Minutes

of

128th OCC Meeting

Date: 04.01.2017

Eastern Regional Power Committee

14, Golf Club Road, Tollygunge

Kolkata: 700 033

Eastern Regional Power Committee

Minutes of 128th OCC Meeting held on 23rd December, 2016 at ERPC, Kolkata

List of participants is enclosed at **Annexure-A.**

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.

Deliberation in the meeting

Members confirmed the minutes of 127th PCC meeting.

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.

Deliberation in the meeting

OPTCL updated the following:

220kV Bidanasi-Cuttak line charged on 29th November 2016.

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.	10.05.15	10.05.17	162.5 Cr.	***19.53 Cr***	*Total contract awarded for Rs. 47.653 Cr* *Erection work for received equipment is in progress.*
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 4 nos OHPC substations.*					*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.

Deliberation in the meeting

OPTCL updated that total contract of 47.653 cr awarded for renovation of protection system.

It was informed that techno economic sub-group has asked some observations on OHPC proposal.

OHPC informed that they will comply the observations.

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.

Deliberation in the meeting

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

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

OCC advised to submit the data as per the format available in ERPC website.

House was informed that Software Acceptance Trails of Protection Database are started from 22-12-2016.

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.

Deliberation in the meeting

House was informed that LGBR meeting is scheduled to be held on 30.12.16.

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.

Deliberation in the meeting

After detailed discussion, OCC decided that ISTS power flowing through STU lines greater than 50% of the total power as per the WebNet software of the validated data for each quarter will be considered as ISTS line.

Members provisionally agreed to the above decision. OCC advised Member Secretary to have interaction with other RPCs to get acquainted with their decisions in this regard.

OCC advised all the state constituents to submit their comments if any, to ERPC and ERLDC. It was also pointed out that for final decision on the same needs to taken by CERC and for this constituents are to file petition before CERC.

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.

Deliberation in the meeting

OCC felt that inter-state lines should be utilized to improve the reliability of the system and advised WBSETCL and JUSNL to charge 132KV Kolaghat(DVC) - Kolaghat(WBSETCL) and 132kV Patratu(DVC) - Patratu(JSEB) lines on continuous basis.

WBSETCL informed that 132kV Kolaghat(DVC) - Kolaghat(WBSETCL) line is being utilized during contingencies in radial mode and informed that ICT at Kolaghat may overload if the line charged in synchronous mode.

OCC advised to conduct a simulation study to verify the constraint before charging the line in synchronous mode.

WBSETCL agreed.

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.

Deliberation in the meeting

GRIDCO informed that their updated data was not reflected in the base case.

ERLDC informed that they have communicated the updated data to Validation committee.

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.

Deliberation in the meeting

OCC advised all the constituents 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.

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.

Deliberation in the meeting

ERLDC informed that NTPC units are following the schedule.

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 may update the UFR feeders list.

BSPTCL may update.

Deliberation in the meeting

OCC advised BSPTCL to update the UFR list.

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.

Deliberation in the meeting

Healthiness certificate received from GMR.

OCC advised JITPL, Powergrid-Odisha & Powergrid ER-II to submit the healthiness certificate.

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

B12.1. 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.

Deliberation in the meeting

Members noted.

B12.2. 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.

Deliberation in the meeting

House was informed that NTPC vide mail dated 23.12.16 informed:

QUOTE:

"……the system is ready at Farakka end, except hooking of command to C&I control panels. We have planned to do the same during forthcoming unit overhauls of stage-1 units, to avoid any trip of running unit while working on this . The schedule of overhauls is as follows:

1. Unit-1 Overhaul in March 2017 during lean water period.

2. Unit 3 overhaul in July-2017.

3. Unit 2 overhaul is planned in 18-19. Therefore we have planned to hook up this during lean water season in March April 2017 or any suitable outage.

UNQUOTE

ERPC vide return mail following was placed before NTPC with a request to clarify their position:

QUOTE:

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.

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.

In 128 th OCC you are requested to clarify your position, with your interfacing plan details, in respect of mismatch of information shared by NTPC in OCC meetings till date and information now being shared in your mail.

UNQUOTE

In the meeting it was informed that progress of the islanding scheme is being monitored at Ministry level and ERPC Secretariat has already communicated the completion schedule as December, 2016.

OCC took serious note of extending the completion schedule of the islanding scheme in the last moment.

OCC felt that NTPC is not serious about implementation of the islanding scheme advised NTPC to submit their complete action plan to ERPC and ERLDC.

Subsequently NTPC submitted that

QUOTE

Regarding Farakka Islanding scheme, Cabling work has been done up to unit control room but final hooking with C&I system is pending. After evaluating every aspect , NTPC Farakka is of the view that the connection to C&I system is to be done during unit overhaul only so that proper checking of control system response can be done by simulation. Due to this, there has been a revision of the plan at our end. Our overhauling plan as of now, has been informed through our earlier mail yesterday. We shall hook units one by one during these overhauls.

UNQUOTE

OCC advised NTPC to explore final hooking up with C& I system at an opportune S/D time of the unit.

B12.3. 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.

Deliberation in the meeting

It was informed that the PSDF Appraisal committee has accepted the proposal and forwarded to CERC.

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.

Deliberation in the meeting

WBPDCL informed that PLCC system will be installed by end of December, 2016.

OPTCL informed that PLCC panels will be installed by 2nd week of January 2017.

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.

Deliberation in the meeting

IBEUL informed that the line will be commissioned by January 2017.

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 Trench, Earthing Completed	31-Dec-16	CR Panel errection, cabling & termination to be done, 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.

Deliberation in the meeting

Vedanta updated the latest status as enclosed at Annexure-B.14.2.

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.

Deliberation in the meeting

Powergrid informed that bus splitting scheme has been implemented for Bus-II of 400kV Biharsharff S/s and Bus-I will be completed by 2nd week of January 2017.

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.

Deliberation in the meeting

NTPC informed that site levelling of 400kV side has been completed and 132kV side would complete by 31st March, 2017.

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.

Deliberation in the meeting

WBSEDCL informed that work is in progress. PGCIL informed that requisite amount will be deposited shortly.

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)	***March, 2017***

OPTCL may update.

Deliberation in the meeting

OPTCL updated the status as mentioned in above table.

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	January, 2017
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.

Deliberation in the meeting

JUSNL updated the status as mentioned in above table.

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***)	**April, 2017**
2.	**2x500MVA, 400/220kV Rajarhat**	
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.

Deliberation in the meeting

WBSETCL updated the status as mentioned in above table.

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.

Members may comply.

Deliberation in the meeting

OCC advised all the constituents to comply the pending observations at the earliest.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

DVC informed that the UFR relays at 220/132/33 KV Ramgarh S/s will be replaced by January, 2017.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

OCC advised all the SLDCs to submit the data to CEA as per the format.

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.

Deliberation in the meeting

OCC advised concerned State Utilities /Generating companies to submit the data of their respective control areas.

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.

Deliberation in the meeting

ERLDC informed that they are receiving the requisite data from Odisha and NTPC Talcher stations.

OCC advised all the other SLDCs to submit the data to ERLDC.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

OCC advised Bihar to submit the restoration procedure at the earliest.

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.

Deliberation in the meeting

WBSETCL is uploading the ATC/TCC figures in their website.

OCC advised DVC, JUSNL and Odisha to upload ATC/TTC figures along with the constraint details in their website. ATC/TTC figures of DVC, JUSNL and Odisha are enclosed at Annexure-B.25.

OCC advised Bihar to compute ATC/TTC figures and submit to ERPC and ERLDC at the earliest.

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.

Deliberation in the meeting

ERLDC explained the scheme.

OCC decided to implement the revised scheme and advised Powergid to modify the scheme in coordination with CTU.

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.

Members may update.

Deliberation in the meeting

OCC advised all the constituents to comply.

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.

Deliberation in the meeting

Powergrid informed that the line reactor will be commissioned by January, 2017.

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.

Deliberation in the meeting

OPTCL informed that the line will be restored by January, 2017.

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.

Deliberation in the meeting

BSPTCL informed that the line is in service from 5th December, 2016.

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

Powergrid may update.

Deliberation in the meeting

Powergrid informed that line will be restored by July, 2017.

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.

Deliberation in the meeting

ENICL informed that line will be restored by June, 2017.

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.

Deliberation in the meeting

NTPC informed that the bay will be in service by 2nd week of January, 2017.

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.

Deliberation in the meeting

Powergrid informed that the reactor will be charged by 2nd week of January, 2017.

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.

Deliberation in the meeting

OPTCL informed that the CB is yet to be transported to the site from Mendhasal.

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.

Deliberation in the meeting

DVC informed that the line restoration will take another 1 month.

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.

Deliberation in the meeting

OPTCL informed that the ICT will be in service by February 2017.

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.

Deliberation in the meeting

OPTCL informed that the conductor replacement work will be completed by January 2017. OPTCL added that type of conductor is ACSR Zebra.

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.

Deliberation in the meeting

*ERLDC updated the latest status. The updated status is enclosed at **Annexure- B.29**.*

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

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

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

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.

Deliberation in the meeting

OCC advised all the constituents to update the latest status.

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.

Deliberation in the meeting

OCC advised all the constituents to 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		Binaguri end AR is healthy. Tala end AR is disabled.
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	PLCC available	Yes
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	PLCC available	will be activated in consultation with Korba
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	PLCC defective	
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	OPGW available	Expected to install protection coupler by Jan 17
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	OPGW not commissioned	
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	OPGW not commissioned	
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.

Deliberation in the meeting

Powergrid and OPTCL updated the status as mentioned in above table.

OCC advised all the respective members to update the above list along with the last tripping 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	Work is in progress
2	220 kV Jeerat	Not available	20-Dec-12	Work is in progress
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.

Deliberation in the meeting

OCC advised all the respective members to update the latest status.

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.

Deliberation in the meeting

Powergrid updated the latest status as follows:

	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	17	17	13	11
BSPTCL	59	52	40	29	4	3
WBSETCL	73	68	43	4	3	1
OPTCL	164	102	100	90	79	1
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

Powergrid informed that most of scheduled measurements till fourth set has not been completed yet, it is requested to complete the measurements and submit the results at the earliest.

Powergrid added that they prepared an online format to submit the details of measurements. Powergrid requested to fill the Google form(https://goo.gl/6375HJ) for onward submission of measurements for better analysis of results.

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

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	January 2017
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	February 2017
8	Chuzachen	Last Week of May 2016	***Mid Jan, 2017 (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.

Deliberation in the meeting

Members updated status as mentioned in the above table.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

ERLDC explained the major modifications incorporated in the procedure.

OCC advised all the constituents to submit their comments to ERLDC by 26th December 2016. Restoration procedure will be finalised on 31st December 2016.

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.

Deliberation in the meeting

ERLDC informed that FRC response received from DVC.

ERLDC presented the FRC response of the generators. Generators response is enclosed at ***Annexure-B39****.*

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

ERLDC presented the performance of the generators. Members noted.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

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

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.

Deliberation in the meeting

It was informed that new meters have been installed. SCADA data will also make available to ERLDC by 26th December 2016.

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.

Deliberation in the meeting

Approved maintenance programme of generators and transmission elements for the month of January, 2017 is at **Annexure-C.1**.

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.

Deliberation in the meeting

Modified anticipated power supply position for the month of January, 2017 after incorporating constituents' observations is given at **Annexure-C.2.**

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

Members noted.

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.

Deliberation in the meeting

Members noted.

Item no. D.4: Any other issues.

1. Power line Crossing for l32KV D/C RCP - JDG Tr. Line Over DVC's 220 KV JSR - JODA S/C line (Line no. 215).—Powergrid

Powergrid vide letter dated 22nd December 2016 informed that l32kV D/C Ramchandrapur - Jadugora line is Over Crossing DVC's 220 KV JSR - JODA S/C line. Joint inspection has been done but DVC not yet given the clearance stating inadequate electrical clearance. DVC is asking for approval from CEA. Details are enclosed at **Annexure-D4**.

Deliberation in the meeting

Powergrid explained that adequate electrical clearance has been kept in provision following the Clause no. 69 of CEA Measures relating to Safety & Electric Supply. Therefore, separate approval is not required from CEA.

OCC felt that separate approval is not required if CEA regulations were already being followed and advised DVC to look into the issue.

DVC representative agreed to resolve the issue.

Meeting ended with vote of thanks to chair.

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Annexure-A

Participants in 128th OCC Meeting of ERPC

Venue: ERPC Conference Room, Kolkata   Time: 11:00 hrs   Date: 23.12.2016 (Friday)

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Participants in 128th OCC Meeting of ERPC

Venue: ERPC Conference Room, Kolkata Time: 11:00 hrs Date: 23.12.2016 (Friday)

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Participants in 128th OCC Meeting of ERPC

Venue: ERPC Conference Room, Kolkata Time: 11:00 hrs Date: 23.12.2016 (Friday)

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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									

EXPORT TTC/ATC (Off peak)

Export TTC Without Contingency(Off peak)

```
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  13:14
 ALL INDIA PEAK MAR 2015                                        AREA TOTALS
 25 NOVEMBER 2014                                                IN MW/MVAR
                FROM ------AT AREA BUSES-------             TO                              -NET INTERCHANGE-
               GENE- FROM IND   TO IND       TO   TO BUS  GNE BUS  TO LINE     FROM     TO     TO TIE  TO TIES  DESIRED
 X-- AREA --X  RATION GENERATN   MOTORS     LOAD    SHUNT  DEVICES    SHUNT CHARGING   LOSSES    LINES  + LOADS  NET INT

 2004          3185.7      0.0      0.0   2356.5      0.0      0.0      0.0      0.0     91.1    738.0    738.0      0.0
 ODISHA        -989.7      0.0      0.0    208.5      0.0      0.0    205.4   2038.0    649.9    -15.6    -15.6

 COLUMN        3185.7      0.0      0.0   2356.5      0.0      0.0      0.0      0.0     91.1    738.0    738.0      0.0
 TOTALS        -989.7      0.0      0.0    208.5      0.0      0.0    205.4   2038.0    649.9    -15.6    -15.6

--------------------------------------------------------------------------------

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  13:15
 ALL INDIA PEAK MAR 2015
 25 NOVEMBER 2014
                    OUTPUT FOR AREA 2004 [ODISHA      ]
 SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
 LOADINGS ABOVE  80.0 % OF RATING SET B (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

 X--------- FROM BUS ----------X X---------- TO BUS ----------X
   BUS# X-- NAME --X BASKV  AREA   BUS# X-- NAME --X BASKV  AREA CKT LOADING  RATING PERCENT
 251019 CHANDKA1    132.00  2004 251057 RSINPUR1    132.00* 2004  1     73.1    84.0    87.0

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Tie Line Flow (Off peak)

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  13:15
 ALL INDIA PEAK MAR 2015                                    AREA TIE LINE
 25 NOVEMBER 2014                                             INTERCHANGE

 FROM AREA 2004   ODISHA

   TO AREA 2002   JHARKHAND
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252008 JODA2       220.00*  222002 JAMSDPRB    220.00   1      54.2    -37.7
   TOTAL FROM AREA 2004 TO AREA 2002                                          54.2     -37.7

   TO AREA 2003   DVC
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252029 JINDAL      220.00*  242002 JMSDPRD2    220.00   1     164.0    -11.4
   TOTAL FROM AREA 2004 TO AREA 2003                                         164.0     -11.4

   TO AREA 2054   ER_ISTS_ODIS
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   251048 RRNGPUR     132.00   251068 BARIPDA1    132.00*  1     -31.1      1.2
   251049 BARIPDA     132.00   251068 BARIPDA1    132.00*  1      -0.0      0.6
   252002 JEYNGAR2    220.00   252041 JEYPUR2     220.00*  1     143.8    -60.8
   252002 JEYNGAR2    220.00   252041 JEYPUR2     220.00*  2     143.8    -60.8
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  1       6.2    -38.8
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  2       6.2    -38.8
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  1      16.4     76.1
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  2      16.4     76.1
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   1     -45.9     -2.9
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   2     -45.9     -2.9
   252027  KATPLI2    220.00   252045 BOLANGIR    220.00*  1      21.0     14.6
   252037 BOLNGR      220.00*  252045 BOLANGIR    220.00   1     -40.8      6.3
   254001 INDVTGR4    400.00   254011 INDRAVATI4  400.00*  1     170.1     94.7
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  1    -174.0    -17.4
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  2    -219.6    -27.2
   254003 N DUBRI_4   400.00*  254012 BARIPADA4   400.00   1     253.0    -43.1
   254003 N DUBRI_4   400.00*  254028 PANDIABILI 4400.00   1     178.7   -194.8
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  1     -29.3     99.9
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  2     -29.3     99.9
   TOTAL FROM AREA 2004 TO AREA 2054                                         339.9     -18.2

   TO AREA 2103   TALCHER
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252006 TTPS2       220.00   252039 TSTPP2      220.00*  1     -62.8     -9.2
   252018 RENGLPS     220.00   252039 TSTPP2      220.00*  1      77.1    -43.6
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  1     -58.0      5.1
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  2     -58.0      5.1
   254002 MERAMUNDLI4 400.00   254008 TSTPP4      400.00*  1     248.0     60.3
   TOTAL FROM AREA 2004 TO AREA 2103                                         146.2      17.7

   TO AREA 3015   CHATTISGARH
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  1      -8.2     18.7
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  2      -8.2     18.7
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   252016 BUDIPATR2   220.00   352016 RAIGR2      220.00*  1      50.0     -3.5
   TOTAL FROM AREA 2004 TO AREA 3015                                          33.7      33.9
                                                                            --------  --------
 TOTAL FROM AREA 2004   ODISHA                                               738.0     -15.6
```

Reliability Margin: 2% of Load assumed =47MW.

ATC=738MW – 47MW = 691MW

Assuming counter flow of 300MW on account of surrendering of LTA (ISGS)

ATC (Off peak)=691MW+300MW=991MW

Export TTC With Contingency (Off peak) (One 220kV Jaynagar-Jeypore(PG) line outage)

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  13:27
 ALL INDIA PEAK MAR 2015                                        AREA TOTALS
 25 NOVEMBER 2014                                                IN MW/MVAR
                 FROM ------AT AREA BUSES-------              TO                              -NET INTERCHANGE-
                GENE- FROM IND   TO IND       TO   TO BUS  GNE BUS  TO LINE     FROM     TO     TO TIE  TO TIES  DESIRED
 X-- AREA --X  RATION GENERATN   MOTORS     LOAD    SHUNT  DEVICES    SHUNT CHARGING   LOSSES    LINES  + LOADS  NET INT

 2004          3029.7      0.0      0.0   2356.9      0.0      0.0      0.0      0.0     89.4    583.4    583.4      0.0
 ODISHA        -967.2      0.0      0.0    208.5      0.0      0.0    206.0   2042.7    640.6     20.4     20.4

 COLUMN        3029.7      0.0      0.0   2356.9      0.0      0.0      0.0      0.0     89.4    583.4    583.4      0.0
 TOTALS        -967.2      0.0      0.0    208.5      0.0      0.0    206.0   2042.7    640.6     20.4     20.4

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  13:27
 ALL INDIA PEAK MAR 2015
 25 NOVEMBER 2014
                       OUTPUT FOR AREA 2004 [ODISHA      ]
 SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
 LOADINGS ABOVE  80.0 % OF RATING SET B (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

 X--------- FROM BUS ----------X X---------- TO BUS -----------X
   BUS# X-- NAME --X BASKV  AREA   BUS# X-- NAME --X BASKV  AREA CKT LOADING  RATING PERCENT
 251019 CHANDKA1    132.00  2004 251057 RSINPUR1    132.00* 2004  1     72.9    84.0    86.8
 252002 JEYNGAR2    220.00* 2004 252041 JEYPUR2     220.00  2054  1    191.1   208.0    91.9

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Tie Line Flow (Off peak)

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  13:27
 ALL INDIA PEAK MAR 2015                                      AREA TIE LINE
 25 NOVEMBER 2014                                               INTERCHANGE

 FROM AREA 2004   ODISHA

   TO AREA 2002   JHARKHAND
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252008 JODA2       220.00*  222002 JAMSDPRB    220.00   1      51.0    -37.5
   TOTAL FROM AREA 2004 TO AREA 2002                                          51.0     -37.5

   TO AREA 2003   DVC
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252029 JINDAL      220.00*  242002 JMSDPRD2    220.00   1     159.9    -11.3
   TOTAL FROM AREA 2004 TO AREA 2003                                         159.9     -11.3

   TO AREA 2054   ER_ISTS_ODIS
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   251048 RRNGPUR     132.00   251068 BARIPDA1    132.00*  1     -31.1      1.2
   251049 BARIPDA     132.00   251068 BARIPDA1    132.00*  1      -0.0      0.6
   252002 JEYNGAR2    220.00   252041 JEYPUR2     220.00*  1     182.8    -88.4
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  1       3.0    -38.5
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  2       3.0    -38.5
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  1      17.1     75.6
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  2      17.1     75.6
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   1     -47.1     -2.6
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   2     -47.1     -2.6
   252027  KATPLI2    220.00   252045 BOLANGIR    220.00*  1      31.5     11.8
   252037 BOLNGR      220.00*  252045 BOLANGIR    220.00   1     -30.4      3.6
```

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   254001 INDVTGR4    400.00   254011 INDRAVATI4  400.00*  1     157.1     93.9
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  1    -179.1    -17.3
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  2    -226.1    -27.0
   254003 N DUBRI_4   400.00*  254012 BARIPADA4   400.00   1     245.7    -43.6
   254003 N DUBRI_4   400.00*  254028 PANDIABILI 4400.00   1     183.8   -196.5
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  1     -37.7    101.9
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  2     -37.7    101.9
   TOTAL FROM AREA 2004 TO AREA 2054                                      205.0      11.0

   TO AREA 2103   TALCHER
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252006 TTPS2       220.00   252039 TSTPP2      220.00*  1     -63.0     -8.4
   252018 RENGLPS     220.00   252039 TSTPP2      220.00*  1      76.2    -45.0
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  1     -59.1      6.0
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  2     -59.1      6.0
   254002 MERAMUNDLI4 400.00   254008 TSTPP4      400.00*  1     253.3     63.0
   TOTAL FROM AREA 2004 TO AREA 2103                                      148.3      21.6

   TO AREA 3015   CHATTISGARH
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  1     -12.6     19.5
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  2     -12.6     19.5
   252016 BUDIPATR2   220.00   352016 RAIGR2      220.00*  1      44.3     -2.3
   TOTAL FROM AREA 2004 TO AREA 3015                                       19.1      36.7
                                                                        --------  --------
 TOTAL FROM AREA 2004   ODISHA                                           583.4      20.4
```

Reliability Margin: 2% of Load assumed =47MW.

ATC=583MW – 47MW = 536MW
Assuming counter flow of 300MW on account of surrendering of LTA (ISGS)
ATC (Off peak) =536MW+300MW=836MW

Export TTC With Contingency (Off peak)(Both 220kV Jaynagar-Jeypore(PG) line outage)

```
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  13:35
 ALL INDIA PEAK MAR 2015                                      AREA TOTALS
 25 NOVEMBER 2014                                              IN MW/MVAR
                 FROM ------AT AREA BUSES-------              TO                              -NET INTERCHANGE-
                GENE- FROM IND   TO IND       TO   TO BUS  GNE BUS  TO LINE     FROM     TO     TO TIE  TO TIES  DESIRED
 X-- AREA --X  RATION GENERATN   MOTORS     LOAD    SHUNT  DEVICES    SHUNT CHARGING   LOSSES    LINES  + LOADS  NET INT

 2004          3185.7      0.0      0.0   2356.5      0.0      0.0      0.0      0.0    101.0    728.3    728.3      0.0
 ODISHA        -847.8      0.0      0.0    208.5      0.0      0.0    204.6   2026.7    713.0     52.7     52.7

 COLUMN        3185.7      0.0      0.0   2356.5      0.0      0.0      0.0      0.0    101.0    728.3    728.3      0.0
 TOTALS        -847.8      0.0      0.0    208.5      0.0      0.0    204.6   2026.7    713.0     52.7     52.7

--------------------------------------------------------------------------------

PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  13:35
 ALL INDIA PEAK MAR 2015
 25 NOVEMBER 2014
                      OUTPUT FOR AREA 2004 [ODISHA      ]
 SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
 LOADINGS ABOVE  80.0 % OF RATING SET B (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

 X--------- FROM BUS ----------X X---------- TO BUS -----------X
   BUS# X-- NAME --X BASKV  AREA   BUS# X-- NAME --X BASKV  AREA CKT LOADING  RATING PERCENT
 251019 CHANDKA1    132.00  2004 251057 RSINPUR1    132.00* 2004  1     73.5    84.0    87.5

--------------------------------------------------------------------------------
```

Tie Line Flow (Off peak)

```
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  13:36
 ALL INDIA PEAK MAR 2015                                    AREA TIE LINE
 25 NOVEMBER 2014                                             INTERCHANGE

 FROM AREA 2004   ODISHA

   TO AREA 2002   JHARKHAND
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252008 JODA2       220.00*  222002 JAMSDPRB    220.00   1      55.3    -37.9
   TOTAL FROM AREA 2004 TO AREA 2002                                       55.3     -37.9

   TO AREA 2003   DVC
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252029 JINDAL      220.00*  242002 JMSDPRD2    220.00   1     164.6    -11.4
   TOTAL FROM AREA 2004 TO AREA 2003                                      164.6     -11.4

   TO AREA 2054   ER_ISTS_ODIS
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
```

```
    BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
  251048 RRNGPUR     132.00   251068 BARIPDA1    132.00*  1     -31.1      1.2
  251049 BARIPDA     132.00   251068 BARIPDA1    132.00*  1      -0.0      0.6
  252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  1       1.8    -37.9
  252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  2       1.8    -37.9
  252010 RENGALI2    220.00   252040 RENGLI P    220.00*  1      21.1     75.3
  252010 RENGALI2    220.00   252040 RENGLI P    220.00*  2      21.1     75.3
  252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   1     -45.6     -3.0
  252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   2     -45.6     -3.0
  252027  KATPLI2    220.00   252045 BOLANGIR    220.00*  1      30.8      9.7
  252037 BOLNGR      220.00*  252045 BOLANGIR    220.00   1     -31.1      1.5
  254001 INDVTGR4    400.00   254011 INDRAVATI4  400.00*  1     368.2     59.1
  254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  1    -155.8    -19.9
  254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  2    -196.6    -30.2
  254003 N DUBRI_4   400.00*  254012 BARIPADA4   400.00   1     254.7    -43.0
  254003 N DUBRI_4   400.00*  254028 PANDIABILI 4400.00   1     162.2   -190.7
  254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  1     -13.9     94.8
  254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  2     -13.9     94.8
  TOTAL FROM AREA 2004 TO AREA 2054                                      328.2      46.6

  TO AREA 2103   TALCHER
  X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
    BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
  252006 TTPS2       220.00   252039 TSTPP2      220.00*  1     -58.1    -10.2
  252018 RENGLPS     220.00   252039 TSTPP2      220.00*  1      74.6    -41.9
  252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  1     -52.8      3.9
  252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  2     -52.8      3.9
  254002 MERAMUNDLI4 400.00   254008 TSTPP4      400.00*  1     246.2     63.5
  TOTAL FROM AREA 2004 TO AREA 2103                                      157.1      19.2

  TO AREA 3015   CHATTISGARH
  X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
    BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
  252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  1     -11.1     19.3
  252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  2     -11.1     19.3
  252016 BUDIPATR2   220.00   352016 RAIGR2      220.00*  1      45.3     -2.4
  TOTAL FROM AREA 2004 TO AREA 3015                                       23.1      36.3
                                                                       --------  --------
TOTAL FROM AREA 2004   ODISHA                                           728.3      52.7
```

Reliability Margin: 2% of Load assumed =47MW.

ATC=728MW – 47MW = 681MW

Assuming counter flow of 300MW on account of surrendering of LTA (ISGS)
ATC=681MW+300MW=981MW

IMPORT TCC/ATC (Evening peak)

Import TTC Without Contingency (Evening peak)

```
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  12:01
 ALL INDIA PEAK MAR 2015                                        AREA TOTALS
 25 NOVEMBER 2014                                                IN MW/MVAR
                FROM ------AT AREA BUSES-------              TO                              -NET INTERCHANGE-
               GENE- FROM IND   TO IND       TO   TO BUS  GNE BUS  TO LINE     FROM     TO     TO TIE  TO TIES  DESIRED
 X-- AREA --X  RATION GENERATN   MOTORS     LOAD    SHUNT  DEVICES    SHUNT CHARGING   LOSSES    LINES  + LOADS  NET INT

 2004          2285.4      0.0      0.0   3655.0      0.0      0.0      0.0      0.0    125.2  -1494.8  -1494.8      0.0
 ODISHA        -516.4      0.0      0.0    319.9      0.0      0.0    191.1   1955.3    964.4    -36.5    -36.5

 COLUMN        2285.4      0.0      0.0   3655.0      0.0      0.0      0.0      0.0    125.2  -1494.8  -1494.8      0.0
 TOTALS        -516.4      0.0      0.0    319.9      0.0      0.0    191.1   1955.3    964.4    -36.5    -36.5
--------------------------------------------------------------------------------
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  11:57
 ALL INDIA PEAK MAR 2015
 25 NOVEMBER 2014
                      OUTPUT FOR AREA 2004 [ODISHA      ]
 SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
 LOADINGS ABOVE  80.0 % OF RATING SET B (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

 X--------- FROM BUS ----------X X---------- TO BUS ----------X
   BUS# X-- NAME --X BASKV  AREA   BUS# X-- NAME --X BASKV  AREA CKT LOADING  RATING PERCENT
 251012 HIRAKUD1    132.00  2004 251040 SMBLPUR     132.00* 2004  1     68.6    84.0    81.7
 251019 CHANDKA1    132.00  2004 251030 BHBNSWR     132.00* 2004  1     81.5    84.0    97.1
 251019 CHANDKA1    132.00  2004 251057 RSINPUR1    132.00* 2004  1    132.8    84.0   158.0
 251020 CHNDK(T)    132.00  2004 251033 BBSRTB       132.00* 2004  1     67.7    84.0    80.6
 251020 CHNDK(T)    132.00* 2004 251034 BIDANASI     132.00  2004  1     67.7    84.0    80.6
 251032 CUTTACK1    132.00* 2004 251033 BBSRTB       132.00  2004  1     67.8    84.0    80.8
 252005 BHNGAR2     220.00  2004 252022 MERAMUNDLI2 220.00* 2004  1    173.2   208.0    83.2
 252005 BHNGAR2     220.00  2004 252022 MERAMUNDLI2 220.00* 2004  2    173.2   208.0    83.2

--------------------------------------------------------------------------------
```

Tie Line Flow(Evening peak)

```
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  11:58
 ALL INDIA PEAK MAR 2015                                    AREA TIE LINE
 25 NOVEMBER 2014                                             INTERCHANGE

 FROM AREA 2004   ODISHA

   TO AREA 2002   JHARKHAND
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252008 JODA2       220.00*  222002 JAMSDPRB    220.00   1     -13.7    -29.9
   TOTAL FROM AREA 2004 TO AREA 2002                                        -13.7     -29.9

   TO AREA 2003   DVC
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252029 JINDAL      220.00*  242002 JMSDPRD2    220.00   1      91.1    -12.2
   TOTAL FROM AREA 2004 TO AREA 2003                                         91.1     -12.2

   TO AREA 2054   ER_ISTS_ODIS
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   251048 RRNGPUR     132.00   251068 BARIPDA1    132.00*  1     -51.3     -2.4
   251049 BARIPDA     132.00   251068 BARIPDA1    132.00*  1      -0.0      0.6
   252002 JEYNGAR2    220.00   252041 JEYPUR2     220.00*  1     -86.1      5.4
   252002 JEYNGAR2    220.00   252041 JEYPUR2     220.00*  2     -86.1      5.4
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  1     -99.7    -35.4
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  2     -99.7    -35.4
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  1     -47.0     58.8
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  2     -47.0     58.8
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   1    -102.0    -14.5
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   2    -102.0    -14.5
   252027  KATPLI2    220.00   252045 BOLANGIR    220.00*  1      56.3      9.0
   252037 BOLNGR      220.00*  252045 BOLANGIR    220.00   1     -44.8     -8.6
   254001 INDVTGR4    400.00   254011 INDRAVATI4  400.00*  1      60.6    126.4
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  1    -349.7    -37.7
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  2    -441.4    -53.4
   254003 N DUBRI_4   400.00*  254012 BARIPADA4   400.00   1     144.8    -63.3
   254003 N DUBRI_4   400.00*  254028 PANDIABILI 4400.00   1     254.9   -144.9
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  1    -156.0     58.3
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  2    -156.0     58.3
   TOTAL FROM AREA 2004 TO AREA 2054                                      -1352.0     -29.0

   TO AREA 2103   TALCHER
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252006 TTPS2       220.00   252039 TSTPP2      220.00*  1     -84.4     -1.0
   252018 RENGLPS     220.00   252039 TSTPP2      220.00*  1      -1.3    -60.5
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  1     -75.3     -0.6
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  2     -75.3     -0.6
   254002 MERAMUNDLI4 400.00   254008 TSTPP4      400.00*  1     259.2     31.3
   TOTAL FROM AREA 2004 TO AREA 2103                                         22.9     -31.3

   TO AREA 3015   CHATTISGARH
```

```
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  1     -89.7     26.4
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  2     -89.7     26.4
   252016 BUDIPATR2   220.00   352016 RAIGR2      220.00*  1     -63.9     13.1
   TOTAL FROM AREA 2004 TO AREA 3015                                      -243.2      65.9
                                                                         --------  --------
 TOTAL FROM AREA 2004   ODISHA                                           -1494.8     -36.5

--------------------------------------------------------------------------------
```

Reliability Margin: 2% of Load assumed =73MW.

