507	0	0	0	0	0	0
221003	RAJKSWN 132.00	19.0401	5.414	0	0	0	0	0	0
221004	CHNDLJS 132.00	61.5129	18.046	0	0	0	0	0	0
221005	PATRTU 1 132.00	0	0	0	0	0	0	0	0
221006	HATIAOLD 132.00	121.127	39.812	0	0	0	0	0	0
221008	GOELKRA 132.00	19.0401	5.414	0	0	0	0	0	0
221010	KNDPOSI 132.00	38.0817	11.729	0	0	0	0	0	0
221011	GOLMURI 132.00	61.5129	18.046	0	0	0	0	0	0
221012	JADUGRA 132.00	30.7545	9.023	0	0	0	0	0	0
221013	NOAMNDI 132.00	30.7545	9.023	0	0	0	0	0	0
221014	LALMATIA 132.00	38.0817	11.729	0	0	0	0	0	0
221015	DEOGHAR 132.00	20.6729	6.917	0	0	0	0	0	0
221016	NAMKUM 132.00	117.1683	35.191	0	0	0	0	0	0
221017	KAMDARA 132.00	43.9401	12.633	0	0	0	0	0	0
221018	JAMTARA 132.00	30.7545	9.023	0	0	0	0	0	0
221019	GRWARD 132.00	18.1264	5.189	0	0	0	0	0	0
221021	HATIA1 132.00	161.1084	47.823	0	0	0	0	0	0
221024	HEC1 132.00	30.7545	9.023	0	0	0	0	0	0
221027	DUMKA 132.00	51.6825	9.023	0	0	0	0	0	0
221028	SAHBGNJ 132.00	19.0401	5.414	0	0	0	0	0	0
221029	CHAKRDP 132.00	21.9681	6.317	0	0	0	0	0	0
222006	LOHARDG 220.00	32.2217	9.926	0	0	0	0	0	0

MONITORING OF PROGRESS OF 400 KV D/C VEDANTA-PGCIL, SUNDARGARH T/ L.

Date: 16.12.2016

SUPPLY PORTION

Sl. No.	Activities	Status	Remarks
1	Release of Tower spotting data & Sag Template Curve	1. Date of release of Tower spotting data: (please enclose copy) 2. Date of release of Sag Template: (please enclose copy)	1.Tower Spotting data released on dtd.05/07/2015, Submitted to PGCIL vide letter no.PGCIL/LILO/001 dtd.28/07/2015(COMPLETED) 2.Sag Template released on dtd.05/07/2015(COMPLETED)
2	Release of Drg. & BOM for Stub (All type of Tower)	1. Date of release of Drawing For Stub: (please mention type & quantity of stub) 2. Date of release of BOM for Stub: (please mention type & quantity of stub)	1.Structural Drawing released on 01/08/2015, DA+0 =13Nos , DA+3=06Nos,DA+6 =01No, DC+0=07Nos, DC+3=1 No., DC+6=04Nos,DC+9=03Nos, DD+0=14Nos, DD+3=03Nos, DD+6=01 No., DD+9=01No,DD+18=03Nos, DD+30=07Nos 2.BOM released on 01/08/2015, DA+0 =13Nos , DA+3=06Nos,DA+6 =01No, DC+0=07Nos, DC+3=1 No., DC+6=04Nos,DC+9=03Nos, DD+0=14Nos, DD+3=03Nos, DD+6=01 No., DD+9=01No,DD+18=03Nos, DD+30=07Nos
3	Release of Structural Drg. & BOM, Shop floor Drg. For all type of Tower	1. Date of release of Structural/shop floor Drawing : (Please mention type & qty of tower) 2. Date of release of BOM for Tower: (please mention type & quantity of Tower with type of extension)	1. (i) DD Type Tower released on 01/08/2015 (Completed), (ii)DA & DC Type Tower design had been applied to PGCIL, Recieved in soft copy on 4/2/2016. 2. DD, DA & DC Type Tower BOM released. Qty as above.
4	Release of Drg. for Tower Accessories	1.Date of release of Drawing for Tower Accessories: (please mention details of accessories & quantities)	All the drawings received on 07/10/2015.(Completed) Approved drawing released on 15/10/2015.(Completed)
5	Proto Fabrication and Assembly	Please Give details of proto fabrication and assembly according to the Tower type.	Completed
6	Release of apprvd. Proto corrected Drg.	1. Date of release of approved proto corrected Drawing : (please Mention type of Tower)	DD, DA & DC TYPE tower design proto corrected drawing are available. Completed.
7	Release of apprvd. Stringing Chart	Date of release of approved Stringing chart: (if partly approved then please mention section of the line along with location no.)	Released of stringing chart 2/11/2015. From location no.AP-1/0 to 32/0 Stringing Chart is approved on 04/11/2015. Length of line is 20.345KM.(Completed)
8	Manufacturing of Stub and receipt at site	Please mention total required quantity according to the Tower type and status of receipt till date at site of the same. Also mention the schedule of balance quantity.	Total DA =20Nos, DC=15Nos, DD=29Nos Received till date: Complete Set.
9	Manufacturing of Tower and receipt at site	Please mention total required quantity according to the type and status of receipt till date at site of the same. Also mention the schedule of supply for balance quantity.	DA+0 =13Nos , DA+3=06Nos,DA+6 =01Nos DC+0=07Nos, DC+3 = 01No., DC+6 = 04Nos,DC+9=03Nos, DD+0=14Nos,DD+3=03Nos,DD+6=1No., DD+9=01No, DD+18=03Nos, DD+30=07Nos (i) Total 51 Nos of Tower material received at site : 13 Nos of DA+0, 06 Nos of DA+3, 01 Nos of DA+6, 07 Nos of DC+0, 1 Nos of DC+3, 4 Nos of DC+6, 3 Nos of DC+9, 10 Nos of DD+0, 3 Nos of DD+3 ,1No of DD+6,1No of DD+9 ,1No of DD+18 received at site. (ii) 4 Nos of DD+0 and 2 No. of DD+18 are in transit balance 7Nos in manufacturing process.
10	Approval and Supply of Line Materials-Conductor/ Earth wire/ Hardware/ Earthing Materials/ Bird Guard / Aviation Light	1. Please mention total requirement of Line Materials(Conductor/ Earth wire/ Hardware/ Earthing Materials/ Bird Guard / Aviation Light): 2. Receipt at site of the above: 3. Schedule of supply of balance quantity.	1.Qty. finalised on dtd. 12/10/2015.(COMPLETED) (i) AL 59 Conductor- 250 Kms -28 Kms received at site, (ii) Earthwire -24 Kms- Material received at site. (iii) OPGW & Junction Boxes are under manufacturing (iv) Hardware Fittings inspected, 50% Received at site. (v) Insulator 60% of the Total quntity received at site.

Note : **01.** If related work has not been started yet, planning for starting & completion need to be provided.

02. As per detailed survey total quantity required for all supply items has already been finalised. Kindly provide Purchase order placement status including quantity for which PO placed & planning for placement of PO for balance quantity of supply.

ERECTION PORTION

Sl. No.	Activities	Status	Remarks
1	Route Alignment	A. Please mention Date of finalization of route alignment (along with name of important village/mouza/area etc.) B. Length of finalized route : C. Status of Notification for construction of line	A..Finalization of route alignment, 28/07/2015 (COMPLETED) 1.KENAPALI 2.MAHULPALI 3.KURGA 4.KEPSE 5.KIRIPSIRA 6.SURDA 7.KHARMARBAHAL 8.JAMUNADHIPA 9.TELINGAPALI 10.PORHABAHAL 11.KUNDUKELA 12.KAINTARA 13.DEULI 14. BHASMA 15. KAINSARA B.Length of finalized route :20.345Km C.Section 68 is in hand
2	Detailed Survey	1. Date of completion of detailed survey: (if not completed please Mention the completed) length	Completion date of Survey,28/07/2015 (COMPLETED) .On village map plotting is completed on 20/09/2015.Length:20.345KM

3	Forest Survey	1. Date of completion of survey: (if not completed please intimate the status) 2. Total forest area involved(in Hectares)with bifurcation according to type of forest land	1.Earlier proposal Dt.20/02/2015 2.Forest area involved 11.03Ha. NOTE:Due to severe ROW apprehension & avoiding of extra 05nos low gantry crossing, original route was revised.The matter has been discussed with PGCIL,Sundergarh.As per the advice of PGCIL,Sundergarh line rerouting has been done . DGPS survey completed.DGPS survey maps submitted to ORSAC,Bhubaneswar (through DFO,Sundergarh) for certification.ORSAC CERTIFICATION is available. Online submission is completed. 2.Forest Land : 5.975Hectares
4	Inputs for Forest Proposal	1. Date of submission of application. 2. Please mention present status. 3. Anticipated date of clearance. 4. Proposal / status of Compesatory Aforestation.(please Give details)	1. Application has been submitted on dt.28/12/2015 . 2. DGPS survey completed. 3. Survey report is available and Online submission is completed. 4.Land identified for Compensatory afforestration. Revised Forest Proposal has been submitted on 29/01/2016. PCCF forwarded to DFO & Collector, Sundargarh for further action. Land verification and pillar posting work completed. 5. Tree enumeration work completed. 6. FRA certificate received from Collector Sundargarh on 25.07.2016 7.FDP online proposal forwarded from DFO Sundargarh to RCCF Rourkela dated 02.08.2016. and RCCF Rourkela forwarded the same to PCCF, Bhubaneswar on 10.08.2016. 8.PCCF forwarded the same to Forest Secretary on 13.10.2016
5	Status of Detailed Survey Report	1. Please mention status of detailed survey(if survey done by other agency then mention the date of submission of detailed survey report)	Check survey has been carried out by M/s.SR Associates Infrastructure Pvt.Ltd & Survey report was approved on 01/08/2015.
6	Profiling	1.Please metion date of completion of preparation and approval of profiling.	1.Date of completion of profiling approval :01/08/2015
7	Tower spotting	1. Please mention date of completion.	Dt.07/08/2015
8	Approval of Detailed Survey	1. Please mention date of approval of detailed survey.	1.Earlier detail Survey was approved on dtd :08/12/2012.Due to revised route on account of severe ROW,rerouting has been done.Revised route survey approved on 01/08/2015.
9	Check Survey	1. Please mention date of completion of Check survey.	1.Date of completion of check survey :28/07/2015
10	Submission / Approval of Check Survey	1. Please mention date of submission / approval of Check survey.	1.Date of completion of profiling approval :01/08/2015 (COMPLETED)
11	Detailed Soil Investigation	1. Please mention present status along with no of loction done.	Soil Investigation Completed. No. of Locations 64.
12	Execution - Foundation	1. Please give location wise status and planning	60 Nos of foundation completed. 1nos Ongoing FOLLOWING LOCATION FOUNDATION COMPLETED 27/3(on 24/05/2015), 27/4(on 20/05/2015), 27/1(on 01/06/2015), 27/2(on 12/06/2015), 27/0(on 06/06/2015), 26/0(on 17/06/2015), 22/1(on 25/07/2015), 20/0(on 04/08/2015), 19/1(on 11/08/2015), 15/0(on 13/08/2015), 14/0(on 18/08/2015), 31/2(on 30/08/2015), 21/2(on 01/09/2015), 31/4(on 03/09/2015), 31/3(on 10/09/2015), 29/0(on 08/10/2015), 16/0(on 15/10/2015), 17/0(on 26/10/2015), 18/0(on 31/10/2015), 31/1(on 04/10/2015), 28/0(on 15/11/2015), 29/1(on 13/10/2015), 15/1(on 09/12/2015), 19/0(on 05/11/2015),21/1(on 18/12/2015), 21/3(on 18/12/2015), 21/4(on 17/12/2015), 21/0(on 15/12/2015),22/0(on 16/12/2015), 22/2(on 19/12/2015), 13/0(on 26/12/2015), 30/0(on 29/12/2015,31/0(on 04/01/2016), 32/0(on 06/01/2016), 33/0(on 12/01/2016), 32/1(on 16/01/2016),32/2(on 22/01/2016), 1/0(on 28/01/2016), 1/1(on 03/02/2016), 23/0(on 12/02/2016),24/0(on 20/02/2016)25/0(on 25/02/2016), 8/0(on 02/03/2016), 9/0(on 13/03/2016), 7/1(on 23/03/2016), 5/0(on 15/04/2016), 6/0(on 18/04/2016), 7/0(on 28/04/2016), 35/0(on 12/05/2016), 10/0(on 05/05/2016), 4/0(on 31/05/2016), 1/2(on 02/06/2016), 2/0(on 7/06/2016), 31A/0(on 15/06/2016)3/0(on 20/06/2016),42/0(on 15/7/2016), 32/0,32/1,40/0. 41/0- Completed
13	Execution- Tower Erection	1. Please give location wise status and planning	Erection status as on date (i) 44 Nos of Tower Erections Completed (1/0, 1/1, 1/2, 3/0, 5/0, 6/0, 7/0, 7/1, 8/0, 13/0,15/0, 15/1,16/0, 18/0, 19/0, 19/1, 20/0, 21/0, 21/1, 21/2, 21/3, 21/4, 22/0, 22/1, 22/2, 23/0, 26/0, 27/1, 27/2, 27/3, 27/4, 28/0, 29/0, 29/1, 31/0, 31A/0, 31A/1, 31A/2, 31A/3, 32/2, 34/0, 35/0, 40/0, 41/0
14	Execution- Stringing	1. Please give strech wise status and planning	Stringing has been stated, Completion Dt.20/02/2017.
15	Clearance for Power Line Crossing	1. Please mention no of Power line crossings invloved in the finalised route with voltage level and name of line and ownership of line. 2. Please mention status of submission and approvalof these Power line crossing proposals.	1.(i)Line is crossing under 765KV Sundergarh -Dharmajaygarh Circuit-1 & 2 & proposed 765KV Sundergarh-Dharmajaygarh Circuit-3 & 4 line in low gantrysystem at Village Rangiamunda-Tangarapalli, Sundergarh (ii)Overheadcrossing of 400KV Raigrh-Sundergarh Line at village Kirpisara-Tangarpalli-Sundergarh 2.(i)Line is crossing under 765KV Sundergarh -Dharmajaygarh Circuit-1 & 2 & proposed 765KV Sundergarh-Dharmajaygarh Circuit-3 & 4 line in low gantry system approval order no.ER-II/SNG/TLC/765KV DC/SNG-DJY/4446 DATED 08-12-2016,(ii)Overheadcrossing of 400KV Raigrh-Sundergarh Line approval order no.ER-II/ROURKELA/DGM OFF/677 dated 17-02-2016
16	Clearance for Railway Crossing	1. Please mention no of Railway crossings and name of route invloved in the final route. 2. Please mention submission and status of approval.	No Railway crossing is there.

17	Statutary Clearance for PTCC(Rail & DOT), including aviation clerance from Defence & Civil aviation .	1. Please mention date of submission of application. 2. Present status of PTCC proposal.	For PTCC Clearance application submitted on 23/11/2015.
18	Clearance & Handing over of Forest Land	1.Please mention Present status. 2. Anticipated Date of Clearance & Handing over of Forest Land	1.Due to revised route, DGPS survey of forest land is completed on 04/01/2016. Uploaded the FDP in the MOEF website- 29/01/2016. Compensatory Afforestation Land demarcated and process for approval in progress.
19	Clearance from CEA		Section -68 approval No.11/02/2010 dated, 31st January,2014.
20	Clearance from ERLDC		After charging of line ERLDC clearance is required.
21	Readiness of Line Bays (Both end)		IPP end bay is in charged condition.Construction of BAY-2nos at PGCIL is under progress, Erection of equipments completed, Expected completion of date 15th JAN,2016.
22	Notification for Charging		After completion of line works & line inspection ,notification for charging will be made.
23	Final checking of Tower and corridor		After completion of line works final checking of Tower & Corridor will be carried out.
24	Testing & Commissioning	1. Please indicate Schedule/Target date of Testing & Commissioning	Target date of testing & commissioning is dt.28/02/2017.

Annexure-B.19

Manpower Engaged in Power Sector (Separately for Central, State and Private sector)

As on 31st March	Regular						Non-Regular				Grand Total (Regular+ Non Regular)
	Managerial and higher executive	Technical/ scientific officers	Technical Supervisory Staff	Technicians & operating Staff	Non-Technical	Total (Regular) {col 2 to 6}	Technical Trainees and apprentices	Work charged staff	Casual/ Temporary/ Out sourced	Total (Non-Regular) {col 8 to 10}	
1	2	3	4	5	6	7	8	9	10	11	
Actual											
2012											
2013											
2014											
2015											
2016											
Projected/ Estimated											
2017											
2018											
2019											
2020											
2021											
2022											
2023											
2024											
2025											
2026											
2027											

Details Regarding No. of Consumers and Connected Load etc.

(A) Utilities

As On 31st March of Financial year end	No. of Consumers	Connected Load (kW)	Consumption (MU)	Energy Available for Supply	T&D losses(%)	Per Capita Electricity Consumption(kWh)
1	2	3	4	5	6	7
2011-12						
2012-13						
2013-14						
2014-15						
2015-16						
2016-17						
2017-18						
2018-19						
2019-20						
2020-21						
2021-22						
2022-23						
2023-24						
2024-25						
2025-26						
2026-27						

(B) Non Utilities

As On 31st March of Financial year end	No. of Consumers	Connected Load (kW)	Consumption (MU)	Energy Available for Supply	T&D losses(%)	Per Capita Electricity Consumption(kWh)
1	2	3	4	5	6	7
2011-12						
2012-13						
2013-14						
2014-15						
2015-16						
2016-17						
2017-18						
2018-19						
2019-20						
2020-21						
2021-22						
2022-23						
2023-24						
2024-25						
2025-26						
2026-27						

(C) Utilities + Non Utilities

As On 31st March of Financial year end	No. of Consumers	Connected Load (kW)	Consumption (MU)	Energy Available for Supply	T&D losses(%)	Per Capita Electricity Consumption(kWh)
1	2	3	4	5	6	7
2011-12						
2012-13						
2013-14						
2014-15						
2015-16						
2016-17						
2017-18						
2018-19						
2019-20						
2020-21						
2021-22						
2022-23						
2023-24						
2024-25						
2025-26						
2026-27						

Details Regarding Installed Capacity, No. of Consumers and Connected Load etc.

(A) Installed Capacity (MW) - Utilities

As On 31st March	Hydro	Thermal				Nuclear	Renewable					Grand Total
		Steam	Gas	Diesel	Total (Thermal)		Wind	Solar	Biomass etc	Mini/Micro Hydel	Total (Renewable)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2012												
2013												
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												
2026												
2027												

(B) Installed Capacity (MW) - Non Utilities

As On 31st March	Hydro	Thermal				Nuclear	Renewable					Grand Total
		Steam	Gas	Diesel	Total (Thermal)		Wind	Solar	Biomass etc	Mini/Micro Hydel	Total (Renewable)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2012												
2013												
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												
2026												
2027												

(C) Installed Capacity (MW) - (Utilities + Non Utilities)

As On 31st March	Hydro	Thermal				Nuclear	Renewable					Grand Total
		Steam	Gas	Diesel	Total (Thermal)		Wind	Solar	Biomass etc	Mini/Micro Hydel	Total (Renewable)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
2012												
2013												
2014												
2015												
2016												
2017												
2018												
2019												
2020												
2021												
2022												
2023												
2024												
2025												
2026												
2027												

Annexure-B.20

Installed Capacity (MW) and Generation (MU) from renewable Resources (Injected into the Grid)

1. State/Centre :
2. Month :
3. Year :

Renewable Resources/Organizations	Installed Capacity (MW) as on last date of the month			Generation (MU) during the month : ~~January~~			Cumulative Generation (MU) during the 1st April ~~2015~~ to end of month		
Renewable Energy Resources	Central Sector	State Sector	Private Sector	Central Sector	State Sector	Private Sector	Central Sector	State Sector	Private Sector
1. Wind									
2 a. Solar (1 MW & above)									
2 b. Solar (Less than 1 MW)									
3. Biomass									
4. Bagasse									
5. Small Hydro (1 MW to 25 MW)									
6. Any Other (Please Specify the resources)									
Total									

Annexure- B.29

Generating Station

- Nabinagar NTPC :
  - No telemetry for Bus 11, Unit 2,3 and 4, Sasaram Ckt #1 and its associated Bay status. Voice communication yet to be integrated with Orange exchange.
- Sterlite IPP :
  - No telemetry for 400/220 kV ICT 1 &2 and Vedanta line , No VOIP/Express voice communication. Alternate Data channel yet to be provided.
- Haldia (2 x 300MW) :
  - Bus Voltage, Isolator Status, SOE, LV side data.
- GMR (3 x 350 MW) :
  - Express voice and VOIP integration with ERLDC.
- JITPL (2 x 600MW) :
  - Express voice and VOIP yet to be provided. Alternate Data channel yet to be provided.