ATC=1495MW – 73MW = 1422MW
Considering import LTA (ISGS) of 1100MW
ATC (Evening peak)=1422MW-1100MW=322MW

Import TTC With Contingency (Evening peak) (One 220kV Meramundali-Bhanjanagar outage)

```
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  12:30
 ALL INDIA PEAK MAR 2015                                        AREA TOTALS
 25 NOVEMBER 2014                                                IN MW/MVAR
               FROM ------AT AREA BUSES-------             TO                        -NET INTERCHANGE-
              GENE- FROM IND   TO IND       TO   TO BUS  GNE BUS  TO LINE     FROM     TO     TO TIE  TO TIES  DESIRED
 X-- AREA --X  RATION GENERATN   MOTORS     LOAD    SHUNT  DEVICES    SHUNT CHARGING   LOSSES    LINES  + LOADS  NET INT

 2004          2572.4      0.0      0.0   3654.7      0.0      0.0      0.0      0.0    124.2  -1206.5  -1206.5      0.0
 ODISHA        -615.8      0.0      0.0    319.9      0.0      0.0    189.7   1915.9    950.4   -159.9   -159.9

 COLUMN        2572.4      0.0      0.0   3654.7      0.0      0.0      0.0      0.0    124.2  -1206.5  -1206.5      0.0
 TOTALS        -615.8      0.0      0.0    319.9      0.0      0.0    189.7   1915.9    950.4   -159.9   -159.9

--------------------------------------------------------------------------------


PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  12:30
 ALL INDIA PEAK MAR 2015
 25 NOVEMBER 2014
                      OUTPUT FOR AREA 2004 [ODISHA      ]
 SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
 LOADINGS ABOVE  80.0 % OF RATING SET B (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

 X--------- FROM BUS ----------X X---------- TO BUS ----------X
   BUS# X-- NAME --X BASKV  AREA   BUS# X-- NAME --X BASKV  AREA CKT LOADING  RATING PERCENT
 251001 THRUVLI1    132.00  2004 251064 VEDANTA     132.00* 2004  1     67.9    84.0    80.8
 251012 HIRAKUD1    132.00  2004 251040 SMBLPUR     132.00* 2004  1     68.6    84.0    81.7
 251019 CHANDKA1    132.00  2004 251030 BHBNSWR     132.00* 2004  1     82.2    84.0    97.9
 251019 CHANDKA1    132.00  2004 251057 RSINPUR1    132.00* 2004  1    133.9    84.0   159.5
 251020 CHNDK(T)    132.00  2004 251033 BBSRTB       132.00* 2004  1     67.8    84.0    80.7
 251020 CHNDK(T)    132.00* 2004 251034 BIDANASI     132.00  2004  1     67.7    84.0    80.6
 251032 CUTTACK1    132.00* 2004 251033 BBSRTB       132.00  2004  1     67.9    84.0    80.8
 251044 KESINGA     132.00* 2004 251064 VEDANTA     132.00  2004  1     68.1    84.0    81.1
 252005 BHNGAR2     220.00  2004 252022 MERAMUNDLI2 220.00* 2004  1    206.8   208.0    99.4

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```

Tie Line Flow(Evening peak)

```
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  12:30
 ALL INDIA PEAK MAR 2015                                      AREA TIE LINE
 25 NOVEMBER 2014                                               INTERCHANGE

 FROM AREA 2004   ODISHA

   TO AREA 2002   JHARKHAND
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252008 JODA2       220.00*  222002 JAMSDPRB    220.00   1      -4.0    -31.6
   TOTAL FROM AREA 2004 TO AREA 2002                                      -4.0     -31.6

   TO AREA 2003   DVC
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252029 JINDAL      220.00*  242002 JMSDPRD2    220.00   1     101.1    -13.0
   TOTAL FROM AREA 2004 TO AREA 2003                                     101.1     -13.0

   TO AREA 2054   ER_ISTS_ODIS
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   251048 RRNGPUR     132.00   251068 BARIPDA1    132.00*  1    -51.3     -2.4
   251049 BARIPDA     132.00   251068 BARIPDA1    132.00*  1     -0.0      0.6
   252002 JEYNGAR2    220.00   252041 JEYPUR2     220.00*  1     20.7    -55.5
   252002 JEYNGAR2    220.00   252041 JEYPUR2     220.00*  2     20.7    -55.5
```

```
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  1     -93.0    -36.0
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  2     -93.0    -36.0
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  1     -40.5     57.5
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  2     -40.5     57.5
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   1     -99.5    -15.3
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   2     -99.5    -15.3
   252027  KATPLI2    220.00   252045 BOLANGIR    220.00*  1      35.7     14.5
   252037 BOLNGR      220.00*  252045 BOLANGIR    220.00   1     -65.0     -3.2
   254001 INDVTGR4    400.00   254011 INDRAVATI4  400.00*  1      69.4    128.9
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  1    -346.7    -37.6
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  2    -437.6    -53.2
   254003 N DUBRI_4   400.00*  254012 BARIPADA4   400.00   1     157.2    -63.9
   254003 N DUBRI_4   400.00*  254028 PANDIABILI 4400.00   1     263.8   -139.4
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  1    -157.8     54.0
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  2    -157.8     54.0
   TOTAL FROM AREA 2004 TO AREA 2054                                      -1114.8    -146.1

   TO AREA 2103   TALCHER
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252006 TTPS2       220.00   252039 TSTPP2      220.00*  1     -76.3     -2.4
   252018 RENGLPS     220.00   252039 TSTPP2      220.00*  1      -3.8    -59.9
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  1     -63.9     -2.4
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  2     -63.9     -2.4
   254002 MERAMUNDLI4 400.00   254008 TSTPP4      400.00*  1     232.7     34.2
   TOTAL FROM AREA 2004 TO AREA 2103                                        24.9     -33.0

   TO AREA 3015   CHATTISGARH
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  1     -80.8     26.0
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  2     -80.8     26.0
   252016 BUDIPATR2   220.00   352016 RAIGR2      220.00*  1     -52.1     11.7
   TOTAL FROM AREA 2004 TO AREA 3015                                      -213.6      63.7
                                                                         --------  --------
 TOTAL FROM AREA 2004   ODISHA                                           -1206.5    -159.9
```

Reliability Margin: 2% of Load assumed =73MW.

ATC=1207MW – 73MW = 1134MW

Considering import LTA (ISGS) of 1100MW
ATC (Evening peak)=1134MW-1100MW=34MW

Import TTC With Contingency (Evening peak) (both 220kV Meramundali-Bhanjanagar outage)

```
PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  12:52
 ALL INDIA PEAK MAR 2015                                        AREA TOTALS
 25 NOVEMBER 2014                                                IN MW/MVAR
                FROM ------AT AREA BUSES-------              TO                          -NET INTERCHANGE-
               GENE- FROM IND   TO IND       TO   TO BUS  GNE BUS  TO LINE     FROM     TO     TO TIE  TO TIES  DESIRED
 X-- AREA --X  RATION GENERATN   MOTORS     LOAD    SHUNT  DEVICES    SHUNT CHARGING   LOSSES    LINES  + LOADS  NET INT

 2004          1930.4      0.0      0.0   3653.7      0.0      0.0      0.0      0.0    125.4  -1848.8  -1848.8      0.0
 ODISHA        -383.4      0.0      0.0    319.9      0.0      0.0    183.5   1870.4   1004.6    -21.0    -21.0

 COLUMN        1930.4      0.0      0.0   3653.7      0.0      0.0      0.0      0.0    125.4  -1848.8  -1848.8      0.0
 TOTALS        -383.4      0.0      0.0    319.9      0.0      0.0    183.5   1870.4   1004.6    -21.0    -21.0

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  12:52
 ALL INDIA PEAK MAR 2015
 25 NOVEMBER 2014
                      OUTPUT FOR AREA 2004 [ODISHA      ]
 SUBSYSTEM LOADING CHECK (INCLUDED: LINES; BREAKERS AND SWITCHES; TRANSFORMERS) (EXCLUDED: NONE)
 LOADINGS ABOVE  80.0 % OF RATING SET B (MVA FOR TRANSFORMERS, CURRENT FOR NON-TRANSFORMER BRANCHES):

 X--------- FROM BUS ----------X X---------- TO BUS ----------X
   BUS# X-- NAME --X BASKV  AREA   BUS# X-- NAME --X BASKV  AREA CKT LOADING  RATING PERCENT
 251001 THRUVLI1    132.00  2004 251064 VEDANTA     132.00* 2004  1     68.3    84.0    81.3
 251012 HIRAKUD1    132.00  2004 251040 SMBLPUR     132.00* 2004  1     68.6    84.0    81.7
 251016 TARKERA1    132.00  2004 251039 RJGNGPR     132.00* 2004  1     68.0    84.0    80.9
 251019 CHANDKA1    132.00  2004 251030 BHBNSWR     132.00* 2004  1     83.9    84.0    99.9
 251019 CHANDKA1    132.00  2004 251057 RSINPUR1    132.00* 2004  1    136.8    84.0   162.9
 251020 CHNDK(T)    132.00  2004 251033 BBSRTB      132.00* 2004  1     67.8    84.0    80.7
 251020 CHNDK(T)    132.00* 2004 251034 BIDANASI    132.00  2004  1     67.8    84.0    80.7
 251032 CUTTACK1    132.00* 2004 251033 BBSRTB      132.00  2004  1     67.9    84.0    80.8
 251044 KESINGA     132.00* 2004 251064 VEDANTA     132.00  2004  1     68.6    84.0    81.6

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Tie Line Flow (Evening peak)

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PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS(R)E     TUE, DEC 20 2016  12:52
 ALL INDIA PEAK MAR 2015                                        AREA TIE LINE
 25 NOVEMBER 2014                                                 INTERCHANGE

 FROM AREA 2004   ODISHA

   TO AREA 2002   JHARKHAND
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252008 JODA2       220.00*  222002 JAMSDPRB    220.00   1      -7.6    -30.3
   TOTAL FROM AREA 2004 TO AREA 2002                                          -7.6     -30.3

   TO AREA 2003   DVC
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252029 JINDAL      220.00*  242002 JMSDPRD2    220.00   1      90.1    -12.4
   TOTAL FROM AREA 2004 TO AREA 2003                                         90.1     -12.4

   TO AREA 2054   ER_ISTS_ODIS
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   251048 RRNGPUR     132.00   251068 BARIPDA1    132.00*  1     -51.3     -2.5
   251049 BARIPDA     132.00   251068 BARIPDA1    132.00*  1      -0.0      0.6
   252002 JEYNGAR2    220.00   252041 JEYPUR2     220.00*  1    -149.2     13.1
   252002 JEYNGAR2    220.00   252041 JEYPUR2     220.00*  2    -149.2     13.1
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  1    -110.9    -34.0
   252007 TARKERA2    220.00   252038 ROURKELLA2  220.00*  2    -110.9    -34.0
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  1      -9.2     56.2
   252010 RENGALI2    220.00   252040 RENGLI P    220.00*  2      -9.2     56.2
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   1    -103.2    -15.7
   252014 BALASOR2    220.00*  252042 BARIPDA2    220.00   2    -103.2    -15.7
   252027  KATPLI2    220.00   252045 BOLANGIR    220.00*  1     87.7      8.8
   252037 BOLNGR      220.00*  252045 BOLANGIR    220.00   1     -13.9     -9.1
   254001 INDVTGR4    400.00   254011 INDRAVATI4  400.00*  1    -239.6    165.2
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  1    -338.7    -38.6
   254002 MERAMUNDLI4 400.00   254014 ANGUL4      400.00*  2    -427.6    -54.5
   254003 N DUBRI_4   400.00*  254012 BARIPADA4   400.00   1     123.0    -70.8
   254003 N DUBRI_4   400.00*  254028 PANDIABILI 4400.00   1     356.5   -103.9
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  1    -258.8     41.1
   254005 MENDHASAL   400.00   254028 PANDIABILI 4400.00*  2    -258.8     41.1
   TOTAL FROM AREA 2004 TO AREA 2054                                      -1766.3      16.7

   TO AREA 2103   TALCHER
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252006 TTPS2       220.00   252039 TSTPP2      220.00*  1     -50.5     -4.9
   252018 RENGLPS     220.00   252039 TSTPP2      220.00*  1     -25.2    -60.0
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  1     -37.4     -5.1
   252022 MERAMUNDLI2 220.00   252039 TSTPP2      220.00*  2     -37.4     -5.1
   254002 MERAMUNDLI4 400.00   254008 TSTPP4      400.00*  1     272.5     12.8
   TOTAL FROM AREA 2004 TO AREA 2103                                        122.1     -62.3