Contd…

Generating Station:

- Raghunathpur TPS:
  - Frequent failure of real time data.
- IBEUL (2 x 350 MW) –
  - Unit Side data not available. VOIP/Express Voice. Alternate Channel. Alternate Data channel yet to be provided.
- Farakka NTPC:
  - Unit #5 MW and MVAr data not matching with site data, Unit # 6 LV side not available.
- Sagardighi :
  - Unit 3 LV side (Unit) data not available.
- Patratu and Tenughat :
  - data is highly unstable .
- JSPL(Meeramundali) :
  - Most of the CBs and Isolators status are not available since last 2 years.
- TLDP 3 and 4:
  - No data available at ERLDC.

Sub Station (data not available at ERLDC):

- **NTPC:**
  - Lalmatia (No data since Jan 2016).
- BSPTCL :
  - Sonenagar ,Darbhanga, Valmikinagar and koshi (Connected with Nepal)
- JUSNL :
  - Hatia New 220, Dumka 220.
- OPTCL :
  - Paradeep .
- WBSEDCL :
  - 400 kV Kolaghat – Chaibasa flow not available.
  - Gokarna 400kV (400/220 kV ICT was first charged on 15th Sept'16) , Dharampur 220, Krishnanagar 220, Hura 220, Foundry Park 220.
- DVC:
  - Giridhi 220, Barjora 220,

Sub Station (highly intermittent data):

- POWERGRID :
  - Ranchi, Purnea 400, Baripada, Gaya, Biharshariff, Angul, Muzaffarpur,Lakhisarai.
- WBSETCL:
  - Bantala ,Laxmikantapur ,New Town , Subhasgram.
- BSPHCL :
  - Dumraon, Khagaul ,Darbhanga ,Dehri , sultangaunj , Lakhisarai, Karmanasa, Kahalgaon ,Jamaui ,Banka ,Gopalganj, Kisanganj, Arrah ,Rajgir ,Sipara ,Hajipur (New), Pusauli
- DVC :
  - Parulia , Barhi.

VOIP/Express Voice not available

- GMR
- JITPL
- Sterlite
- IBEUL
- Nabinagar
- Bolangir
- Indravati
- Jeypore
- Kalabadia
- Keonjhar
- Gazuwaka HVDC
- Unit Control of all ISGS and IPP/MPP (except CHEP).

Details of Eastern Region

Annexure- B.29

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 14/10/2016
1	WBSETCL	Haldia (2 x 300)	Jan-15	600	ERLDC is not getting any real time ISOLATOR status ,SOE from HEL except Line, Unit site MW /MVAR. No response.
2		Sagardighi (2 x 300 + 1 x 500)		1100	Unit 3 LV side not available., 400 kV Bus Voltage is erronious. (340kV)
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	Data are highly instable . 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 . LV side data not available.
		Total (Non-telemetered stations)	**5**	**4650**	

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 14/10/2016
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 14/10/2016
1	OPTCL	OPTCL CPP : 220 KV BPSL,CONCAST,BSL,JSL,TSIL,VISSA	220 / 132 kV	Dec-13	CONCAST NO DATA , JSL NO KV/HZ. BSL NO HZ .BPSL NO Bus Kv .
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 14/10/2016
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		Kolaghat	1260	Time Schedule not submitted	Kolaghat Chaibasa (Kharagpur Line 1) line flow and status data not available.
1	JSEB	220 KV Tenughat (2X 210 MW)	420	Time Schedule not submitted	Data highly intermittent due to faulty communication link .
2		220 KV Patratu (4x 50 + 2x100 + 4x110)	840	Time Schedule not submitted	Data highly intermittent due to faulty communication link .
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 5 LV side MW/MVAr is erroneous. Unit-6 LV side MW/MVAR not available.
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.
1	Vedanta	SEL (4 x550 MW)	2200		. As per ERLDC guidelines no express voice /VOIP phones provided .
			5832		

B.2 Sub - Stations

Sl. No.	User Name	Name of sub-Stations	Voltage level	Target date as per User	Remarks by constituentes / ERLDC 14/10/2016
					Data not reporting
1	BSPHCL	Dumraon	132 kV	Oct'16	R & M Work Completed,interfacing pending
2		Khagaul	132 kV	March'17	OPGW awarded by PGCIL
3		Dehri	220 KV	Nov'16	Data stopped due to collapse of tower
4		Sonenagar	220 kV	Oct'16	R & M Work Completed,interfacing pending
5		Sultangaunj	132 kV	Aug'16	RTU installed,end to end testing pending
6		Lakhisarai	132 KV	March'17	OPGW awarded by PGCIL
7		Karmanasa	132 KV	March'18	Under rennovation and modernization .
8		Kahalgaon	132 KV	March'17	OPGW awarded by PGCIL
9		Jamaui	132 KV	March'17	OPGW awarded by PGCIL
10		Banka	220 kv	March'17	OPGW awarded by PGCIL
11		Valmikinagar	132 kV	Aug'16	RTU installed,interfacing completedend to end testing in progress.
12		Koshi	132 kV	Aug'16	RTU installed,interfacing completedend to end testing in progress.
13		Gopalganj	220 kV	March'17	OPGW awarded by PGCIL
14		Kisanganj	132 KV	March'17	OPGW awarded by PGCIL
15		Arrah	132 KV	March'17	OPGW awarded by PGCIL
16		Rajgir	132 KV	March'17	OPGW awarded by PGCIL
17		Sipara	220 KV	March'17	OPGW awarded by PGCIL
18		Hajipur (New)	220 KV	March'17	OPGW awarded by PGCIL
19		Darbhanga	220 kV		RTU commissioned and data stopped reporting since 20-08-16
20		Jagdishpur	132 KV		RTU commissioned and data intermittent
21		Pusauli	220 KV	March'17	OPGW awarded by PGCIL
1	GRIDCO	Paradeep	220		Data not Available
2		Bidanasi	220		Most of the Status and Analog, kV data not available
1	JSEB	Jamtara	132 kV	Nov'16	RTU cards for replacement of faulty cards are not availabale.
2		Deoghar	132 kV	Nov'16	RTU cards for replacement of faulty cards are not availabale.
3		Garwah	132 kV	Nov'16	RTU cards for replacement of faulty cards are not availabale.communication link has been broken due to LILO at japla GSS.
4		Goelkera	132 kV	Nov'16	RTU cards for replacement of faulty cards are not availabale.
5		Jaduguda	132 kV	Nov'16	RTU cards for replacement of faulty cards are not availabale.
6		Kendposi	132 kV	Nov'16	RTU cards for replacement of faulty cards are not availabale.

7		Ramchandrapur	220 KV		Highly Intermittent
2	WBSETCL	Asansol	220		Highly Intermittent
3		Haldia NEW	220		Highly Intermittent
4		bantala	220		Highly Intermittent
5		Laxmikantapur	220		Highly Intermittent
6		New Town	220		Highly Intermittent
7		Subhasgram	220		Highly Intermittent
8		EM Bypass(CESC)	220		Bus Voltage and Frequency Not Available
1	POWERGRID	RANCHI	400		Highly Intermittent
2		Purnea 400	400 kV		RTU is getting Hanged frequently
3		Baripada	400 kV		Highly Intermittent
4		Gaya	765 kV		Highly Intermittent
5		Biharshariff	400 KV		Highly Intermittent
6		Angul	765 KV		Highly Intermittent
7		Muzaffarpur	400 KV		RTU is getting Hanged frequently
1	DVC	TISCO	400 KV		Data highly intermittent. In case of any problem data restoration time is too much high.
2		Parulia	220 kV		Data Not available
3		Raghunathpur	400 kV		Data not stable
1	NTPC	Lalmatia	220 kV	First week of September'16	Data stoppped reporting since Jan 2016

A. Station / Sub station

S. N	S/s Name	Orange Analog Phone: Hot line	OrangeVOIP: Hot line	Main ERLDC Kolkata data Link	Back Up ERLDC Delhi Data Link
1	Angul	Not Available	20330057	Available	Not Available
2	Ara	20330539	20330039	Available	Not Available
3	Baharampur	Not Available	20330031	Available	Not Available
4	Banka CS	Not Available	20330044	Available	Not Available
5	BARH NTPC *	Not Available	20330051	Available	Not Available
6	Biharsarif 400kv	Not Available	20330034	Available	Not Available
7	Birpara	Not Available	20330053	Available	Not Available
8	Bolangir	Not Available	Not Available	Available	Not Available
9	Chaibasa CS	Not Available	20330041	Available	Not Available
10	Chandwa	20330559	20330059	Available	Not Available
11	Dalkhola	20330549	20330049	Available	Not Available
12	Daltonganj	Not Available	20330056	Available	Not Available
13	Durgapur	20330528	20330028	Available	Not Available
14	FSTPP *	Not Available	20330054	Available	Not Available
15	Gangtok	Not Available	20330022	Available	Not Available
16	Gaya	Not Available	20330037	Available	Not Available
17	Indravati	Not Available	Not Available	Available	Not Available
18	Jamshedpur CS	20330533	20330033	Available	Not Available
19	Jeypore	Not Available	Not Available	Available	Not Available
20	Jharsugura	Not Available	20330040	Available	Not Available
21	Jorthang Power House	20330141		Available	Not Available
22	Kalabadia	Not Available	Not Available	Available	Not Available
23	Kahalgaon NTPC *	Not Available	20330043	Available	Not Available
24	Keonjhar	Not Available	Not Available	Available	Not Available
25	Kishanganj	Not Available	20330061	Available	Not Available
26	Lakshisarai	Not Available	20330042	Available	Not Available
27	Maithon	Not Available	20330026	Available	Not Available
28	Malda	20330529	20330029	Available	Not Available
29	MTHRB *	Not Available	20330027	Available	Not Available
30	Mujaferpur	Not Available	20330050	Available	Not Available
31	New Malli	20330140	20330021	Available	Not Available
32	Pandiavali	Not Available	20330067	Available	Not Available
33	Patna	Not Available	20330038	Available	Not Available
34	Purnia 220 KV	20330530	20330030	Available	Not Available
35	Purnia 400 KV	Not Available	20330025	Available	Not Available
36	Ranchi 400 KV	Not Available	20330032	Available	Not Available
37	Ranchi 765 KV	Not Available	20330035	Available	Not Available
38	Rangit	Not Available	20330058	Available	Not Available
39	Rangpo	20330139	20330020	Available	Not Available
40	Rengali	Not Available	20330045	Available	Not Available
41	Rourkela	20330536	20330036	Available	Not Available
42	Sasaram	Not Available	20330046	Available	Not Available
43	Siliguri 220	20330523	20330023	Available	Not Available
44	Siliguri 400/220 (Binaguri)	20330524	20330024	Available	Not Available
45	Subashgram	Not Available	20330015	Available	Not Available
46	Teesta NHPC	Not Available	20330062	Available	Not Available
47	TSTPP, Talcher NTPC *	Not Available	20330052	Available	Not Available
48	GMR *	Not Available	Not Available	ICCP LINK	Not Available
49	JITPL*	Not Available	Not Available	Available	Not Available
50	SEL *	Not Available	Not Available	Available	Not Available
51	Ind Bharat *	Not Available	Not Available	Available	Not Available
52	BRBCL/Nabinagar TPP *	Not Available	Not Available	Not Available	Not Available

Note :* Phone at Unit Control room is yet to provided.

B. SLDC /NLDC to ERLDC protection path not provided.

S.N.	Link	Main ERLDC Delhi		Backup ERLDC Delhi	
		Main Channel	Std By Channel (Route Diversity)	Main Channel	Std By Channel (Route Diversity)
1	OPTCL -ERLDC	Yes	Not Available	Not Available	Not Available
2	BSPTCL -ERLDC	Yes	Not Available	Not Available	Not Available
3	JUSNL -ERLDC	Yes	Not Available	Not Available	Not Available
4	WBSETCL -ERLDC	Yes	Not Available	Not Available	Not Available
5	DVC -ERLDC	Yes	Not Available	Not Available	Not Available
6	Sikkim -ERLDC	Yes	Not Available	Not Available	Not Available
7	NLDC -ERLDC	Yes	Not Available	Yes	Not Available

Annexure- B.31

PMU Installation and commissioning status of ER as on 19.10.2016

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
			83			229	152	26	23	20	20	20	20	11	20	
1	ER-II	West Bengal	Arambagh	WBSETCL	CR	3	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
2	ER-II	West Bengal	BAKRESHWAR TPS	WBSETCL	CR	4	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
3	ER-II	West Bengal	Bidhannagar	WBSETCL	CR	3	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
4	ER-II	West Bengal	JEERAT	WBSETCL	CR	2	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
5	ER-II	West Bengal	Kolaghat TPS	WBSETCL	CR	4	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	**PMU panel couldn't be delivered due to permission issue.**
6	ER-II	West Bengal	KASBA	WBSETCL	CR	3	1	Yes	No	N/A	N/A	N/A	N/A	N/A	N/A	
7	ER-II	DVC	DSTPS	DVC	CR	2	1	Yes	Yes	done	done	done	done	Pending	done	**Communication Link not available.**
8	ER-II	DVC	Kodarma TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	Pending	done	**Communication panel does not exist.**
9	ER-II	DVC	MEJIA-B	DVC	CR	2	1	Yes	Yes	No	No	No	No	No	No	Work not started yet.
10	ER-II	DVC	Maithon RB TPS	DVC	CR	2	1	Yes	Yes	pending	pending	pending	pending	Pending	pending	**Work started on 04.07.2016. Panel shifted. Team demobilised due to access issue and panel location issue.**
11	ER-II	DVC	Raghunathpur TPS	DVC	CR	3	1	Yes	Yes	done	done	done	done	Pending	done	**Communication link not available.**
12	ER-II	DVC	MEJIA	DVC	CR	5	2	Yes	Yes	No	No	No	No	No	No	Work not started yet.
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. Amendment for FO cable is awaiting.**
15	Odisha	Orissa	Budhipadar	OPTCL	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
16	Odisha	Orissa	MENDHASAL	OPTCL	CR	2	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
17	Odisha	Orissa	MERAMANDALI	OPTCL	CR	6	2	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
18	Odisha	Orissa	RENGALI	OPTCL	CR	2	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
19	Odisha	Orissa	U.KOLAB	OPTCL	CR	2	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
20	Odisha	Orissa	BALIMELA(H)	OPTCL	CR	3	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
21	ER-II	West Bengal	Durgapur	Powergrid	CR	5	2	Yes	Yes	done	done	done	done	done	done	**PMU integrated on 30.05.2016.**
22	ER-II	West Bengal	FARRAKA	NTPC	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
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	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
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**
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	No	No	N/A	N/A	N/A	N/A	N/A	N/A	
33	Odisha	Orissa	Bolangir	Powergrid	CR+Kiosk	2	3	Yes	Yes	done	done	done	done	Pending	done	**Communication Link not available.**
34	Odisha	Orissa	ANGUL	Powergrid	Kiosk	10	11	No	No	N/A	N/A	N/A	N/A	N/A	N/A	Road Permit not available.
35	Odisha	Orissa	Keonjhar	Powergrid	CR	2	3	Yes	Yes	done	done	done	done	Pending	done	**Comminication link not available.**
36	Odisha	Orissa	Jharsuguda	Powergrid	Kiosk	8	9	Yes	Yes	done	done	done	done	done	done	**PMU integrated on 29.07.2016**

PMU Installation and commissioning status of ER as on 19.10.2016

37	Odisha	Orissa	GMR	GMR	CR	3	4	No	No	N/A	N/A	N/A	N/A	N/A	N/A	Road Permit not available.
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. Amendment for FO cable is awaiting.**
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	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
42	ER-II	DVC	KALYANESWARI	DVC	CR	4	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
43	ER-II	DVC	PARULIA	DVC	CR	5	2	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
44	ER-II	West Bengal	Bidhannagar 220	WBSETCL		0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
45	ER-II	West Bengal	Purulia PSP	WBSETCL	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
46	ER-II	Jharkhand	Bokaro TPS	DVC	CR	1	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
47	ER-II	West Bengal	Durgapur TPS	DVC	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
48	Odisha	Orissa	TTPS(Talcher)	OPTCL	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
49	Odisha	Orissa	TALCHER	NTPC	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
50	ER-II	Sikkim	TEESTA	Powergrid	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
51	Odisha	Orissa	Uttara	Powergrid	CR	2	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	
52	Odisha	Orissa	Jindal	JITPL	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
53	Odisha	Orissa	Monnet	Monnet	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
54	Odisha	Orissa	Lanco	Lanco	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
55	Odisha	Orissa	Navbharat	Navbharat	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
56	Odisha	Orissa	Strelite	Strelite	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
57	Odisha	Orissa	Ind barath	Ind barath	Kiosk	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
58	ER-II	Sikkim	New Melli	Powergrid	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
59	ER-II	Sikkim	Mangan	Powergrid	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
60	ER-II	Sikkim	TT Pool	Powergrid	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
61	ER-II	West Bengal	Alipurduar	Powergrid	CR	6	7	No	No	N/A	N/A	N/A	N/A	N/A	N/A	
62	ER-II	West Bengal	Rajarhat	Powergrid	CR	2	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
63	ER-I	Jharkhand	JAMSHEDPUR	Powergrid	CR	6	2	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
64	ER-I	BIHAR	Kahalgaon(KHSTPP)	NTPC	CR	6	2	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
65	ER-I	BIHAR	Purnea	Powergrid	CR	6	2	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
66	ER-I	BIHAR	PATNA	Powergrid	Kiosk	6	7	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
67	ER-I	Jharkhand	RANCHI	Powergrid	Kiosk	12	13	No	No	N/A	N/A	N/A	N/A	N/A	N/A	
68	ER-I	BIHAR	SASARAM(Pusauli)	Powergrid	CR+Kiosk	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
69	ER-I	BIHAR	BARH	NTPC	CR	4	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
70	ER-I	BIHAR	LakhiSarai	Powergrid	Kiosk	4	5	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
71	ER-I	BIHAR	BANKA	Powergrid	Kiosk	4	5	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
72	ER-I	Jharkhand	Chaibasa	Powergrid	Kiosk	4	5	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
73	ER-I	BIHAR	765kv Gaya	Powergrid	Kiosk	11	12	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
74	ER-I	Jharkhand	765/400kV Ranchi (N)	Powergrid	Kiosk	8	9	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
75	ER-I	Bihar	Biharshariff	Powergrid	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
76	ER-I	Bihar	MUZAFFAPUR	Powergrid	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
77	ER-I	Jharkhand	Daltonganj	Powergrid	Kiosk	2	3	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
78	ER-I	Bihar	Kishanganj (karandeghi)	Powergrid	CR	4	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
79	ER-I	Jharkhand	Jharkhand Pool (Chandwa)	Powergrid	Kiosk	4	1	No	No	N/A	N/A	N/A	N/A	N/A	N/A	PMU panel dispatched.
80	ER-I	Jharkhand	Patratu	Jharkhand	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
81	ER-I	Jharkhand	Tenughat	Jharkhand	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
82	ER-I	Bihar	Muzaffarpur	Bihar	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.
83	ER-I	Bihar	Barauni PP	Bihar	CR	0	0	No	No	N/A	N/A	N/A	N/A	N/A	N/A	BOQ not finalized.