   TO AREA 3015   CHATTISGARH
   X---- FROM AREA BUS ----X   X----- TO AREA BUS -----X
     BUS# X-- NAME --X BASKV     BUS# X-- NAME --X BASKV  CKT      MW      MVAR
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  1    -102.7     26.4
   252016 BUDIPATR2   220.00   352005 KORBE2      220.00*  2    -102.7     26.4
   252016 BUDIPATR2   220.00   352016 RAIGR2      220.00*  1     -81.8     14.5
   TOTAL FROM AREA 2004 TO AREA 3015                                        -287.1      67.3
                                                                           --------  --------
 TOTAL FROM AREA 2004   ODISHA                                            -1848.8     -21.0
```

Reliability Margin: 2% of Load assumed =73MW.

ATC=1849MW – 73MW = 1776MW

Considering import LTA (ISGS) of 1100MW
ATC=1776MW-1100MW=676MW

TTC/ATC calculation of JUSNL for month : December'2016

Import TTC:

Sl. No.	Control area	TTC	RM	ATC	Limiting contingency N-1 & loading of the limiting equipment under that contingency
1.	JUSNL	667 MW	100 MW	567	1) 220KV TTPS-B'Shariff line 2) 220KV D/c PG Ranchi- Hatia II line 3) 132 KV Maithon – Jamtara line 4) 132 KV D/c Ramchandarpur – Adityapur line 5) Total load =919 MW

Assumptions for Import TTC:

Sl. No.	Station wise (MW) Generation considered (132kv & above)	Injection (+)/ Withdrawal (-) MW considered for each embedded IPP at 132kv & above(if any)	Station wise demand(MW) Considered (132kv & above)	Lines/ elements considered to be normally switched off or under forced outage(if any)	Generating units under forced outage(if any)	SPS considered (if any)
1. 2.	TTPS unit I = 165 MW PTPS unit 10 = 70 MW	CPP/IPP = IPL Unit 50 MW	See table below	1.132KV Kendposi-joda line 2. 132KV MNQ – MNQ line 3. 132KV Patratu-BASAL-I line are under open condition	Nil	Nil

Bus Name	Pload (MW)
JAPLA 132.00	12
ADITPUR 132.00	50
RAJKSWN 132.00	13
MANIQUE 132.00	30
PATRATU 132.00	11
GOELKRA 132.00	3
KENDPOSI 132.00	10
GOLMURI 132.00	40
JADUGORA 132.00	13
NOAMUNDI 132.00	20
LALMATIA 132.00	30
DEOGHAR 132.00	50
NAMKUM 132.00	70
KAMDARA 132.00	25
JAMTARA 132.00	15
GARWAH 132.00	40
LOHARDAGA 132.00	42
HATIA1 132.00	119
TOLRA 132.00	12
HEC1 132.00	9
LODHMA 132.00	4
DUMKA 132.00	35
SAHEBGANJ 132.00	20
CHAKRADPUR 132.00	3
DALTONGANJ 132.00	40
CHAIBASA NEW132.00	7
KANKE 132.00	26
TAMAR 132.00	16
TATISIL RLY 132.00	10
BAKASPUR RLY132.00	10
GUMLA 132.00	20
RKSN RLY 132.00	8
CHAIBASA RUN132.00	5
GOILKERA RLY132.00	5
KENDPOSI RLY132.00	8
CKP RLY 132.00	2
MADHUPUR 132.00	10
JAMTARA RLY 132.00	10
DEOGHAR RLY 132.00	6
PAKUR 132.00	38
LATEHAR 132.00	10
MANOHARPUR 132.00	4
BANO RLY 132.00	8

EXPORT TTC For the Month of DEC 16 i.r.o DVC

Philosophy: Maximum Generation Minimum Demand considering N-1 criteria

Total available Pool Generation (as Declared by the Generators)= **3216** MW

(Mejia#1-190MW,Mejia#2-190 MW,Mejia#3-190MW,Mejia#4-190 MW,Mejia#5-230MW,Mejia#6-230 MW,CTPS#1-120 MW,CTPS#2-120 MW,CTPS#3-120 MW,CTPS#7-230 MW,CTPS#8-230MW, BTPS#1-180 MW ,BTPS#2-180MW, BTPS#3-180 MW,KTPS#2-480MW;Total 3216 MW)
(Out of 500 MW units, only KTPS unit is considered for TTC calculation, as it is connected to the DVC system.)

Total average demand of DVC=2400 MW (Min)

Net export TTC calculated as in PSSE =**757** (considering N-1 contingency)

Net export ATC=757-48=**709MW (**Reliability Margin 48 mw(i.e 2% of demand))

However, Total LTA/MTOA from DVC Pool (i.e MTPS#5,MTPS#6,CTPS#7,CTPS#8,KTPS#1)=1067 MW

Enclosure: PSSE report

NB: Since all the 500 MW units are considered as embedded generators of DVC, therefore, any short term Export commitment can be complied/shared either from DVC pool or from individual embedded generators.

IMPORT TTC For the Month of DEC' 16 i.r.o DVC

Philosophy: Minimum Generation and Maximum Demand considering N-1 criteria

Total Pool Generation (as Declared by the Generators)= 2030MW

(Mejia#2-190 MW,Mejia#3-190MW,Mejia#4-190 MW,Mejia#5-230MW,Mejia#6-230 MW CTPS#1-120 MW,CTPS#2-120 MW,CTPS#3-120 MW,CTPS#7-230 MW,CTPS#8-230MW, BTPS#3-180 MW; Total 2030 MW)

Total average demand of DVC=2600 MW (Max)

Net IMPORT TTC calculated as in PSSE =624 MW (considering N-1 contingency)

Net IMPORT ATC=624-52=572 MW **(**Reliability Margin 52 MW(2% of Demand))---------(i)

(By considering 4 units in MTPS- A the load of KLY-Maithon(PG) is 139 MW in each line(towards KLY),which violates N-1 contingency criteria. Hence, by considering 5 units at MTPS KLY-Maithon load is 105.7 MW in each line(towards KLY), which satisfies N-1 criteria.)

Total LTA(import)already granted=140.25(MPL)+238(CGS/ISGS)=378.25 MW ----------(ii)

So, Net Import ATC for DVC Pool=572-378.25=**193.75 MW**

However, Total LTA/MTOA from DVC Pool (i.e MTPS#5,MTPS#6,CTPS#7,CTPS#8)=779 MW

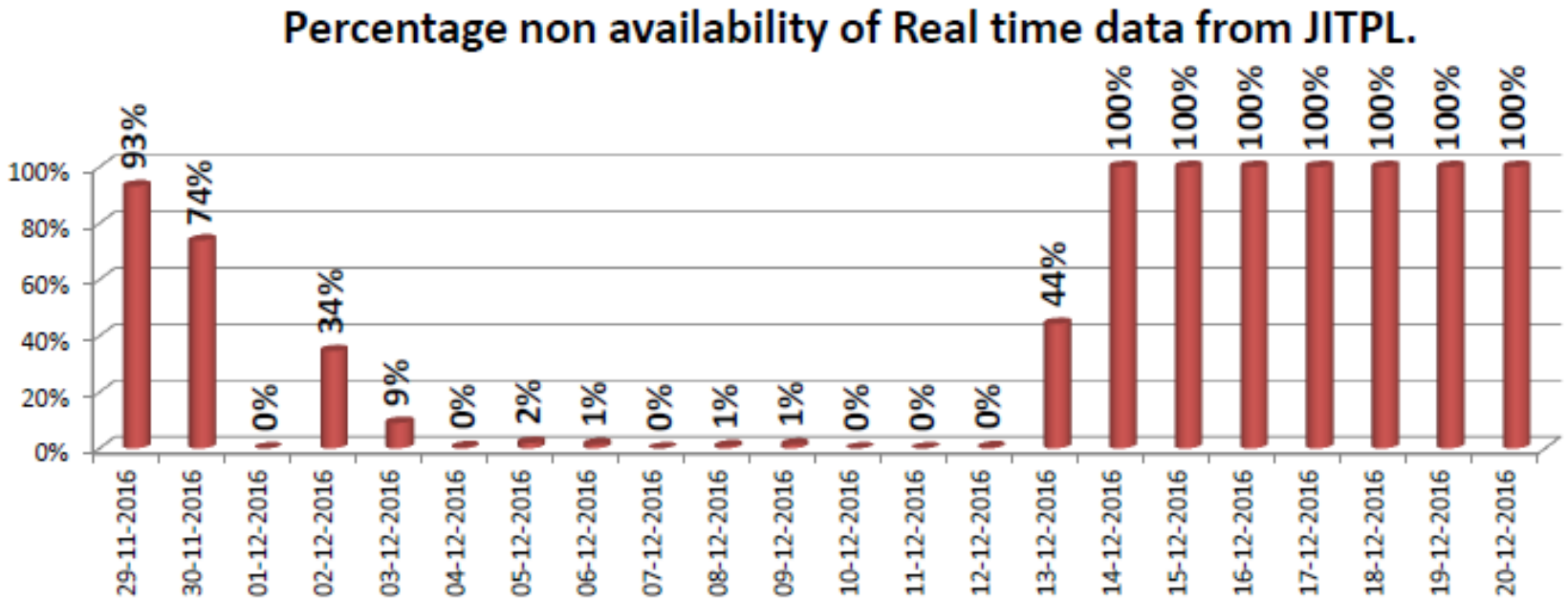
Enclosure: PSSE report

NB: Since all the 500 MW units are considered as embedded generators of DVC, therefore, any short term Export commitment can be complied/shared either from DVC pool or from individual embedded generators.

IPP

Annexure-B29

- JITPL (2 x 600MW) –
  - Data is highly unstable. Frequent failure of data.
  - Express voice and **VOIP** yet to be provided. Alternate Data channel yet to be provided.



IPP

- GMR (3 x 350 MW) :
  - Express voice and **VOIP integration** with ERLDC. Stand by channel.
- KBUNL –
  - Most of analog and status data is not available.

- IBEUL (2 x 350 MW) –
  - Unit Side data not available. **VOIP/Express** Voice. Alternate Channel. Alternate Data channel yet to be provided.
  - Data highly intermittent.
- MPL:
  - Data is highly intermittent. Alternate Data channel yet to be provided.

OLTC

1. 1500 MVA 765/400 kV ICT 2 @ GAYA
2. 1500 MVA 765/400 kV ICT 1 @ ANGUL
3. 1500 MVA 765/400 kV ICT 3 @ ANGUL
4. 1500 MVA 765/400 kV ICT 4 @ ANGUL
5. 1500 MVA 765/400 kV ICT 1 @ JHARSUGUDA
6. 1500 MVA 765/400 kV ICT 2 @ JHARSUGUDA
7. 315 MVA 400/220 kV ICT 1 @ BOLANGIR
8. 315 MVA 400/220 kV ICT 1 @ BIHARSHARIF
9. 315 MVA 400/220 kV ICT 3 @ BIHARSHARIF
10. 500 MVA 400/220 kV ICT 1 @ GAYA
11. 315 MVA 400/220 kV ICT 2 @ GAYA
12. 315 MVA 400/220 kV ICT 1 @ KEONJHAR
13. 315 MVA 400/220 kV ICT 2 @ KEONJHAR
14. 315 MVA 400/220 kV ICT 1 @ MAITHON
15. 315 MVA 400/220 kV ICT 1 @ MALDA
16. 500 MVA 400/220 kV ICT 1 @ MUZAFFARPUR
17. 315 MVA 400/220 kV ICT 1 @ DURGAPUR
18. 315 MVA 400/220 kV ICT 2 @ DURGAPUR

OLTC

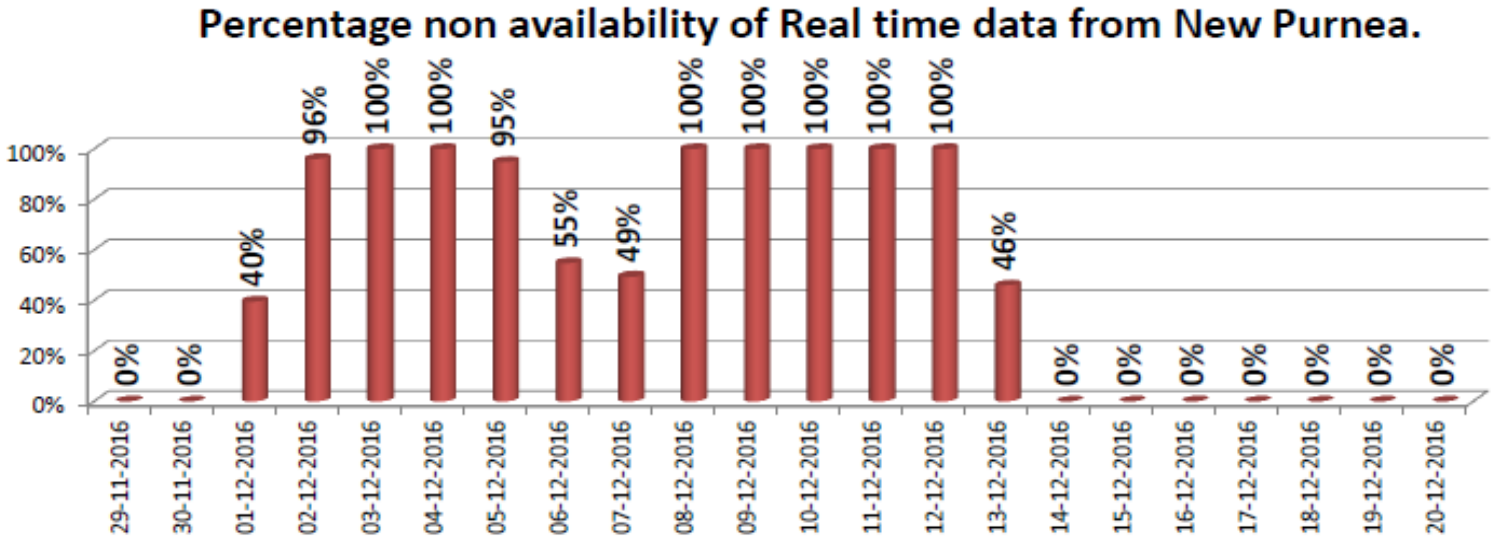
19. 315 MVA 400/220 kV ICT 1 @ RANCHI
20. 315 MVA 400/220 kV ICT 2 @ RANCHI
21. 315 MVA 400/220 kV ICT 2 @ RENGALI
22. 315 MVA 400/220 kV ICT 1 @ CHAIBASA
23. 315 MVA 400/220 kV ICT 2 @ CHAIBASA
24. 315 MVA 400/220 kV ICT 3 @ SUBHASGRAM
25. 500 MVA 400/220 kV ICT 1 @ KISHANGUNJ
26. 500 MVA 400/220 kV ICT 3 @ KISHANGUNJ
27. 100 MVA 220/132 kV ICT 1 @ ARRAH
28. 100 MVA 220/132 kV ICT 2 @ ARRAH
29. 160 MVA 220/132 kV ICT 2 @ MALDA
30. 160 MVA 220/132 kV ICT 3 @ MALDA
31. 160 MVA 220/132 kV ICT 1 @ PURNEA
32. 160 MVA 220/132 kV ICT 2 @ PURNEA
33. 50 MVA 132/66 kV ICT 1 @ GANGTOK
34. 50 MVA 132/66 kV ICT 2 @ GANGTOK

NTPC

- Lalmatia: (No data since Jan 2016).
  - **12 month passed but no improvements. NTPC May update.**
- Farakka NTPC:
  - Unit #5 MW and MVAr data not matching with site data, Unit # 6 LV side not available.
- Nabinagar NTPC :
  - Alternet Data channel.
  - Unit HV side data, OLTC of all ICTs
  - **No VOIP.**

POWERGRID

- **Data Intermittent /not available:**
  - Purnea 400kV (Frequent Failure of RTU)



  - Ranchi 400kV , Baripada, Gaya, Angul, Chaibasa
- **VOIP for following station not yet provided:**
  - Bolangir , Indravati , Jeypore ,Kalabadia, Keonjhar

WBSETCL

- Following station data not available:
  - TLDP 4 (since 06-12-16),
  - Gokarna 400kV (400/220 kV ICT was first charged on 15th Sept'16),
  - Dharampur 220,
  - Krishnanagar 220,
  - Hura 220,
  - Foundry Park 220.
  - Dalkhola
  - Bantala
  - Lakshmikantapur
  - New Town
- Haldia (2 x 300MW) :
  - Bus Voltage of Bus 1, LV side data not yet provided.
- Sagardighi :
  - Unit 3 LV side (Unit) data not available.
  - Bus voltage is not updating at ERLDC.
- **Kolaghat TPS** : Kharagpur #1 MW/MVAR flow not available.

BSPHCL

- Data Not provided:
  - Sonenagar ,
  - Darbhanga,
  - Valmikinagar and koshi (Connected with Nepal)
- Data Intermittent /not available:
  - Dumraon, Khagaul ,Darbhanga ,Dehri , sultangaunj , Lakhisarai, Karmanasa, Kahalgaon ,Jamaui ,Banka ,Gopalganj, Kisanganj, Arrah ,Rajgir ,Sipara ,Hajipur (New), Pusauli

JSUNL

- **Data Intermittent /not available:**
  - Hatia New 220,
  - Dumka 220.
  - Patratu(Intermittent)
  - DEOGHAR
  - DUMKA
  - GARHW
  - GOELKERA
  - JAMTARA
  - JAPLA
  - KENDOPOSI

DVC

- Data Not provided:
  - Giridhi 220, Barjora 220,Purulia 132 kV.
- Durgapur TPS (DSTPS): Highly intermittent.

23-12-2016

EASTERN REGION LOAD DESPATCH CENTRE

Summary of Data Availability of 765/400/220 kV ISGS/ISTS/IPPs Stations

Sl. No.	Region	NAME OF THE SUB / GEN STN	Voltage Level (kV)	Analogs Status				Digital Status								Remarks
								CB				ISO				
				Total	Avl.	Not Avl.	% of Non-Avl.	Total	Avl.	Not Avl.	% of Non-Aval.	Total	Avl.	Not Avl.	% of Non-Aval.	
1	ERTS - I	Arrah	220/132	29	27	2	7%	16	1	15	94%	47	0	47	100%	
2		Banka	400/220	26	25	1	4%	18	17	1	6%	34	33	1	3%	
3		Gaya	765/400/220	53	50	3	6%	49	22	27	55%	127	62	65	51%	
4		Biharshariff	400/220	54	49	5	9%	41	31	10	24%	81	79	2	2%	
5		Chaibasa	400/220	30	25	5	17%	21	19	2	10%	45	42	3	7%	
6		Chandwa	400/220	13	12	1	8%	6	6	0	0%	12	12	0	0%	
7		LAKHISARAI	400/132	41	35	6	15%	22	17	5	23%	46	39	7	15%	
8		Jamshedpur	400/220	34	34	0	0%	24	23	1	4%	48	48	0	0%	
9		Muzaffarpur	400/220	45	43	2	4%	26	8	18	69%	69	16	53	77%	
10		Patna	400/220	51	45	6	12%	34	30	4	12%	76	62	14	18%	
11		Purnea-220	220/132	33	29	4	12%	17	17	0	0%	49	49	0	0%	
12		Purnea-400	400/220	52	48	4	8%	34	33	1	3%	83	81	2	2%	
13		Ranchi	400/220	50	46	4	8%	43	33	10	23%	100	81	19	19%	
14		Sasaram	765/400/220	76	75	1	1%	54	49	5	9%	117	111	6	5%	
15		New Ranchi	765/400	27	26	1	4%	24	23	1	4%	50	45	5	10%	
		TOTAL		**614**	**569**	**45**	**7%**	**429**	**329**	**100**	**23%**	**984**	**760**	**224**	**23%**	
16	ERTS - II	Angul	400	47	29	18	38%	41	18	23	56%	73	14	59	81%	
17		Alipurduar HVDC	400	37	31	6	16%	18	17	1	6%	48	45	3	6%	
18		Baharampur	400	18	18	0	0%	10	10	0	0%	20	20	0	0%	
19		Baripada	400/220/132	43	40	3	7%	26	25	1	4%	61	60	1	2%	
20		Binaguri	400/220	59	55	4	7%	39	37	2	5%	87	87	0	0%	
21		Birpara	220/132	30	30	0	0%	16	16	0	0%	47	47	0	0%	
22		BHVDC	220/132	35	35	0	0%	32	23	9	28%	52	52	0	0%	
23		Bolangir (n)	400	17	17	0	0%	10	10	0	0%	18	18	0	0%	
24		Dalkhola	220	20	18	2	10%	10	10	0	0%	36	36	0	0%	
25		Durgapur	400/220	46	39	7	15%	32	27	5	16%	68	68	0	0%	
26		Jharsuguda	400	28	24	4	14%	29	19	10	34%	58	43	15	26%	
27		Indravati	400	13	13	0	0%	6	6	0	0%	14	14	0	0%	
28		Gangtok	132/66	12	10	2	17%	5	5	0	0%	9	9	0	0%	
29		Jeypore	400/220	30	27	3	10%	17	14	3	18%	41	37	4	10%	
30		Keonjhar	400/220	15	13	2	13%	7	7	0	0%	14	14	0	0%	
31		Kishanganj	400/220	47	40	7	15%	33	17	16	48%	66	58	8	12%	
32		Maithon	400/220	59	57	2	3%	42	25	17	40%	98	98	0	0%	
33		Malda	400/220	44	41	3	7%	23	23	0	0%	70	70	0	0%	
34		New Melli	400/220	11	10	1	9%	7	6	1	14%	14	12	2	14%	
35		Pandiabili		36	35	1	3%	21	21	0	0%	49	49	0	0%	
36		RANGPO	400/220/132	58	58	0	0%	32	32	0	0%	90	90	0	0%	
37		Rengali	400/220	28	27	1	4%	16	16	0	0%	41	40	1	2%	
38		Rourkela	400/220	56	51	5	9%	38	19	19	50%	86	63	23	27%	
39		Siliguri	220/132	27	27	0	0%	15	15	0	0%	46	46	0	0%	
40		Subhasgram	400/220	37	35	2	5%	24	24	0	0%	59	59	0	0%	
41		Talcher HVDC		23	23	0	0%	27	27	0	0%	45	45	0	0%	
		TOTAL		**876**	**803**	**73**	**8%**	**576**	**469**	**107**	**19%**	**1310**	**1194**	**116**	**9%**	
42	SRTS - I	Gazuwaka HVDC		22	0	22	100%	34	0	34	100%	53	0	53	100%	
43	ISGS	Farakka	400/220/21	67	53	14	21%	40	34	6	15%	77	43	34	44%	
44		Barh	400/220/21	37	31	6	16%	36	33	3	8%	71	71	0	0%	
45		Kahalgaon	400/132/21	82	43	39	48%	52	32	20	38%	105	62	43	41%	
46		Lalmatia	220/132	17	0	17	100%	9	0	9	100%	17	0	17	100%	
47		Rangit	132 /66	29	22	7	24%	13	12	1	8%	34	4	30	88%	
48		Talcher	400/220/21	81	75	6	7%	44	43	1	2%	91	86	5	5%	
49		Teesta	400/21	14	12	2	14%	6	6	0	0%	16	16	0	0%	
		TOTAL		**349**	**236**	**113**	**32%**	**234**	**160**	**74**	**32%**	**464**	**282**	**182**	**39%**	
50	Sterlite	Sterlite	400/21	52	40	12	23%	27	13	14	52%	54	24	30	56%	
51	KBUNL	MTPS	400/21	32	10	22	69%	12	5	7	58%	24	10	14	58%	
52	IBEUL	IBEUL	400/21	20	16	4	20%	9	9	0	0%	18	18	0	0%	
53	MPL	Maithon RT Bank	400/220/21	32	32	0	0%	17	17	0	0%	41	41	0	0%	
54	APNRL	ADHUNIK	400/21	16	16	0	0%	6	6	0	0%	12	12	0	0%	
55	GATI	Chuzachen HPS	132/21	12	12	0	0%	4	4	0	0%	8	8	0	0%	
56	JITPL	JINDAL	400	8	0	8	100%	11	0	11	100%	22	0	22	100%	
		TOTAL		**172**	**126**	**46**	**27%**	**86**	**54**	**32**	**37%**	**179**	**113**	**66**	**37%**	
		TOTAL		**2011**	**1734**	**277**	**14%**	**1325**	**1012**	**313**	**24%**	**2937**	**2349**	**588**	**20%**	

Note:

29-12-16

EASTERN REGION LOAD DESPATCH CENTRE

Detailed Data Availability Status of 765/400/220 kV ISGS/ISTS/IPPs Stations

Sl. No.	STATION NAME	ELEMENTS NAME	ANALOG					STATUS					
			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
								Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
1	Arrah	**220Kv System**											
		Bus-1			Yes	yes							
		Bus-2			yes	yes							
		ICT (220/132) -1					no	3	0	3	1	0	1
		ICT (220/132) -2					no	3	0	3	1	0	1
		ICT (220/132) -3					yes	3	0	3	1	1	0
		Sasaram-1	yes	yes				4	0	4	1	0	1
		Sasaram-2	yes	yes				4	0	4	1	0	1
		Kahgaul -1	yes	yes				4	0	4	1	0	1
		Kahgaul -2	yes	yes				4	0	4	1	0	1
		Bus Coupler						2	0	2	1	0	1
		TBC						3	0	3	1	0	1
		132 Kv System								0			0
		ICT (220/132) -1	yes	yes				2	0	2	1	0	1
		ICT (220/132) -2	yes	yes				2	0	2	1	0	1
		ICT (220/132) -3	yes	yes				2	0	2	1	0	1
		Dumraon	yes	yes				3	0	3	1	0	1
		Arrah	yes	yes				3	0	3	1	0	1
		Jagdishpur	yes	yes				3	0	3	1	0	1
		Bus Coupler						2	0	2	1	0	
		Bus			yes	yes				0			0
		Sub-Total	10	10	3	3	3	47	0	47	16	1	15
		Total Measurents			29						63		
		Total Available Measurents			27						1		
		Total Non-Available Measurents			2						62		
		% of Non-Availability			**7%**						**98%**		
								ISO			CB		
2	Banka		MW	MVAR	VOL	FREQ	OLTC	Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		400 Kv System											
		Bus-1			Yes	Yes							
		Bus-2			Yes	Yes							
		Line Biharshariff -I	Yes	Yes				2	2	0	1	1	0
		Tie Dia of Biharshariff -I						2	2	0	1	1	0
		400/132 kV 200 MVA ICT - 1					yes	2	2	0	1	1	0
		50 MVAR LR with Biharshariff -I		Yes				1	1	0	1	1	0
		Line Biharshariff -II	Yes	Yes				2	2	0	1	1	0
		Tie Dia of Biharshariff -II						2	2	0	1	1	0
		400/132 kV 200 MVA ICT - 2					yes	2	2	0	1	1	0
		50 MVAR LR with Biharshariff -II		Yes				1	1	0	1	1	0
		Line Kahalgaon -I	Yes	Yes				2	2	0	1	1	0
		Tie Dia of Kahalgaon -I						2	2	0	1	1	0
		Bus Reactor : 80 MVAR		Yes				2	2	0	1	1	0
		Line Kahalgaon -II	Yes	Yes				2	2	0	1	1	0
		Tie Dia of Kahalgaon -II						2	2	0	1	1	0
		ICT - 3					no	2	1	1	1	0	1
		132 Kv System											
		Bus-1			Yes	Yes							
		ICT - 3	Yes	Yes				2	2	0	1	1	0
		Sabour (BSEB)	Yes	Yes				2	2	0	1	1	0
		Banka (BSEB)	Yes	Yes				2	2	0	1	1	0
		Bus Coupler						2	2	0	1	1	0
		Sub-Total	7	10	3	3	3	34	33	1	18	17	1
		Total Measurents			26						52		
		Total Available Measurents			25						50		
		Total Non-Available Measurents			1						2		
		% of Non-Availability			**4%**						**4%**		
Sl. No.	STATION NAME	ELEMENTS NAME	ANALOG					STATUS					
			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
								Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
3	GAYA	**765 Kv System**								**0**			**0**
		BUS -1			Yes	Yes				0			0
		BUS -2			Yes	Yes				0			0
		Bus Reactor -1		Yes				3	3	0	1	1	0
		Tie of Bus Reactor -1						2	2	0	1	1	0
		ICT -1 (765/400): 1500					Yes	3	3	0	1	1	0
										0			0
		Bus Reactor -2		Yes				3	3	0	1	1	0
		Tie of Bus Reactor -2						2	2	0	1	1	0
		ICT -2 (765/400) : 1500					no	3	3	0	1	1	0
										0			0
		Balia Line						3	2	1	1	1	0
		Tie of Balia Line						2	2	0	1	1	0
		ICT -3 (765/400) : 1500					yes	3	3	0	1	1	0
										0			0
		Varanasi -1 Line	Yes	Yes				3	3	0	1	1	0

		Varanasi -2Line	yes	yes				3	3	0	1	1	0
		Tie of Fatehpur Line						2	2	0	1	1	0
		Future						2	1	1	1	0	1
		Line Reactor with Varanasi1		yes				1	1	0	1	0	1
		Line Reactor with Varanasi2		yes				1	0	1	1	1	0
		400 Kv System											
		BUS -1			Yes	Yes							
		BUS -2			Yes	Yes							
		ICT -1 (765/400): 1500	Yes	Yes				3	0	3	1	0	1
		Tie of ICT 1 (765/400)						2	0	2	1	0	1
		Koderma-2						2	0	2	1	0	1
		ICT -2 (765/400): 1500	Yes	Yes				3	0	3	1	0	1
		Tie of ICT 2 (765/400)						2	0	2	1	0	1
		Koderma-1 (Bihashariff)	Yes	Yes				3	0	3	1	0	1
		ICT -3(765/400): 1500	Yes	Yes				2	0	2	1	0	1
		Tie of ICT 3 (765/400)						2	0	2	1	0	1
		Maithon -1						2	0	2	1	0	1
		LR with Maithon 1		Yes				1	0	1			
		Maithon -2						2	0	2	1	0	1
		LR with Maithon 2		Yes				1	0	1			
		Tie of Maithon 2						4	0	4	2	0	2
		Bus Reactor -1		Yes				3	0	3	1	0	1
		Tie of Bus Reactor -1						4	0	4	2	0	2
		Bus Reactor -2		Yes				3	0	3	1	0	1
		Tie of Bus Reactor -2						4	0	4	2	0	2
		ICT -1 (400/ 220)					no	3	0	3	1	0	1
		Tie of ICT -1						4	0	4	2	0	2
		ICT -2 (400/ 220)					no	3	0	3	1	0	1
		Tie of ICT -2						4	0	4	2	0	2
		220 Kv System											
		BUS-1			Yes	Yes							
		BUS-2			Yes	Yes							
		Dehri -1	Yes	Yes				4	4	0	1	1	0
		Dehri -2	Yes	Yes				4	4	0	1	1	0
		ICT -2 (400/ 220)	Yes	Yes				3	3	0	1	1	0
		ICT -1 (400/ 220)	Yes	Yes				3	0	3	1	0	1
		Bodhgaya -1	Yes	Yes				4	4	0	1	1	0
		Bodhgaya -2	Yes	Yes				4	4	0	1	1	0
		Sonenagar-1	yes	yes				4	3	1	1	1	0
		Sonenagar-2	yes	yes				4	3	1	1	1	0
		BC						1	1	0	1	1	0
		TBC						3	3	0	1	1	0
		Sub-Total	14	22	6	6	5	127	62	65	49	22	27
		Total Measurents			53			176					
		Total Available Measurents			50			84					
		Total Non-Available Measurents			3			92					
		% of Non-Availability			**6%**			**52%**					

								ISO			CB		
4	**Biharshariff**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		Bus 1			Yes	Yes				0			0
		Bus 2			Yes	Yes				0			0
		Banka -1	Yes	yes				2	2	0	1	1	0
		Banka -2	Yes	Yes				2	2	0	1	1	0
		Tie Line Between Banka 1 & 2						2	2	0	1	1	0
		Lakhisarai Line 1	Yes	Yes				2	2	0	1	0	1
		ICT-1With Lakhisarai Line 1	yes	Yes				2	1	1	1	0	1
		Tie Line of lakhisarai Line 1 & ICT-1						2	2	0	1	0	1
		Bus Reactor With Tie Line		Yes				2	2	0	1	1	0
										0			0
		lakhisarai Line 2	Yes	Yes				2	2	0	1	0	1
		Reactor With Lakhisarai Line 2		Yes				1	1	0	1	1	0
		Tie Line Between Lakhisarai Line 2 & Bus 2						3	3	0	1	1	0
										0			0
		Sasaram Line 2	yes	yes				2	2	0	1	1	0
		Balia Line 2	Yes	Yes				2	2	0	1	1	0
		Tie Line Between Sasaram Line 2 & Balia Line 2						2	2	0	1	1	0
										0			0
		balia Line 1	Yes	Yes				2	2	0	1	1	0
		Tie Line Between Balia Line 1 & Purnea-2						2	2	0	1	1	0
		Purnea-2 line	Yes	Yes				2	2	0	1	1	0
		Reactor With Purnea-2		Yes				1	1	0	1	1	0
										0			0
		Koderma 2	Yes	Yes				2	2	0	1	1	0
		Tie Dia with Koderma -2						2	2	0	1	0	1
										0			0
		Varanasi-2	Yes	Yes				2	2	0	1	0	1
		Line Reactor with Varanasi-2		Yes				1	1	0	1	1	0
		Tie of Varanasi-2						3	3	0	1	1	0
		ICT-2 (400 /220)	Yes	no			Yes	2	2	0	1	1	0
		Tie of ICT-2						2	2	0	1	1	0

		ICT-1 (400 /220)	Yes	Yes			no	2	2	0	1	0	1
		Tie of ICT-1 & Sasarm 1						2	1	1	1	1	0
		Lakhisarai 1	Yes	Yes				2	2	0	1	0	1
		Line Reactor With Lakhisarai Line 1								0			0
		Bus Reactor 3		Yes				2	2	0	1	0	1
		Tie of ICT-3 & Bus Reactor						2	2	0	1	1	0
		ICT-3 (400 /220)	Yes	Yes			no	2	2	0	1	1	0
										0			0
		Muzaffarpur Line 1	Yes	no				2	2	0	1	1	0
		Tie Line Between Muzaffarpur Line 1&2						2	2	0	1	1	0
		Muzaffarpur Line 2	Yes	no				2	2	0	1	1	0
		Koderma 1	Yes	Yes				2	2	0	1	1	0
		Tie with Koderma1						2	2	0	1	0	1
		Purnea -1	Yes	Yes				2	2	0	1	1	0
		Tie Purnea -1						3	3	0	1	1	0
		LR with Purnea -1		Yes				1	1	0	1	1	0
		Purnea -2	Yes	Yes				2	2	0	1	1	0
		Tie Purnea -2						3	3	0	1	1	0
		LR with Purnea -2		Yes				1	1	0	1	1	0
		Sub-Total	20	27	2	2	3	81	79	2	41	31	10
		Total Measurents			54			122					
		Total Available Measurents			49			110					
		Total Non-Available Measurents			5			12					
		% of Non-Availability			**9%**			**10%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
5	**CHAIBASA**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		BUS1			YES	YES							
		BUS2			YES	YES							
		JAMSHEDPUR 2	yes	yes				2	2		1	1	
		TIE & JAMSHEDPUR 1						2	2		1	1	
		Bus Reactor -1 (80)		yes				2	2		1	1	
		ROURKELA 2	yes	yes				3	3		1	1	
		TIE OF ROURKELA 2						2	2		1	1	
		400/ 220 KV ICT 3	no	no			no	2	1		1	0	
		JAMSHEDPUR 1	YES	YES				2	2	0	1	1	0
		TIE & JAMSHEDPUR 1						2	2	0	1	1	0
		400/ 220 KV ICT 2	yes	yes			no	2	2	0	1	1	0
		ROURKELA 1	YES	YES				3	3	0	1	1	0
		TIE OF ROURKELA 1						2	2	0	1	1	0
		400/ 220 KV ICT 1	yes	yes			no	2	2	0	1	1	0
		220KV											
		BUS1			YES	YES							
		BUS2			yes	yes							
		LOAD1	yes	yes				2	2		1	1	
		LOAD2	yes	yes				2	2		1	1	
		400/ 220 KV ICT 3						2	0		1	0	
		400/ 220 KV ICT 2						2	2		1	1	
		TBC						3	3		1	1	
		400/ 220 KV ICT 1						2	2		1	1	
		LOAD3	yes	yes				2	2		1	1	
		LOAD4	yes	yes				2	2		1	1	
		BC						2	2		1	1	
		Sub-Total	11	12	2	2	3	45	42	3	21	19	2
		Total Measurents			30			66					
		Total Available Measurents			25			61					
		Total Non-Available Measurents			5			5					
		% of Non-Availability			**17%**			**8%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
6	**LAKHISARAI**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		BUS 1			yes	yes							
		BUS 2			yes	yes							
		Line Biharshariff -I	yes	yes				2	2	0	1	1	0
		Tie Dia of Biharshariff -I						2	2	0	1	1	0
		400/132 KV ICT 1	yes	yes			yes	2	2	0	1	0	1
		Line Biharshariff -II	yes	yes				2	2	0	1	1	0
		Tie Dia of Biharshariff -II						2	2	0	1	1	0
		ICT 2	yes	yes			yes	2	2	0	1	1	0
		ICT 3	no	no			no	2	0	2	1	0	1
		Tie Dia of Kahalgaon -II						2	2	0	1	1	0
		KAHALGAON II	yes	yes				2	2	0	1	1	0
		L/R OF KAHALGAON II	yes	yes				1	1	0	1	1	0
		Line Kahalgaon -I	yes	yes				2	2	0	1	1	0
		Tie Dia of Kahalgaon -I						2	2	0	1	1	0
		L/R OF KAHALGAON I		yes				1	0	1	1	0	1
		BUS REACTOR		yes				2	2	0	1	1	0
		132 Kv System											
		Bus-1			yes	no							
		ICT 1	no	no				2	0	2	1	0	1
		ICT 2	yes	yes				2	0	2	1	0	1
		ICT 3	yes	yes				2	2	0	1	1	0
		LAKHISARAI -1 (BSEB)	yes	yes				3	3	0	1	1	0
		LAKHISARAI -2 (BSEB)	yes	yes				3	3	0	1	1	0
		LAKHISARAI -3 (BSEB)	yes	yes				3	3	0	1	1	0
		LAKHISARAI -4 (BSEB)	yes	yes				3	3	0	1	1	0

		Bus Coupler						2	2	0	1	1	0
		Sub-Total	15	17	3	3	3	46	39	7	22	17	5
		Total Measurents			41			68					
		Total Available Measurents			35			56					
		Total Non-Available Measurents			6			12					
		% of Non-Availability			**15%**			**18%**					

7	Jamshedpur		MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
								Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		Bus 1			Yes	Yes				0			0
		Bus 2			Yes	Yes				0			0
		Bay For Rourkela Line 2	Yes	Yes				2	2	0	1	1	0
		Bay For DSTPS 1	Yes	Yes				2	2	0	1	1	0
		Tie Line Between Rourkela Line 2 & DSTPS 1						2	2	0	1	1	0
		Bay For Chaibasa Line 1	Yes	Yes				2	2	0	1	1	0
		Bay For Maithon	Yes	Yes				2	2	0	1	1	0
		Tie Line Between Chaibasa Line 1 & Mailthon						2	2	0	1	1	0
		Kakabadia -2	Yes	Yes				2	2	0	1	1	0
		Tie of Kakabadia -2						2	2	0	1	1	0
		DSTPS-2	yes	yes				2	2	0	1	1	0
		TISCO	Yes	Yes				2	2	0	1	1	0
		Tie of TISCO						2	2	0	1	1	0
		Bay For Mejia-B	Yes	Yes				2	2	0	1	1	0
		Bay For Durgapur Line 1	Yes	Yes				2	2	0	1	1	0
		Tie Line Between Mejia B & Durgapur 1						2	2	0	1	1	0
		Bus Reactor - 1 -80 MVAR		Yes				2	2	0	1	1	0
		ICT -1 (400 /220)	Yes	Yes			Yes	2	2	0	1	1	0
		Tie Line Between ICT-1 & Bus Recator						2	2	0	1	1	0
		ICT -2 (400 /220)	Yes	Yes			Yes	2	2	0	1	1	0
		Bus Reactor - 2 -80 MVAR		Yes				2	2	0	1	1	0
		Tie Line Between ICT-2 & Bus Recator						2	2	0	1	1	0
		Apnrl 2	Yes	Yes				2	2	0	1	1	0
		Tie Line of APNRL2						2	2	0	1	0	1
		Apnrl 1	Yes	Yes				2	2	0	1	1	0
		Tie Line of APNRL1						2	2	0	1	1	0
		Sub-Total	13	15	2	2	2	48	48	0	24	23	1
		Total Measurents			34			72					
		Total Available Measurents			34			71					
		Total Non-Available Measurents			0			1					
		% of Non-Availability			**0%**			**1%**					

8	Muzaffarpur		MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
								Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		400 Kv System											
		Bus-1			Yes	Yes							
		Bus-2			Yes	Yes							
		ICT (400/220)- 2	yes	yes			Yes	2	0	2	1	0	1
		Tie of ICT- 2						2	0	2	1	0	1
		Future						1	0	1	1	0	1
		ICT (400/220)- 1	yes	yes			yes	2	0	2	1	0	1
		Tie of ICT- 1						2	0	2	1	1	0
		Bus Reactor -1		Yes				2	1	1	1	1	0
		Bus Reactor -2						2	0		1	1	
		Tie											
		darbhanga 1											
		Purnea -1	Yes	Yes				2	0	2	1	0	1
		Tie of Purnea -1						2	2	0	1	1	0
		Gorakhpur -1	Yes	Yes				2	0	2	1	0	1
		LR with Purnea -1		no				1	0	1			
		LR with Gorakhpur -1		Yes				1	0	1			
		Purnea -2	Yes	Yes				2	0	2	1	0	1
		Tie of Purnea -2						2	2	0	1	1	0
		Gorakhpur -2	Yes	Yes				2	0	2	1	0	1
		LR with Purnea -2		Yes				1	0	1			
		LR with Gorakhpur -2		Yes				1	0	1			
		Biharshariff -1	Yes	Yes				2	0	2	1	0	1
		Tie of Biharshariff -1						3	3	0	1	1	0
										0			0
		Biharshariff -2	Yes	Yes				2	0	2	1	0	1
		Tie of Biharshariff -2						3	3	0	1	1	0
		220 Kv System											
		Bus-1			Yes	no							
		Bus-2			Yes	Yes							
		ICT (400/220) -1	Yes	Yes				3	0	3	1	0	1
		ICT (400/220) -2	Yes	Yes				3	0	3	1	0	1
		ICT (400/220) -3	yes	yes				3	0		1	0	