PMU Installation and commissioning status of ER as on 19.10.2016

ER PMU site activity Summary:

Sl. No.	Region	Utility	As per approved BOQ		Dispatched		Installed		Commissioned		Integrated to ERLDC/ SLDC		Integrated to NTAMC	
			No. of Substations	No. of PMU	S/S	PMU	S/S	PMU	S/S	PMU	S/S	PMU	S/S	PMU
1	ER-I	Powergrid	15	71	11	59	0	0	0	0	0	0	0	0
2	ER-I	NTPC	2	10	2	10	0	0	0	0	0	0	N/A	N/A
3	ER-I	Jharkhand	2	0	0	0	0	0	0	0	0	0	N/A	N/A
4	ER-I	Bihar	2	0	0	0	0	0	0	0	0	0	N/A	N/A
	ER-I	**Total**	**21**	**81**	**13**	**69**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
1	ER-II	Powergrid	14	41	9	35	8	33	8	33	7	29	0	0
2	ER-II	NTPC	1	0	0	0	0	0	0	0	0	0	N/A	N/A
3	ER-II	DVC	13	31	11	31	5	12	5	12	1	2	N/A	N/A
4	ER-II	WBSETCL	8	19	6	19	0	0	0	0	0	0	N/A	N/A
	ER-II	**Total**	**36**	**91**	**26**	**85**	**13**	**45**	**13**	**45**	**8**	**31**	**0**	**0**
1	Odisha	Powergrid	10	38	9	28	7	23	7	23	3	15	0	0
2	Odisha	OPTCL	8	16	6	16	0	0	0	0	0	0	N/A	N/A
3	Odisha	NTPC	1	0	0	0	0	0	0	0	0	0	N/A	N/A
4	Odisha	IPP	7	3	0	0	0	0	0	0	0	0	N/A	N/A
	Odisha	**Total**	**26**	**57**	**15**	**44**	**7**	**23**	**7**	**23**	**3**	**15**	**0**	**0**
	ER	**Total**	**83**	**229**	**54**	**198**	**20**	**68**	**20**	**68**	**11**	**46**	**0**	**0**

Status of PDS system Installation and commissioning at ER as on 19.10.2016

Sl. No.	Site Name	Work Progress
1	ERLDC	Installed, powered up, functioning and integrated with DVC and OPTCL PDS system.
2	Backup-NLDC	POSOCO did not provide space for PDS system installation.
3	SLDC, Maithon	Installed, powered up, functioning and integrated with ERLDC PDS system.
4	SLDC, Bhubaneswar	Installed, powered up, functioning and integrated with ERLDC PDS system.
5	SLDC, Howrah (WBSETCL)	Installed, Powered up and functioning. Communication links for Control centre integration (SLDC Howrah to ERLDC) and for PMU integration are not available.

Annexure – B.32

AVAILABILITY STATUS OF EVENT LOGGER, DISTURBANCE RECORDER & GPS

Sl. NO	Substation	Protection & Control System						Remarks
		Availability			Time Synchronization			
		EL	DR	GPS	Relay	DR	EL	
1	Subhasgram	Yes	Yes	Yes	Yes	Yes	Yes	
2	Maithon	Yes	Yes	Yes	Yes	Yes	Yes	
3	Durgapur	Yes	Yes	Yes	Yes	Yes	Yes	
4	Malda	Yes	Yes	Yes	Yes	Yes	Yes	
5	Dalkhola	Yes	Yes	Yes	Yes	Yes	Yes	
6	Siliguri	Yes	Yes	Yes	Yes	Yes	Yes	
7	Binaguri	Yes	Yes	Yes	Yes	Yes	Yes	
8	Birpara	Yes	Yes	Yes	Yes	Yes	Yes	
9	Gangtok	Yes	Yes	Yes	Yes	Yes	Yes	
10	Baripada	Yes	Yes	Yes	Yes	Yes	Yes	
11	Rengali	Yes	Yes	Yes	Yes	Yes	No	New EL would be implemented in BCU under NTAMC project by March'2015
12	Indravati (PGCIL)	Yes	Yes	Yes	Yes	Yes	No	EL is old one(model-PERM 200), provision for time synchronisation is not available. New EL would be implemented in BCU under NTAMC project by March'2015
13	Jeypore	Yes	Yes	Yes	Yes	Yes	Yes	EL is old and not working satisfactorily. New EL would be implemented in BCU under NTAMC project by March, 2015
14	Talcher	Yes	Yes	Yes	Yes	Yes	Yes	
15	Rourkela	Yes	Yes	Yes	Yes	Yes	Yes	
16	Bolangir	Yes	Yes	Yes	Yes	Yes	Yes	
17	Patna	Yes	Yes	Yes	Yes	Yes	Yes	
18	Ranchi	Yes	Yes	Yes	Yes	Yes	Yes	
19	Muzaffarpur	Yes	Yes	Yes	Yes	Yes	Yes	
20	Jamshedpur	Yes	Yes	Yes	Yes	Yes	Yes	
21	New Purnea	Yes	Yes	Yes	Yes	Yes	Yes	
22	Gaya	Yes	Yes	Yes	Yes	Yes	Yes	
23	Banka	Yes	Yes	Yes	Yes	Yes	Yes	
24	Biharsariif	Yes	Yes	Yes	Yes	Yes	Yes	
25	Barh	Yes	Yes	Yes	Yes	Yes	Yes	
26	Sagardighi	No	Yes	Yes	Yes	Yes	No	EL is under process of restoration with help from OEM, China
27	Kahalgaon	Yes	Yes	Yes	Yes	Yes	Yes	
28	Farakka	Yes	Yes	No	No	No	No	Time synchronization available for Farakka-Kahalgaon line-III & IV. The same will be implemented in rest of the lines by December, 2014.
29	Meramundali	Defunct	Yes	Yes	Yes	Yes	Yes	
30	Tisco	Yes	Yes	Yes	Yes	Yes	Yes	
31	Bidhannagar	No	Yes	Yes	No	No	No	Using DR & EL available in Numerical

								relays. GPS will be put in service by January, 2015.
32	Indravati (OHPC)	Yes	Faulty	No	No	No	No	Time synchronization will be done by Feb, 2015. ICT-I feeders using DR & EL available in Numerical relays. 400 kV ICT-II feeder is being maintained by PGCIL, Mukhiguda.Status may confirm from PGCIL
33	Kharagpur	No	Yes	Yes	No	No	No	Using DR & EL available in Numerical relays.
34	DSTPS	Yes	Yes	Yes	Yes	Yes	Yes	
35	Sterlite	Yes	Yes	Yes	Yes	Yes	Yes	
36	Mejia 'B'	Yes	Yes	Yes	Yes	Yes	Yes	
37	Mendhasal	Defunct	Yes	Yes	Yes	Yes	No	EL will be restored by March, 2015.
38	Arambagh	No	Yes	Yes	No	No	No	Using DR & EL available in Numerical relays
39	Jeerat	No	Yes	No	No	No	No	Using DR & EL available in Numerical relays. Procurement of new GPS is in progress.
40	Bakreswar	Yes	Yes	Yes	Yes	Yes	Yes	
41	GMR	Yes	Yes	Yes	Yes	Yes	Yes	
42	Maithon RB	Yes	Yes	Yes	Yes	Yes	Yes	
43	Raghunathpur	Yes	Yes	Yes	Yes	Yes	Yes	
44	Kolaghat	Yes	Yes	Yes	Yes	Yes	Yes	
45	Teesta V	Yes	Yes	Yes	Yes	Yes	Yes	
46	Koderma	Yes	Yes	Yes	Yes	Yes	Yes	
47	Sasaram	Yes	Yes	Yes	Yes	Yes	Yes	
48	Rangpo	Yes	Yes	Yes	Yes	Yes	Yes	
49	Adhunik	Yes	Yes	Yes	Yes	Yes	Yes	
50	JITPL	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***	
51	765kV Angul	Yes	Yes	Yes	Yes	Yes	Yes	
52	Chuzachen	Yes	Yes	Yes	No	Yes	Yes	
53	New Ranchi 765kV	Yes	Yes	Yes	Yes	Yes	Yes	
54	Lakhisarai	Yes	Yes	Yes	Yes	Yes	Yes	
55	Chaibasa							
56	765kV Jharsuguda	Yes	Yes	Yes	Yes	Yes	Yes	All are in working condition. However a dedicated DR for 765KV Lines; make TESLA is not working. M/s Siemens has assured to commission the same by 31.01.15
57	Beharampur	Yes	Yes	Yes	Yes	Yes	Yes	
58	Keonjhar	Yes	Yes	Yes	Yes	Yes	Yes	

Eastern Regional Power Committee

The status of ERS towers in Eastern Region as submitted during ERS meeting held on 10.11.14 taken by Member (Power System), CEA is given below:

1) As per 100th OCC meeting held on 22.08.2014, the status of ERS towers as available in Powergrid is as given below:

Sl. No.	Name of S/S	No. of ERS towers available	ERS towers in use
1	Durgapur, ER-II	1 Set (8 towers)	
2	Rourkela, ER-II	3 towers incomplete shape	
3	ER-I (located at Jamshedpur)	15 towers (10 nos Tension tower and 5 nos suspension tower)	

2) As informed by OPTCL, the present status of ERS towers in OPTCL system is as follows:

- 220 kV ERS towers: 42 nos located at Mancheswar, Chatrapur & Budhipadar
- 400 kV ERS towers: 2 nos located at Mancheswar.
- 12 nos. of new 400 kV ERS towers have been approved by Board of Director for procurement in the current financial year. Purchase order has been placed.
- Another, 16 nos of 400 kV towers accompanied with 6 sets of T&P are required.