		Muzaffarpur -1	Yes	Yes				4	0	4	1	0	1
		Muzaffarpur -2	Yes	Yes				4	0	4	1	0	1
		Bus Coupler						2	1	1	1	0	1
		TBC						3	0	3	1	0	1
		Hazipur -1	Yes	Yes				4	0	4	1	0	1
		Hazipur -2	Yes	Yes				4	4	0	1	1	0
		Nepal-1	Yes	Yes				2	0	2	1	0	
		Sub-Total	15	20	4	4	2	69	16	53	26	8	18
		Total Measurents			45			95					
		Total Available Measurents			43			24					

		Total Non-Available Measurents			2			71						
		% of Non-Availability			**4%**			**75%**						

									ISO			CB		
9	**Patna -400**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400KV System											
		Bus 1			Yes	Yes							
		Bus 2			Yes	Yes							
		Bay Of Balia -1	Yes	Yes				2	1	1	1	1	0
		Tie of Balia 1& Barh 2						2	2	0	1	1	0
		Bay Of Barh 2	NO	NO				2	0	2	1	0	1
		Line Reactor with Barh 2		no				1	0	1	1	0	1
		Bay Of Balia -2	Yes	Yes				2	1	1	1	1	0
		Tie of Balia 2 & Barh 2						2	2	0	1	1	0
		Bay Of Barh1	Yes	Yes				2	2	0	1	1	0
		Line Reactor with Barh 1		no				1	0	1	1	0	1
		Bay Of Balia -3	Yes	Yes				2	2	0	1	1	0
		Tie of Balia 3 & Barh 4						2	2	0	1	1	0
		Bay Of Barh4	Yes	Yes				2	2	0	1	1	0
		Bay Of Balia -4	Yes	Yes				2	2	0	1	1	0
		Tie of Balia 4 & Barh 3						2	2	0	1	1	0
		Bay Of Barh 3	Yes	Yes				2	2	0	1	1	0
		Bus Reactor - 80		Yes				2	2	0	1	1	0
		Tie of Bus Reactor & ICT -1						2	2	0	1	1	0
		ICT -1 (400 /220)					yes	2	2	0	1	1	0
		ICT -2(400 /220)					yes	2	2	0	1	1	0
		Tie of ICT -2						2	2	0	1	1	0
		Bus Reactor -125 1		Yes				2	2	0	1	1	0
		TIE of kishangaunj 2 & reactor 1						2	0	2	1	1	0
		kishangaunj 2	yes	Yes				2	2	0	1	1	0
		L/R of kishangaunj 2		Yes				1	1	0			
		kishangaunj 1	Yes	Yes				2	2	0	1	1	0
		L/R of kishangaunj 1		Yes				1	1	0			
		TIE of kishangaunj 1 & reactor 1						2	2	0	1	1	0
		Bus Reactor -125 2		Yes				2	2	0	1	1	0
		220 Kv System											
		ICT -1 (400 /220)	Yes	Yes				3	1	2	1	1	0
		Bay Of Fathwa	Yes	Yes				3	3	0	1	1	0
		Bay Of Khagaul	Yes	Yes				3	3	0	1	1	0
		ICT -2 (400 /220)	Yes	Yes				3	2	1	1	1	0
		Sipara line -1	Yes	Yes				3	3	0	1	1	0
		Sipara line -2	Yes	Yes				3	3	0	1	1	0
		Sipara line -3	no	no				3	0	3	1	0	1
		TBC						3	3	0	1	1	0
		BC						2	2	0	1	1	0
		BUS 1			YES	YES							
		BUS 2			YES	yes							
		Sub-Total	17	24	4	4	2	76	62	14	34	30	4
		Total Measurents			51			110					
		Total Available Measurents			45			92					
		Total Non-Available Measurents			6			18					
		% of Non-Availability			**12%**			**16%**					

									ISO			CB		
10	**Purnea-220**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		220 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		ICT (220/132) -1					yes	3	3	0	1	1	0
		ICT (220/132) -2					yes	3	3	0	1	1	0
		ICT (220/132) -3					yes	3	3	0	1	1	0
		Purnea -1	Yes	Yes				4	4	0	1	1	0
		Purnea -2	Yes	Yes				4	4	0	1	1	0
		Dalkhola -1	Yes	Yes				4	4	0	1	1	0
		Dalkhola -2	Yes	Yes				4	4	0	1	1	0
		Bus Coupler						1	1	0	1	1	0
		TBC						3	3	0	1	1	0
		132 Kv System											
		ICT (220/132) -1	Yes	yes			no	2	2	0	1	1	0
		ICT (220/132) -2	yes	Yes			no	2	2	0	1	1	0
		ICT (220/132) -3	Yes	Yes				2	2	0	1	1	0
		Purnea -1	Yes	Yes				3	3	0	1	1	0
		Purnea -2	Yes	no				3	3	0	1	1	0
		Purnea -3	Yes	no				3	3	0	1	1	0
		Bus Coupler						2	2	0	1	1	0
		Kishanganj (Dal)	Yes	Yes				3	3	0	1	1	0
		Bus			Yes	Yes							
		Sub-Total	11	11	3	3	5	49	49	0	17	17	0
		Total Measurents			33			66					
		Total Available Measurents			29			66					
		Total Non-Available Measurents			4			0					
		% of Non-Availability			**12%**			**0%**					

									ISO			CB		
11	**Purnea -400**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		Bus-1			Yes	no							
		Bus-2			Yes	Yes							
		ICT (400/220)- 2					Yes	2	2	0	1	1	0
		Tie of ICT- 2						2	2	0	1	1	0
		Si400 - 1	Yes	Yes				2	2	0	1	1	0
		LR with Si400 - 1		Yes				1	1	0			

		ICT (400/220)- 1					Yes	2	2	0	1	1	0
		Tie of ICT- 1						2	2	0	1	0	1
		Si400 - 1	Yes	Yes				2	2	0	1	1	0
		Si400 -3	Yes	Yes				2	1	1	1	1	0
		Tie of Si400 -3						2	2	0	1	1	0
		Muzaffarpur-1	Yes	Yes				2	2	0	1	1	0
		TCSC & FSC		no				3	3	0			
		LR with Muzaff -1		Yes				1	1	0	1	1	1
		Si400 -4	Yes	Yes				2	2	0	1	1	0
		Tie of Si400 -4						2	2	0	1	1	0
		Muzaffarpur-2	Yes	Yes				2	2	0	1	1	0
		TCSC & FSC						3	3	0			
		LR with Muzaff -2		Yes				1	1	0	1	1	0
		Malda -2	Yes	Yes				2	2	0	1	1	0
		Tie of Malda -2						2	2	0	1	1	0
		Bus Recator -1		Yes				2	2	0	1	1	0
		Malda -1	YES	Yes				2	2	0	1	1	0
		Tie of Malda -1						2	2	0	1	1	0
		Bus Recator -2		Yes				2	2	0	1	1	0
		Binaguri-1	yes	no				2	2	0	1	1	0
		Binaguri-2	yes	yes				2	2	0	1	1	0
		Biharshariff -1	Yes	Yes				2	2	0	1	1	0
		Tie of Biharshariff -1						2	1	1	1	1	0
		Biharshariff -2	Yes	Yes				2	2	0	1	1	0
		Tie of Biharshariff -2						2	2	0	1	1	0
		220 Kv System											
		Bus-1			Yes	Yes							
		Bus-2			Yes	Yes							
		ICT (400/220) -1	Yes	Yes				3	3	0	1	1	0
		ICT (400/220) -2	Yes	Yes				3	3	0	1	1	0
		Purnea -1	Yes	no				4	4	0	1	1	0
		Purnea -2	Yes	Yes				4	4	0	1	1	0
		Bus Coupler						1	1	0	1	1	0
		TBC						3	3	0	1	1	0
		Madhepura -1	Yes	Yes				4	4	0	1	1	0
		Madhepura -2	Yes	Yes				4	4	0	1	1	0
		Sub-Total	18	24	4	4	2	83	81	2	34	33	1
		Total Measurents			52			117					
		Total Available Measurents			48			114					
		Total Non-Available Measurents			4			3					
		% of Non-Availability			**8%**			**3%**					

								ISO			CB		
12	**Ranchi**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400KV System											
		Bus 1			Yes	Yes							
		Bus 2			Yes	Yes							
		Bay Of Rourkela 2	Yes	Yes				3	3	0	1	1	0
		Tie of Rourkela 2 & Maithon Right Bank 2						2	2	0	1	1	0
		Bay Of Maithon Right Bank 2	Yes	Yes				3	3	0	1	1	0
		Line Reactor with Maithon Right Bank 2		no				1	1	0			
		Bay Of Maithon Right Bank 1	Yes	Yes				3	0	3	1	0	1
		Line Reactor with Maithon Right Bank 1		no				1	0	1	1	0	
		Tie of Maithon Right Bank 1						2	0	2	1	0	1
		125 MVAR Bus Recator		Yes				3	0	3	1	0	1
		Bay Of Sipat 2	Yes	Yes				2	2	0	1	1	0
		Line Reactor with Sipat 2		Yes				1	1	0			
		Tie of Sipat 2						2	2	0	1	1	0
		Future						1	1	0	1	1	0
		FSC with Bay Of Sipat 2						3	2	1	1	1	0
		Bay Of Sipat 1	Yes	Yes				3	3	0	1	1	0
		Line Reactor with Sipat 1		Yes				1	1	0			
		Tie of Sipat 1						2	2	0	1	1	0
		Future						1	1	0	1	1	0
		FSC with Bay Of Sipat 1						3	2	1	1	0	1
		Bus Reactor -80		Yes				2	2	0	1	1	0
		Tie of Bus Reactor						2	2	0	1	1	0
		Future						2	1	1	1	0	1
		Bay Of Rourkela 1	Yes	Yes				2	2	0	1	1	0
		Tie of Rourkela 1						2	2	0	1	1	0
		future						2	2	0	1	0	1
		Maithon 2 (LILO at RGHPR 1)	Yes	Yes				2	2	0	1	1	0
		Tie of Maithon 2 & ICT-2						2	2	0	1	1	0
		ICT -2 (400 /220)					no	2	2	0	1	1	0
		Maithon 1	Yes	Yes				2	2	0	1	1	0
		Tie of Maithon 1& ICT-1						2	1	1	1	1	0
		ICT -1 (400 /220)					no	2	2	0	1	1	0
		New Ranchi 1	Yes	Yes				2	2	0	1	1	0
		TIE OF NEW RANCHI 1						2	0	2	1	0	1
		FUTURE											
		New Ranchi 2	Yes	Yes				2	2	0	1	1	0
		TIE OF NEW RANCHI 2						2	0	2	1	0	1

		FUTURE											
		New Ranchi 3	Yes	Yes				2	2	0	1	1	0
		TIE OF NEW RANCHI 3						2	2	0	1	1	0
		FUTURE											
		New Ranchi 4	Yes	Yes				2	0	2	1	0	1
		TIE OF NEW RANCHI 4						2	2	0	1	1	0
		FUTURE											
		220 Kv System											
		ICT -2 (400 /220)	Yes	Yes				3	3	0	1	1	0
		TBC						3	3	0	1	1	0
		Bay Of Hatia -1 (N)	Yes	Yes				3	3	0	1	1	0
		ICT -1 (400 /220)	Yes	Yes				3	3	0	1	1	0
		Bay Of Chandil 2	Yes	Yes				3	3	0	1	1	0
		BC						2	2	0	1	1	0
		Bay Of Chandil 1	Yes	Yes				3	3	0	1	1	0
		Bay Of Hatia -1 (N)	Yes	Yes				3	3	0	1	1	0
		Bus 1											
		Bus 2			Yes	Yes							
		Sub-Total	18	24	3	3	2	100	81	19	43	33	10
		Total Measurents			50			143					
		Total Available Measurents			46			114					
		Total Non-Available Measurents			4			29					
		% of Non-Availability			**8%**			**20%**					

								ISO			CB		
13	**Sasaram**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1 (North)			yes	Yes							
		Bus-2 (North)			Yes	Yes							
		ICT (76 5/ 400)	Yes	Yes				1	1	0	1	1	0
		Alahabad	Yes	Yes				2	2	0	1	1	0
		Tie of Alahabad						3	3	0	1	1	0
		LR with Alahabad		Yes				1	1	0			
		Sarnad	Yes	Yes				2	2	0	1	1	0
		Tie of Sarnad						3	3	0	1	1	0
		LR with Sarnad		Yes				1	1	0			0
		HVDC B to B(east)	Yes	Yes				1	1	0	1	1	0
		HVDC B to B (north)	Yes	Yes				1	0	1	1	1	0
		AC By pass -East	yes	yes				1	1	0			
		AC By pass -North	Yes	Yes				1	1	0			
		Filter Dia North Bus						6	6	0	5	5	0
		TIE EAST And NORTH						4	4	0	2	2	0
		Filter Dia East Bus						6	6	0	5	5	0
		Bus-1 (East)			Yes	Yes							
		Bus-2(East)			Yes	Yes							
		ICT (400/220)- 1					Yes	2	2	0	1	1	0
		Tie of ICT- 1						3	3	0	1	1	0
		ICT (400/220)- 2					Yes	2	2	0	1	1	0
		Tie of ICT- 2						2	2	0	1	1	0
		Biharsff -1	Yes	Yes				2	2	0	1	1	0
		LR with Biharsff -1		Yes				1	1	0			
		Bus Reactor -1 (125 MVAR)		Yes				2	2	0	1	1	0
		Tie of Bus Reactor -1						2	2	0	1	1	0
		Biharsff -2	Yes	Yes				2	2	0	1	1	0
		LR with Biharsff -2 (63 MVAR)		Yes				1	1	0			
		Bus Reactor -2 (125 MVAR)		Yes				2	2	0	1	1	0
		Tie of Bus Reactor -2						2	2	0	1	1	0
		Biharsff -3	Yes	Yes				2	2	0	1	1	0
		LR with Biharsff -3 (50 MVAR)		Yes				1	1	0	1	1	0
		Nabinagar 1						1	1	0	1	1	0
		Balia	Yes	Yes				2	2	0	1	1	0
		LR with Balia (50 MVAR)		Yes				1	1	0	1	1	0
		Tie of Balia						2	2	0	1	1	0
		220 Kv System											
		Bus-1			Yes	Yes							
		Bus-2			Yes	Yes							
		ICT (400/220) -1	Yes	Yes				3	3	0	1	0	1
		ICT (400/220) -2	Yes	Yes				3	3	0	1	0	1
		Arrah -1	Yes	Yes				4	4	0	1	0	1
		Arrah -2	Yes	Yes				4	4	0	1	1	0
		Bus Coupler						2	2	0	1	1	0
		TBC						3	3	0	1	1	0
		Sahupuri	Yes	Yes				4	4	0	1	0	1
		Dehri	Yes	Yes				4	4	0	1	0	1
		132 Kv System											
		Bus Coupler						2	2	0	1	1	0
		Dehri	Yes	Yes				3	0	3	1	1	0
		Karmnasha	Yes	Yes				3	3	0	1	1	0
		Station Xmr (132/11) -1	Yes	Yes			yes	2	1	1	1	1	0
		Station Xmr (132/11) -2	Yes	Yes			yes	2	2	0	1	1	0
		765 Kv System											
		Fathehpur Line	YES	Yes				3	3	0	1	1	0
		Bus-1			YES	YES							
		Bus-2			yes	Yes							
		Midpoint Reactor (Shunt) of Gaya-Fathepur		Yes				1	1	0	1	1	0
		ICT (765/400) KV					no	3	3	0	1	1	0
		LINE REACTOR : 330		YES				1	1	0	1	1	0
		BUS REACTOR : 330		YES				3	2	1	1	1	0

		ICT tie DIA						2	2	0	1	1	0
		Sub-Total	22	33	8	8	5	117	111	6	54	49	5
		Total Measurents			76			171					
		Total Available Measurents			75			160					
		Total Non-Available Measurents			1			11					
		% of Non-Availability			**1%**			**6%**					

								ISO			CB		
14	**New Ranchi**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		765 Kv System											
		Bus -1			yes	no							
		Bus 2			yes	no							
		Bus Recator1 - 240		yes				2	1	1	1	1	0
		Tie of Bus Recator 1- 240						3	0	3	1	0	1
		Bus Recator 2- 240		yes				2	1	1	1	1	0
		Tie of Bus Recator 2- 240						3	3	0	1	1	0
		765/400 ICT 1					No	2	2	0	1	1	0
		tie of ict 1						3	3	0	1	1	0
		765/400 ICT 2					no	2	2	0	1	1	0
		tie of ICT 2						2	2	0	1	1	0
		Dharamjoygarh	yes	yes				2	2	0	1	1	0
		L/R with Dharamjoyarh		no				1	1	0	1	1	0
		400 Kv System											
		Bus -1			yes	yes							
		Bus 2			yes	yes							
		Ranchi Line -1	yes	yes				2	2	0	1	1	0
		Tie of Ranchi Line -1						2	2	0	1	1	0
		BUS REACTOR 2		yes				2	2	0	1	1	0
		Bus Rector 2 -125		yes				2	2	0	1	1	0
		Tie of Bus Rector 2 -125						2	2	0	1	1	0
		RANCHI Line -3	yes	yes				2	2	0	1	1	0
		RANCHI 2		yes				2	2	0	1	1	0
		Tie of RANCHI 2						2	2	0	1	1	0
		ICT 2	yes	yes				2	2	0	1	1	0
		ICT 1		yes				2	2	0	1	1	0
		Tie of ICT1						2	2	0	1	1	0
		RANCHI 4	yes	yes				2	2	0	1	1	0
		Chandwa-1	yes	yes				2	2	0	1	1	0
		Chandwa-1	yes	yes				2	2	0	1	1	0
		Sub-Total	7	14	2	2	2	50	45	5	24	23	1
		Total Measurents			27			74					
		Total Available Measurents			26			68					
		Total Non-Available Measurents			5			6					
		% of Non-Availability			**19%**			**8%**					

								ISO			CB		
15	**Angul**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
	DATA INTERITTENT	**400 Kv System**											
		Bus -1			yes	yes							
		Bus -2			yes	yes							
		JITPL line1	no	no				2	0	2	1	1	0
		Tie of JITPL line						3	0	3	2	1	1
		JITPL line2	no	no				2	1	1	1	0	1
		Tie of JITPL line						3	0	3	2	1	1
		765/400kV ICT 3	yes	yes				2	2	0	1	1	0
		Tie of 765/400kV ICT 3						3	3	0	2	0	2
		765/400kV ICT 4	no	no				2	2	0	1	1	0
		Tie of 765/400kV ICT 4						3	0	3	2	0	2
		Bolangir	yes	yes				2	0	2	1	1	0
		Tie of bolangir						2	0	2	1	1	0
		765/400kV ICT 1	no	no				2	0	2	1	1	0
		Meeramundali1	yes	yes				2	0	2	1	1	0
		Tie of Meeramundali						2	0	2	1	1	0
		Bus Rector 1 -50		yes				2	0	2	1	1	0

		Talcher	yes	yes				2	0	2	1	1	0
		Tie of Talcher						2	0	2	1	0	1
		765/400kV ICT 1	yes	yes				2	0	2	1	0	1
		Meeramundali2	yes	yes				2	0	2	1	1	0
		Tie of Meeramundali						2	0	2	1	0	1
		Bus Rector 2-50		yes				2	0	2	1	1	0
									0				
		Bus Rector 3 -50		yes				2	0	2	1	1	0
		Tie of Bus Rector 3 -50						3	0	3	2	0	2
		765 KV											
		765/400kV ICT 4	yes	yes			no	2	0	2	1	0	1
		Tie of 765/400kV ICT 4						2	0	2	1	0	1
		Bus Reactor 2		no				2	0	2	1	0	1
		765/400kV ICT 3	yes	yes			no	2	0	2	1	0	1
		Tie of 765/400kV ICT 3						2	0	2	1	0	1
		Bus Reactor 1		no				2	0	2	1	0	1
		765/400kV ICT 2	no	no			yes	2	2	0	1	1	0
		Tie of 765/400kV ICT 2						2	0	2	1	0	1
		Jharsuguda 2	no	no				2	0	2	1	0	1
		L/R of Jharsuguda 2		no							1	0	1
		765/400kV ICT 1	yes	yes			no	2	2	0	1	1	0
		Tie of 765/400kV ICT 1						2	2	0	1	1	0
		Jharsuguda 1	yes	yes				2	0	2	1	0	1
		L/R of Jharsuguda 1		yes							1	0	1
		Sub-Total	16	23	2	2	4	73	14	59	41	18	23
		Total Measurents			47			114					
		Total Available Measurents			29			32					
		Total Non-Available Measurents			18			82					
		% of Non-Availability			**38%**			**72%**					

								ISO			CB		
16	**Baripada**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			YES	YES							
		Bus-2			YES	YES							
		Keonjhar line	YES	YES				2	2	0	1	1	0
		ICT-1 (400/220)					YES	2	2	0	1	1	0
		Tie of Rengali & ICT-1						2	2	0	1	1	0
		Line Reactor with Keonjhar line		no				1	1	0	1	1	0
		Kharagapur	YES	YES				2	2	0	1	1	0
		ICT-2 (400/220)					YES	2	2	0	1	1	0
		Tie of Kolaghat & ICT-2						2	2	0	1	1	0
		Mendhasal line -1	YES	YES				2	2	0	1	1	0
		Tie of Mendhasal line -1						2	2	0	1	1	0
		Jamshedpur	YES	no				2	2	0	1	1	0
		Mendhasal line -2	YES	YES				2	2	0	1	1	0
		Tie of Mendhasal line -2						2	2	0	1	1	0
		Tisco -1	YES	YES				2	2	0	1	1	0
		220 Kv System											
		Bus-1			YES	YES							
		Bus-2			YES	YES							
		Balasore Line -1	YES	YES				4	4	0	1	1	0
		Bus Coupler						2	1	1	1	1	0
		ICT (400/220) -2	YES	YES				3	3	0	1	1	0
		TBC						3	3	0	1	1	0
		ICT (400/220) -1	YES	YES				3	3	0	1	1	0
		ICT (220 /132) -4					YES	3	3	0	1	1	0
		ICT (220/132) -3					YES	3	3	0	1	1	0
		Balasore Line -2	YES	YES				4	4	0	1	1	0
		132 Kv System											
		Bus-1			YES	YES							
		ICT (220 /132) -4	YES	YES				2	2	0	1	1	0
		Baripada Line	YES	YES				3	3	0	1	1	0
		ICT (220/132) -3	YES	YES				2	2	0	1	1	0
		Bus Coupler						1	1	0	1	1	0
		Rairangpur Line	no	YES				3	3	0	1	0	1
		Sub-Total	14	15	5	5	4	61	60	1	26	25	1
		Total Measurents			43			87					
		Total Available Measurents			40			85					
		Total Non-Available Measurents			3			2					
		% of Non-Availability			**7%**			**2%**					

								ISO			CB		
17	**Binaguri**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System								0			0
		Bus-1			Yes	Yes				0			0
		Bus-2			Yes	no				0			0
		Purnea -1	Yes	Yes				2	2	0	1	1	0
		Tie of Purnea -1						2	2	0	1	1	0
		Purnea -2	Yes	Yes				2	2	0	1	1	0
		Tie of Purnea -2						2	2	0	1	1	0

		LR -80 with Bonga -4		Yes				1	1	0	1	1	0
		LR -80 with Bonga -3		Yes				1	1	0	1	1	0
		Purnea -4	Yes	Yes				2	2	0	1	1	0
		Tie of Purnea -4						2	2	0	1	1	0
		Bus Recator -2 : 125		Yes				2	2	0	1	1	0
		Purnea -3	Yes	Yes				2	2	0	1	1	0
		Tie of Purnea -3						2	2	0	1	1	0
		Bus Recator -1 : 125		Yes				2	2	0	1	1	0
										0			0
		Teesta-2	Yes	Yes				2	2	0	1	1	0
		Tie of Teesta-2						2	2	0	1	1	0
		Bongaigaon 2	Yes	Yes				2	2	0	1	1	0
		Tie of Bongaigaon 2						2	2	0	1	0	1
		Teesta-1	Yes	Yes				2	2	0	1	1	0
		Tie of Teesta-1						2	2	0	1	1	0
		Bongaigaon 1	Yes	Yes				2	2	0	1	1	0
		Bongaigaon 3	yes	yes				2	2	0	1	0	1
		ICT (400/220)- 1					Yes	2	2	0	1	1	0
		Tie of ICT- 1						2	2	0	1	1	0
		Tala 1	Yes	Yes				2	2	0	1	1	0
		LR with Tala-1		Yes				1	1	0			0
										0			0
		ICT (400/220)- 2					Yes	2	2	0	1	1	0
		Tie of ICT- 2						2	2	0	1	1	0
		Tala 2	Yes	Yes				2	2	0	1	1	0
		LR with Tala-2		Yes				1	1	0			0
										0			0
		Tala 4	Yes	Yes				2	2	0	1	1	0
		Tie of Tala 4						2	2	0	1	1	0
		Malbase	Yes	Yes				2	2	0	1	1	0
		LR with Tala-4		Yes				1	1	0			0
										0			0
		220 Kv System								0			0
		Bus-1			Yes	no				0			0
		Bus-2			no	no				0			0
		ICT (400/220) -1	Yes	Yes				3	3	0	1	1	0
		ICT (400/220) -2	Yes	Yes				3	3	0	1	1	0
		Si220 -1	Yes	Yes				4	4	0	1	1	0
		Si220 -2	Yes	Yes				4	4	0	1	1	0
		Brpara 1	Yes	Yes				4	4	0	1	1	0
		Brpara 2	Yes	Yes				4	4	0	1	1	0
		Bus Section -1	Yes	Yes				1	1	0	1	1	0
		Bus Section -2	Yes	Yes				1	1	0	1	1	0
		Bus Coupler						1	1	0	1	1	0
		TBC						3	3	0	1	1	0
										0			0
		Sub-Total	21	28	4	4	2	87	87	0	39	37	2
		Total Measurents			59			126					
		Total Available Measurents			55			124					
		Total Non-Available Measurents			4			2					
		% of Non-Availability			**7%**			**2%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
18	**Birpara**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		220 Kv System											
		Bus-1			Yes	Yes							
		Bus-2			Yes	Yes							
		ICT 2 (220/132)					Yes	3	3	0	1	1	0
		Bay For Silliguri Line 2	Yes	Yes				4	4	0	1	1	0
		Bay For Silliguri Line 1	Yes	Yes				4	4	0	1	1	0
		ICT -1 (220/132)					Yes	3	3	0	1	1	0
		Bay For Chukha HEP Line 2	Yes	Yes				4	4	0	1	1	0
		Bay For Chukha HEP Line 1	Yes	Yes				4	4	0	1	1	0
		Bay For Bongaigaon Line 2	Yes	Yes				4	4	0	1	1	0
		Bay For Bongaigaon Line 1	Yes	Yes				4	4	0	1	1	0
		Bay For Malbase	Yes	Yes				4	4	0	1	1	0
		Bus Coupler Between Bus 1 & Bus 2						1	1	0	1	1	0
		Transfer Bus Coupler						3	3	0	1	1	0
		132 KV System								0			0
		ICT 2 (220/132)	Yes	Yes				2	2	0	1	1	0
		Bus Coupler Between Bus 1 & Bus 2						1	1	0	1	1	0
		Birpara Line 1	Yes	Yes				2	2	0	1	1	0
		Birpara Line 2	Yes	Yes				2	2	0	1	1	0
		ICT 1 (220/132)	Yes	Yes				2	2	0	1	1	0
		Bus			Yes	Yes							
		Sub-Total	11	11	3	3	2	47	47	0	16	16	0
		Total Measurents			30			63					
		Total Available Measurents			30			63					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
19	**Bolangir (n)**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System								0			0
		Bus 1			Yes	yes							
		Bus 2			yes	yes							
		Bay Of Jeypore	yes	yes				2	2	0	1	1	0
		Line Recator with Jeypore		yes				1	1	0	1	1	0
		Tie dia of Jeypore						2	2	0	1	1	0
		ICT 2	yes	yes			yes	2	2	0	1	1	0
		Bay Of Angul	yes	yes				2	2	0	1	1	0

		Line Recator with Angul		yes				1	1	0	1	1	0
		Tie of Angul						2	2	0	1	1	0
		ICT - I (400/220) -I	yes	yes			yes	2	2	0	1	1	0
		Bus Reactor - 80 MVAR		yes				2	2	0	1	1	0
		Tie Dia Bus Reactor - 80 MVAR						2	2	0	1	1	0
		Sub-Total	4	7	2	2	2	18	18	0	10	10	0
		Total Measurents			17			28					
		Total Available Measurents			17			28					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					

								ISO			CB		
20	**Dalkhola**	**220 Kv System**	**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		Bus-1			Yes	Yes							
		Bus-2			no	no							
		Dalkhola WB - 1	Yes	Yes				4	4	0	1	1	0
		Dalkhola WB - 2	Yes	Yes				4	4	0	1	1	0
		Transfer Bus Coupler						3	3	0	1	1	0
		Bay For Purnea Line 1	Yes	Yes				4	4	0	1	1	0
		Bay For Purnea Line 2	Yes	Yes				4	4	0	1	1	0
		Bus Coupler						1	1	0	1	1	0
		Bay For Malda Line 1	Yes	Yes				4	4	0	1	1	0
		Bay For Malda Line 2	Yes	Yes				4	4	0	1	1	0
		Bay For Silliguri Line 1	Yes	Yes				4	4	0	1	1	0
		Bay For Silliguri Line 2	Yes	Yes				4	4	0	1	1	0
		Sub-Total	8	8	2	2	0	36	36	0	10	10	0
		Total Measurents			20			46					
		Total Available Measurents			18			46					
		Total Non-Available Measurents			2			0					
		% of Non-Availability			**10%**			**0%**					

								ISO			CB		
21	**Durgapur**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
										0			0
		400 Kv System								0			0
		Bus-1			Yes	no				0			0
		Bus-2			Yes	Yes				0			0
										0			0
		MAITHON-2	Yes	Yes				2	2	0	1	1	0
		Tie of MAITHON-2						3	3	0	2	2	0
										0			0
		MAITHON-1	Yes	Yes				2	2	0	1	1	0
		FARAKKA-2	Yes	Yes				2	2	0	1	1	0
		Tie of MAITHON-1 & FARAKKA-2						2	2	0	1	1	0
										0			0
		FARAKKA-1	Yes	Yes				2	2	0	1	1	0
		Tie of FARAKKA-1						2	2	0	1	1	0
		sagardighi-2						2	2	0	1	1	0
										0			0
		Sagardighi-1	Yes	Yes				2	2	0	1	1	0
		Tie of Sagardighi-1						2	2	0	1	0	1
		bidhan nagar 2	Yes	Yes				2	2	0	1	1	0
		Tie of Bidhan Nagar-2						2	2	0	1	1	0
		ICT-2 (400/220)	yes	yes			no	2	2	0	1	1	0
		Tie of ICT-2 (400/220)						3	3	0	1	1	0
										0			0
		ICT-1 (400/220)	yes	yes			no	2	2	0	1	0	1
		Bidhannagar -1	Yes	Yes				2	2	0	1	1	0
		Tie of ICT-1 (400/220) & Bidhannagar -1						2	2	0	1	1	0
		Line Reactor -1 with Bidhannagar -1		Yes				1	1	0			0
										0			0
		Jamshedpur line	Yes	Yes				2	2	0	1	1	0
		Jamshedpur line Tie						2	2	0	1	0	
		Jamshedpur line -2	no	no				2	2	0	1	0	
		Jamshedpur line -3	yes	yes				2	2	0	1	1	
		Tie of Jamshedpur line & Bus Reactor						2	2	0	1	1	0
		Bus Reactor		Yes				2	2	0	1	1	0
										0			0
		220 Kv System								0			0
		BUS-1			Yes	no				0			0
		BUS-2			Yes	no				0			0
		Bus Coupler						2	2	0	1	0	1
		ICT-2 (400/220)	Yes	Yes				2	2	0	1	1	0
		Parulia - DV1	Yes	Yes				3	3	0	1	1	0
		Bus Sectionaliser						2	2	0	1	1	0
		Parulia - DV2	Yes	Yes				3	3	0	1	1	0
		Durgapur :WB	Yes	Yes				3	3	0	1	1	0
		Bus Coupler (E_7)						2	2	0	1	1	0
		ICT-1 (400/220)	Yes	Yes				2	2	0	1	1	0
		Sub-Total	17	19	4	4	2	68	68	0	32	27	5

		Total Measurents	46	100
		Total Available Measurents	39	95
		Total Non-Available Measurents	7	5
		% of Non-Availability	**15%**	**5%**

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
22	**Jharsuguda**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		Bus 1			YES	YES							
	DATA INTERMITTENT	Bus 2			YES	YES							
		Raigarh Line -2	YES	YES				2	2	0	1	1	0
		Tie of Raigarh Line 2						2	2	0	1	1	0
		765/400 kv ICT1	YES	YES			no	2	2	0	1	1	0
		Rouerkela Line -2						2	0	2	1	0	1
		TIE						2	0	2	1	0	1
		765/400 kv ICT2	YES	YES			no	2	0	2	1	0	1
		Bus Reactor-1		YES				2	2	0	1	0	0
		Tie						2	0	2	1	0	0
		Bus Reactor-2		YES				2	2	0	1	1	0
		Tie						2	0	2	1	0	0
		IBEUL Line -1	YES	YES				2	2	0	1	1	0
		Tie of IBEUL Line 1						3	1	2	1	0	0
		Rouerkela Line -2	YES	YES				2	2	0	1	1	0
		TIE						3	1	2	1	0	1
		765kV											
		Bus Reactor-3		YES				2	2	0	1	1	0
		Tie bay						2	2	0	1	1	0
		765/400 kv ICT1					NO	2	2	0	1	1	0
									0				
		Bus Reactor-2		YES				2	2	0	1	1	0
		tie bay						2	2	0	1	1	0
		765/400 kv ICT2					NO	2	2	0	1	1	0
		dharamjaigarh 1	YES	YES				2	2	0	1	1	0
		Tie of dharamjaigarh1						3	3	0	1	1	0
		dharamjaigarh 2	YES	YES				2	2	0	1	1	0
		Tie of dharamjaigarh2						3	3	0	1	1	0
		Angul1						2	1	1	1	1	0
		Tie of angul1						2	2	0	1	1	0
		line reactor of angul1		YES							1	0	1
		Angul2						2	2	0	1	1	0
		Tie of angul2						2	2	0	1	1	0
		line reactor of angul2		YES							1	0	1
		Sub-Total	7	13	2	2	4	58	43	15	29	19	10
		Total Measurents			28			87					
		Total Available Measurents			24			62					
		Total Non-Available Measurents			4			25					
		% of Non-Availability			**14%**			**29%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
23	**Indravati**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
										0			0
		Bus 1			Yes	Yes				0			0
		Bus 2			Yes	Yes				0			0
		Bay Of Jeypore	Yes	Yes				3	3	0	1	1	0
		Bay Of Rengali	Yes	Yes				3	3	0	1	1	0
		Reactor with Rengali		Yes				1	1	0			0
		Tie Line Between Jeypore & Rengali						2	2	0	1	1	0
										0			0
										0			0
		Bay Of Indravati HPS Line 1	Yes	Yes				2	2	0	1	1	0
		Bay Of Indravati HPS Line 12	Yes	Yes				2	2	0	1	1	0
		Tie Line Between Indravati HPS Line 1						1	1	0	1	1	0
										0			0
		Sub-Total	4	5	2	2	0	14	14	0	6	6	0
		Total Measurents			13			20					
		Total Available Measurents			13			20					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
24	**Gangtok**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		132 Kv System											
		Bus-1			YES	YES							
		Bus Coupler						1	1	0	1	1	0
		Melli	YES	YES				2	2	0	1	1	0
		Gangtok	YES	YES				2	2	0	1	1	0
		ICT 132/66 -I	YES	YES			no	2	2	0	1	1	0
		ICT 132/66 -II	YES	YES			no	2	2	0	1	1	0
										0			0

		Sub-Total	4	4	1	1	2	9	9	0	5	5	0
		Total Measurents			12			14					
		Total Available Measurents			10			14					
		Total Non-Available Measurents			2			0					
		% of Non-Availability			**17%**			**0%**					

								ISO			CB		
25	**Jeypore**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
										0			0
		400 Kv System								0			0
		BUS -1			no	no				0			0
		BUS -2			Yes	Yes				0			0
		BOLANGIR	Yes	Yes				2	2	0	1	1	0
		GAJUA-2	Yes	Yes				2	2	0	1	1	0
		Tie of BOLANGIR & GAJUA-2						2	2	0	1	1	0
		Line Rector with BOLANGIR		Yes				1	1	0			0
										0			0
		GAJUWAKA -1	Yes	Yes				2	2	0	1	1	0
		INDRA	Yes	Yes				2	2	0	1	0	1
		Tie of Indravati & GAJUA-1						2	0	2	1	0	1
										0			0
		ICT -2 (400/220)	Yes	no			Yes	2	2	0	1	1	0
		Bus Reactor		Yes				2	2	0	1	1	0
		Tie of ICT -2 &Bus Reactor						2	2	0	1	1	0
										0			0
		ICT -1 (400/220)					Yes	2	2	0	1	1	0
		Tie of ICT -1						2	0	2	1	1	0
										0			0
										0			0
		220 Kv System								0			0
										0			0
		JAYAN-1	Yes	Yes				4	4	0	1	0	1
		JAYAN-2	Yes	Yes				4	4	0	1	1	0
		ICT -2	Yes	Yes				3	3	0	1	1	0
		ICT -1	Yes	Yes				3	3	0	1	1	0
										0			0
		BUS-1			Yes	Yes				0			0
		BUS-2			Yes	Yes				0			0
										0			0
		BC						1	1	0	1	1	0
		TBC						3	3	0	1	1	0
										0			0
		Sub-Total	9	11	4	4	2	41	37	4	17	14	3
		Total Measurents			30			58					
		Total Available Measurents			27			51					
		Total Non-Available Measurents			3			7					
		% of Non-Availability			**10%**			**12%**					

								ISO			CB		
26	**Keonjhar**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus 1			yes	yes							
		Bus 2			yes	yes							
		Bay Of Baripda	yes	yes				2	2	0	1	1	0
		Tie of Baripda						2	2	0	1	1	0
		ICT -1	yes	yes			NO	2	2	0	1	1	0
		ICT -2	yes	yes			NO	2	2	0	1	1	0
		Bay Of Rengali	yes	yes				2	2	0	1	1	0
		Tie of Rengali						2	2	0	1	1	0
		Bus Reactor - 80 MVAR		yes				2	2	0	1	1	0
		Sub-Total	4	5	2	2	2	14	14	0	7	7	0
		Total Measurents			15			21					
		Total Available Measurents			13			21					
		Total Non-Available Measurents			2			0					
		% of Non-Availability			**13%**			**0%**					

								ISO			CB		
27	**Maithon**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		ICT (400/220)- 2					yes	2	2	0	1	0	1
		Tie of ICT- 2						3	3	0	1	0	1
		Kahal -2	yes	yes				2	2	0	1	1	0
		Tie of Kahal -2						2	2	0	1	1	0
		LR with Kahal -2		yes				1	1	0			
		Kodarama -1	yes	yes				2	2	0	1	1	0
		LR with Kodarama -1		yes				1	1	0			
		Bus Reactor-1						3	3	0	1	0	
		MTHRB -2	yes	yes				2	2	0	1	0	1
		Tie of MTHRB -2						2	2	0	1	1	0
		Kahal-1	yes	yes				2	2	0	1	0	1
		Kahal-1 Tie						2	2	0	1	0	
		Kahal-2	yes	no				2	2	0	1	0	
		LR with Kahal-1		yes				1	1	0			
		MTHRB -1	yes	yes				2	2	0	1	1	0
		Tie of MTHRB -1						2	2	0	1	1	0

		Durgapur -1	yes	yes				2	2	0	1	1	0
		Gaya -1	yes	yes				2	2	0	1	0	1
		Gaya -1 Tie						2	2	0	1	0	1
		Gaya -2	yes	yes				2	2	0	1	1	0
		Tie of Gaya-2						3	3	0	2	2	0
		LR with Gaya -2		yes				1	1	0			
		ICT (400/220)- 1					yes	2	2	0	1	1	0
		Tie of ICT- 1						2	2	0	1	1	0
		Mejia -B- 2	yes	yes				2	2	0	1	1	0
		Jamshepur -1	yes	no				2	2	0	1	1	0
		Tie of Jamshepur -1						2	2	0	1	0	1
		Lline Mejia -B- 1	yes	yes				2	2	0	1	0	1
		Tie Mejia -B- 1						2	2	0	1	0	1
		Lline Reactor Mejia -B- 1		yes				1	1	0	1	1	0
		Mejia -B-3	yes	yes				2	2	0	1	0	1
		Tie of Mejia -B-3						2	2	0	1	0	1
		Raghunathpur	yes	yes				2	2	0	1	0	1
		Ranchi 1	yes	yes				2	2	0	1	1	0
		Tie of Ranchi 1						2	2	0	1	1	0
		Durgapur-2	yes	yes				2	2	0	1	1	0
		Bus Sectionalizer(Bus1 & Bus3)						2	2	0	1	0	1
		220 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		ICT (400/220) -1	yes	yes				3	3	0	1	1	0
		ICT (400/220) -2	yes	yes				3	3	0	1	0	1
		Dhanbad -1	yes	yes				4	4	0	1	1	0
		Dhanbad -2	yes	yes				4	4	0	1	1	0
		Kalyaneswari -3	yes	yes				4	4	0	1	1	0
		Kalyaneswari -4	yes	yes				4	4	0	1	1	0
		Bus Coupler						1	1	0	1	1	0
		TBC						3	3	0	1	1	0
										0			0
		Sub-Total	22	27	4	4	2	98	98	0	42	25	17
		Total Measurents			59			140					
		Total Available Measurents			57			123					
		Total Non-Available Measurents			2			17					
		% of Non-Availability			**3%**			**12%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
28	**Malda**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System								0			0
										0			0
		Bus-1			Yes	Yes				0			0
		Bus-2			Yes	Yes				0			0
		ICT (400 /220)-1					no	3	3	0	1	1	0
										0			0
		Farakka-2	Yes	Yes				4	4	0	1	1	0
		ICT (400 /220)-2					yes	3	3	0	1	1	0
		TBC						3	3	0	1	1	0
		Purnia-2	Yes	Yes				4	4	0	1	1	0
		Line Reactor with Purnia -2		Yes				1	1	0			0
										0			0
		Purnia-1	Yes	Yes				4	4	0	1	1	0
		Line Reactor with Purnia -1		Yes				1	1	0			
		BC						1	1	0	1	1	0
										0			0
		Farakka-1	**Yes**	**Yes**				4	4	0	1	1	0
		220 KV								0			0
		ICT (400/220) -1	Yes	Yes				**3**	3	0	**1**	**1**	0
		ICT (400/220) -2	Yes	Yes				**3**	3	0	**1**	**1**	0
		BUS-1			Yes	Yes				0			0
		BUS-2			Yes	Yes				0			0
										0			0
		DALKH-1	Yes	Yes				**4**	**4**	0	**1**	**1**	0
		DALKH-2	Yes	Yes				**4**	**4**	0	**1**	**1**	0
										0			0
		ICT (220/ 132) -5					yes	**3**	3	0	**1**	**1**	0
		BC						**2**	2	0	**1**	**1**	0
		ICT (220/ 132) -4					yes	**3**	3	0	**1**	**1**	0
		TBC						**3**	**3**	0	**1**	**1**	0
		ICT (220/ 132) -3					NO	**3**	**3**	0	**1**	**1**	0
										0			0
		132 KV								0			0
		Bus-1			Yes	Yes				0			0
										0			0
		ICT (220/ 132) -5	Yes	Yes			no	2	2	0	1	1	0
		BC						2	2	0	1	1	0
		ICT (220/ 132) -4	Yes	Yes				2	2	0	1	1	0
										0			0
		CS WB-1	Yes	Yes				3	3	0	1	1	0
		CS WB-2	Yes	Yes				3	3	0	1	1	0
		ICT (220/ 132) -3	Yes	Yes				2	2	0	1	1	0
										0			0
		Sub-Total	13	15	5	5	6	70	70	0	23	23	0
		Total Measurents			44			93					
		Total Available Measurents			41			93					
		Total Non-Available Measurents			3			0					
		% of Non-Availability			**7%**			**0%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
29	**RANGPO**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**

		132 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		Bus-3			yes	yes							
		Bus-4			yes	yes							
		CHUZACHEN	yes	yes				3	3	0	1	1	0
		GANTK 1	yes	yes				3	3	0	1	1	0
		RANGIT	yes	yes				3	3	0	1	1	0
		GANTAK 2	yes	yes				3	3	0	1	1	0
		BC 1						2	2	0	1	1	0
		BC2						2	2	0	1	1	0
		BUS SECTIONALISER 1						2	2	0	1	1	0
		BUS SECTIONALISER 2						2	2	0	1	1	0
		220/132 KV ICT 1	yes	yes				3	3	0	1	1	0
		220/132 KV ICT 2	yes	yes				3	3	0	1	1	0
		220/132 KV ICT 3	yes	yes				3	3	0	1	1	0
		220 Kv System											
		Bus 1			yes	yes							
		Bus 2			yes	yes							
		220/132 kV ICT 1					yes	3	3	0	1	1	0
		220/132 kV ICT 2					yes	3	3	0	1	1	0
		220/132 kV ICT 3					yes	3	3	0	1	1	0
		400/220 kV ICT 1	yes	yes				3	3	0	1	1	0
		400/220 kV ICT 2	yes	yes				3	3	0	1	1	0
		400/220 kV ICT 3	yes	yes				3	3	0	1	1	0
		400/220 kV ICT 4	yes	yes				3	3	0	1	1	0
		400/220 kV ICT 5	yes	yes				3	3	0	1	1	0
		BC						2	2	0	1	1	0
		400 Kv System											
		Bus 1			yes	yes							
		Bus 2			yes	yes							
		Binaguri 2	yes	yes				3	3	0	1	1	0
		Teesta 2	yes	yes				3	3	0	1	1	0
		Binaguri 1	yes	yes				3	3	0	1	1	0
		Teesta 1	yes	yes				3	3	0	1	1	0
		400/220 kV ICT 5					yes	3	3	0	1	1	0
		400/220 kV ICT 4					yes	3	3	0	1	1	0
		400/220 kV ICT 3					yes	3	3	0	1	1	0
		400/220 kV ICT 2					yes	3	3	0	1	1	0
		400/220 kV ICT 1					yes	3	3	0	1	1	0
		Bus Reactor 1		yes				3	3	0	1	1	0
		Bus Reactor 2		yes				3	3	0	1	1	0
		Bus Coupler						2	2	0	1	1	0
		Sub-Total	16	18	8	8	8	90	90	0	32	32	0
		Total Measurents			58			122					
		Total Available Measurents			58			122					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					

								ISO			**CB**		
30	**Rengali**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			Yes	Yes							
		Bus-2			Yes	Yes							
										0			0
		Tie of BUS 2 & Indravati						3	3	0	1	1	0
		Reactor With Indravati Line		Yes				1	1	0			0
		Bay of Indravati Line	Yes	Yes				2	2	0	1	1	0
										0			0
		ICT (400/220) -2					Yes	2	2	0	1	1	0
		ICT (400/220) -1					Yes	2	2	0	1	1	0
		Tie of ICT-2 & 1						2	2	0	1	1	0
										0			0
		TSTPS Line 1	Yes	Yes				2	2	0	1	1	0
		Tie Line Between Bus 1 & TSTPS Line 1						2	2	0	1	1	0
										0			0
		TSTPS Line 2	Yes	Yes				2	2	0	1	1	0
		Keonjhar Line	Yes	Yes				2	2	0	1	1	0
		Tie Line Between TSTPS Line 2 & KeonjharLine						2	2	0	1	1	0
		Reactor - Keonjhar Line		Yes				1	1	0			0
		220 Kv System								0			0
		Bus 1			Yes	Yes				0			0
		Bus2			no	Yes				0			0
		ICT (400/220) -2	Yes	YES				3	3	0	1	1	0
		ICT (400/220) -1	Yes	Yes				3	3	0	1	1	0
		Transfer Bus Coupler						3	3	0	1	1	0
		Bus Coupler Between Bus 1 & Bus 2						1	0	1	1	1	0
										0			0
		Rengali Line 2	Yes	Yes				4	4	0	1	1	0
		Rengali Line 1	Yes	Yes				4	4	0	1	1	0
										0			0
		Sub-Total	8	10	4	4	2	41	40	1	16	16	0
		Total Measurents			28			57					
		Total Available Measurents			27			56					
		Total Non-Available Measurents			1			1					
		% of Non-Availability			**4%**			**2%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
31	Rourkela							Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		400 Kv System								0			0
		Bus-1			Yes	Yes				0			0
		Bus-2 (Value shows incorrcet value)			Yes	Yes				0			0
										0			0
		ICT (400/220)- 1					Yes	2	2	0	1	1	0
		Tie of ICT- 1						2	2	0	1	1	0
		Bus Reactor -1		Yes				2	2	0	1	1	0
		Bus Reactor -2		no				2	0	2	1	0	1
		ICT (400/220)- 2					no	2	2	0	1	0	1
		Tie of ICT- 2						1	1	0	1	0	1
		ICT (400/220)- 3								0	1	0	1
		Tie of ICT- 3					no				1	0	1
		Jharsugura (Raigarh-3)	Yes	Yes				2	2	0	1	1	0
		Tie of Raigarh-3						2	2	0	1	1	0
		Ranchi -1	Yes	Yes				2	2	0	1	1	0
										0			0
		Sterlite (Raigarh-4)	Yes	Yes				2	2	0	1	1	0
		Tie of Sterlite (Raigarh-4)						2	2	0	1	1	0
										0			0
		Ranchi-2	Yes	Yes				2	2	0	1	1	0
		Tie of Ranchi-2						2	2	0	1	1	0
		Sterlite-2	Yes	Yes				2	2	0	1	0	1
		LR with Sterlite-2		Yes				1	1	0			0
										0			0
		Jhasruguda -1	Yes	Yes				2	2	0	1	1	0
		Tie of jharsuguda -1						2	2	0	1	1	0
		Chaibasa -1	Yes	Yes				2	2	0	1	0	1
		LR with jharsuguda1		Yes				1	1	0			0
		LR with Chaibasa -1		Yes				1	1	0	1	1	0
										0			0
		chaibasa-2	Yes	Yes				2	2	0	1	0	1
		Tie of chaibasa-2						2	2	0	1	0	1
		TSTPS -2	Yes	Yes				2	2	0	1	0	1
		LR with chaibasa -2		Yes				1	1	0	1	0	1
										0			0
		TSTPS -1	Yes	Yes				2	2	0	1	0	1
		Tie of TSTPS -1						2	2	0	1	0	1
										0			0
1		**220Kv System**											
		Bus-1			No	Yes							
		Bus-2			No	Yes							
		Salakathi-1	Yes	Yes				4	0	4	1	0	1
		Salakathi-2	Yes	Yes				4	0	4	1	0	1
		Birpara-1	Yes	Yes				4	0	4	1	0	1
		Birpara-2	Yes	Yes				4	0	4	1	0	1
		Bus Coupler						2	0	2	1	0	1
		TBC						3	0	3	1	0	1
										0			0
		220 Kv System								0			0
		Bus-1			Yes	Yes				0			0
		Bus-2			Yes					0			0
		ICT (400/220) -1	Yes	Yes				3	3	0	1	1	0
		ICT (400/220) -2	Yes	Yes				3	3	0	1	1	0
		Tarkera -1	Yes	Yes				4	4	0	1	1	0
		Tarkera -2	Yes	Yes				4	4	0	1	1	0
		Bus Coupler						1	1	0	1	1	0
		TBC						3	3	0	1	1	0
										0			0
		Sub-Total	18	24	6	5	3	86	63	23	38	19	19
		Total Measurents			56			124					
		Total Available Measurents			51			82					
		Total Non-Available Measurents			5			42					
		% of Non-Availability			**9%**			**34%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
32	Siliguri -220							Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		220 Kv System											
		Bus 1			Yes	Yes							
		Bus 2			Yes								
		ICT-1 (220/132) 50 MVA					Yes	3	3	0	1	1	0
		ICT-2(220/132) 160 MVA					Yes	3	3	0	1	1	0
		Bay For Silliguri 400 Line 2	Yes	Yes				4	4	0	1	1	0
		Bay For Silliguri 400 Line 1	Yes	Yes				4	4	0	1	1	0
		TBC						3	3	0	1	1	0
		Bus Coupler Between Bus 1 & Bus 2						1	1	0	1	1	0
		Bay For Dalkhola Line 1	Yes	Yes				4	4	0	1	1	0
		Bay For dalkhola Line 2	Yes	Yes				4	4	0	1	1	0
		132 KV System											
		Bus 1			Yes	Yes							
		ICT-1 (220/132) : 50 MVA	Yes	Yes				3	3	0	1	1	0
		ICT-2(220/132) : 160 MVA	Yes	Yes				3	3	0	1	1	0
		Bus Coupler Between						2	2	0	1	1	0
		Bay Of Rangit (Karseong)	Yes	Yes				3	3	0	1	1	0
		Bay Of Melli	Yes	Yes				3	3	0	1	1	0
		Bay Of NBU Line 1	Yes	Yes				3	3	0	1	1	0
		Bay Of NBU Line 2	Yes	Yes				3	3	0	1	1	0
		Sub-Total	10	10	3	2	2	46	46	0	15	15	0
		Total Measurents			27			61					
		Total Available Measurents			27			61					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
33	Subhasgram							Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		400 Kv System											
		Bus -1 (Not matching with C. room)			Yes	Yes							
		Bus -2			Yes	Yes							
		Sagardighi line	Yes	Yes				2	2	0	1	1	0
		Tie of ICT-1 & Sagardighi						2	2	0	1	1	0
		400 /220 KV ICT -1					yes	2	2	0	1	1	0
		Jeerat line	Yes	Yes				2	2	0	1	1	0
		Tie of ICT-2 & Jeerat						2	2	0	1	1	0
		400 /220 KV ICT -2					no	2	2	0	1	1	0
		400 /220 KV ICT -4					Yes	2	2	0	1	1	0
		tie ICT 4						2	2	0	1	1	0
		LINE RECTOR OF SAGARDIGHI		Yes				1	1	0			0
		400 /220 KV ICT -3					no	2	2	0	1	1	0
		tie ICT 3						2	2	0	1	1	0
		HALDIA 1	YES	YES				2	2	0	1	1	0
		TIE OF HALDIA 1						2	2	0	1	1	0
		HALDIA 2	YES	YES				2	2	0	1	1	0
		TIE OF HALDIA 2						2	2	0	1	1	0
		220 Kv System											
		Bus -1			Yes	Yes							
		Bus -2			Yes	Yes							
		BC						1	1	0	1	1	0
		TBC						3	3	0	1	1	0
		WB 1	Yes	Yes				4	4	0	1	1	0
		WB 1	Yes	Yes				4	4	0	1	1	0
		400 /220 KV ICT -1	Yes	Yes				3	3	0	1	1	0
		load-1	Yes	Yes				4	4	0	1	1	0
		load-2	Yes	Yes				4	4	0	1	1	0
		400 /220 KV ICT -2	Yes	Yes				3	3	0	1	1	0
		400 /220 KV ICT -3	Yes	Yes				2	2	0	1	1	0
		400 /220 KV ICT -4	Yes	Yes				2	2	0	1	1	0
		Sub-Total	12	13	4	4	4	59	59	0	24	24	0
		Total Measurents			37			83					
		Total Available Measurents			35			83					
		Total Non-Available Measurents			2			0					
		% of Non-Availability			**5%**			**0%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
34	Talcher HVDC							Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		400Kv System								0			0
		Bus-1			YES	YES				0			0
		Bus-2			YES	YES				0			0
		Bus-3			YES	YES				0			0
		Bus-4			YES	YES				0			0
										0			0
		Bus section -1						2	2	0	1	1	0
		Bus section -2						2	2	0	1	1	0
										0			0
		Pole -1	YES		YES			3	3	0	1	1	0
		Tie of pole-1						2	2	0	1	1	0
		Filter bank -3 with Pole -1		YES				6	6	0	5	5	0
										0			0
		Pole -2	YES		YES			3	3	0	1	1	0
		Tie of pole-2						2	2	0	1	1	0
		Filter bank -2 with Pole -2		YES				5	5	0	6	6	0
										0			0
		Line NTPC1	YES	YES				3	3	0	1	1	0
		Line NTPC2	YES	YES				3	3	0	1	1	0
		Line NTPC3	YES	YES				3	3	0	1	1	0
		Line NTPC4	YES	YES				3	3	0	1	1	0
										0			0
		AC Filter Bank -1		YES				8	8	0	6	6	0
										0			0
		Sub-Total	6	7	6	4	0	45	45	0	27	27	0
		Total Measurents			23			72					
		Total Available Measurents			23			72					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					

			MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
35	Gazuwaka HVDC							Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		Bus-1			No	No				0			0
		Bus-2			No	No				0			0
		Bus-3			No	No				0			0
		Bus-4			No	No				0			0
		Bus-5			No	No				0			0
		Bus-6			No	No				0			0
										0			0
		Bus section -1						2	0	2	1	0	1
		Bus section -2						2	0	2	1	0	1
										0			0
		Jeypore-3	No	No				3	0	3	1		1
		Line Reactor -1 with Jeypore-3		No				1	0	1	1		1
		Tie of Jeypore-3						2	0	2	1		1
		Filter bank with Jeypore-3		No				1	0	1	4		4
										0			0

		Jeypore-4	No	No				3	0	3	1		1
		Line Reactor -2 with Jeypore-4		No				1	0	1	1		1
		Tie of Jeypore- 4						2	0	2	1		1
		Pole 1 (East) with Jeypore-4						3	0	3	1		1
										0			0
		Pole 2(East)						3	0	3	1	0	1
		Tie of Pole -2						2	0	2	1	0	1
		Filter bank with Pole -2		No				6	0	6	5	0	5
										0			0
		Pole 2 (South)						3	0	3	1	0	1
		Tie of Pole -2						2	0	2	1	0	1
		Filter bank with Pole -2		No				6	0	6	5	0	5
										0			0
		Pole 1(South)						3	0	3	1	0	1
		Tie of Pole -1						2	0	2	1		1
		Filter bank with Pole -1		No				6	0	6	5	0	5
										0			0
		Sub-Total	2	8	6	6	0	53	0	53	34	0	34
		Total Measurents			22			87					
		Total Available Measurents			0			0					
		Total Non-Available Measurents			22			87					
		% of Non-Availability			**100%**			**100%**					

								ISO			CB		
36	**Farakka**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System								0			0
		Bus 1			Yes	Yes				0			0
		Bus 2			Yes	Yes				0			0
		Line Malda -2	Yes	Yes				2	0	2	1	1	0
		Tie of Malda 2						3	1	2	1	1	0
										0			0
		Line Malda -1	Yes	Yes				2	0	2	1	1	0
		Tie of Malda 1						2	0	2	1	1	0
		400/220 ICT					No	2	0	2	1	1	0
										0			0
		Bus -Rector -1		Yes				2	0	2	1	1	0
		Tie of Bus -Rector -1						2	0	2	1	1	0
		Line Sagardighi	Yes	Yes				2	0	2	1	0	1
										0			0
		Line BAHARAMPUR	Yes	Yes				2	0	2	1	1	0
		Tie of BAHARAMPUR						2	1	1	1	1	0
		Line Durgapur	Yes	Yes				2	2	0	1	0	1
		Line Reactor with DGP		Yes				1	1	0			
										0			0
		Line Kahal2	Yes	Yes				2	2	0	1	1	0
		Tie of Kahal2						2	2	0	1	1	0
		Line Durgapur2	Yes	Yes				2	2	0	1	1	0
										0			0
		Line Kahalgaon 1	Yes	Yes				2	2	0	1	1	0
		Tie of Kahalgaon 1						2	2	0	1	1	0
		Bus -Rector -2		Yes				2	2	0	1	1	0
										0			0
		Line Kahalgaon 3	YES	YES				2	2	0	1	1	0
		Tie of Kahalgaon 3						3	3	0	2	2	0
										0			0
		Line Kahalgaon 4	YES	YES				2	2	0	1	1	0
		Tie of Kahalgaon 4						3	3	0	2	2	0
										0			0
										0			0
		UNIT-3 HV	YES	yes				3	2	1	2	2	0
										0			0
		UNIT-2 HV	yes	no				2	2	0	1	1	0
		Tie of UNIT-2 HV						2	1	1	1	1	0
		400/11 KV Stn Xfmr -2	Yes	Yes			No	2	2	0	1	1	0
										0			0
		UNIT-1 HV	Yes	Yes				2	2	0	1	1	0
		Tie of UNIT-1 HV						2	2	0	1	1	0
		400/11 KV Stn Xfmr -1	Yes	Yes			No	2	1	1	1	1	0
										0			0
		UNIT-4 HV	Yes	Yes				2	0	2	1	1	0
		Tie of UNIT-4 HV						2	0	2	1	0	1
		400/11 KV Stn Xfmr -3	Yes	Yes			No	2	0	2	1	0	1
										0			0
		UNIT-5 HV	yes	yes				3	0	3	2	2	0
										0			0
		UNIT-6 HV	yes	yes				1	1	0	1	1	0
		Tie of UNIT-6 HV						3	3	0	1	1	0
										0			0
		220 Kv System								0			0
		220/400 KV ICT	No	No				1	0	1	1	0	1
		Line Lalmatia	Yes	Yes				2	0	2	1	0	1
		Bus 1			**Yes**	**Yes**				0			0
										0			0
		21 Kv System								0			0
		UNIT- 1 LV	Yes	Yes						0			0
		UNIT- 2 LV	Yes	Yes						0			0
		UNIT-3 LV	Yes	Yes						0			0
		UNIT-4 LV	Yes	Yes						0			0
		UNIT-5 LV	no	Yes						0			0
		UNIT-6 LV	No	No						0			0
										0			0
		Sub-Total	27	30	3	3	4	77	43	34	40	34	6
		Total Measurents			67			117					

		Total Available Measurents	53	77	
		Total Non-Available Measurents	10	40	
		% of Non-Availability	**15%**	**34%**	

								ISO			CB		
37	**Kahalgaon**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System								0			0
		Bus -1			no	no				0			0
		Bus-2			no	no				0			0
		Line Barh 2	yes	yes				2	0	2	1	0	1
		Tie of Barh 2						2	0	2	1	0	1
		Line Farak -1	yes	yes				2	0	2	1	0	1
										0			0
		Line Farak 2	yes	yes				2	2	0	1	1	0
		Tie of Farak 2						2	2	0	1	1	0
		Line Maithon -1	yes	yes				2	2	0	1	0	1
										0			0
		ICT (400/132) - 3	yes	yes				2	2	0	1	0	1
										0			0
		Line Maithon-2	yes	yes				2	2	0	1	0	1
		Tie of Maithon-2						2	2	0	1	1	0
		Line Farak4	yes	yes				2	2	0	1	1	0
										0			0
		Line Farak -3	yes	yes				2	0	2	1	1	0
		Tie of Farak -3						2	0	2	1	1	0
		Line Banka -2	yes	yes				2	0	2	1	1	0
										0			0
		Line Banka 1	yes	yes				2	0	2	1	1	0
		Tie of Banka 1						2	0	2	1	0	1
		Line LAKHISARAIf- 2	yes	yes				2	2	0	1	0	1
										0			0
		Line LAKHISARAI -1	yes	yes				2	0	2	1	0	1
		Tie of LAKHISARAI-1						2	1	1	1	1	0
		ICT (400/132) - I I					yes	2	2	0	1	1	0
										0			0
		Line Barh -1	yes	yes				2	0	2	1	1	0
		Tie of Barh-1						3	0	3	2	1	1
										0			0
		UNIT-4 HV	yes	yes				3	1	2	2	2	0
										0			0
		UNIT-3 HV	no	no				2	2	0	1	1	0
		Tie of UNIT-3 HV						2	2	0	1	1	0
		Bus Reactor-2		no				2	2	0	1	0	1
		Bus Reactor-2 Tie						2	2	0	1	0	1
		UNIT-2 HV	no	no				2	2	0	1	1	0
		Tie of UNIT-2 HV						2	2	0	1	0	1
		Bus Reactor-1		no				2	2	0	1	0	1
										0			0
		UNIT-1 HV	no	no				2	2	0	1	1	0
		Tie of UNIT-1 HV						2	2	0	1	1	0
		ICT (400/132) - I					yes	2	1	1	1	1	0
										0			0
		UNIT-5 HV	no	no				3	0	3	2	0	2
										0			0
		UNIT-6 HV	no	no				3	0	3	2	0	2
										0			0
		UNIT-7 HV	no	no				3	0	3	2	0	2
										0			0
										0			0
		21 Kv System								0			0
		UNIT- 1 LV	yes	yes						0			0
		UNIT- 2 LV	yes	yes						0			0
		UNIT-3 LV	yes	yes						0			0
		UNIT-4 LV	yes	yes						0			0
		UNIT-5 LV	yes	yes						0			0
		UNIT-6 LV	no	yes						0			0
		UNIT-7 LV	yes	yes						0			0
										0			0
		132 Kv System								0			0
		132 /11 KV Xfmr -1	no	no			No	2	2	0	1	1	0
		132 /11 KV Xfmr -2	no	no			No	2	2	0	1	1	0
		132 /11 KV Xfmr 3	no	no			No	2	2	0	1	1	0
		132 /11 KV Xfmr 4	no	no			No	2	0	2	1	1	0
		400/132 KV ICT -1	no	no				2	2	0	1	1	0
		400/132 KV ICT -2	no	no				2	2	0	1	1	0
		bus coupler 1						3	2	1	1	1	0
		bus coupler 2						3	2	1	1	1	0
		bus sectionaliser						3	3	0	1	1	0
		Lalmatia line	No	no				3	3	0	1	1	0
		Sabour line	no	no				3	0	3	1	1	0
		Kahalgaon Line	no	no				3	3	0	1	1	0
		Bus			no	no							
										0			0
		Sub-Total	36	38	1	1	6	105	62	43	52	32	20
		Total Measurents			82			157					
		Total Available Measurents			43			94					
		Total Non-Available Measurents			39			63					
		% of Non-Availability			**48%**			**40%**					
								ISO			**CB**		

38	Lalmatia		MW	MVAR	VOL	FREQ	OLTC	Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		220 Kv System											
		BUS-1			no	no			0			0	
		Bus Coupler						2	0	2	1	0	1
		220/132 KV Xfmr -1					No	2	0	2	1	0	1
		Line Farkka	no	no				3	0	3	1	0	1
		220/132 KV Xfmr -2					No	2	0	2	1	0	1
		132 Kv System							0			0	
		BUS-1			no	no			0			0	
		220/132 KV Xfmr-1	no	no				2	0	2	1	0	1
		220/132 KV Xfmr-2	no						0			0	
		Station Xfmr-1 (132 /11)	no	no			No	2	0	2	1	0	1
		Station Xfmr- 2(132 /11)	no	no			No	2	0	2	1	0	1
		Bus Coupler						1	0	1	1	0	1
		JSEB BC	no	no				1	0	1	1	0	1
		Sub-Total	6	5	1	1	4	17	0	17	9	0	9
		Total Measurents			17			26					
		Total Available Measurents			0			0					
		Total Non-Available Measurents			17			26					
		% of Non-Availability			**100%**			**100%**					

39	Rangit		MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
								Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		132 Kv System											
		Bus-1			yes	yes							
		Bus-2			NO	NO							
		Bus Coupler						1	0	1	1	1	0
		Gangtok	yes	yes				4	4	0	1	1	0
		Rammam- II	yes	yes				4	0	4	1	1	0
		Si-220	yes	yes				4	0	4	1	1	0
		Melli	yes	yes				4	0	4	1	1	0
		Rchoutak	no	no				4	0	4	1	0	1
		Unit-1	yes	yes				2	0	2	1	1	0
		Unit-2	no	no				2	0	2	1	1	0
		Unit-3	yes	yes				2	0	2	1	1	0
		ICT 132/66	yes	yes			no	3	0	3	1	1	0
		66 Kv System											
		ICT 132/66						1	0	1	1	1	0
		Rohotak	yes	yes				2	0	2	1	1	0
		Station Xfmr	yes	yes				1	0	1	1	1	0
		Bus-1			yes	yes							
		Sub-Total	11	11	3	3	1	34	4	30	13	12	1
		Total Measurents			29			47					
		Total Available Measurents			22			16					
		Total Non-Available Measurents			7			31					
		% of Non-Availability			**24%**			**66%**					

40	Talcher		MW	MVAR	VOL	FREQ	OLTC	ISO			CB		
								Total	Avl.	Not Avl.	Total	Avl.	Not Avl.
		400 Kv System								0			0
		Bus -1			**Yes**	**Yes**				0			0
		Bus-2			**Yes**	**Yes**				0			0
										0			0
		ICT (400/ 220) -1					**yes**	**2**	**2**	0	**1**	**1**	0
		Tie of ICT -1						**2**	**2**	0	**1**	**1**	0
		Line Rourk -1	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
		LR with Rourk -1		**Yes**				**1**	**1**	0			0
										0			0
		Line Rourk -2	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
		Tie of Rourk -2						**2**	**2**	0	**1**	**1**	0
		Line Rengali -1	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
		LR with Rourk -2		**Yes**				**1**	**1**	0			0
										0			0
		Line Rengali 2	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
		Tie of Rengali 2						**2**	**2**	0	**1**	**1**	0
		Line GMR	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
										0			0
		Line ANGUL	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
		Tie of ANGUL						**3**	**2**	1	**1**	**1**	0
										0			0
		UNIT-1HV	**Yes**	**Yes**				**3**	**3**	0	**2**	**2**	0
										0			0
		UNIT-2 HV	**Yes**	**Yes**				**3**	**3**	0	**2**	**2**	0
										0			0
		ICT (400/ 220) -II					**yes**	**2**	**2**	0	**1**	**1**	0
		Tie of ICT - II						**3**	**2**	1	**1**	**0**	1
										0			0
		Bus Section -I	**Yes**	**Yes**				**1**	**0**	1	**1**	**1**	0
		Bus Section -II	**Yes**	**Yes**				**1**	**1**	0	**1**	**1**	0
										0			0
		Line HVDC -1	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
		Line HVDC -2	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
		Line HVDC -3	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
		Line HVDC -4	**Yes**	**Yes**				**2**	**2**	0	**1**	**1**	0
										0			0
		Bus Section -III						**1**	**1**	0	**1**	**1**	0
		Bus Section -IV						**1**	**1**	0	**1**	**1**	0
										0			0
		UNIT-3 HV	**Yes**	**Yes**				**1**	**1**	0	**1**	**1**	0

		Tie of UNIT-3 HV						2	2	0	1	1	0
		Stn Xfmr (400/11)-III	Yes	Yes			No	2	2	0	1	1	0
										0			0
		UNIT-4 HV	Yes	Yes				1	1	0	1	1	0
		Tie of UNIT-4 HV						1	0	1	1	1	0
		UNIT-5 HV	Yes	Yes				1	1	0	1	1	0
		Tie of UNIT-5 HV						1	1	0	1	1	0
		UNIT-6 HV	Yes	Yes				1	1	0	1	1	0
		Tie of UNIT-6 HV						2	2	0	1	1	0
		Stn Xfmr (400/11)-IV	Yes	Yes			No	2	2	0	1	1	0
										0			0
		220 KV								0			0
										0			0
		ICT (400/220) - I	Yes	Yes				3	3	0	1	1	0
		ICT (400/220) - II	Yes	Yes				3	3	0	1	1	0
										0			0
		Bus -1			Yes	Yes				0			0
		Bus-2			Yes	no				0			0
										0			0
		Meeram -1	Yes	Yes				4	4	0	1	1	0
		Meeram -2	Yes	Yes				4	4	0	1	1	0
		BC						1	0	1	1	1	0
		TBC						3	3	0	1	1	0
		TTPS	Yes	Yes				4	4	0	1	1	0
		Rengali HPS	Yes	Yes				4	4	0	1	1	0
		Stn Xfmr (220 /11)-IV	Yes	Yes			No	3	3	0	1	1	0
										0			0
		21 Kv System								0			0
		UNIT- 1 LV	Yes	Yes						0			0
		UNIT- 2 LV	yes	yes						0			0
		UNIT-3 LV	Yes	Yes						0			0
		UNIT-4 LV	no	no						0			0
		UNIT-5 LV	Yes	Yes						0			0
		UNIT-6 LV	Yes	Yes						0			0
										0			0
		Sub-Total	33	35	4	4	5	91	86	5	44	43	1
		Total Measurents			81			135					
		Total Available Measurents			75			129					
		Total Non-Available Measurents			6			6					
		% of Non-Availability			**7%**			**4%**					

								ISO			CB		
41	**Teesta NHPC**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System								0			0
		Bus -1			Yes	Yes				0			0
		Bus-2			Yes	yes				0			0
										0			0
		Line siliguri 400 -1 (RANGPO 1)	Yes	Yes				3	3	0	1	1	0
		Line siliguri 400 -2 (RANGPO 2)	Yes	Yes				3	3	0	1	1	0
										0			0
		Bus Coupler						1	1	0	1	1	0
										0			0
		Unit-1	Yes	Yes				3	3	0	1	1	0
		Unit-2	Yes	Yes				3	3	0	1	1	0
		Unit-3	no	no				3	3	0	1	1	0
										0			0
		Sub-Total	5	5	2	2	0	16	16	0	6	6	0
		Total Measurents			14			22					
		Total Available Measurents			12			22					