3) WBSETCL informed that they have placed order for 2 sets of ERS towers on 31.10.2014 and expected by June, 2015.

4) The 25th ERPC meeting held on 21.09.2014, the board concurred to the proposal of procurement of four sets of ERS and it was also informed that, the proposed four sets of ERS will be kept at Sikkim, Siliguri, Ranchi and Gaya and will be used by all constituents of ER during emergencies.

   Powergrid informed that four sets of ERS for Eastern Region will be procured.

5) Bihar informed that they have 10 sets of 220 kV ERS towers and 2 sets are under process of procurements.

6) DVC informed that they are in process of procuring two (2) sets of 400 kV ERS towers.

स्वच्छ भारत
एक कदम स्वच्छता की ओर

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

पूर्वी क्षेत्र –I मुख्यालयः अलंकार प्लेस (द्वितीय, पाँचवा व छठा तल), बोरिंग रोड, पटना–800 001, दूरभाषः 0612–2531071, 2533140 फैक्स : 0612–2538984
Eastern Region-I HQ : Alankar Place (2nd, 5th & 6th Floor), Boring Road, Patna-800 001, Tel. : 0612-2531071, 2533140 Fax : 0612-2538984

Ref. : ER-I/PAT/AM/301

Date: 25.11.2016

To,

Member Secretary
ERPC,
14th Golf Club Road,Tollygunj,
Kolkata-33

Subject : Action plan/progress for restoration of 400 kV D/C Patna-Kishanganj transmission line.

Dear Sir,

Kindly refer to the discussion in 34TCC/ERPC meeting held on 18-19th NOV-2016 at Kolkata, wherein POWERGRID has been advised to submit the **Action plan/progress report for restoration of 400 kV D/C Patna-Kishanganj transmission line** . In this regards kindly find enclosed herewith detailed report on Action taken for restoration of 400 kV D/C Patna-Kishanganj transmission line

This is for your kind information and reference please

Thanking You,

25/11/16

(S. K Singh)
DGM (AM)

Action plan/Progress for Restoration of 400 KV D/C Kishanganj – Patna Transmission Line

A: BACKGROUND:

1. During this year monsoon season, unprecedented flood was observed. As a result some towers of 400 KV D/C Kishanganj - Patna transmission line including foundation got collapsed in Kankai & Ganga river crossing sections whose details are given below:-

   a. **Kankai River:-** On dated 26.07.16,one no. tower at location no. 14/0(DD+18-open cast foundation) got collapsed due to unprecedented flash flood . The foundation of this location has also got damaged due to erosion & change of coarse of river.

   b. **Ganga River:-** On dated 01.09.16,due to unprecedented flood in Ganga river two nos. towers at location no. 128F/0 & 128G/0 both DD+25 on pile foundation got completely collapsed. Two adjacent towers(128E/O –DD+25 on pile foundation & 129/0 – DD+9 on pile foundation) also got severally damaged due to cascading effect. Details of damages are given below:-

Loc No.	Type of Tower	Extent of Damage	Remarks
Kankai River:-			
14/0	DD+18 (Open cast fdn)	1. Tower fully collapsed.	
		2. Foundation completely damaged due to erosion for the change of river course	
Ganga River:-			
128F/0	DD+25 (Pile fdn.)	1. Tower fully collapsed.	
		2. Pedestals of all 04 legs completely damaged	
128G/0	DD+25 (Pile fdn.)	1. Tower fully collapsed.	
		2. Pile, pile cap and pedestals of leg B & C completely washed out.	
		3.Pedestals of leg A & D completely damaged	
129/0	DD+09 (Pile fdn.)	1. Tower structure from cross arm level completely damaged. However foundation is intact	
128E/0	DD+25 (Pile fdn.)	1. Tower structure from cross arm level completely damaged. However foundation is intact	

B : RELEVANT FACTS & DETAILS:

1. Assessment of the damage of river crossing locations :

   Kankai River:- Due to unprecedented flash flood in Kankai river, one no. Tower at location no.51(DD+18) of 400 kV Patna – Kishanganj D/C Line near village Simalbari, Dist. – Purnea, Bihar had collapsed on 26.07.2016 at about 12.00 hrs. The site of collapsed tower location is fully submerged with water and it was very difficult to reach at the affected site. During collapse of the tower the line was under S/D condition for AMP work. After getting information from local villagers, maintenance team

immediately rushed site and arranged one boat for reaching site and detailed information sent to regional office. For restoration of the said line expert ERS crews visited site and submitted their report wherein they have informed that installations of ERS may not be feasible for such river crossing locations. Accordingly, an award was placed to M/s Ramachandra Rao, Hyderabad for normal restoration of the said line through open cast foundation. In the mean time constituted expert committee consisting members from POWERGRID, Corporate Centre, Region and CEA, Delhi visited the affected site on 29.09.16 after reseeding of flood water and suggested normalization of the line through pile foundation for loc. 14/0. Immediately an award has been placed for Soil investigation including collection of River data for development of design by CC, Engg. Placement of Award for pile foundation is in progress and likely to be placed on 10.12.2016.

Ganga River:- Due to unprecedented flood, Turbulence & Scouring effect, two nos. towers at location no. 128F/0 & 128G/0 both DD+25 on pile foundation got completely collapsed. Two adjacent towers(128E/O –DD+25 on pile foundation & 129/0 – DD+9 on pile foundation) also got severally damaged due to cascading effect on 01.09.16. The line was charged from Patna end as a antitheft measure. After tripping of said line on phase to phase fault, maintenance team immediate rushed site for patrolling. They hired motor operated boat but due to heavy current & raised level of Ganga water it was not possible to reach upto affected location and could see the collapse of tower through binocular from far away. Further, help was sought from IWAI and they provided a ship from Patna & the site was visited on 03.09.2016 by regional as well as site representatives and preliminary extent of damage was reported. However due to inundation of water the detailed extent of damage couldn't be ascertained. Site has regularly kept watch for receding of water at site.

As soon as the site was approachable a team of CC,Engg., RHQ Engg. , AM & Site visited the affected location to ascertain the actual damage of the collapsed towers on 28.10.16, and suggested new pile foundation for location no. 128G/0. Further constituted committee consisting of the members from Corporate Engg, AM, RHQ & CEA visited site on 09.11.16. Placement of Award for pile foundation is in progress and likely to be placed on 10.12.2016.

C. **RESORATION PLAN:-**

Kankai River:-

a. Pile foundation at location no. 14/0 in place of open cast foundation – Award for pile foundation is likely to be placed by 10.12.2016 and work shall be completed by – **March'17**

b. Tower erection & stringing: one full tower for new 14/0 & rectification/replacement of cross arm at loc. No. 13/0 and stringing approx. 1 K.M - Award is likely to be placed by last week of December with completion schedule by - **March'17.**

c. The entire work shall be completed by- April'17

Ganga River:-

a. Pile Foundation at new location against location no. 128G/0 and Rectification of Pile chimney at loc. No. 128F/O - Award is likely to be placed by 10.12.2016 and work shall be completed by – **April/May'17**

b. Tower erection: two full tower (loc nos. 128F/O & 128G/O) - May/June'17

c. Part dismantling & its erection of loc no. 129/0 & 128E/O. – May'17

d. Stringing from loc no. 129A/0 to 128D/0 approx. 2.4 K.M. – June'17

e. The entire work shall be completed by- June'17

F: **PROPOSAL** :

In view of the above, the said outage period maybe treated as force majeure condition i.e beyond the control of POWERGRID and the outage shall be excluded for the purpose of availability.

Put up for kind perusal of Member Secretary/ERPC and constituents of ER.

ENICL Purnia-Biharsharif 400KV D/C Line, Force Majeure Incident Report

| Date-02/12/16 |

#Tripping Report

ENICL: **Biharsharif-Purnia Ckt-I & Ckt-II** Tripped on 23-Aug-2016 at 06:51 as per the information received from ERLDC.

Immediately we collected the tripping detail from the respective substation Biharsharif S/S & Purnia S/S.

For Ckt-I

Description	**Biharsharif Substation**	**Purnia Substation**
Fault Current	5.1KA	2.8KA
Faulty Phase	R-Phase to Y-Phase	R-Phase to Y-Phase
Fault Location	71.8Kms, 72.8Kms	136.2Kms, 138Kms

For Ckt-II

Description	**Biharsharif Substation**	**Purnia Substation**
Fault Current	4.76KA	2.65KA
Faulty Phase	Y-phase to Ground	Y-phase to Ground
Fault Location	73Kms	137Kms

Due to unprecedented flash flood in Ganga river, one tower at location 47/1 situated in the main stream of the river (at the Ganga river crossing near Begusarai) has apparently uprooted collapsed and washed away. Adjacent three towers (47/2,47/0 and 46/9) are severely damaged on 23/08/16 at 06:51 hrs.

News report(BBC) & Water level report(CWC) enclosed.

The area was unapproachable as it was completely submerged into water and flow of the water was very high. The site of collapsed tower is fully submerged with water and very difficult to reach at the affected area. The entire area was inundated with water. The flood situation in that area was worsen due to incessant rain in Nepal.

In the view of the above the said outage period may be treated as force majeure condition that is beyond the control of ENICL and outage shall be excluded for availability up-to June,2017

The restoration of the said line has already been started after water receded from the approach location. The detail action plan for the restoration of the PB line is as follows.