		Total Non-Available Measurents			2			0					
		% of Non-Availability			**14%**			**0%**					

								ISO			CB		
42	**Sterlite**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			YES	YES							
		Bus-2			YES	YES							
		rourkela 2	YES	YES				2	2	0	1	1	0
		tie dia						2	2	0	1	1	0
		Raigarh Line 2	YES	YES				2	2	0	1	1	0
		rourkela 4	YES	YES				2	2	0	1	1	0
		tie dia						2	2	0	1	1	0
		Raigarh Line 4	YES	YES				2	2	0	1	1	0
		BUS SECTIONALISER 1						2	2	0	1	1	0
		BUS SECTIONALISER 2						2	2	0	1	1	0
		meeramundali 1	YES	YES				2	2	0	1	1	0
		tie dia						2	2	0	1	1	0
		meeramundali 2						2	2	0	1	1	0
		SMLTR-1	yes	yes									
		SMLTR-1 Tie											
		SMLTR-2	yes	yes									
		SMLTR-2 Tie											
		SMLTR-3	yes	yes									
		SMLTR-3 Tie											
		Station Xformer -3	YES	YES			No	2	0	2	1	0	1
		TIE DIA						2	0	2	1	0	1
		Station Xformer -4	YES	YES			No	2	0	2	1	0	1
									0			0	
									0			0	
									0			0	
		400/220 ICT 2					NO	2	0	2	1	0	1

		TIE DIA						2	0	2	1	0	1
		UNIT- 1HV						2	0	2	1	0	1
		UNIT- 2HV						2	0	2	1	0	1
		UNIT- 3HV						2	0	2	1	0	1
		UNIT- 4HV						2	0	2	1	0	1
		400/220 ICT 1					NO	2	0	2	1	0	1
		TIE DIA						4	0	4	2	0	2
		UNIT 1 HV TIE DIA						4	0	4	2	0	2
		GT-1	yes	yes								0	
		GT-2	yes	yes									
		GT-3	yes	yes									
		GT-4	yes	yes									
		UNIT- 1 LV	yes	yes									
		UNIT- 2 LV	yes	yes									
		UNIT-3 LV	yes	yes									
		UNIT-4 LV	yes	yes									
										0			0
		220 Kv System								0			0
		Line Vedanta -1	no	no				1	1	0	1	1	0
		Line Vedanta -2	NO	NO				1	1	0	1	1	0
		400/220 Xfmr -1	NO	NO				1	0	1			
		400/220 Xfmr -1	no	no				1	0	1			
		Sub-Total	22	22	2	2	4	54	24	30	27	13	14
		Total Measurents			52			81					
		Total Available Measurents			40			37					
		Total Non-Available Measurents			12			44					
		% of Non-Availability			**23%**			**54%**					

								ISO			CB		
43	**Maithon RT Bank**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		UNIT- 1 HV(GT)	yes	yes			yes	3	3	0	1	1	0
		Line Maithon -1	yes	yes				3	3	0	1	1	0
		Tie Dia of Maithon 1						2	2	0	1	1	0
		UNIT-2 HV(GT)	yes	yes			yes	3	3	0	1	1	0
		Line Ranchi -1	yes	yes				2	2	0	1	1	0
		Tie Dia of Ranch1						2	2	0	1	1	0
		Line Reactor with Ranchi 1		yes				1	1	0	1	1	0
		Line Maithon -2	yes	yes				3	3	0	1	1	0
		400/11 KV Stn Xfmr -1	yes	yes			yes	3	3	0	1	1	0
		Tie Dia of Maithon 2						2	2	0	1	1	0
		Bus Reactor -1		yes				3	3	0	1	1	0
		Bus Reactor -2		yes				3	3	0	1	1	0
		Tie Dia of Bus Reactor						2	2	0	1	1	0
		Line Ranchi -2	yes	yes				3	3	0	1	1	0
		Tie Dia of Ranch 2 & St X-2						2	2	0	1	1	0
		400/11 KV Stn Xfmr -2	yes	yes			yes	3	3	0	1	1	0
		Line Reactor - 2 with Ranch-2		yes				1	1	0	1	1	0
		21 Kv System											
		UNIT- 1 LV	yes	yes									
		UNIT-2 LV	yes	yes									
		Sub-Total	10	14	2	2	4	41	41	0	17	17	0
		Total Measurents			32			58					
		Total Available Measurents			32			58					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					

								ISO			CB		
44	**APNRL**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			Yes	Yes				0			0
		Bus-2			Yes	Yes				0			0
		UNIT- 1 HV	Yes	Yes				2	2	0	1	1	0
		Tie Dia of Unit 1&2						2	2	0	1	1	0
		UNIT- 2 HV	Yes	Yes				2	2	0	1	1	0
		Line Jamshepur -1	Yes	Yes				2	2	0	1	1	0
		Tie Dia of Jamshedpur 1						2	2	0	1	1	0
		Line Jamshepur -2	Yes	Yes				2	2	0	1	1	0
										0			0
		21 Kv System											
		UNIT- 1 LV	Yes	Yes									
		UNIT-2 LV	Yes	Yes									
		Sub-Total	6	6	2	2	0	12	12	0	6	6	0
		Total Measurents			16			18					
		Total Available Measurents			16			18					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					

								ISO			CB		
45	**CHUZACHEN HPS**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		132 Kv System											
		Bus-1			Yes	Yes				0			0
		Bus-2			Yes	Yes				0			0
		GT- 1 HV	Yes	Yes				2	2	0	1	1	0
		GT- 2 HV	Yes	Yes				2	2	0	1	1	0

		GT- 3 HV	Yes	Yes									
		Rangpo	Yes	Yes				2	2	0	1	1	0
		Gangtok											
		Bus Coupler						2	2	0	1	1	0
		Sub-Total	4	4	2	2	0	8	8	0	4	4	0
		Total Measurents			12			12					
		Total Available Measurents			12			12					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					
46	**JITPL**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**ISO**			**CB**		
								Total	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			no	no							
		Bus-2			no	no							
		ANGUL 1	no	no				2	0	2	1	0	1
		ANGUL 1 Tie						2	0	2	1	0	1
		ANGUL 2	no	no									
		ANGUL 2 Tie											
		Tie Bolangir Line		no				2	0	2	1	0	1
		Bus Reactor -1 (50)		no				2	0	2	1	0	1
		Bus Reactor -2(50)						2	0	2	1	0	1
X		GT 1	no	no				2	0	2	1	0	1
		GT2						2	0	2	1	0	1
		Tie dia of B/R-1						2	0	2	1	0	1
		Tie dia of GT-2						2	0	2	1	0	1
		UNIT #1 21 KV						2	0	2	1	0	1
		UNIT #2 21KV						2	0	2	1	0	1
		Sub-Total	3	5	0	0	0	22	0	22	11	0	11
		Total Measurents			8			33					
		Total Available Measurents			0			0					
		Total Non-Available Measurents			12			33					
		% of Non-Availability			**150%**			**100%**					

			MW	**MVAR**	**VOL**	**FREQ**	**OLTC**	**ISO**			**CB**		
47	**Alipurduar HVDC**							**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1											
		Bus-2											
		ICT 2					no						
		Tie Bay of ICT 2 and ICT 3											
		ICT 3					no						
		Filter 1											
		Tie bay of Filter 1 Bus Reactor 1											
		Bus Reactor 1											
		ICT 1					yes						
		Tie bay of ICT 1 Future Bay											
		Future Bay											
		Fliter 2											
		Tie bay of Fliter 2 Bus Reactor #2											
		Bus Reactor #2											
		Bus Sectionaliser of Bus #1 and Bus #3											
		Bus Sectionaliser of Bus #2 and Bus #4											
		Bus 3			Yes	Yes							
		Bus 4			Yes	Yes							
		Future						2	2	0	1	1	0
		Tie bay of Future Siliguri#1						2	2	0	1	1	0
		Siliguri#1	Yes	Yes				2	2	0	1	1	0
		Siliguri#2	Yes	Yes				2	2	0	1	1	0
		Tie bay of Siliguri#2 Bongaigaon#2						2	2	0	1	1	0
		Bongaigaon#2	Yes	Yes				2	2	0	1	1	0
		Bongaigaon#1	Yes	Yes				2	2	0	1	1	0
		Tie bay of Bongaigaon#1 Future						2	2	0	1	1	0
		Future						2	2	0	1	1	0
		220Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		Transfer Bus											
		Salakathi-1	yes	yes				4	4	0	1	1	0
		Salakathi-2	yes	yes				4	4	0	1	1	0
		Birapara-1	yes	yes				4	4	0	1	1	0
		Birapara-2	yes	yes				4	4	0	1	1	0
		Bus Coupler	yes	yes				2	2	0	1	1	0
		TBC	yes	yes				3	3	0	1	1	0
		400/220 kV ICT 1	yes	yes				3	3	0	1	1	0
		400/220 kV ICT 2	no	no				3	3	0	1	1	0
		400/220 kV ICT 3	no	no				3	0	3	1	0	1

		Sub-Total	13	13	4	4	3	48	45	3	18	17	1
		Total Measurents	37					66					
		Total Available Measurents	31					62					
		Total Non-Available Measurents	6					4					
		% of Non-Availability	**16%**					**6%**					

								ISO			CB		
48	**Kishangunj**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1	**yes**	**yes**									
		Bus-2	**yes**	**yes**									
		Patna-1	yes	yes				2	2	0	1	0	1
		Patna-1 Tie						2	0	0	1	0	0
		Patna-1 line reactor		yes				2	0		1	0	0
		Bus reactor-2(125Mvar)		yes				2	2	0	1	1	0
		Patna-2	yes	yes				2	2	0	1	0	1
		Patna-2 Tie						2	2	0	1	1	1
		Patna-2 line reactor		yes				2	2	0	1	0	1
		ICT-3					no	2	2	0	1	0	1
		Teesta-1	yes	yes				2	0	2	1	0	1
		Teesta-1 Tie						2	2		1	0	
		ICT-2					yes	2	2		1	1	
		Teesta-2	yes	yes				2	2	0	1	0	1
		Teesta-2 Tie						2	2	0	1	1	1
		Purnea-3	yes	yes				2	2	0	1	0	1
		Purnea-3 Tie						2	2	0	1	0	1
		Purnea-4	yes	yes				2	2	0	1	0	1
		Binaguri-3	yes	yes				2	2	0	1	0	1
		Binaguri-3 Tie						2	2	0	1	0	1
		Binaguri-4	yes	yes				2	2	0	1	1	0
		ICT-1					no	2	2		1	1	
		Tie of ICT 1 and Bus Reactor 1											
		Bus reactor-1(125Mvar)		yes				2	2	0	1	0	1
		220Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	no							
		dalkhola-1	yes	yes				2	2	0	1	1	0
		dalkhola-2	yes	yes				2	2	0	1	1	0
		Siliguri-1	yes	yes				2	2	0	1	1	0
		Siliguri-2	yes	yes				2	2	0	1	1	0
		Kishn_bh-1	no	no				2	0	2	1	0	1
		Kishn_bh-2	no	no				2	2	0	1	1	0
		Kishn_bh-3	yes	yes				2	2	0	1	1	0
		Bus Coupler						2	2	0	1	1	0
		Kishn_bh-4						2	2	0	1	1	0
		ICT-1	yes	yes				2	2	0	1	1	0
		ICT-2	yes	yes				2	2	0	1	1	0
		ICT-3	yes	yes				2	2	0	1	1	0
		Sub-Total	18	22	2	2	3	66	58	8	33	17	16
		Total Measurents	47					99					
		Total Available Measurents	40					75					
		Total Non-Available Measurents	7					24					
		% of Non-Availability	**15%**					**24%**					

								ISO			CB		
49	**Barh**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		Bus-3			yes	yes							
		Bus-4			yes	yes							
		Patna-1	yes	yes				2	2	0	1	1	0
		Patna-1 Tie						2	2	0	1	1	0
		Patna-2	yes	yes				2	2	0	1	1	0
		Patna-2 Tie						2	2	0	1	1	0
		Patna-3	yes	yes				2	2	0	1	0	1
		Patna-3Tie						2	2	0	1	1	0
		Patna-4	yes	yes				2	2	0	1	0	1
		Patna-4 Tie	yes	yes				2	2	0	1	0	1
		Kahelgaon-1	yes	yes				2	2	0	1	1	0
		Kahelgaon-2	yes	yes				2	2	0	1	1	0
		Gorakpur-1	yes	yes				2	2	0	1	1	0
		Gorakpur-1 Tie											
		Gorakpur-2	yes	yes				2	2	0	1	1	0

		Gorakpur-2 Tie						2	2	0	1	1	0
		L/R Gorakpur-1						3	3	0	2	2	0
		L/R Gorakpur-2						2	2	0	1	1	0
		Bus sectionalizer1(bus1 &3)	yes	yes				2	2	0	1	1	0
		Bus sectionalizer1(bus2 &4)	yes	yes				2	2	0	1	1	0
		ICT-1	No	No			No	2	2	0	1	1	0
		ICT-2 Tie						2	2	0	1	1	0
		ICT-2	No	No			No	2	2	0	1	1	0
		ICT-2 Tie						2	2	0	1	1	0
		Unit-1						2	2	0	1	1	0
		Unit-2					yes	2	2	0	1	1	0
		Unit-3						2	2	0	1	1	0
		Unit-4	yes	yes				2	2	0	1	1	0
		Unit-5	yes	yes				2	2	0	1	1	0
		GT-1						2	2	0	1	1	0
		GT-2						2	2	0	1	1	0
		GT-3						2	2	0	1	1	0
		GT-4						2	2	0	1	1	0
		GT-5						2	2	0	1	1	0
		Tie GT-2						2	2	0	1	1	0
		Tie GT-4	yes	yes				2	2	0	1	1	0
		Tie GT-5	yes	yes				2	2	0	1	1	0
		B/R 80 Mvar						2	2	0	1	1	0
		Sub-Total	17	17	0	0	3	71	71	0	36	33	3
		Total Measurents			37			107					
		Total Available Measurents			31			104					
		Total Non-Available Measurents			6			3					
		% of Non-Availability			**16%**			**3%**					

								ISO			CB		
50	**Baharampur**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1				yes	yes						
		Bus-2				yes	yes						
		Sagardighi-1	yes	yes				2	2	0	1	1	0
		Sagardighi-1 Tie						2	2	0	1	1	0
		Sagardighi-2	yes	yes				2	2	0	1	1	0
		Sagardighi-2 Tie						2	2	0	1	1	0
		50 Mvar B/R-2		yes				2	2	0	1	1	0
		BHVDC-1	yes	yes				2	2	0	1	1	0
		BHVDC-1 Tie											
		Farakka	yes	yes				2	2	0	1	1	0
		BHVDC-2	yes	yes				2	2	0	1	1	0
		BHVDC-2 Tie											
		Jeerat	yes	yes				2	2	0	1	1	0
		80 Mvar B/R-1		yes				2	2	0	1	1	0
		Sub-Total	6	8	0	2	2	20	20	0	10	10	0
		Total Measurents			18			30					
		Total Available Measurents			18			30					
		Total Non-Available Measurents			0			0					
		% of Non-Availability			**0%**			**0%**					

								ISO			CB		
51	**BHVDC**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System			yes	yes							
		Bus-1			yes	yes		2	2	0	1	0	1
		Bus-2						2	2	0	1	0	1
		Baharampur-1	yes	yes				2	2	0	1	0	1
		Baharampur-1 Tie						3	3	0	1	0	1
		Baharampur-2	yes	yes				2	2	0	1	0	1
		Baharampur-2 Tie						3	3	0	1	0	1
		HVDC Pole Main Bay	yes	yes				2	2	0	1	0	1
		Tie Bay						2	2	0	1	0	1
		Capacitor Bank Main Bay						2	2	0	1	0	1
		Capacitor bank-1		yes							1	1	0
		Capacitor bank-2		yes							1	1	0
		Capacitor bank-3		yes							1	1	0
		Capacitor bank-4		yes							1	1	0
		L/R-1(63 Mvar)		yes							1	1	0
		L/R-2(63 Mvar)		yes									
		220Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		HVDC B/B Pole Main Bay	Yes	Yes				2	2	0	1	1	0
		Tie Bay						2	2	0	1	1	0
		Filter Bank Main Bay						2	2	0	1	1	0
		L/R -3		yes				1	1	0	1	1	0
		Capacitor bank-5		yes				1	1	0	1	1	0

		Capacitor bank-6		yes				1	1	0	1	1	0
		Capacitor bank-7		yes				1	1	0	1	1	0
		Khulna-1	yes	yes				2	2	0	1	1	0
		Khulna-1 Tie						2	2	0	1	1	0
		Shunt Compensator Bay						2	2	0	1	1	0
		Shunt capacitor 1		yes				2	2	0	1	1	0
		Shunt capacitor 2		yes				2	2	0	1	1	0
		Shunt Reactor		yes				2	2	0	1	1	0
		Khulna-2	yes	yes				2	2	0	1	1	0
		Khulna-2 Tie						2	2	0	1	1	0
		Ishurdi-1	yes	yes				2	2	0	1	1	0
		Tie of Isurdi 1 and Isurdi 2						2	2	0	1	1	0
		Ishurdi-2	yes	yes				2	2	0	1	1	0
		Sub-Total	8	21	3	3	0	52	52	0	32	23	9
		Total Measurents			35			84					
		Total Available Measurents			35			75					
		Total Non-Available Measurents			0			9					
		% of Non-Availability			**0%**			**11%**					

								ISO			CB		
52	**TALA**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1	no	no				2	0	2	1	0	1
		Bus-2						2	0	2	1	0	1
		Bus Coupler		no				2	0	2	1	0	1
		Siliguri-1	no	no				2	0	2	1	0	1
		Siliguri-2						2	0	2	1	0	1
		Siliguri-4	no	no				2	0	2	1	0	1
		Malbase			no	no							
		Bus Reactor			no	no							
		Unit-1		no				2	0	2	1	0	1
		Unit-2						2	0	2	1	0	1
		Unit-3	no	no				2	0	2	1	0	1
		Unit-4						2	0	2	1	0	1
		Unit-5	no	no				2	0	2	1	0	1
		Unit-6	no	no			no	2	0	2	1	0	1
		ICT-1	no	no			no						
		ICT-2	no	no			no						
		ICT-3	no	no			no						
		ICT-4	no	no			no						
		ICT-5	no	no			no						
		ICT-6	no	no			no						
		Sub-Total	6	8	2	2	1	24	0	24	12	0	12
		Total Measurents			19			36					
		Total Available Measurents			0			0					
		Total Non-Available Measurents			19			36					
		% of Non-Availability			**100%**			**100%**					

								ISO			CB		
53	**IBEUL**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		jharsguda	yes	yes				2	2	0	1	1	0
		jharsguda Tie						2	2	0	1	1	0
		UNIT-2	yes	yes				2	2	0	1	1	0
		Stn XFMR 2	yes	yes				2	2	0	1	1	0
		Tie Raigarh and Stn XFMR 2											
		Raigarh	yes	yes				2	2	0	1	1	0
		Stn XFMR 1	yes	yes				2	2	0	1	1	0
		Tie Stn XFMR 1 and future						2	2	0	1	1	0
		UNIT-1	yes	yes				2	2	0	1	1	0
		Tie Unit 1 and future						2	2	0	1	1	0
		GT-1	No	No									
		GT-2	No	No									
		Sub-Total	8	8	2	2	0	18	18	0	9	9	0
		Total Measurents			20			27					
		Total Available Measurents			16			27					
		Total Non-Available Measurents			4			0					
		% of Non-Availability			**20%**			**0%**					

								ISO			CB		
54	**KBUNL Stage 2**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		220 Kv System											
		Bus 1			No	No							
		Bus 2			No	No							
		Gopalganj 1	No	No				2	0	2	1	0	1
		Gopalganj 2	No	No				2	0	2	1	0	1
		Muzaffarpur (PG) 1	Yes	Yes				2	2	0	1	1	0
		Muzaffarpur (PG) 2	Yes	Yes				2	2	0	1	1	0

		Dharbanga 1	Yes	Yes				2	2	0	1	1	0
		Dharbanga 2	No	No				2	0	2	1	0	1
		Begusarai 1	No	No				2	0	2	1	0	1
		Begusarai 2	Yes	Yes				2	2	0	1	1	0
		Stn XFMR 3	Yes	Yes				2	2	0	1	1	0
		Unit 3	No	No				2	0	2	1	0	1
		GT 3	No	No									
		Unit 4	No	No				2	0	2	1	0	1
		GT 4	No	No									
		Station XFMR 4	No	No				2	0	2	1	0	1
		Sub-Total	14	14	2	2	0	24	10	14	12	5	7
		Total Measurents			32			36					
		Total Available Measurents			10			15					
		Total Non-Available Measurents			22			21					
		% of Non-Availability			**69%**			**58%**					

								ISO			CB		
55	**NEW MELLI**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		220Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		Jorethang-1	yes	yes				2	2	0	1	1	0
		Jorethang-2	yes	yes				2	2	0	1	1	0
		Rangpoo-1	yes	yes				2	2	0	1	1	0
		Rangpoo-2	yes	yes				2	2	0	1	1	0
		Bus Coupler		yes				2	2	0	1	1	0
		31.5 Mvar B/R-1		yes				2	2	0	1	1	0
		31.5 Mvar B/R-2		no				2	0	2	1	0	1
		Sub-Total	4	7	0	0	0	14	12	2	7	6	1
		Total Measurents			11			21					
		Total Available Measurents			10			18					
		Total Non-Available Measurents			1			3					
		% of Non-Availability			**9%**			**14%**					

								ISO			CB		
56	**Pandiabelli**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		Mendhasal 1	yes	yes				2	2	0	1	1	0
		Tie Mendhasal 1						2	2	0	1	1	0
		Future						1	1	0	1	1	0
		Baripada	yes	yes				2	2	0	1	1	0
		baripada Tie						2	2	0	1	1	0
		Bus Reactor -(80)		yes				2	2	0	1	1	0
		Line Reactor(125Mvar)											
		Mendasal-2	yes	yes				2	2	0	1	1	0
		Mendasal-2 Tie						2	2	0	1	1	0
		ICT-2					no	2	2	0	1	1	0
		Duburi	yes	yes				2	2	0	1	1	0
		L/R 63 Mvar		yes				1	1	0			
		Duburi tie						2	2	0	1	1	0
		ICT-1					yes	2	2	0	1	1	0
		220 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	yes							
		ICT 1	yes	yes				3	3	0	1	1	0
		ICT 2	yes	yes				3	3	0	1	1	0
		Line 1	yes	yes				3	3	0	1	1	0
		Line 2	yes	yes				3	3	0	1	1	0
		Line 3	yes	yes				3	3	0	1	1	0
		Line 4	yes	yes				3	3	0	1	1	0
		Line 5	yes	yes				3	3	0	1	1	0
		Line 6	yes	yes				2	2	0	1	1	0
		Bus Coupler						2	2	0	1	1	0
		Sub-Total	12	14	4	4	2	49	49	0	21	21	0
		Total Measurents			36			70					
		Total Available Measurents			35			70					
		Total Non-Available Measurents	100%	5	0	0	2	0					
		% of Non-Availability			**3%**			**0%**					

								ISO			CB		
57	**Chandwa**		**MW**	**MVAR**	**VOL**	**FREQ**	**OLTC**	**Total**	**Avl.**	**Not Avl.**	**Total**	**Avl.**	**Not Avl.**
		400 Kv System											
		Bus-1			yes	yes							
		Bus-2			yes	no							
		New Ranchi-1	yes	yes				2	2	0	1	1	0
		New Ranchi-2	yes	yes				2	2	0	1	1	0
		Gaya-1	yes	yes				2	2	0	1	1	0
		Gaya-1	yes	yes				2	2	0	1	1	0
		Bus Coupler						2	2	0	1	1	0
		Essar-1											

		Essar-2											
		Bus Reactor -1 (125Mvar)		yes				2	2	0	1	1	0
		Bus Reactor -2 (125Mvar)											
		CPL-1											
		CPL-2											
		Sub-Total	4	5	2	2	0	12	12	0	6	6	0
		Total Measurents	13					18					
		Total Available Measurents	12					18					
		Total Non-Available Measurents	1					0					
		% of Non-Availability	**8%**					**0%**					

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.

Tripping of generating units at Dadri on 10-11-16 at 10:50 Hrs

Comparison between various unit response and ideal governor response (assuming 5% droop)

>=70%	>= 30% and <70%	> 0% and <30%	<0%	SCADA data suspect	Zero Previous generation	Unit having insufficient margin		
Name	Name	Name	Name	Name	Name	Name	Init. Gen (MW)	Gen change (MW)
Chujachen #1	Balimela unit-3	FSTPP #1	KhSTPP #1	FSTPP #6	Teesta #1	KhSTPP #5	495	0.88
		FSTPP #2	KhSTPP #2	TSTPP #4	Rengali unit-5	TSTPP #1	489	0.88
		FSTPP #3	KhSTPP #6	Teesta #2	KhSTPP #3	TSTPP #6	508	-4.4
		FSTPP #4	KhSTPP #7	SEL #4	TSTPP #3	JORETHANG #2	54	1
		FSTPP #5	TSTPP #2	APNRL #1	TSTPP #5	JITPL #2	592	-3
		Rangit #1	SEL #1	APNRL #2	Rangit #2	Bakreswar Unit-2	213	-0.53
		SEL #2	SEL #3	GMR unit-1	Rangit #3	Sagardighi Unit-2	283	1.38
		Bakreswar Unit-1	Barh Unit-5	GMR unit-2	Teesta #3			
		Bakreswar Unit-5	UBKLB unit-2	GMR unit-3	Chujachen #2			
		Kolaghat Unit-2	Indravati unit-3	IBTPS unit-1	JORETHANG #1			
		Kolaghat Unit-3	Sagardighi Unit-1	IBTPS unit-2	JITPL #1			
		Kolaghat Unit-4	KhSTPP #4	Budgebudge Unit-1	Balimela unit-1			
		Kolaghat Unit-6	MPL #1	Budgebudge Unit-2	Balimela unit-2			
		DSTPS unit-2	MPL #2	Budgebudge Unit-3	Balimela unit-4			
			Barh Unit-4	TENUGHAT Unit-1	Balimela unit-5			
			Santaldih Unit-5	TENUGHAT Unit-2	Balimela unit-6			
			Santaldih Unit-6	Bokara B unit-1	Balimela unit-7			
				Bokara B unit-2	Balimela unit-8			
				Bokara B unit-3	UBKLB unit-1			
				DSTPS unit-1	UBKLB unit-3			
				Bandel Unit-5	UBKLB unit-4			
					Indravati unit-1			
					Indravati unit-2			
					Indravati unit-4			
					Bakreswar Unit-3			
					Bakreswar Unit-4			
					Kolaghat Unit-1			
					Kolaghat Unit-5			
					Sagardighi Unit-3			
					Rengali unit-1			
					Rengali unit-2			
					Rengali unit-3			
					Rengali unit-4			

Tripping of generating units at Anpara on 30-11-16 at 06:02 Hrs

Comparison between various unit response and ideal governor response (assuming 5% droop)

>=70%	>= 30% and <70%	> 0% and <30%	<0%	SCADA data suspect	Zero Previous generation	Unit having insufficient margin		
Name	Name	Name	Name	Name	Name	Name	Init. Gen (MW)	Gen change (MW)
		FSTPP #4	FSTPP #2	FSTPP #6	Teesta #1	FSTPP #1	198	1.1
		FSTPP #5	KhSTPP #5	TSTPP #4	Balimela unit-6	FSTPP #3	207	-1.34
		KhSTPP #6	KhSTPP #7	Rangit #1	Rengali unit-5	KhSTPP #2	203	-5.75
		APNRL #1	MPL #1	SEL #1	KhSTPP #1	KhSTPP #4	191	5.59
		Barh Unit-4	APNRL #2	SEL #2	KhSTPP #3	TSTPP #1	514	-0.59
			Balimela unit-2	SEL #3	TSTPP #2	TSTPP #3	507	-2.05
			Balimela unit-3	SEL #4	Rangit #2	TSTPP #5	485	1.76
			Balimela unit-5	GMR unit-1	Rangit #3	TSTPP #6	501	-3.81
			UBKLB unit-1	GMR unit-2	Teesta #2	JORETHANG #2	48	6
			Bakreswar Unit-1	GMR unit-3	Teesta #3	Barh Unit-5	605	4.02
			Bakreswar Unit-2	JITPL #1	Chujachen #1	DSTPS unit-2	439	15.19
			Bakreswar Unit-5	JITPL #2	Chujachen #2			
			Kolaghat Unit-2	Indravati unit-1	JORETHANG #1			
			Kolaghat Unit-3	Indravati unit-2	Balimela unit-1			
			Kolaghat Unit-6	Indravati unit-3	Balimela unit-4			
			Sagardighi Unit-2	Indravati unit-4	Balimela unit-7			
			Bandel Unit-5	Rengali unit-1	Balimela unit-8			
			MPL #2	Rengali unit-2	UBKLB unit-2			
				Rengali unit-3	UBKLB unit-3			
				Rengali unit-4	UBKLB unit-4			
				Santaldih Unit-5	Bakreswar Unit-3			
				Santaldih Unit-6	Bakreswar Unit-4			
				IBTPS unit-1	Kolaghat Unit-1			
				IBTPS unit-2	Kolaghat Unit-4			
				Budgebudge Unit-1	Kolaghat Unit-5			
				Budgebudge Unit-2	Sagardighi Unit-1			
				Budgebudge Unit-3	Sagardighi Unit-3			
				TENUGHAT Unit-1				
				TENUGHAT Unit-2				
				Bokara B unit-1				
				Bokara B unit-2				
				Bokara B unit-3				
				DSTPS unit-1				

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

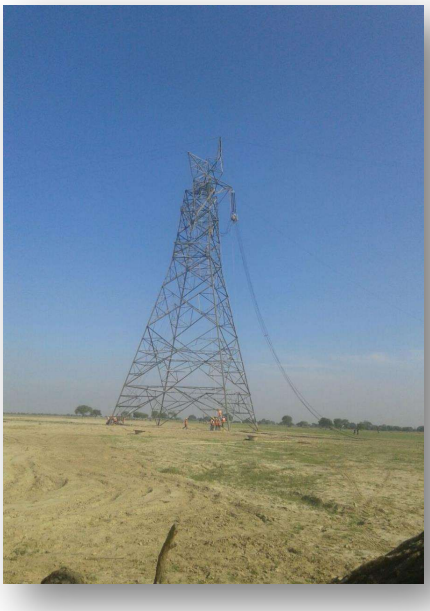


Fig-2: De-stringing work completed, De-erection under progress

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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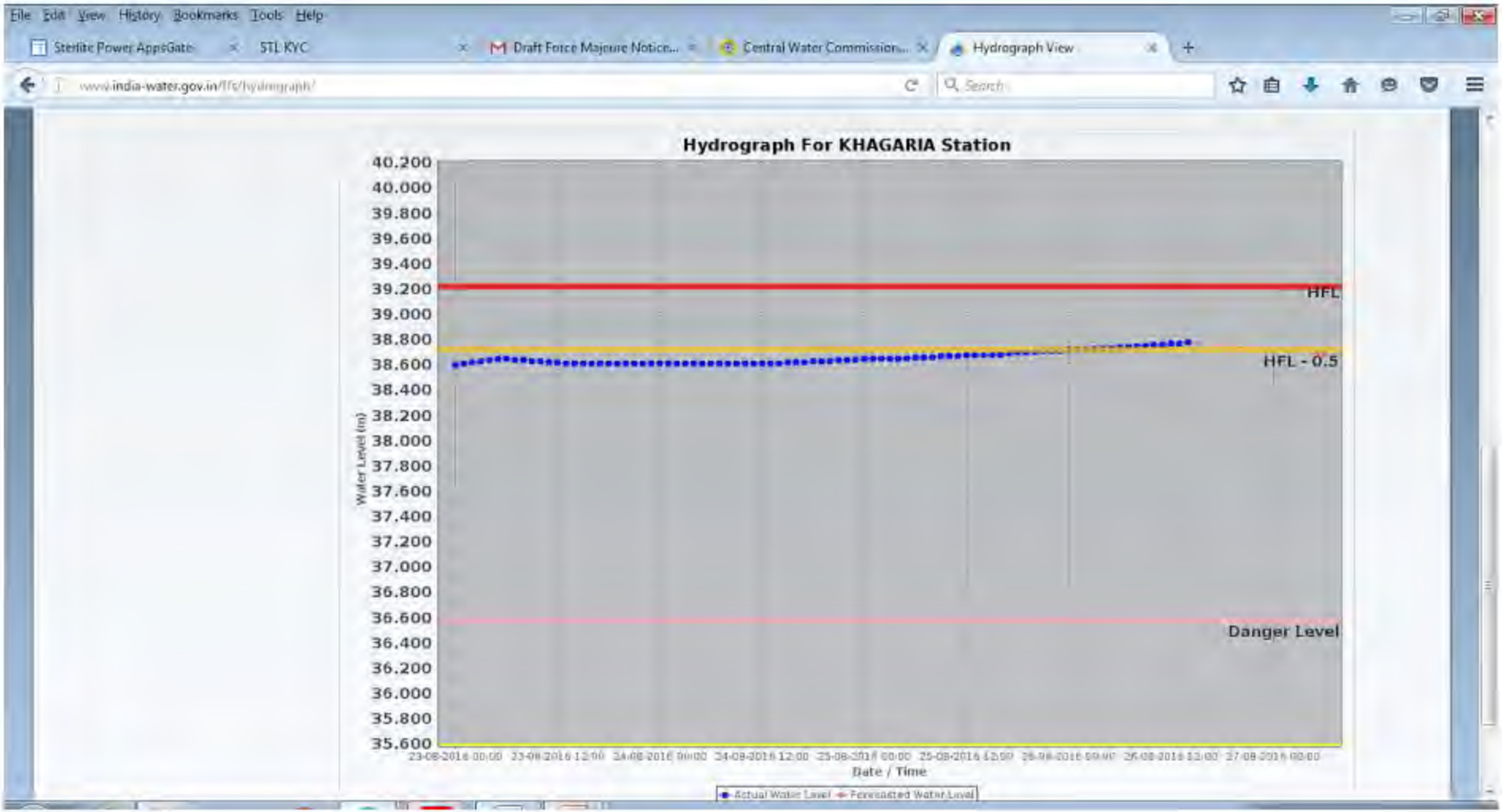
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Water Level (m)
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Danger Level
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26-08-2016 12:00
27-08-2016 00:00
Date / Time
Actual Water Level
Forecasted Water Level

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		
WBPDCL**	KTPS	2	210	15.01.17	21.01.17	7	Boiler License
CESC	TITAGARH	2	60	16.01.17	19.01.17	4	Hydraulic Test
HEL	HALDIA	1	300	25.12.16	08.01.17	15	Annual Overhauling / Boiler Overhauling
		2	300	09.01.17	23.01.17	15	Annual Overhauling / Boiler Overhauling
NTPC	KhSTPS	7	500	10.01.17	13.02.17	35	Capital+ Gen.

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

EASTERN REGIONAL LOAD DESPATCH CENTRE
KOLKATA

TRANSMISSION ELEMENTS OUTAGE APPROVED IN 128TH OCC MEETING OF ERPC

Sr. No	NAME OF THE ELEMENTS	DATE	TIME	DATE	TIME	REMARKS	S/D availed BY	Reason	SUBJECT TO CONSENT FROM AGENCY
	220 KV BUS COUPLER BAY-203 AT BARIPADA	24/12/2016	09:00	27/12/2016	18:00	OCB	ER-II/ODISHA	NO OUTAGE LINE WILL REMAIN IN SERVICE THROUGH TBC BAY. FOR OVERHAULING OF 220 KV CGL CB OPERATING MECHANISM	
	220kV Birpara Line#1 Bay AT BINAGURI	24/12/2016	09:30 HRS	26/12/2016	17:30 HRS	OCB	ER-II/KOL	CB Ovrhauling	
	400KV Rourkela -Talcher#1	25/12/2016	09:00	10/01/2017	18:00 hrs	ODB	ER-II/ODISHA	For PID Scanning.	
	220KV BALASORE LINE-I BAY-201 AT BARIPADA	26/12/2016	09:00	29/12/2016	18:00	OCB	ER-II/ODISHA	**NO OUTAGE** LINE WILL REMAIN IN SERVICE THROUGH TBC BAY. FOR OVERHAULING OF 220 KV CGL CB OPERATING MECHANISM	ODISHA
	400kV Keonjhar Line at Rengali	26/12/2016	10:00Hrs:	26/12/2016	12:00Hrs:	ODB	ER-II/ODISHA	Construction of Main Cable trench for 125MVAR Bay extension work at Rengali S/s.	
	400 KV Raigarh #2 - 400KV Ranchi #2 Tie Bay (Bay No.- 420).	26/12/2016	09:00	28/12/2016	18:00	OCB	ER-II/ODISHA	Overhauling of Driving Mechanism of ABB make Tie Bay CB (42052)	NLDC
	400 KV Sundargarh #1 Main Bay (Bay No.- 418)	26/12/2016	09:00	28/12/2016	18:00	OCB	ER-II/ODISHA	Overhauling of Driving Mechanism of ABB make Main Bay CB	
	RANCHI-ROURKELA-II MAIN BAY-412 AT RANCHI	26/12/2016	10:00	26/12/2016	17:30	ODB	ER-I	FOR AMP WORK.	
	400 KV BUS-3 AT BSF	26/12/2016	09:00	31/12/2016	18:00	OCB	ER-I	FOR DISCONNECTION OF CT CORE-1 FROM OLD BUS BAR PANNEL AND TERMINATION OF CT CORE-1 & 2 IN NEW BUS BAR PANNEL	
	765/400 KV ICT-1 AT NEW RANCHI	26/12/2016	10:00	27/12/2016	15:00	ODB	ER-I	FOR TAKING B-PH UNIT BACK INTO SERVICE AFTER ATTENDING OIL LEAKAGE	NLDC
	200 MVA ICT-1 AT LAKHISARAI	26/12/2016	08:00	29/12/2016	18:00	ODB	ER-I	HVWS WORK AND CONSTRUCTION OF FIREWALL	BIHAR
	220kV Bus Coupler Bay AT BINAGURI	26/12/2016	09:30 HRS	28/12/2016	17:30 HRS	OCB	ER-II/KOL	CB Ovrhauling	
	Bay-08 at NTPC Farakka	26/12/2016	10:00	27/12/2016	18:00	OCB	ER-II/KOL	Testing and commissioining of CSD of CB of Bay-08	
	400kV Indravati Line at Rengali	27/12/2016	10:00Hrs:	27/12/2016	14:00Hrs:	ODB	ER-II/ODISHA	On line testing of CSD	
	220kV SLG-Kishanganj Ckt-II	27/12/2016	9.00 hrs	28/12/2016	17.00 hrs	ODB	ER-II/KOL	PG clamp removal	
	TIE BAY OF ROURKELA –I & FUTURE LINE BAY -414 AT RANCHI	27/12/2016	10:00	27/12/2016	17:30	ODB	ER-I	FOR AMP WORK.	
	500MVA ICT-I AT SASARAM	27/12/2016	10:00	27/12/2016	18:00	ODB	ER-I	TERTIARY CABLE TERMINATION AND MAIN BAY CSD RE-	
	MAIN BAY OF 400KV RANCHI-RANCHI CKT-1 (406) AT NEW RANCHI	27/12/2016	08:00	27/12/2016	18:00	ODB	ER-I	BAY AMP	
	BARH -2 MAIN BAY AT PATNA	27/12/2016	09:00	27/12/2016	17:00	ODB	ER-I	AMP WORK	
	400 kV KAHALGAON - BARH - II AND 400 kV PATNA - BARH - I	27/12/2016	08:00	27/12/2016	17:00	ODB	ER-I	FOR OPGW INSTALLATION WORK	

	132kV Kurseong - Rangit	27/12/2016	9.00 hrs	27/12/2016	16.00 hrs	ODB	ER-II/KOL	Insulator fitting	WEST BENGAL
	132kV Siliguri - Melli	27/12/2016	9.00 hrs	28/12/2016	16.00 hrs	ODB	ER-II/KOL	Insulator fitting	SIKKIM
	Bus reactor -2 Main bay CB (421) AT BINAGURI	27/12/2016	9.30 hrs	27/12/2016	17.30 hrs	ODB	ER-II/KOL	CB Ovrhauling	
	400 KV BONG- NEW SLG-1&2- LINE	27/12/2016	07:00	29/12/2016	16:00	ODB	ER-II/KOL	800KV LILO work- Crossing at LINE OUT-AP10/0 -AP11/0	NLDC
	400 KV BONG- NEW SLG-1&2- LINE	27/12/2016	09:00	29/12/2016	16:00	ODB	ER-II/KOL	800KV LILO work- Crossing at LINE OUT-AP10/0 -AP11/0	NLDC
	220 KV SIDE OF 315 MVA ICT-II, BAY-204	28/12/2016	09:00	31/12/2016	18:00	OCB	ER-II/ODISHA	**NO OUTAGE** LINE WILL REMAIN IN SERVICE THROUGH TBC BAY.	ODISHA
	132 KV TRANSFER BUS AT PURNEA	28/12/2016	09:00	_____		PERMANENT	ER-I	GIS WORK PERMANENT REMOVAL OF TRANSFER BUS IS REQUIRED FOR GIS BUILDING AND ASSOCIATED CIVIL THE 132 KV TRANSFER	BIHAR
	132 KV PURNEA - PURNEA BSPTCL#3 LINE	28/12/2016	09:00	28/12/2016	17:00	ODB	ER-I	WORK OF DISMANTLING OF LM TOWER TO FACILITATE	BIHAR
	ROURKELA-I MAIN BAY-415 AT RANCHI	28/12/2016	10:00	28/12/2016	17:30	ODB	ER-I	FOR AMP WORK.	
	MAIN BAY OF 765KV ICT-2 (407) AT NEW RANCHI	28/12/2016	08:00	28/12/2016	18:00	ODB	ER-I	BAY AMP	
	132kV Siliguri - Kurseong	28/12/2016	9.00 hrs	28/12/2016	17.00 hrs	ODB	ER-II/KOL	Jumper Cone Repairing / Insulator fitting	WEST BENGAL
	400 KV BUS-II of NTPC Farakka	28/12/2016	10:00	28/12/2016	16:00	ODB	ER-II/KOL	For conducting Bus bar-II stability test for integration of bay-12 after upgradation of bay-12 from 2000A to 3150A rating	
	220kV birpara Line#2 Bay AT BINAGURI	29/12/2016	09:30 HRS	31/12/2016	17:30 HRS	OCB	ER-II/KOL	CB Ovrhauling	
	400kV Bus-I at Rengali	29/12/2016	09:00Hrs:	29/12/2016	17:00Hrs:	ODB	ER-II/ODISHA	For erection of Beam structure of New Bay extension work at Rengali.	
	400 KV Raigarh #2 Main Bay (Bay No.- 419).	29/12/2016	09:00	31/12/2016	18:00	OCB	ER-II/ODISHA	Overhauling of Driving Mechanism of ABB make Main Bay CB	
	132 KV PURNEA - PURNEA BSPTCL#3 LINE	29/12/2016	09:00	29/12/2016	17:00	ODB	ER-I	WORK OF DISMANTLING OF LM TOWER TO FACILITATE CONSTRUCTION OF GIS BUS DUCT AND SF6 TO AIR BUSHING FOUNDATIONS.	BIHAR
	HATIA-I MAIN BAY-206 AT RANCHI	29/12/2016	10:00	29/12/2016	17:30	ODB	ER-I	FOR AMP WORK.	
	MAIN BAY OF 400KV B/R-1 (410) AT NEW RANCHI	29/12/2016	08:00	29/12/2016	18:00	ODB	ER-I	BAY AMP	
	BARH -3 MAIN BAY AT PATNA	29/12/2016	09:00	29/12/2016	17:00	ODB	ER-I	AMP WORK	
	220kV TBC Bay AT BINAGURI	29/12/2016	09:30 HRS	31/12/2016	17:30 HRS	OCB	ER-II/KOL	CB Ovrhauling	
	400 KV Farakka- Behrampur S/c	29/12/2016	09:00	29/12/2016	17:00	ODB	ER-II/KOL	AMP for 2016-17	NLDC
	220KV BALASORE LINE-II BAY-202 AT BARIPADA	30/12/2016	09:00	30/12/2016	18:00	OCB	ER-II/ODISHA	**NO OUTAGE** LINE WILL REMAIN IN SERVICE THROUGH TBC BAY.	ODISHA
	Non-Auto mode of Auto-Reclosure in 400KV Indravati-Rengali Line at Rengali	30/12/2016	08:00	15/01/2017	17:00	ODB	ER-II/ODISHA	Live line OPGW stringing works	
	400kV Bus-II at Rengali	30/12/2016	09:00Hrs:	30/12/2016	17:00Hrs:	ODB	ER-II/ODISHA	For erection of Beam structure of New Bay extension work at Rengali.	
	132 KV PURNEA - PURNEA BSPTCL#3 LINE	30/12/2016	09:00	30/12/2016	17:00	ODB	ER-I	WORK OF DISMANTLING OF LM TOWER TO FACILITATE CONSTRUCTION OF GIS BUS DUCT AND SF6 TO AIR BUSHING FOUNDATIONS.	BIHAR
	400 KV BUS -1 AT BIHARSHARIF	31/12/2016	09:00	31/12/2016	18:00	ODB	ER-I	STABILITY TEST AND COMMISSIONING OF BUS BAR PANNEL	
	Non-Auto mode of Auto-Reclosure in 400KV Rourkela-Sundargarh-Ind Bharat Line (LILO-1)	01/01/2017	09:00	31/01/2017	17:00	ODB	ER-II/ODISHA	For attending PID testing of LILO-1 Line	

	Non-Auto mode of Auto-Reclosure in 400KV	01/01/2017	09:00	31/01/2017	17:00	ODB	ER-II/ODISHA	For attending PID testing of LILO-2 Line	
	A/R OF 400KV KAHALGAON - MAITHAN CKT. # I &	01/01/2017	09:00	31/01/2017	18:00	ODB	ER-I	PID WORK IN THE SAID LINE	
	400kV NSLG-Rangpo Ckt-II	01/01/2017	9.00 hrs	01/01/2017	17.00 hrs	ODB	ER-II/KOL	PG clamp removal	
	400kV BINAGURI-Tala-I	01/01/2017	9.00 hrs	01/01/2017	17.00 hrs	ODB	ER-II/KOL	Repeat tan delta of 400kV R Phase Bushing & Neutral Bushing Replacement / oil leakage arrest/RELAY RETROFITTING.	
	400kV NSLG-Bangaigaon Ckt-1	01/01/2017	07.00 hrs	05/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	NLDC/ may be done within 27 to 29th Dec.
	400kV NSLG-Tala Ckt-4	01/01/2017	07.00 hrs	01/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	NLDC
	Purnea-1 Main bay CB (422) AT BINAGURI	01/01/2017	9.30 hrs	01/01/2017	17.30 hrs	ODB	ER-II/KOL	CB Ovrhauling	
	315 MVA ICT-I AT SUBHASGRAM	02/01/2017	08:30	02/01/2017	17:00	ODB	ER-II/KOL	220KV Bph LA inspection	WEST BENGAL
	765kV Angul Sundergarh Line-1	02/01/2017	07:00	02/01/2017	18:00	ODB	ER-II/ODISHA	Improvement & strenghthening of line jumpers to prevent swing during high speed wind to avoid tripping in future & improvement of line availability&reliability & **Polymer anchoring in substation.**	NLDC
	220 KV SIDE OF 315 MVA ICT-I, BAY-208	02/01/2017	09:00	05/01/2017	18:00	OCB	ER-II/ODISHA	**NO OUTAGE** LINE WILL REMAIN IN SERVICE THROUGH TBC BAY. FOR OVERHAULING OF 220 KV CGL CB OPERATING MECHANISM	ODISHA
	ICT-I Tie Bay(408) at Jeypore	02/01/2017	09:30	02/01/2017	17:30	ODB	ER-II/ODISHA	For AMP works	ODISHA
	132 KV PURNEA - PURNEA BSPTCL#3 LINE	02/01/2017	09:00	02/01/2017	17:00	ODB	ER-I		BIHAR
	160 MVA ICT-2 AT PURNEA	02/01/2017	10:00	02/01/2017	17:00	ODB	ER-I	AMP & GIS WORK	BIHAR
	400 KV BUS-4 AT BSF	02/01/2017	09:00	06.01.2017	18:00	OCB	ER-I	FOR DISCONNECTION OF CT CORE-1 FROM OLD BUS BAR PANNEL AND TERMINATION OF CT CORE-1 & 2 IN NEW BUS	
	22OKV BUS-I AT GAYA S/S	02/01/2017	10:00	02/01/2017	18:00	ODB	ER-I	FOR KHIJARSARAI BAY COMMISIONING WORK	BIHAR
	765KV B/R -2 AT NEW RANCHI	02/01/2017	08:00	02/01/2017	18:00	ODB	ER-I	RTV COATING OF TRENCH MAKE BUSHING & AMP	NLDC
	WBSETCL Bus Section-1 AT BINAGURI	02/01/2017	9.00 hrs	02/01/2017	17.00 hrs	ODB	ER-II/KOL	AMP	WEST BENGAL
	220kV ICT#1 Bay AT BINAGURI	02/01/2017	9.30 hrs	04/01/2017	17.30 hrs	OCB	ER-II/KOL	CB Ovrhauling	
	220 KV BRP- CHP-I and II	02/01/2017	07:00 Hrs	11/01/2017	17:00 Hrs	OCB	ER-II/KOL	Dismentling of Loc-107,erection of new Tower and Stringing	NLDC
	765kV Angul Sundergarh Line-2	03/01/2017	07:00	03/01/2017	18:00	ODB	ER-II/ODISHA	Improvement & strenghthening of line jumpers to prevent	NLDC
	125 MVAR Main Bay(409) at Jeypore	03/01/2017	09:30	03/01/2017	17:30	ODB	ER-II/ODISHA	For AMP works	
	400 KV Rourkela - Ranchi #2	03/01/2017	09:00	03/01/2017	18:00	ODB	ER-II/ODISHA	AMP Work.	
	765KV Sundergarh-Angul Line#II at Sundergarh	03/01/2017	09:00	03/01/2017	18:00	ODB	ER-II/ODISHA	Polymer anchoring in Yphase Line Isolator	NLDC
	400KV Sundargarh-Raigarh#2	03/01/2017	09:00	03/01/2017	17:30	ODB	ER-II/ODISHA	Replacement of Flash glass insulators at Loc. 372, 373 & 374 at Middle phase	NLDC
	132 KV PURNEA KISHANGANJ LINE	03/01/2017	11:00	03/01/2017	13:00	ODB	ER-I	GIS WORK	BIHAR
	50 MVAR BR-I AT JAMSHEDPUR	03/01/2017	09:30	03/01/2017	17:30	ODB	ER-I	BAY CONSTRUCTION WORK	
	ICT-I MAIN BAY (400 KV) AT RANCHI	03/01/2017	10:00	03/01/2017	17:30	ODB	ER-I	FOR AMP WORK.	
	MAIN BAY OF 400KV SSRM-NABINAGAR # I, BAY NO. 419 AT SASARAM	03/01/2017	10:00	03/01/2017	18:00	ODB	ER-I	FOR AMP WORK	
	400KV MUZ- -GKP-I	03/01/2017	10:00	03/01/2017	16:00	ODB	ER-I	FOR LINE BAY AMP WORK AT MUZ	NLDC
	Main Bay BSF-1 (401) AT LAKHISARAI	03/01/2017	10:00	03/01/2017	14:00	ODB	ER-I	AMP	
	220kV NSLG-SLG Ckt-II	03/01/2017	9.00 hrs	03/01/2017	17.00 hrs	ODB	ER-II/KOL	Relay retrofitting	
	400KV BONGAIGAON - NEW SILIGURI CIRCUIT # 3 and 4 (ENICL Line)	03/01/2017	07:00	06.01.2017	16:00	ODB	ER-II/KOL	800KV LILO work- Crossing at LINE OUT-AP 7/0 -AP 8/0 .	NLDC
	315 MVA ICT#I at Durgapur	03/01/2017	11:00	03/01/2017	12:00	ODB	ER-II/KOL	CB Retrofitting-trasfer load to transfer bus & protection testing	DVC
	At DGP: 50 MVAR Bus Reactor	03/01/2017	09:00	03/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	

	220kV S'gram-CESC-2	04/01/2017	08:30	04/01/2017	17:00	ODB	ER-II/KOL	AMP	WEST BENGAL
	400kV Angul Bolangir Line	04/01/2017	07:00	04/01/2017	18:00	ODB	ER-II/ODISHA	Improvement & strenghthening of line jumpers including replacement of conventional insulator with polymer insulator to prevent swing during high speed wind to avoid tripping in future & improvement of line availability&reliability.	NLDC
	63 MVAR BR Main Bay(416) at Jeypore	04/01/2017	09:30	04/01/2017	17:30	ODB	ER-II/ODISHA	For AMP works	
	315MVA ICT-II	04/01/2017	09:00	04/01/2017	18:00	ODB	ER-II/ODISHA	For AMP Works	ODISHA
	400/220kV 315MVA ICT-I at Rengali	04/01/2017	08:00Hrs:	13/01/2017	17:00Hrs:	OCB	ER-II/ODISHA	Complete overhauling of ICT-I at Rengali S/s.	
	400 KV Rourkela-Talcher #2	04/01/2017	09:00	04/01/2017	18:00	ODB	ER-II/ODISHA	AMP Work.	
	765KV Sundergarh-Dharamjaygarh Line#I at	04/01/2017	09:00	04/01/2016	18:00	ODB	ER-II/ODISHA	Polymer anchoring in Yphase Line Isolator	NLDC
	50 MVAR BR-II AT JAMSHEDPUR	04/01/2017	09:30	04/01/2017	17:30	ODB	ER-I	BAY CONSTRUCTION WORK	
	ICT-2 MAIN BAY (400 KV) AT RANCHI	04/01/2017	10:00	04/01/2017	17:30	ODB	ER-I	FOR AMP WORK.	
	MAIN BAY OF 400KV SSRM-VARANASI (NR), BAY	04/01/2017	10:00	04/01/2017	18:00	ODB	ER-I	FOR AMP WORK	
	400KV MUZ- -GKP-II	04/01/2017	10:00	04/01/2017	16:00	ODB	ER-I	FOR LINE BAY AMP WORK AT MUZ	NLDC
	400kV Tala-IV L/R AT BINAGURI	04/01/2017	9.00 hrs	04/01/2017	17.00 hrs	ODB	ER-II/KOL	CSD Commissioning	
	Bong -4 Main bay CB (427) AT BINAGURI	04/01/2017	9.30 hrs	04/01/2017	17.30 hrs	ODB	ER-II/KOL	CB Ovrhauling	
	220 KV Farakka- Lalmatia TL	04/01/2017	08:00	12/01/2017	18:00	OCB	ER-II/KOL	Erection of tower at Loc. No- 7/0 (DD+25 mtr with 4 m RC) and stringing between loc. No. 6/0 to 7/0 of LILO of 400 KV	JHARKHAND
	400 KV New Siliguri-New Purnea # I	04/01/2017	09:00 Hrs	04/01/2017	17:00 Hrs	ODB	ER-II/KOL	New Hardware fitting fixing	
	400 KV DGP- Arambag line	04/01/2017	09:00	05/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	
	400kV Angul- Meramundali Line-1	05/01/2017	07:00	05/01/2017	18:00	ODB	ER-II/ODISHA	Improvement & strenghthening of line jumpers to prevent swing during high speed wind to avoid tripping in future &	
	Indravati Line Tie Bay(411) at Jeypore	05/01/2017	09:30	05/01/2017	17:30	ODB	ER-II/ODISHA	For AMP works	
	220 KV Rourkela-Takera #1	05/01/2017	09:00	05/01/2017	18:00	ODB	ER-II/ODISHA	AMP Work.	ODISHA
	765KV Sundergarh-Dharamjaygarh Line#II at Sundergarh	05/01/2017	09:00	05/01/2016	18:00	ODB	ER-II/ODISHA	Polymer anchoring in Yphase Line Isolator	NLDC
	50 MVAR L/R OF 400 KV BANKA - BIHARSHARIF -1 AT BANKA	05/01/2017	10:00	05/01/2017	18:00	ODB	ER-I	AMP WORK	
	400KV TATA -BARIPADA AT JAMSHEDPUR	05/01/2017	09:00	05/01/2017	17:00	ODB	ER-I	REPLACEMENT OF DEFECTIVE INSULATOR DAMAGED BY MISCREANTS	
	220 KV RNC -HATIA-II	05/01/2017	10:00	05/01/2017	17:30	ODB	ER-I	FOR REPLACEMENT OF LA AT RANCHI END.	JHARKHAND
	220KV TRANSFER BUS COUPLER BAY, (BAY NO.	05/01/2017	10:00	05/01/2017	18:00	ODB	ER-I	FOR AMP WORK	
	400KV MUZ- NPRN-I	05/01/2017	10:00	05/01/2017	16:00	ODB	ER-I	FOR LINE BAY AMP WORK AT MUZ	NLDC
	765/400 KV ICT-I AT NEW RANCHI S/S	05/01/2017	09:00	07/01/2017	18:00	ODB	ER-I	RTV COATING OF TRENCH MAKE BUSHING	NLDC
	MAIN BAY OF 765 KV RNC-DMJ LINE-1 (704) AT	05/01/2017	08:00	06.01.2017	18:00	ODB	ER-I	BAY AMP	
	TIE BAY OF 400 KV BSF-1 & ICT-1 (402) AT LAKHISARAI	05/01/2017	10:00	05/01/2017	14:00	ODB	ER-I	AMP	
	BALIA -2 MAIN BAY AT PATNA	05/01/2017	09:00	05/01/2017	17:00	ODB	ER-I	AMP WORK	
	400 KV BINAGURI-BONGAIGAON-IV L/R	05/01/2017	9.00 hrs	05/01/2017	17.00 hrs	ODB	ER-II/KOL	AMP	NLDC
	220kV NSLG-BRP Ckt-II	05/01/2017	9.00 hrs	05/01/2017	17.00 hrs	ODB	ER-II/KOL	Relay retrofitting	

	400kV NSLG-Tala Ckt-1	05/01/2017	07.00 hrs	05/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	NLDC
	220kV ICT#2 Bay AT BINAGURI	05/01/2017	09:30 HRS	07/01/2017	17:30 HRS	OCB	ER-II/KOL	CB Ovrhauling	
	400 KV New Siliguri-New Purnea # I	05/01/2017	09:00 Hrs	05/01/2017	17:00 Hrs	ODB	ER-II/KOL	New Hardware fitting fixing	
	400 KV Kh- Barh#1 line	05/01/2017	09:30hrs	05/01/2017	17:30 hrs	OCB	NTPC	PM works & relay testing	
	400 KV Subhasgram- Jeerat Line	06/01/2017	08:30	06/01/2017	17:00	ODB	ER-II/KOL	LA & Jumper replacemnet at jeerat end.	WEST BENGAL
	400kV GMR Line#1 & Jindal Line#2 TIE Bay (426)	06/01/2017	09:00	06/01/2017	15:00	ODB	ER-II/ODISHA	AMP WORK	
	220 KV SIDE OF 160 MVA ICT-I, BAY-209	06/01/2017	09:00	09/01/2017	18:00	OCB	ER-II/ODISHA	**NO OUTAGE** LINE WILL REMAIN IN SERVICE THROUGH TBC	ODISHA
	80 MVAR Bus Reactor	06.01.2017	09:00	06/01/2017	18:00	ODB	ER-II/ODISHA	For AMP Works	
	220 KV Rourkela-Takera #2	06/01/2017	09:00	06/01/2017	18:00	ODB	ER-II/ODISHA	AMP Work.	ODISHA
	765/400KV, 1500MVA ICT-I at Sundergarh	06/01/2017	09:00	06/01/2016	18:00	ODB	ER-II/ODISHA	For Charging of 33KV auxiliary Transformer	NLDC
	400KV Sterlite-Raigarh#2	06/01/2017	09:00	06/01/2017	17:30	ODB	ER-II/ODISHA	Replacement of Flash glass insulators at Loc. 372, 373 & 374	NLDC
	220 KV NEW PURNEA -PURNEA #1	06.01.2017	09:00	06.01.2017	17:00	ODB	ER-I	AMP WORK OF SWITCH YARD BAY EQUIPMENTS	
	315 MVA ICT-1 AT JAMSHEDPUR	06.01.2017	09:30	06.01.2017	17:30	ODB	ER-I	BAY CONSTRUCTION WORK	JHARKHAND
	400 KV BUS -2 AT BIHARSHARIF	06.01.2017	09:00	06.01.2017	18:00	ODB	ER-I	STABILITY TEST AND COMMISSIONING OF BUS BAR PANNEL	
	400KV MUZ- NPRN-II	06.01.2017	10:00	06.01.2017	16:00	ODB	ER-I	FOR LINE BAY AMP WORK AT MUZ	NLDC
	BARH -1 MAIN BAY AT PATNA	06.01.2017	09:00	06.01.2017	17:00	ODB	ER-I	AMP WORK	
	400kV NSLG-Bangaigaon Ckt-2	06.01.2017	07.00 hrs	10/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	NLDC/ may be done within 27 to 29th
	400 KV New Siliguri-New Purnea # II	06.01.2017	09:00 Hrs	06.01.2017	17:00 Hrs	ODB	ER-II/KOL	New Hardware fitting fixing	
	400 kv DGP- Parulia line 2	06/01/2017	09:00	07/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	
	400kV Angul-Jindal Line#1 Main Bay (428)	07/01/2017	09:00	07/01/2017	15:00	ODB	ER-II/ODISHA	AMP WORK	
	400 KV Rourkela -Raigarh #2	07/01/2017	09:00	07/01/2017	18:00	ODB	ER-II/ODISHA	For AMP work of Line & Line Reactor Bay	NLDC
	220 KV NEW PURNEA -PURNEA #1	07/01/2017	09:00	07/01/2017	17:00	ODB	ER-I	AMP WORK OF SWITCH YARD BAY EQUIPMENTS	
	TIE BAY OF765KV RNC-DMJ LINE-1 & 765/400 KV	07/01/2017	08:00	07/01/2017	18:00	ODB	ER-I	BAY AMP	
	Main Bay OF ICT-1 (403) AT LAKHISARAI	07/01/2017	10:00	07/01/2017	14:00	ODB	ER-I	AMP	
	125 MVAR B/R - 2 AT PATNA	07/01/2017	09:00	07/01/2017	17:00	ODB	ER-I	AMP WORK	
	220kV NSLG-BRP Ckt-I	07/01/2017	9.00 hrs	07/01/2017	17.00 hrs	ODB	ER-II/KOL	Relay retrofitting	
	400kV NSLG-Tala Ckt-2	07/01/2017	07.00 hrs	07/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	NLDC
	400 KV New Siliguri-New Purnea # II	07/01/2017	09:00 Hrs	07/01/2017	17:00 Hrs	ODB	ER-II/KOL	New Hardware fitting fixing	
	Non-Auto mode of Auto-Reclosure in 400KV Indravati(PG)-Indravati(OHPC) Line	08/01/2017	08:00	15/01/2017	17:00	ODB	ER-II/ODISHA	Live line OPGW stringing works	
	220kV Siliguri Line#1 Bay AT BINAGURI	08/01/2017	09:30 HRS	10/01/2017	17:30 HRS	OCB	ER-II/KOL	CB Ovrhauling	WEST BENGAL
	400 kv DGP- Parulia line 1	08/01/2017	09:00	09/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	
	315 MVA ICT-V AT SUBHASGRAM	09/01/2017	08:30	09/01/2017	17:00	ODB	ER-II/KOL	AMP & PSD commissioning	WEST BENGAL
	220kV PGCIL-OPTCL -I Bay (Bay no- 208)at Rengali	09/01/2017	08:00Hrs:	12/01/2017	17:00Hrs:	OCB	ER-II/ODISHA	Mechanism Overhauling of Breaker.	ODISHA
	400 KV Talcher #1 Tie Bay (Bay No.- 405)	09/01/2017	09:00	09/01/2017	13:00	ODB	ER-II/ODISHA	Overhauling of Air Compressor of 40552 CB.	
	400KV Sundergarh-Raigarh Line#II at Sundergarh	09/01/2017	08:00	10/01/2016	18:00	ODB	ER-II/ODISHA	to attend mechanical interlock problem (constructional	NLDC
	765KV Sundargarh-Dharmajoygargh Ckt-1	09/01/2017	10:00	09/01/2017	13:00	ODB	ER-II/ODISHA	Refixing of Repair sleeves in the span of 86-87	NLDC
	220 KV MAIN BUS-1 AT PURNEA	09/01/2017	09:00	09/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	SIPAT-I TIE BAY-420 AT RANCHI	09/01/2017	10:00	09/01/2017	17:30	ODB	ER-I	FOR AMP WORK.	
	400 KV BIHARSHARIF - MUZAFFARPUR -1	09/01/2017	09:00	09/01/2017	18:00	ODB	ER-I	REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS.	NLDC
	220KV MUZ - KANTI -I	09/01/2017	10:00	09/01/2017	16:00	ODB	ER-I	FOR LINE BAY AMP WORK AT MUZ	BIHAR
	765 KV GAYA-VARANASI-I	09/01/2017	10:00	09/01/2017	18:00	OCB	ER-I	FOR HV BUSHING REPLACEMENT WORK IN Y-PHASE LINE	NLDC
	765/400 KV ICT-II AT NEW RANCHI S/S	09/01/2017	09:00	11/01/2017	18:00	ODB	ER-I	RTV COATING OF TRENCH MAKE BUSHING & AMP	NLDC
	BALIA -1 AND BARH -2 TIE BAY AT PATNA	09/01/2017	09:00	09/01/2017	17:00	ODB	ER-I	AMP WORK	

	400 kV PATNA - BARH - III	09/01/2017	08:00	12/01/2017	17:00	ODB	ER-I	FOR REPLACEMENT OF PORCELAIN INSULATOR WITH POLYMER INSULATOR	
	220kV NSLG-SLG Ckt-I	09/01/2017	9.00 hrs	09/01/2017	17.00 hrs	ODB	ER-II/KOL	Relay retrofitting	
	400kV NSLG-Tala Ckt-3	09/01/2017	07.00 hrs	09/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	NLDC
	400 KV BUS-I with Bay no-08 of NTPC Farakka	09/01/2017	10:00	10/01/2017	17:00	ODB	ER-II/KOL	BUS bar-I stability test has to also carried out. To charge Bay no-09, jumper of Bay no-08 is to be opened and to be connected with isolator of Bay no-09. *Then only, Bus reactor#1 with Bay no-09 will come into service. Moreover, dismantelling of strung BUS over bay- 09 has to also carried out.*	
	220KV Siliguri-Kishanganj # I	09/01/2017	09:00 Hrs	09/01/2017	17:00 Hrs	ODB	ER-II/KOL	Loose span rectification	
	400kV Bus-I	10/01/2017	07:00	10/01/2017	19:00	ODB	ER-II/ODISHA	AMP WORK	
	400 KV Indravati-Rengali line	10/01/2017	09:00	10/01/2017	13:00	ODB	ER-II/ODISHA	For removal of 50MVAR LR of Rengali-Indravati Line from service for replacement of insulating oil. And Testing of 50MVAR L/R in Rengali Line before replacement of Oil.	NLDC
	50MVAR L/R of 400KV Indravati-Rengali Line	10/01/2017	13:00	17/01/2017	10:00	OCB	ER-II/ODISHA	Replacement of insulating Oil. During this period, only 50MVAR LR will be out of service but the 400KV Indravati-	
	Bolangir Line Main Bay (415) at Jeypore	10/01/2017	09:30	10/01/2017	17:30	ODB	ER-II/ODISHA	For AMP works	
	400KV ICT-I Main bay	10/01/2017	09:00	10/01/2017	18:00	ODB	ER-II/ODISHA	For AMP Works	
	400 KV Talcher #1 Main Bay (Bay No.- 406)	10/01/2017	09:00	10/01/2017	13:00	ODB	ER-II/ODISHA	Overhauling of Air Compressor of 40652 CB.	
	765KV Sundargarh-Dharmajoygargh Ckt-2	10/01/2017	10:00	10/01/2017	13:00	ODB	ER-II/ODISHA	Refixing of Repair sleeves in the span of 40-41	NLDC
	220 KV MAIN BUS-2 AT PURNEA	10/01/2017	09:00	10/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	400 KV BUS-1 AT CHAIBASA	10/01/2017	09:00	10/01/2017	17:00	ODB	ER-I	FOR RECTIFICATION OF ISOLATOR ALIGNMENT PROBLEM	
	220KV BUS-1 AT NEW PURNEA	10/01/2017	10:00	10/01/2017	16:00	ODB	ER-I	AMP	
	400 KV JSR-ANDAL-2	10/01/2017	09:30	10/01/2017	17:30	ODB	ER-I	BAY AMP WORK	
	315 MVA ICT-I AT RANCHI	10/01/2017	10:00	10/01/2017	17:30	ODB	ER-I	FOR AMP WORK.	JHARKHAND
	400 KV BUS -2 AT BIHARSHARIF	10/01/2017	10:00	10/01/2017	13:00	ODB	ER-I	OPENING OF JUMPER NEAR (BAY NO.-16 FUTURE) FOR 400KV TENUGHAT BAY EXTENSION WORK	
	400 KV TIE BAY OF LAKHISARAI -2 & FUTURE (BAY NO 17) AT BIHARSHARIF	10/01/2017	10:00	25/01/2017	18:00	OCB	ER-I	BAY WILL BE UNDER S/D TILL COMMISSIONING OF MAIN BAY OF 400KV TENUGHAT DUE TO OPENING OF JUMPERS.	
	TIE BAY OF SSRM-BIHARSHARIFF # II, BAY NO.	10/01/2017	10:00	10/01/2017	18:00	ODB	ER-I	FOR AMP WORK	
	220KV MUZ - KANTI -II	10/01/2017	10:00	10/01/2017	16:00	ODB	ER-I	FOR LINE BAY AMP WORK AT MUZ	BIHAR
	765KV GAYA-VARANASI-2	10/01/2017	09:00	10/01/2017	17:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	NLDC
	200 MVA ICT-2 AT LAKHISARAI	10/01/2017	08:00	14/01/2017	18:00	ODB	ER-I	HVWS WORK AND CONSTRUCTION OF FIREWALL	BIHAR
	BALIA -3 MAIN BAY AT PATNA	10/01/2017	09:00	10/01/2017	17:00	ODB	ER-I	AMP WORK	
	400kV Tala-II L/R AT BINAGURI	10/01/2017	07.00 hrs	10/01/2017	17.00 hrs	ODB	ER-II/KOL	CSD Commissioning / Tan Delta in Variable Frequency	
	400 KV BONG- NEW SLG-1&2- LINE	10/01/2017	07:00	13/01/2017	16:00	ODB	ER-II/KOL	800KV LILO work- Crossing at LINE OUT-AP 17/0 -AP 18/0	NLDC
	220KV Siliguri-Kishanganj # II	10/01/2017	09:00 Hrs	10/01/2017	17:00 Hrs	ODB	ER-II/KOL	Loose span rectification	
	400 kv DGP- PPSP II	10/01/2017	09:00	10/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	
	220kV S'gram-CESC-1	11/01/2017	08:30	11/01/2017	17:00	ODB	ER-II/KOL	AMP	WEST BENGAL
	400kV Bus-2	11/01/2017	07:00	11/01/2017	19:00	ODB	ER-II/ODISHA	AMP WORK	
	400 KV Talcher #2 Main Bay (Bay No.- 407)	11/01/2017	09:00	11/01/2017	13:00	ODB	ER-II/ODISHA	Overhauling of Air Compressor of 40752 CB.	
	400KV 125MVAR Bus Reactor-I at Sundergarh	11/01/2017	08:00	11/01/2016	18:00	ODB	ER-II/ODISHA	to attend mechanical interlock problem (constructional defect) of 400KV Siemens make Isolators	

	220 KV DALKHOLA-1 BAY CB AT PURNEA	11/01/2017	10:00	11/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	400 KV BUS-2 AT CHAIBASA	11/01/2017	09:00	11/01/2017	17:00	ODB	ER-I	FOR RECTIFICATION OF ISOLATOR ALIGNMENT PROBLEM	
	LR OF 400 KV RNC - SIPAT -1 AT RANCHI	11/01/2017	10:00	11/01/2017	17:30	ODB	ER-I	FOR AMP WORK,FOR ISOLATION OF L/R, LINE WILL OUT OF	
	400 KV BIHARSHARIF - MUZAFFARPUR -2	11/01/2017	09:00	11/01/2017	18:00	ODB	ER-I	REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS.	NLDC
	SSRM-ALLAHABAD LINE REACTOR BAY, BAY NO.	11/01/2017	10:00	11/01/2017	18:00	ODB	ER-I	FOR AMP WORK	
	220KV BUS-I AT MUZAFFARPUR	11/01/2017	10:00	11/01/2017	16:00	ODB	ER-I	COMMISSIONING OF GIS BAY	
	MAIN BAY OF 125 MVAR B/R - 2 AT PATNA	11/01/2017	09:00	11/01/2017	17:00	ODB	ER-I	AMP WORK	
	400 KV BINAGURI-BONGAIGAON-III L/R	11/01/2017	07.00 hrs	11/01/2017	17.00 hrs	ODB	ER-II/KOL	Tan Delta in Variable Frequency	NLDC
	220kV Siliguri Line#2 Bay AT BINAGURI	11/01/2017	09:30 HRS	13/01/2017	17:30 HRS	OCB	ER-II/KOL	CB Ovrhauling	WEST BENGAL
	400 KV Farakka- Kahalgaon 1 & 2	11/01/2017	08:00	11/01/2017	18:00	ODB	ER-II/KOL	Stringing between Loc. No. 5A/0 to 6/0 of LILO of 400 KV Rajarhat- Purnea D/c at Farakka .	
	220 KV Rangpo-New Melli line/Bay-207(CKT-I)	11/01/2017	10:00	11/01/2017	18:00	OCC	ER-II/KOL	BAY maintenance(AMP)	
	220 KV Rangpo-New Melli line/Bay-207(CKT-I)	11/01/2017	09:00	11/01/2017	16:00	ODB	ER-II/KOL	BAY maintenance(AMP)	
	220 KV Rangpo-New Melli line/Bay-212(CKT-II)	11/01/2017	09:00	11/01/2017	16:00	ODB	ER-II/KOL	BAY maintenance(AMP)	
	220KV Dalkhola-Kishanganj # I	11/01/2017	09:00 Hrs	11/01/2017	17:00 Hrs	ODB	ER-II/KOL	Loose span rectification & Bay AMP work	
	400 kv DGP- PPSP I	11/01/2017	09:00	11/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	
	400kV Bus Reactor-3 Main Bay (404)	12/01/2017	09:00	12/01/2017	15:00	ODB	ER-II/ODISHA	AMP WORK	
	400KV KEONJHAR LINE MAIN BAY (401) AT	12/01/2017	09:00	13/01/2017	18:00	OCB	ER-II/ODISHA	SF6 GAS LEAKAGE RECTIFICATION WORK IN 40152CB	
	50 MVAR Bus Reactor Main Bay (Bay No.- 422)	12/01/2017	09:00	12/01/2017	13:00	ODB	ER-II/ODISHA	Overhauling of Air Compressor of 42252 CB.	
	Main Bay-403 of 765/400KV ICT-I at Sundergarh	12/01/2017	09:00	12/01/2016	18:00	ODB	ER-II/ODISHA	FOR AMP WORK	
	220 KV DALKHOLA-2 BAY CB AT PURNEA	12/01/2017	10:00	12/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	400 KV CHAIBASA-ROURKELA CKT-2	12/01/2017	09:00	12/01/2017	17:00	ODB	ER-I	ISOLATOR RECTIFICATION WORK.	
	MAIN BAY OF400 KV NPRN -NSLG-1 (BAY NO 401) AT NEW PURNEA	12/01/2017	10:00	12/01/2017	16:00	ODB	ER-I	AMP	
	50 MVAR L/R OF 400 KV BIHARSHARIF - VARANASI -1 AT BIHARSHARIF	12/01/2017	10:00	12/01/2017	17:00	ODB	ER-I	AMP WORK	
	400 KV BSF - VARANASI-1	12/01/2017	09:00	14/01/2017	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	NLDC
	220KV BUS-II AT MUZAFFARPUR	12/01/2017	10:00	12/01/2017	16:00	ODB	ER-I	COMMISSIONING OF GIS BAY	
	400KV MAITHON GAYA-I AND 400KV KODERMA-	12/01/2017	09:00	12/01/2017	17:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY	
	765KV B/R -1 AT NEW RANCHI	12/01/2017	08:00	14/01/2017	18:00	ODB	ER-I	RTV COATING OF TRENCH MAKE BUSHING & AMP	NLDC
	400 kV KAHALGAON - BARH - I	12/01/2017	08:00	12/01/2017	17:00	ODB	ER-I	FOR REPLACEMENT OF BROKEN INSULATORS INSULATORS DAMAGED DUE T DENSED FOG	
	125 MVAR Bus Reactor-I AT BINAGURI	12/01/2017	07.00 hrs	12/01/2017	17.00 hrs	ODB	ER-II/KOL	Tan Delta in Variable Frequency	
	400 KV Farakka- Kahalgaon 3 & 4	12/01/2017	08:00	20/01/2017	18:00	OCB	ER-II/KOL	Erection of tower at Loc no. 5/0 & 5A/0 of LILO of 400 KV Rajarhat- Purnea D/c at Farakka and stringing between them (5/0 to 5A/0). Special Remarks : Span between 5/0 to 5A/0 is 80 mtrs. So, Distance between tower 5/0 & 5A/0 to 400 KV Farakka - Kahalgaon line is even less. Tower height of 5/0 and 5A/0 is approx 80 mtrs (DD+25 Mtrs with 4 m RC). So, during erection also, shutdown is required for passing stay / guy wires /ropes.	
	220 KV Rangpo-New Melli line/Bay-212(CKT-II)	12/01/2017	10:00	12/01/2017	18:00	OCC	ER-II/KOL	BAY maintenance(AMP)	
	400 KV DURGAPUR-Jamshedpur	12/01/2017	09:00	12/01/2017	18:00	ODB	ER-II/KOL	LA/CVT Jumper correction	
	400kv Malda-Farakka Line-CKT-I	12/01/2017	09:00	12/01/2017	16:00	OBD	ER-II/KOL	To attend Punch point of M/s Sterlite	NLDC
	220KV Dalkhola-Kishanganj # II	12/01/2017	09:00 Hrs	12/01/2017	17:00 Hrs	ODB	ER-II/KOL	Loose span rectification & Bay AMP work	
	At BKTPP: 315 MVA IBT 1	12/01/2017	08:00	14/01/2017	08:00	ODB	WBSETCL	Winter Maintenance	
	132 KV Kh-Lalmtia line	12/01/2017	09:30hrs	12/01/2017	17:30 hrs	*ODB*	NTPC	*PM works & relay testing*	JHARKHAND

	220kV S'gram-WBSETCL Line #2	13/01/2017	08:30	13/01/2017	17:00	ODB	ER-II/KOL	AMP	WEST BENGAL
	400kV Bus Reactor-3 & Meramundali Line-1 TIE Bay (405)	13/01/2017	09:00	13/01/2017	15:00	ODB	ER-II/ODISHA	AMP WORK	
	Tie Bay-408 of 400KV Ind-Barat Line at Sundergarh	13/01/2017	09:00	13/01/2016	18:00	ODB	ER-II/ODISHA	FOR AMP WORK	
	220 KV NEW PURNEA-PURNEA#1 BAY CB AT PURNEA	13/01/2017	10:00	13/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	400 KV CHAIBASA-JAMSHEDPUR CKT-2	13/01/2017	09:00	13/01/2017	17:00	ODB	ER-I	ISOLATOR RECTIFICATION WORK.	