#Date wise Action Plan for the Restoration of Line

Sl. No.	Activity	Start Date	Req. Days	End date
1	**De-stringing of 47/2 to 48/0**			
a	Mobilisation of T&P and Backstay, Rough sag arrangement	15-Oct-16	7	22-Oct-16
b	De-Clipping of all phase from 47/5	22-Oct-16	3	25-Oct-16
c	De-Clipping of all phase from 47/4	25-Oct-16	3	28-Oct-16
d	Shifting of T&P	28-Oct-16	2	30-Oct-16
e	De-Clipping of all phase from 47/3	30-Oct-16	3	02-Nov-16
f	Releasing of conductor & rough sag 47/3- 48/0	02-Nov-16	15	17-Nov-16
g	Removing of conductor and hardware from 47/2 and shifting to Begusarai store	17-Nov-16	7	24-Nov-16
2	**Releasing tension from AP 46/0**	24-Nov-16	5	29-Nov-16
3	**Dismantling of towers at 47/0, 46/9 & 46/8**			
a	Dismantling of 46/9 cage portion of BasicBody (bend leg-bottom cross arm)	29-Nov-16	30	29-Dec-16
b	Dismantling of 47/0 cage portion of BasicBody (bend leg-bottom cross arm)	29-Dec-16	10	08-Jan-17
4	**Shifting of tower materials to 46/9**	08-Jan-17	5	13-Jan-17
5	**Checking of 46/9 and 47/0 prior to start of erection work**	13-Jan-17	1	14-Jan-17
6	**Tower Erection 46/9**	14-Jan-17	7	21-Jan-17
7	**Shifting of tower materials to 47/0**	21-Jan-17	3	24-Jan-17
8	**Tower Erection 47/0**	24-Jan-17	12	05-Feb-17
9	**Stringing (Final Sag, cliiping, spacering) 46/0 to 46/9 to 47/0**			
a	Shifting of conductor and hardware fittings 46/9	05-Feb-17	2	07-Feb-17

b	Stringing (RoughSag) 46/9 to 47/0	07-Feb-17	4	11-Feb-17
c	Stringing (FinalSag, clipping, spacering) 46/0 to 46/9	11-Feb-17	12	23-Feb-17
10	**Pile works 47/1**			
	Fabrication work on the Barges at Howrah	01-Dec-16	40	10-Jan-17
11	**Fixing of Cranes , Winches, TMR etc on Barges**	10-Jan-17	10	20-Jan-17
	Movement of Barges from Howrah to the Site	20-Jan-17	15	04-Feb-17
	Anchoring the Barges	04-Feb-17	3	07-Feb-17
12	**Pile Foundation work**			
	Driving the Liners	07-Feb-17	25	04-Mar-17
	Fixing the Reinforcement	12-Feb-17	30	14-Mar-17
	Concrete Casting	15-Feb-17	40	27-Mar-17
	Concreting of Tie beam	28-Mar-17	19	15-Apr-17
	Curing period to end on			24-Apr-17
13	**Erection of 47/1(including 4 days curing period)**	24-Apr-17	24	18-May-17
14	**Shifting of conductor and hardware fittings 47/1**	18-May-17	6	24-May-17
15	**Stringing 47/0 to 48/0 (Final Sag, clipping, spacering)**	24-May-17	15	08-Jun-17
16	**Final Checking, Line Continuity Testing, and Charging**	08-Jun-17	2	10-Jun-17

#Status till date

1. River survey & soil investigation completed
2. De-stringing from 46/0 to 46/9 & 47/2 to 48/0 completed
3. De-Erection of damaged tower members of 46/9 and 47/0 is in progress
4. Piling-barges and Cranes-barges are under fabrication/modification at Howrah for installing Cranes, Vibro-hammer, Winches and TMRs

#Challenges for execution of the work

- The area has poor Law & Order situation hence severe Rows are occurring at work location, delaying our work progress.
- Due to chances of theft by local mafias not all material can be procured & stored at Site in a single lot.

Fig-1: De-stringing work of damaged tower

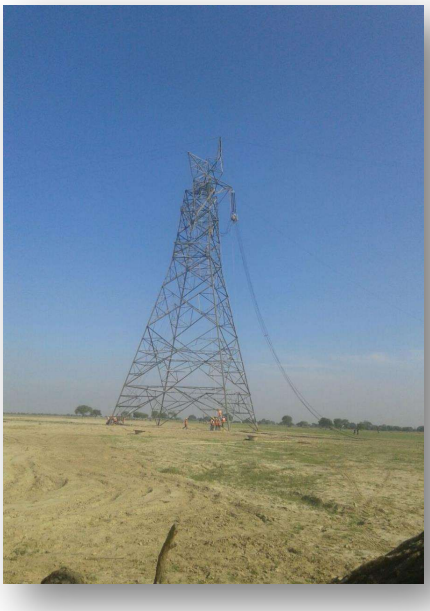

Fig-2: De-stringing work completed, De-erection under progress

Encl: Annexure-1 (News report, BBC)

Annexure-2(Water level report,CWC)

India Ganges floods 'break previous records'

By Navin Singh Khadka
Environment reporter, BBC World Service

30 August 2016 | India

AP

The monsoon floods in India's Ganges river this year have broken previous records, officials have told the BBC.

They said water levels reached unprecedented levels at four locations in northern India.

The highest record was in Patna, the state capital of Bihar where flood waters reached 50.52m (166ft) on 26 August, up from 50.27m in 1994.

Floods across India this year have killed more than 150 people and displaced thousands.

'Unprecedented'

"We have also recorded unprecedented flood levels at Hathidah and Bhagalpur of Bihar state and Balliya of Uttar Pradesh," chief of India's Central Water Commission GS Jha said.

"In all these four places, the floods crossed the previous highest flood level and they all were unprecedented."

Bihar is one of the worst flood-hit states in India with at least 150 deaths and nearly half a million people evacuated.

Neighbouring Uttar Pradesh has also been severely affected by floods in the Ganges.


AP


AP

The third largest river in the world flows through these north Indian states meeting its tributaries

before emptying into the Bay of Bengal.

The Indian Meteorological Department, however, has recorded deficient rainfall in these states past week and average rains since the monsoon started in June.

Breaking embankments

Some experts have blamed the silt the river carries for the floods. The Ganges is one of the highest sediment load carrying rivers.

The silt deposition is said to have raised the river's bed-level causing it to break embankments and flood the adjoining human settlements and farmlands.

Is India facing its worst-ever water crisis?

Officials in Bihar have demanded that an **artificial barrier in neighbouring West Bengal** state bordering Bangladesh be dismantled to solve the silt problem.

They argue that the deposition of silt has obstructed several passages through the Farakka barrage.

As a result, they say, the Ganges' water flows back to Bihar and causes floods.

Silt deposition has also significantly raised the water level of Kosi river, one of the major tributaries of the Ganges.

AP

"The silt has so much accumulated in the river that we fear it might cause the water to damage the Kosi barrage and embankments," said Dev Narayan Yadav, a river expert pointing at the barrage built in the early 1960s.

"The silt has raised the river level higher to our villages' grounds, so you can imagine what risks we face."

Chronic problem

The BBC saw silt piling up and threatening to block many of the gates of the barrage on Kosi river, which is built and operated by India in Nepalese territory.

Some geologists say increased incidents of landslides in the Himalayan region have resulted in increased silt in the rivers flowing down to meet the Ganges.

"Since these are alluvial rivers carrying sediment loads, if we can control the silt then we will be able to manage the floods that have become chronic problems in the Ganges basin," said Mr Jha.

AFP

The Wadia Institute of Himalayan Geology in Uttarakhand state has also identified silting as the major flooding problem.

"Therefore de-silting of the rivers is the need of the hour and it needs to be done scientifically, from the middle of the rivers," said Professor Anil Kumar Gupta who heads the institute helping the government in geological issues.

Sand mining

Following uncontrolled sand mining from rivers across India for commercial purposes, India's Supreme Court in 2014 ordered a ban on extraction without a licence.

"Such sand mining was mainly done at riversides disturbing the flow of the rivers, therefore the silt will now have to be removed from the middle of the rivers."

India's central water resource authorities, however, believe construction of dams will deal with the problem effectively.

"Non-structural measures like moving people to safe areas have not been effective enough," says Mr Jha.

"The dams we plan to build will store flood waters to prevent flooding and they will also have the technology to take care of the silt."

He said the Central Water Commission aimed to build three major dams - two in upstream Nepal and one in Arunachal Pradesh.

"They have been planned for quite sometime and we are certain that we will be able to build them and solve the chronic problem of floods."