	315 MVA ICT-2 AT JAMSHEDPUR	13/01/2017	09:30	13/01/2017	17:30	ODB	ER-I	BAY CONSTRUCTION WORK	JHARKHAND
	400KV BUS-II AT MUZAFFARPUR	13/01/2017	10:00	13/01/2017	16:00	ODB	ER-I	TESTING OF LBB RELAY OF DARBHANGA BAY	
	400KV MAITHON GAYA-II AND 400KV KODERMA-	13/01/2017	09:00	13/01/2017	17:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY	
	400 kV KAHALGAON - BARH - II	13/01/2017	08:00	13/01/2017	17:00	ODB	ER-I	FOR REPLACEMENT OF BROKEN INSULATORS INSULATORS DAMAGED DUE T DENSED FOG	
	400kV NSLG-Kishanganj-2 Line	13/01/2017	07.00 hrs	13/01/2017	17.00 hrs	ODB	ER-II/KOL	Hot spot rectification	
	400kV Bus-I AT BINAGURI	13/01/2017	07.00 hrs	18/01/2017	17.00 hrs	ODB	ER-II/KOL	To facilitate hot spot rectification in Purnea-3 & 4 Line	
	125 MVAR Bus Reactor-II AT BINAGURI	13/01/2017	07.00 hrs	13/01/2017	17.00 hrs	ODB	ER-II/KOL	Tan Delta in Variable Frequency	
	220 KV BRP-Malbase	13/01/2017	08:00 Hrs	18/01/2017	17:00 Hrs	ODB	ER-II/KOL	CLR Insulator Replacement	NLDC
	315 MVA ICT#I at Durgapur	13/01/2017	15:00	13/01/2017	16:00	ODB	ER-II/KOL	Final commissioning of CB	DVC
	400kv Malda-Farakka Line-CKT-I	13/01/2017	09:00	13/01/2017	16:00	OBD	ER-II/KOL	To attend Punch point of M/s Sterlite	NLDC
	400KV Malda-New purnea # I	13/01/2017	09:00 Hrs	13/01/2017	17:00 Hrs	ODB	ER-II/KOL	New Hardware fitting fixing	
	At DGP: 3*105 MVA ICT 2	13/01/2017	09:00	14/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	
	400 KV Farakka - Sagardighi	13/01/2017	09:30hrs	13/01/2017	14:00 hrs	ODB	NTPC	Main bay CT testing (Line may remain in service)	
	315 MVA ICT-II AT SUBHASGRAM	14/01/2017	08:30	14/01/2017	17:00	ODB	ER-II/KOL	AMP	WEST BENGAL
	400kV Meramundali Line-1 Main Bay (406)	14/01/2017	09:00	14/01/2017	15:00	ODB	ER-II/ODISHA	AMP WORK	
	400 KV KEONJHAR LINE	14/01/2017	09:00	14/01/2017	18:00	ODB	ER-II/ODISHA	MAIN 2 RELAY RETROFICATION WORK	NLDC
	Tie Bay-417 of 400KV Bus Reactor-II at Sundergarh	14/01/2017	09:00	14/01/2016	18:00	ODB	ER-II/ODISHA	FOR AMP WORK	
	220 KV NEW PURNEA-PURNEA#2 BAY CB AT	14/01/2017	10:00	14/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	BALIA -4 MAIN BAY AT PATNA	14/01/2017	09:00	02/01/2017	17:00	ODB	ER-I	AMP WORK	
	400kV NSLG-Kishanganj-1 Line	14/01/2017	07.00 hrs	14/01/2017	17.00 hrs	ODB	ER-II/KOL	Hot spot rectification	
	315MVA ICT#1 AT BINAGURI	14/01/2017	07.00 hrs	14/01/2017	17.00 hrs	ODB	ER-II/KOL	Tan Delta in Variable Frequency	
	220 KV DURGAPUR-DVC#1	14/01/2017	11:00	14/01/2017	12:00	ODB	ER-II/KOL	CB Overhauling-trasfer load to transfer bus & protection	DVC
	400KV Malda-New purnea # I	14/01/2017	09:00 Hrs	14/01/2017	17:00 Hrs	ODB	ER-II/KOL	New Hardware fitting fixing	
	At BKTPP: 400 KV Main Bus 1	14/01/2017	08:00	16/01/2017	08:00	ODB	WBSETCL	Winter Maintenance	
	400 KV Farakka - Bus Reactor 2	14/01/2017	09:30hrs	14/01/2017	14:00 hrs	*ODB*	NTPC	*Main bay CT testing (Reactor may remain in service)*	
	400 KV BSF - VARANASI- 2	15/01/2017	09:00	17/01/2017	18:00	ODB	ER-I	FOR REPLACEMENT OF INSULATORS DAMAGED BY	NLDC
	400 kV PATNA - BARH - IV	15/01/2017	08:00	20/01/2017	17:00	ODB	ER-I	FOR REPLACEMENT OF PORCELAIN INSULATOR WITH POLYMER INSULATOR	
	220kV Bus-I AT BINAGURI	15/01/2017	07.00 hrs	15/01/2017	17.00 hrs	ODB	ER-II/KOL	Bus isolator hot spot rectification / CVT replacement	
	400kV NSLG-Rangpo Ckt-1	15/01/2017	07.00 hrs	16/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	
	315MVA ICT#2 AT BINAGURI	15/01/2017	07.00 hrs	15/01/2017	17.00 hrs	ODB	ER-II/KOL	Tan Delta in Variable Frequency	
	220kV S'gram-KLC Line	16/01/2017	08:30	16/01/2017	17:00	ODB	ER-II/KOL	AMP	WEST BENGAL

	220 KV SIDE OF 160 MVA ICT-II, BAY-210	16/01/2017	09:00	16/01/2017	18:00	ODB	ER-II/ODISHA	**NO OUTAGE LINE WILL REMAIN IN SERVICE THROUGH TBC BAY.** AMP OF BAY	ODISHA
	400kV Indravati Tie Bay(Bay no- 411) at Rengali	16/01/2017	09:00Hrs:	19/01/2017	17:00Hrs:	OCB	ER-II/ODISHA	Erection of Breaker for Bay extension work.	
	Main Bay-718 of 765KV Sundergarh-Dharamjaygarh Line# II at Sundergarh	16/01/2017	09:00	23/01/2016	18:00	ODB	ER-II/ODISHA	REFURBISHMENT OF 765KV CB FOR DCRM PROBLEM(CONSTRUCTIONAL DEFECT)	
	220 KV BUS COUPLER BAY CB AT PURNEA	16/01/2017	10:00	16/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION. BUT 220 KV BUS -1 AND BUS-2 WILL REMAIN ISOLATED AT PRN..	
	400 KV BUS-I AT JAMSHEDPUR	16/01/2017	09:30	16/01/2017	17:30	ODB	ER-I	BAY CONSTRUCTION WORK	
	SIPAT-I MAIN BAY-421 BAY AT RANCHI	16/01/2017	10:00	16/01/2017	17:30	ODB	ER-I	FOR AMP WORK	
	400 KV RANCHI -CHANDWA CIRCUIT-1	16/01/2017	10:00	16/01/2017	16:00	ODB	ER-I	REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS IN FOREST AREA	NLDC
	765 KV NEW RANCHI DHARAMJAYGARH -1 AT AT	16/01/2017	08:00	19/01/2017	18:00	ODB	ER-I	FOR REPLACEMENT OF QUAD DROPPER INTO TWIN FOR	NLDC
	80 MVAR B/R AT LAKHISARAI	16/01/2017	08:00	19/01/2017	18:00	ODB	ER-I	HVWS WORK AND CONSTRUCTION OF FIREWALL	
	400kv Malda-Farakka Line-CKT-II	16/01/2017	09:00	16/01/2017	16:00	OBD	ER-II/KOL	To attend Punch point of M/s Sterlite	NLDC
	400KV Malda-New purnea # II	16/01/2017	09:00 Hrs	16/01/2017	17:00 Hrs	ODB	ER-II/KOL	New Hardware fitting fixing	
	At DGP: 315 MVA ICT 1	16/01/2017	09:00	16/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	
	At BKTPP: 315 MVA IBT 2	16/01/2017	08:00	18/01/2017	08:00	ODB	WBSETCL	Winter Maintenance	
	220kV S'gram-Newtown Line #2	17/01/2017	08:30	17/01/2017	17:00	ODB	ER-II/KOL	AMP	WEST BENGAL
	765kV ICT-4 Main Bay(713)	17/01/2017	09:00	17/01/2017	17:00	ODB	ER-II/ODISHA	AMP WORK	NLDC
	Non-Auto mode of Auto-Reclosure in 765KV Angul-	17/01/2017	09:00	31/01/2017	17:00	ODB	ER-II/ODISHA	Rectification works of OPGW works	
	400 KV Indravati-Rengali line	17/01/2017	10:00	17/01/2017	15:00	ODB	ER-II/ODISHA	Testing of 50MVAR L/R in Rengali Line before charging. And	NLDC
	400KV Keonjhar-Rengali Line at Keonjhar	17/01/2017	09:00	19/01/2017	18:00	OCB	ER-II/ODISHA	For OPGW Stringing Work	
	220 KV TRANSFER BUS COUPLER BAY CB AT PURNEA	17/01/2017	10:00	17/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	MAIN BAY NEW SILIGURI -2 (BAY NO 404) AT NEW	17/01/2017	10:00	17/01/2017	18:00	ODB	ER-I	AMP	
	BAY NO. 423 (TIE BAY OF SIPAT-II & FUTURE LINE-) AT RANCHI	17/01/2017	10:00	17/01/2017	17:30	ODB	ER-I	FOR AMP WORK	
	400 KV RANCHI -CHANDWA CIRCUIT-2	17/01/2017	10:00	17/01/2017	16:00	ODB	ER-I	REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	NLDC
	400KV FARAKKA - KAHALGAON CKT. # III & IV	17/01/2017	09:00	20/01/2017	18:00	OCB	ER-I	FOR POWER LINE CROSSING OF EXISTING 400 KV	
	500MVA ICT-3 AT MUZAFFARPUR	17/01/2017	10:00	21/01/2017	16:00	OCB	ER-I	REPLACEMENT OF BUSHING AND TURRET GASKETS.	BIHAR
	TIE BAY OF 765KV B/R-2 & FUTURE (708) AT NEW	17/01/2017	08:00	18/01/2017	18:00	ODB	ER-I	BAY AMP	
	SIPARA -2 BAY AT PATNA	17/01/2017	09:00	17/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERUPPTION. LINE WILL BE	
	220kV Bus-II AT BINAGURI	17/01/2017	07.00 hrs	17/01/2017	17.00 hrs	ODB	ER-II/KOL	Bus isolator hot spot rectification	
	400kV NSLG-Rangpo Ckt-2	17/01/2017	07.00 hrs	18/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	
	220 KV BINAGURI-Birpara-1	17/01/2017	09:30 HRS	17/01/2017	17:30 HRS	ODB	ER-II/KOL	CB Ovrhauling	
	400 KV BONG- NEW SLG-1&2- LINE	17/01/2017	07:00	20/01/2017	16:00	ODB	ER-II/KOL	800KV LILO work- Crossing at LINE IN-AP 10/0 -AP 11/0	NLDC
	400kv Malda-Farakka Line-CKT-II	17/01/2017	09:00	17/01/2017	16:00	OBD	ER-II/KOL	To attend Punch point of M/s Sterlite	NLDC
	400KV Malda-New purnea # II	17/01/2017	09:00 Hrs	17/01/2017	17:00 Hrs	ODB	ER-II/KOL	New Hardware fitting fixing	
	315 MVA ICT-V AND 400 KV BUS-2 AT MALDA	17/01/2017	09:00 Hrs	17/01/2017	17:00 Hrs	ODB	ER-II/KOL	CT Change for R & Y Phase	WEST BENGAL
	At DGP: 400 KV TBC Bay	17/01/2017	09:00	17/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	
	765kV ICT-4 and BR-2 TIE Bay (714)	18/01/2017	09:00	18/01/2017	17:00	ODB	ER-II/ODISHA	AMP WORK	NLDC
	400 kV Bus-I at Jeypore	18/01/2017	09:30	18/01/2017	13:30	ODB	ER-II/ODISHA	For Relay Testing after Retrofitting of BusBar Protection System	
	400 kV Bus-II at Jeypore	18/01/2017	14:00	18/01/2017	18:00	ODB	ER-II/ODISHA	For Relay Testing after Retrofitting of BusBar Protection System	
	220 KV SIDE OF 160 MVA ICT-1 BAY CB AT PURNEA	18/01/2017	10:00	18/01/2017	11:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	400 KV BUS-II AT JAMSHEDPUR	18/01/2017	09:30	18/01/2017	17:30	ODB	ER-I	BAY CONSTRUCTION WORK	

	400 KV CHANDWA-GAYA CIRCUIT-1	18/01/2017	10:00	18/01/2017	16:00	ODB	ER-I	REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS IN FOREST AREA	NLDC
	400 KV KHG - LAKHISARAI- CKT. I	18/01/2017	09:00	18/01/2017	18:00	ODB	ER-I	FOR INSULATOR REPLACEMENT FOUND DEFECTIVE AFTER PID	
	220 KV BUS-I with Bus Coupler	18/01/2017	09:00 Hrs	18/01/2017	17:00 Hrs	ODB	ER-II/KOL	Jumper Change	
	At DGP: 400 KV Bus Coupler Bay	18/01/2017	09:00	18/01/2017	09:00	ODB	WBSETCL	Winter Maintenance	
	At BKTPP: 400 KV Main Bus 2	18/01/2017	08:00	20/01/2017	08:00	ODB	WBSETCL	Winter Maintenance	
	315 MVA ICT-III AT SUBHASGRAM	19/01/2017	08:30	19/01/2017	17:00	ODB	ER-II/KOL	AMP & Overcurrent Relay Relay retrofit	WEST BENGAL
	765kV Bus Reactor-2 main bay (715)	19/01/2017	09:00	19/01/2017	17:00	ODB	ER-II/ODISHA	AMP WORK	NLDC
	220 kV Bus-I at Jeypore	19/01/2017	09:30	19/01/2017	13:30	ODB	ER-II/ODISHA	For Relay Testing after Retrofitting of BusBar Protection System	ODISHA
	220 kV Bus-II at Jeypore	19/01/2017	14:00	19/01/2017	18:00	ODB	ER-II/ODISHA	For Relay Testing after Retrofitting of BusBar Protection System	ODISHA
	220 KV SIDE OF 160 MVA ICT-2 BAY CB AT	19/01/2017	10:00	19/01/2017	11:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	400KV BUS-1 AT NEW PURNEA	19/01/2017	10:00	19/01/2017	18:00	ODB	ER-I	AMP	
	400 KV JSR-DURGAPUR	19/01/2017	09:30	19/01/2017	17:30	ODB	ER-I	BAY CONSTRUCTION WORK	
	400 KV CHANDWA-GAYA CIRCUIT-2	19/01/2017	10:00	19/01/2017	16:00	ODB	ER-I	REPLACEMENT OF INSULATORS DAMAGED BY MISCREANTS	NLDC
	400 KV KHG - LAKHISARAI- CKT. II	19/01/2017	09:00	19/01/2017	18:00	ODB	ER-I	FOR INSULATOR REPLACEMENT FOUND DEFECTIVE AFTER PID	
	TIE BAY OF 765KV B/R-1 & FUTURE (711) AT	19/01/2017	08:00	20/01/2017	18:00	ODB	ER-I	BAY AMP	
	SIPARA -1 BAY AT PATNA	19/01/2017	09:00	19/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERUPPTION. LINE WILL BE	
	220 KV DURGAPUR-DVC#2	19/01/2017	11:00	19/01/2017	12:00	ODB	ER-II/KOL	Final commissioning of CB	DVC
	400 KV Kahalgaon - Barh#2	19/01/2017	09:30hrs	19/01/2017	17:30 hrs	*OCB*	NTPC	*PM works & relay testing*	
	400 KV Farakka - Bus Reactor 1	19/01/2017	09:30hrs	19/01/2017	17:30 hrs	*ODB*	NTPC	*Relay testing*	
	765kV, 3*100 MVAR Bus Reactor-2	20/01/2017	09:00	20/01/2017	15:00	ODB	ER-II/ODISHA	AMP WORK	NLDC
	ICT-I (3x 105 MVA) at Jeypore	20/01/2017	10:30	20/01/2017	11:30	ODB	ER-II/ODISHA	For changing ICT-I combination form Unit-I,III, IV to Unit-I,II and III for charging Unit-II after Overhauling works	ODISHA
	400KV Keonjhar-Baripada Line at Keonjhar	20/01/2017	09:00	20/01/2017	18:00	ODB	ER-II/ODISHA	For jointing & splicing works of OPGW Stringing.	
	220 KV SIDE OF 160 MVA ICT-3 BAY CB AT PURNEA	20/01/2017	10:00	20/01/2017	11:00	ODB	ER-I	AMP WORK. NO POWER INTERRUPTION.	
	400KV BUS-II AT RANCHI	20/01/2017	08:00	20/01/2017	18:00	ODB	ER-I	CVT REPLACEMENT OF BUS-II. DURING S/D BUS-II 400 KV RNC-NRNC-I & 2 WILL ALSO REMAIN OUT OF SERVICE.	
	400 KV BUS REACTOR-1 AT CHANDWA	20/01/2017	10:00	20/01/2017	16:00	ODB	ER-I	FOR CHECKING AND REPLACING OF THE RELIEF VALVES OF ALL THE HYDRAULIC CIRCUIT BREAKERS AT GIS CHANDWA BY	
	400 KV LAKHISARAI - BSF CKT. I	20/01/2017	09:00	20/01/2017	18:00	ODB	ER-I	FOR INSULATOR REPLACEMENT FOUND DEFECTIVE AFTER PID	
	400 kV LAKHISARAI- KAHALGAON-1	20/01/2017	08:00	20/01/2017	08:10	ODB	ER-I	FOR TAKING LINE REACTOR OUT OF SERVICE	
	50 MVAR L/R OF 400 kV LKR-KHG Line-1 AT	20/01/2017	08:00	23/01/2017	18:00	OCB	ER-I	HVWS WORK AND CONSTRUCTION OF FIREWALL	
	220 KV BUS COUPLER AT PATNA	20/01/2017	09:00	20/01/2017	17:00	ODB	ER-I	AMP WORK. NO POWER INTERUPPTION BUT 220 KV BUS -1 AND 2 AT PATNA WILL REMAN IN ISOLATED CONDITION.	BIHAR
	220kV NSLG-BRP Ckt-I & II	20/01/2017	9.00 hrs	30/12/2016	17.00 hrs	OCB	ER-II/KOL	PG clamp removal / Tower shifting at loc 178 by N F Railway	NLDC
	400kV NSLG-Purnea Ckt-1	20/01/2017	07.00 hrs	22/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	
	220 KV BINAGURI-Siliguri-2	20/01/2017	09:30 HRS	20/01/2017	17:30 HRS	ODB	ER-II/KOL	CB Ovrhauling	

	220 KV ICT#2 MAIN CB at Durgapur	20/01/2017	11:00	20/01/2017	12:00	ODB	ER-II/KOL	CB Overhauling-trasfer load to transfer bus & protection testing	DVC
	At BKTPP: 315 MVA IBT 1	20/01/2017	08:00	22/01/2017	08:00	ODB	WBSETCL	Winter Maintenance	
	400 KV Farakka - Malda 2	20/01/2017	09:30hrs	20/01/2017	14:00 hrs	*ODB*	NTPC	*Main bay CT testing (Line may remain in service)*	
	220 KV BUS # 1 AT SUBHASGRAM	21/01/2017	08:30	21/01/2017	17:00	ODB	ER-II/KOL	Line Isolator Bph Moving Arm replacement	
	400 KV MAIN BUS-COUPLER AT CHANDWA	21/01/2017	10:00	21/01/2017	16:00	ODB	ER-I	FOR CHECKING AND REPLACING OF THE RELIEF VALVES OF	
	400 KV LAKHISARAI - BSF CKT. II	21/01/2017	09:00	21/01/2017	18:00	ODB	ER-I	FOR INSULATOR REPLACEMENT FOUND DEFECTIVE AFTER PID	
	220 KV BINAGURI- Siliguri-1	21/01/2017	09:30 HRS	21/01/2017	17:30 HRS	ODB	ER-II/KOL	CB Ovrhauling	
	160 MVA ICT-II (BHEL MAKE) AT BIRPARA	21/01/2017	07:00 Hrs	21/01/2017	17:00 Hrs	ODB	ER-II/KOL	AMP of the Bay,ICT,220 KV Main Bus -II Replacement. During the said S/D period 220 KV BRP- NSLG- I is proposed to be charged through 220 KV TBC .	WEST BENGAL
	220 KV BRP- NSLG-II	21/01/2017	07:00 Hrs	21/01/2017	17:00 Hrs	ODB	ER-II/KOL	AMP of the Bay,ICT,220 KV Main Bus -II Replacement. During	
	400 KV Farakka - Kahalgaon 3	21/01/2017	09:30hrs	21/01/2017	14:00 hrs	*ODB*	NTPC	*Main bay CT testing (Line may remain in service)*	
	22OKV BUS-II AT GAYA S/S	22/01/2017	08:00	22/01/2017	18:00	ODB	ER-I	FOR KHIJARSARAI BAY COMMISIONING WORK	BIHAR
	400 kV PATNA - BALIA - III	22/01/2017	08:00	30/01/2017	17:00	ODB	ER-I	FOR REPLACEMENT OF PORCELAIN INSULATOR WITH POLYMER INSULATOR	NLDC
	220 KV BINAGURI- Siliguri-1	22/01/2017	09:30 HRS	22/01/2017	17:30 HRS	ODB	ER-II/KOL	CB Ovrhauling	
	160 MVA ICT-I (ALSTOM Make) AT BIRPARA	22/01/2017	07:00 Hrs	22/01/2017	17:00 Hrs	ODB	ER-II/KOL	AMP of the Bay,ICT,220 KV Main Bus -II Replacement. During the above S/D period 220 KV BRP- NSLG-II and 220 KV BRP-	WEST BENGAL
	220 KV BRP- NSLG-I	22/01/2017	07:00 Hrs	22/01/2017	17:00 Hrs	ODB	ER-II/KOL	AMP of the Bay,ICT,220 KV Main Bus -II Replacement.During	
	400 KV Farakka- Sagardighi S/c	22/01/2017	09:00	22/01/2017	17:00	ODB	ER-II/KOL	AMP for 2016-17	WEST BENGAL
	MAITHON-DURGAPUR LINE I&II (Both Circuit)	22/01/2017	09:00	10/02/2017	18:00	OCB	ER-II/KOL	Errection ,Dismentalling, of tower at loc no 35 & Stringing and destringing of conductor from loc no 33 to 36. for Diversion of Maithon-Durgapur line.	NLDC
	132 KV Main Bus AT MALDA	22/01/2017	09:00 Hrs	22/01/2017	17:00 Hrs	ODB	ER-II/KOL	Jumper Change	WEST BENGAL
	765KV 240MVAR Bus Reactor-I at Sundergarh	23/01/2017	09:00	24/01/2016	18:00	ODB	ER-II/ODISHA	FOR RTV COATING OF 765KV BUSHING	NLDC
	SIPAT-II MAIN BAY-424 AT RANCHI	23/01/2017	10:00	23/01/2017	17:30	ODB	ER-I	FOR AMP WORK.	
	400KV KAHALGAON - MAITHAN CKT. # I & II	23/01/2017	09:00	25/01/2017	18:00	OCB	ER-I	FOR POWER LINE CROSSING OF EXISTING 400 KV KAHALGAON - MAITHAN (LOC. NO.: 17 TO 18) LINE, 400 KV	
	765KV L/R OF 765 KV NEW RANCHI DHARAMJAYGARH -2 AT AT NEW RANCHI	23/01/2017	09:00	25/01/2017	18:00	ODB	ER-I	RTV COATING OF TRENCH MAKE BUSHING	NLDC
	MAIN BAY OF 765KV/400 KV ICT-2 (706) AT NEW RANCHI	23/01/2017	08:00	23/01/2017	18:00	ODB	ER-I	BAY AMP	
	400 kV LAKHISARAI- KAHALGAON-1	23/01/2017	18:00	23/01/2017	18:10	ODB	ER-I	FOR TAKING LINE REACTOR IN SERVICE	
	400kV NSLG-Purnea Ckt-2	23/01/2017	07.00 hrs	25/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	
	400 kv New Siliguri- Bongaigaon -I and II	23/01/2017	08:00 Hrs	31/01/2017	17:00 Hrs	OCB	ER-II/KOL	Erection, Stringing in Span of 466-467, and 467-468.(Railway	NLDC
	315MVA ICT# IV and 400 KVHaldia Line #1	24/01/2017	08:30	24/01/2017	17:00	ODB	ER-II/KOL	Protection checking of ICT#4 , Haldia Lin #1 and ICT#4 S/d is	WEST BENGAL
	Tie Bay-711 of 765KV Sundergarh-Angul Line# I at	24/01/2017	09:00	30/01/2016	18:00	ODB	ER-II/ODISHA	REFURBISHMENT OF 765KV CB FOR DCRM	
	400KV BUS-I AT RANCHI	24/01/2017	08:00	24/01/2017	18:00	ODB	ER-I	CVT REPLACEMENT OF BUS-I.	
	765KV BUS-I AT GAYA S/S	24/01/2017	10:00	25/01/2017	18:00	ODB	ER-I	FOR ISOLATOR RECTIFICATION WORK	NLDC
	MAIN BAY OF 765KV B/R-2 (707) AT NEW RANCHI	24/01/2017	08:00	24/01/2017	18:00	ODB	ER-I	BAY AMP	
	400 kV LAKHISARAI- KAHALGAON-2	24/01/2017	18:00	24/01/2017	18:10	ODB	ER-I	FOR TAKING LINE REACTOR IN SERVICE	
	400 KV BUS -2 AT PATNA	24/01/2017	09:00	25/01/2017	17:00	ODB	ER-I	AMP WORK	
	400KV BONGAIGAON - NEW SILIGURI CIRCUIT # 3	24/01/2017	07:00	27/01/2017	16:00	ODB	ER-II/KOL	800KV LILO work- Crossing at LINE IN-AP10/0 -AP11/0	NLDC

	220 KV ICT#2 MAIN CB at Durgapur	24/01/2017	11:00	24/01/2017	12:00	ODB	ER-II/KOL	Final commissioning of CB	
	765KV 240MVAR Bus Reactor-II at Sundergarh	25/01/2017	09:00	26/01/2016	18:00	ODB	ER-II/ODISHA	FOR RTV COATING OF 765KV BUSHING	NLDC
	765KV BUS-II AT GAYA S/S	25/01/2017	10:00	25/01/2017	18:00	ODB	ER-I	FOR ISOLATOR RECTIFICATION WORK	NLDC
	MAIN BAY OF 765KV B/R-1 (710) AT NEW	25/01/2017	08:00	25/01/2017	18:00	ODB	ER-I	BAY AMP	
	220kV SLG-Kishanganj Ckt-1	26/01/2017	07.00 hrs	26/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	
	400 KVHaldia Line #2	27/01/2017	08:30	27/01/2017	17:00	ODB	ER-II/KOL	Attending Hotspot of line Isolator	WEST BENGAL
	765KV 240MVAR Angul Line Reactor-I at Sundergarh	27/01/2017	09:00	28/01/2016	18:00	ODB	ER-II/ODISHA	FOR RTV COATING OF 765KV BUSHING	NLDC
	400 KV BUS-I of NTPC Farakka	27/01/2017	09:00	28/01/2017	17:00	ODB	ER-II/KOL	Bus-I connection for newly constrcuted 400 KV Farakka-Rajarhat bay and 400 KV Farakka- Purnea bay (under ERSS-V). BUS bar-I stability test has to also carried out.	NTPC FARAKKA
	220 KV BUS-II with Bus Coupler	27/01/2017	09:00 Hrs	27/01/2017	17:00 Hrs	ODB	ER-II/KOL	Jumper Change	
	At BKTPP: 315 MVA IBT 2	27/01/2017	08:00	29/01/2017	08:00	ODB	WBSETCL	Winter Maintenance	
	400 KV Farakka - Durgapur 2	27/01/2017	09:30hrs	27/01/2017	17:30 hrs	*ODB*	NTPC	*Relay testing*	
	220kV Bus Coupler Bay AT SUBHASGRAM	28/01/2017	08:30	28/01/2017	17:00	ODB	ER-II/KOL	AMP	
	220kV SLG-Kishanganj Ckt-2	28/01/2017	07.00 hrs	28/01/2017	17.00 hrs	ODB	ER-II/KOL	Insulator replacement in crossings	
	400 KV Farakka - Kahalgaon 4	28/01/2017	09:30hrs	28/01/2017	14:00 hrs	*ODB*	NTPC	*Tie bay CT testing (Line may remain in service)*	
	400 KV BUS-II of NTPC Farakka	29/01/2017	09:00	30/01/2017	17:00	ODB	ER-II/KOL	Bus-II connection for newly constrcuted 400 KV Farakka-Rajarhat bay and 400 KV Farakka- Purnea bay (under ERSS-V). BUS bar-II stability test has to also carried out.	
	400KV BARH PATNA LINE 4 MAIN BAY, BAY NO-	29/01/2017	09:30hrs	30/01/2017	18:00 hrs	*OCB*	NTPC	*PM Job of Bay & Relay test.*	
	400KV BARH PATNA LINE 4 TIE BAY, BAY NO-11	29/01/2017	09:30hrs	30/01/2017	18:00 hrs	*OCB*	NTPC	*PM Job of Bay & Relay test.*	
	400kV Jeerat-Baharampur	30/01/2017	08:30	30/01/2017	17:00	ODB	ER-II/KOL	AMP (Bay + Protection System)	WEST BENGAL
	765KV 240MVAR Angul Line Reactor-II at	30/01/2017	09:00	31/01/2016	18:00	ODB	ER-II/ODISHA	FOR RTV COATING OF 765KV BUSHING	NLDC
	400 KV BONG- NEW SLG-1&2- LINE	31/01/2017	07:00	02/02/2017	16:00	ODB	ER-II/KOL	800KV LILO work- Crossing at LINE IN-AP18/0 -AP19/0	NLDC
	400 kV PATNA - BALIA - IV	02/02/2017	08:00	10/02/2017	17:00	ODB	ER-I	FOR REPLACEMENT OF PORCELAIN INSULATOR WITH	NLDC
	400 KV BONG- NEW SLG-1&2- LINE	07/02/2017	07:00	10/02/2017	16:00	ODB	ER-II/KOL	800KV LILO work- Crossing at LINE IN-AP12/0 -AP13/0	NLDC
	At BKTPP: Jerat bay	31/12/2017	09:00	11/01/2017	09:00	OCB	WBSETCL	Winter Maintenance	

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	3600	2344
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	446	359
		- Central Sector	2320	1599
	iii)	SURPLUS(+)/DEFICIT(-)	-835	-385
2		**JHARKHAND**		
	i)	NET MAX DEMAND	1200	800
	ii)	NET POWER AVAILABILITY- Own Source (including bilateral)	433	358
		- Central Sector	490	304
	iii)	SURPLUS(+)/DEFICIT(-)	-277	-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	3650	2010
	ii)	NET POWER AVAILABILITY- Own Source	2700	1615
		- Central Sector	1063	697
	iii)	SURPLUS(+)/DEFICIT(-)	113	302
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	180	-17
		- Central Sector	1516	918
	v)	SURPLUS(+)/DEFICIT(-)	515	316
	vi)	EXPORT (TO B'DESH & SIKKIM)	5	4
5.2		**DPL**		
	i)	NET MAX DEMAND	230	208
	ii)	NET POWER AVAILABILITY	410	191
	iii)	SURPLUS(+)/DEFICIT(-)	180	-17
5.3		**CESC**		
	i)	NET MAX DEMAND	1400	655
	ii)	NET POWER AVAILABILITY - OWN SOURCE	460	328
		FROM HEL	270	286
		FROM CPL/PCBL	40	0
		Import Requirement	630	41
	iii)	TOTAL AVAILABILITY	1440	655
	iv)	SURPLUS(+)/DEFICIT(-)	40	0
6		**WEST BENGAL (WBSEDCL+DPL+CESC)** **(excluding DVC's supply to WBSEDCL's command area)**		
	i)	NET MAX DEMAND	6639	3849
	ii)	NET POWER AVAILABILITY- Own Source	4698	2920
		- Central Sector+Others	2416	1204
	iii)	SURPLUS(+)/DEFICIT(-)	475	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**	17493	10801
		Long term Bi-lateral by DVC	1300	967
		EXPORT BY WBSEDCL	5	4
	ii)	**NET TOTAL POWER AVAILABILITY OF ER** **(INCLUDING C/S ALLOCATION)**	19810	11998
	iii)	**PEAK SURPLUS(+)/DEFICIT(-) OF ER** **(ii)-(i)**	1012	226

Annexure-D4

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उध्यम)

POWER GRID CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)

पावरग्रिड

पू.क्षे.पा.प्र.-1,C-09, जे.सी.पी. ग्रुप कार्यालय, 400/220 केवी उपकेन्द्र, (जमशेदपुर),रामचन्द्रपुर,गम्हरिया,सराइकेला. 832108

ERTS-1, C-09, JCP Group Office,400/220kV SS (Jamshedpur),Ramchandrapur,Gamharia,Seraikela, JH-832108 . E-Mail: jcptatanagar@gmail.com

ER-I/JCP/JSR/TW-03/R-J/DVC Xing/ 22-12-2016

The Member Secretary
ERPC ,14, Golf Club Road,
Kolkata 700 033

Sub : NOC from DVC in respect of Power line Crossing for 132KV D/C RCP – JDG Tr. Line Over DVC's 220KV S/C JSR – JODA (Line no. 215).

Dear Sir,

It is intimated that POWERGRID is engaged as a Consultant to JUSNL in construction of Tr. Lines and sub station. One of them is 132kV D/C Ramchandrapur - Jadugora which is Over Crossing DVC's 220KV S/C JSR – JODA (Line no. 215).

The Chronological activities for obtaining the NOC is furnished as below :

- 25-02-2016 : Proposal submitted to CE (SPE) DVC vide letter no. 1968
- 10-06-2016 : Joint Inspection held and signed.
- 15-06-2016 : Stringing chart sent to DVC.
- 30-11-2016 : Joint Additional survey conducted to explore the feasibility of Crossing using 132kV Gantry design furnished by DVC but required clearance could not be obtained including OPGW stringing in 132kV D/C R – J line..
- 02-12-2016 : The above was substantiated to DVC with Survey report vide letter no. 2515.
- 08-12-2016 : DVC vide letter no. 961 have requested CEA's endorsement for the issue of Lower Voltage Line Over Crossing the Higher Voltage line. Copy attached please.

Conclusion :

As per CEA (Measures relating to Safety & Electric Supply) vide its Clause no. 59 (2), no such condition prevails that any Lower Voltage Line cannot over-cross Higher Voltage line. It is needless to mention that required Electrical Clearance has been met while Over Crossing DVC's line.

Request : For redress please.

Thanking you,

Yours faithfully,

22/12/16

(R Ganguly)
DGM (JCP) JSR

DAMODAR VALLEY CORPORATION
ELECTRICITY DEPARTMENT, SPE Section
9th FLOOR, DVCTOWERS, VIP ROAD,KOLKATA - 700 054
Website: www.portal.dvc.gov.in
PHONE:+913366072939/2938/2937 2355 6043 FAX: +913323559618

No. EDCON/SPE/Line Crossing/ 261 Date: 08/12/16

To,
The DGM,
Jharkhand Consultancy Project,
PGCIL, ERTS-1, JCP Group Office,
400/200kV SS, Ramchandrapur,
Gamaharia, Seraikela, Jamshedpur,
Jharkhand-832108

Sub: Crossing of PGCIL's proposed **132kV D/C RCP-JDG Tr. Line** with existing **DVC 220kV S/C JSR – JODA Tr. Line (L#215).**

Ref: (1) Your letter no.ER-1/JCP/JSR/TW-03/R-J/DVC-Xing/2512 dtd. 30.11.2016
(2) Your letter no.ER-1/JCP/JSR/TW-03/R-J/DVC-Xing/2515 dtd. 02.12.2016

****

Dear Sir,

Reference to your letter dtd.02.12.2016 in continuation of your earlier letter dtd.30.11.2016, it is understood that a joint survey of the site has been carried out on 30.11.2016 for exploring the possibility of crossing of proposed 132kV D/C RCP-JDG Tr. Line of PGCIL underneath the existing 220kV S/C JSR-JODA Tr. Line of DVC. However the copy of MOM, if any, is not available with your letter.

You have expressed in the letter that due to inadequate Electrical Clearance, underneath crossing of proposed 132kV D/C RCP-JDG Tr. Line of PGCIL is not possible.

You will appreciate that the proposed crossing of PGCIL line is considered as a deviation from the standard practice of crossing the transmission line of lower voltage level underneath the transmission line of higher voltage. Hence it is thought better to get your proposal of crossing of lower voltage line over higher voltage line duly endorsed by CEA Authority.

You are requested to please arrange the view of CEA in this regard to dispose the case at the earliest.

Yours faithfully

8/12/16
Dy. Chief Engineer (E)