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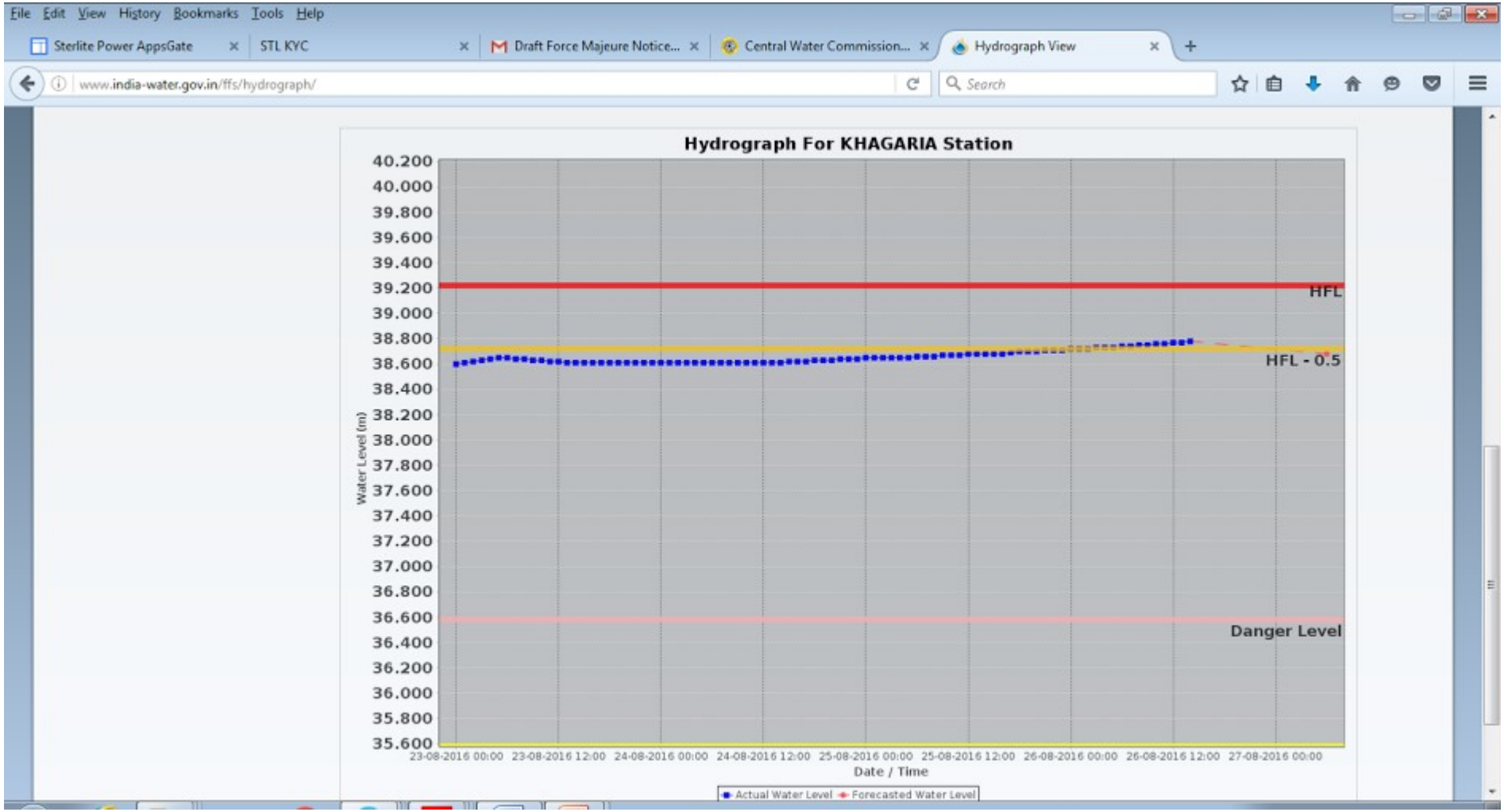
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Sterlite Power AppsGate
STL KYC
Draft Force Majeure Notice...
Central Water Commission...
Hydrograph View
www.india-water.gov.in/ffs/hydrograph/
Search
Hydrograph For KHAGARIA Station
Water Level (m)
40.200
40.000
39.800
39.600
39.400
39.200
39.000
38.800
38.600
38.400
38.200
38.000
37.800
37.600
37.400
37.200
37.000
36.800
36.600
36.400
36.200
36.000
35.800
35.600
HFL
HFL - 0.5
Danger Level
23-08-2016 00:00
23-08-2016 12:00
24-08-2016 00:00
24-08-2016 12:00
25-08-2016 00:00
25-08-2016 12:00
26-08-2016 00:00
26-08-2016 12:00
27-08-2016 00:00
Date / Time
Actual Water Level
Forecasted Water Level

Annexure- C.1

Maintenance Schedule of Thermal Generating Units of ER for January-2017

System	Station	Unit	Size (MW)	period		No. of Days	Reason
				From	To		
DVC	MTPS	7	500	22.01.17	06.02.17	16	Burner Replacement
WBPDCL**	KTPS	2	210	15.01.17	21.01.17	7	Boiler License
CESC	BUDGE-BUDGE	3	250	15.01.17	29.01.17	15	Annual Overhauling
	TITAGARH	2	60	11.01.17	14.01.17	4	Hydraulic Test
DPL	DPPS	8	250	10.01.17	09.02.17	31	Boiler Overhauling

स्वच्छ भारत
एक कदम स्वच्छता की ओर

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

क्षेत्रीय मुख्यालय : विद्युत् बोर्ड कॉलोनी, शास्त्री नगर, पटना- 800023 (बिहार), दूरभाष : 0612-2288041
Regional Office : Vidyut Board Colony, Shastri Nagar, Patna - 800023 (Bihar),Tel. : 0612-2288041

Ref. No.: ER-I/PAT/AM/TL **Date : 14.12.2016**

To,
Member Secretary,
Eastern Regional Power Committee,
14, Golf Club Road, Tollygunj, Kolkata-700033

Sub: Agenda points for 128th OCC meeting scheduled to be held on 23.12.2016 at ERPC, Kolkata.

Dear Sir,

We propose the following agenda points for discussion and clearance in the forthcoming 128th OCC meeting scheduled to be held on 23.12.2016 at ERPC, Kolkata:

1. Installation of polymer insulators in transmission line: As per discussion in 30th ERPC meeting held on 20th June, 2015 at Shimla, due to number of trippings in 400kV Barh-Patna and 400 kV Patna-Balia D/C lines due to flashover across Porcelain/antifog disc type insulators due to environmental pollution, it has been planned for replacement of flashover insulators with polymer insulator & washing of insulators also. It is requested to kindly accord S/D of lines as per attached Anx-I and the outage for replacement and insulator washing period may be considered under force majeure condition for calculation of availability.
2. Tripping of various line in dense fog due to environmental pollution: Tripping and insulator de-capping of various lines as 400kV D/C Barh-Patna 1&2, 400kV Biharsharif-Varanasi D/C, 400kV Biharsharif- Balia D/C, 400kV Biharsharif- Koderma D/C, 400kV Lakhisrai- Biharshaif D/C, 400kV D/C Patna-Balia 1&2 etc. occurred, in dense fog condition due to environmental pollution. These trippings / de-capping occurred due to environmental pollutions and dense fog which was beyond the control of POWERGRID. Hence the outage for tripping and restoration of these lines may be considered under force majeure condition for calculation of availability.

Kind attention of ERPC and constituents of ER are invited towards approval of the above proposals.

Thanking you.

Yours faithfully,

(S K Singh)
DGM (AM)
POWERGRID,ER-I

ANX-1

POWER GRID CORPORATION OF INDIA LIMITED
EASTERN REGION–I, HEAD QUARTER, PATNA

SHUT DOWN REQUIREMENT FOR REPLACEMENT OF PORCELAIN INSULATOR WITH POLYMER INSULATOR

1	400 kV PATNA - BARH - III	09.01.16	08:00	12.01.17	17:00	ODB	POWERGRID / PATNA	FOR REPLACEMENT OF PORCELAIN INSULATOR WITH POLYMER INSULATOR
2	400 kV PATNA - BARH - IV	15.01.16	08:00	20.01.17	17:00	ODB	POWERGRID / PATNA	FOR REPLACEMENT OF PORCELAIN INSULATOR WITH POLYMER INSULATOR
3	400 kV PATNA - BALIA - III	22.01.16	08:00	30.01.17	17:00	ODB	POWERGRID / PATNA	FOR REPLACEMENT OF PORCELAIN INSULATOR WITH POLYMER INSULATOR
4	400 kV PATNA - BALIA - IV	02.02.16	08:00	10.02.17	17:00	ODB	POWERGRID / PATNA	FOR REPLACEMENT OF PORCELAIN INSULATOR WITH POLYMER INSULATOR

Annexure-C.2

Anticipated Power Supply Position for the month of
Jan-17

SL.NO		PARTICULARS	PEAK DEMAND MW	ENERGY MU
1		**BIHAR**		
	i)	NET MAX DEMAND	3900	2344
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	446	359
		- Central Sector	2320	1599
	iii)	SURPLUS(+)/DEFICIT(-)	-1135	-385
2		**JHARKHAND**		
	i)	NET MAX DEMAND	1250	800
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	433	358
		- Central Sector	490	304
	iii)	SURPLUS(+)/DEFICIT(-)	-327	-137
3		**DVC**		
	i)	NET MAX DEMAND (OWN)	2839	1760
	ii)	NET POWER AVAILABILITY- Own Source	4701	2588
		- Central Sector	436	291
		Long term Bi-lateral (Export)	1300	967
	iii)	SURPLUS(+)/DEFICIT(-)	998	152
4		**ORISSA**		
	i)	NET MAX DEMAND	4000	2418
	ii)	NET POWER AVAILABILITY- Own Source	3104	1755
		- Central Sector	1063	697
	iii)	SURPLUS(+)/DEFICIT(-)	167	34
5		**WEST BENGAL**		
5.1		**WBSEDCL**		
	i)	NET MAX DEMAND (OWN)	5009	2986
	ii)	CESC's DRAWAL	0	0
	iii)	TOTAL WBSEDCL's DEMAND	5009	2986
	iv)	NET POWER AVAILABILITY- Own Source	3828	2401
		- Import from DPL	90	-17
		- Central Sector	1516	918
	v)	SURPLUS(+)/DEFICIT(-)	424	316
	vi)	EXPORT (TO B'DESH & SIKKIM)	5	4
5.2		**DPL**		
	i)	NET MAX DEMAND	290	208
	ii)	NET POWER AVAILABILITY	380	191
	iii)	SURPLUS(+)/DEFICIT(-)	90	-17
5.3		**CESC**		
	i)	NET MAX DEMAND	1440	655
	ii)	NET POWER AVAILABILITY - OWN SOURCE	570	328
		FROM HEL	546	286
		FROM CPL/PCBL	0	0
		Import Requirement	324	41
	iii)	TOTAL AVAILABILITY	1440	655
	iv)	SURPLUS(+)/DEFICIT(-)	0	0
6		**WEST BENGAL (WBSEDCL+DPL+CESC)** **(excluding DVC's supply to WBSEDCL's command area)**		
	i)	NET MAX DEMAND	6739	3849
	ii)	NET POWER AVAILABILITY- Own Source	4778	2920
		- Central Sector+Others	2386	1204
	iii)	SURPLUS(+)/DEFICIT(-)	424	275
7		**SIKKIM**		
	i)	NET MAX DEMAND	90	38
	ii)	NET POWER AVAILABILITY- Own Source	3	2
		- Central Sector+Others	105	60
	iii)	SURPLUS(+)/DEFICIT(-)	18	24
8		**EASTERN REGION** **At 1.03 AS DIVERSITY FACTOR**		
	i)	**NET MAX DEMAND**	18270	11209
		Long term Bi-lateral by DVC	1300	967
		EXPORT BY WBSEDCL	5	4
	ii)	**NET TOTAL POWER AVAILABILITY OF ER** **(INCLUDING C/S ALLOCATION)**	20264	12138
	iii)	**PEAK SURPLUS(+)/DEFICIT(-) OF ER** **(ii)-(i)**	689	-42